COUNTY OF SANTA CRUZ

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

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: **EMC Planning Group for Michael Houlemard, etal**

APPLICATION NO.: **08-0050**

APN: **041-052-08**

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

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

_____ Mitigations will be attached to the Negative Declaration.

XX No mitigations will be attached.

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

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

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

RANDALL ADAMS
Staff Planner

Phone: **(831) 454-3218**

Date: **May 15, 2009**

Environmental Review
Initial Study

Application Number: 08-0050

Date: March 9, 2009
Staff Planner: Randall Adams

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: EMC Planning Group **APN**: 041-052-08

OWNER: Michael Houlemard, etal. **SUPERVISORAL DISTRICT**: 2

LOCATION: Property located on the south side of Soquel Drive (9028 Soquel Drive) about 1,000 feet east of Aptos Street, in Aptos. (Attachment 1)

SUMMARY PROJECT DESCRIPTION:

Proposal to amend the General Plan land use designation from C-O (Professional & Administrative Offices) to R-UH (Urban High Density Residential) and a Rezoning from PA (Professional & Administrative Offices) to RM-2.5 (Multi-family Residential), and to recognize an existing dwelling group of 3 residential units, and site improvements in coordination with County slope maintenance above Soquel Drive.

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

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

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

X	General Plan Amendment	X	Grading Permit
____	Land Division	____	Riparian Exception
X	Rezoning	____	Other:
X	Development Permit	____	
____	Coastal Development Permit	____	

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:

ENVIRONMENTAL REVIEW ACTION

On the basis of this Initial Study and supporting documents:

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

___ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the attached mitigation measures have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Matt Johnston

Matt Johnston

May 12, 2009

Date

For: Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: 28,793 square feet
Existing Land Use: Residential dwelling group
Vegetation: Wooded, mixed oaks and redwoods
Slope in area affected by project: ___ 0 - 30% __X__ 31 – 100%
Nearby Watercourse: Valencia Creek
Distance To: 200 feet

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: N/A

Water Supply Watershed: Not mapped
Groundwater Recharge: Not mapped
Timber or Mineral: Not mapped
Agricultural Resource: Not mapped

Biologically Sensitive Habitat: Valencia Creek

Fire Hazard: Not mapped
Floodplain: Not mapped
Erosion: Not mapped
Landslide: Not mapped

Liquefaction: Mapped as very high potential, Geotechnical report completed
Fault Zone: Not mapped
Scenic Corridor: Highway One
Historic: No historic resource on site
Archaeology: Mapped resource, Archaeological Site Review completed
Noise Constraint: Not mapped

Electric Power Lines: N/A
Solar Access: Adequate
Solar Orientation: Varies
Hazardous Materials: N/A

SERVICES

Fire Protection: Aptos/La Selva FPD
School District: Pajaro Valley USD
Sewage Disposal: Santa Cruz County Sanitation District

Drainage District: Zone 6
Project Access: Soquel Drive
Water Supply: Soquel Creek Water District

PLANNING POLICIES

Zone District: PA
General Plan: C-O
Special Designation: None

Urban Services Line:	__X__ Inside	____ Outside
Coastal Zone:	____ Inside	__X__ Outside

PROJECT SETTING AND BACKGROUND:

The subject property is approximately 28,793 square feet in area and is located on the south side of Soquel Drive in Aptos. The property is developed with 3 existing residential units, accessed via a steep driveway up from Soquel Drive. The property is a small hill, with a cleared area at the top where the existing development is located. The site is wooded with a mix of oak and redwood trees. The slope on the north side of the hill (between the existing development and Soquel Drive) has failed and a steep, vertical slope section has developed immediately north of the existing driveway and buildings. The uses surrounding the property are commercial offices with some existing multi-family residential development, and Highway One is located to the south.

DETAILED PROJECT DESCRIPTION:

This application is a proposal to recognize the conversion of one existing commercial office into a residential unit (resulting in a 3 unit residential dwelling group with the other two residential units on site) and to repair a slope failure on the north side of the property above Soquel Drive. (Attachment 2) The General Plan land use designation for the property would be amended from the C-O (Professional & Administrative Offices) designation to the R-UH (Urban High Density Residential) designation. The property would also be rezoned from the PA (Professional & Administrative Offices) zone district to the RM-2.5 (Multi-family residential - 2,500 square feet minimum) zone district. The residential zoning and land use designation would be consistent with the existing residential use on the property and is compatible with the existing professional office and multi-family residential uses in the surrounding area.

The existing residential development in not proposed to be modified, other than the removal of an existing storage shed and existing paving above the slope failure. The near vertical slope would be graded back at a 1:1 slope gradient and a new parking area would be installed. A pier and grade beam foundation would be installed for the parking area above the re-graded slope. Grading volumes would be approximately 490 cubic yards (cut) and 20 cubic yards (fill), with the 470 cubic yards to be exported off site.

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

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

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

   a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or as identified by other substantial evidence? _____ _____ X _____

All of Santa Cruz County is subject to some hazard from earthquakes. However, the project site is not located within or adjacent to a County or state mapped fault zone. For this reason the potential for rupture of a known earthquake fault is unlikely to occur on the subject property.

   b. Seismic ground shaking? _____ _____ X _____

All of Santa Cruz County is subject to some hazard from earthquakes. The California Building Code and County Code section 16.10 (Geologic Hazards) require preparation of a geotechnical report to address seismic issues. A geotechnical investigation for the proposed project was prepared by Haro, Kasunich & Associates, dated 7/08 (Attachment 3). The geotechnical investigation (Attachment 3) considers the impacts of seismic shaking on the proposed 1:1 cut slope and driveway, and provides recommendations for drainage and driveway design to reduce hazards associated with seismic shaking. Additional recommendations included in the review letter prepared by Environmental Planning staff (Attachment 4) further reduce the potential risk associated with seismic shaking.

   c. Seismic-related ground failure, including liquefaction? _____ _____ X _____

The subject property is included in an area mapped for very high liquefaction potential. The California Building Code and County Code section 16.10 (Geologic Hazards) require preparation of a geotechnical report to address potential liquefaction. The addendum to the geotechnical investigation (Attachment 3) indicates the potential for liquefaction is low on the project site due to subsurface bedrock conditions.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
d. Landslides?			X	

See response A-1-b. The California Building Code and County Code section 16.10 (Geologic Hazards) require preparation of a geotechnical report to address potential earth movement. The geotechnical investigation (Attachment 3) considers the potential for future landslides on the proposed 1:1 cut slope and driveway, and provides recommendations for drainage and driveway design to reduce hazards associated with potential landslides. Additional recommendations included in the review letter prepared by Environmental Planning staff (Attachment 4) further reduce the hazards associated with potential landslides.

2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?			X	

See responses A-1-b, A-1-c & A-1-d.

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

See responses A-1-b, A-1-c & A-1-d. The project involves the re-grading of slopes in excess of 30 percent grade. The geotechnical investigation (Attachment 3) provides recommendations for drainage and driveway design to reduce hazards associated with grading a slope in excess of 30 percent grade. Drainage is proposed be collected at the parking area and routed down the driveway away from steeply sloped areas.

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

The project involves grading on steeply sloped areas. County Code section 16.22 (Erosion Control) requires the preparation an implementation of an erosion control plan for all projects involving ground disturbance. In order to reduce soil erosion, the geotechnical investigation (Attachment 3) provides recommendations for drainage and erosion control on the project site. Drainage is proposed to be collected at the parking area and routed down the driveway away from steeply sloped areas.

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

The geotechnical investigation (Attachment 3) for the project did not identify any elevated risk associated with expansive soils.

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

No septic systems are proposed. The existing development is connected to the Santa Cruz County Sanitation District.

7. Result in coastal cliff erosion?				X

B. Hydrology, Water Supply and Water Quality

Does the project have the potential to:

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

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, no portion of the project site lies within a 100-year flood hazard area.

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

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, no portion of the project site lies within a 100-year flood hazard area.

3. Be inundated by a seiche or tsunami?				X

4. Deplete groundwater supplies or interfere substantially with groundwater recharge such that there *would be a net deficit, or a significant* contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?			X	

The existing development is connected to the Soquel Creek Water District. The project is not located in a mapped groundwater recharge area.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
5. Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).			X	

No commercial or industrial activities are proposed that would contribute a significant amount of contaminants to a public or private water supply. County Code section 16.22 (Erosion Control) requires the preparation an implementation of an erosion control plan for all projects involving ground disturbance. Potential siltation from the proposed project would be mitigated through implementation of the required erosion control plan.

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

Although water will be redirected away from the steep slope adjacent to the parking area, the proposed project would not alter the existing overall drainage pattern of the site or area. All water will drain to Soquel Drive and through storm drains to Valencia Creek.

8. Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?			X	

No additional impervious surfaces would be created as a result of this project, and no increase in existing runoff is anticipated.

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

See response B-8.

10. Otherwise substantially degrade water				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
supply or quality?	____	____	____	____

C. Biological Resources

Does the project have the potential to:

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

According to the California Natural Diversity Data Base (CNDDB), maintained by the California Department of Fish and Game, the only known special status plant or animal species which may occur in the site vicinity is Dudley's lousewort, which is not typically found on existing developed properties, per Environmental Planning staff comments. (Attachment 5) Dudley's lousewort is typically found in redwood forest conditions, and was not identified on the project site. There were no special status species observed in the project area.

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

The riparian corridor of Valencia Creek is across Soquel Drive from the project site and no adverse effects on this biotic resource are anticipated as a result of this project.

3. Interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native or migratory wildlife nursery sites?	____	____	X	____

The proposed project does not involve any activities that would interfere with the movements or migrations of fish or wildlife, or impede use of a known wildlife nursery site.

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

The subject property is located in an urbanized area and is surrounded by existing

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

commercial and residential development that currently generates nighttime lighting. Existing nighttime lighting would not illuminate animal habitats in the project vicinity.

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

See responses C-1 and C-2.

6. *Conflict with any local policies or* ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6 inch diameters or greater)?	____	____	X	____

The project would not conflict with any local policies or ordinances.

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

D. Energy and Natural Resources

Does the project have the potential to:

1. Affect or be affected by land designated as "Timber Resources" by the General Plan?	____	____	____	X
2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?	____	____	____	X

The project site is not currently being used for agriculture and no agricultural uses are proposed for the site or surrounding vicinity.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?				X
4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?				X

E. Visual Resources and Aesthetics

Does the project have the potential to:

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

The subject property is located within the viewshed of the Highway 1 scenic corridor. The property is a wooded hilltop and no modification to the existing units or the slope and trees facing the highway are proposed. No change to the existing views from Highway 1 would occur as a result of this project.

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

See response E-1.

3. Degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridge line?			X	

The existing visual setting would not be changed as a result of this project.

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

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

No change in existing lighting conditions would occur as a result of this project.

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

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

F. Cultural Resources

Does the project have the potential to:

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

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

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

According to the Santa Cruz County Archeological Society site assessment, dated 3/27/08 (Attachment 6), there is no evidence of pre-historic cultural resources. However, pursuant to Section 16.40.040 of the Santa Cruz County Code, if archeological resources are uncovered during construction, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

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

See response F-2. Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

	Significant Or *Potentially* Significant Impact	Less than Significant *with* Mitigation Incorporation	Less than *Significant* Or No Impact	Not Applicable
4. Directly or indirectly destroy a unique paleontological resource or site?	____	____	X	____

No paleontological resources have been mapped or identified on the project site.

G. Hazards and Hazardous Materials

Does the project have the potential to:

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

The existing residential use is not involved in the production or handling of hazardous materials.

2. Be located on a site which is *included* on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	____	____	X	____

The project site is not included on the *1/14/09* list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

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

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

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

H. Transportation/Traffic

Does the project have the potential to:

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

There would be no impact because no additional traffic would be generated as a result of the project.

2. Cause an increase in parking demand which cannot be accommodated by existing parking facilities?			X	

The project meets the code requirements for the required number of parking spaces.

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

The proposed project would remove and replace existing paving on the project site. No increase in potential hazards to motorists, bicyclists, and/or pedestrians would occur as a result of this project. Two parking spaces, originally proposed at the bottom of the driveway, were removed from the project due to potential hazards related to backing out onto Soquel Drive.

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

See response H-1.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
I. Noise				
Does the project have the potential to:				
1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____

No change in the existing residential development, or the noise generated by the development, would occur as a result of this project.

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

See response I-1.

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

Noise generated during construction would increase the ambient noise levels for adjoining areas. Construction would be temporary, however, and given the limited duration of this impact it is considered to be less than significant.

J. Air Quality				
Does the project have the potential to: (Where available, the significance criteria established by the MBUAPCD may be relied upon to make the following determinations).				
1. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	____	____	X	____

No change in the existing residential development, or the air pollution generated by the vehicles associated with the development, would occur as a result of this project.

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

See response J-1. The project would not conflict with or obstruct implementation of the

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
regional air quality plan.				
3. Expose sensitive receptors to substantial pollutant concentrations?				X
4. Create objectionable odors affecting a substantial number of people?				X

K. Public Services and Utilities

Does the project have the potential to:

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

No expansion or change in the existing residential use would occur as a result of this project. However, one of the existing residential units would be recognized as a result of this project and school, park, and transportation fees to be paid by the applicant for this one unit would be used to offset the incremental increase in demand for school and recreational facilities and public roads for these units.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	

See responses B-7 & B-8.

