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Th6f & Th6g

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APPEAL STAFF REPORT (COMBINED)
SUBSTANTIAL ISSUE DETERMINATION & DE NOVO HEARING

Appeal numberA-3-SCO-01-117 (Banman) & A-3-SCO-01-118 (Black) Shotcrete
ApplicantsGene Banman and Alistar Black
AppellantsCommissioners Sara Wan and Dave Potter
Local government.....Santa Cruz County
Local decisionApproved with conditions (November 16, 2001)
Project location.....Coastal bluff seaward of 4420 (Banman) and 4440 (Black) Opal Cliff Drive in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County (APNs 033-151-23 & 033-151-08).
Project descriptionShotcrete shoreline protection structure.
File documents.....Santa Cruz County Certified Local Coastal Program; Santa Cruz County Coastal Development Permit Application Files 01-0137 and 00-0704.
Staff recommendation ...**Substantial Issue Exists (for both); Denial (for both)**

Summary of staff recommendation: This is the substantial issue determination and de novo hearing for appeal numbers A-3-SCO-01-117 and A-3-SCO-01-118. The staff report has been combined because although there were two County approvals, and two appeals, there is functionally one shotcrete project that spans two neighboring properties. Staff recommends that the Commission find that a substantial issue exists with respect to this project's conformance with the certified Santa Cruz County Local Coastal Program (LCP) and take jurisdiction over the coastal development permit for the project. **Staff subsequently recommends that the Commission deny the proposed project** because the residences proposed to be protected are not "significantly threatened" (as required by the LCP in order allow for the installation of shoreline protective devices), and there are a range of blufftop drainage and erosion control techniques available that would improve the stability of the bluff here without an armoring project and its attendant negative impacts on coastal resources.

**California Coastal Commission****March 2002 Meeting in Monterey**Staff: D. Carl Approved by: *f.z. 2/14/02*

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1. Report Summary

Santa Cruz County approved a coastal permit to allow installation of a roughly 150 linear foot shotcrete shoreline protection structure on the upper 25 feet of bluff spanning the two subject properties equally. The shotcrete would be applied roughly 8 inches thick, and stabilized by a double series of 30 foot long tiebacks drilled into the bluff behind at 4 foot spacings (i.e., roughly 80 tieback anchors). If, for whatever reason, one of the Applicants decided not to pursue their portion of the project, the two approvals mean that the other Applicant could pursue half the project independently. The structure would be installed in the unincorporated Live Oak beach area of Santa Cruz County on the bluffs above the only beach



accessway (Key Beach or Privates) for a mile long stretch of urban coastline between the Hook accessway (at 41st Avenue upcoast) and Hooper Beach (at the Capitola Wharf in Capitola downcoast).

The Santa Cruz County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved, and the LCP requires 100 years of stability (without reliance on shoreline protective structures) for development.

The LCP only allows for shoreline protection structures “where necessary to protect existing structures from a significant threat.” The LCP-required significant threat has not been clearly demonstrated in this case. The County’s findings indicate that the homes will be threatened by bluff retreat in the next 30 years. However, the two residences enjoy substantial setbacks from the edge of a bluff that is already armored at its toe. The Banman residence is setback a minimum of 33 feet, and the Black residence is setback a minimum of 27 feet; due to the bluff edge configuration and the unusually shaped properties and residences here, the maximum setbacks are generally even more generous (extending up to 73 feet for Banman and 55 feet for Black). Even over the long term, when the upper bluff terrace deposits would be expected to lay back to a stable equilibrium slope angle, the subject residences do not appear to be at risk over the 30 year time frame used by the County – let alone within the next several years (i.e., the time frame typically used by the Commission for determining the degree of threat).

The LCP requires a “thorough analysis of all reasonable alternatives” when shoreline armoring is proposed and only allows for shoreline armoring measures “where non-structural measures are infeasible from an engineering standpoint or not economically viable.” If a significant threat to an existing structure were proven, the County’s approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved. The facts of the case appear to indicate that some combination of vegetation treatment on the upper bluff terrace deposits combined with drainage improvement on the blufftop itself could increase bluff stability. When combined with existing armoring in place at the toe of the slope and substantial blufftop setback for the residences, dismissal of such alternatives is contrary to LCP shoreline structure policy direction.

The LCP requires that shoreline protective structures “be placed as close as possible to the development or structure requiring protection.” If it were conclusively proven that there was a significant threat here, and if non-armoring alternatives were conclusively shown to be infeasible, the County-approved structure would be placed closer to the bluff edge than to the residence. In fact, the shotcrete structure would be roughly 35 to 40 feet (on average) from the residences it is meant to protect (from a minimum of 27 feet away on Black up to a maximum of 73 feet away on Banman). Since shotcrete obviously couldn’t be applied any closer to the residences than the bluff edge, this again provides more evidence that the significant threat condition envisioned by the LCP has not been met in this case due in part to the substantial setbacks from the bluff maintained by the residences.



The LCP requires a minimum of 100 years of stability without reliance on future shoreline protective structures. If the County-approved project were to be installed, the consulting engineers indicate that additional armoring, with its own attendant impacts, would likely be necessary to arrest future erosion of the gap of natural bluff that would remain between the proposed shotcrete and the existing toe of slope armor as well as for outflanking of the shotcrete. Not only is it unclear whether the LCP or the Coastal Act would allow for such additional shoreline armoring to protect other shoreline armoring, but the County-approved structure in this case would appear to establish a scenario where additional armoring would be necessary within less than 100 years. This does not meet the LCP's minimum 100 year threshold.

It is not clear when the existing armoring at the base of the bluffs was installed and whether or not requisite coastal permits were acquired. If the existing armoring were to lack required coastal development permits, and its retention were to be applied for after the fact, the LCP-required significant threat has not been established at this location and the armoring would thus not likely meet LCP requirements. If the existing armoring was permitted, or pre-dated coastal permitting requirements, then its status is still questionable because the LCP does not allow for the expansion of a significantly non-conforming structure (and the existing base of bluff armoring constitutes such a structure under the LCP). In addition, the LCP independently requires evaluation of existing armoring for its potential to negatively impact coastal resources, irregardless of its permit or non-conformity status. Whether the County-approved project is considered expansion of the existing base of bluff armoring or not, this existing armoring adversely affects recreational beach area and has an unclear permitting history – neither of these areas of concern were evaluated for their bearing on the proposed project and/or an alternate project (to remove the existing armoring as a corrective action).

Were the other tests otherwise met to allow for armoring at this location, the LCP has multiple overlapping policies meant to result in appropriate design of allowable armoring projects to minimize and mitigate impacts to natural landforms, public viewsheds, and public access and recreational resources (including beach, offshore surfing, and blufftop access). These policies are complemented by Coastal Act access and recreation protective policies that likewise apply here. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. For example, the impacts of the County-approved project on shoreline sand supply processes and the Key Beach/Private beach access have not been analyzed nor mitigated.

For the above reasons, a substantial issue exists with respect to this project's conformance with the certified LCP such that the Coastal Commission must take jurisdiction over the coastal development permit for the project.

In a Coastal Commission de novo review, the proposed project raises fundamental LCP conformance issues that cannot be easily rectified by condition. The LCP-required significant threat has not been demonstrated. The LCP-required infeasibility of non-armoring alternatives has not been demonstrated. The LCP-required shoreline structure placement is not as close as possible to the residence proposed for protection. The LCP-required 100 year stability test is not met. The LCP-required evaluation of armoring



for corrective actions to abate recreational beach loss has not occurred. The LCP-required analysis of expanding a non-conforming structure in light of its policy inconsistencies has not occurred. The LCP- and Coastal Act-required prevention of, and mitigation for, impacts to beach and offshore recreational access, public views, and landform alteration has not been assured. In sum, without a clear demonstration of significant threat, and in light of the negative resource impacts from armoring that are well known to the Commission, armoring at this location cannot be found to be consistent with the LCP and Coastal Act, and cannot be found consistent with the California Environmental Quality Act. For these reasons, the proposed project is denied.

2. Appeal of Santa Cruz County Decision

A. Santa Cruz County Action

On November 16, 2001 the Santa Cruz County Zoning Administrator approved two separate coastal permits for the proposed project subject to multiple conditions (see exhibit C for the County's staff report, findings and conditions on the project). Notice of the Zoning Administrator's action on the coastal development permits (CDPs) was received in the Commission's Central Coast District Office on Wednesday, November 21, 2001. The Commission's ten-working day appeal period for this action began on Monday, November 26, 2001 (following the Thanksgiving holiday) and concluded at 5pm on Friday, December 7, 2001. One valid appeal (see below) was received during the appeal period.

B. Appeal Procedures

Coastal Act Section 30603 provides for the appeal of approved coastal development permits in jurisdictions with certified local coastal programs for development that is (1) between the sea and the first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; (2) on tidelands, submerged lands, public trust lands, within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff; (3) in a sensitive coastal resource area; (4) for counties, not designated as the principal permitted use under the zoning ordinance or zoning district map; and (5) any action on a major public works project or energy facility. This project is appealable because it is seaward of the first public road in the bluff above the beach.

The grounds for appeal under Section 30603 are limited to allegations that the development does not conform to the standards set forth in the certified LCP or the public access policies of the Coastal Act. Section 30625(b) of the Coastal Act requires the Commission to conduct a de novo coastal development permit hearing on an appealed project unless a majority of the Commission finds that "no substantial issue" is raised by such allegations. If the Commission conducts a de novo hearing, then in order to approve a proposed development the Commission must find that the proposed development is in conformity with: (a) the certified local coastal program (Section 30604(b)); and (b) if the project is located between the nearest public road and the sea or the shoreline of any body of water located within



the coastal zone, the public access and recreation policies of Chapter 3 of the Coastal Act (Section 30604(c)). This project is located between the nearest through public road (Opal Cliff Drive) and the sea and thus, the Section 30604(c) finding would need to be made in a de novo approval in this case.

The only persons qualified to testify before the Commission on the substantial issue question are the Applicant, persons who made their views known before the local government (or their representatives), and the local government. Testimony from other persons regarding substantial issue must be submitted in writing. Any person may testify during the de novo stage of an appeal.

C. Appellant's Contentions

The two Commissioner Appellants contend that the County-approved project raises substantial issues with respect to the project's conformance with core LCP and Coastal Act policies, concluding as follows:

In sum, the County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved.

The County's approval is not consistent with the LCP in that the LCP-required significant threat has not been clearly demonstrated. If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. The base of bluff armoring adversely affects recreational beach area, appears to be non-conforming and has not been evaluated for removal, and has an unclear permitting history. Additional base of the bluff armoring appears to be a part of the project but not analyzed in the County approval. As such, the proposed project's conformance with core LCP and Coastal Act policies is questionable. These issues warrant a further analysis and review by the Coastal Commission of the proposed project.

Please see exhibit D and E for the Commissioner Appellants' complete appeal documents.



3. Staff Recommendation

Because there are two separate appeals, four motions are required to find substantial issue and deny the projects (2 substantial issue motions and 2 de novo hearing motions):

A. Staff Recommendation on Substantial Issue

1. Substantial Issue Exists for A-3-SCO-01-117 (Banman)

The staff recommends that the Commission determine that a **substantial issue** exists with respect to the grounds on which the appeal was filed. A finding of substantial issue would bring the project under the jurisdiction of the Commission for hearing and action.

Motion. I move that the Commission determine that Appeal Number A-3-SCO-01-117 raises no substantial issue with respect to the grounds on which the appeal has been filed under §30603 of the Coastal Act.

Staff Recommendation of Substantial Issue. Staff recommends a no vote. Failure of this motion will result in a de novo hearing on the application, and adoption of the following resolution and findings. Passage of this motion will result in a finding of No Substantial Issue and the local action will become final and effective. The motion passes only by an affirmative vote of the majority of the appointed Commissioners present.

Resolution To Find Substantial Issue. The Commission hereby finds that Appeal Number A-3-SCO-01-117 presents a substantial issue with respect to the grounds on which the appeal has been filed under §30603 of the Coastal Act regarding consistency with the Certified Local Coastal Program.

2. Substantial Issue Exists for A-3-SCO-01-118 (Black)

The staff recommends that the Commission determine that a **substantial issue** exists with respect to the grounds on which the appeal was filed. A finding of substantial issue would bring the project under the jurisdiction of the Commission for hearing and action.

Motion. I move that the Commission determine that Appeal Number A-3-SCO-01-118 raises no substantial issue with respect to the grounds on which the appeal has been filed under §30603 of the Coastal Act.

Staff Recommendation of Substantial Issue. Staff recommends a no vote. Failure of this motion will result in a de novo hearing on the application, and adoption of the following resolution and findings. Passage of this motion will result in a finding of No Substantial Issue and the local action will become final and effective. The motion passes only by an affirmative vote of the majority of the appointed Commissioners present.

Resolution To Find Substantial Issue. The Commission hereby finds that Appeal Number A-3-SCO-01-118 presents a substantial issue with respect to the grounds on which the appeal has



been filed under §30603 of the Coastal Act regarding consistency with the Certified Local Coastal Program.

B. Staff Recommendation on Coastal Development Permit

1. Deny CDP for A-3-SCO-01-117 (Banman)

The staff recommends that the Commission, after public hearing, **deny** a coastal development permit for the proposed development.

Motion. I move that the Commission approve Coastal Development Permit Number A-3-SCO-01-117 pursuant to the staff recommendation.

Staff Recommendation of Denial. Staff recommends a **no** vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution To Deny The Permit. The Commission hereby denies a coastal development permit for the proposed development on the grounds that the development will not conform with the policies of the Santa Cruz County Local Coastal Program, and that it is located between the sea and the first public road nearest the shoreline and it will not conform with the access and recreation policies of Chapter 3 of the Coastal Act. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

2. Deny CDP for A-3-SCO-01-118 (Black)

The staff recommends that the Commission, after public hearing, **deny** a coastal development permit for the proposed development.

Motion. I move that the Commission approve Coastal Development Permit Number A-3-SCO-01-118 pursuant to the staff recommendation.

Staff Recommendation of Denial. Staff recommends a **no** vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution To Deny The Permit. The Commission hereby denies a coastal development permit for the proposed development on the grounds that the development will not conform with the policies of the Santa Cruz County Local Coastal Program, and that it is located between the sea and the first public road nearest the shoreline and it will not conform with the access and recreation policies of Chapter 3 of the Coastal Act. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.



Recommended Findings and Declarations

The Commission finds and declares as follows:

4. Project Description

A. Project Location

The proposed project is located on the bluffs seaward of 4420 (Banman) and 4440 (Black) Opal Cliff Drive in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County.

Regional Setting

Situated on the northern shore of the Monterey Bay, Santa Cruz County is bordered to the north and south by San Mateo and Monterey Counties. Santa Cruz County is characterized by a wealth of natural resource systems ranging from mountains and forests to beaches and the Monterey Bay itself. The Bay has long been a focal point for area residents and visitors alike providing opportunities for surfers, fishermen, divers, marine researchers, kayakers, and boaters, among others. The unique grandeur of the region and its national significance was formally recognized in 1992 when the area offshore became part of the Monterey Bay National Marine Sanctuary – the largest of the 12 such federally protected marine sanctuaries in the nation.

Santa Cruz County's rugged mountain and coastal setting, its generally mild climate, and its well-honed cultural identity combine to make the area a desirable place to both live and visit. As a result, Santa Cruz County has seen extensive development and regional growth over the years since the California Coastal Management Program has been in place. In fact, Santa Cruz County's population has more than doubled since 1970 alone with current census estimates indicating that the County is currently home to over one-quarter of a million persons.¹ This level of growth not only increases the regional need for housing, jobs, roads, urban services, infrastructure, and community services, but also the need for parks and recreational areas. For coastal counties such as Santa Cruz where the vast majority of residents live within a half-hour of the coast, coastal recreational resources are a critical element in helping to meet these needs. Furthermore, with coastal parks and beaches themselves attracting visitors into the region, an even greater pressure is felt at coastal recreational systems such as that found in Live Oak. With Santa Cruz County beaches providing arguably the warmest and most accessible ocean waters in all of Northern California, and with the vast population centers of the San Francisco Bay area and the Silicon Valley nearby, this type of resource pressure is particularly evident in coastal Live Oak.

Live Oak is part of a larger area including the Cities of Santa Cruz and Capitola that is home to some of the best recreational beaches in the Monterey Bay area. Not only are north Monterey Bay weather

¹ Census data from 1970 shows Santa Cruz County with 123,790 persons; California Department of Finance estimates for the 2000 census indicate that over 255,000 persons reside in Santa Cruz County.



patterns more conducive to beach recreation than the rest of the Monterey Bay area, but north bay beaches are generally the first beaches accessed by visitors coming from the north of Santa Cruz. With Highway 17 providing the primary access point from the north (including San Francisco and the Silicon Valley) into the Monterey Bay area, Santa Cruz, Live Oak, and Capitola are the first coastal areas that visitors encounter upon traversing the Santa Cruz Mountains. As such, the Live Oak beach area is an important coastal access asset for not only Santa Cruz County, but also the entire central and northern California region.

See exhibit A for project location information.

Live Oak Beach Area

Live Oak represents the unincorporated segment of Santa Cruz County located between the City of Santa Cruz (upcoast) and the City of Capitola (downcoast). The Live Oak coastal area is well known for excellent public access opportunities for beach area residents, other Live Oak residents, other Santa Cruz County residents, and visitors to the area. Walking, biking, skating, viewing, surfing, fishing, sunbathing, and more are all among the range of recreational activities possible along the Live Oak shoreline. In addition, Live Oak also provides a number of different coastal environments including sandy beaches, rocky tidal areas, blufftop terraces, and coastal lagoons. These varied coastal characteristics make the Live Oak shoreline unique in that a relatively small area can provide different recreational users a diverse range of alternatives for enjoying the coast. By not being limited to one large, long beach, or solely an extended stretch of rocky shoreline, the Live Oak shoreline accommodates recreational users in a manner that is typical of a much larger access system.

