Staff Report to the Zoning Administrator

Application Number: 07-0666

Applicant: Dee Murray
Owner: Sandra Berry
APN: 074-191-02

Agenda Date: January 16, 2009
Agenda Item #: 8.
Time: After 10:00 a.m.

Project Description: Proposal to rectify a red tag by recognizing a replacement single family dwelling on site with an existing garage and a shed (to be demolished).

Location: Property located on the west side of Lompico Road approximately 50 feet from the corner of East Zayante and Lompico Road (8969 Lompico Road).

Supervisoral District: Second District (District Supervisor: Ellen Pirie)

Permits Required: Variance to reduce the required 40 foot front yard setback to about 31 feet and Riparian Exception
Technical Reviews: Geologic and Geotechnical Reports, Preliminary Grading Review

Staff Recommendation:

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 07-0666, based on the attached findings and conditions.

Exhibits

A. Project plans
B. Findings
C. Conditions
D. Categorical Exemption (CEQA determination)
E. Assessor's parcel map
F. Zoning & General Plan map
G. Location Map
H. Printout, Discretionary application comments, dated 10/29/08
I. Geotechnical Engineering Report review letter, dated 5/07/08
J. Excerpts of Discussion, Conclusions and Recommendation from Geotechnical Investigation prepared by Tharp & Associates,Inc., dated 8/3/01 (report on file)
K. Excerpts of Conclusions and Recommendations prepared by Nolan & Associates, dated 4/17/08 (report on file).
L. Comments & Correspondence

Parcel Information

Parcel Size:	49,223 square feet
Existing Land Use - Parcel:	Residential
Existing Land Use - Surrounding:	Residential
Project Access:	Lompico Road
Planning Area:	San Lorenzo Valley
Land Use Designation:	R-M (Mountain Residential)
Zone District:	PR (Parks, Recreation and Open Space)
Coastal Zone:	__ Inside x Outside
Appealable to Calif. Coastal Comm.	__ Yes x No

Environmental Information

Geologic Hazards:	Slope instability
Soils:	157 (Nisene-Aptos Complex 50-75% slopes); 158 (Nisene-Aptos Complex 30-50% slopes)
Fire Hazard:	Not a mapped constraint
Slopes:	Over 50% at rear of property
Env. Sen. Habitat:	Lompico Creek
Grading:	Less than 100 cubic yards
Tree Removal:	No trees proposed to be removed
Scenic:	Not a mapped resource
Drainage:	Existing drainage adequate
Archeology:	Not mapped/no physical evidence on site

Services Information

Urban/Rural Services Line:	__ Inside x Outside
Water Supply:	San Lorenzo Valley Water District
Sewage Disposal:	Septic
Fire District:	Zayante Fire District
Drainage District:	Zone 8

History

The property was developed with a single family dwelling, garage and pool that were built prior to 1956 per the Assessor's records. In August 2000, a reroof permit (#0126093) was issued for the existing residence. The permit was issued a stop work when the existing home was demolished down to the subfloor and rebuilt, exceeding the original scope of work allowed by the reroof permit. A red tag was issued in December 2000. On November 5, 2007, the County Planning Department accepted an application for a Variance to reduce the required forty foot front yard setback. The proposed setback is to be reduced to approximately 31 feet.

Project Setting

The property is located on a long narrow parcel along 8969 Lompico Road. It gently slopes west

to Lompico Creek, a perennial stream that runs the entire length of the parcel, approximately 430 feet. The rear 20 to 30 feet of the property slopes steeply to the creek. The existing and proposed home are located within the 60 foot riparian setback along with the majority of improvements on the parcel.

A grove of redwood trees is located in the northern half of the property. Two single-family residences to the north, vacant timber acreage border the parcel across the street and a camp to the west across the creek.

Engineering Geologic and Geotechnical Engineering reports were completed and accepted (Exhibit I) by the County Geologist. The reports analyzed the property and concluded that the slope instability affects the majority of the property (Exhibit J & K). Therefore, construction of a new home anywhere on the parcel would be subject to the same hazards and mitigation measures as the existing location that is proposed.

Zoning & General Plan Consistency

The subject property is a 49,223 square foot lot, located in the PR (Parks, Recreation and Open Space) zone district, a designation which allows residential uses. For single-family dwellings and accessory structures, the district development standards are as those contained in County Code 13.10.323(b) pertaining to residential districts and are on the size of the parcel. The subject parcel is evaluated as a Residential Agriculture (RA) parcel, which has a minimum 1 acre parcel size. Therefore, the proposed Single Family Dwelling is a principal permitted use within the zone district and the project is consistent with the site's (R-M) Mountain Residential General Plan designation.

The bottom floor of the single family dwelling is marked on the plans as "unconditioned basement", however, it does not meet the definition of a basement (County Code 13.10.700-B). A condition has been included to designate the room as non-habitable storage and record a Declaration of Restriction to maintain that space as non-habitable area.

A portion of the existing garage sits within the Lompico Road 40-foot right of way and therefore is considered to be significantly non-conforming. This application does not grant a variance to the existing garage and therefore any structural alteration, extension, reconstruction or structural alteration cannot be made to any significantly nonconforming structure unless a variance and a Level V Use Approval is obtained.

Riparian Exception

The applicant proposes to construct a replacement dwelling, install a shotcrete apron on a portion of the Lompico Creek bank and install a retaining wall to protect the existing septic tank from slope failure. The western property line abuts Lompico Creek, which requires a sixty foot riparian setback. Engineering Geology and Geotechnical reports were submitted and accepted by the County (Exhibit I) that demonstrates that the majority of the parcel is subject to erosion. Therefore, building the home on any portion of the parcel would require mitigation measures similar to the proposed location. A site on the northern portion of the parcel was reviewed as a possible location for the replacement home, however, the geologic and geotechnical reports state

that the majority of the parcel is subject to erosion and would require stream bank protection. In addition, the location of the existing structure would require less grading and no removal of trees as opposed to the alternate site. The findings to grant the riparian exception have been made based on the facts that there is very limited developable area outside of the riparian setback, the exception is necessary for the proper design and function of the single family dwelling and stream bank protection will protect the home from future bank failures.
The project has been conditioned to include a detailed erosion plan, prepared by a Certified Professional in Erosion and Sediment Control. The plan shall include the location and construction details of all proposed erosion control measures and shall include temporary measures that will ensure no sediment will enter the stream during construction of the concrete wall. In addition, the applicant shall provide a revegetation/restoration plan. The plan shall include the number, location, and species of all proposed riparian planting to occur in the vicinity of the retaining wall where native vegetation does not currently exist. The plan shall be reviewed and approved by Environmental Planning staff. Prior to any ground disturbance a preconstruction meeting shall be held onsite. The meeting shall include the applicant, geotechnical engineer, project geologist, County Geologist and Resource Planner.

Variance

The applicant is requesting a variance to the required 40- foot front yard setback in order to build a replacement single family dwelling. In order to approve a variance, three findings must be made. The first finding requires that there be a special circumstance applicable to the property. In this case the subject parcel is long and narrow, between 75 and 160 feet wide, that is bordered on the east by Lompico Road, a 40 foot right of way, and Lompico Creek on the west. The Lompico Road right of way encroaches 28 feet into the subject parcel, further reducing the area available to meet the required 40- foot front yard setback. In addition, the Lompico Creek riparian setback has been established to be 60 feet. These two constraints result in an area of only 400-600 square feet within which a single family dwelling may fit without a variance. Due to the parcel's configuration and location between the wide right of way and creek, in order to build a feasible single family dwelling, a variance to the required 40 foot front yard setback is necessary for the owner to enjoy the use of the property. Other property in the vicinity also has structures built closer to Lompico Road than the required 40 foot front yard setback.

The second finding requires that the granting of the variance will be in harmony with the intent and purpose of the zoning objectives and will not be harmful or injurious to the property or neighbors. The proposed Single Family Dwelling is a principal permitted use within the zone district, geologic and geotechnical reports have been accepted and the proposal has been conditioned to include a shotcrete wall to protect the home from erosion.

The third finding requires that the granting of the variance will not be a special privilege. Other homes in the vicinity and zone district in which the property is situated are built closer to the road than the required 40 foot setback. Therefore, the granting of the variance would not be a special privilege as other properties under similar limitations would be granted a similar development variance.

Conclusion

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

Staff Recommendation

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- **APPROVAL** of Application Number **07-0666,** 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

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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. 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 Single Family Dwelling will not deprive adjacent properties or the neighborhood of light, air, or open space, in that the structure meets all current setbacks with the exception of the variance to the required front yard setback. However, this is an open rural area with structures spaced widely apart and the reduced riparian setback within the riparian corridor will therefore not reduce 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 proposed location of the Single Family Dwelling and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the RA (Residential Agriculture) zone district in that the primary use of the property will be one Single Family Dwelling that meets current site standards for the zone district, with the exception of the 40 foot front yard setback for which a variance has been requested. An exception to Chapter 16.32 has also been requested to allow construction of a replacement single family dwelling and slope protection within the riparian corridor.

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 Mountain Residential (R-M) land use designation in the County General Plan.

The proposed replacement Single Family Dwelling 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, with the exception the front yard setback for which a variance has been requested. As specified in Policy 8.1.3 (Residential Site and Development Standards Ordinance), the proposed single family dwelling will not adversely shade adjacent properties. This will ensure access to light, air, and open space in the neighborhood.

The proposed Single Family Dwelling 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), in that the proposed Single Family Dwelling will comply with the site standards for the RA zone district (including setbacks, lot coverage, height, and number of stories) and will result in a structure consistent with a design that could be approved on any similarly sized lot in the vicinity. In addition, a riparian exception has been requested to construct a replacement single family dwelling, install a shotcrete apron within the creek bank to protect the single family dwelling and replacement retaining wall to protect the existing septic tank.

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 replacement Single Family Dwelling is to be constructed on an existing developed lot. The expected level of traffic generated by the proposed project is anticipated to be only one peak trip per day, such an increase 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 structure is located in a mixed neighborhood containing a variety of architectural styles, and the proposed Single Family Dwelling is consistent with the land use intensity and density of the neighborhood.

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 Single Family Dwelling will be of an appropriate scale and type of design that will enhance the aesthetic qualities of the surrounding properties and will not reduce or visually impact available open space in the surrounding area.

Variance Findings

1. That because of special circumstances applicable to the property, including size, shape, topography, location, and surrounding existing structures, the strict application of the Zoning Ordinance deprives such property of privileges enjoyed by other property in the vicinity and under identical zoning classification.

This finding can be made, in that the shape, location and topography of the parcel, which is long and narrow with steep slopes, is further constrained by Lompico Creek along the west and the Lompico Road 40 foot right of way across the east portion of the property. Approximately 28 feet of the right of way are within the property's front yard, in addition the 40 foot required front

yard setback further reduces the available area to build. The creek along the eastern boundary has an established 60 foot riparian setback. The constraints leave an available area of approximately 400-600 square feet to construct a single family dwelling, therefore, in order to build a feasible single family dwelling, a variance to the required 40 foot front yard setback is necessary for the owner to enjoy the use of the property. Other structures in the vicinity are also built closer to Lompico Road than the required 40 foot front yard setback.

2. That the granting of the variance will be in harmony with the general intent and purpose of zoning objectives and will not be materially detrimental to public health, safety, or welfare or injurious to property or improvements in the vicinity.

This finding can be made, in that a parcel zoned PR is evaluated as a Residential Agriculture (RA) parcel. Therefore, the proposed Single Family Dwelling is a principal permitted use within the zone district. Geologic and geotechnical reports have been accepted and the proposal has been conditioned to include the shotcrete wall and foundations that were recommended to protect the replacement home and existing septic tank from erosion.

3. That the granting of such variances shall not constitute a grant of special privileges inconsistent with the limitations upon other properties in the vicinity and zone in which such is situated.

This finding can be made, in that granting of the variance will not be a special privilege as other homes in the vicinity and zone in which the property is situated are built closer to the road than the required 40 foot setback. In addition, under similar limitations would be granted a similar development variance.

RIPARIAN EXCEPTION FINDINGS

1. THAT THERE ARE SPECIAL CIRCUMSTANCES OR CONDITIONS AFFECTING THE PROPERTY.

   This finding can be made in that the developable area of the subject parcel is constrained by the shallow depth of the lot with the presence of a heavily traveled County Road to the east and the Lompico Creek to the west. The proposed replacement single-family dwelling is located in approximately the same location as the house that historically existed on the property. Stream bank protection is required in order to protect the replacement dwelling in its proposed location.

2. THAT THE EXCEPTION IS NECESSARY FOR THE PROPER DESIGN AND FUNCTION OF SOME PERMITTED OR EXISTING ACTIVITY ON THE PROPERTY.