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

The existing development is connected to the Soquel Creek Water District and Santa Cruz County Sanitation District for water and sanitary sewer service.

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

The wastewater flows from the existing development do not violate any wastewater treatment standards.

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

The water mains serving the project site provide adequate flows and pressure for fire suppression. Additionally, the local fire agency has reviewed and approved the project plans (Attachment 5), assuring conformity with fire protection standards that include minimum requirements for water supply for fire protection.

6. Result in inadequate access for fire protection?			X	

The existing driveway access has been approved by the local fire agency (Attachment 5).

7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?			X	

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

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

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

L. Land Use, Population, and Housing

Does the project have the potential to:

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

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

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

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

3.	Physically divide an established community?	____	____	X	____

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

4.	Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	____	____	X	____

The proposed project includes an amendment to the General Plan land use designation and zoning on the subject property. This proposal would recognize existing residential development at the density and intensity of development consistent with the General Plan and zoning designations proposed for the parcel. This proposal

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

will recognize the conversion of one existing office to a residential unit, but will not intensify the existing use of the subject property. The project does not propose any new or additional units (beyond what currently exists) or involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served. Consequently, it is not expected to have a significant growth-inducing effect.

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

The proposed project would recognize one existing housing unit in an existing dwelling group and would allow continued use of the existing dwelling units on the project site.

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? Yes ____ No X

N. Mandatory Findings of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes ____ No X

2. Does the project have the potential to achieve short term, to the disadvantage of long term environmental goals? (A short term impact on the environment is one which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future) Yes ____ No X

3. Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes ____ No X

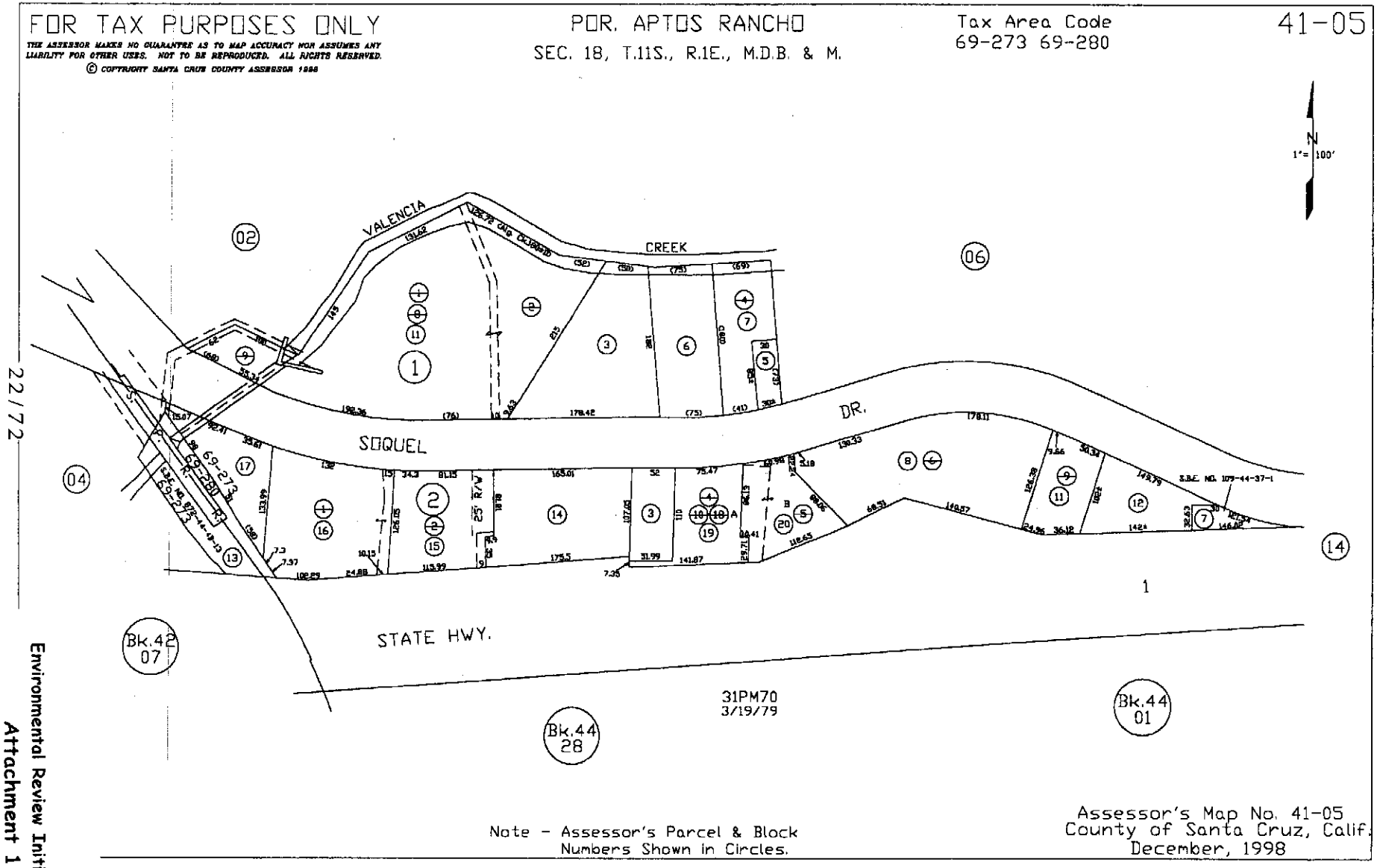
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes ____ No X

TECHNICAL REVIEW CHECKLIST

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

Attachments:

1. Vicinity Map, Map of Zoning Districts, Map of General Plan Designations, Assessors Parcel Map
2. Site, Grading & Erosion Control prepared by Ifland Engineers, revised 11/4/08.
3. Geotechnical Investigation (Conclusions and Recommendations) prepared by Haro, Kasunich & Associates, dated 7/08, Plan Review Letter, dated 11/14/08, and Addendum dated 4/16/09.
4. Geotechnical Review Letter prepared by Carolyn Banti - Civil Engineer & Joe Hanna - County Geologist, dated 9/2/08.
5. Discretionary Application Comments, dated 2/18/09.
6. Archeological Reconnaissance Survey Letter prepared by Christine Hu, dated 3/27/08.



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

Assessor's Map No. 41-05
County of Santa Cruz, Calif.
December, 1998

22 / 72

Environmental Review Initial Study
Attachment 1
App. 08-0050

Location Map

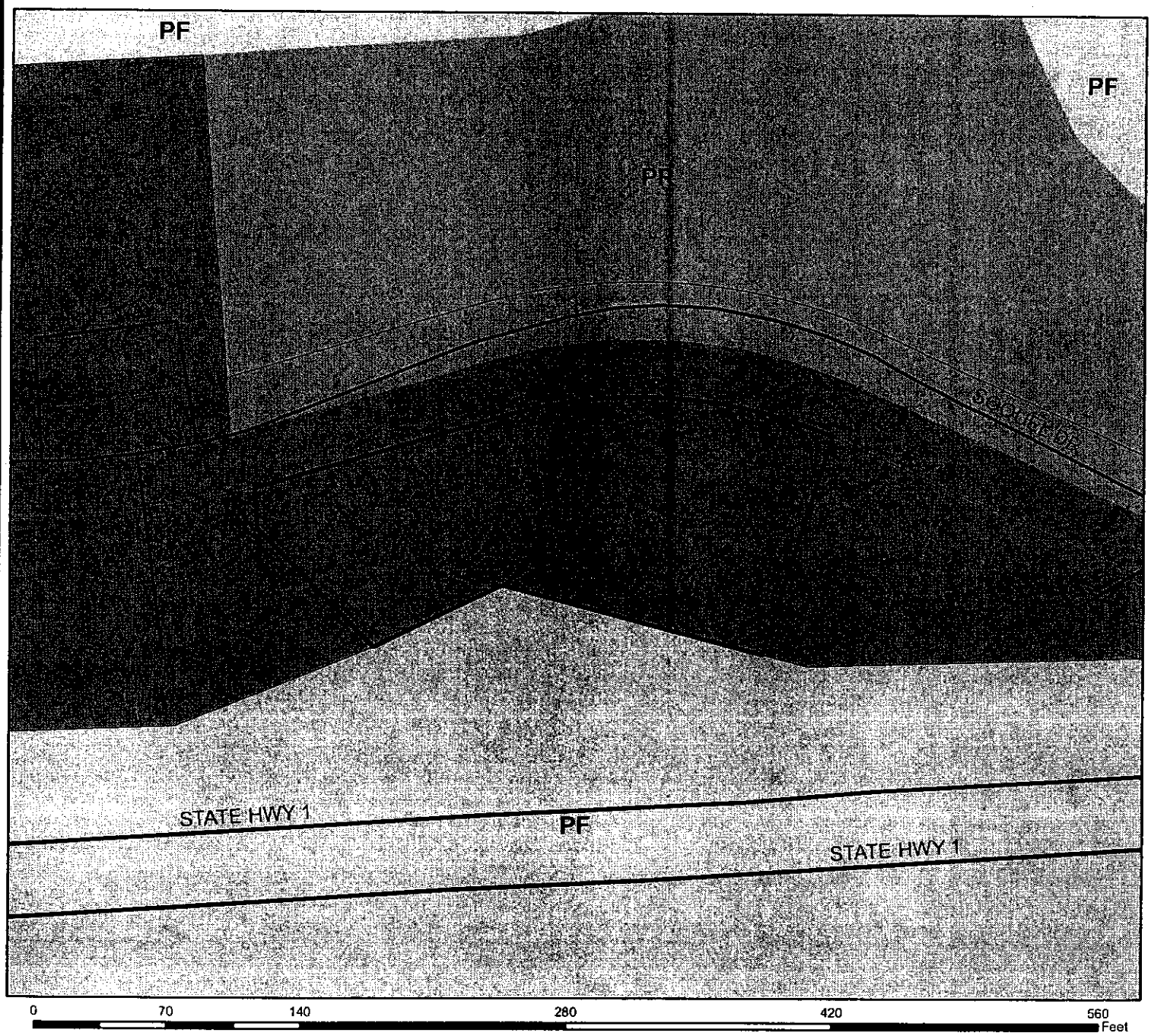
LEGEND

- APN: 041-052-08
- Assessors Parcels
- Streets
- State Highways

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
March 2008

Zoning Map



LEGEND

- APN: 041-052-08
- Assessors Parcels
- Streets
- State Highways
- COMMERCIAL-PROF OFFICE
- PARK
- PUBLIC FACILITY

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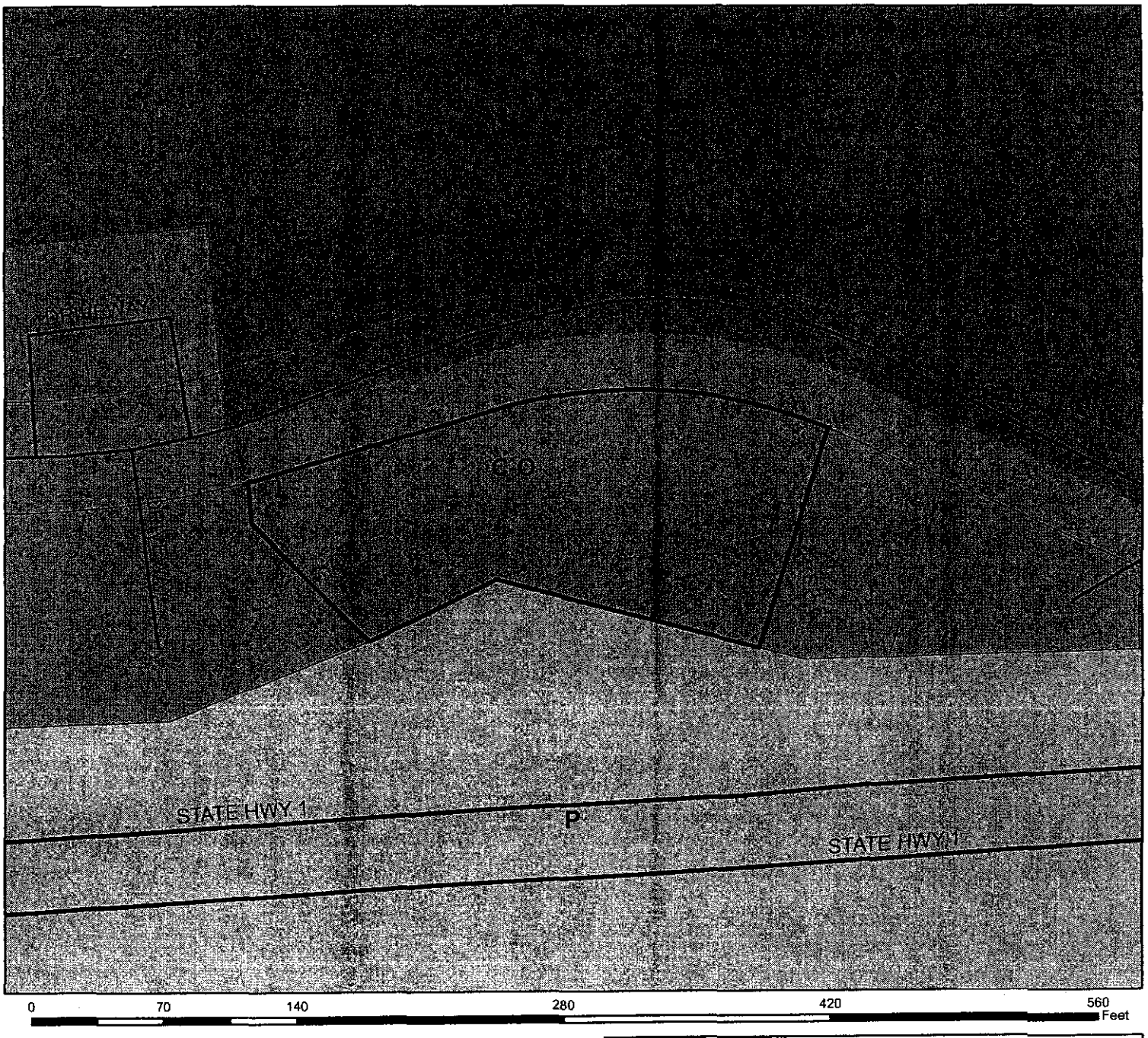
Map Created by
County of Santa Cruz
Planning Department
February 2008