Primarily residential with some concentrated commercial and industrial areas, Live Oak is a substantially urbanized area with few major undeveloped parcels remaining. Development pressure has been disproportionately intense for this section of Santa Cruz County. Because Live Oak is projected to absorb the majority of the unincorporated growth in Santa Cruz County, development pressure will likely continue to tax Live Oak's public infrastructure (e.g., streets, parks, beaches, etc.).² Given that the beaches are the largest public facility in Live Oak, this pressure will be particularly evident in the beach area.

Proposed Development Site

The project is located in the Opal Cliffs bluffs. Opal Cliffs is the name for the area extending roughly from 41st Avenue to the City of Capitola city limits. This stretch of coastline is exclusively described by a row of private residential properties that are perched atop the bluffs located seaward of the first through public road (Opal Cliff Drive). As a result, seaward public views and access from Opal Cliff Drive have been extremely curtailed.

The proposed project is located on the upper bluffs above a pocket beach known locally as Key Beach or

² The LCP identifies Live Oak at buildout with a population of approximately 29,850 persons; based on the County's recreational formulas, this corresponds to a park acreage of 150-180 acres. Though Live Oak accounts for less than 1% of Santa Cruz County's total acreage, this projected park acreage represents nearly 20% of the County's total projected park acreage.



Privates. The beach here is accessed by a locked stairway from Opal Cliff Drive for which keys can be purchased from the local recreation district for Opal Cliffs. The beach and access thereto provide the only direct vertical accessway for the roughly one-mile stretch of coastline between 41st Avenue (upcoast) and Hooper Beach in Capitola (downcoast). Some lateral beach-level access to the pocket beach at this location is also available from both up and down coast, but such access is generally limited to very low tides due at least in part to the large piles of rip-rap and rubble that front much of the Opal Cliff bluffs. The majority of the bluffs along Key Beach/Privates are armored at their base by an eclectic mix of rip rap, concrete cylinders, stepped concrete retaining walls, wooden wall, and a variety of vertical concrete seawalls. The subject properties exemplify the armoring variety at this beach with the base of the roughly 50 foot tall bluffs³ fronting the Banman residence occupied by a revetment that spills over onto the bluffs fronting the Black residence that are partially fronted by a stepped concrete seawall structure as well.

See exhibit A for graphics showing the subject site in relation to the various features described above.

B. County Approved Project

The County approved project consists of a roughly 150 linear foot shotcrete shoreline protection structure on the upper 25 feet of bluff spanning the two subject properties equally. The shotcrete would be applied roughly 8 inches thick, and stabilized by a double series of 30 foot long tiebacks drilled into the bluff behind at 4 foot spacings (i.e., roughly 80 tieback anchors). If, for whatever reason, one of the Applicants decided not to pursue their portion of the project, the two approvals mean that the other Applicant could pursue half the project independently.

The geotechnical record includes a geologic investigation for the Banman site (by Zinn Geology, dated March 2001), and separate geotechnical investigations (one each) of both the Banman and Black sites (by Tharp & Associates Inc., dated March 2001 and July 2000 respectively).⁴ On the date of this staff report, the Applicant delivered additional geologic and geotechnical investigation reports for the Black site (by Zinn Geology, dated March 2001, and by Tharp & Associates Inc., dated March 2001). It is unclear to what extent these reports were considered in the County permit action inasmuch as they were not a part of the administrative record forwarded to the Commission by the County. These additional reports have not been reviewed by the Commission's engineer nor the Commission's geologist due to their late arrival (given that they arrived the same day the staff report had to be completed to meet Commission hearing mailing deadlines). However, unless the addendum geotechnical report radically alters the base geotechnical report on Black (not expected since by the same firm prepared both reports and the geotechnical evidence did not appear to appreciably change in the interim) and/or the geologic report on Black radically alters the understanding of the Black site geologic landscape (not likely since

³ The bluff is comprised of roughly 30 feet of steeply sloped Purisma Formation bedrock overlain by about 20 feet of terrace deposits.

⁴ On this point, it is unclear why the County administrative record does not include a complementary geologic investigation for the Black project (A-3-SCO-01-118). That said, the geotechnical reports as a whole have fairly similar conclusions, and it seems reasonable to assume that the geology of the Black property is similar enough to the geology of the Banman site (being immediately adjoining) as to rely upon the one geologic report interchangeably. This appears to be what the County has done in their analysis.



the Banman and Black site are directly adjacent to each other, and the original Banman report would likely show basically the same geologic characteristics as expected to be found at the Black site), then the report analysis presented herein and its conclusions remain unchanged. To the extent that this is not the case, Commission staff will prepare an addendum to this staff report prior to the March hearing explaining any relevant changes due to the late arriving reports.

See exhibit B for County-approved site plans. See exhibit C for the County staff report, findings, and conditions approving the proposed project.

5. Substantial Issue Findings

In general, the Commissioner Appellants raise issues with respect to the project's conformance with certified Santa Cruz County LCP policies regarding shoreline structures and their associated impacts.

Commissioner Appellants generally contend that it has not been clearly demonstrated that there is an existing structure that is significantly threatened as required by the LCP. If such a case could be clearly established, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. The base of bluff armoring adversely affects recreational beach area, appears to be non-conforming and has not been evaluated for removal, and has an unclear permitting history. Additional base of the bluff armoring appears to be a part of the project but not analyzed in the County approval.

The Applicant has submitted a response to the appeals (see exhibit G).

As summarized below, the appeal issues raise a substantial issue with respect to the project's conformance with the Santa Cruz County LCP.

A. Allowing Shoreline Armoring

1. Applicable Policies

The LCP defines shoreline protection structures as follows:

IP Section 16.10.040(3g) Shoreline protection structure. Any structure or material, including but not limited to riprap or a seawall, placed in an area where coastal processes operate.

The LCP addresses the use of shoreline protective structures primarily through LUP Policy 6.2.16 (Structural Shoreline Protection Measures) and IP Section 16.10.070(h)(3) (Coastal Bluffs and Beaches, Shoreline Protection Structures).



LUP Policy 6.2.16 Structural Shoreline Protection Measures. *Limit structural shoreline protection measures to structures which protect existing structures from a significant threat, vacant lots which through lack of protection threaten adjacent developed lots, public works, public beaches, or coastal-dependent uses. Require any application for shoreline protective measures to include a thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure, protection of the upper bluff or area immediately adjacent to the threatened structure, and engineered shoreline protection such as beach nourishment, revetments, or vertical walls. Permit structural protection measures only if non-structural measures (e.g., building relocation or change in design) are infeasible from an engineering standpoint or not economically viable. The protection structure must not reduce or restrict public beach access, adversely affect shoreline processes and sand supply, increase erosion on adjacent properties, or cause harmful impacts on wildlife and fish habitats or archeological or paleontological resources. The protection structure must be placed as close as possible to the development requiring protection and must be designed to minimize adverse impacts to recreation and to minimize visual intrusion. Shoreline protection structures shall be designed to meet approved engineering standards for the site as determined through the environmental review process. Detailed technical studies shall be required to accurately define the oceanographic conditions affecting the site. All shoreline protective structures shall incorporate permanent survey monuments for future use in establishing a survey monument network along the coast for use in monitoring seaward encroachment or slumping of revetments and erosion trends. No approval shall be given for shoreline protective structures that do not include permanent monitoring and maintenance programs. Such programs shall include a report to the County every five years or less, as determined by a qualified professional, after construction of the structure, detailing the condition of the structure and listing any recommended maintenance work. Maintenance programs shall be recorded and shall allow for County removal or repair of a shoreline protective structure, at the owner's expense, if its condition creates a public nuisance or if necessary to protect public health and safety.*

IP Section 16.10.070(h)(3). *Shoreline protection structures shall be governed by the following:*

- (i) shoreline protection structures shall only be allowed on parcels where both adjacent parcels are already similarly protected, or where necessary to protect existing structures from a significant threat, or on vacant parcels which, through lack of protection threaten adjacent developed lots, or to protect public works, public beaches, and coastal dependent uses. Note: New shoreline protection structures shall not be allowed where the existing structure proposed for protection was granted an exemption pursuant to Section 16.10.070(h)2.*
- (ii) seawalls, specifically, shall only be considered where there is a significant threat to an existing structure and both adjacent parcels are already similarly protected.*
- (iii) application for shoreline protective structures shall include a thorough analysis of all reasonable alternatives to such structures, including but not limited to relocation or partial*



removal of the threatened structure, protection of only the upper bluff or the area immediately adjacent to the threatened structure, beach nourishment, and vertical walls. Structural protection measures on the bluff and beach shall only be permitted where non-structural measures, such as building relocating the structure or changing the design, are infeasible from an engineering standpoint or not economically viable.

- (iv) shoreline protection structures shall be placed as close as possible to the development or structure requiring protection.*
- (v) shoreline protection structures shall not reduce or restrict public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, increase erosion on adjacent property, create a significant visual intrusion, or cause harmful impacts to wildlife or fish habitat, archaeological or paleontologic resources. Shoreline protection structures shall minimize visual impact by employing materials that blend with the color of natural materials in the area.*
- (vi) all protection structures shall meet approved engineering standards as determined through environmental review.*
- (vii) all shoreline protection structures shall include a permanent, County approved, monitoring and maintenance program.*
- (viii) Applications for shoreline protection structures shall include a construction and staging plan that minimizes disturbance to the beach, specifies the access and staging areas, and includes a construction schedule that limits presence on the beach, as much as possible, to periods of low visitor demand. The plan for repair projects shall include recovery of rock and other material that has been dislodged onto the beach.*
- (ix) All other required local, state and federal permits shall be obtained.*

These policies generally allow for shoreline protection “where necessary to protect existing structures from a significant threat.” Such structural protection is only allowable when non-structural measures are infeasible, and when such protection does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. On the whole, these LCP policies recognize that structural shoreline protection measures have negative resource impacts and are to be utilized sparingly – and only when it can be demonstrated that such measures are warranted and appropriately mitigated.

2. County-Approved Project

The County-approved project consists of a concrete-faced shoreline protective structure. The entire project takes place within a coastal bluff area subject to ongoing coastal processes (including erosion, wave attack, landsliding, etc.). As a result, the structure approved would be “placed in an area where coastal processes operate” and constitutes a “shoreline protective structure” for LCP purposes.



3. Consistency with Applicable Policies

Defining the existing structure

The LCP allows installation of shoreline protection structures to protect existing structures, vacant lots which through lack of protection threaten adjacent development, public works, public beaches, or coastal dependent uses. The subject application involves the protection of an "existing structure" as opposed to the other allowed categories.⁵ For the purposes of the analysis that follows, it is critical to understand what constitutes the "existing structure" under the LCP. The Commission has generally interpreted LCP and Coastal Act policies to allow shoreline protection only for existing principal structures. The Commission must always consider the specifics of each individual project, but has found that accessory structures (such as patios, decks, gazebos, stairways, etc.) are not required to be protected or can be protected from erosion by relocation or other means that do not involve shoreline armoring.

In this case, the subject blufftop sites are developed with residences that the County implies were constructed prior to the Coastal Act⁶ fronted by decks and walkways on the seaward side of the residences. Although not entirely clear, the Commission assumes within the context of these findings that the existing residences pre-date the Coastal Act and thus each of them constitutes an "existing structure" for the purposes of LCP shoreline armoring policy application. Consistent with the interpretation that only principal structures are eligible for shoreline armoring, the "existing structures" against which the LCP shoreline structure policies must be applied in this case are the existing residences themselves (and not the decks and/or walkways).

Demonstration of significant threat

The LCP only allows for shoreline protection structures "where necessary to protect existing structures from a significant threat." The LCP does not define "significant threat." In similar Santa Cruz County cases,⁷ and in general, the Commission has interpreted "significant threat" and/or "imminent danger" to mean that a structure would be imperiled in the next two or three storm cycles (generally, the next few years).

In this case, the LCP-required significant threat has not been demonstrated.

The County approval indicates that the subject residences would be threatened from erosion within 30 years. There are two main problems with this finding: (1) the lack of demonstrated threat; and (2) the time frame used for determining the threat.

The residential structures at this location are roughly 33 feet (Banman) and 27 feet (Black) from the

⁵ And not 'vacant lots, public works, public beaches, or coastal dependent uses.'

⁶ Inasmuch as the County analysis details the geotechnical problems oftentimes associated with pre-Coastal Act development, using the Banman and Black residences as examples. Otherwise, the County has not specifically indicated when the subject residences were first built.

⁷ For example, most recently in the Live Oak beach area, appeal A-3-SCO-99-056 (Filizetti-Hooper) in which a revetment installed without benefit of a permit was denied by the Commission in June of 2000. Note that the revetment in that case has since been removed and the beach and bluff restored to their pre-revetment installation condition.



blufftop's edge at their closest point.⁸ The lower 30 feet of the roughly 50-foot-high bluff consists of nearly vertical Purisima Formation bedrock, whereas the upper bluff consists of more gently sloping but still near vertical marine terrace deposits. Because the base of the bluff is armored by rip-rap (Banman) and rip-rap/seawall (Black), its base location is essentially fixed (i.e., not expected to retreat significantly). The upper terrace deposits may be expected to erode by subaerial processes, however, until their slope approaches an equilibrium slope related to the strength of the materials in the bluff.⁹ The Applicant's consultants estimate that equilibrium slope to be roughly 1.5:1, an estimate with which the Commission's staff geologist substantially concurs. Even were the slopes to decrease to this equilibrium angle, however, there would still be roughly 13 feet (Banman) and 7 feet (Black) of bluff setback at a minimum; the majority of the bluff setback would be significantly larger (ranging from roughly 35 feet for Black to over 50 feet for Banman). Thus it is not clear that even over the very long term, or even over the 30 years identified by the County, that the residences themselves would ever be significantly threatened by erosion absent a project.¹⁰ Further, this retreat of the upper bluff will occur over a significant period of time. No data are presented in the geotechnical reports, however, to estimate the time that would be required for the slopes to lay back to their equilibrium angles.

In addition to the gradual, albeit episodic, erosion process described above, coastal bluffs are subject to landslides, which have the capacity to place structures on blufftops at risk. Measuring the degree of threat at this site necessitates evaluating the stability of the bluff materials themselves and their ability to resist failure. A landslide occurs because a number of factors come together; these include the overall geometry of the hillside (or bluff), decreases in the effective normal stress at depth caused by increased water in the slope (buoyancy forces); and the strength of the rocks. Landslides on coastal bluffs occur at least partly because marine erosion continually undermines the toe of the bluff, creating an unsupported geometry that is prone to landsliding. The risk of landslide can be quantified, to some extent, by taking the forces resisting a landslide (principally the strength of the rocks along a potential slide plane) and dividing them by the forces driving a landslide (principally the weight of the rocks as projected onto the potential slide plane). If the quotient, called the factor of safety, is 1.0, failure is imminent. The factor of safety should never, in theory, be below 1.0, as a slide would have already occurred. Factors of safety greater than 1.0 lead to increasing confidence that the bluff is safe from failure.

Slope stability can be evaluated quantitatively by a "slope stability analysis." In practice, hundreds of

⁸ The setbacks from the bluff range from between 33 and 73 feet (Banman) and 27 and 55 feet (Black) due to the bluff edge configuration and the unusually shaped properties and residences here (see site plans in exhibits B and F).

⁹ Oftentimes referred to as a stable "angle of repose," although that term is not technically applicable to materials, such as those making up these terrace deposits, that have cohesion.

¹⁰ The administrative record for this project, including the geotechnical reports, does not include reference to an erosion rate for this site. The geotechnical reports also do not include reference to a 30 year time frame. Thus, it is not clear whether the 30-year time frame identified by the County was based upon an identified long-term erosion rate (developed based on past steady and episodic erosion processes) for this site or some other factor. Given that recent reports for similar projects in this area (A-3-SCO-01-109, Adams) have estimated long-term erosion in the neighborhood of 0.5 feet per year, it may be that this 30-year time frame identified by the County was based on such an analysis (i.e., 30 years at 0.5 feet per year represents roughly 15 feet of erosion), but the approval is unclear on this point. However, even were the long-term erosion rate to have been established using erosional lower bluff conditions prior to the installation of the existing armor at the toe of the slope, this rate is no longer accurate for the site. In fact, the erosion rate would be expected to be nearer to zero at this location given the existing armor.



potential slide planes are typically evaluated. The one with the lowest factor of safety is the one on which failure will occur. So the potential slide plane with the minimum factor of safety is the appropriate one to design for. If one steps back far enough from the edge of the bluff, potential slide planes intersecting the top of the bluff generally will have higher and higher factors of safety. A factor of safety of greater than or equal to 1.5 is the industry standard for new development to be "safe" from a landslide. During an earthquake, additional forces act on the bluff, and a landslide is more likely. To test for the stability during an earthquake, a "pseudostatic" slope stability analysis can be performed. This analysis is rather crude, but the standard methodology is to apply a "seismic coefficient" of 15% of the force of gravity (0.15g), the force of which is added to the forces driving the landslide. The standard for new development in California is to assure a minimum factor of safety greater than or equal to 1.1 in the pseudostatic case.