   This finding can be made in that the Exception is necessary for the proper design and function of the permitted single-family dwelling in a residentially zoned district. The

constraints associated with the zoning, the depth of the lot and the presence of geologic instability unduly limit the development of the replacement dwelling. The proposed location requires stream bank protection in order to protect both the dwelling and the stream.

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.

   This finding can be made in that the proposed stream bank protection will protect against future bank failures and the associated impacts of erosion and sedimentation into the stream. The project will be conditioned to include remediation of the riparian area in the vicinity of the retaining wall and planting riparian species adjacent to the wall.

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 can be made in that the project is not located within 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.

   This finding can be made in that the Riparian Corridor will be restored with riparian plant species. Additionally the proposed stream bank protection will prevent catastrophic bank failure and sedimentation into the river.

Conditions of Approval

Exhibit A: Project plans, five sheets, prepared by Greg Sides, dated July 8, 2008.

I. This permit authorizes the construction of a replacement Single Family Dwelling, the demolition of a shed, installation of shotcrete within Lompico Creek bank and a replacement retaining wall within the 60 foot riparian corridor. This approval does not confer legal status on any existing structure(s) or existing use(s) on the subject property that are not specifically authorized by this permit. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:

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

B. Obtain a Demolition Permit from the Santa Cruz County Building Official.

C. Obtain a Building Permit from the Santa Cruz County Building Official.

1. 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 processed while there is an outstanding balance due.

D. Obtain a Grading Permit from the Santa Cruz County Building Official, if required.

E. Obtain an Encroachment Permit from the Department of Public Works for all off-site work performed in the County road right-of-way.

F. Applicant shall obtain a Stream Alteration Agreement with the California Department of Fish and Game prior to beginning construction activities.

II. Prior to issuance of a Building Permit the applicant/owner shall:

A. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder).

B. Submit final architectural plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "A" on file with the Planning Department. Any changes from the approved Exhibit "A" for this development permit on the plans submitted for the Building Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out and labeled will not be authorized by any Building Permit that is issued for the proposed development. The final plans shall include the following additional information:

1. One elevation shall indicate materials and colors, in addition to showing the materials and colors on the elevation, the applicant shall supply a color and material board in 8 ½" x 11" format for Planning Department review and approval

2. Engineered grading and drainage plans.

3. Applicant shall provide a detailed erosion control plan, prepared by a Certified Professional in Erosion and Sediment Control. The plan shall include the location and construction details of all proposed erosion control measures and shall include temporary measures that will ensure no sediment will enter the stream during construction of the concrete wall.

4. Application shall provide a revegetation/restoration plan. The plan shall include the number, location, and species of all proposed riparian planting to occur in the vicinity of the retaining wall where native vegetation does not currently exist. The plan shall be reviewed and approved by Environmental Planning staff.

5. The building plans must include a roof plan and a surveyed contour map of the ground surface, superimposed and extended to allow height measurement of all features. Spot elevations shall be provided at points on the structure that have the greatest difference between ground surface and the highest portion of the structure above. This requirement is in addition to the standard requirement of detailed elevations and cross-sections and the topography of the project site which clearly depict the total height of the proposed structure. Maximum height is 28-feet.

6. Details showing compliance with fire department requirements, including all requirements of the Urban Wildland Intermix Code, if applicable.

7. Relabel the unconditioned basement to non-habitable storage.

C. Submit four copies of the approved Discretionary Permit with the Conditions of Approval attached. The Conditions of Approval shall be recorded prior to submittal, if applicable.

D. Meet all requirements of and pay Zone 8 drainage fees to the County Department of Public Works, Drainage. Drainage fees will be assessed on the net increase in impervious area.

E. Obtain an Environmental Health Clearance for this project from the County Department of Environmental Health Services.

F. Meet all requirements and pay any applicable plan check fee of the Zayante Fire

Protection District.

G. Pay the current fees for Parks and Child Care mitigation for two bedroom(s). Currently, these fees are, respectively, $800 and $109 per bedroom.

H. Provide required off-street parking for three cars. Parking spaces must be 8.5 feet wide by 18 feet long and must be located entirely outside vehicular rights-of way. Parking must be clearly designated on the plot plan.

I. 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.

J. Complete and record a Declaration of Restriction to Maintain Storage area as Non-habitable. **You may not alter the wording of this declaration**. Follow the instructions to record and return the form to the Planning Department.

III. Prior to and during site disturbance and construction:

A. Prior to any disturbance on either property the applicant shall convene a pre-construction meeting on the site with the grading contractor supervisor, construction supervisor, project geologist, project geotechnical engineer, Santa Cruz County grading inspector, and any other Environmental Planning staff involved in the review of the project.

B. All land clearing, grading and/or excavation shall take place between April 15 and October 15. Excavation and/or grading is prohibited before April 15 and after October 15. Excavation and/or grading may be required to start later than April 15 depending on site conditions, as determined by Environmental Planning staff. If grading/excavation is not started by August 1st, grading must not commence until after April 15th the following year to allow for adequate time to complete grading prior to October 15th

C. Erosion shall be controlled at all times. Erosion control measures shall be monitored, maintained and replaced as needed. No turbid runoff shall be allowed to leave the immediate construction site. All disturbed soils shall be stabilized, as identified in the site place to prevent siltation in the watercourse.

D. Dust suppression techniques shall be included as part of the construction plans and implemented during construction. These techniques shall comply with the requirements of the Monterey Air Pollution Control District.

E. All earthwork and retaining wall construction shall be supervised by the project soils engineer and shall conform with the Geotechnical report recommendations.

F. All foundation and retaining wall excavations shall be observed and approved in writing by the project soils engineer prior to foundation pour. A copy of the letter

shall be kept on file with the Planning Department.

IV. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:

A. All site improvements shown on the final approved Revegetation and Restoration plan and Building Permit plans shall be installed.

B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.

C. The project must comply with all recommendations of the approved technical reports.

D. 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.

V. Operational Conditions

A. In the event that future County inspections of the subject property disclose noncompliance 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 permit revocation.

VI. 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.

Minor variations to this permit which 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 structure 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: _____

Don Bussey	Maria Perez
Deputy Zoning Administrator	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 Zoning Administrator, may appeal the act or determination to the Planning Commission 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: 07-0666
Assessor Parcel Number: 074-191-02
Project Location: 8969 Lompico Road

Project Description: Proposal to rectify a redtag by recognizing construction of a replacement single family residence on site with a garage and shed to be demolished. Shotcrete to be installed along the rear of the property within the riparian corridor.

Person or Agency Proposing Project: Dee Murray

Contact Phone Number: 831-475-5344

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: Class 3 -New Construction or Conversion of a small stucture (Section 15303)

F. Reasons why the project is exempt:

Proposal to construct a single family dwelling and improvements to protect the single family dwelling.

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

_____ Date: _____
Maria Perez, Project Planner

EXHIBIT D

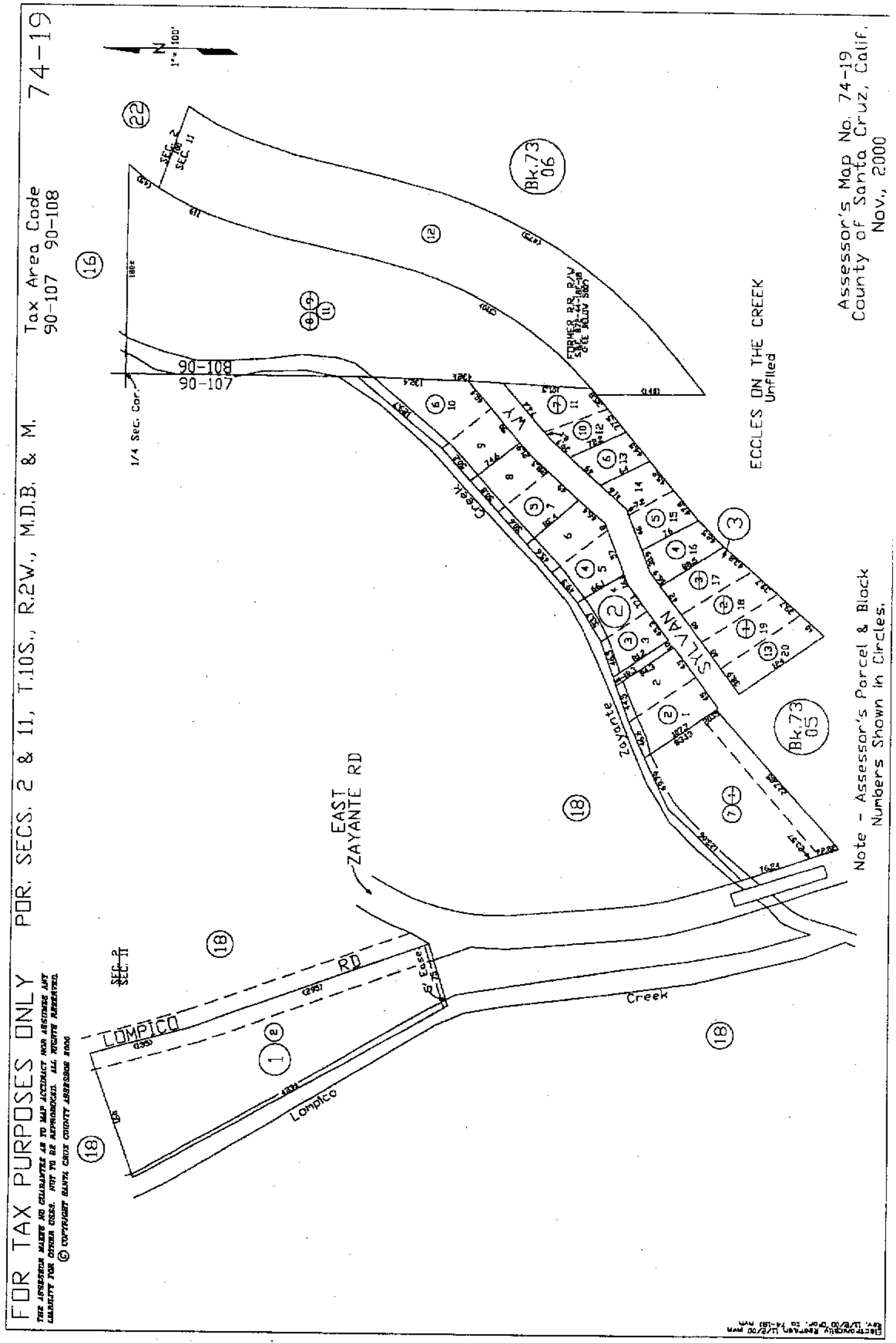
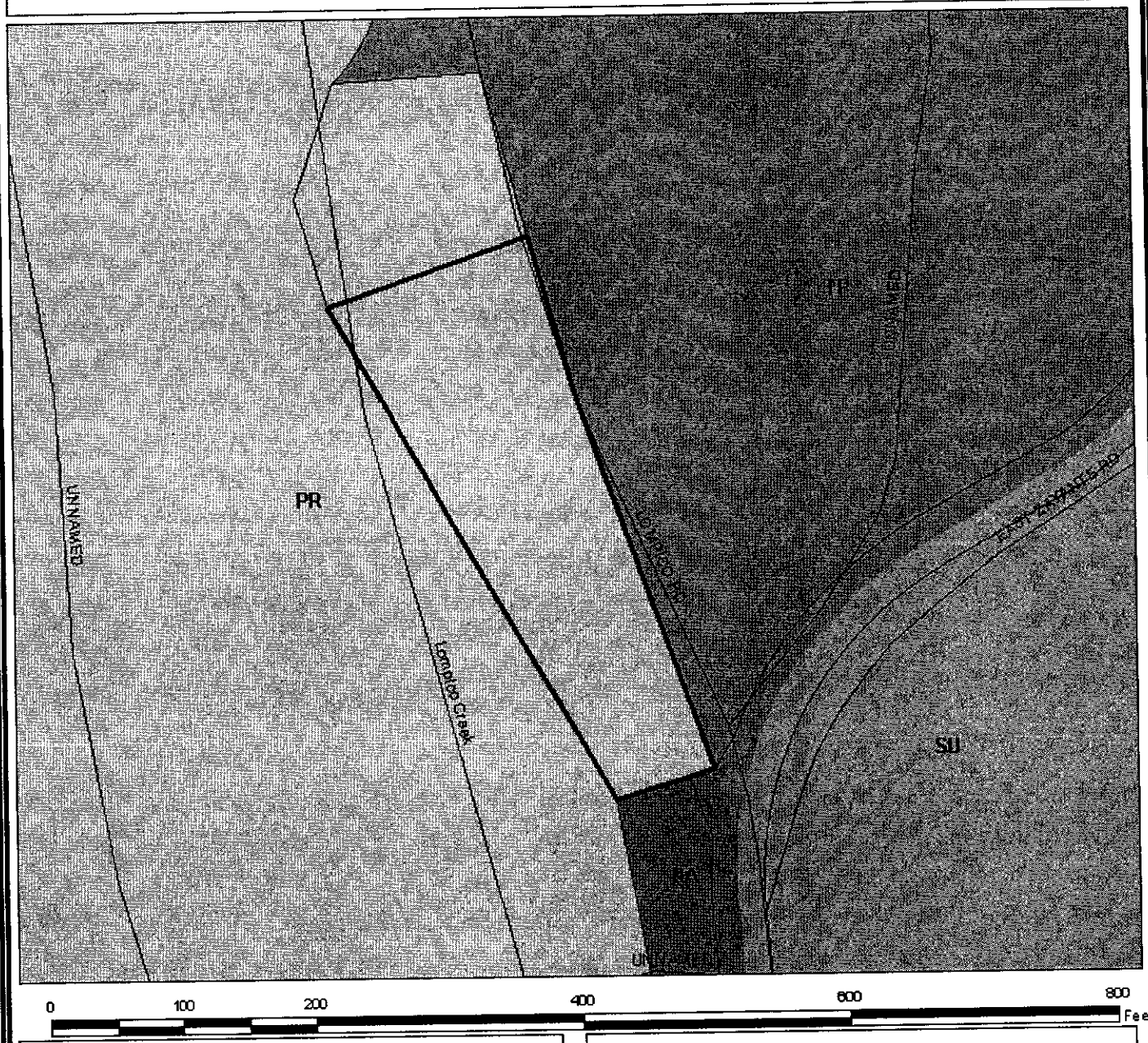