General Plan Designation Map



LEGEND

- APN: 041-052-08
- Assessors Parcels
- Streets
- State Highways
- Commercial-Office
- Urban Open Space
- Public Facilites

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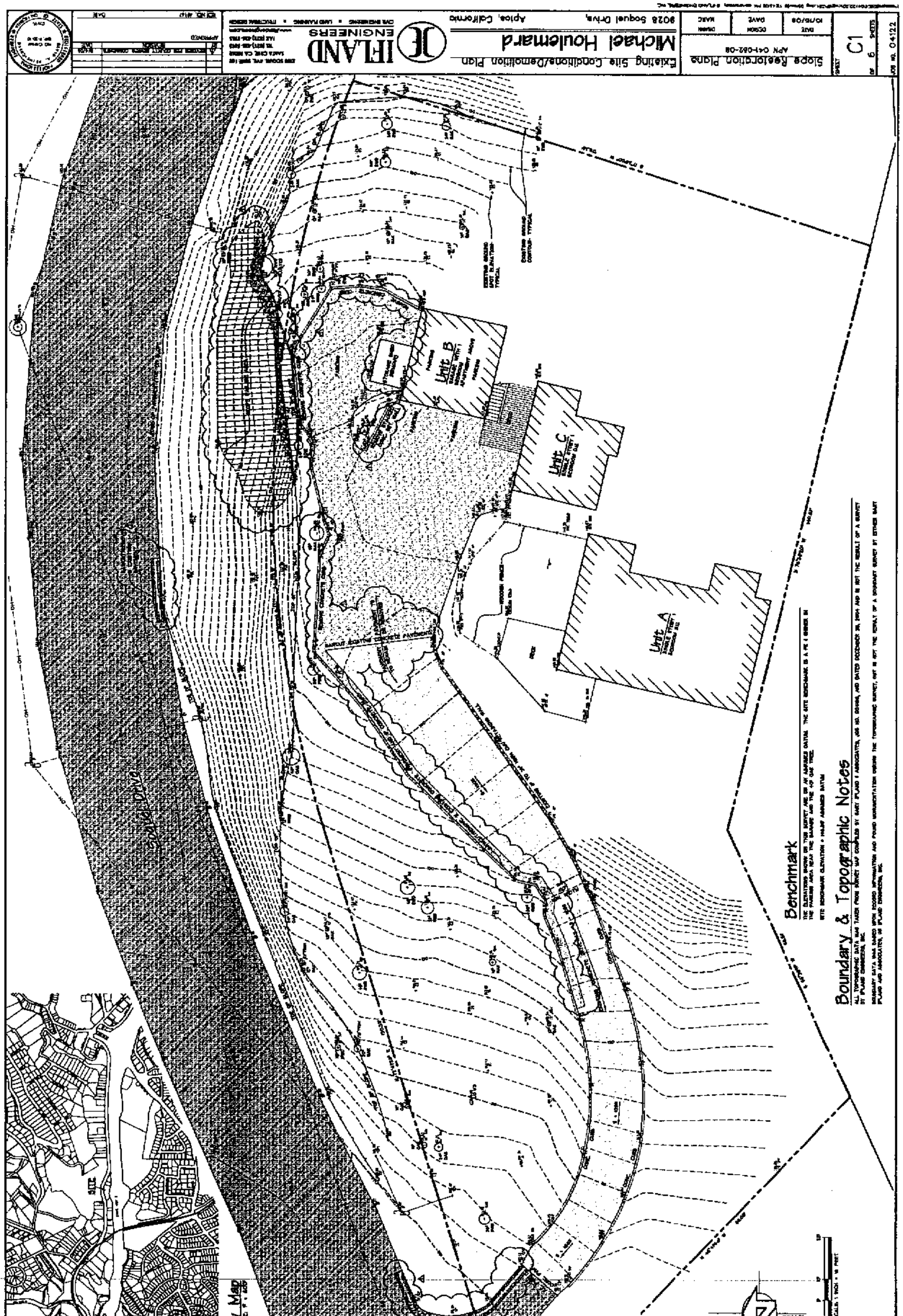
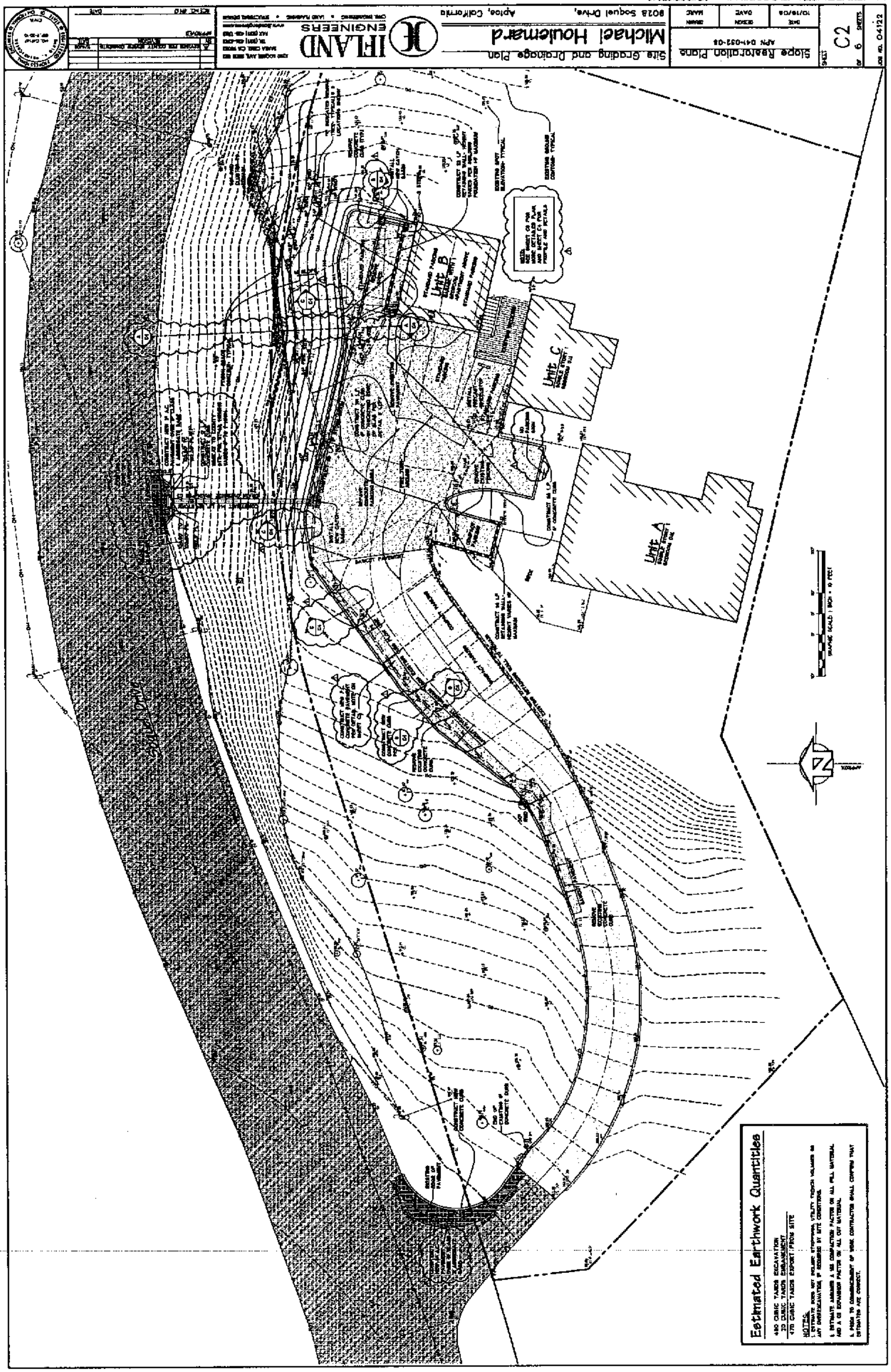
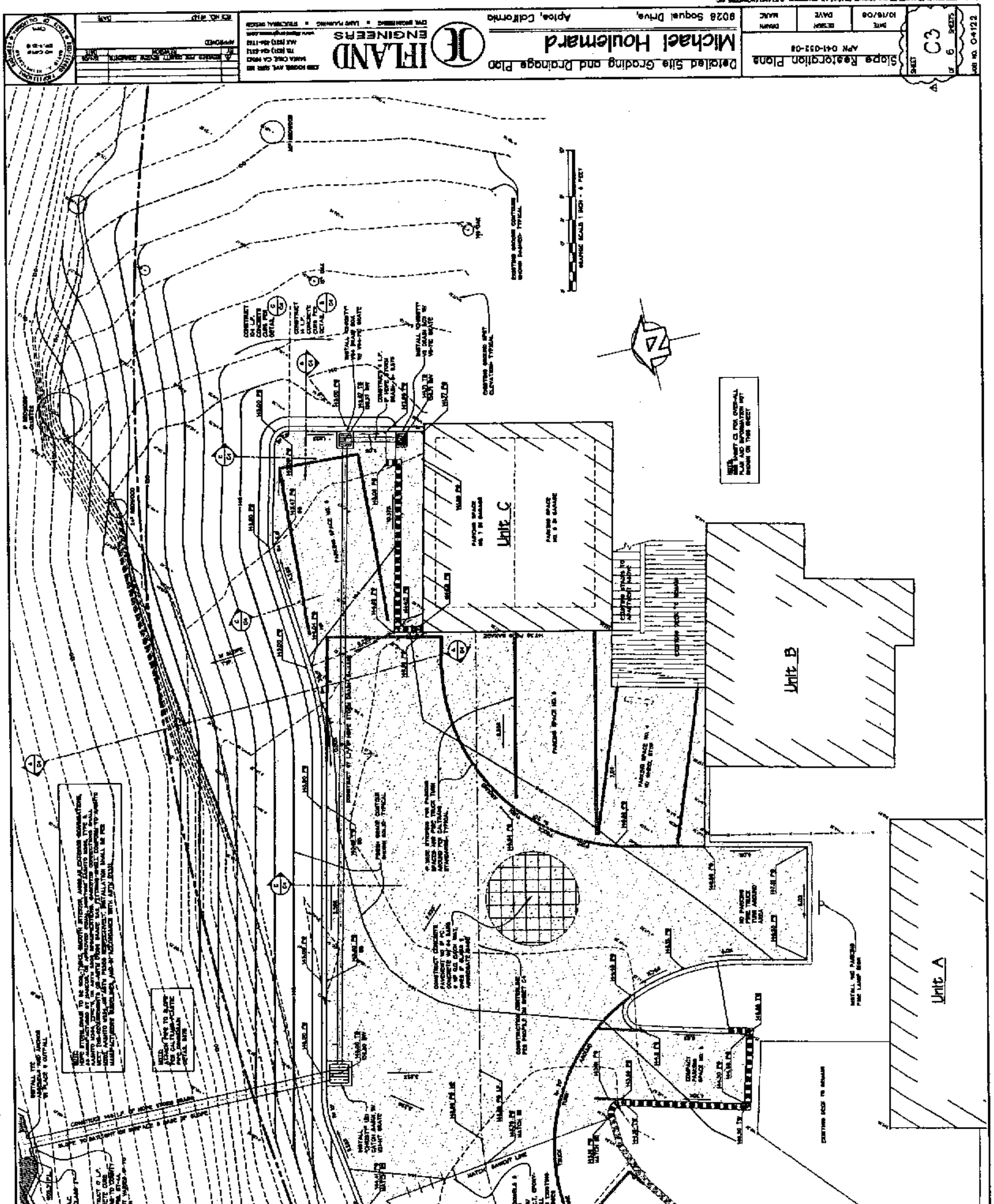
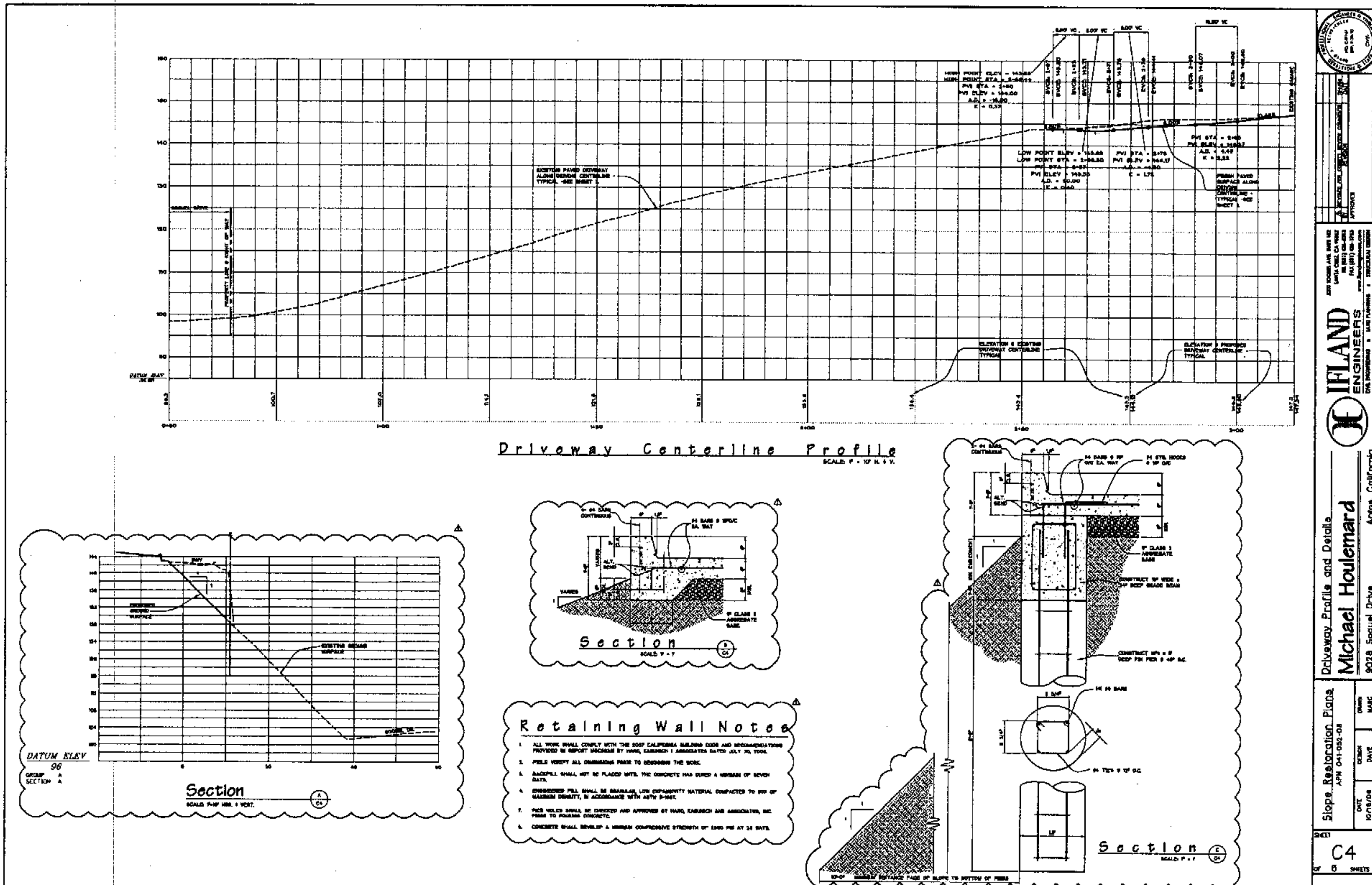
Map Created by
County of Santa Cruz
Planning Department
February 2008