In this case, slope stability analyses presented in both the July 2000 and March 2001 Tharp and Associates reports indicate very high minimum factors of safety (2.20 and 2.0, respectively) against landsliding for failure surfaces that involve the Purisima Formation bedrock. The pseudostatic analyses, intended to test slope stability during earthquake conditions, also show very high minimum factors of safety (1.7 and 1.5) for such failure surfaces. The March 2001 report, undertaken for the 4420 Opal Drive (Banman) site, also included slope stability analyses testing for landsliding of the marine terrace deposits that overlie the Purisima Formation. Although the 1.4 factor of safety found for the static analysis is lower than the industry-standard of 1.5 generally required for new development, this value is still much higher than many developed coastal bluffs. In and of itself, this value does not suggest that the upper bluff is in imminent danger of landsliding. The pseudostatic analysis, performed to test slope stability during earthquake conditions, indicates a factor of safety of only 1.0, however, suggesting that failure during an earthquake is quite possible (although there were no failures of the coastal bluff at the site during the M 6.9 1989 Loma Prieta earthquake). However, all of the ten most critical surfaces shown on figure C-2.0 lie within 15 feet of the bluff edge; the most critical surface – presumably the surface along which failure would occur – lies less than 10 feet from the bluff edge. Because the Banman residence is at all points further than 33 feet from the bluff edge, and the Black residence is setback a minimum of 27 feet, such a failure is not likely to affect either residence.

Further, the slope stability analysis was performed in such a way that it is perhaps overly conservative (i.e., yields very low factors of safety). First, a seismic coefficient of 0.19g (19% of the force of gravity) was applied. Although California Division of Mines and Geology (CDMG) Special Publication 117 quotes a wide varieties of values that have been applied in the literature, a value of 0.15g is most widely used in California. The standard of practice throughout the State is to demonstrate a minimum factor of safety of greater than 1.1 using a seismic coefficient of 0.15g. Second, the slope stability analyses use very low rock strengths given the shear test data presented. Rock and soil strength is generally described by both cohesion and friction angle values, which are determined by subjecting samples of the rocks or soils in question to a shear (sliding) force while they are held under various confining pressures. Both "peak" values, when the rock or soil first fails, and "residual" values, when the rock or soil mass is sliding, can be measured. Residual values are always lower than peak values. Peak values are suitable for modeling intact rock and soil masses, whereas residual values are usually used for modeling continued



sliding along previously sheared rocks (e.g., reactivation of ancient landslides, faulted rocks, etc.), or when especially conservative calculations are called for. It is common practice, in fact, to use peak values when modeling seismic conditions, since the seismic forces are applied only very briefly, unlike the static forces acting on a bluff. The analyses reported in the Tharp and Associate reports do not do this, but instead use lower than peak values of cohesion and friction angle. Finally, the analyses do not even use residual values for cohesion and friction angle. Instead, they make use of values that are 9-12 % lower than the residual values. No explanation is provided for this reduction in strength values. Each of these three factors will tend to lower the factors of safety values produced by the pseudostatic slope stability analyses.

Finally, the 30 year time frame used by the County is roughly ten times the amount of time used by the Commission to establish the degree of threat to a structure. The 2 to 3 year time frame used by the Commission would appear to be a conservative standard for this location given the frequency of major storm events in the Monterey Bay documented to be roughly one every 1.5 years, and the frequency of such storms in the Bay that are directed at this location as roughly one every 5.3 years.¹¹ Even were the residences to be conclusively shown to be significantly threatened in 30 years, such future threat is not a sufficient demonstration for shoreline armoring policy conformance. Many shoreline developments in Santa Cruz County and the State may be able to show a future (30+ year) threat, but such demonstration does not imply that they are currently at risk from shoreline erosion processes. In other words, the fact that structures have been developed along a naturally eroding California shoreline does not by itself mean that they are in danger, just that natural erosion processes continue to operate notwithstanding their presence.

In sum, the geotechnical evidence does not indicate that the existing structures here are significantly threatened. Clearly there has been some upper bluff erosion as indicated by the remnants of landslide debris found on top of the existing base of bluff armoring, but such surficial erosion hardly constitutes significant threat for shoreline armoring purposes when the subject residences enjoy such substantial setbacks from the edge of a bluff that is already armored at its toe. Even over the long term, when the upper bluff terrace deposits would be expected to lay back to a stable equilibrium slope angle, the subject residences do not appear to be at risk. The slope stability analysis shows the bluffs here to be fairly stable – even in a worst case catastrophic scenario, where up to 15 feet of the bluff edge sloughed off, the subject residences would still maintain setbacks ranging from 12 feet (minimum for Black) to nearly 20 feet (minimum for Banman) and a maximum of nearly 60 feet. While the bluff will continue to erode, as bluffs naturally do, the subject residences are already protected by toe of bluff armoring and do not appear to be at risk within the next several years. As a result, the County-approved project raises a substantial LCP conformance issue.

¹¹ Although not clearly developed in the administrative record for this project, recent geotechnical reports done for armoring projects proposed for the Opal Cliffs area indicate that a major storm (i.e., one including "either high seas, strong winds, and/or damage to at least some portion of the Monterey Bay region") has occurred in the Monterey Bay area every 1.5 years on average, with one of these directed at this north bay location roughly every 5.3 years (reference A-3-SCO-01-109, Adams).



Alternatives to shoreline armoring

The LCP requires a "thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure" when shoreline armoring is proposed. Ultimately, the LCP only allows for shoreline armoring measures "where non-structural measures are infeasible from an engineering standpoint or not economically viable." In this case, the County concluded that the alternatives evaluated "could not accomplish the goal of protecting the bluff, or had visual or other impacts which would be greater than the proposed shotcrete wall." There are several problems with this conclusion.

First, the goal of an armoring project cannot be to "protect the bluff." Armoring is allowed by the LCP to protect existing structures, but not to protect blufftop space of itself.

Second, the County evaluated and dismissed four alternatives to the proposed project: moving the residences, drilled pier retaining walls (with additional shotcrete now or in the future), biotechnical treatment, and drainage control. The first option considered (a drilled pier retaining wall eventually faced with shotcrete) is readily dismissed as a non-structural alternative inasmuch as it is simply an alternative form of armoring as opposed to an alternative method for addressing any identified problems. The intent of the LCP policy is to review possible non-armoring alternatives. As such, the relevance of drilled pier and/or drilled pier and shotcrete as an alternative is limited.

The second option (relocation of the homes) was not fully evaluated. The County findings indicate that relocation would result in non-conformities for front yard (Opal Cliffs Drive) setbacks and off-street parking requirements. However, this option is not fully developed (e.g., to more specifically describe the space available on the subject properties, the trade-offs involved, the cost of relocation, technical difficulties, etc.). The site plans indicate a substantial amount of space in the front yard area, but are lacking specific information from which to make a case for or against relocation into this area. In addition, given that the blufftop setback ranges from 27 feet to over 70 feet across the project area (in relation to the residences), a feasible permutation of this alternative involving partial relocation of threatened elements (were any conclusively shown to be threatened) may be appropriate and could have been evaluated.

The third option (biotechnical treatment, or planting of long-rooted native plants to help hold together the upper bluff materials) was dismissed as infeasible; the County asserting that "the erosion is occurring in blocks and topples in a manner that is unsuitable for biotechnical treatment." There is little evidence in the administrative record showing that this manner of erosion is occurring. On the contrary, the geotechnical reports indicate recent surficial landsliding at the site, but not block failure. With the armored base, the upper bluff would be expected to lay back over time to a stable equilibrium angle if left unprotected. Some amount of erosion control groundcover, supplemented by specific plantings as the slope decreased, would appear a reasonable alternative on such slopes.

As to drainage controls, the County approval indicates that drainage control is part of the project as proposed but that (1) subsurface erosion control is infeasible; and that (2) neither the engineering geologist nor engineer "proposes that drainage control alone is adequate to secure the bluff." The



geotechnical reports hypothesize that there may be some perched groundwater at the Purisma-terrace deposit interface, as is common along the coast due to the lesser permeability of the hard Purisma. Borings done at both sites did not detect groundwater in either case, but did indicate an elevated moisture content at this interface. However, not only is it unclear to what extent subsurface groundwater/moistness implies there is an underground erosion control problem, there is also little indication of the feasibility of addressing subsurface drainage or erosion control in the administrative record were it determined to be a problem of itself (i.e., other than incorporating some form of drainage control into the shotcrete structure itself).

As to drainage control as its own alternative, the geotechnical reports conclude that "surface run off from storm water, and/or irrigation activities is a key contributor to erosion and slope instability on the subject property. To help mitigate against future erosion of the sea cliff, storm water should not be allowed to discharge onto or near the steep slope on the subject property."¹² The geotechnical reports do not, however, evaluate a drainage control option of itself. As a result, while the County statement is correct that the consulting engineers have not proposed drainage controls alone as an option to address stability concerns here, that is because they were not asked to evaluate such an option, and not because they have indicated that such measures would be infeasible of themselves. With the gently sloping blufftop – one that slopes away from the bluffs according to the geologic reports – drainage controls to address what is considered a "key contributor to erosion and slope instability on the subject property" seem entirely feasible. These drainage controls could include or be supplemented by replacing impermeable pavement with permeable concrete, or open paving stone; using and maintaining gutters and downspouts; undertaking some slight recontouring or swales to capture and control rain landing on the site; and planting a non-irrigated vegetative buffer at the bluff edge.

Finally, it should be noted that the alternative of plantings and bluff drainage controls (in some combination) is not necessarily meant to be considered an equal alternative to a seawall or other more major form of bluff altering armor. In fact, they are not generally seen as the ultimate "fix" or as a replacement for a "hard" armoring project such as that proposed. Rather, these types of "soft" alternatives can serve to greatly extend the design life of setbacks by increasing bluff stability and slowing erosion. Thus, they must be understood as alternatives that can allow for natural processes to continue while simultaneously providing continued stability to the bluff. Given the active forces of erosion taking place unabated along the unarmored California coast, erosion will eventually (over the long-term) result in bluff retreat. At that point, in some cases, plantings and bluff drainage controls may not be adequate to address the erosion problem of themselves (particularly if they have already been implemented previously and their effect on bluff stability already factored into the analysis), and other alternatives could become more feasible (including wholesale relocation out of danger and even armoring of the coast). In this case, the toe of the slope armoring skews this analysis inasmuch as the base of the bluff here is essentially fixed already and the residences are already well set back from the bluff edge. Thus, the relevance of these types of "soft" options, and their potential to address identified threat, is heightened in this case.

¹² The Tharp & Associates reports for Banman (2001) and Black (2000) both conclude in this manner.



In sum it appears that, at a minimum, the alternatives considered in the County approval did not adequately analyze non-structural measures as an alternative to shoreline armoring at this site. Non-structural measures have certainly not been demonstrated to be "infeasible from an engineering standpoint or not economically viable." Such alternatives are particularly relevant in this case since the degree of threat has not been shown to be significant. The facts of the case appear to indicate that some combination of biotechnical treatment of the upper bluff terrace deposits combined with drainage improvement on the blufftop itself could serve to stabilize the bluff here. When combined with the fact that the bluff is armored at its base and there is plenty of blufftop space available for the bluff to lay back to a stable angle over time (as expected), dismissal of such alternatives is contrary to LCP shoreline structure policy direction. As a result, the County-approved project raises a substantial LCP conformance issue.

Location of proposed armoring

If it were conclusively proven that there was a significant threat here, and if non-armoring alternatives were conclusively shown to be infeasible, the LCP requires that such structures "be placed as close as possible to the development or structure requiring protection." Even if these first two conditions were met in this case (which they aren't, as detailed above), the County-approved shoreline protective structure would be placed well away from the residences at the bluff edge itself; roughly between 33 and 73 feet (Banman) and 27 and 55 feet (Black) away from the residences being protected. Such placement, is not as close as possible to the residences proposed for protection. Since shotcrete obviously couldn't be applied any closer to the residences than the bluff edge, this again provides more evidence that the significant threat condition envisioned by the LCP has not been met in this case due in part to the substantial setbacks from the bluff maintained by the residences. As a result, the County-approved project raises a substantial LCP conformance issue.

Future armoring required

The LCP requires a minimum of 100 years of stability without reliance on future shoreline protective structures (including, but not limited to, LUP Policy 6.2.12, and IP Sections 16.10.070(g) and 16.10.070(h)(1)(i)). If the County-approved project were to be installed, the geotechnical reports indicate that there is the potential for the unarmored section of bluff remaining at this site (the area remaining between the existing toe of slope armoring and the upper bluff shotcrete) to erode of itself and lead to stability problems for the shotcrete. The reports also indicate that there exists the potential for outflanking of the shotcrete on the adjacent upper bluffs that are currently unarmored, again leading to stability problems for the shotcrete itself. The reports do not assign a potential time frame to these possibilities, but do indicate that such shotcrete instability problems can be remedied by additional armoring. Given that natural erosion will continue in this area irrespective of whether the County-approved shotcrete were to be installed, these possibilities seem likely over even the very short-term.

Not only is it unlikely that the LCP or the Coastal Act would allow for such additional shoreline armoring to protect other shoreline armoring, but the County-approved structure in this case would appear to establish a scenario where additional armoring would be necessary within less than 100 years. This does not meet the LCP's minimum 100 year threshold.



In addition, the County approval requires compliance with the geotechnical reports, and the geotechnical reports state that the rip-rap would be replaced in a configuration to be determined by the consulting engineer. This aspect of the project is not evaluated nor analyzed in the County approval and could result in additional armoring at the base of the bluffs here for which consistency with applicable Coastal Act and LCP policies has not been measured nor guaranteed.

As a result, the County-approved project raises a substantial LCP conformance issue.

Status of existing toe of bluff armoring

As previously stated, there exists rip-rap (Banman) and rip-rap/concrete seawalls (Black) at the base of the bluffs at this location. The Commission has been unable to locate any coastal development permits authorizing the installation of the existing armoring, and pre-Coastal Act photo interpretation (to verify whether the armoring was placed prior to coastal permitting requirements) has proven inconclusive. The County findings do not examine this point. Since large amounts of shoreline armor in coastal Live Oak were originally placed in the 1950s and 1960s, it may be that the existing armor at this location pre-dates the Coastal Act. In fact, the Applicant indicates that the armoring was originally installed in the early 1960s. In any case, since its installation date has not been verified, the status of the existing armoring remains partially clouded as of the date of this report.¹³

If the existing armoring were to lack required coastal development permits, and its retention were to be applied for after the fact, the discussion above indicates that the LCP-required significant threat has not been established at this location and the armoring would thus not likely meet LCP requirements. Of course, since some of the above discussion detailing the lack of the LCP-required significant threat evaluates the threat based in part on the existence of the toe of bluff armoring already present, there may be some minor differences in the analysis. Given the healthy bluff setbacks enjoyed by the residences here, however, such a factor is unlikely to alter the basic lack of demonstrated significant threat premise.

If the existing armoring was permitted or pre-dated coastal permitting requirements, then its status is still questionable under the LCP's non-conforming structure policies as follows. First, the existing toe of slope armoring constitutes a significantly non-conforming structure under the LCP inasmuch as it would not be allowed under the current regulations (because of the lack of demonstrated threat) and based upon its location relative to adjacent parcels and the shoreline of Monterey Bay.¹⁴ Second, the LCP only allows structural alteration to a significantly non-conforming structure if its non-conforming dimensions are not increased and, among other things, it "will not impede the achievement of the goals and objectives of the County General Plan, or of any Specific Plan which has been adopted for the area." If a broad interpretation is taken of the armoring at this location such that the proposed project is simply increasing the shoreline armoring at this location, then the proposed project is not allowed under the non-conforming structure policies (as it would increase the size of a significantly non-conforming

¹³ Additional research on this topic is underway by Commission enforcement staff as of the date of this staff report.

¹⁴ LCP Section 13.10.700-N defines a non-conforming structure (based upon being lawfully erected prior to the LCP requirements, but unable to meet the current standards) and LCP Section 13.10.265 defines a significantly non-conforming structure (one that is, among other things, located across a property line or within 5 feet of another structure on an adjacent property).



structure whose existing and increased configuration conflicts with the General Plan/LCP goals and objectives (for protection of the natural landform, public viewsheds, beach access, natural shoreline processes and sand supply, on and offshore recreational resources, and habitat) and impedes their achievement. If a broad interpretation is not taken (and the proposed shotcrete is conceptually separated from the toe of bluff armoring), then the project at the least would not allow for the additional rip-rap (as detailed above for significantly non-conforming structures). In any case, the County's approval has not evaluated the question of whether the existing base of bluff armoring is non-conforming, and the LCP requirements pertaining thereto.

In addition, the LCP independently requires evaluation of existing armoring for its potential to negatively impact coastal resources, irregardless of its permit or non-conformity status. The LCP includes a program to implement corrective actions (e.g., removal) for shoreline armoring structures that are leading to the loss of recreational beach areas, as is the case with the base of bluff armoring present at this location. LUP Program 6.2.d states:

Review existing coastal protection structures to evaluate the presence of adverse impacts such as pollution problems, loss of recreational beach area, and fishkills and implement feasible corrective actions.

As described earlier, the existing armoring is present at one of the few pocket beach areas remaining along Opal Cliffs. It occupies an area of beach that could otherwise be used for recreational pursuits. The LCP-required evaluation for such adverse impacts has not occurred in this case, and the complementary question of whether removal is appropriate to protect recreational beach areas as directed by the LUP remains unanswered. The evaluation of such questions are particularly relevant in cases such as this where the degree of threat to existing structures does not appear significant.

As a result, the County-approved project raises a substantial LCP conformance issue.

4. Allowing Shoreline Armoring Conclusion

The LCP requires a significant threat be demonstrated before any form of shoreline protection be considered. The LCP requires an evaluation of alternatives to hard protective structures such as that proposed, and only allows further consideration of hard armoring if the alternatives are proven infeasible. In tandem, the intent is to limit the installation of shoreline armoring (because of its negative impacts on coastal resources) to the finite set of cases where it is truly warranted. In this case, the LCP-required significant threat has not been demonstrated, and non-structural alternatives have not been shown to be infeasible. Even were these conditions conclusively demonstrated, the approved location is not as near to the residence as possible so as to allow for natural bluff retreat processes to continue (since shotcrete obviously couldn't be applied any closer to the residences than the bluff edge, this again provides more evidence that the significant threat condition envisioned by the LCP has not been met in this case due in part to the substantial setbacks from the bluff maintained by the residences). The structure approved would require separate armoring of its own well in advance of the LCP's established minimum stability threshold of 100 years. The LCP does not allow for the expansion of a significantly



non-conforming structure such as the existing base of bluff armoring. Whether the County-approved project is considered expansion of the existing base of bluff armoring or not, this existing armoring adversely affects recreational beach area and has an unclear permitting history – neither of these areas of concern were evaluated for their bearing on the proposed project and/or an alternate project (to remove the existing armoring as a corrective action). As a result, the County-approved project raises a substantial LCP conformance issue.