FOR TAX PURPOSES ONLY
POR. SECS. 2 & 11, T.10S., R.2W., M.D.B. & M.
74-19
Tax Area Code
90-107 90-108
1/4 Sec. Cor.
EAST ZAYANTE RD
LOMPICO RD
Lompico
Creek
Zayante
SYLVAN WY
ECCLES ON THE CREEK
Unfiled
Bk.73 06
Bk.73 05
Note - Assessor's Parcel & Block Numbers Shown in Circles.
Assessor's Map No. 74-19
County of Santa Cruz, Calif.
Nov., 2000

EXHIBIT E

Zoning Map



LEGEND

- APN: 074-191-02
- Assessors Parcels
- Streets

STREAMTYPE

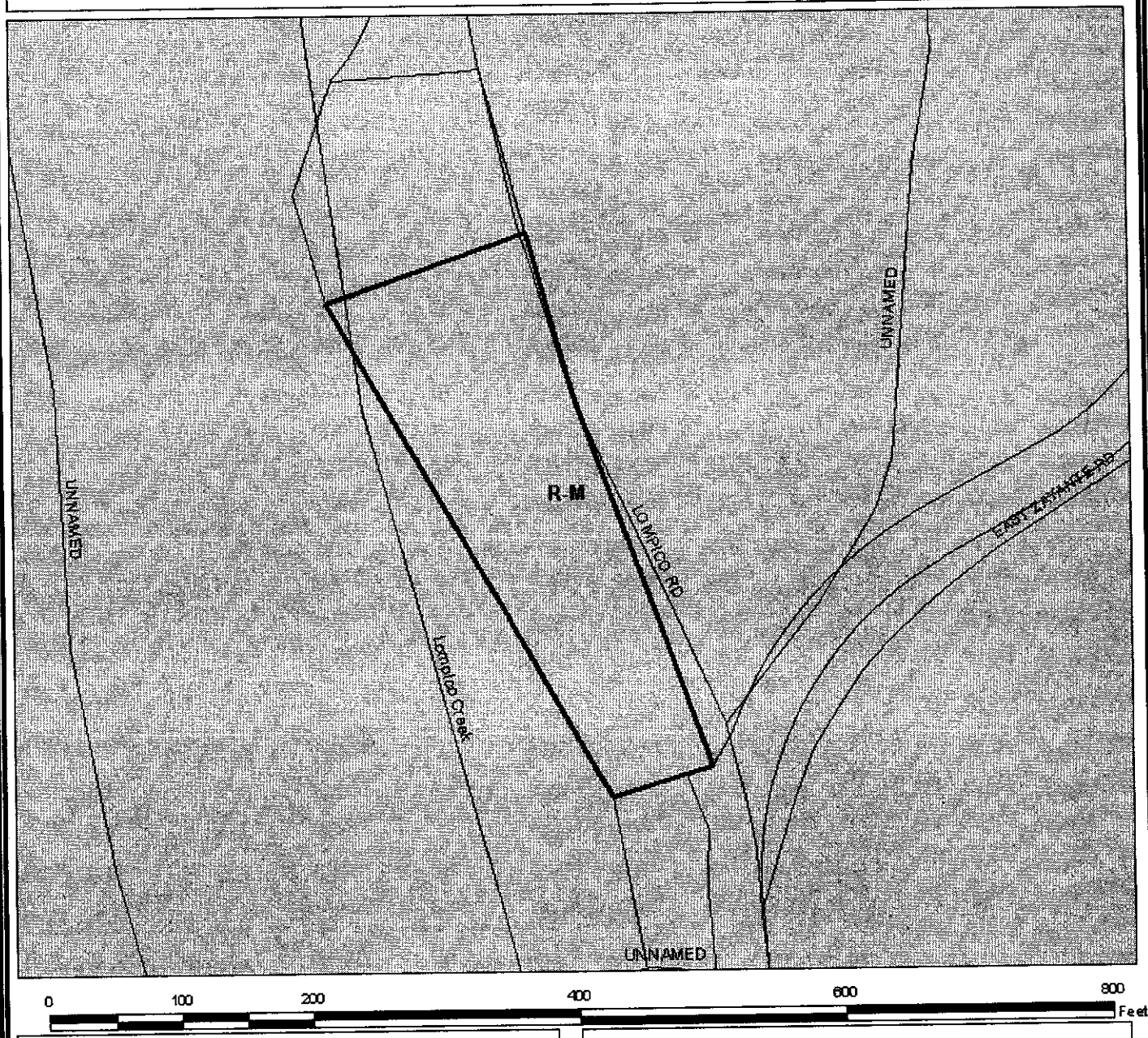
- PERENNIAL
- INTERMITTENT
- AGRICULTURE RESIDENTIAL
- PARK
- SPECIAL USE
- TIMBER PRODUCTION

N
W E
S

Map created by
County of Santa Cruz
Planning Department
November 2007

EXHIBIT F

General Plan Designation Map



LEGEND

- APN: 074-191-02
- Assessors Parcels
- Streets

STREAMTYPE

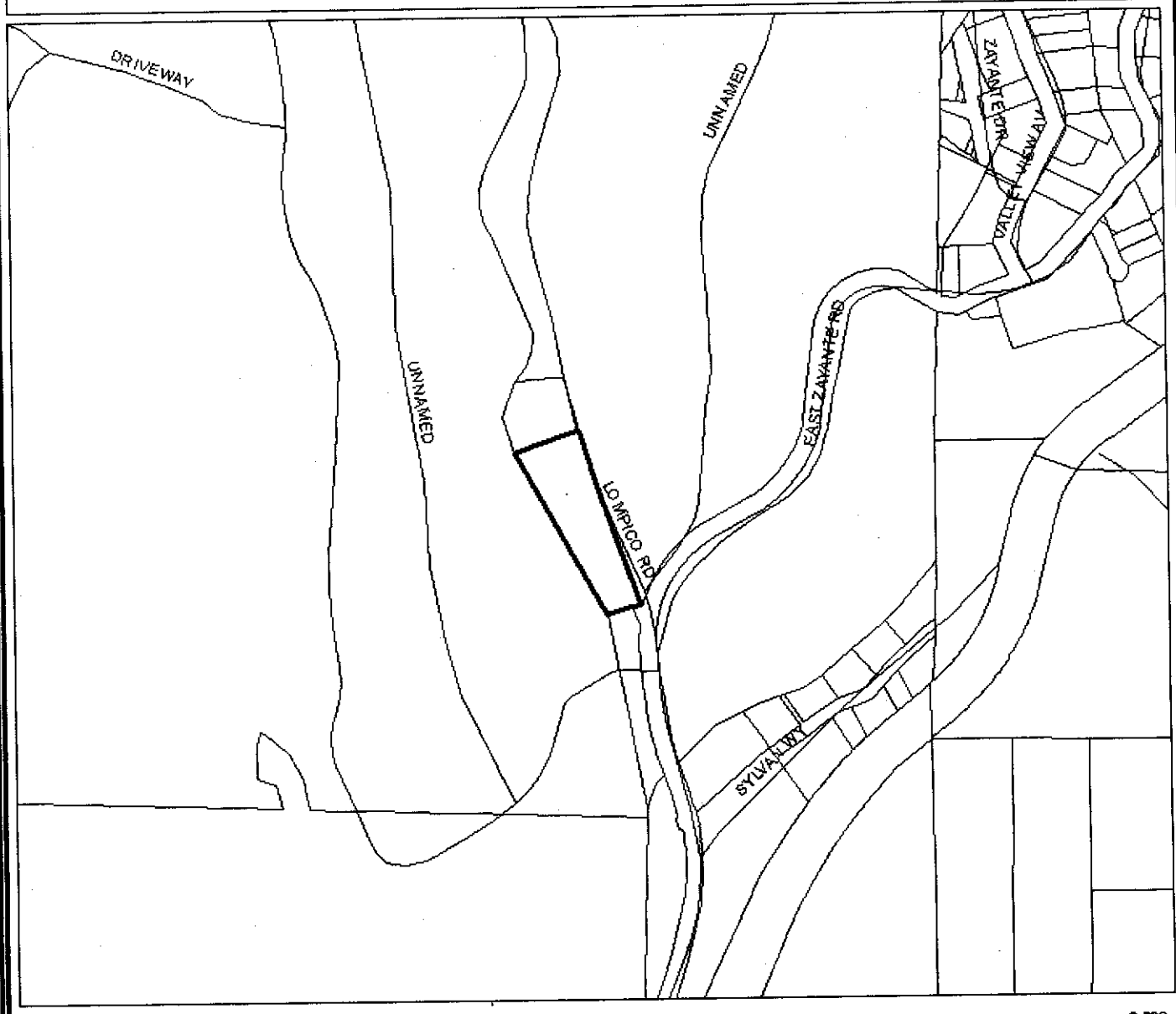
- PERENNIAL
- INTERMITTENT
- Residential-Mountain

N
W E
S

Map created by
County of Santa Cruz
Planning Department
November 2007

EXHIBIT F

Location Map



LEGEND

APN: 074-191-02

Assessors Parcels

Streets

N

W E

S

Map created by
County of Santa Cruz
Planning Department
November 2007

EXHIBIT G

Environmental Planning Completeness Comments

========= REVIEW ON DECEMBER 3, 2007 BY CAROLYN I BANTI =========
1. As a replacement dwelling, the proposed residence is considered development with respect to the Geologic Hazards Ordinance. The location of the existing residence is subject to geologic and flood hazards and a geologic investigation must be conducted in order to identify other geologically suitable building envelopes and leach field locations on the parcel. Note: Plans submitted subsequent to the geology report shall clearly delineate the building and septic envelopes identified in the report, as well as any other geologic setbacks.

2. The soils report and update letter cannot be accepted until after the completion of all other technical report reviews. Please note that the scope of the soils report must include the areas identified by the geologist as being geologically suitable locations for both the residence and leach field. --->Note: Please submit a copy of the original report by Tharp and Associates (August 3, 2001, Project No. 01-14) for review.

3. Please extend the topographic survey to include the northern extents of the property.

4. Please show the 100-year flood elevation for Lompico Creek on the plans.

5. Please field-verify and show the location of the existing leach field on the plans. Please note that if the applicant would like to maintain the existing leach field location, it must be approved with respect to slope stability by both the engineering geologist and geotechnical engineer.

6. If the location of the residence is moved elsewhere on the property, plans to be submitted shall include a grading plan, cross sections and earthwork quantities to complete the proposed development.

7. Prior to the discretionary application being deemedcomplete, plan revie w letters shall be required from the geotechnical engineer and engineering geologist stating that the project plans conform to the recommendations of their reports. Please note that the plan review letters should be written after the reports have been accepted and plans prepared that are acceptable to all reviewing agencies. ========= UPDATED ON DECEMBER 4, 2007 BY CAROLYN I BANTI =========
========= UPDATED ON MAY 15, 2008 BY CAROLYN I BANTI =========

--- Completeness Items --- Soils and Geology ---

The soils report by Tharp and Associates and engineering geologic report by Nolan and Associates have been accepted. Please see letter dated May 7, 2008.