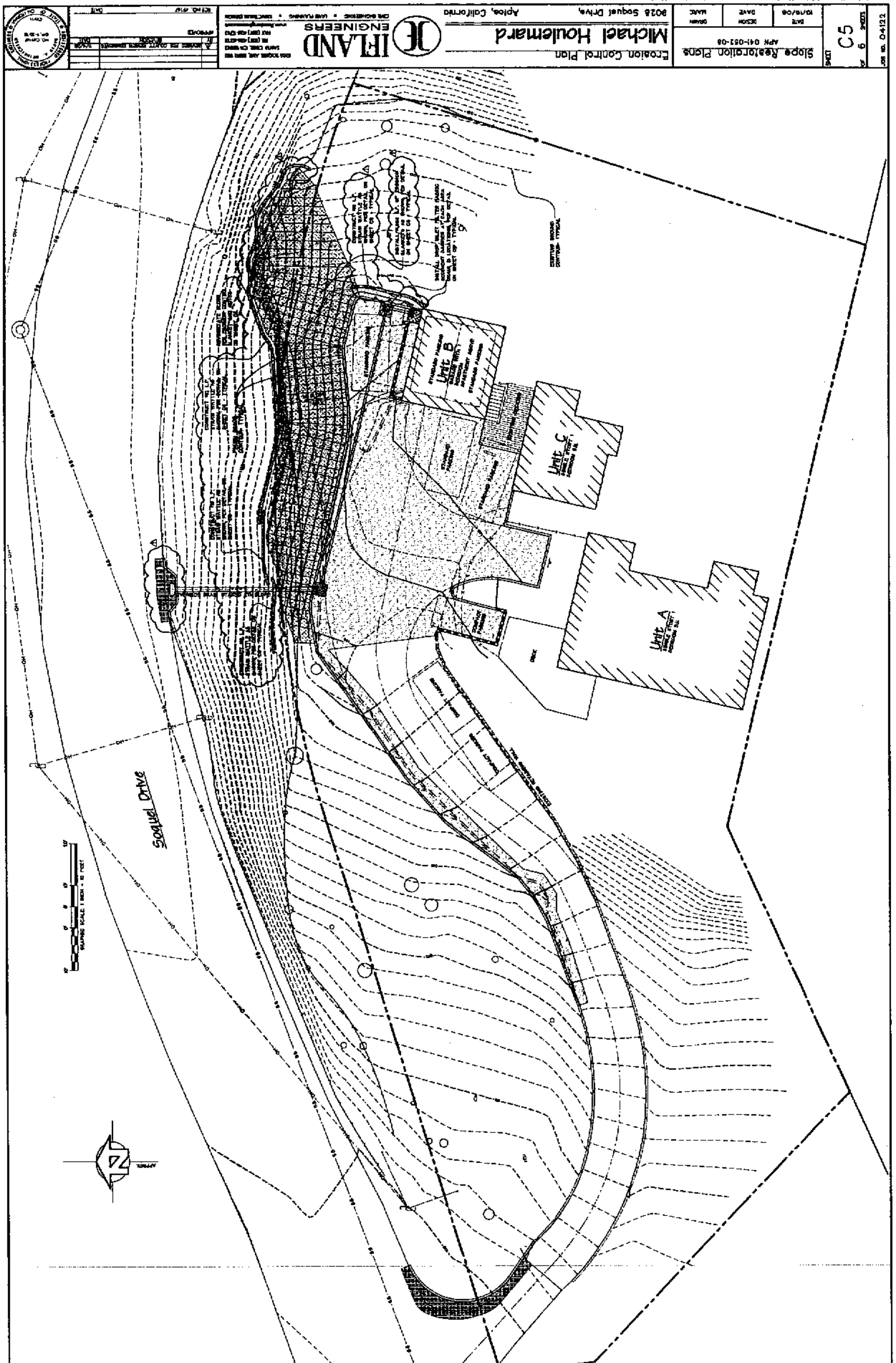


Environmental Review Initial Study
Attachment 2
App. 08-0050

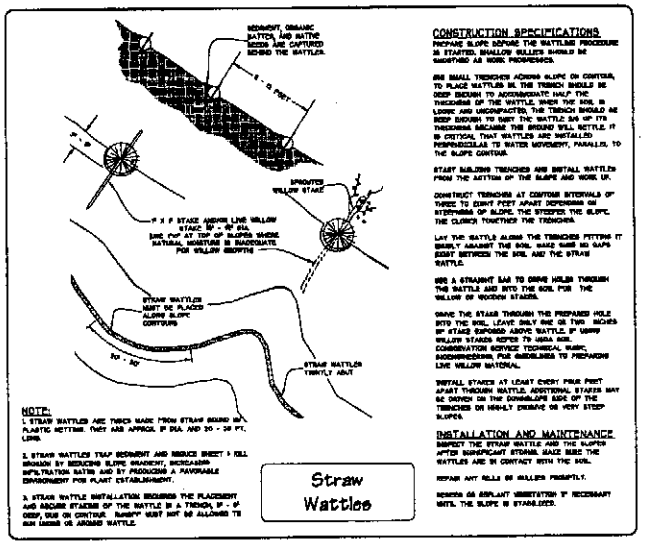

Site Grading and Drainage Plan
Michael Houlemard
8028 Soquel Drive, Aptos, California
Slope Restoration Plans
APN 041-052-08
C2
IFLAND
ENGINEERS
Unit A
Unit B
Unit C
Estimated Earthwork Quantities


Detailed Site Grading and Drainage Plan
Michael Houlemard
8028 Soquel Drive, Aptos, California
Slope Restoration Plans
APN 041-032-08
IFLAND ENGINEERS
C3
Unit A
Unit B
Unit C
Soquel Drive


Driveway Centerline Profile
Section
Section
Section
Retaining Wall Notes
2. FIELD VERIFY ALL DIMENSIONS PRIOR TO BEGINNING THE WORK.
8. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF [illegible] PSI AT 28 DAYS.
DATUM ELEV
96
IFLAND ENGINEERS
Slope Restoration Plans
APN 041-052-08
Driveway Profile and Details
Michael Houlemard
9028 Soquel Drive, Aptos, California
DATE 10/15/08
DESIGN DAVE
DRAWN MARC
SHEET C4
OF 8 SHEETS
JOB NO. 04122



Slope Restoration Plans
APN 041-052-08
Erosion Control Plan
Michael Houlemard
8028 Soquel Drive, Aptos, California
IFLAND ENGINEERS
C5
Unit A
Unit B
Unit C
Soquel Drive



CONSTRUCTION SPECIFICATIONS

PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW RILLES SHOULD BE CONSTRUCTED AS WORK PROGRESSES.

DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE WHEN THE SOIL IS LOOSE AND UNCOMPACTED. THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 3/4 UP ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.

START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.

CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.

LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE.

USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WILLOW OR WOODEN STAKES.

DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL, LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, RECOMMENDATIONS FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.

INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY ERODIBLE OR VERY STEEP SLOPES.

INSTALLATION AND MAINTENANCE

INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.

REPAIR ANY RILLS OR GULLIES PROMPTLY.

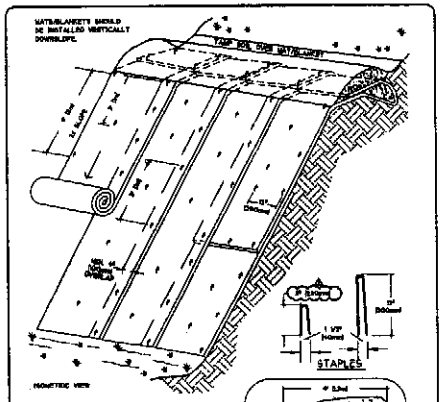
REMOVE OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

NOTE:
1. STRAW WATTLES ARE TUBES MADE FROM STRAW BOUND BY PLASTIC NETTING. THEY ARE APPROX. 9" DIA. AND 20 - 30 FT. LONG.

2. STRAW WATTLES TRAP SEDIMENT AND REDUCE SHEET & RILL EROSION BY REDUCING SLOPE GRADIENT, INCREASING INFILTRATION RATES AND BY PRODUCING A FAVORABLE ENVIRONMENT FOR PLANT ESTABLISHMENT.

3. STRAW WATTLE INSTALLATION REQUIRES THE PLACEMENT AND ABOVE STAKING OF THE WATTLE IN A TRENCH 3" - 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND WATTLE.

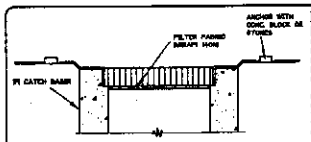
Straw Wattles



Typical Slope Soil Stabilization

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

Erosion Blankets & Turf Reinforcement Mats For Slope Installation



INSPECTION AND MAINTENANCE

FILTER FABRIC BARRIERS SHALL BE INSPECTED WEEKLY AFTER EACH SIGNIFICANT STORM (1 INCH RAINFALL OR MORE IN 24 HOUR PERIOD). ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/2 MAXIMUM HEIGHT. AT THAT TIME INSPECT THE FILTER MATERIAL FOR TEARS AND CLEAN OR REPLACE AS REQUIRED.

THE RETAINED SEDIMENT SHALL BE DISTRIBUTED EVENLY ACROSS AREAS ON-SITE, COMPLIES WITH THE EXISTING GRADE AND BE REVEGETATED OR OTHERWISE STABILIZED PER EROSION CONTROL NOTES.