B. Avoiding, Minimizing, & Mitigating Shoreline Armoring Impacts

1. Applicable Policies

LCP Policies

If a hard protective structure is proven necessary and appropriately sited, the LCP only allows such structural protection if it minimizes landform alteration, minimizes visual intrusion, and when it does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. In addition to the LCP's shoreline protective structure specific policies as cited previously, additional LCP policies are relevant to this point, including, but not limited to LUP Objectives 5.10.a and 5.10.b, LUP Policy 5.10.7, LUP Chapter 7, and IP Section 13.20.130. For example, the LCP states:

Objective 5.10.a Protection of Visual Resource Areas. To identify, protect, and restore the aesthetic values of visual resources.

Objective 5.10.b New Development in Visual Resource Areas. To ensure that new development is appropriately designed and constructed to minimal to no adverse impact upon identified visual resources.

LUP Policy 5.10.2 Development Within Visual Resource Areas. Recognize that visual resources of Santa Cruz County possess diverse characteristics.... Require projects to be evaluated against the context of their unique environment and regulate structure height, setbacks and design to protect these resources consistent with the objectives and policies of this section....

LUP Policy 5.10.3 Protection of Public Vistas. Protect significant public vistas...from all publicly used roads and vistas points by minimizing disruption of landform and aesthetic character caused by grading operations,... inappropriate landscaping and structure design.

LUP Policy 5.10.6 Preserving Ocean Vistas. Where public ocean vistas exist, require that these vistas be retained to the maximum extent possible as a condition of approval for any new development.

LUP Policy 5.10.7 Open Beaches and Blufftops. Prohibit placement of new permanent structures which would be visible from a public beach, except where allowed on existing lots of record, or for shoreline protection and for public beach access. Use the following criteria for



allowed structures:... (b) Require shoreline protection and access structures to use natural materials and finishes to blend with the character of the area and integrate with the landform.

LUP Policy 7.7.1 Coastal Vistas. Encourage pedestrian enjoyment of ocean areas and beaches by the development of vista points and overlooks with benches and railings, and facilities for pedestrian access to the beaches...

IP Section 13.20.130(b)(1) Entire Coastal Zone, Visual Compatibility. The following Design Criteria shall apply to projects site anywhere in the coastal zone: All new development shall be sited, designed and landscaped to be visually compatible and integrated with the character of surrounding neighborhoods or areas.

IP Section 13.20.130(d)(1) Beach Viewsheds, Blufftop Development. The following Design Criteria shall apply to all projects located on blufftops and visible from beaches: Blufftop development and landscaping...in rural areas shall be set back from the bluff edge a sufficient distance to be out of sight from the shoreline, or if infeasible, not visually intrusive.

IP Section 13.20.130(d)(2) Beach Viewsheds, Beaches. The scenic integrity of open beaches shall be maintained....

Furthermore, Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." Because this project is located seaward of the first through public road (East Cliff Drive/Opal Cliff Drive), for public access and recreation issues the standard of review is not only the certified LCP but also the access and recreation policies of the Coastal Act. In particular:

Section 30210 In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30213. Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred....

Section 30214(a). The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case...



Section 30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

Section 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Section 30240(b). Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

2. County-Approved Project

As described above, the County-approved a project that would armor the upper half of a coastal bluff along approximately 150 feet of shoreline above the recreational beach area at Key Beach/Private in Opal Cliffs with shotcrete. As also described, there currently exists toe of bluff rip-rap and concrete seawalls at this location. See County-approved staff report in exhibit C and plans in exhibit B.

3. Consistency with Applicable Policies

Were the other tests otherwise met to allow for armoring at this location (which they are not, as described above), the LCP has multiple overlapping policies meant to result in appropriate design of allowable armoring projects to minimize and mitigate impacts to natural landforms, public viewsheds, and public access and recreational resources (including beach, offshore, and blufftop access). These policies are complemented by Coastal Act access and recreation protective policies that likewise apply here.

In this case, even were an armoring structure warranted, it does not appear that the approved project has adequately addressed such policies:

- substantial landform alteration has been approved that will result in a flattened, concrete faced, and textured bluff where currently exists a meandering natural bluff landform;



- visual intrusion is guaranteed for which the County-required mitigation, designed to ensure that the concrete is adequately colorized, mottled and textured to blend into the adjacent natural bluffs, may prove inadequate to conceal. The photo simulations provided as evidence that the shotcrete will harmonize with the existing bluff appear to show just the opposite, and the examples cited by the County as exemplary appear artificial;
- the planting plan shows ice-plant (an exotic invasive species) as opposed to native bluff plantings for the blufftop edge (i.e., directly atop the proposed shotcrete);
- the contribution of bluff materials into the natural shoreline sand supply system at this location will eventually be halted and the County-approval includes no mitigation for this impact. The Applicant's appeal response (exhibit G) indicates that the amount of sand retained by the proposed structure could range from 40 to 161 cubic yards per year. The Commission has, in the past, mitigated for such defined sand supply impacts through the use of an in-lieu sand supply fee. Were a fee to be assessed based on this sand retention estimate, and using a conservative cost estimate of \$10 per cubic yard of sand, this fee would be in the neighborhood of \$400 to \$1,600 per year;
- the County approval does not analyze the potential for the project to negatively alter beach access for the pocket beach (Key Beach/Private) at this location and thus, any necessary mitigation for such negative impacts is also missing;
- there is no analysis of impacts, if any, to marine resources of the Monterey Bay National Marine Sanctuary offshore.
- There is no analysis of the negative recreational access impacts due to the existing toe of bluff armoring, and potential corrective actions that could be taken to abate same.

These public access, recreation, viewshed, landform protection, and (potentially) offshore habitat issues appear to have been inadequately analyzed (if a protective structure were to be proven necessary and appropriately sited). As a result, the County-approved project raises a substantial LCP conformance issue.

C. Substantial Issue Conclusion

The LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved, and the LCP requires 100 years of stability (without reliance on shoreline protective structures) for development.

The County's approval is not consistent with the LCP in that the LCP-required significant threat has not



been clearly demonstrated. The County's findings indicate that the home will be threatened by bluff retreat in the next 30 years. However, the two residences enjoy substantial setbacks from the edge of a bluff that is already armored at its toe. Even over the long term, when the upper bluff terrace deposits would be expected to lay back to a stable equilibrium slope angle, the subject residences do not appear to be at risk – let alone within the next several years. If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. The structure approved would require separate armoring of its own well in advance of the LCP's established minimum stability threshold of 100 years. The LCP does not allow for the expansion of a significantly non-conforming structure such as the existing base of bluff armoring. Whether the County-approved project is considered expansion of the existing base of bluff armoring or not, this existing armoring adversely affects recreational beach area and has an unclear permitting history – neither of these areas of concern were evaluated for their bearing on the proposed project and/or an alternate project (to remove the existing armoring as a corrective action). Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured.

Therefore, the Commission finds that a substantial issue exists with respect to this project's conformance with the certified Santa Cruz County Local Coastal Program and takes jurisdiction over the coastal development permits for this project.

6. Coastal Development Permit Findings

By finding a substantial issue in terms of the project's conformance with the certified LCP, the Commission takes jurisdiction over the CDPs for the proposed project. The standard of review for these CDP determinations is the County LCP and the Coastal Act access and recreation policies.

A. Consistency with Applicable Policies

The substantial issue findings above are incorporated directly herein by reference. As detailed in these findings, the proposed project raises fundamental LCP conformance issues that cannot be easily rectified by condition. The LCP-required significant threat has not been demonstrated. The LCP-required infeasibility of non-armoring alternatives has not been demonstrated. The LCP-required shoreline structure placement is not as close as possible to the residence proposed for protection. The LCP-required 100 year stability test is not met. Irregardless of its unclear coastal permit status, the LCP does not allow for the expansion of a significantly non-conforming structure such as the existing toe of slope armoring. The LCP required evaluation of negative impacts (and feasible corrective actions to correct same) associated with the existing armoring is missing. The LCP- and Coastal Act-required prevention of, and mitigation for, impacts to beach and offshore recreational access, public views, and landform alteration has not been assured. In sum, without a clear demonstration of significant threat, and in light



of the negative resource impacts from armoring that are well known to the Commission, armoring cannot be found LCP and Coastal Act consistent at this location. Therefore, the Commission finds that the proposed project is inconsistent with the certified LCP and the Coastal Act and is therefore denied.

B. California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The County, acting as the lead CEQA agency, circulated a proposed negative declaration under CEQA for the proposed project in August of 2001. Prior to that time, in early coordination with County staff, Commission staff had already provided feedback and recommendations on the project to the County and the Applicant describing the same types of LCP and Coastal Act inconsistencies detailed in this report; these comments were reiterated and elaborated upon after it was discovered that the Black portion of the project had been added (see exhibit I for Commission staff comments). Ultimately, the project was not altered in light of staff comments, and the County certified the CEQA negative declaration as part of the project approval in October 2001.

In any case, the Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. This report has discussed the relevant coastal resource issues with the proposal. All public comments received to date have been addressed in the findings above. All above Coastal Act findings are incorporated herein in their entirety by reference. As detailed in the findings above, there are less environmentally damaging feasible alternatives to the proposed project (including the no project alternative), and there are a range of unanalyzed (and unmitigated) impacts associated with the proposed project. Most importantly, the geotechnical information available shows that there are not existing structures that are significantly threatened at this location that would warrant the proposed shoreline protection and the range of negative coastal resource impacts associated with it.

As such, there are additional feasible alternatives and feasible mitigation measures available which would substantially lessen any significant adverse environmental effects which approval of the proposed project would have on the environment within the meaning of CEQA. Thus, the proposed project will result in significant environmental effects for which feasible mitigation measures have not been employed inconsistent with CEQA Section 21080.5(d)(2)(A). Therefore, the project is not approvable under CEQA and is denied.



C. Future Options

The Commission again notes that this Applicant has options that should be explored through any and all proper County permitting channels. In particular, there appear to be a range of potential drainage and erosion control alternative mechanisms that could be installed within the upper bluff to enhance bluff stability. Even simply collecting the blufftop drainage and directing it away from the bluff edge (and to the storm drain system in Opal Cliff Drive) should serve to help both stabilize the upper bluff and correct any sheet flow erosion problems. Irrigation controls to avoid bluff over-saturation would appear appropriate as well. Such measures could be combined with even minimal planting of native (and long-rooted) plants on the upper bluff as a complementary measure. These type of measures would, of course, need to be detailed and developed by the Applicant's consulting engineers and geologists before they could be considered for LCP and/or Coastal Act conformance.

Of course, any future application should clearly establish the permit status of the existing toe of slope armoring, evaluate the effect of it non-conforming structure status, and evaluate whether potential corrective actions are necessary to protect recreational beach area at this location. These evaluations can obviously proceed independent of any future application, and the Commission encourages the County to pursue such analysis through appropriate channels irregardless as to whether the Applicants pursue a project at this location. Since the toe of slope armoring appears to involve the Commission's retained coastal permitting jurisdiction, a complementary investigation is already underway through the Commission's enforcement program.

In addition, the Commission notes that the County has begun preliminary efforts toward developing a regional solution to the issue of shoreline armoring for the Opal Cliffs area. As the Commission currently understands it, the regional solution would focus on the removal of the rubble and rock revetments that block much of the beach access in this area between 41st Avenue and the City of Capitola, and would develop measures to sculpt and camouflage any armoring that is allowable under the Coastal Act and LCP in such a way as to mimic the natural bluff topography and vegetation. Options for building in pedestrian platforms in permitted armoring that allow for lateral access at even higher tides would also be evaluated. It appears at this time that the vehicle for such a regional solution would be a specific plan for Opal Cliffs that would be an amendment into the LCP. The specific plan approach has the benefit of allowing decision makers at the County and Commission levels to develop appropriate regional planning standards based upon the unique regional geology and existing situation of Opal Cliffs rather than being limited by the piecemeal approach of individual permit applications. A specific plan also has the added advantage of providing an increased level of certainty in the permitting process since individual applications would then simply need to fit within the regional guidelines so established and agreed upon.¹⁵

The Commission is supportive of the development of such a specific plan for Opal Cliffs provided such

¹⁵ Alternatively, if course, there is the potential for some type of larger project by multiple applicants or through some type of special district and/or County-sponsored arrangement. In either case, planning is completed ahead of any associated permitting and the same level of certainty is provided.



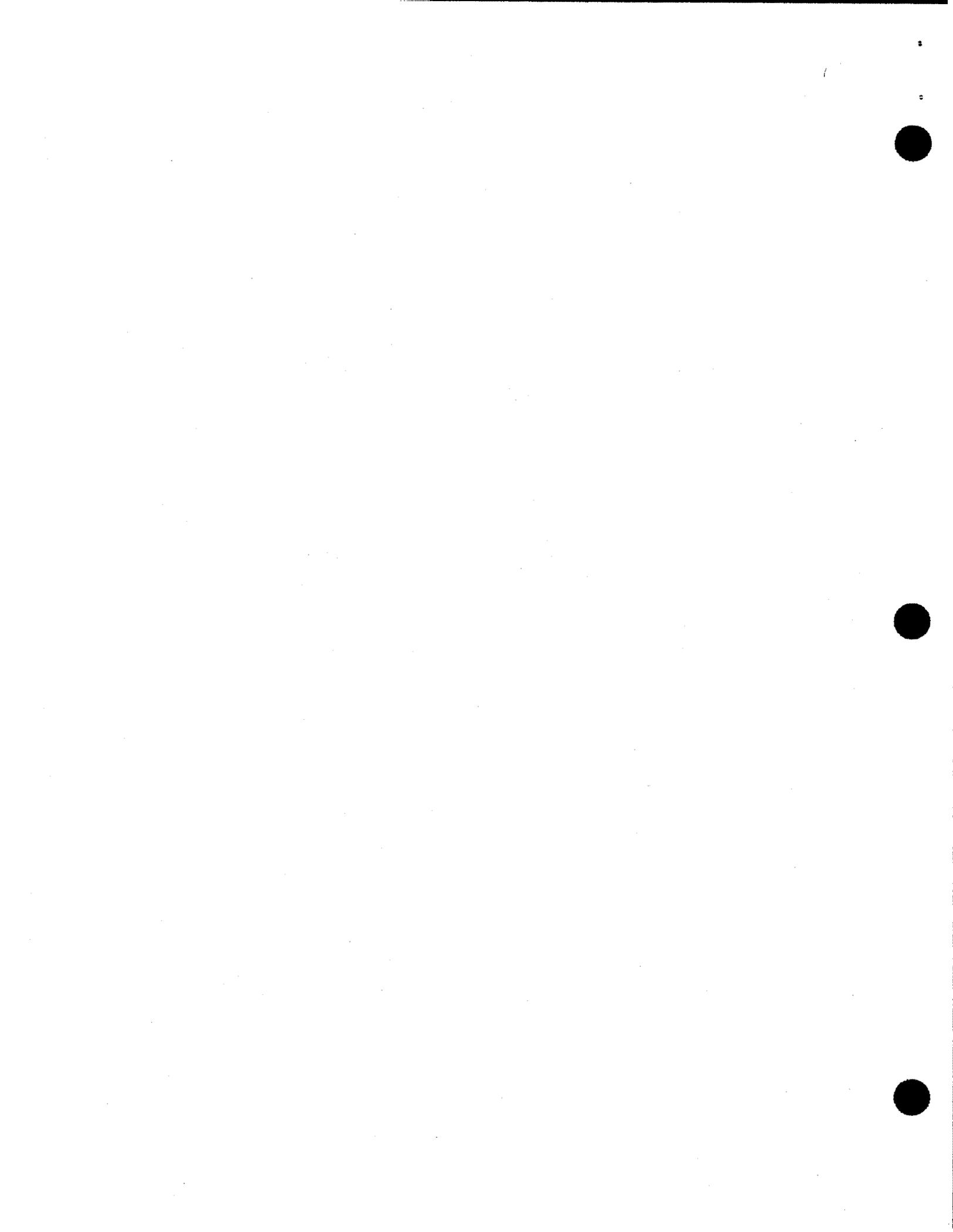
a plan is premised within the context of avoiding armoring to the absolute extent feasible (as discussed in this staff report), consistent with the Coastal Act, and ensuring that the public is adequately compensated for any burden borne over the long term by armoring that fully meets the applicable LCP and Coastal Act policy tests.¹⁶ Further, if such a regional planning process proves successful for the Opal Cliffs shoreline, then it would seem to make sense for this type of effort to be expanded to encompass other sections of the urbanized Santa Cruz County coastline.