Please show the 100 year flood contour on the plans, as requested in the initial review.

Please revise the plans to incorporate the improvements required as conditions of

EXHIBIT H

the soils and geologic report approvals (included in letter dated 5/7/08). Revised plans should, at minimum, include the following:

- Civil engineered grading, drainage and erosion control plans. - Grading cross sections that extend north-south and east-west through the improvements. These cross sections should extend to the top of slope and bottom of slope adjacent to the improvements, and the 100-year flood elevation shown. Also, the cross sections should include the 2:1 setback line described in the engineering geology report. - Grading quantities for site grading and excavation and recompaction of potentially unstable material above the 2:1 setback line as well as any fill near the structure, retaining walls, or sewage disposal system. - Identify the septic system and provide a cross section through the drain fields to illustrate the relationship between the drain field and site's relief and proposed improvements.

Please provide a geotechnical stability analysis of the existing leach field location.

Please provide all other technical analysis and review required as conditions of approval of the technical reports (see letter dated 5/7/08).

As stated in the previous review, plan review letters from both the project geologist and geotechnical engineer will be required prior to the discretionary application being deemed complete.

========= UPDATED ON AUGUST 11, 2008 BY ROBIN M BOLSTER =========

The revised plan show a reinforced shotcrete retaining wall that encroaches into the Lompico Creek channel. The Riparian Corridor Protection Ordinance (Chapter 16.30) only allows Riparian Exceptions to be approved for development that is "necessary for the proper design and function of some permitted or existing activity on the property..." This is NOT the case for the proposed wall in that there are other designs options for protection of the proposed replacement dwelling and other possible locations for the dwelling itself, which would not require disturbance within the protected Riparian Corridor.

Therefore, a Riparian Exception could NOT be approved for the proposed shotcrete wall. Please provide either an alternative location and/or design for a retaining wall OR an alternative location for the replacement dwelling. Note that any alternative retaining wall/bank protection device which does not encroach beyond the limits of the previously existing dwelling would NOT require a Riparian Exception and COULD therefore be approved.

========= UPDATED ON AUGUST 11, 2008 BY JOSEPH L HANNA =========
If other environmental issues do not modify the current shotcrete design the wall must have a foundation at the toe that is of sufficient depth to avoid street erosion. The depth must be evaluated by the geotechnical engineer, and must be shown on the plans before the issuance of the building permit. The plans must also demonstrate that both the up stream and down stream edged of the shotcrete are protected from stream erosion. Both the determination of the depth of the foundation, and the erosion potential at the edges of the shotcrete must be developed using either standard empirical methods, or quantified estimates of the amount of

erosion. ========= UPDATED ON AUGUST 11, 2008 BY JOSEPH L HANNA =========
The report does not present any new evidence concerning the geologic hazards present on the property. Without new exploration and evalutation the approved engineering geology report's conclusion remain in affect.

========= UPDATED ON SEPTEMBER 17, 2008 BY ROBIN M BOLSTER =========

After additional consultation with the project geotechnical engineer and County Geologist, it is apparent that the proposed shotcrete bank stabilization method is the alternative that is least impactful to the riparian resources in that it involves very little new ground disturbance and does not require a new building pad to be created. Therefore, a Riparian Exception for the bank stabilization as proposed, IS appropriate for the site and is consistent with the County Riparian Protection Ordinance and General Plan policy.

Compliance

In order to make the findings that the shotcrete wall will not be harmful to the riparian corridor, a revegetation/erosion control plan must be submitted, which shows how the stream bank adjacent to the wall will be protected from erosion and how the stream will be protected during the placement of the streambank protection.

Environmental Planning Miscellaneous Comments

========= REVIEW ON DECEMBER 3, 2007 BY CAROLYN I BANTI =========

Miscellaneous Comments/Permit Conditions:

Prior to building permit issuance plan review letters will be required from the soils engineer and engineering geologist stating that the project plans conform to the recommendations of their reports. ========= UPDATED ON MAY 15, 2008 BY CAROLYN I BANTI =========
--- Compliance Comments --- Second Review ---

Proposed improvements may not extend any further toward the creek than the southeast boundary of the existing structure. This includes all development activities (retaining wall installation, grading, land clearing, buildings, paving).

The drainage outlet structures may require a riparian exception prior to building permit issuance, depending on the oulet location and design.

========= UPDATED ON AUGUST 11, 2008 BY ROBIN M BOLSTER =========

Additional comments and/or permit conditions will be provided upon receipt of revised plans.

Project Review Completeness Comments

========= REVIEW ON AUGUST 11, 2008 BY ROBIN M BOLSTER =========

The revised plan show a reinforced shotcrete retaining wall that encroaches into the

Lompico Creek channel. The Riparian Corridor Protection Ordinance (Chapter 16.30) only allows Riparian Exceptions to be approved for development that is "necessary for the proper design and function of some permitted or existing activity on the property..." This is NOT the case for the proposed wall in that there are other designs options for protection of the proposed replacement dwelling and other possible locations for the dwelling itself, which would not require disturbance within the protected Riparian Corridor.

Therefore, a Riparian Exception could NOT be approved for the proposed shotcrete wall. Please provide either an alternative location and/or design for a retaining wall or an alternative design for the replacement dwelling. Note that any alternative retaining wall/bank protection which does not encroach beyond the limits of the previously existing dwelling would NOT require a Riparian Exception and COULD therefore be approved.

Project Review Miscellaneous Comments

========= REVIEW ON AUGUST 11, 2008 BY ROBIN M BOLSTER =========

Additional comments and/or project conditions will be provided upon receipt of revised plans.

Code Compliance Completeness Comments

========= REVIEW ON NOVEMBER 15, 2007 BY KEVIN M FITZPATRICK =========
NO COMMENT
this addreses code compliance concers. (KMF)

Code Compliance Miscellaneous Comments

========= REVIEW ON NOVEMBER 15, 2007 BY KEVIN M FITZPATRICK =========

Dpw Drainage Completeness Comments

========= REVIEW ON NOVEMBER 29, 2007 BY TRAVIS RIEBER =========
1. From the plans it is not clear what the project scope is. Why does the disturbance area extend beyond the replacement SFD? For the driveway which is within the disturbance area please label the type of surfacing existing and proposed.

2. How did the existing home runoff drain? Were there any problems?

3. Does this site currently receive any runoff from adjacent/upslope property? If so, how will the project continue to accept this runoff without causing adverse impacts to the proposed structure or adjacent/downstream properties.

4. At any time prior to the public hearing please provide a geotechnical engineers signed, stamped letter of approval for the proposed drainage plan.

5. Based on the response to the above comments and the scope of work additional

review comments may be necessary.

Please call the Dept. of Public Works, Storm Water Management Section, from 8:00 am to 12:00 noon if you have questions. ========= UPDATED ON MAY 5, 2008 BY TRAVIS RIEBER =========
1. At any time prior to the public hearing please provide a geotechnical engineers signed, stamped letter of approval for the proposed drainage plan.

2. According to the plans the proposed driveway intersects the existing roadside drainage features along Lompico Road. How will the driveway be constructed so as not to obstruct the flow in the existing roadside drainage features?

3. How will runoff generated by the new driveway areas be controlled and directed to a safe point of release with out causing adverse impacts?

Please call the Dept. of Public Works, Storm Water Management Section, from 8:00 am to 12:00 noon if you have questions. ========= UPDATED ON AUGUST 5, 2008 BY TRAVIS RIEBER =========
The plans with revisions dated 7/1/2008 have been received and are approved for the discretionary application stage. See miscellaneous comments for conditions to be met at the building application stage. ========= UPDATED ON AUGUST 5, 2008 BY TRAVIS RIEBER =========

Dpw Drainage Miscellaneous Comments

========= REVIEW ON NOVEMBER 29, 2007 BY TRAVIS RIEBER =========
1. Please provide a cross section construction detail for the discharge points of the proposed drainage system.

2. For fee calculations please provide tabulation of existing impervious areas and new impervious areas resulting from the proposed project. Make clear on the plans by shading or hatching the limits of both the existing and new impervious areas. To receive credit for the existing impervious surfaces please provide documentation such as assessor-s records, survey records, aerial photos or other official records that will help establish and determine the dates they were built.

Note: A drainage fee will be assessed on the net increase in impervious area.
========= UPDATED ON MAY 5, 2008 BY TRAVIS RIEBER =========
See previous miscellaneous comments ========= UPDATED ON AUGUST 5, 2008 BY TRAVIS RIEBER =========
1. According to the plans the proposed driveway intersects the existing roadside drainage features along Lompico Road. How will the driveway be constructed so as not to obstruct the flow in the existing roadside drainage features?

2. How will runoff generated by the new driveway areas be controlled and directed to a safe point of release with out causing adverse impacts?

3. For fee calculations please provide tabulation of existing impervious areas and new impervious areas resulting from the proposed project. Make clear on the plans by shading or hatching the limits of both the existing and new impervious areas. To receive credit for the existing impervious surfaces please provide documentation

EXHIBIT H

such as assessor-s records, survey records, aerial photos or other official records that will help establish and determine the dates they were built.

Note: A drainage fee will be assessed on the net increase in impervious area.

Please call the Dept. of Public Works, Storm Water Management Section, from 8:00 am to 12:00 noon if you have questions.

Dpw Road Engineering Completeness Comments

========= REVIEW ON NOVEMBER 26, 2007 BY ANWARBEG MIRZA =========
1. In order to evaluate access to the existing single family dwelling, the following information needs to be provided for the existing driveway: A centerline profile, the structural section, and turning radii. The driveway must meet County of Santa Cruz standards in the Design Criteria. Please refer the correct figure and show in plan view. (See figures DW-1 through DW-7)

2. Asphalt pavement is required for the driveway segment between the property line and Lompico Road. Additionally, As per County of Santa Cruz Design Criteria, the minimum sight distance required for driveways intersecting County Roads is 250 feet in either direction; therefore, indicate if the proposed driveway meets the 250 feet required sight distance. If minimum sight distance is not obtainable, a sight distance analysis from a Traffic Engineer s required, indicating that the existing driveway conditions are safe or this analysis should include recommendations of how the project site can be mitigated to meet minimum sight distance requirements.

3. County requirements require a 10 feet minimum width for driveways. The driveway shown in plan is only 8 feet.

Design Criteria is available at the following internet address:
http://www.dpw.co.santa-cruz.ca.us/DESIGN%20CRITERIA.PDF ========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
1. Completed

2. Previous comment still apply As per County of Santa Cruz Design Criteria, the minimum sight distance required for driveways intersecting County Roads is 250 feet in either direction; therefore, indicate if the proposed driveway(s) meets the 250 feet required sight distance. If minimum sight distance is not obtainable, a sight distance analysis from a Traffic Engineer/Civil Engineer is required, indicating that the existing driveway conditions are safe or this analysis should include recommendations of how the project site can be mitigated to meet minimum sight distance requirements.

3. Completed

========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
1. Completed

2. Previous comment still apply As per County of Santa Cruz Design Criteria, the

minimum sight distance required for driveways intersecting County Roads is 250 feet in either direction; therefore, indicate if the proposed driveway(s) meets the 250 feet required sight distance. If minimum sight distance is not obtainable, a sight distance analysis from a Traffic Engineer/Civil Engineer is required, indicating that the existing driveway conditions are safe or this analysis should include recommendations of how the project site can be mitigated to meet minimum sight distance requirements.

3. Completed

========= UPDATED ON AUGUST 5, 2008 BY ANWARBEG MIRZA =========
Discretionary application is completed.

Dpw Road Engineering Miscellaneous Comments

========= REVIEW ON NOVEMBER 26, 2007 BY ANWARBEG MIRZA =========
1. Each required parking spaces should be numbered and dimensioned. ========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
1. Fig DW-7 is for driveways without roadside drainage. Please refer to the County Design Criteria for specific details and use the correct reference (it may be DW-5 or Dw-6).

2. Show the standard fig and profile of driveway in plan view as well.

3. An encroachment permit is required. ========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
========= UPDATED ON APRIL 28, 2008 BY ANWARBEG MIRZA =========
========= UPDATED ON AUGUST 5, 2008 BY ANWARBEG MIRZA =========
Encroachment permit is required at building application stage.

Environmental Health Completeness Comments

========= REVIEW ON NOVEMBER 30, 2007 BY JIM G SAFRANEK =========
========= UPDATED ON NOVEMBER 30, 2007 BY JIM G SAFRANEK =========
========= UPDATED ON DECEMBER 3, 2007 BY JIM G SAFRANEK ========= See the Env. Planner's comments regarding septic location and provide a copy of the geologist's response to Rafael Sanchez of EHS. Note that if the existing septic location is found to not meet code an approved septic application WILL be required if an alternative buildinglocation is deemed necessary AND approved by County Planning.
========= UPDATED ON APRIL 23, 2008 BY JIM G SAFRANEK ========= The applicant still needs to resolve septic issues as previously detailed in the prior comment. Contact Rafael Sanchez of EHS at 454-2735.
========= UPDATED ON AUGUST 4, 2008 BY JIM G SAFRANEK ========= The district REHS has not received confirmation that the septic location received geologic review. Project can't be approved until that work is approved by Planning.