Drop Inlet Filter Fabric Sediment Barrier

Erosion Control Notes

1. NO LAND CLEARING, GRADING OR EXCAVATION SHALL BE DONE BETWEEN OCTOBER 15th AND APRIL 15th. ANY DEVIATION FROM THIS CONDITION REQUIRES REVIEW AND APPROVAL OF A SEPARATE WINTER EROSION CONTROL PLAN BY ENVIRONMENTAL PLANNING PRIOR TO ANY GRADING CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.

2. UNNECESSARY GRADING AND DISTURBANCE OF SOIL SHALL BE AVOIDED.

3. BETWEEN OCTOBER 15th AND APRIL 15th EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. HAY BALES, FILTER BARRIER, SILT FENCES OR STAKED MULCHES SHALL BE EMPLOYED TO PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING ANY WATER COURSE.

4. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO ENTER THE DRAINAGE OR STORM DRAIN SYSTEM. USE OF SILT AND GREASE TRAPS, FILTER SCREENS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.

5. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY BROADCAST ANNUAL PLANTING OF THE FOLLOWING SCS APPROVED EROSION CONTROL SEED AT A RATE OF 40 LBS. PER ACRE.

SEEDS	PER
BLANDO BROME	20#
ROSE CLOVER (VALLEY INOCULATED)	5#
CREEPING RED FESCUE	10#
ZORRO ANNUAL FESCUE	TRACE
WILDFLOWERS	TRACE

6. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.

7. ANY MATERIAL STOCKPILED DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC.

8. UPON COMPLETION OF CONSTRUCTION, ALL REMAINING EXPOSED AREAS SHALL BE REVEGETATED/LANDSCAPED PER PLAN.

9. EXPOSED SOIL ON SLOPES GREATER THAN 20% SHALL BE ADEQUATELY COVERED WITH 3 INCHES OF STRAW AND AN EROSION CONTROL BLANKET. THE EROSION CONTROL BLANKET SHALL BE STAKED IN PLACE WITH 6"x6" STAPLES AS SHOWN. EROSION CONTROL BLANKET SHALL BE "NORTH AMERICAN GREEN S150" OR APPROVED EQUIVALENT.

10. IT IS THE DEVELOPER'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.

IFLAND ENGINEERS
2300 SOQUEL AVE, SUITE 100, SANTA CRUZ, CA 95062
TEL (831) 426-9555 FAX (831) 426-9560
www.ifland.com
CIVIL ENGINEERING • LAND PLANNING • PROJECT MANAGEMENT

REVISIONS	BY	DATE
1 REVISED PER PLANNING COMMENTS	MARC	10/15/04
APPROVED		

RCE NO. 41157 DATE

Erosion Control Notes and Details
Michael Houlemard
9028 Soquel Drive, Aptos, California

Slope Restoration Plans
APN 041-032-09

DATE 10/15/04 | DESIGN DAVE | DRAWN MARC

SHEET C6 OF 6 SHEETS

JOB NO. 04122

This drawing and design is the property of IFLAND ENGINEERS, INC.

GEOTECHNICAL INVESTIGATION
For
PROPOSED SLIDE REPAIR
APN 041-052-08
9028 Soquel Drive
Aptos, California

Prepared for
MR. MICHAEL HOULEMARD
533 Quail Run
Aptos, California

Prepared by
HARO, KASUNICH & ASSOCIATES, INC.
Geotechnical & Coastal Engineers
Project No. SC9032
July 2008

Environmental Review Initial Study
Attachment 3
App. 08-0050

HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC9032
30 July 2008

MR. MICHAEL HOULEMARD
533 Quail Run
Aptos, California 95003

Subject: Geotechnical Investigation

Reference: Proposed Landslide Repair
APN 041-052-08
9028 Soquel Drive
Aptos, California

Dear Mr. Houlemard:

As requested, this report presents the results and conclusions of our Geotechnical Investigation for a proposed slide repair at the referenced site. The landslide occurred as a result of over steepening of the slope by grading over time. This report presents the results of static and seismic slope stability analysis and presents geotechnical design criteria and recommendations for proposed regrading of the slope to stabilize the slide area and associated improvements.

If you have any questions concerning the data, conclusions or recommendations presented in this report, please contact our office.

Very truly yours,

HARO, KASUNICH AND ASSOCIATES, INC.

Christopher A. George
C.E. 50871

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER A. GEORGE
No. 50871
Exp. 9/30/08
CIVIL
STATE OF CALIFORNIA

CAG/sq

Copies: 1 to Addressee
4 to EMC Planning Group; Attention: Richard James
1 to Inland Engineers; Attention: Dave Heinrichsen

GEOTECHNICAL INVESTIGATION

Introduction

This report presents the results and conclusions of our Geotechnical Investigation for repair of a landslide below the driveway to a residence located at 9028 Soquel Drive (APN 041-052-08). The landslide left an oversteep unstable upper slope below the driveway and parking area on the property.

Slide Repair Plans (Sheets C1 to C5) for the project, dated 13 May 2008, were prepared by Ifland Engineers. The Existing Site Conditions plan of the property (Sheet C1 of the Plans), was used as a base map for our *Site Plan with Boring Locations* (see *Figure 2* in the Appendix). A site cross section titled "Section from Soquel Drive to Garage Corner", prepared by Ifland Engineers, was utilized as the proposed new slope Cross Section A-A' for our slope stability analysis. Site descriptions, elevations, and distances referred to in this report are based in part on review of the Topographic Map.

Purpose and Scope

The purpose of this investigation was to explore and evaluate soil and bedrock conditions at the landslide site and vicinity and develop geotechnical criteria and recommendations for repair of the landslide and stabilization of the hillslope. We also evaluated the static and seismic stability of a 1:1 cut slope stabilization plan recommended by the County of Santa Cruz Public Works Department at the landslide site.

The specific scope of our services was as follows:

A. Site reconnaissance and review of available data in our files regarding the site and vicinity.

B. A field exploration program consisting of logging and interval sampling of soil encountered in four (4) continuous flight augered borings from 10.5 to 41.0 feet deep. The soil samples obtained were sealed and returned to the laboratory for testing.

C. Laboratory classification of select samples obtained. Moisture content and dry density tests were performed on selected samples to evaluate the consistency of the in-situ soil. Direct shear tests were performed to evaluate the soil shear strength properties. Grain size analysis tests were performed to aid in soil classification.

D. Engineering analysis and evaluation of the resulting field data. Static and seismic slope stability analysis was performed for the proposed new slope profile from Soquel Drive through the landslide area to the parking area on top of the bluff. We evaluated the proposed Slide Repair Plan and presented geotechnical design criteria and recommendations for the project.

E. Submittal of this report presenting the results of our investigation.

Site Location and Description

The project site is located at 9028 Soquel Drive in Aptos, California. The topography on the 0.661 acre parcel consists of a relatively level knoll top with moderately steep to very steep slopes descending on all sides. The knoll appears to have been created when mass grading for Highway One excavated through a north trending ridge spur to construct the current highway grades. The excavation left a 2:1 (horizontal to vertical) slope descending to the highway from the north end of the ridge spur (now an isolated knoll). The north side of the ridge spur historically descended about 100 feet in elevation to Valencia Creek. When Soquel Drive was constructed, the north side of the ridge spur (we assume it was cut previous to the mass grading of Highway One and was still a ridge spur and not yet a knoll) was excavated to create the required road width. The excavation left a very steep slope which we understand has failed several times over the years.

The property is developed with three small dwelling units situated on the top of the knoll and a concrete driveway ascending the gentler sloping west portion of the parcel. A concrete parking area lies between the dwelling units and the top edge of the north facing slope, which descends steeply to Soquel Drive. The slope is about 45 feet high with gradients of 1:1 on the lower 30 to 35 feet of the slope and near vertical at the upper 10 to 12 feet.

Landslide

The topographic map prepared by Ifland Engineers shows the top edge of the near vertical upper portion of the slope located about 3 feet north of the concrete parking area at the top of the knoll. Since the site was surveyed for the plan preparation, the outer 5 feet of the near vertical portion of the slope failed, undermining the outer portion of the concrete parking area. The failed portion of the slope was 10 to 15 feet high. Much of the slide material sloughed down the slope and flowed onto Soquel Drive and was removed. The surface of the slope below the slide is presently mantled with slide material a few feet thick. We understand runoff from the driveway flowed over the slope at the slide site and contributed to the landslide. A portion of the denuded landslide area has been covered with plastic sheeting since the slide occurred. West of the plastic sheeting, an overhang of vegetation covers the steep portion of the slope. The upper slope on the east side of the slide is still very steep and has a tall 60 inch diameter redwood tree growing at the top edge of the slope.

Proposed Landslide Repair

The repair of the landslide area proposed by the County of Santa Cruz Public Works Department will primarily consist of the excavation of the near vertical upper 12 to 15 feet of the slope to a 1:1 slope gradient. The outer edge of the concrete pavement will be sawcut and replaced with a thickened edge. Site drainage will be strictly controlled by the installation of three new catch basins material and a 6 inch high concrete berm on the

reinforced concrete driveway. The surface runoff will be conveyed to the toe of the slope via a 12 inch diameter pipe staked to the top of the slope. Erosion control blankets will be placed on the slopes with straw wattles placed on the perimeter of the excavated areas.

Field Exploration

Subsurface conditions were investigated on 13 October 2005 and 29 May 2008. Four (4) exploratory borings were advanced with 6-inch diameter continuous flight auger equipment mounted on a truck. The approximate locations of the borings are shown on the Boring Site Plan (see Figure 2 in the Appendix).

Representative soil samples were obtained from the exploratory borings at selected depths or at major strata changes. These samples were recovered using the 3.0 inch outside diameter (O.D.) Modified California Sampler (L), or the 2.0 inch O.D. Standard Terzaghi Sampler (T). The penetration resistance blow counts noted on the boring logs were obtained as the sampler was dynamically driven into the in situ soil. The process was performed by dropping a 140 pound hammer 30 vertical inches, driving the sampler 6 to 18 inches, and recording the number of blows for each six-inch penetration interval. The blows recorded on the boring logs represent the accumulated number of blows that were required to drive the last 12 inches.

The soil encountered in the borings was continuously logged in the field and described in accordance with the Unified Soil Classification System (ASTM D2488, Visual-Manual Procedure). The logs of the borings are included in the Appendix.

The Boring Logs denote subsurface conditions at the locations and time observed, and it is not warranted that they are representative of subsurface conditions at other locations or times.

Laboratory Testing

The laboratory testing program was directed toward a determination of the physical and engineering properties of the soil underlying the site. Moisture content and dry density tests were performed on representative undisturbed soil samples in order to determine the consistency of the soil and the moisture variation throughout the explored soil profile. Grain Size Analysis tests were performed to aid in soil classification.

The strength parameters of the underlying earth materials where determined from field test values derived from penetration resistance of the in situ soil and from direct shear test performed in the laboratory. The direct shear test samples were saturated 24 hours prior to testing.

The results of the field and laboratory testing appear on the "Logs of Test Boring" opposite the sample tested.

Subsurface Conditions

The results of our subsurface exploration indicate the knoll is underlain by medium dense silty sand, clayey sand, and sandy silt from the surface to depths of 5 to 6 feet. From 6 feet to depths of 10½ to 35 feet, we encountered medium dense to very dense fine to medium sand and silty sand with some coarse sand and sub rounded gravels. In Boring No.3, we encountered very hard siltstone from 35 feet to the depth explored (41 feet). The soil encountered below depths of 5 to 6 feet is interpreted as Purisima Formation sandstone and siltstone.

Groundwater

Groundwater was not encountered in any of the borings at the site. Since the knoll is isolated from the historic ridge spur by mass grading when Highway One was constructed and much of the knoll is covered with concrete or structures, the potential for high groundwater at the site is low. Most of the rainwater falling on the property will sheet flow down the driveway or on the slopes descending on all sides of the knoll.

Site Geology

A review of the Geologic Map of Santa Cruz County indicates the site and vicinity is

mapped as Qt: Terrace deposits, undifferentiated (Pleistocene) and Tp: Purisima Formation (Pliocene and upper Miocene). The terrace deposits (Qt) consists of weakly consolidated to semi-consolidated heterogeneous deposits of moderately to poorly sorted silt, silty clay, sand and gravel mostly deposited in a fluvial environment. The unit thickness is highly variable, locally as much as 60 feet thick. Some of the deposits are relatively well indurated in upper 10 feet of the weathered zone (Brabb, 1989).

The Purisima Formation (Tp) consists of very thick bedded yellowish gray tuffaceous and diatomaceous siltstone containing thick interbeds of bluish-gray, semifriable, fine-grained andesitic sandstone. As shown, includes Santa Cruz Mudstone east of Scotts Valley and north of Santa Cruz. The Purisima Formation thickness is approximately 3,000 feet in the Corralitos Canyon area. (Brabb, 1989).

The soil in the top 5 to 10 feet in our borings appeared to be terrace deposits and weathered Purisima Formation sand. From 5 to 10 feet to the depths explored, the soil encountered in our borings appeared to be medium dense to very dense Purisima Formation sandstone or siltstone.

Seismicity

The following is a general discussion of seismicity in the project area. A detailed study of seismicity and geologic hazards is beyond the scope of our work.