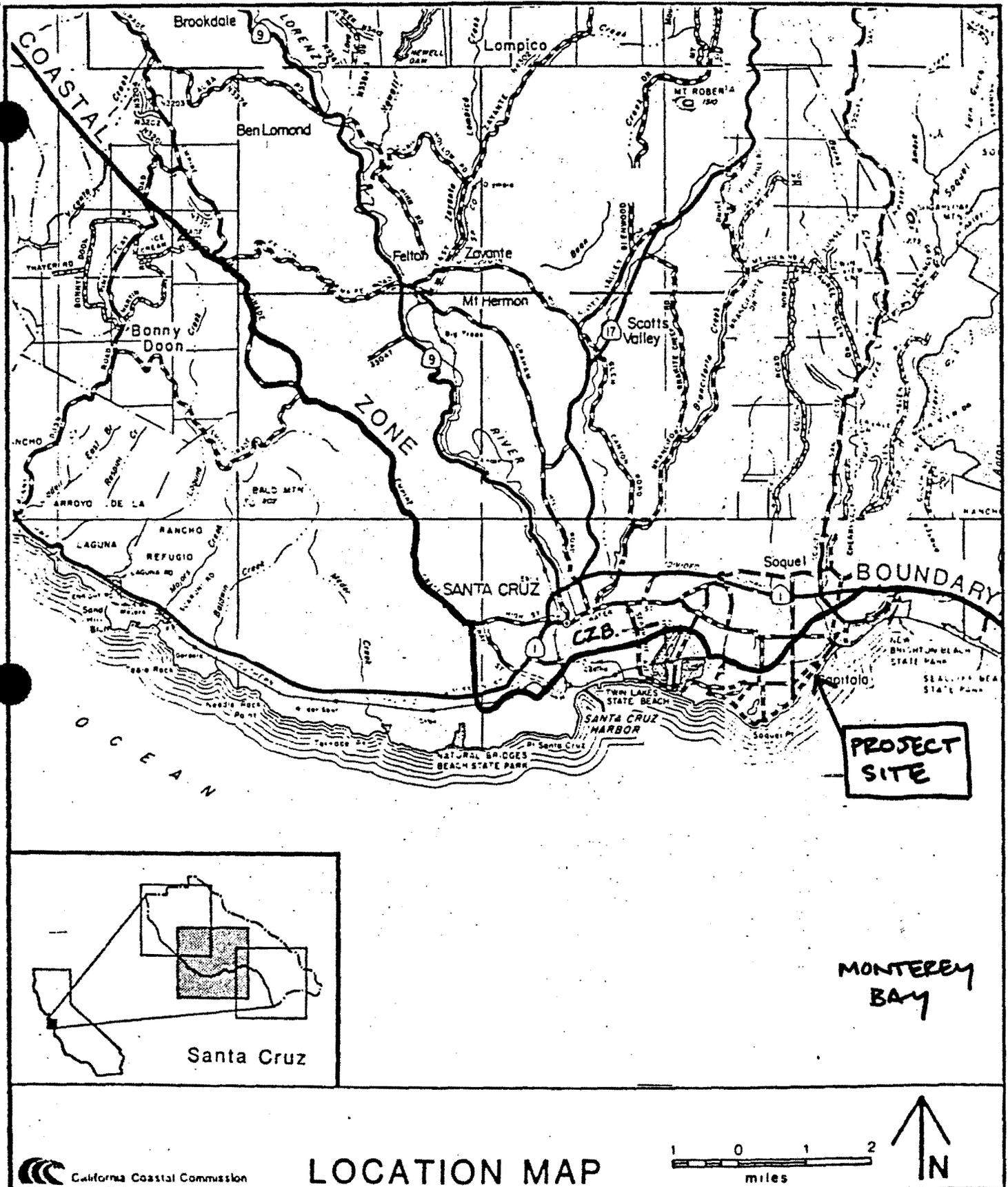
Absent such specific planning and vision for the County's coast, individual projects must continue to be evaluated against the broader LCP and Coastal Act policies. Although the County and Commission can do their best to guard against piece-meal projects, regional inconsistency, and cumulative impacts due to shoreline armoring, these objectives may prove evasive if they are only addressed in the context of processing individual project applications. Approaching coastal erosion problems more broadly within a specific geomorphically defined region has far more likelihood of achieving sound resource management goals.

Ultimately, when the back beach is fixed due to armoring, and the shoreline continues to erode, and the sea level continues to rise, the end result is that Santa Cruz County beaches may eventually no longer exist. While this is clearly an issue that needs local debate and deliberation, the coast here is a resource and a treasure for all Californians as well as visitors to the state and thus also has a larger than local importance. The Commission welcomes the opportunity to explore a future vision for Santa Cruz County shoreline and beaches with its local partners and encourages the initiation of regional plans to further this important public policy debate and action.

¹⁶ Note that the Commission through the 1995 Monterey Bay ReCAP project, or Regional Cumulative Assessment Project, recommended just such a regional shoreline planning approach for the Monterey Bay area where it was estimated that approximately 25 acres of sandy beach had been covered with shoreline armoring in the study region by 1993, most of that in Santa Cruz County. In fact, the Commission's ReCAP analysis focused on the Opal Cliffs area as a case study to illustrate the coastal resource problems associated with project-by-project review of armoring proposals as opposed to long-term planning. Because property owners along the Opal Cliffs shoreline have generally undertaken bluff armoring individually, there are a vast myriad of armoring types along the bluffs and backbeach along this section of coast. As a result, beach access and aesthetics have been compromised, and the integrity of the armoring is in some cases suspect. Most of Opal Cliffs is currently armored in some way, and much (if not most) of the armoring appears to pre-date the Coastal Act.





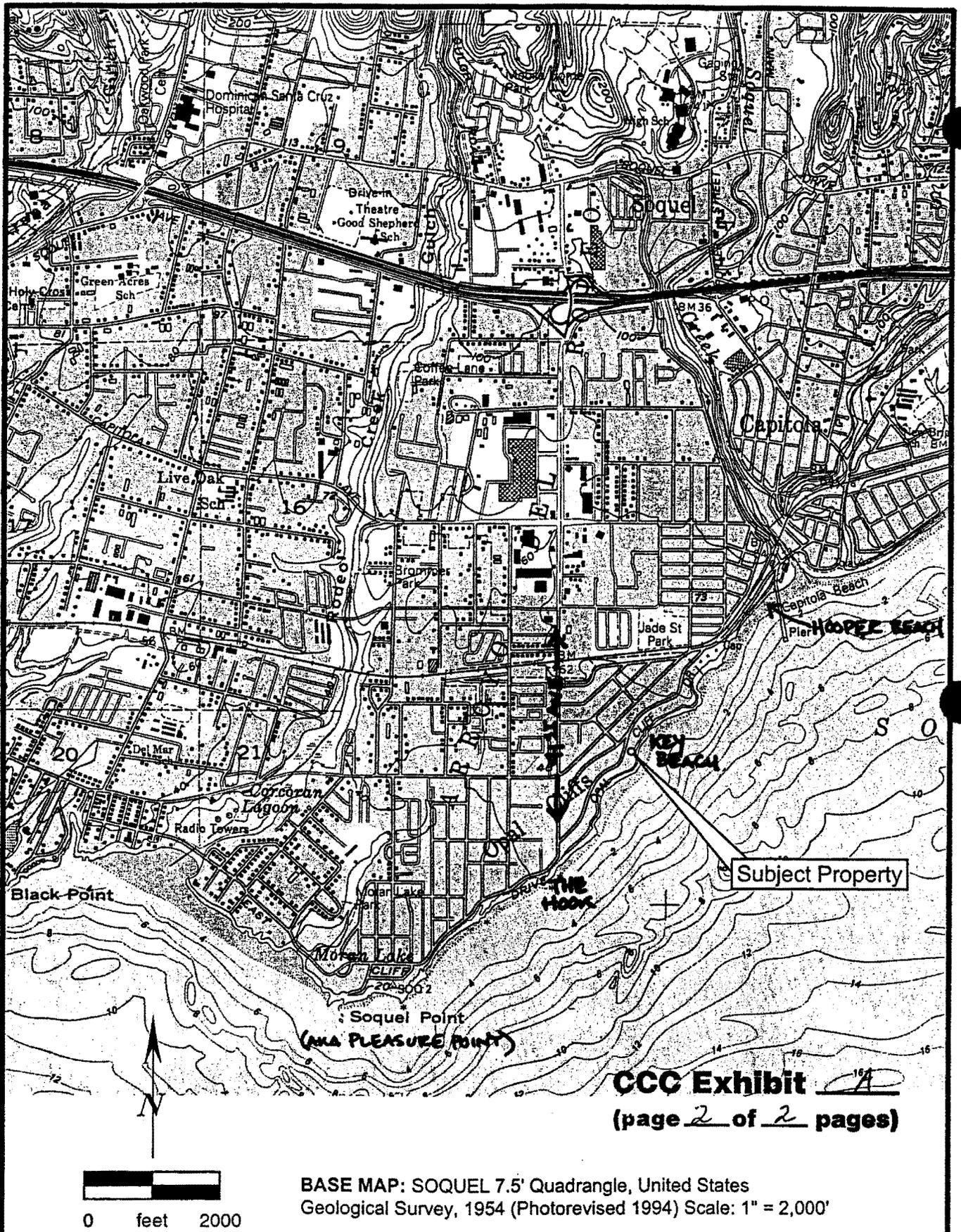


California Coastal Commission

LOCATION MAP

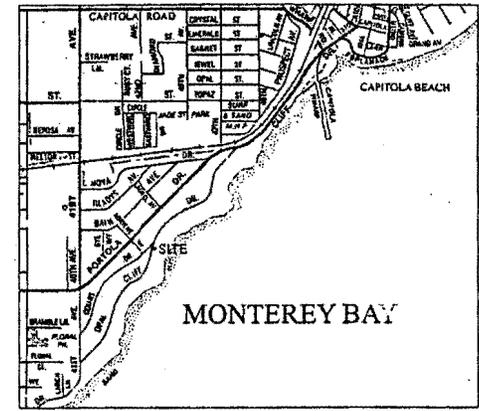
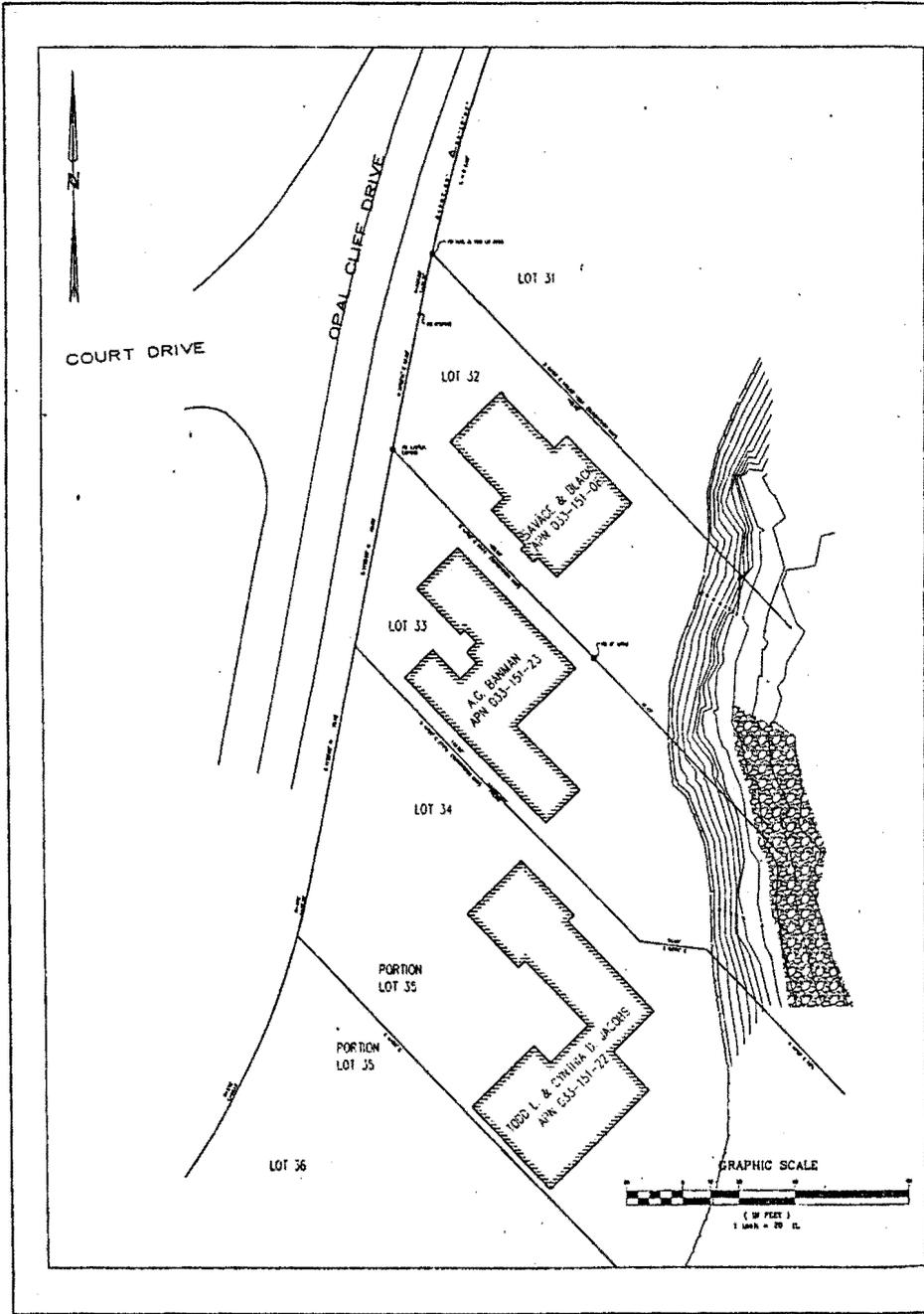


CCC Exhibit A
 (page 1 of 2 pages)



TOPOGRAPHIC INDEX MAP
Banman Residence
4440 + 4420 Opal Cliff Drive
Santa Cruz, California

FIGURE #
1
JOB #
2001002-G-SC



VICINITY MAP
NTSC

CCC Exhibit B
(page 1 of 8 pages)