Environmental Health Miscellaneous Comments

EXHIBIT H

========= REVIEW ON NOVEMBER 30, 2007 BY JIM G SAFRANEK =========
========= UPDATED ON DECEMBER 3, 2007 BY JIM G SAFRANEK =========
NO COMMENT

Zayante Fire Department Completeness Comments

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

========= REVIEW ON NOVEMBER 26, 2007 BY JEFF MAXWELL =========
DEPARTMENT NAME: Zayante Fire
FIRE FLOW requirements for the subject property are 1000 GPM. Note on the plans the REQUIRED and AVAILABLE FIRE FLOW. The AVAILABLE FIRE FLOW information can be obtained from the water company.
Building numbers shall be provided. Numbers shall be a minimum of 4 inches in height on a contrasting background and visible from the street, additional numbers shall be installed on a directional sign at the property driveway and street.
As this project would have been required to have an automatic fire sprinkler system installed the proper fire flow information from the water departm ent shall be provided to the fire department. As this work was performed without the proper permits the applicant shall pay double permit fees. ========= UPDATED ON MAY 5, 2008 BY JEFF MAXWELL =========
DEPARTMENT NAME:Zayante Fire Second Review
Building numbers shall be provided. Numbers shall be a minimum of 4 inches in height on a contrasting background and visible from the street, additional numbers shall be installed on a directional sign at the property driveway and street.
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.
========= UPDATED ON JULY 31, 2008 BY JEFF MAXWELL =========
NO COMMENT
DEPARTMENT NAME:Zayante Fire Third Review No Comment
========= UPDATED ON JULY 31, 2008 BY JEFF MAXWELL =========
NO COMMENT
DEPARTMENT NAME:Zayante Fire

EXHIBIT H

Zayante Fire Department Miscellaneous Comments

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

========== REVIEW ON NOVEMBER 26, 2007 BY JEFF MAXWELL ==========
========== UPDATED ON MAY 5, 2008 BY JEFF MAXWELL ==========
NO COMMENT
========== UPDATED ON JULY 31, 2008 BY JEFF MAXWELL ==========
NO COMMENT
========== UPDATED ON JULY 31, 2008 BY JEFF MAXWELL ==========
NO COMMENT

EXHIBIT H

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

May 7, 2008

Dee Murray
2272 Zayante Drive
Santa Cruz, CA 95062

Subject: **Geotechnical Engineering Report** by Tharp and Associates, August 3, 2001, Project Number 01-14; and **Engineering Geology Report** by Nolan and Associates dated April 17, 2008, Job Number 08009

APN: **074-191-02**
APPL#: **07-0666**

Reference: Supplemental Geotechnical Recommendations; Haro, Kasunich and Associates, dated September 25, 2007

Dear Applicant:

We are writing to you to inform you that the County has accepted the subject reports with conditions and some clarification. The combination of the Nolan Associates report dated April 17, 2008 and the Tharp and Associates reports dated August 3, 2001 are accepted with the following conditions:

1. Before the submittal of the Building Permit, the applicant must pay the difference between the cost of a Geotechnical Report review fee and the fee charged to review both an Engineering Geology and Geotechnical Report.

2. For consistency a 2:1 setback shall be established from the toe of the existing eroding channel as well as those indicated on the geologic cross-section by Nolan Associates. Soils lying above the 2:1 line are to be considered "potentially unstable." Please note that we recognize that there is an apparent conflict between the 2:1 setback established by the Nolan and Associates, and Tharp and Associates conclusions about the stability of the embankment near the home. County staff has not attempted to resolve this conflict, but has assumed the more conservative setback requirement.

3. The flood protection wall required by Tharp and Associates shall be constructed of concrete or a similar material that is not subject to deterioration. The wall must be extended to protect not only the structure, but also the residential facilities, such as the septic system and wells, that are also potentially affected by flooding and the erosion identified in the Nolan Associates report.

    i. Please note the alternative of combining the floodwall and footings is an approvable alternative as noted in the referenced Haro, Kasunich and

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EXHIBIT I 4

Associates report. Even so, this wall must be extended beyond the limits of the building to contain the septic system and similar accessory facilities with the wall. From a County perspective, although a pin pile wall will help to eliminate stability issues the wall will not prevent the erosion of material from beneath the home, and septic system. Consequently, the erosion protection wall must be a continuous wall rather that an open wall.

ii. Alternative locations on the property can also be considered for the replacement home as long as similar protection is provided.

4. The engineering geologist and geotechnical engineer must review and approve the location of the sewage disposal system with regards to stability, erosion and flooding.

5. A civil engineered site development plan, grading, and erosion control plan is required for the any proposed development on this property. The plan must indicate the location of all of the proposed improvements and their dimensions including both the erosion protection wall and the location of the foundation improvements. The geotechnical engineer and engineering geologist must assist the civil engineer in the development of the plan and must indicate their approval in writing before submittal of a building permit.

6. All fill near the structure, retaining walls, or the sewage disposal system must be removed and replaced as engineered fill.

7. The septic system must be identified on the civil engineering site plan, and a cross-section must be extended through the drain fields to illustrate the relationship between the drain field and site's relief and proposed improvements.

8. If the retaining wall is constructed within 6 feet of the foundation of the residence, the Geotechnical Consultant must perform a stress influence analysis.

9. If additional geotechnical engineering or engineering geology reports are prepared for this project, a new technical report review fee will be necessary.

10. The project geotechnical engineer, or a similar qualified testing laboratory, must be employed to provide ***special inspection*** and ***testing*** of all the elements of the retaining wall, foundation construction, and 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.

11. The attached notice of geologic hazards must be recorded before the final of the building permit.

EXHIBIT 14

12. Before the submittal of the application of the Building Permit the geotechnical engineering report must be updated to supply the additional information required within the 2007 CBC.

13. The consultants must e-mail a PDF of their reports to pln829@co.santa-cruz.ca.us .

Please note that the other sections of the County Code including the County's Riparian Code will affect the location of this building, and may require that the building be relocated.

If the applicant or their consultants desire to eliminate the 2:1 setback at the existing creek embankment, the engineering geologist and geotechnical engineer will need to provide an kinematic analysis of the site's bedrock, and if necessary a rock slope stability analysis. The rock must also be analyzed for resistance to erosion.

The geotechnical engineer will need to re-evaluate their retaining wall design recommendations based upon the engineering geologist recommendations.

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 if we can be of any further assistance.

Sincerely,

Joe Hanna, CEG
County Geologist

Carolyn Banti, PE
Civil Engineer

Cc Tharp and Associates
Haro, Kasunich, and Associates
Nolan and Associates

EXHIBIT I

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.

EXHIBIT I

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

STEPS FOR COMPLETING THE ENCLOSED DECLARATION OF GEOLOGIC HAZARDS

Read the following instructions and carry out all steps. Do not make any alterations to the form, except as allowed by #2 below. FAILURE TO FOLLOW THE INSTRUCTIONS OR ALTERATIONS TO THE FORM WILL RESULT IN A DELAY IN THE ISSUANCE OF YOUR PERMIT.

Read the entire Declaration.

1 Check the information filled in by County staff (ownership, Assessor's Parcel Number, recordation dates, volume and page number and address). IF THERE ARE OMISSIONS, FILL IN THE BLANKS. The information can be found on the recorded deed or in the County Recorder's Office. If you feel there are any other errors, contact Environmental Planning staff for instructions. The form is a formal document and shall not be altered as above. Any unauthorized change(s) will result in an additional delay in processing your permit.

2 Have all owner(s) signatures acknowledged by a notary public. An acknowledgement is a form obtained from the notary verifying that the signatory is the person stated on the Declaration.

3 Take, do not mail, the form and recording fee to:

Office if the County Recorder
County Government Center
701 Ocean Street, Room 230
831) 454-2800

4 Bring or send a copy of the recorded document to:

County of Santa Cruz
Planning Department
701 Ocean Street, 4th Floor
Santa Cruz, Ca. 95060

YOUR PERMIT CANNOT BE APPROVED UNTIL THE ABOVE STEPS ARE COMPLETED. Please call Joe Hanna at 831-454-3175 if you have any questions regarding this form.

(over)

EXHIBIT I

Return recorded form to:
Planning Department
County of Santa Cruz
701 Ocean Street, 4th Floor

Attention: Joe Hanna
County Geologist
831-454-3175

Notice

THIS PAGE ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION (CALIFORNIA GOVERNMENT CODE §27361.6)

EXHIBIT I

RECORDED AT REQUEST OF:
County of Santa Cruz

WHEN RECORDED MAIL TO:

Santa Cruz County Planning
701 Ocean St.
Santa Cruz, CA 95060

(Space above this line for Recorder's use only)

Note to County Recorder:

Please return to the staff geologist in the Planning Department when completed.

DECLARATION REGARDING THE ISSUANCE OF A DEVELOPMENT PERMIT IN AN AREA SUBJECT TO GEOLOGIC HAZARDS

DECLARATION REGARDING THE ISSUANCE OF A DEVELOPMENT PERMIT IN AN AREA SUBJECT TO GEOLOGIC HAZARDS

The undersigned _____ (names of property owners) (does) (do) hereby certify to be the owner(s) of the real property located in the County of Santa Cruz, State of California, commonly known as _____ (Street address); legally described in that certain deed recorded in Book _____ on Page _____ of the official records of the Santa Cruz County Recorder on _____ (deed recordation date); Assessor's Parcel Numbers 074-191-02.

And, acknowledge that records and reports, filed with the Santa Cruz County Planning Department, indicates that the above described property is located within an area that is subject to geologic hazards, to wit:

> The proposed home will be constructed at the top of the stream channel and will be designed so that the new retaining wall and the home's foundations are designed to compensate for stream erosion, and slope instability. **Geotechnical Engineering Report** by Tharp and Associates, August 3, 2001, Project Number 01-14; **Supplemental Geotechnical Recommendations**; Haro, Kasunich and Associates, dated September 25, 2007, Project Number SC949; and **Engineering Geology Report** by Nolan and Associates dated April 17, 2008, Job Number 08009 specify standards for the retaining walls and foundations that reduce the potential damage to the site from flooding, erosion, and slope instability. This property will also be subject to intense seismic shaking.

In addition, having full understanding of said hazards and the proposed mitigation of these hazards, we elect to pursue development activities in an area subject to geologic hazards and do hereby agree to release the County from any liability and consequences arising from the issuance of the development permit.

EXHIBIT I

This declaration shall run with the land and shall be binding upon the undersigned, any future owners, encumbrancers, their successors, heirs, or assignees. This document should be disclosed to the forgoing individuals. This declaration may not be altered or removed from the records of the County Recorder without the prior consent of the Planning Director of the County of Santa Cruz.

OWNER: _____ OWNER: _____
Signature Signature

ALL SIGNATURES ARE TO BE ACKNOWLEDGED BEFORE A NOTARY PUBLIC. IF A CORPORATION, THE CORPORATE FORM OF ACKNOWLEDGEMENT SHALL BE USED.

State of California
County of Santa Cruz

On _____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity (ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

(Seal)

_____
Signature

EXHIBIT 1

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

a. Based on the results of our investigation, it is our opinion that from the geotechnical standpoint, the subject site will be suitable for the proposed development provided the recommendations presented herein are implemented during grading and construction. If these recommendations are implemented in the design and construction, the danger to life and property is considered an ordinary risk (General Plan). b.

b. No active faults are known to exist through the site although published maps indicate the presence of faults nearby.

c. It is our recommendation that the existing foundations supporting the single family residence be under-pinned with drilled cast-in-place concrete shafts. Recommendations for this foundation system have been included in this report. See section 7.3.2..

d. We further recommend that a retaining wall be constructed between the existing residence and Lompico Creek, founded on a system of drilled cast-in-place concrete shafts and tied back with helix anchors. See section 7.3.2 for Drilled Cast-In-Place Concrete Shafts recommendations and section 7.3.3 for Helix Anchor recommendations.

e. The drilled cast-in-place concrete shafts for the retaining wall should be off-set from the drilled, cast-in-place concrete shafts for the under-pinning of the residence. Off-setting the shafts will ensure that the helix anchor tie-backs do not influence the shafts for under-pinning the residence.

f. The retaining wall should extend laterally beyond the footprint of the existing residence a minimum of 10 feet either side. The bottom of the returns for the retaining wall should extend into the slope to an elevation at least 1 foot above of the 100 year flood level.

g. If the retaining wall is constructed within 6 feet of the foundation of the existing residence, a stress influence analysis should be performed by the Geotechnical Consultant.

h. The near surface soils within the building site are considered compressible. Site preparation, consisting of over excavation and recompaction of the native subgrade will be required prior to placement of fills, slabs-on-grade, and pavements. See section 7.2.3 for Preparation of On-Site Soil recommendations.