A review of the Geologic Map of Santa Cruz County indicates the project site is located about 7.0 miles from the active San Andreas Fault and about 3.4 miles from the potentially active Zayante Fault.

The San Andreas is a major fault zone of active displacement which extends from the Gulf of California to the vicinity of Point Arena, where the fault leaves the California coastline. Between these points, the fault is about 700 miles long. The fault zone is a break or series of breaks along the earth's crust, where shearing movement has taken place. This fault movement is primarily horizontal. Historically, the San Andreas Fault has been the site of large earthquakes and consequently, large earthquakes can be expected in the future. The largest of the historic quakes in northern California occurred on 18 April 1906 (mag. 8.3+). The 17 October 1989 Loma Prieta earthquake (mag. 6.9) is considered to have been associated with the San Andreas Fault system. This event was the second largest earthquake in Northern California this century. Although no surface rupture was evident following the Loma Prieta earthquake, Hall et al., (1974) indicate that the San Andreas Fault has a high potential for surface rupture, with a recurrence interval of 50 to 1,000 years. Due to the proximity of the San Andreas Fault, strong seismic shaking should be anticipated at the project site.

Quantitative Slope Stability Analysis

Discussion and General Methodology

Failures of slopes occur when stress acting on the soil mass is greater than its internal strength (shear strength). A slope is considered stable when the strength of its soil mass is greater than the stress field acting within it. Some common variables influencing stress are gravity (steeper slopes), hydrostatic pressure (perched groundwater), bearing pressures (structures), and seismic surcharge (earthquake shaking).

Various methods of analyzing stability of slopes yield a factor of safety. A factor of safety is determined by dividing the resisting forces within the slope soils by the driving forces within the slope (stress field). When a factor of safety less than one is determined, a slope failure is likely. When a factor of safety equal to one is determined, the slope is in a state of equilibrium. When a factor of safety greater than one is determined, the slope is considered stable. Santa Cruz County Ordinance requires seismic slope stability analysis to yield a factor of safety equal to or greater than 1.2, and a static safety factor equal to or greater than 1.5.

It must be cautioned that slope stability analysis is an inexact science. The mathematical models of the slopes and soils contain many simplifying assumptions, not the least of which is homogeneity. Density, moisture content and shear strength may vary within a soil type. There may be localized areas of low strength or perched ground water within a soil. Slope stability analyses and the generated factors of safety should be used as indicating

trend lines. A slope with a safety factor less than one will not necessarily fail, but the probability of slope movement will be greater than a slope with a higher safety factor. Conversely, slopes with a safety factor greater than one may fail, but the probability of stability is higher than a slope with a lower safety factor.

Slopes are modeled using a cross-section profile of the particular slope environment being studied. The cross-section contains surface topography and subsurface soil layer geometry. Each layer is assigned soil strength properties, anticipated moisture scenario, anticipated earthquake loading, and potential building loads.

Cross sections are modeled and evaluated quantitatively using a computer software program called PCSTABL, a 2-dimensional, limit equilibrium slope stability program developed by Gary H. Gregory, P.E., which works in conjunction with STEDwin Version 2.7.1, a Graphical User Interface developed by Harald W. Van Aller, P.E., to provide a Slope Stability Analysis System.

The computer program offers several analyses to choose from: General Limit Equilibrium Method of Slices (GLE), Modified Bishop Method, Modified Janbu Method, and Janbu Method of sliding block analysis. The methods divide potential slide masses into several vertical slices. Normal and resistive forces in each slice of a potential slide mass are determined. The forces in each slice of a potential slide mass are then summed up for

total force acting on the mass. The computer program analyses many trial failure surfaces between two zones on the cross-section surface selected by the user and calculates a Factor of Safety for each failure surface, taking into consideration degree of saturation and seismic conditions, and indicates the potential failure surface with the lowest factor of safety. Different shaped failure surfaces area offered: circular-arc, block, wedge and random.

Quantitative slope stability analysis was performed on a proposed graded Cross Section A-A' (see Section from Soquel Drive, Figure 3 in the Appendix) from the toe of the slope to the existing garage corner. The analysis was carried out for both static and pseudo-static (seismic) conditions. The depth and thickness of the subsurface strata delineated on the cross sections were generalized and interpolated from test bore locations. The transition between materials may be more or less gradual than indicated.

The cross section analyzed was based on a proposed final cut slope gradient of 1:1 as shown on the Site Grading and Drainage Plan (Sheet C2), dated 13 May 2008, prepared by Ifland Engineers. The soil and bedrock geometry was based on laboratory and subsurface data derived from our Geotechnical Investigation. The location of the cross section is shown on the Boring Site Plan, (see Figure 2 in the Appendix). Circular failure surfaces and specified sliding block type failure surfaces were assumed. The analysis was run considering the soil to have saturated unit weights but no pore pressure.

The selected Modified Janbu Method analysis considers potential circular slip surface failures and searches for the lowest factor of safety. The selected Modified Bishop Method and Janbu Method of sliding block analysis considered specified potential sliding block slip surfaces at 40 degrees and 33 degrees toeing out at the base of the slope and slip surfaces at 33 and 25 degrees from the toe of the proposed cut slope.

Seismic Coefficient

In order to develop a condition intended to represent earthquake effects within the cross-section, horizontal forces generated by a probable seismic event are typically modeled by applying a pseudo-static seismic coefficient value (k_h) to the cross-section.

A method for determining peak ground acceleration is prescribed in the California Building Code (2007 Edition). Using either Section 1613 of the CBC or the USGS web-based Seismic Coefficient Calculator, the short-duration design spectral response acceleration factor (S_{DS}) is determined. Peak ground acceleration is this value divided by 2.5 (CBC Section 1802.2.7). Alternately, peak ground acceleration for the site may be determined using the California Geological Survey Probabilistic Seismic Hazards Map website. This method yielded a peak ground acceleration of 0.45g, which was selected for our analysis.

To determine the pseudo-static seismic coefficient value (k_h) used in our analysis, the Bray-Rathje (1998) Procedure was used.

Soil Properties

Five direct shear tests were performed on samples at selected depths in our borings. The assigned soil strength values based on the direct shear test results for the soil and bedrock underlying the site are presented in the following table:

TABLE 1

SOIL TYPE	COHESION (psf)	PHI ANGLE (deg)
Medium Dense Silty Sand (SM)	270	37
Medium Dense to Dense Well Graded Sand (SW)	320	32
Dense to Very Dense Silty Sand (SM)	1000	32

Based on laboratory testing, field penetration tests, field observations and our experience with similar soil conditions, this model represents an accurate estimate of in-situ soil properties.

Slope Stability Analysis Results

The results of our analysis indicate that the lowest computed static and seismic factors of safety for the circular type slip surfaces were 1.93 (static) to 1.26 (seismic) for potential failures of the proposed cut slope. The sliding block slip surfaces had static factors of safety ranging from 2.73 to 2.12 and seismic factors of safety ranging from 2.40 to 1.41. See

Figures 10 to 17 in the Appendix for a graphical representation of our slope stability analysis.

In our opinion, the potential for deep circular type failures in the proposed 1:1 sandstone slope is very low. Shallow slab type failures in oversteep sandstone slopes are the most common mode of failure. The recent failure was a slab type failure in the very oversteep upper slope. As our analysis indicates, the potential for block type failure of the proposed 1:1 sandstone slope is also low. However, there is still potential for minor spalling of fractured bedrock or shallow slumping of loose soil when saturated. Strict adherence to site drainage and erosion control recommendations will significantly reduce the potential for problems and is critical to the long term performance of the project.

DISCUSSIONS AND CONCLUSIONS

Based on the results of our investigation, the proposed landslide repair/slope grading project is feasible from a geotechnical standpoint provided the design criteria and recommendations presented in this report are incorporated into the design and construction of the repair project.

The recent landslide at the site was a slab type slide which occurred in the very over steep upper portion of the slope. The results of our slope stability analysis indicate the proposed 1:1 cut slope in the native sandstone slope is statically and seismically stable. However, there is still potential for shallow sloughing of loose soil or fractured bedrock on the slope, especially when saturated. To reduce the potential for loose soil to slough downslope we recommend loose landslide material on the slope surface be removed during the slope regrading.

Thorough control of surface and subsurface water will be critical to the long term performance of the landslide repair/slope grading project. The proposed drain inlets and concrete berms on the edge of the driveway will be adequate provided the inlets and pipes are well maintained and repaired immediately if damaged.

The above drainage improvements will divert all runoff from above the slope from the slope surface. However, incident rainfall will still have potential to cause erosion on the steep slope. To reduce the potential for erosion and slumping of saturated soil, the regraded slope should be revegetated as soon as possible. The proposed erosion control blankets should extend to cover all bare slopes. We recommend the installation of North American Green C350 (or equivalent) erosion control blankets on the slopes in conformance with the manufacturer's guidelines to reduce the potential for erosion.

The proposed edge of the driveway will be at the top edge of the new graded 1:1 slope. If minor erosion or shallow sloughing on the slope occurs, the driveway may be undermined. To provide additional protection for the driveway, we recommend the outer edge of the driveway and parking area adjacent to the regraded slope be supported on a reinforced concrete pier and grade beam foundation. We also recommend a barrier along the outboard edge of the driveway to protect occupants of the property and the slope from injury or damage.

Haro, Kasunich and Associates should review the final slide repair plans prior to construction to evaluate if our recommendations have been properly interpreted and implemented.

RECOMMENDATIONS

The following geotechnical design criteria and recommendations should be adhered to during design and construction of the landslide repair/fill slope construction project:

Site Grading

1. The geotechnical engineer should be notified at least **four (4) working days** prior to any site clearing or grading so that the work in the field can be coordinated with the grading contractor and arrangements for testing and observation can be made. The recommendations of this report are based on the assumption that the geotechnical engineer will perform the required testing and observation during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.

2. Where referenced in this report, Percent Relative Compaction and Optimum Moisture Content shall be based on ASTM Test Designation D1557-07.

3. Areas to be graded or receive fill should be cleared of all obstructions including loose fill, slide debris, trees within the limits of grading, or other unsuitable material. Existing depressions or voids created during site clearing should be backfilled with engineered fill. Removal of trees should include root balls and principal roots. The

removal of trees and roots at the edge of the slope to be graded should be performed in such a way that the stability of the remaining natural slope is not compromised.

4. Cleared areas should be stripped of organic-laden topsoil. Actual depth of stripping should be determined in the field by the geotechnical engineer. Strippings should be wasted off-site or stockpiled for use in landscaped areas if desired.

5. The slide repair graded slope should be not be excavated any steeper than a gradient of 1:1. All landslide material should be removed during the slope grading. The geotechnical engineer must confirm the removal of slide material during site grading.

6. If necessary, engineered fill should be placed in thin lifts not exceeding 8 inches in loose thickness, moisture conditioned, and compacted to a minimum of 90 percent relative compaction. If the moisture content is higher than 1 to 3 percent over optimum moisture, the scarified soil should be allowed to dry back. If the moisture content is below optimum moisture, water should be added to achieve 1 to 3 percent over optimum moisture at the time of compaction. Following compaction, these areas may then be brought to design grade with engineered fill.

7. Onsite soil is suitable for use as fill provide the soil is free of organics. All fill should be in conformance with the following criteria:

A. Fill material should be free of debris, organics (≤ 3% by weight), or other deleterious material.

B. It should be predominantly granular and nonexpansive, with a plasticity index (PI) ≤ 15. There should be sufficient clay binder for stable trench excavations.

C. The fill should not contain rocks or clods greater than 4 inches in diameter.

8. The fill slope should be inclined no steeper than 1:1 (horizontal to vertical). The finished slope should also conform to the existing slopes on the east and west sides of the slide. Caution should be exercised when working near steep natural or cut slopes such as the head scarps of slides or where any steep slope exceeds 5 feet in total height. The contractor should be required to comply with all State and Federal laws, and any other applicable County or Municipal ordinances and regulations which in any manner affect those engaged in the work.

9. After the earthwork operations have been completed and the geotechnical engineer has finished his observation of the work, no further earthwork operations shall be performed except with the approval of and under the observation of the geotechnical engineer.

Pier and Grade Beam Foundation

10. A reinforced concrete pier and grade beam foundation should be used to support the outer edge of the driveway as well as resist lateral earth pressures. Piers and grade beams should be designed to resist an active soil creep force acting in the upper 4 feet of soil. This zone should also be neglected in calculating skin friction as well as passive resistance. The piers should be designed for skin friction and have a minimum embedment depth of 10 feet. Piers should have a minimum horizontal distance of 10 feet from the bottom of the piers to the adjacent slope.

11. The concrete piers should be at least 12 inches in diameter and vertically reinforced the full length with at least two #4 bars Actual reinforcement should be determined by the structural designer.

12. As a minimum, piers should be designed using the following geotechnical design criteria:

Table 4: Geotechnical Design Parameters for Piers

Depth Below Surface (ft)	Active Creep Pressure (pcf)	Skin Friction (psf)	Passive Resistance (pcf)	Number of Pier Diameters Force Acting Over
0 - 4	70	0	0	2
4 - 10	0	250	300	2
10+	0	400	450	2½

13. Reinforced concrete grade beams should structurally connect the piers. The vertical pier reinforcement should be tied to the upper grade beam reinforcement. The grade beams should be embedded a minimum of 18 inches below lowest adjacent grade.