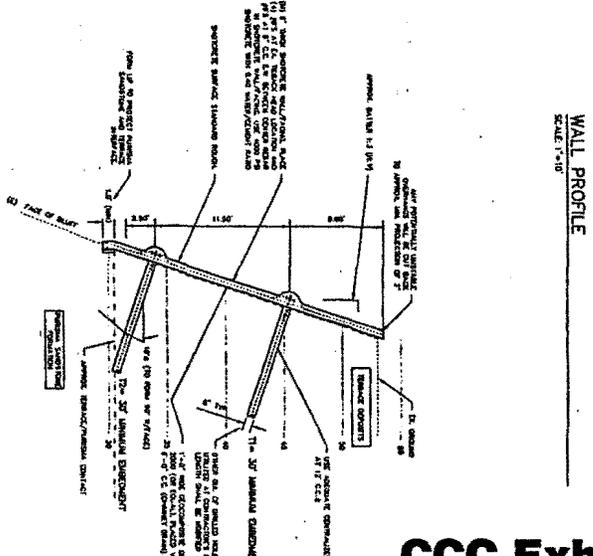
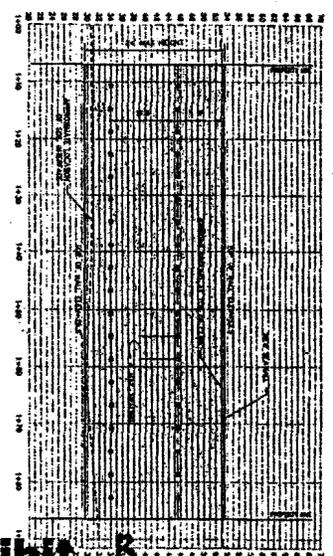
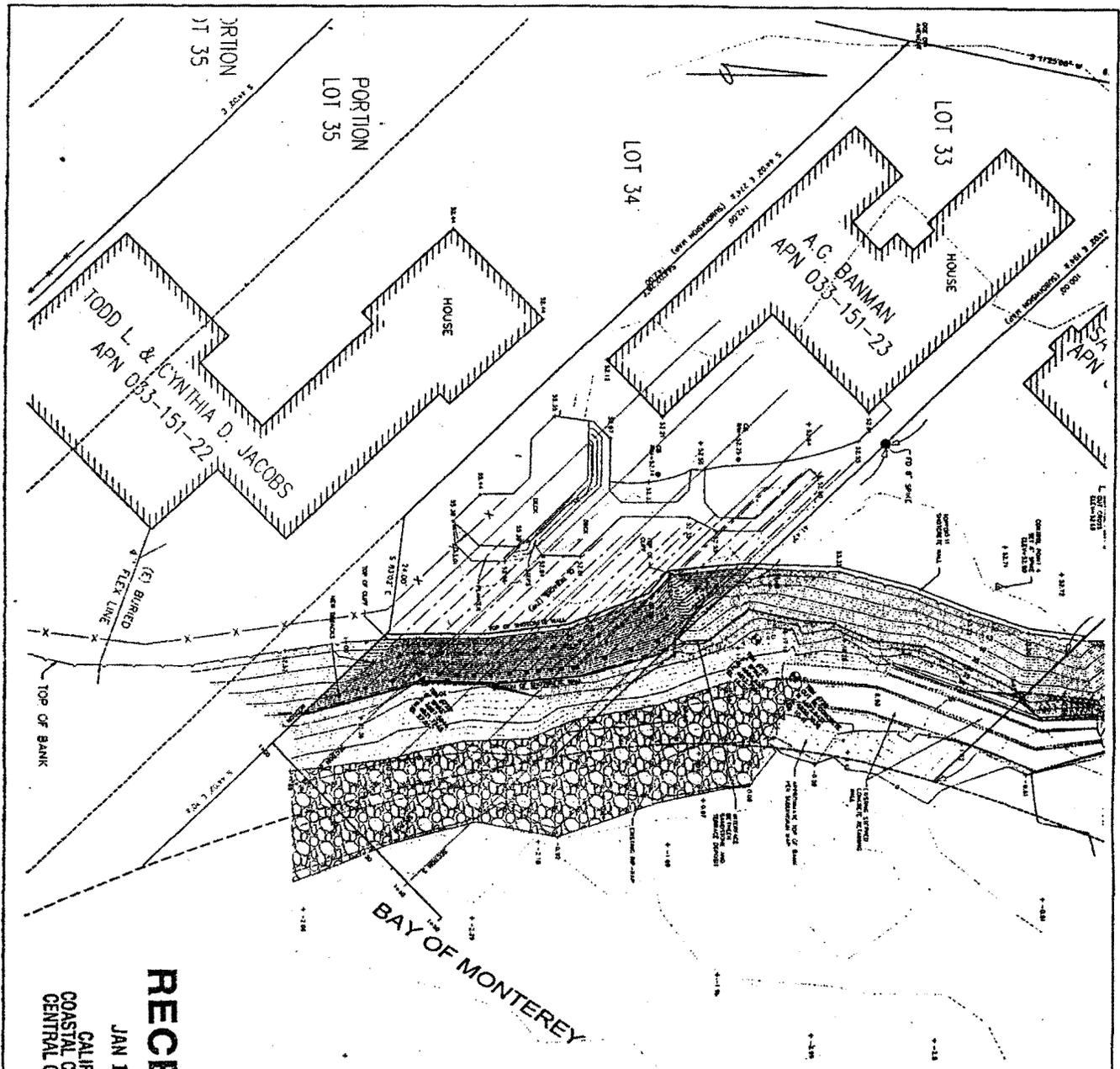
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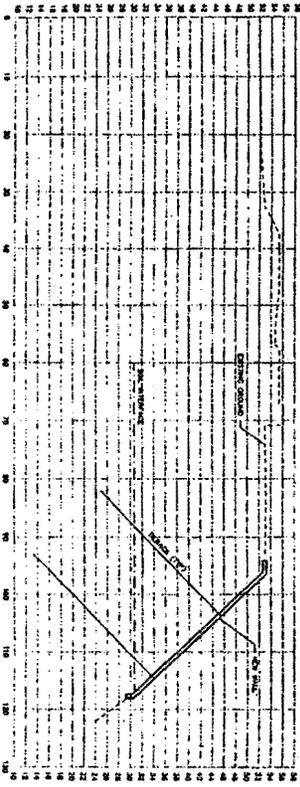
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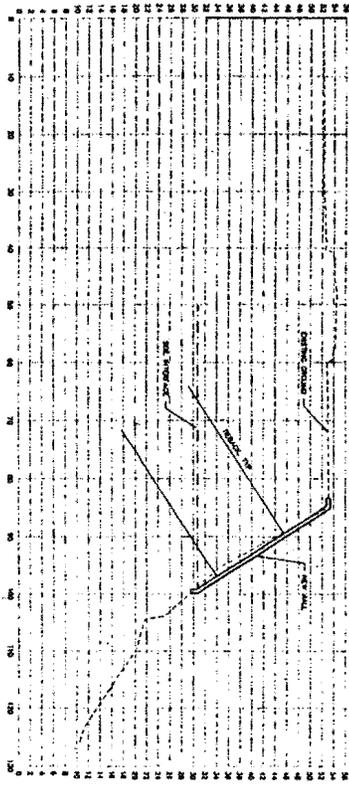
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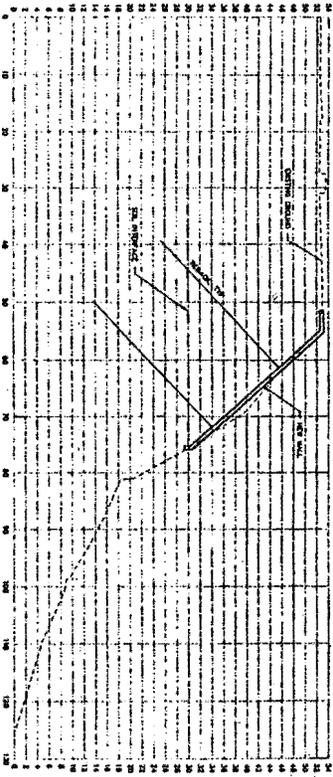
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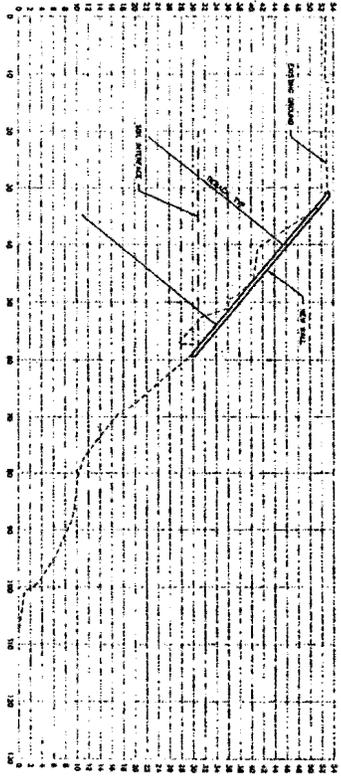
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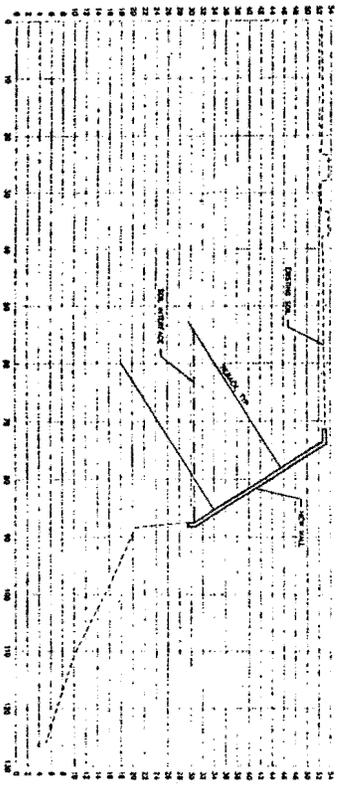
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SECTION 4
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SECTION 3
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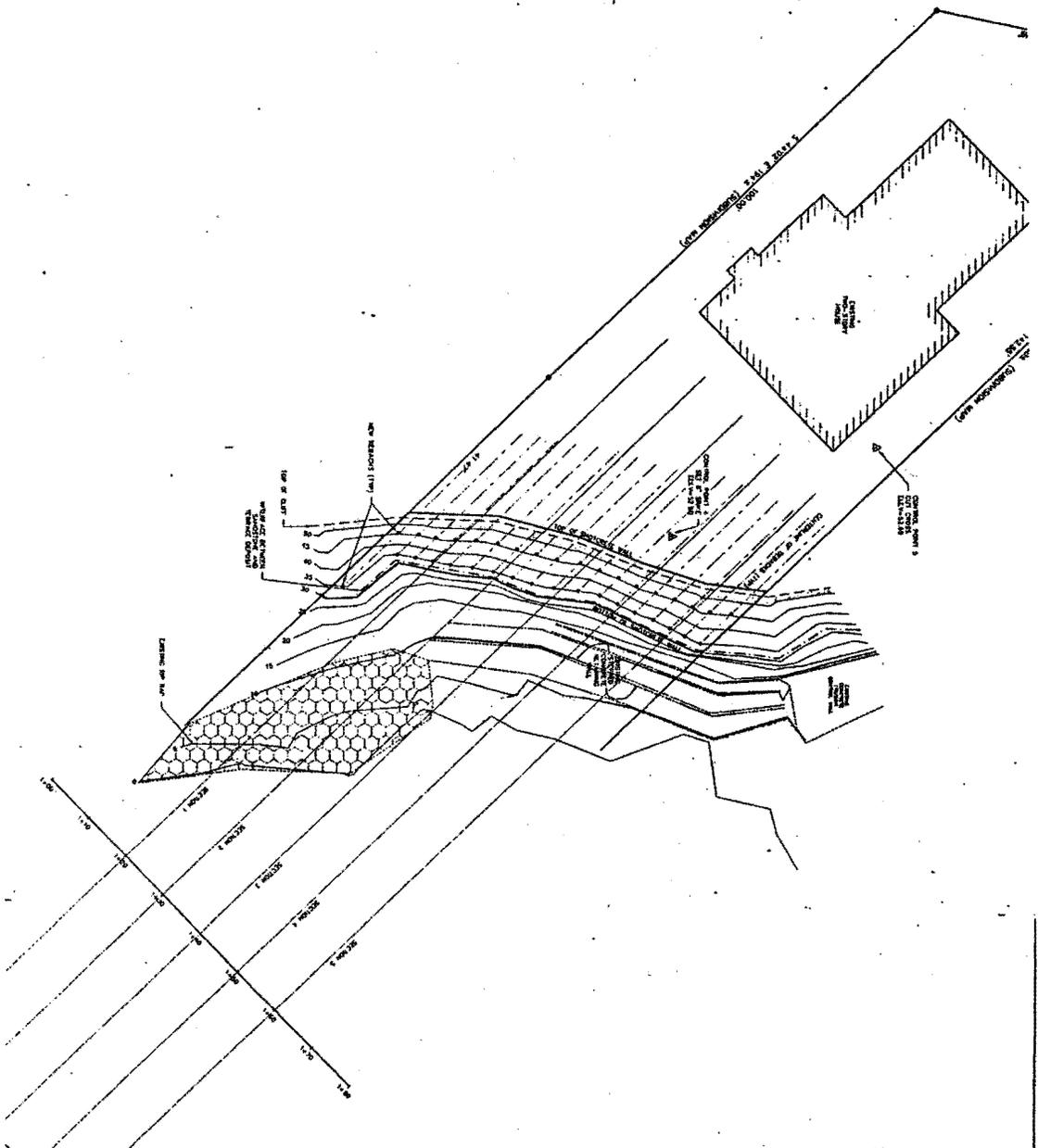
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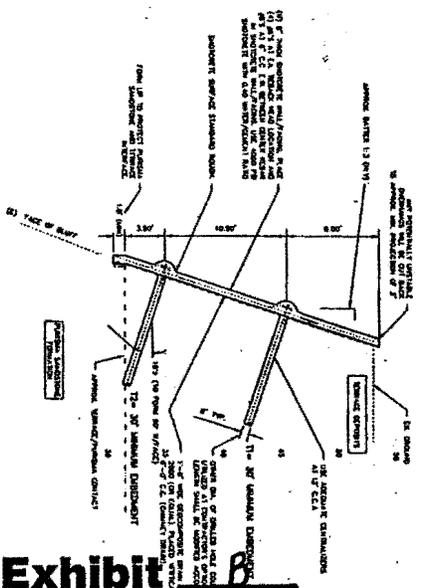
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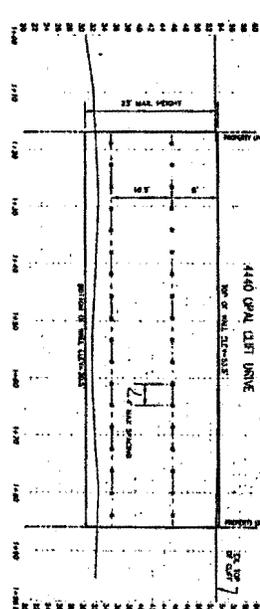
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PROJECT NO.	0211-141-23
SECTION	3
TOTAL NO. SECTIONS	8
DATE	1/17/02



PLAN VIEW
SCALE: 1"=10'



SHOTCRETE WALL SECTION
SCALE: 1/2"=1'



SHOTCRETE WALL ELEVATION
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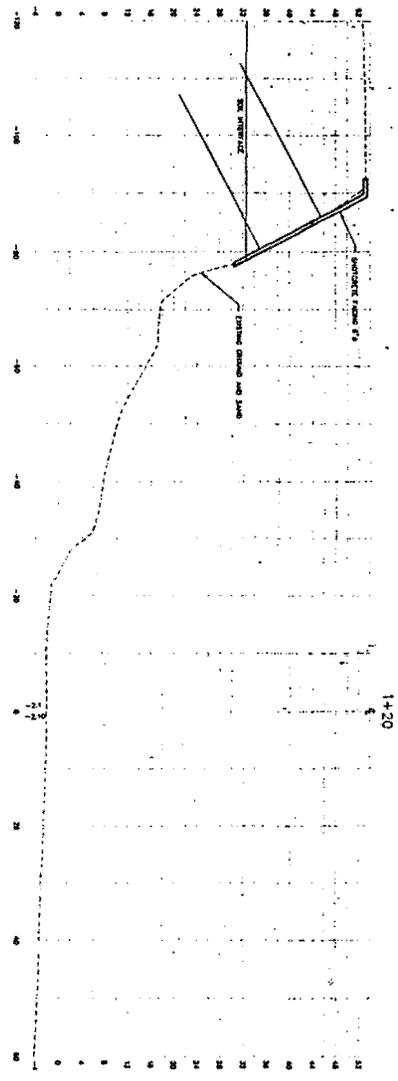
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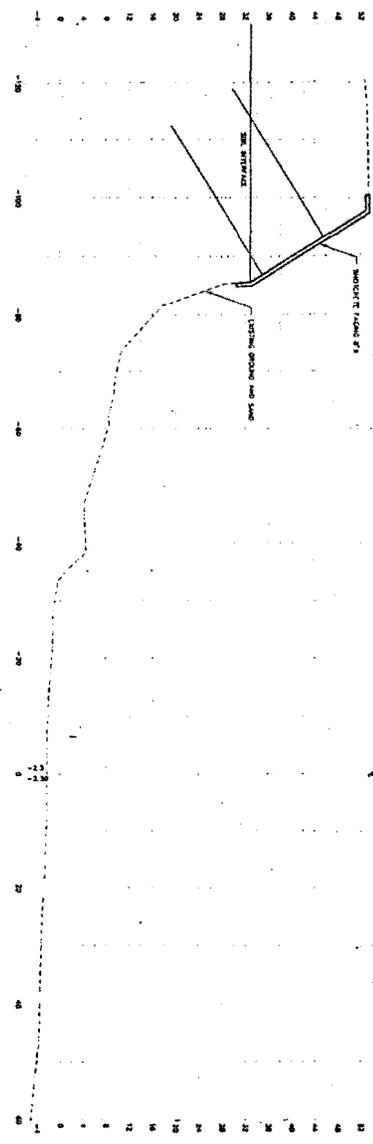
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 IN CHARGE: J. WILSON



CLIFF SECTION 1
SCALE 1"=20'

1"=30'



CLIFF SECTION 2
SCALE 1"=30'

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(page 5 of 8 pages)

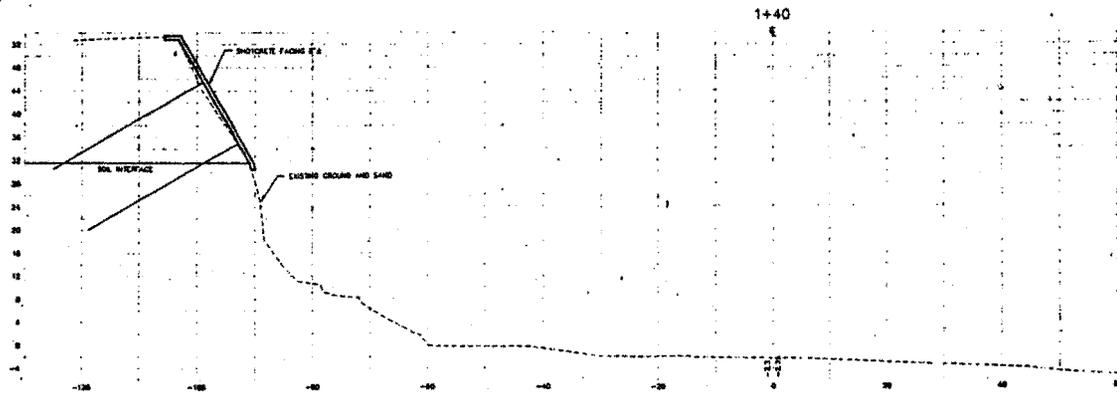
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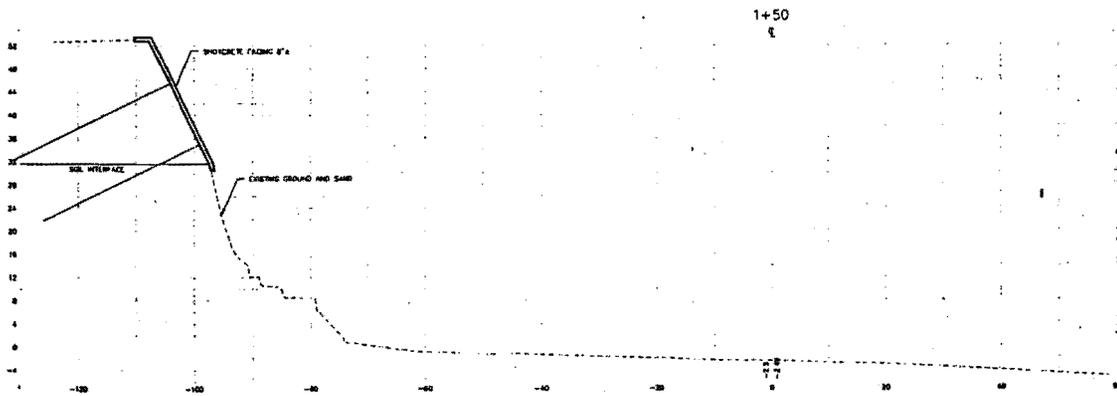
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BOWMAN & WILLIAMS 1000 CALIFORNIA STREET SUITE 100 SAN FRANCISCO, CA 94108 (415) 774-1100		ALAN R. BOWMAN JAMES C. WILLIAMS	
PROJECT NO. DATE SHEET NO.	SHEET NO. 2 OF 2	SECTION 1 & 2	DATE OF SHEET 1/17/02



CLIFF SECTION 3
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CLIFF SECTION 3
 SCALE: 1"=10'