EXHIBIT J

j. We consider that the anticipated grading will not adversely affect, nor be adversely affected by, adjoining property, with due precautions being taken.

k. It is assumed that final grades will not vary more than 3± feet from current grades. Significant variations will require that these recommendations be reviewed.

l. The final Grading Plans, Foundation Plans and design loads should be reviewed by this office during their preparation, prior to contract bidding.

m. The design recommendations of this report must be reviewed during the grading phase when subsurface conditions in the excavations become exposed.

n. Field observation and testing must be provided by a representative of Tharp & Associates, Inc., to enable them to form an opinion regarding the adequacy of the site preparation, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications and the recommendations presented in this report. Any earthwork performed in connection with the subject project without the full knowledge of, and not under the direct observation of Tharp & Associates, Inc., the Geotechnical Consultant, will render the recommendations of this report invalid.

o. The Geotechnical Consultant should be notified at least five (5) working days prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction conference should be held on the site to discuss project specifications, observation/testing requirements and responsibilities, and scheduling. This conference should include at least the Grading Contractor, the Architect, and the Geotechnical Consultant.

7.2 Grading

7.2.1 General

All grading and earthwork should be performed in accordance with the recommendations presented herein and the requirements of the regulating agencies.

EXHIBIT J

7.2.2 Site Clearing

a. Prior to grading, the areas to be developed for structures, pavements and other improvements, should be stripped of any vegetation and cleared of any surface or subsurface obstructions, including any existing foundations, utility lines, basements, septic tanks, pavements, stockpiled fills, and miscellaneous debris.

b. All pipelines encountered during grading should be relocated as necessary to be completely removed from construction areas or be capped and plugged according to applicable code requirements.

c. Any wells encountered shall be capped in accordance with Santa Cruz County Health Department requirements. The strength of the cap shall be at least equal to the adjacent soil and shall not be located within 5 feet of any structural element.

d. Surface vegetation and organically contaminated topsoil should be removed from areas to be graded. The required depth of stripping will vary with the time of year the work is done and must be observed by the Geotechnical Consultant. It is generally anticipated that the required depth of stripping will be 6 to 12 inches.

Note: If this work is done during or soon after the rainy season, or in the spring, the soil may be too wet to be used as engineered fill.

e. Holes resulting from the removal of buried obstructions that extend below finished site grades should be backfilled with compacted engineered fill.

7.2.3 Preparation of On-Site Soils

a. Drilled cast-in-place concrete shafts will require no over excavation or recompaction of native material below foundation elements. The only earthwork anticipated for these shafts is that required to recompact soils disturbed during construction.

b. Due to the compressible near surface soils, native subgrade beneath slabs-on-grade should be reworked to a depth sufficient to provide a zone of compacted fill extending 2 feet below the bottom of the aggregate base course. This zone of reworking shall extend a minimum of 5 feet laterally beyond the concrete flat work. The depth of overexcavation will need to be approved by the Geotechnical Consultants as subsurface conditions become exposed.

EXHIBIT J

c. Due to the compressible near surface soils, native subgrade beneath pavements should be reworked to a depth sufficient to provide a zone of compacted fill extending at least 2 feet below the original ground surface or 1 foot below the bottom of the aggregate base course, whichever is greater. This zone of reworking should extend laterally a minimum of 5 feet laterally beyond the pavement. The depth of overexcavation will need to be approved by the Geotechnical Consultants as subsurface conditions become exposed.

d. The depths of reworking required are subject to review by the Geotechnical Consultant during grading when subsurface conditions become exposed.

e. Prior to placing fill, the exposed surface should be scarified to a depth of 6 to 8 inches, moisture conditioned, and compacted.

f. Settlements may need to be evaluated should the planned grades result in the ground surface being raised 3± feet above the existing grades. Should this occur, some additional reworking of existing materials may be required.

g. The depths of over excavation should be reviewed by the Geotechnical Consultant during the actual construction. Any surface or subsurface obstruction, or questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Consultant for proper processing as required.

7.2.4 Fill Placement and Compaction

a. Any fill or backfill required should be placed in accordance with the recommendations presented below.

b. With the exception of the upper 6 inches of subgrade in pavement and driveway areas, material to be compacted or reworked should be moisture-conditioned or dried to achieve near-optimum conditions, and compacted to achieve a minimum relative compaction of 90%. The upper 6 inches of subgrade in pavement and drive areas and all aggregate base and subbase shall be compacted to achieve a minimum relative compaction of 95%. The placement moisture content of imported material should be evaluated prior to grading.

c. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with ASTM D-1557.

EXHIBIT J

d. Fill should be compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness.

e. Imported fill material should be approved by the Geotechnical Consultant prior to importing. Soils having a significant expansion potential should not be used as imported fill. The Geotechnical Consultant should be notified not less than 5 working days in advance of placing any fill or base course material proposed for import. Each proposed source of import material should be sampled, tested and approved by the Geotechnical Consultant prior to delivery of any soils imported for use on the site.

f. All fill should be placed and all grading performed in accordance with applicable codes and the requirements of the regulating agency.

7.2.5 Fill Material

a. The on-site soils **may** be used as engineered fill.

b. All soils, both existing on-site and imported, to be used as fill, should contain less than 3% organics and be free of debris and cobbles over 6 inches in maximum dimension.

7.2.6 Shrinkage and Subsidence

a. Shrinkage due to the removal and recompaction of the existing on-site fill soils is estimated to be on the order of 6 percent. Subsidence may be assumed to be ½ to 1 inch.

b. These are preliminary estimates which may vary with depth of removal, stripping loss, and field conditions at the time of grading. Handling losses are not included.

7.2.7 Excavating Conditions

a. We anticipate that excavation of the on-site soils may be accomplished with standard earthmoving and trenching equipment.

b. Due to the relatively cohesive on-site soils, caving is not anticipated during the drilling of the cast-in-place concrete shafts.

c. Groundwater was not encountered during the course of our field exploration, however, during periods of high rainfall, wet excavating conditions should be anticipated.

EXHIBIT J

d. Any excavations adjacent to existing structures should be reviewed, and recommendations obtained to prevent undermining or distress to these structures.

7.2.8 Sulfate Content

The results of our laboratory testing indicate that the soluble sulfate content of the on-site soils likely to into contact with concrete is below the 0.2% generally considered to constitute an adverse sulfate condition. Type II cement is therefore considered adequate for use in concrete in contact with the on-site soils.

7.2.9 Corrosivity

Due to the close proximity of Lompico Creek, it is our opinion that the on-site soils likely to into contact with the helix anchors should be considered moderately corrosive. We therefore recommend that all helix anchors be protected ***with galvanized coating.***

7.2.10 Expansive Soils

a. Based on our laboratory results, the near surface soils should be considered to have low expansion potential.

b. Additional expansion testing may be required to evaluate the expansivity of material proposed for imported fill or the fill above the unsupported cut near the building pad.

7.2.11 Surface Drainage

a. Pad drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. A minimum gradient of 2± percent should be maintained and drainage should be directed toward approved swales or drainage facilities. Concentrations of surface water runoff should be handled by providing the necessary structures, paved ditches, catch basins, etc

b. To help mitigate future landsliding on the property, storm water should not be allowed to discharge onto or near the steep slopes on the subject property. Discharge locations should be noted on the final drainage or site plans and approved by the Geotechnical Consultant.

EXHIBIT J

c. Drainage patterns approved at the time of construction should be maintained throughout the life of the structures. The building and surface drainage facilities must not be altered nor any grading, filling, or excavation conducted in the area without prior review by the Geotechnical Consultant.

d. All roof eaves should be guttered with the outlets from the downspouts provided with adequate capacity to carry the storm water away from the structure to reduce the possibility of soil saturation and erosion. The connection should be to a closed conduit which discharges at an approved location away from the structure and the graded area.

e. Irrigation activities at the site should be controlled and reasonable. Planter areas should not be sited adjacent to walls without implementing approved measures to contain irrigation water and prevent it from seeping into walls and under foundations and slabs-on-grade.

f. The surface soils are classified as moderately erodible. Therefore, the finished ground surface should be planted with erosion resistant landscaping and ground cover and continually maintained to minimize surface erosion.

7.3 Foundations

7.3.1 General

a. Based upon the results of our field exploration, laboratory testing, and engineering analysis, it is our opinion that the existing residence be under-pinned with a system composed of drilled cast-in-place concrete shafts. It is our recommendation that a retaining wall be constructed between the existing single family residence and Lompico Creek. This retaining wall should be founded on a system composed of drilled, cast-in-place concrete shafts and tied back with helix anchors.

b. At the time we prepared this report, the grading plans and foundation details had not been completed. We request an opportunity to review these items during the design stages to determine if supplemental recommendations will be required.

EXHIBIT J

7.3.2 Drilled Cast-In-Place Concrete Shafts

a. It is our recommendation that the drilled cast-in-place concrete shafts used to under-pin the existing foundation have a **minimum embedment depth of 2 feet into the underlying siltstone bedrock**. This equates to approximately 10 feet below existing grade in the location of the existing residence. The drilled cast-in-place concrete shafts ensure that the potential for damage to structures caused by compressible on-site soil be minimized.

b. The **minimum recommended shaft diameter** for under-pinning the existing residence is **18 inches**.

c. The estimated allowable downward and upward axial shaft capacities for 1.5, 2, and 2.5 foot diameter, drilled cast-in-place concrete shafts for under-pinning the existing residence are presented in **Table 2**. These were computed assuming a minimum depth of 10 feet. These capacities do not include the weight of the shaft.

Table 2

Allowable Downward and Upward Axial Shaft Capacities
for **Under-Pinning** the Existing Residence

Shaft Diameter (ft.)	Downward Capacity (kips)	Upward Capacity (kips)
1.5	16	4
2.0	32	6
2.5	48	8

d. It is our recommendation that the drilled cast-in-place concrete shafts used for the proposed retaining wall have a **minimum embedment depth of 2 feet into the underlying siltstone bedrock**. This equates to approximately 8 feet below existing grade in the area of the proposed retaining wall.

EXHIBIT J

e. To prevent erosion underneath the proposed retaining wall, we recommend a **grade beam be constructed at the base of the wall** with a **minimum embedment depth of 6 inches into the underlying siltstone bedrock.**

f. The **minimum recommended shaft diameter** for the retaining wall is **12 inches.**

g. We recommend no uplift capacity from the soil. The uplift may be resisted by the weight of the shafts and grade beam.

h. Based on the short embedment depths recommended for the retaining wall shafts, no passive pressure can be assumed for design purposes. We recommend that all lateral support for the retaining wall be achieved with helix anchors. Refer to section 7.3.3 for Helix Anchor recommendations.

i. The estimated allowable downward axial shaft capacities for 1, 1.5, and 2 foot diameter, drilled cast-in-place concrete shafts for the proposed retaining wall are presented in **Table 3**. These were computed assuming a minimum embedment depth of 2 feet. These capacities do not include the weight of the shaft.

Table 3

Allowable Downward Axial Shaft Capacities
for **Retaining Walls**

Shaft Diameter (ft.)	Downward Capacity (kips)
1.0	4
1.5	12
2.0	20

j. The axial capacities shown apply to a single shaft, as this is the anticipated configuration. If multiple shafts are used, group efficiencies should be evaluated on the basis of actual structural configurations in order to assess possible reductions in capacity due to group influences.

EXHIBIT J

k. In the event that all or part of the shaft is placed in structural fill consisting of imported materials, allowable bearing capacities will be influenced by the type of these materials and should be re-evaluated.

l. Active pressures, as shown in **Table 4** (See section 7.4.1.), from the upper 2 feet of soil against the shaft, acting on a plane which is 1 ½ times the pier diameter may be assumed for design purposes.

m. Passive pressures for under-pinning only, as shown in **Table 4** (See section 7.4.1.) acting over a plane 1 ½ times the shaft diameter, may be assumed for design purposes. Neglect passive pressure in the top 3 feet of soil.

n. Shafts should be spaced no closer than 2.5 diameters, center to center, with a minimum 3.0 diameters preferred.

o. The caissons drilled for the installation of the shafts should be clean, dry and free of debris or loose soil. The caissons should not deviate more than 1% from vertical.

p. Based on the results of our field exploration, caving is not anticipated to present problems during caisson drilling operations.

q. If the contractor chooses to use casing, it must be pulled during the concrete pour. It must be pulled slowly with a minimum of 4 feet of casing remaining embedded within the concrete at all times.

r. For caisson depths in excess of 8 feet, concrete should be placed via a tremie. The end of the tube must remain embedded a minimum of 4 feet into the concrete at all times.

s. All shaft construction must be observed and approved by the Geotechnical Consultant. Any shafts constructed without the full knowledge and continuous observation of Tharp & Associates, Inc. will render the recommendations of this report invalid.

t. The shafts should contain steel reinforcement as determined by the Project Structural Engineer in accordance with applicable UBC or ACI Standards.