14. A representative from **Haro, Kasunich & Associates** should be present during pier drilling to verify soil conditions are consistent with the anticipated soil conditions and to verify the pier holes are in conformance with our geotechnical recommendations. Prior to placing steel and concrete, pier excavations should be thoroughly cleaned and approved by the geotechnical engineer.

Retaining Wall Lateral Pressures

15. Retaining walls should be designed to resist both lateral earth pressures and any additional surcharge loads. For design of retaining walls up to 8 feet high and fully drained, the following design criteria may be used:

A. Active earth pressure for walls allowed to yield is that exerted by an equivalent fluid weighing 40 pcf for a level backslope gradient; and 55 pcf for a 2:1 (horizontal to vertical) backslope gradient. This assumes a fully drained condition.

B. Where walls are restrained from moving at the top (as in the case of basement walls), design for a uniform rectangular distribution equivalent to 28H psf per foot for a level backslope, and 35H psf per foot for a 2:1 backslope, where H is the height of the wall.

C. Retaining walls situated a minimum of 10 feet from the top of the 1:1 slope may be founded on spread footings. Footings may be designed for an allowable bearing capacity of 1250 psf plus a one third increase for wind and seismic loads provided the footings are embedded a minimum of 12 inches below grade.

D. For seismic design of retaining walls a dynamic surcharge load of 10H psf, where H is the height of the wall, should be added to the above active lateral earth pressures.

E. In addition, the walls should be designed for any adjacent live or dead loads which will exert a force on the wall (garage and/or auto traffic).

F. The above lateral pressure values assume that the walls are fully drained to prevent hydrostatic pressure behind the walls. Drainage materials behind the wall should consist of either Class 1, Type A permeable material complying with Section 68 of Caltrans Standard Specifications, latest edition. The drainage material should be at least 12 inches thick. The drains should extend from the base of the walls to within 12 inches of the top of the backfill. A perforated pipe should be placed (holes down) about 4 inches above the bottom of the wall and be tied to a suitable drain outlet. Wall backdrains should be capped at the surface with clayey material to prevent infiltration of surface runoff into the backdrains. A layer of filter fabric (Mirafi 140N or equivalent) should separate the subdrain material from the overlying soil cap.

Site Drainage

16. Thorough control of runoff is essential for the satisfactory performance of the landslide repair/ graded slope project. Concentrated runoff must not be allowed to flow over the slide repair/graded slope area. Concrete berms on the driveway above the graded slopes should direct runoff away from the graded slopes.

17. Drainage outlet facilities should be designed to dissipate runoff energy sufficiently so that erosion or slope instability does not occur at the outlet.

Erosion Control

18. The surficial soil on the surface of the 1:1 slopes at the project site has high potential for erosion where slopes are unvegetated. Therefore, we recommend the following provisions be incorporated into the project plans.

A. All grading and soil disturbances shall be kept to a minimum.

B. No eroded soil should be allowed to leave the site.

C. Following grading, the fill slope should be planted as soon as possible with erosion-resistant vegetation. Santa Cruz County Erosion Control seed

mixture is recommended for temporary erosion control through the first winter.

D. Erosion Control Blankets (North American Green C350 or equivalent) should be installed on bare slopes in conformance with the manufacturer's guidelines.

19. For long term erosion control, installation of permanent erosion resistant vegetation is recommended.

Plan Review, Construction Observation, and Testing

20. Haro, Kasunich and Associates should be provided the opportunity for a general review of the final project plans prior to construction to evaluate if our geotechnical recommendations have been properly interpreted and implemented. We should also provide observation and testing services during construction of the project. This allows us to confirm anticipated soil conditions and evaluate conformance with our recommendations and project plans. If we do not review plans or provide observation and testing services we assume no responsibility for misinterpretation of our recommendations.

Project No. SC9032
14 November 2008

MR. MICHAEL HOULEMARD
c/o Richard James
EMC Planning, Inc.
301 Lighthouse Avenue. Suite C
Monterey, California 93940

Subject: Geotechnical Plan Review

Reference: Grading and Erosion Control Plans
APN 041-052-08
9028 Soquel Drive
Aptos, California

Dear Mr. Houlemard:

As requested, we have reviewed the geotechnical aspects of Grading and Erosion Control Plans for the referenced site. The plans, dated 16 October 2008 and revised 4 November 2008, were prepared by Ifland Engineers. Our Geotechnical investigation for the project is dated July 2008.

The plans detail proposed grading of the steep upper portion of a slope at the referenced site. The near vertical slope will be laid back to a 1:1 slope gradient and the concrete driveway/parking area at the site reconstructed to the new top edge of the slope. The new driveway/parking area surface will be a 6 inch thick concrete slab with #4 bars, 16 inch on center, each way. The outer edge of the driveway will have a pier and grade beam foundation to provide additional protection. The 18 inch diameter piers will extend 10 feet below the ground surface and the grade beam will be 18 inches wide and 24 inches deep.

The graded slope will be seeded and protected by placement and stapling of a permanent turf reinforcement mat (North American Green SC 250). Straw wattles will be installed on the perimeter of the graded slope.

Based on our review, the geotechnical aspects of the referenced plans are in conformance with our recommendations.

In addition to our plan review, we provide the following responses to Comments 4 to 6 presented in a letter dated 2 September 2008, by Carolyn Banti and Joe Hanna of the Santa Cruz County Planning Department:

4. The entire graded slope below the reconstructed driveway will be seeded and protected with North American Green SC250. The concrete driveway will have a 6 inch high concrete curb which will direct all upslope runoff to a newly installed catch basin. The only potential for erosion will be from incident rainfall which will fall on a well protected slope. The potential for erosion below the seeded slope covered with reinforcement

matting designed for severe slopes is low. We recommend the slope be monitored, especially during the first years, when vegetation on the slope is less well established. If erosion occurs, a bench should be constructed and soil replaced in lifts and compacted. The area can be accessed from the outer edge of the driveway, which will be supported with a pier and grade beam foundation.

5. The installation of a terrace drain is common on slopes of this height. However, the installation of a terrace drain would necessitate the loss of an additional 4 to 6 feet of the parking area (depending on the width of the terrace), further reducing the driveway/parking area, which has already been reduced by a width of 11 feet. The lower portion of the slope is thickly vegetated with grass, berry vines, and other groundcover. We do not recommend erosion mitigation measures on the lower portion of the slope because vegetation on the slope is occurring naturally. To install erosion control blankets on the lower slope, the existing vegetation should be removed and the slope groomed prior to installing the blankets. Since the increase in rainfall on the lower slope will be limited to incident rainfall which will fall on the graded slope we recommend that rather than lose the existing vegetative erosion protection, the lower slope should be monitored during the first few winters to evaluate if erosion control beyond the ongoing natural vegetation is necessary. If significant erosion occurs, removal of the vegetation, grooming of the slope and placement of erosion control blankets can be performed.

6. As we discussed in our report, the lower portion of the slope has accumulated soil which sloughed from the upper slope. The thickness of the accumulated soil is variable, and dependent upon the location. The steep upper slope has continued to spall off somewhat each rainy season, adding slightly more eroded soil to the lower slope. It is possible the soil may be thicker than a few feet in some locations. The planned grading and installation of erosion protection on the upper slope will prevent any additional eroded soil from accumulating on the lower portion of the slope in the future. However, the proposed grading will not eliminate the potential for sloughing of looser soil presently mantling the lower portion of the slope in the future, especially where the slopes are higher and/or steeper. However, if the lower portion of the slope remains well vegetated, the potential for erosion and shallow sloughing will be significantly reduced.

If you have any questions concerning this letter, please contact our office.

Very truly yours,
HARO, KASUNICH & ASSOCIATES, INC.

Christopher A. George
C.E. 50871

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER A. GEORGE
No. 50871
Exp. 9/30/09
CIVIL
STATE OF CALIFORNIA

CAG
Copies: 3 to Addressee

Project No. SC9032
16 April 2009

MR. MICHAEL HOULEMARD
533 Quail Run
Aptos, California 95003

Subject: Addendum to Geotechnical Investigation

Reference: Liquefaction Potential
Proposed Landslide Repair
APN 041-052-08
9028 Soquel Drive
Aptos, California

Dear Mr. Houlemard:

As requested by Matthew Johnson of the County of Santa Cruz Planning Department, this letter addresses the potential for liquefaction at the subject parcel.

Site Conditions

Topography on the parcel consists of a level ridge top knoll with moderately steep to steep slopes on all sides. The upper portion of a section of the north facing slope descending to Soquel Drive is a very steep remnant landslide scarp following a debris flow type slide which occurred several years previously. The scarp is on the subject parcel. The less steep lower portion of the slope on the adjacent parcel to the north is mantled by loose landslide material from the debris flow.

The ridge top knoll south of the scarp is underlain by medium dense silty and clayey sand to depths of 5 to 6 feet, underlain by medium dense to dense Purisima Formation sand. Groundwater was not encountered in our borings at the site. Since all slopes descend from the knoll, the source of subsurface moisture on the knoll is limited to incident rainfall which soaks into the ground and the potential for high groundwater at the site is low.

Project Description

The proposed project will consist of excavating the upper portion of the steep landslide scarp on the subject parcel to a more stable slope gradient (1:1 maximum) and reducing the size of the parking area. The outer edge of the parking area will be supported on reinforced concrete piers connected by a deepened footing/grade beam.

Liquefaction Potential

Seismic-induced soil liquefaction is a phenomenon in which a loose, saturated, unconsolidated, cohesionless soil deposit undergoes a loss of internal strength, as a result of increased pore water pressure due to strong ground shaking. The soil transforms from a solid to a liquefied state as a result of reduced effective stresses within the soil mass. The adverse effects of liquefaction include flow failures; lateral spreads; ground oscillation; loss

of bearing strength; settlement; and increased lateral pressure on retaining walls (Earthquake Basics Brief No. 1, EERI, 1994). Documented conditions for soil that has liquefied indicate that, from a general standpoint, soil susceptible to liquefaction is sand of low to medium relative density, relatively free of silt and clay, and fully saturated.

Additional variables inducing liquefaction include duration of earthquake loading, earthquake acceleration, depth to groundwater, and the potential influence of man-made structures.

The potential for seismic induced liquefaction effects on the knoll top project site is low due to the medium dense to dense consistency, fines content, and unsaturated condition of the soil and bedrock underlying the knoll. There is potential for liquefaction induced flow landsliding in the loose soil mantling the lower portion of the slope on the adjacent property. However, the proposed project will not negatively affect the lower slope. The project will remove the existing steep unstable scarp (which will reduce future failures that would add additional debris flow material to the lower slope) and improve the stability of the upper slope and driveway/parking area.

If you have any questions concerning this letter, please contact our office.

Very truly yours,

HARO, KASUNICH & ASSOCIATES, INC.

Christopher A. George
C.E. 50871

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER A. GEORGE
No. 50871
Exp. 9/30/09
CIVIL
STATE OF CALIFORNIA

CAG/dk

Copies: 1 to Addressee
3 to EMC Planning Group Attention: Richard James

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

September 2, 2008

EMC Planning Group, Inc.
301 Lighthouse Ave., Ste. C
Monterey, CA, 93940

Subject: Review of Geotechnical Investigation by Haro, Kasunich and Associates, Inc. Dated July 30, 2008; Project #: SC9032 APN 041-052-08, Application #: 08-0050

Dear Applicant:

The purpose of this letter is to inform you that the Planning Department has accepted the subject report and the following items shall be required:

1. All construction shall comply with the recommendations of the report.

2. Final plans shall reference the report and include a statement that the project shall conform to the report's recommendations. Plans shall also provide a thorough and realistic representation of all grading necessary to complete this project

3. Prior to discretionary permit issuance a *plan review letter* shall be submitted to Environmental Planning. The author of the report shall write the *plan review letter*. The letter shall state that the project plans conform to the report's recommendations.

After review of the report and proposed grading plan, several items require clarification prior to plan approval. The civil engineer or geotechnical engineer, as appropriate, may address these items. Responses from the geotechnical engineer may be included in their plan review letter, requested in Comment 3. Our inquiries are as follows:

4. Evacuation of the soil beneath the proposed grade beam at the crest of the excavation is inevitable. What type of maintenance will be required to maintain the wall and driveway when erosion occurs beneath the grade beam? How does the design provide for access to this area?

5. The proposed final excavation will be almost 40-feet in height after regrading of the slope. Typically, a terrace drain is required mid-height by common practice and regional Codes to reduce the potential for shallow landsliding and erosion. The geotechnical report identifies erosion as a concern and makes recommendations for revegetation and erosion control plantings on the regraded portion of the slope. These appear appropriate. In addition to this erosion control, drainage and erosion control must be considered on the lower portion of the slope as well. The lower portion of the slope is already eroding and the proposed upper slope excavation, and will potentially increase the amount of drainage that will flow over the lower portion of the older excavation.

Environmental Review Initial Study
Attachment 4
App. 08-0050

6. Before any further excavation at the crest of the slope the geotechnical engineer must confirm the depth of eroded material along the lower portion of the slope. If the blanket of eroded sand is greater than a few feet then some re-evaluation may be necessary.