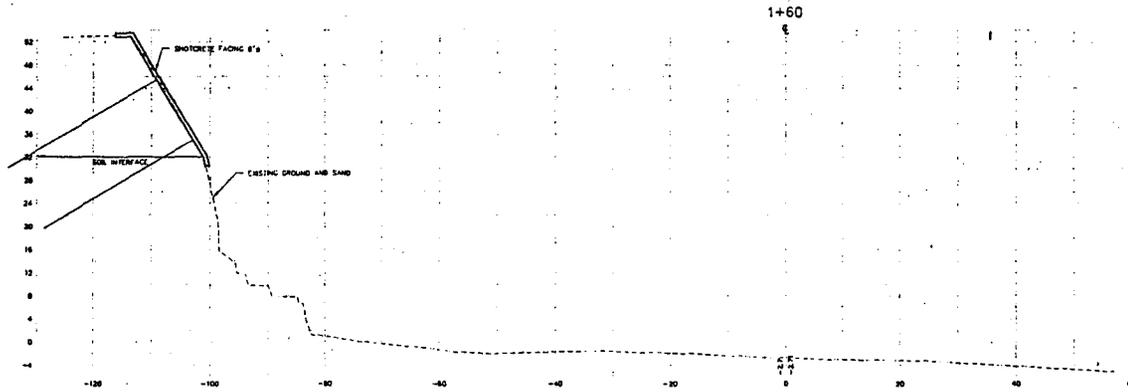
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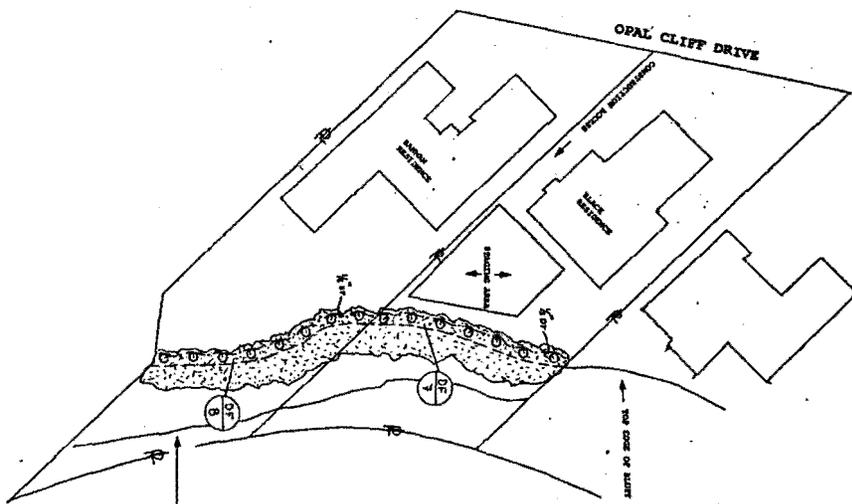
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 REPRESENT THE INTENTIONS OF THE ARCHITECT
 AND ARE NOT TO BE USED FOR CONSTRUCTION
 WITHOUT THE ARCHITECT'S APPROVAL AND SIGNATURE.

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COASTAL PERMIT 01-0137 and 00-0704
APN 033-151-08 and 23

COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT

Date: November 16, 2001
Agenda Item: continued 1
and 2
Time: After 10:00 a.m.

STAFF REPORT TO THE ZONING ADMINISTRATOR

APPLICATIONS: 01-0137 (APN: 033-151-23)
And,
00-0704 (APN: 033-151-08)

APPLICANT/OWNERS: Gene A. Banman (01-0137) and Alistar Black (00-0704)

PROJECT DESCRIPTION: Proposal to construct a coastal bluff stabilization structure. Requires a Coastal Development Permit and Building Permit for a shotcrete wall, approximately 120 feet long and up to 25 feet in height, to be constructed adjacent to the bluff top. The Property is located on the southeast (ocean) side of Opal Cliff Drive near 4420 and 4440 Opal Cliff Drive.

RECEIVED

LOCATION: 4420 and 4440 Opal Cliff Drive.

NOV 21 2001

FINAL ACTION DATE:

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

PERMITS REQUIRED: Building and Coastal

ENVIRONMENTAL DETERMINATION: Negative Declaration (attached)

COASTAL ZONE: yes no APPEALABLE TO CCC yes no

PARCEL INFORMATION

PARCEL SIZE: 01-0137 (APN: 033-171-18) 10,672 square feet
00-0704 (APN: 033-151-08) 10,200 square feet

EXISTING LAND USE: Parcel: Single Family Dwellings
Surrounding: Single Family Dwellings and
Open Space/Recreational

PROJECT ACCESS: Opal Cliff Drive

PLANNING AREA: Live Oak

LAND USE DESIGNATION: R-1-5

ZONING DISTRICT: Park, Recreation and Open Space & SFR, R-1-5

SUPERVISORIAL DISTRICT: 2

ENVIRONMENTAL INFORMATION

<u>Item</u>	<u>Comments</u>
a. Geologic Hazards	a. Slope Instability see Initial Study
b. Soils	b. Slope Instability see Initial Study
c. Fire Hazard	c. n/a
d. Slopes	d. A bluff top gunite wall is proposed to reduce slope instability.
e. Env. Sen. Habitat	e. n/a
f. Grading	f. n/a
g. Tree Removal	g. n/a
h. Scenic	h. Project is visible from Beach.
i. Drainage	i. The site drainage will continue to be taken to Opal Cliff Drive.
j. Traffic	j. n/a
k. Roads	k. n/a
l. Parks	l. The site is visible from the beach and related publicly owned beach area.
m. Sewer Availability	m. n/a
n. Water Availability	n. n/a
o. Archeology	o. n/a

SERVICES INFORMATION

W/in Urban Services Line: xx yes _____ no
Water Supply: Soquel Creek Water District
Sewage Disposal:
Fire District: Central
Drainage District: none

Analysis and Discussion:

The project is a combined project that includes the installation of upper bluff protection on both Banman and the Black property (see Exhibit A) to resist upper bluff erosion.¹ ⁱⁱ This upper bluff stabilization will include the construction of approximately 120 feet of textured and colored concrete wall that is between 20 and 25 feet in height. The bluff wall will be 8-inch thick reinforced shotcrete with 30-foot deep tiebacks placed at 4 foot spacing along the length of the wall. A drain will be placed behind the wall.

Coastal Erosion:

The wall is proposed to resist ongoing erosion of the coastal bluff as indicated on the two sets of attached plans (see Exhibit A.) The owners and their consulting geotechnical engineers (see Exhibit D

Initial Study Attachment 4)ⁱⁱⁱ and engineering geologist (see Exhibit D - Initial Study Attachment 5)^{iv} have evaluated the site and have determined that within the next 30 years, if not sooner, the home will be threatened by the retreat of the coastal bluff. Bluff's in the vicinity of these properties were subject to distinct erosion several times over the last decades including a single storm episode in 1983 where tens of feet of bluff eroded during a single storm. As this erosion continues the bluff will retreat eventually eroding the bluff top so that the home's foundation is undermined removing support to the home. Since the original construction was completed, several episodes of bluff erosion/collapse have occurred and the bluff has retreated approximately 25 feet. The edge of the bluff is now within 30 feet of the home. Continued bluff-retreat will result in the undermining of the foundation within the next thirty years unless intervention occurs.

Retrofitting homes with new coastal erosion control structures is a common development problem with homes (1) constructed prior to the Coastal Act. Until this Act's enactment there were no clear standards to require adequate setbacks from homes to the eroding edge of coastal bluff with the result that many homes were placed too close to the bluff to protect them from coastal erosion during the homes' economic life. The site's inconsistent post-construction erosion control is also typical of the eclectic pre-Act development: riprap exists below the Banman bluff, but only on part of the Black property. Instead, the eastern side of the Black property is protected by a series of interconnected concrete walls. Other nearby property are protected by rock, 20-foot high walls, cylinders of concrete, and wood walls all with varying degrees of effectiveness and problematic reflection of storm wave activity.

Proposed Solutions:

To restrain the retreat, the applicants propose the installation of a reinforced shotcrete facing (with tiebacks) to keep the terrace deposits from eroding. To minimize visual impact the shotcrete will be treated with texturing and coloring to match the bluff's natural appearance. State-of-the-art texturing and coloring will be used to harmonize the wall's appearance with the community's appearance.

The applicant's geotechnical engineer and engineering geologist indicate that this protection will significantly improve the bluff's stability reducing the possibility that the homes will be damaged by erosion during their economic lifespan. County staff has reviewed and accepted these reports (see Exhibit D Initial Study ATTACHMENT 7).^v

1) California Coastal Commission, ReCAP Pilot Project Findings and Recommendations: Monterey Bay Region, September, 1995

The wall will be placed on the upper part of the buff and will not adversely deflect or reflect wave action.

Project Alternatives:

The applicant (see Initial Study Attachment 8)^{vi} has provided an alternatives-analysis that compares the proposed wall with other possible alternatives and includes an inventory of the Neighborhood Characteristics (2). This analysis includes structural improvements including grading, other retaining walls, and a combination of retaining walls and grading. The applicant's analysis appropriately indicates that the visual and other impacts for these alternatives is the same or greater than for the proposed shotcrete wall.

The Initial Study also examined alternatives including moving the Homes, Placement of Piers, Biotechnical Treatment and Drainage Control. All of these alternatives either could not accomplish the goal of protecting the bluff, or had visual or other impacts which would be greater than the proposed shotcrete wall

Given these limitations, the proposed shotcrete wall is the best alternative with the least impact that will appropriately resist the continuing erosion of the bluff.

Applying the proposed bluff protection at this time also serves to maintain the existing, irregular bluff topography. This topography supports the existence of local, pocket, beaches and helps to maintain local beach sand depositional environments.

These walls can be constructed separately or together, and, although the greatest increase in bluff stability occurs if both walls are constructed, each wall can be constructed even if the other is not.

RECOMMENDATION

Staff recommends that the Zoning Administrator take action as follows:

1. Certify the Mitigated Negative Declaration as complying with the requirements of the California Environmental Quality Act (Exhibit D); and
2. Approve Applications 01-0137 and 00-0704, based upon the findings (Exhibit B) and subject to the attached conditions (Exhibit C).

EXHIBITS

- A. Project Plans
- B. Findings
- C. Conditions of Approval
- D. Initial Study / Negative Declaration Mitigations
- E. Mitigated Negative Declaration

2) General Plan Policies 8.4.5 and 8.6.6

SUPPLEMENTARY REPORTS AND INFORMATION REFERRED TO IN THIS REPORT ARE ON FILE AND AVAILABLE FOR VIEWING AT THE SANTA CRUZ COUNTY PLANNING DEPARTMENT, AND ARE HEREBY MADE A PART OF THE ADMINISTRATIVE RECORD FOR THE PROPOSED PROJECT.

Report Prepared By: Joe Hanna, CEG 1313, County Geologist
Environmental Planning
Santa Cruz County Planning Department
701 Ocean Street, 4th Floor
Santa Cruz CA 95060
Phone Number: (408) 454-3175

EXHIBIT B

COASTAL DEVELOPMENT PERMIT FINDINGS:

1. THAT THE PROJECT IS A USE ALLOWED IN ONE OF THE BASIC ZONE DISTRICTS, OTHER THAN THE SPECIAL USE (SU) DISTRICT, LISTED IN SECTION 13.10.170(d) AS CONSISTENT WITH THE GENERAL PLAN AND LOCAL COASTAL PROGRAM LUP DESIGNATION.

The proposed project is an allowed use in the R-1-5 zone district and is consistent with the Urban Medium Density Residential Land Use designation of the General Plan and Local Coastal Program LUP. The proposed wall is accessory to the existing single-family dwelling and is required for the dwelling's continued occupancy. (See Development Permit Findings, incorporated herewith, and specifically Finding No. 1, which discusses the need for the wall.)

2. THAT THE PROJECT DOES NOT CONFLICT WITH ANY EXISTING EASEMENT OR DEVELOPMENT RESTRICTIONS SUCH AS PUBLIC ACCESS, UTILITY, OR OPEN SPACE EASEMENTS.

The subject property is not affected by any development restrictions that hinder development of the project. The subject property is not affected by any development restrictions that hinder development of the project. There are no public access, utility or open space easements, which will be affected by the development. No public access exists and none is possible from this property to the beach. The beach itself will not be affected by the construction. All construction activities will occur from the interior of the property on the bluff, no traffic will be blocked, and a barrier will be placed along the top of the bluff between the construction site and the beach to prevent material accidentally falling onto the beach. The applicant must obtain all approvals from the State Parks and the State Lands Commission as applicable prior to initiating any construction.

3. THAT THE PROJECT IS CONSISTENT WITH THE DESIGN CRITERIA AND SPECIAL USE STANDARDS AND CONDITIONS OF THIS CHAPTER PURSUANT TO SECTION 13.20.130 et seq.

The construction of the proposed improvements is consistent with the design criteria and special use standards and conditions of this chapter pursuant to Section 13.20.130 et seq., will be visually compatible, minimizes site disturbance, and will be landscaped so as to be compatible with surrounding vegetation. The project does not involve excessive grading, will not be visually intrusive, and will be visually compatible with the character of the surrounding lands. The design of the project is such that it will be subordinate to the natural geologic formation/sand and rock bluff character of the site, will maintain the natural bluff feature of the site, and all visual intrusion will be softened by gunite texturing, staining, and coloring, as well as the final landscaping of all disturbed areas.

This property is not in a Coastal LUP Designated Special Area, therefore no special policies or development requirements applying to these areas apply to this project.

The coastal bluff is a Designated Coastal Special Scenic Area (Santa Cruz General Plan Section 5.10.2). Visually intrusive structures are not allowed pursuant to Section 5.10.7, which allows only those structures that are compatible with the pattern of existing development, use natural finishes, blend with the character of the area, and that integrate with the adjacent landforms.

Traditional gray shotcrete walls mar the appearance of the coastal bluff and therefore have had a negative impact on the views from the beach, ocean, and the coastal community. This potential visual impact has been recognized by the construction industry and alternative surface treatments have been developed. To reduce visual intrusion, both the facing will match the existing slope, and texture as well as mottled coloring will cause the wall to visually integrate with the existing visual environment.

The goal of integrating the wall with the community appearance is not to exactly match the existing geologic form but to simulate the color and texture of the formation so that the wall blends with the existing conditions. An attempt to match the exact geologic form can lead to a heavy imprint of the geologic structure that can actually cause a mismatch between the wall and the surrounding terrain. Appropriate coloring and staining can avoid the further problem of a uniform contrasting color that can make a well-textured gunite wall stand out from the surrounding colors. To avoid the problem of a uniform contrasting color the contractor must apply appropriate textures, coloring and stains that can produce a mottled terrace color and pattern that match both wet and dry bluff conditions. This has been effectively used by several contractors and can match the bluff under varying conditions. Also, the bluff around the wall will be landscaped.

Visual simulations of a shotcrete wall similar to the proposed wall and a steel beam-wood lagging wall, the most common feasible alternative to shotcrete, are shown in the Initial Study's Attachments 6 and 7. As can be seen, shotcrete walls treated to reduce visual intrusion are successful in reducing impacts. This was confirmed after the wall was complete and inspected by the County staff. The wood-lagging alternative is more visually intrusive, has a dissimilar overall appearance from the natural bluff, and is visible from great distance around the Monterey Bay.

The success of treated shotcrete walls has been confirmed in many circumstances. Attachment 8 shows a variety of treated walls. The walls have successfully matched similar rock appearance and have faded into the background better than wood lagging walls. Treated walls may be noticed as artificial at close range but they are less likely to be noticed as artificial and visually intrusive from a distance.

To confirm that the appropriate texture is applied, County Staff must view the site during the initial blowing of the gunite to assure that the texture matches the general texture of the formation. To assure that the color is appropriate, County Staff shall view test samples of the coloring relative to both with both wet and dry samples of the natural bluff material.

In summary given all the mitigations discussed above, the net result will be a wall treated such that will blend with the character of the area and integrate with the landforms (GP Section 5.10.7), and the wall will remove an existing damaged wall to restore a scenic area (GP Section 5.10.9).

4. THAT THE PROJECT CONFORMS WITH THE PUBLIC ACCESS, RECREATION, AND VISITOR-SERVING POLICIES, STANDARDS AND MAPS OF THE GENERAL PLAN AND LOCAL COASTAL PROGRAM LAND USE PLAN, SPECIFICALLY CHAPTER 2: FIGURE 2.5 AND CHAPTER 7, AND, AS TO ANY DEVELOPMENT BETWEEN AND NEAREST PUBLIC ROAD AND THE SEA OR THE SHORELINE OF ANY BODY OF WATER LOCATED WITHIN THE COASTAL ZONE, SUCH DEVELOPMENT IS IN CONFORMITY WITH THE PUBLIC ACCESS AND PUBLIC RECREATION POLICIES OF CHAPTER 3 OF THE COASTAL ACT COMMENCING WITH SECTION 30200.

The project area is adjacent to 4420 and 4440 Opal Cliff Drive and will not affect public access to the beach below, nor does the project adversely affect recreational use of the adjacent Beach/Parkland.

The project alignment is not identified as a priority acquisition site in the County Local Coastal Program.

5. THAT THE PROPOSED DEVELOPMENT IS IN CONFORMITY WITH THE CERTIFIED LOCAL COASTAL PROGRAM.

The proposed placement of the improvements is in conformity with the County's certified Local Coastal Program in that the bluff wall will be constructed to preserve and protect the existing land uses. The wall will minimize site disturbance, be visually non-intrusive, and will conform to the natural landscape of the area.

In accordance with Chapter 13.11 of the County Code, the applicant shall incorporate into the final plans, a visual treatment plan that conforms to the natural conditions at the site. This plan will be reviewed and approved by Environmental Planning staff prior to issuance of the Building permit.