EXHIBIT J

7.4 Retaining Structures

7.4.1 Lateral Earth Pressures

a. The lateral earth pressures presented in **Table 4** are recommended for the design of the retaining structures with a gravel blanket and backfill soils of expansivity not higher than Medium. Should the slope behind the retaining walls be other than level or 2:1 horizontal to vertical, supplemental design criteria will be provided for the active earth or at-rest pressures for the particular slope angle.

Table 4

Lateral Earth Pressures

Type	Soil Profile	Soil Pressure (psf/ft)	
		Unrestrained Wall	Rigidly Supported Wall
Active Pressure	Level	40	-
	2:1	70	-
At-Rest Pressure	Level	-	100
	2:1	-	130
Passive Pressure **For Under-Pinning Only** (Ignore Upper 3 ft)	Level	300	140
	2:1	160	80

b. Friction Factor for rough concrete and on-site bedrock - 0.3 The friction factor should be used for the grade beam for the retaining wall **only.**

c. Where both friction and the passive resistance are utilized for sliding resistance, either of the values indicated should be reduced by one-third.

d. These are ultimate values, no factor of safety has been applied.

EXHIBIT J

e. Pressure due to any surcharge loads from adjacent footings, traffic, etc., should be analyzed separately. Pressures due to these loading can be supplied upon receipt of the appropriate plans and loads. Refer to **Figure 3** for a Surcharge Pressure Diagram.

7.4.2 Helix Anchors

a. Based on our recommendations, it is our understanding that the lateral support of the wall will be achieved by helix anchors.

b. The pull-out capacity for the helix anchors were calculated based on the assumption that they would be embedded 7± feet below the existing surface (7 feet of overburden).

c. Pull-out capacities were determined based on a minimum recommended embedment depth of 10 feet laterally into the slope.

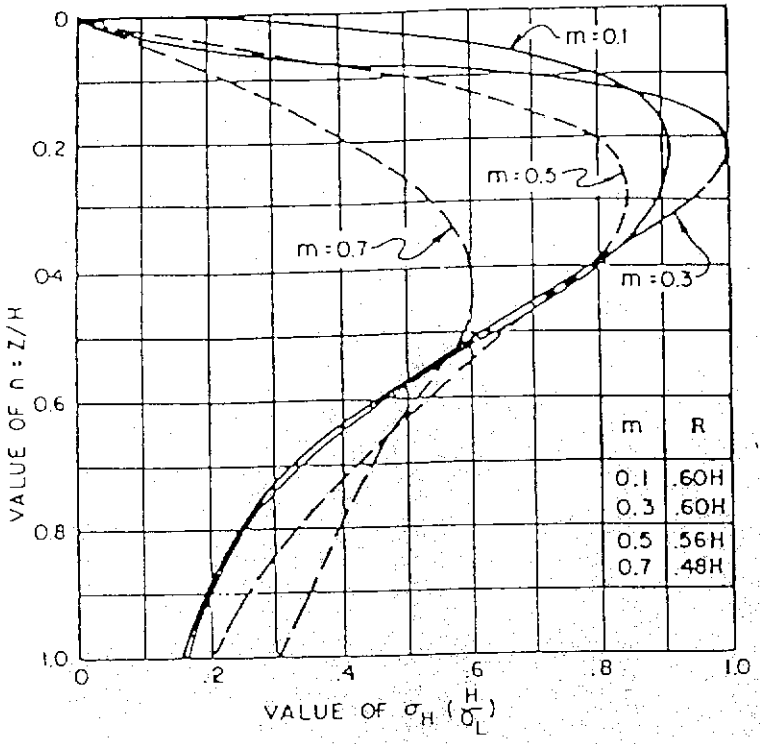
d. We have constructed **Table 5** to determine the number and size of the helix plates that will be needed for each anchor to achieve the required minimum service load. To determine the pull-out capacity of each helix plate, the values must be multiplied by the **area** of the helix plate. The total pull-out capacity of each anchor is calculated by summing up the pull-out capacity of each helix plate on the anchor.

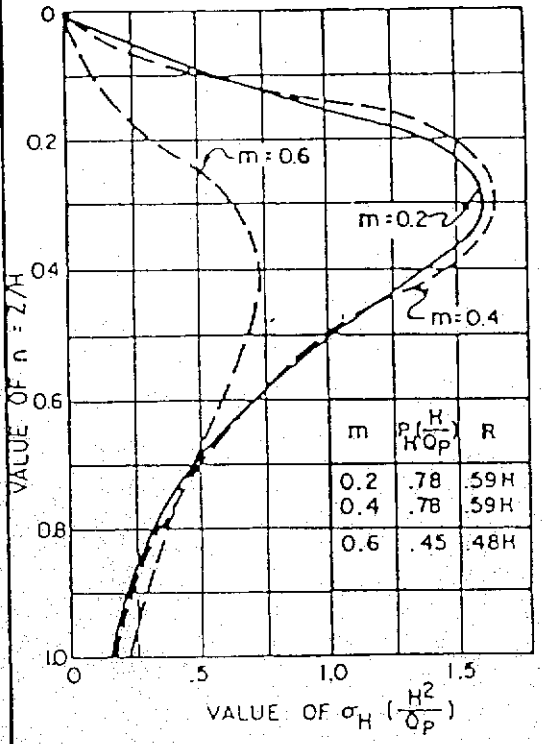
Table 5

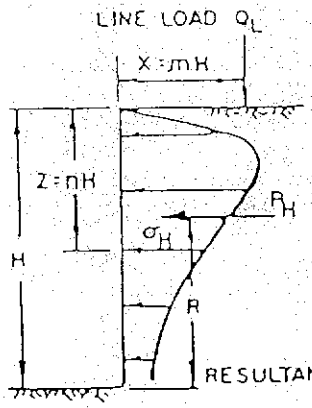
Allowable Pull-Out Capacities
for **Helix Anchors**

Overburden Depth (ft.)	Pull-Out Capacity (psf)
7	2310
8	2430
9	2550
10	2670

EXHIBIT J







FOR $m \leq 0.4$

$$\sigma_H(\frac{H}{Q_L}) = \frac{0.20n}{(0.16+n^2)^2}$$

$$P_H = 0.55\,Q_L$$

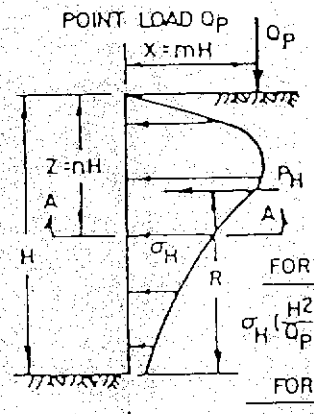
FOR $m > 0.4$:

$$\sigma_H(\frac{H}{Q_L}) = \frac{1.28m^2n}{(m^2+n^2)^2}$$

PRESSURES FROM LINE LOAD Q_L

(BOUSSINESQ EQUATION MODIFIED BY EXPERIMENT)

Reference: Design Manual
NAVFAC DM-7.2
Figure 11
Page 7.2-74



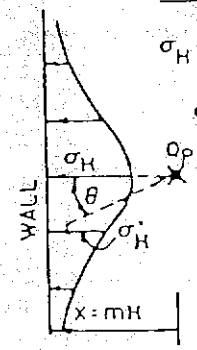
FOR $m \leq 0.4$:

$$\sigma_H(\frac{H^2}{Q_P}) = \frac{0.28n^2}{(0.16+n^2)^3}$$

FOR $m > 0.4$:

$$\sigma_H(\frac{H^2}{Q_P}) = \frac{1.77m^2n^2}{(m^2+n^2)^3}$$

$$\sigma_H' = \sigma_H \cos^2(1.1\theta)$$



SECTION A-A

PRESSURES FROM POINT LOAD Q_P

(BOUSSINESQ EQUATION MODIFIED BY EXPERIMENT)

Tharp & Associates Geotechnical Consultants	SURCHARGE PRESSURE DIAGRAM LATERAL SURCHARGE PRESSURE DUE TO ADJACENT VERTICAL LOADS	Figure 3

EXHIBIT J 1

e. The minimum recommended helix depth to diameter ratio is 5.

f. Individual helix plates attached to a multi-plate anchor should be spaced no closer than 5 diameters or 5 feet whichever is less.

g. Anchors should be placed no closer than 5 diameters center-to-center, the diameter of the largest helix plate being used to determine the spacing.

h. Rotational resistance encountered by an anchor when being screwed into the soil is defined as installation torque. The monitoring of installation torque during installation is recommended. Installation torque should not exceed the anchor rating. Installation torque has been empirically related to pull-out capacity. A minimum pull-out capacity to installation torque ratio of 10 is generally recommended, subject to verification in the field. Values for pull-out capacity are given in **Table 5** and can be calculated by using the method shown in section d. above.

i. Installation tolerances should be within 2±% with regards to plumbness and to within 2± inches in location.

j. Due to the close proximity of Lompico Creek, it is our opinion that the on-site soils likely to into contact with the helix anchors should be considered moderately corrosive per the Chance Foundation Manual. See References. We therefore recommend that all helix anchors be protected with **galvanized coating**.

k. In general, installation procedures should be per the manufacturer's specifications.

l. **It is recommended that at least one test anchors be installed and pull-out tested prior to full scale production in order to verify both design loads and installation torque requirements. This testing *should be performed under* the observation of the Geotechnical Consultant.**

m. All anchor installation must be observed and approved by the Geotechnical Consultant. Any anchors installed without the full knowledge and continuous observation of Tharp & Associates, Inc. will render the recommendations of this report invalid.

EXHIBIT J

7.4.3 Backfill

a. Backfill should be placed under engineering control.

b. It is recommended that granular, or relatively low expansivity, backfill be utilized, for a width equal to approximately 1/3 x wall height, and not less than 2 feet, subject to review during construction.

c. The granular backfill should be capped with at least 18 inches of relatively impermeable material.

d. Backfill should be compacted to achieve a minimum 90 percent relative compaction, the compaction standard being obtained in accordance with ASTM D-1557.

e. Precautions should be taken to ensure that heavy compaction equipment is not used immediately adjacent to walls, so as to prevent undue pressures against, and movement of, the walls.

f. The use of water-stops/impermeable barriers and appropriate waterproofing should be considered for any basement construction, and for building walls which retain earth.

7.4.4 Backfill Drainage

a. i. Backdrains should be provided in the backfill, or weepholes/weepslits should be provided in retaining walls. (It is recommended that backdrains be provided for walls over 4± feet high, for retaining walls which form part of a building structure, and where any staining or efflorescence due to dripping from weepholes/weepslits would be aesthetically unacceptable.)

ii. Weepholes/weepslits should be per CALTRANS Standard Plans.

iii. Backdrains should be per Subsections b) to f) below.

EXHIBIT J

b. Backdrains should consist of 4-inch diameter Schedule 40, PVC pipe or equivalent, embedded in approximately 3 ft^3/linear foot of Permeable Material meeting the State of California Standard Specification Section 68-1.025, Class 1, Type A, or equivalent, with the pipe being 4± inches above the trench bottom; a gradient of 1± % being provided to the pipe and trench bottom; discharging into suitably protected outlets. See **Figure 4** for a Typical Backdrain Configuration.

c. 3/4-inch down open-graded gravel, enveloped in Mirafi 500X geofabric filter or equivalent, may be used instead of the Class 1, Type A, Permeable Material.

d. Perforations in backdrains are recommended as follows: 3/8-inch diameter, in 2 rows at the ends of a 120 degree arc, at 3-inch centers in each row, staggered between rows, placed downward.

e. An unobstructed outlet should be provided at the lower end of each segment of backdrain. The outlet should consist of an unperforated pipe of the same diameter, connected to the perforated pipe and extended to a protected outlet at a lower elevation on a continuous gradient of at least 1 percent.

f. If a wood lagging wall is used, the wall may be constructed with spacers between the wood lagging, the PVC pipe omitted, and the drain allowed to discharge through the spaces in the lagging.