The soils report evaluates Public Work's solution to the slab failures along the section of roadway immediately below the structures at 9028 Soquel Drive in Aptos. Rather than concentrating on identification of the kinematic mechanisms of these slabs, the report concentrates on the stability of the fix proposed by the Public Works Agency. This fix requires regrading the upper portion of the slope so that the entire slope is at a 1 horizontal to 1 vertical gradient.

Bypassing an assessment of the kinematic mechanisms of the current failure is acceptable, as long as all parties interested in the repair can accept any uncertainty that could remain concerning the mechanisms of future slope failures. If this is acceptable to the owner of the parcel, it will require that a Declaration of Geologic Hazards be recorded on the property. A copy of this Declaration is included as an attachment. Please provide proof of recordation with your next submittal.

After building permit issuance the soils engineer *must remain involved with the project* during construction. Please review the *Notice to Permits Holders* (attached).

Our acceptance of the report 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 submit two copies of the report at the time of building permit application.

Please call the undersigned at (831) 454-5121 if we can be of any further assistance.

Sincerely,

Carolyn Banti, PE
Associate Civil Engineer

Joe Hanna, CEG 1313
County Geologist

Cc: Randall Adams, Project Planner
Michael Houlemard, Owner
Haro, Kasunich and Associates, Inc.

NOTICE TO PERMIT HOLDERS WHEN A SOILS REPORT HAS 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.

COUNTY OF SANTA CRUZ
DISCRETIONARY APPLICATION COMMENTS

Project Planner: Randall Adams
Application No.: 08-0050
APN: 041-052-08

Date: February 18, 2009
Time: 14:43:11
Page: 1

Environmental Planning Completeness Comments

========= REVIEW ON MARCH 10, 2008 BY CAROLYN I BANTI =========
--- First Review --- Completeness Comments --- Soils and Grading ---

Due to the presence of cuts with a slope steeper than 2:1 as well as retaining walls up to 14 feet in height, a soils report prepared by a licensed soils (geotechnical) engineer is required for this project. Please submit the report and required review fee for acceptance by Environmental Planning.

After the soils report has been accepted, a plan review letter shall be submitted to Environmental Planning. The author of the soils report shall write the plan review letter. The letter shall reference the final plan set and shall state that the project plans conform with the recommendations of the report.

Please revise the grading plan to include project grading quantities in cubic yards of cut and fill. If overexcavation and recompaction are required by the soils report, these should be included as a separate grading line item.

Please revise the grading plan to label the top-of-wall and bottom-of-wall elevations for proposed retaining walls at beginning, end and transition points of the wall.

Please revise the grading plan to label pad elevations of the existing structures.
========= UPDATED ON MARCH 10, 2008 BY ANTONELLA GENTILE =========
Additional Environmental Planning completeness comments

Show all trees proposed for removal, including those in the proposed new parking area. Include the diameter at breast height and the species for each tree to be removed and in the vicinity of the proposed work. ========= UPDATED ON SEPTEMBER 8, 2008 BY CAROLYN I BANTI =========
- Completeness Comments - Second Review - Soils and Grading -

The soils report has been accepted. Please see letter dated 9/2/08.

As requested in first review comments and our report acceptance letter, please provide a plan review letter from the soils engineer stating that the project plans conform with the recommendations of their report.

Please record the Declaration of Geologic Hazards included as an attachment to the soils report acceptance letter and provide proof of recordation with the next submittal.

Please provide pad elevations for the structures and top-of-wall/bottom-of-wall elevations for proposed retaining walls as requested in first review comments.
========= UPDATED ON DECEMBER 23, 2008 BY CAROLYN I BANTI =========

The geotechnical plan review letter has been received.

Proof of recordation of the Declaration of Geologic Hazards has not been received.

but will be required as a Condition of Approval prior to building/grading permit issuance.

All other completeness items related to soils and grading have been addressed.

Environmental Planning Miscellaneous Comments

========= REVIEW ON MARCH 10, 2008 BY CAROLYN I BANTI =========
--- First Review --- Compliance Comments --- Soils and Grading ---

The proposed cut slope is shown as 1:1. Cut and fill slopes may not be steeper than 2:1 unless the applicant furnishes a soils report justifying a steeper slope.

-- First Review -- Miscellaneous Comments/Conditions -- Soils and Grading

An erosion control plan must be included in the building permit plan set. The plan must show the location, installation details and specifications for all erosion control measures to ensure soils are kept onsite during and after construction.

The building permit plan set must include additional drainage details showing how roof runoff will be directed to drainage facilities.

Please include details of all retaining structures and drainage facilities.

========= UPDATED ON MARCH 10, 2008 BY ANTONELLA GENTILE =========
Additional Environmental Planning miscellaneous comments by Antonella Gentile

An arborist's report may be required to make recommendations for trees to be retained during construction. This will be determined after revised plans have been submitted.

Although this site is mapped for the potential presence of Dudley's lousewort, a rare plant species, it typically does not occur in developed/disturbed areas such as this. Additionally, there have been no known occurences of the plant in Santa Cruz County in several years.

The results of the Archaeological Site Review will be passed on to the applicant as soon as it has been completed. ========= UPDATED ON SEPTEMBER 8, 2008 BY CAROLYN I BANTI =========

- Compliance Comments - Second Review - Soils and Grading -

The following comments are reiterated in our report acceptance letter dated 9/2/08. The requested clarifications may be presented by the geotechnical engineer in their plan review letter:

1. Evacuation of the soil beneath the proposed grade beam at the crest of the excavation is inevitable. What type of maintenance will be required to maintain the wall and driveway when erosion occurs beneath the grade beam? How does the design

provide for access to this area?

2. The proposed final excavation will be almost 40-feet in height after regrading of the slope. Typically, a terrace drain is required mid-height by common practice and regional Codes to reduce the potential for shallow landsliding and erosion. The geotechnical report identifies erosion as a concern and makes recommendations for revegetation and erosion control plantings on the regraded portion of the slope. These appear appropriate. In addition to this erosion control, drainage and erosion control must be considered on the lower portion of the slope as well. The lower portion of the slope is already eroding and the proposed er slope excavation will potentially increase the amount of drainage that will flow over the lower portion of the older excavation. The lack of a mid-slope terrace and resulting erosion issues must be formally addressed by the soils engineer prior to approval of the plans.

- Misc. Comments/Conditions - Second Review - Soils and Grading -

Prior to building permit issuance, please submit a geotechnical plan review letter that states the final plans are in conformance with the recommendations of the soils report. The letter shall reference the reviewed sheets by sheet name, drawing and revision dates.

Prior to any further excavation at the crest of the slope, the geotechnical engineer must confirm the depth of eroded material along the lower portion of the slope. If the blanket of eroded sand is greater than a few feet than some re-evaluation may be necessary. A statement regarding this aspect of the slope must be submitted in the form of a geotechnical update accompanying the plan review letter to be submitted at the time of application for the building permit.

Please submit an electronic copy of the soils report prior to building permit issuance. The electronic copy may be submitted via compact disk or email. Emails may be directed to carolyn.banti@co.santa-cruz.ca.us. ========= UPDATED ON DECEMBER 23, 2008 BY CAROLYN I BANTI =========

- Second Review - Soils and Grading - Compliance -

Received "Geotechnical Plan Review" by Haro Kasunich and Associates, Inc., dated November 14, 2008. Letter addresses previous compliance comments.

- Second Review - Soils and Grading - Misc. Comments/Conditions -

Please submit two copies of the soils report at the time of building/grading permit application.

Please submit proof of recordation of the Declaration of Geologic Hazards included with the soils report acceptance letter. This document must be recorded prior to building permit issuance.

Long Range Planning Completeness Comments

========= REVIEW ON MARCH 10, 2008 BY GLENDA L HILL =========
NO COMMENT

Long Range Planning Miscellaneous Comments

========= REVIEW ON MARCH 10, 2008 BY GLENDA L HILL =========
1. Since a General Plan Amendment is being requested, this project is subject to tribal consultation, as required by SB18. This process takes a minimum of three months and no final action can occur until the consultation process is concluded. Policy Section staff will begin this process immediately. 2. The General Plan can be amended a maximum of four items a year (outside the Coastal Zone.) Final action must occur during one of the Round cycles and, therefore, this may delay processing. The project planner should coordinate with Policy Section staff on the appropriate timing for the final action. 3. As to the appropriateness of the proposed General Plan Amendment and Rezoning request, this neighborhood is designated for Office uses. The adjoining properties either have or are in the process of building offices.The question for the land use designation for this site is whether it is suitable for office use. From aerial photos, this site appears to be on much steeper slopes than the adjacent properties and has challenging access issues. If the site visit confirms this, a change to a residential designation may be appropriate. 4. One of the existing residential may not be legal.

Dpw Road Engineering Completeness Comments

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

========= REVIEW ON MARCH 6, 2008 BY GREG J MARTIN =========
Compliance

1. The proposed driveway does not meet current driveway standards with respect to geometry, grades, or structural section. The driveway shall be required to meet current standards. The applicant can either revise the plans or there may be a condition of approval that the driveway be modified to meet current driveway standards. A profile of the driveway should be provided which demonstrates the profile meets County standards.

2. In addition, the two parking spaces along the driveway are not acceptable as they do not allow vehicles to turnaround on site.

3. On the building permit, all improvements in the County right-of-way are required to have construction notes. The revised plans should show both sides of the road and on either side of the driveway so that drainage can be evaluated. ========= UPDATED ON MARCH 10, 2008 BY GREG J MARTIN =========
========= UPDATED ON MARCH 10, 2008 BY GREG J MARTIN =========
========= UPDATED ON MARCH 10, 2008 BY GREG J MARTIN =========

Dpw Road Engineering Miscellaneous Comments

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

========== REVIEW ON MARCH 6, 2008 BY GREG J MARTIN ==========
========== UPDATED ON MARCH 10, 2008 BY GREG J MARTIN ==========
========== UPDATED ON MARCH 10, 2008 BY GREG J MARTIN ==========
========== UPDATED ON MARCH 10, 2008 BY GREG J MARTIN ==========

Aptos-La Selva Beach Fire Prot Dist Completeness C

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

========== REVIEW ON APRIL 2, 2008 BY ERIN K STOW ==========
DEPARTMENT NAME:Aptos/La Selva Fire Dept. APPROVED
Will require signs to designate Parking Only in designated parking spaces and the driveway will be a Fire Lane.
All Fire Department building requirements and fees will be addressed in the Building Permit phase.
Plan check is based upon plans submitted to this office. Any changes or alterations shall be re-submitted for review prior to construction.

Aptos-La Selva Beach Fire Prot Dist Miscellaneous

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

========== REVIEW ON APRIL 2, 2008 BY ERIN K STOW ==========
NO COMMENT

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

March 27, 2008

EMC Planning Group Inc
Richard James
301 Lighthouse Ave, Suite C
Monterey CA 93940

SUBJECT: Archaeological Reconnaissance Survey for APN 041-052-08

Dear Richard,

The County's archaeological survey team has completed the Phase 1 archaeological reconnaissance for the parcel referenced above. The research has concluded that cultural resources were not evident at the site. A copy of the review documentation is attached for your records. No further archaeological review will be required for the proposed development.

Please contact me at 831-454-2512 if you have any questions regarding this review.

Sincerely,

Christine Hu
Planning Technician

Enclosure
CC Owner, Project Planner, File

Santa Cruz County Survey Project

Exhibit B

Santa Cruz Archaeological Society
1305 East Cliff Drive, Santa Cruz, California 95062

Preliminary Cultural Resources
Reconnaissance Report

Parcel APN: 041-052-08 SCAS Project number: SE- 08-1093

Development Permit Application No. 08-0050 Parcel Size 28793.2 sq. ft.

Applicant: EMC Planning Group, Inc - Richard James

Nearest Recorded Cultural Resource: <1/2 mile WSW; <1/2 mile W; <1/2 mile WNW; <1/2 mile NW; <1/4 mile N.

On 3/6/08 (date) two (2) (#) members of the Santa Cruz Archaeological Society spent a total of 1/2 hours on the above described parcel for the purpose of ascertaining the presence or absence of cultural resources on the surface. Though the parcel was traversed on foot at regular intervals and dilignetly examined, the Society cannot guarantee the surface absence of cultural resources where soil was obscured by grass, underbrush, or other obstacles. No core samples, test pits or any subsurface analysis was made. A standard field form indicating survey methods, type of terrain, soil visibility, closest freshwater source, and presence or absence of prehistoric and/or historic cultural evidence was completed and filed with this report at the Santa Cruz County Planning Department.

The preliminary field reconnaissance did not reveal any evidence of cultural resources on the parcel. The proposed project would therefore, have no direct impact on cultural resources. If subsurface evidence of such resources should be uncovered during construction the County Planning Department should be notified.

Further details regarding this reconnaissance are available from the Santa Cruz County Planning Department or from Rob Edwards, Director, Cabrillo College Archaeological Technology Program, 6500 Soquel Drive, Aptos, CA 95003, (831) 479-6294, or email redwards@cabrillo.edu.

SCAS/CCATP Field Forms