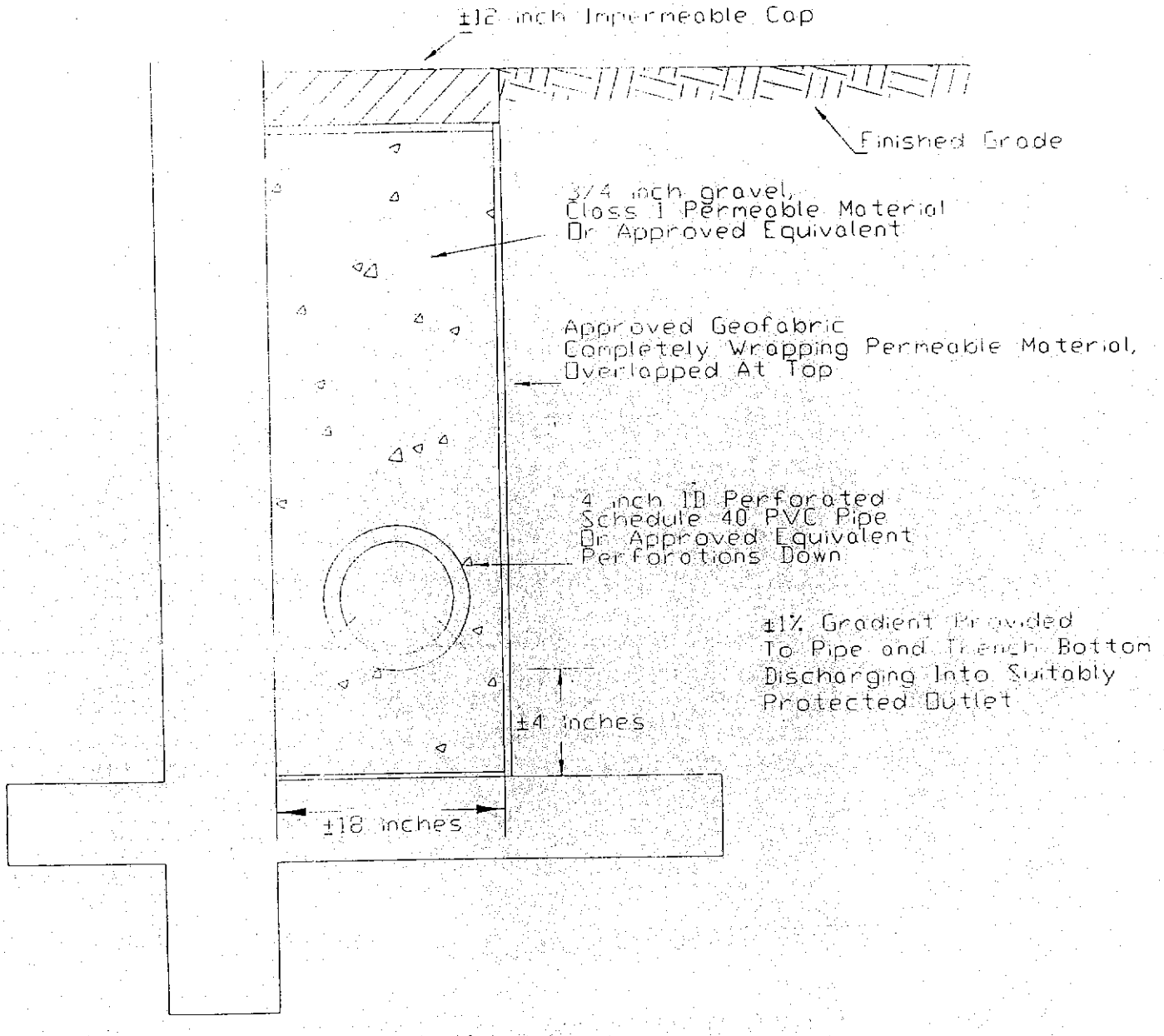
g. Backdrains placed behind retaining walls should be approved by the Geotechnical Consultant prior to the placement of fill.

7.5 Slabs-On-Grade

a. Concrete floor slabs may be founded on the reworked existing soils or on compacted fill. The subgrade should be proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

b. Where moisture sensitive floor coverings are anticipated or vapor transmission may be a problem, a 10 mil waterproof membrane should be placed between the granular layer and the floor slab in order to reduce moisture condensation under the floor coverings. Place a 2-inch layer of moist sand on top of the membrane. This will help protect the membrane and will assist in equalizing the curing rate of the concrete.

EXHIBIT J



Tharp & Associates Geotechnical Consultants	**TYPICAL BACKDRAIN CONFIGURATION** DETAIL	Figure 4

EXHIBIT J

c. Requirements for pre-wetting of the subgrade soils prior to the pouring of the slabs will depend on the specific soils and seasonal moisture conditions and will be determined by the Geotechnical Consultant at the time of construction. It is important that the subgrade soils be **thoroughly** saturated for 24 to 48 hours prior to the time the concrete is poured.

d. The subgrade should be presoaked as follows:

i. With Very High and High Expansivity Soil - 5 percentage points above optimum, or to 125% of optimum, whichever is greater; to 2 feet depth.

ii. With Medium expansivity Soil - 5 percentage points above optimum, or 125% of optimum, whichever is greater, to 1.5 feet depth.

iii. With Low Expansivity Soil - 4 percentage points above optimum, or to 120% optimum, whichever is greater; to 1 foot depth.

e. For presoaking purposes the expansivity of the on site soils may be considered Low.

f. Slab thickness, reinforcement, and doweling should be determined by the Project Structural Engineer, based on the design live and dead loads, including vehicles.

g. The utilization of post-tensioned concrete slabs may be considered in lieu of conventional concrete slabs. There are inherent advantages with this system, especially the characteristic that the propagation or widening of cracks that may otherwise develop is inhibited. Detailed recommendations, based on UBC 1997, will be provided if required. Tentative, outline geotechnical recommendations for post tensioned slabs are presented as follows, for purposes of initial planning:

EXHIBIT J

i. Minimum thickness: 4 inches structural/construction considerations would govern.

ii. Substructure: 2 inches sand, over 10-mil plastic sheet, over prepared subgrade.

iii. Minimum embedment of edge beam below lowest adjacent exterior grade: 18 inches.

7.6 Settlements

Total and differential settlements beneath foundation elements are expected to be within tolerable limits. Vertical movements are not expected to exceed 1 inch. Differential movements are expected to be within the normal range (½ inch) for the anticipated loads and spacings. These preliminary estimates should be reviewed by the Geotechnical Consultant when foundation plans for the proposed structures become available.

7.7 Pavement Design

The design of the pavement section was beyond our scope of services for this project. To have the selected pavement sections perform to their greatest efficiency, it is very important that the following items be considered:

a. Properly moisture condition the subgrade and compact it to a minimum relative dry density of 95%, at a moisture content 1-3% over the optimum moisture content.

b. Provide sufficient gradient to prevent ponding of water.

c. Use only quality materials of the type and thickness (minimum) specified. All baserock must meet Cal-Trans Standard Specifications for Class II Aggregate Base, and be angular in shape.

d. Compact the base and subbase uniformly to a minimum relative dry density of 95%.

e. The R-Value should be obtained at the conclusion of grading and the design pavement sections reviewed at that time.

f. Asphalt concrete should be placed only during periods of fair weather when the ambient air temperature is within prescribed limits.

g. Maintenance should be undertaken on a routine basis.

EXHIBIT J

h. If concrete slabs are required, a design will be provided upon receipt of traffic loads and volume.

7.8 Exterior Concrete Flatwork

a. Concrete flatwork should be divided into as nearly square panels as possible. Frequent joints should be provided to give articulation to the panels. Landscaping and planters adjacent to concrete flatwork should be designed in such a manner as to direct drainage away from concrete areas to approved outlets.

b. It is assumed that concrete flatwork will be subjected only to pedestrian traffic.

EXHIBIT J

steepened banks along the landward side of scour areas. These banks will also be subject to failure.

In order to identify potentially unstable areas related to stream erosion, we have projected 2:1 (H:V) sloping lines upward from the lateral limit of potential stream scour on our cross sections (Plate 2). Soils lying above the 2:1 lines are considered potentially unstable. Plate 1 depicts a setback line defined by the daylight points of the 2:1 sloping lines. In our opinion, the hazards associated with stream scour area moderate. Any structures to be built on the creek side of the setback line must be protected from the effects of stream scour and resulting instability. Mitigation design may include erosion protection measures, deepened foundations, or both.

Landsliding

Our aerial photo analysis indicated that the steep slopes across Lompico Creek, opposite the project site, have failed previously and are therefore considered susceptible to future failures. We did not find evidence to indicate that sliding on the opposite slope face has impacted the subject property. No known landsliding is mapped on the subject property and we did not observe any evidence for existing landsliding during our field reconnaissance that could negatively impact development of the site. We therefore consider the risk posed by existing landsliding at the subject site generally to be low.

The banks along Lompico Creek are presently over-steepened by lateral erosion of the creek. As discussed in the section on flooding, above, these banks are not considered stable and the hazard associated with bank failure must be mitigated for any structures to be built within close proximity of the channel. Mitigation of such instability hazard must also account for the potential for lateral erosion of the creek channel.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our site visit, we render the following opinions regarding potential geologic hazards at the subject property:

1. We recommend that all structures intended for human habitation, and any structurally attached appurtenances, to be constructed on the Lompico Creek side of the setback line depicted on Plate 1, be protected from the effects of stream scour (lateral erosion) during high flow conditions and potential slope instability. As can be seen from the setback line location on Plate 1, any new development on the property will require mitigation for potential slope instability hazards. The mitigation measures may include erosion protection designed to prevent scour of the loose fluvial deposits or specialized foundations designed to mitigate potential slope instability due to scour.

2. We recommend that we be consulted to provide site specific design recommendations for any structures to be built within the setback zone.

EXHIBIT K

3. There is a moderate to high potential that the subject site will experience strong seismic shaking during a standard building lifetime (50 years). All structures should be designed according to the recommendations of the most current version of the California Building Code, at a minimum. In general, wood frame structures constructed to modern UBC standards perform well during earthquakes. Many of the risks associated with earthquakes, however, are not due to structural failure. Most injuries result from falling debris, overturned furniture, the disruption of utilities, and fires that occur as a result of broken utility lines, overturned gas stoves, etc. Large appliances or pieces of furniture (i.e. refrigerators, pianos, wall units, bookshelves, water heaters, etc.) should be firmly attached to the floor or the structural members of the walls. For a discussion of simple procedures for making homes safer during a major earthquake, we recommend "Peace of Mind in Earthquake Country" by Peter Yanev (Chronicle Press).

4. There are no known faults mapped on the subject property and we are of the opinion that fault surface rupture hazard due to faulting is low at this site.

5. Our aerial photo analysis indicated the steep face opposite the project site has failed previously and is susceptible to future failures. However, we did not find any evidence to suggest the subject site will be negatively effected. Therefore, we believe the potential for landsliding to impact the proposed development to be low.

6. The project geotechnical engineer should provide specific foundation recommendations for any proposed building foundations.

7. We recommend that any foundations or other site development constructed over non-engineered artificial fill or our backfilled test pits be designed to accommodate settlement of the fill. Fill materials include those marked as *"af"* on Plate 1. Alternatively, the project geotechnical engineer may specify that the fill be removed and re-compacted or foundations deepened to derive support from underlying earth materials. Engineering specifications for the re-compaction of the backfill should be provided by the project geotechnical engineer.

8. We recommend that the project engineers consider the findings of our seismic shaking analysis in project design. Given the potential for strong seismic shaking to occur during the design life span of the proposed structures, all structures should be designed to the most current standards of the California Building Code, at a minimum.

9. We recommend that all drainage from improved surfaces 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. The control of runoff is essential for erosion control and prevention of water ponding against foundations and other improvements.

10. If it is desired to construct a new septic system on the parcel, the northwest portion of the subject property will be geologically suitable for a septic leachfield location. Leaching trenches may be constructed below the 2:1 setback line. Please note, a separate septic feasibility investigation will be necessary to determine whether the proposed leachfield site conforms to Santa Cruz County Environmental Health Department regulations.

10. This report is issued with the understanding that it is the duty and responsibility of the owner, or of his representative or agent, to ensure that this report is provided to and brought to the attention the architect, engineer(s) and general contractor for the project, and that all recommendations made in the report are incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out the report's recommendations in the field.

11. 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.

12. If any unexpected variations in soil conditions, or if any unanticipated geologic conditions are encountered during construction, or if the proposed project will differ from that discussed or illustrated in this report, Nolan Associates should be notified so that supplemental recommendations can be given. Our conclusions and recommendations shall not be considered valid unless the changes are reviewed and the conclusions in this report are modified or verified in writing by a representative of Nolan Associates.

13. 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.

INVESTIGATIVE 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.

EXHIBIT K