The Coastal resources of natural shoreline processes, such as adequate sand supplies and beach dynamics on and off-site, will not be adversely affected by this project. Consequently the current erosion pattern will continue for some time and will be stopped only when necessary when the bluff has significantly eroded. The primary source of terrace erosion and toppling is urbanization including uncontrolled surface drainage and

subsurface saturation and wave cut notching at the toe with subsequent over-steepening of the terrace deposits. The proposed project will control surface drainage and will help to reduce the effects of bluff saturation. This project will have little impact on the beach with regard to loss of beach and little impact on sand supply.

A significant threat, thereby necessitating a bluff top protection structure, has been determined to exist at this site. The owners and their consulting engineering geologists and geotechnical engineers have evaluated the site and have determined that within the next few storm events, the homes will be threatened by the retreat of the coastal bluff.

If the upper bluff terrace retreats to its natural angle of repose, the top of the bluff is expected to be within three feet of the residence. After which, continuing coastal erosion will cause the bluff's toe to erode, resulting in the further retreat of the terrace material. Continued bluff retreat will result in the undermining of the home's foundation unless intervention occurs. Bluff top erosion occurs episodically and rapidly during intense rainfall with the result that the terrace material could retreat to the home's foundations during a few intense storms. This is a real and significant threat to the home. This project will strengthen the upper bluff area, and is expected to protect the existing single-family dwelling from the bluff retreat for a significant length of time. Landscape planting by its self will not stabilize this bluff's instability nor will drainage control alone stabilize the bluff.

Other types of walls and terrace face treatments have been evaluated and the proposed project has been determined to be the least impacting alternative, which allows the continued occupancy of the home. It is also the least disruptive alternative in that it will not cause loss of bluff material, and does not result in the loss of structural integrity of the bluff in the short or long term. The alternative of no project would result ultimately in the placing of a protective structure during a later crisis, which could result in a less desirable project.

DEVELOPMENT PERMIT FINDINGS:

1. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL NOT BE DETRIMENTAL TO THE HEALTH, SAFETY, OR WELFARE OF PERSONS RESIDING OR WORKING IN THE NEIGHBORHOOD OR THE GENERAL PUBLIC, OR BE MATERIALLY INJURIOUS TO PROPERTIES OR IMPROVEMENTS IN THE VICINITY.

The location of the proposed project will not be detrimental to the health, safety or welfare of persons residing or working in the neighborhood or the general public, in that all public areas will be protected from any impacts of the construction by means of a barrier being erected between the construction site and the bluff so that there will be no deleterious impacts to the beach below the site. No traffic will be blocked as all construction vehicles and equipment will be entirely accommodated on the site. Given the site's conditions, the proposed bluff wall is as close to the threatened structure as possible.

A staging and construction plan will be required to ensure that the health, safety, and welfare of all persons in the vicinity will be preserved and that the project is not materially injurious to other properties or improvements in the vicinity, such as the adjacent public beach, and that all coastal resources are preserved and protected as required by this permit.

The project will also not be materially injurious to properties or improvements in the vicinity in that it will protect the existing home. Both the engineering geologist and Geotechnical Engineer have evaluated the project for the potential of adverse off-site impacts. They have determined that the proposed wall will not adversely affect adjacent property. This property is more threatened by bluff erosion than the other properties in the vicinity in that it is located on a point of land. Regional conditions are described in the geologic and geotechnical reports.

These homes conventional foundations are not designed to restrain coastal bluff erosion and during the original home construction no attempt was made to reduce the effect of coastal erosion. Since the original construction was completed, several episodes of bluff erosion/collapse have occurred and the bluff has retreated approximately 25 feet (maximum.) Continued bluff-retreat will result in the undermining of the foundation unless intervention occurs

2. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL BE CONSISTENT WITH ALL PERTINENT COUNTY ORDINANCES AND THE PURPOSE OF THE ZONE DISTRICT IN WHICH THE SITE IS LOCATED.

The proposed bluff textured gunitite facing is an accessory structure that is related to maintaining the existing home. These walls will be constructed and maintained in a manner consistent with all pertinent County Ordinances and the purpose of the zoned residential uses. The walls will be constructed and maintained in a manner consistent with all pertinent County Ordinances, as conditioned by this permit. The project is consistent with the purposes of the R-1-5 and PR zone district in that it will protect existing single-family residential development.

3. THAT THE PROPOSED USE IS CONSISTENT WITH ALL ELEMENTS OF THE COUNTY GENERAL PLAN AND WITH ANY SPECIFIC PLAN, WHICH HAS BEEN ADOPTED FOR THE AREA.

The project is consistent with all elements of the General Plan. (See Coastal Development Findings for discussion concerning the project's compliance with the Coastal Plan, and particularly finding No. 3 concerning the project's compliance with visual resources policies and the project's compatibility with the community.) No Specific Plan has been adopted for this area.

4. THAT THE PROPOSED USE WILL NOT OVERLOAD UTILITIES AND WILL NOT GENERATE MORE THAN THE ACCEPTABLE LEVEL OF TRAFFIC ON THE STREETS IN THE VICINITY.

The accessory use to an existing single-family residential use will not overload utilities and will not generate any traffic on the streets in the project vicinity. The project in the future will not increase the use of utilities nor increase the traffic in the area in that no increase in population density will be created.

5. THAT THE PROPOSED PROJECT WILL COMPLEMENT AND HARMONIZE WITH THE EXISTING AND PROPOSED LAND USES IN THE VICINITY AND WILL BE COMPATIBLE WITH THE PHYSICAL DESIGN ASPECTS, LAND USE INTENSITIES, AND DWELLING UNIT DENSITIES OF THE NEIGHBORHOOD.

The proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood. As conditioned, the proposed project will have a less than significant visual impact on the surrounding neighborhood. To insure that the visual impacts are minimized, the wall will be textured, colored and stained such that it harmonizes with the surrounding community's appearance, specifically the appearance of the bluff. (See Coastal Development Permit Findings for discussion concerning the project's compliance with the Coastal Plan, and particularly finding No. 3 concerning the project's compliance with visual resources policies and the project's compatibility with the community.) The project will not increase land use intensities or residential densities in the vicinity, as it is an accessory use to an existing single-family dwelling.

6. THE PROPOSED DEVELOPMENT PROJECT IS CONSISTENT WITH THE DESIGN STANDARDS AND GUIDELINES (SECTIONS 13.11.070 THROUGH 13.11.076), AND ANY OTHER APPLICABLE REQUIREMENTS OF THIS CHAPTER.

The proposed development has no impact on design standards. The portion of the project that is above grade is consistent with the Design Standards and Guidelines of the County Code in that the walls are designed to fit the existing slope contours, the work is designed to minimize removal of existing vegetation, and the proposed landscaping will enhance the natural site amenities.

Recording requested by:

COUNTY OF SANTA CRUZ

When recorded, return to:

Santa Cruz County Planning Department
701 Ocean Street
Santa Cruz, CA 95060
Attn: Joe Hanna

EXHIBIT C
CONDITIONS OF APPROVAL

Development Permit No. 01*0137 and 00-0704
Applicant and Property Owners: Gene A. Banman and Alistar Black
Assessor's Parcel 033-151-08 and 23
Property location and address: 4420 and 4440 Opal Cliff Drive
Live Oak Planning Area

Exhibits:

- A. Retaining wall plans by Bowman and Williams Engineering

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- I. This permit authorizes the construction of a *bluff top wall and associated landscaping*. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/ owner shall:
- A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
 - B. Obtain a Building Permit from the County of Santa Cruz Planning Department.
 - C. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder).
 - D. The project plans shall reflect the recommendations of the County approved geotechnical report, prepared by Tharp and Associates, dated July 2000, and March 2001, and the County approved geologic report prepared by Zinn and associates, dated March 15, 2001. (NDM 1 A)
- II. Prior to issuance of the Building Permit the applicant/owner shall:

- A. Submit plans for review and approval by the Planning Department. Final plans shall include details and the project Conditions of Approval. All disturbed areas must be re-vegetated.
 - B. The plans must show all proposed improvements and the limits of right-of-way and property lines. An engineered drainage plan is required.
 - C. A surveyed plot plan. This plan must show the location of improvements on adjacent properties.
 - C. A construction plan must be submitted that shows the methods of access, traffic control-safety, and staging and debris control during construction.
 - D. Prior to building permit approval the applicant/owner shall submit a letter of plan review from the project soils engineer and project geologist certifying that the plans are in conformance with their respective reports. (NDM I B)
- III. All construction shall be performed in accordance with the approved plans. For reference in the field, a copy of these conditions shall be included on all construction plans. Prior to final building and grading inspection the applicant/owner shall meet the following conditions:
- A. All site improvements shown on the final approved Permit plans shall be installed.
 - B. All inspections required by the permit shall be completed to the satisfaction of the County Planning Department.
 - C. The project civil engineers shall submit letters to the Planning Department verifying that all construction has been performed according to the final approved plans and specifications. A copy of these letters shall be kept in the project file for future reference.
 - D. Dust suppression techniques shall be included as part of the construction plans and implemented during construction. All construction must follow an approved staging and construction plan that prevents the deposition of debris on the beach.
 - E. Pursuant to Sections 16.40.040 and 16.42.100 of the County-Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.

- F. To ensure that construction activity does not result in a significant noise impact, all construction shall occur between the hours of 8:00 am and 5:00 pm, Monday through Friday. (NDM 3)

IV. Operational Conditions.

- A. No land clearing, grading or excavating shall take place between October 15 and April 15 unless a separate winter erosion-control plan is approved by the Planning Director. All bare slopes shall be seeded with barley seed at the end of construction or prior to October 15, 2001, whichever occurs first.
- B. All landscaping and erosion control shall be permanently maintained.
- C. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

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

- A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
- B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith.
- C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the inter-

pretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

- D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.
- E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the office of the Santa Cruz County Recorder an agreement which incorporates the provisions of this condition, or this development approval shall become null and void.

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

**PLEASE NOTE: THIS PERMIT EXPIRES TWO YEARS FROM DATE OF APPROVAL
UNLESS YOU OBTAIN YOUR BUILDING PERMIT AND COMMENCE
CONSTRUCTION.**

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- i ATTACHMENT 1 Plot Plan
 - ii ATTACHMENT 2 Location Map
 - iii ATTACHMENT 4 Tharp and Associates, Alistar Black Property, 4440 Opal Cliff Drive, Santa Cruz County, July 2000 Tharp and Associates, Alistar Black Property, 4440 Opal Cliff Drive, Santa Cruz County, July 2000
 - iv ATTACHMENT 5 Focused Geologic Investigation, Upper Bluff Stabilization and Erosion Control Project, 4420 Opal Cliff Drive, Santa Cruz, California
 - v ATTACHMENT 7 County Technical Report Approval Letters, July 11, 2001
 - vi ATTACHMENT 8 Analysis of Alternatives, Joel Schwartz and Associates, March 3, 2001

*CCC STAFF NOTE: SELECTED ANALYSIS AND ATTACHMENTS FROM THE COUNTY FILE INCLUDED HEREIN. THE FULL COUNTY RECORD IS AVAILABLE FOR REVIEW AT THE COASTAL COMMISSION'S CENTRAL COAST DISTRICT OFFICE IN SANTA CRUZ.

**SANTA CRUZ COUNTY
ALTERNATIVES
ANALYSIS**

DEVELOPMENT PERMIT APPLICATION 01-0137
APN 033-151-23

SERVICES

Fire Protection: Central Fire District

Drainage District: Flood Zone 5

School District: Santa Cruz High School District and the Soquel Elementary School District

Project Access: Opal Cliff Dr.

Water Supply: Soquel Water District

Sewage Disposal: Santa Cruz City

PLANNING POLICIES

Zone District: R5

General Plan: Urban Medium

Coastal Zone: May be Appealed

Within USL: Yes

Special Designation: No

Special Community: No

PROJECT SUMMARY AND DESCRIPTION:

The project (01-0137&00-0704) proposes the installation of an upper bluff stabilization retaining wall on both APN 033-151-23 and 033-151-08. Upper bluff stabilization will include the construction of approximately 120 feet of textured and colored shotcrete wall that is between 20 and 25 feet in height. The appearance of the wall will be enhanced by texture and color techniques to blend with the appearance of the natural bluff. Requires a Coastal and Building Permit.

PROJECT SETTING:

Full Description:

The project is a combined project that includes the installation of upper bluff protection on both Banman and the Black property (see Attachments 1 and 2). This upper bluff stabilization will include the construction of approximately 120 feet of textured and colored concrete wall that is between 20 and 25 feet in height. The wall will consist of an 8-inch thick, reinforced shotcrete face, supported with 30-foot deep tiebacks, placed at 4 foot spacing along the length of the wall. A drain will be placed behind the wall.

Coastal Erosion:

The wall is proposed to resist ongoing erosion of the coastal bluff as indicated on the two sets of attached plans (Attachment 3). The owners and their consulting geotechnical engineers (Attachment 4) and engineering geologist (Attachment 5) have evaluated the site and have determined that within the next 30 years, if not sooner, the home will be threatened by the retreat of the coastal bluff. The bluff in the vicinity of these properties has been subjected to several distinct erosion events over the last decades, including a single storm episode in 1983 in which

CCC Exhibit C
(page 18 of 31 pages)

tens of feet of bluff eroded during a single storm.

Aerial photographs demonstrate continuing erosion along these two properties. As this erosion continues (see Attachments 4 and 5) the bluff will retreat eventually eroding the bluff top so that the foundations of the existing homes are undermined. Since the original construction of the houses, several episodes of bluff erosion/collapse have occurred and the bluff has retreated approximately 25 feet. The edge of the bluff is now within 30 feet of the homes. Continued bluff-retreat will result in the undermining of the foundation with the next thirty years unless intervention occurs.

Retrofitting homes with new coastal erosion control structures is a common development problem with homes constructed before the Coastal Act was enacted (2). Before the Coastal Act there were no clear standards to require adequate setbacks from homes to the eroding edge of coastal bluff with the result that many homes were placed too close to the bluff. The various forms of erosion control currently on the properties are typical of the eclectic type of attempts to control erosion that were prevalent prior to the Coastal Act. The eastern side of the Black property is protected by a series of interconnected concrete walls. There is rip-rap on the Banman parcel that extends partly onto the Black parcel. Other nearby property is protected by rock, 20-foot high walls, cylinders of concrete, and wood walls, all with varying degrees of effectiveness. The haphazard collection of structures creates problematic reflection of storm waves.

Proposed Solution:

To restrain the retreat, the applicants propose the installation of a reinforced shotcrete facing (with tiebacks) to keep the terrace deposits from eroding. To minimize visual impact the shotcrete will be treated with texturing and coloring to match the bluff's natural appearance. Attachment 6 is a rendering by the applicants' consultant that indicates the appearance of the site before and after the wall has been constructed. State-of-the-art texturing and coloring will be used to harmonize the wall's appearance with the community's appearance.

The applicant's geotechnical engineer and engineering geologist indicate that this protection will significantly improve the bluff's stability, thus reducing the possibility that the homes will be damaged by erosion during their economic lifespan. County staff has reviewed and accepted these reports (Attachment 7).

The wall will be placed on the upper part of the bluff and will not adversely deflect or reflect wave action.

Project Alternatives:

The applicant (Attachment 8) has provided an alternatives analysis that compares the proposed wall with other possible alternatives and includes an inventory of the Neighborhood Characteristics (3). This analysis includes structural improvements including grading, other retaining walls, and a combination of retaining walls and grading. The applicant's consultant analysis appropriately indicates that the visual and other impacts for these alternatives are the same or greater than those created by the proposed shotcrete wall. The following additional

2) California Coastal Commission, ReCAP Pilot Project Findings and Recommendations:
Monterey Bay Region, September, 1995

3) Reference General Plan Policies 8.4.5 and 8.6.6

alternatives are also examined to augment the applicant's consultant's analysis.

Moving the Homes:

The homes are both located immediately adjacent to the zoning setbacks. Moving the homes would require variances to setbacks, and would eliminate the required off-street parking spaces. Moving the home would still require later protection by wall similar to the one that is proposed in this application.

Placement of Piers:

A subsurface row of support piers (pier wall) could be constructed either independent of a shotcrete wall or in conjunction with a proposed future shotcrete wall.

A pier wall has the benefit of allowing the bluff to retain a more natural appearance for a longer period of time, until the facing is applied as shotcrete webbing between piers as the piers are exposed by erosion. Pier walls are particularly helpful where a bluff is uniformly eroding from one direction nearly perpendicular to the face of the bluff, but can be easily compromised if erosion occurs at an angle. On the Banman and Black Property eroding wave action varies, causing irregular erosion. This irregular erosion pattern could rapidly expose one or a few piers, possibly compromising the integrity of the wall. Pier walls, therefore, is less desirable. Additionally, if this stretch of coastline were to receive a series of pier walls along the upper bluff, in the long term, the resulting bluff retreat and eventual protection measures would result in a fairly uniform, linear bluff face. This configuration tends to contribute to beach erosion and loss of existing pocket beaches, which rely on the bluff's topographic irregularities to maintain local beach sand depositional environments.

Biotechnical Treatment:

Biotechnical treatment of the slope for erosion is not feasible. The erosion is occurring in blocks and topples in a manner that is unsuitable for biotechnical treatment.

Drainage Control:

Drainage control would reduce the amount of moisture within the terrace material and could reduce the amount of erosion of the upper bluff. Surface erosion control will not intercept all of the subsurface flow, and subsurface erosion control is not feasible due to the depth of concentration of the flows. Drainage control is proposed as part of this application. The engineering geologist and the geotechnical engineers have made recommendations for drainage control but neither proposes that drainage control alone is adequate to secure the bluff.

Given these limitations, the proposed shotcrete wall is the best alternative with the least impact that will appropriately resist the continuing erosion of the bluff. Applying the proposed bluff protection at this time will also serve to maintain the existing, irregular bluff topography. This topography supports the existence of local pocket beaches and helps to maintain local beach sand depositional environments.

ATTACHMENT 6

COUNTY VISUAL
ANALYSIS —
PHOTO SIMULATIONS

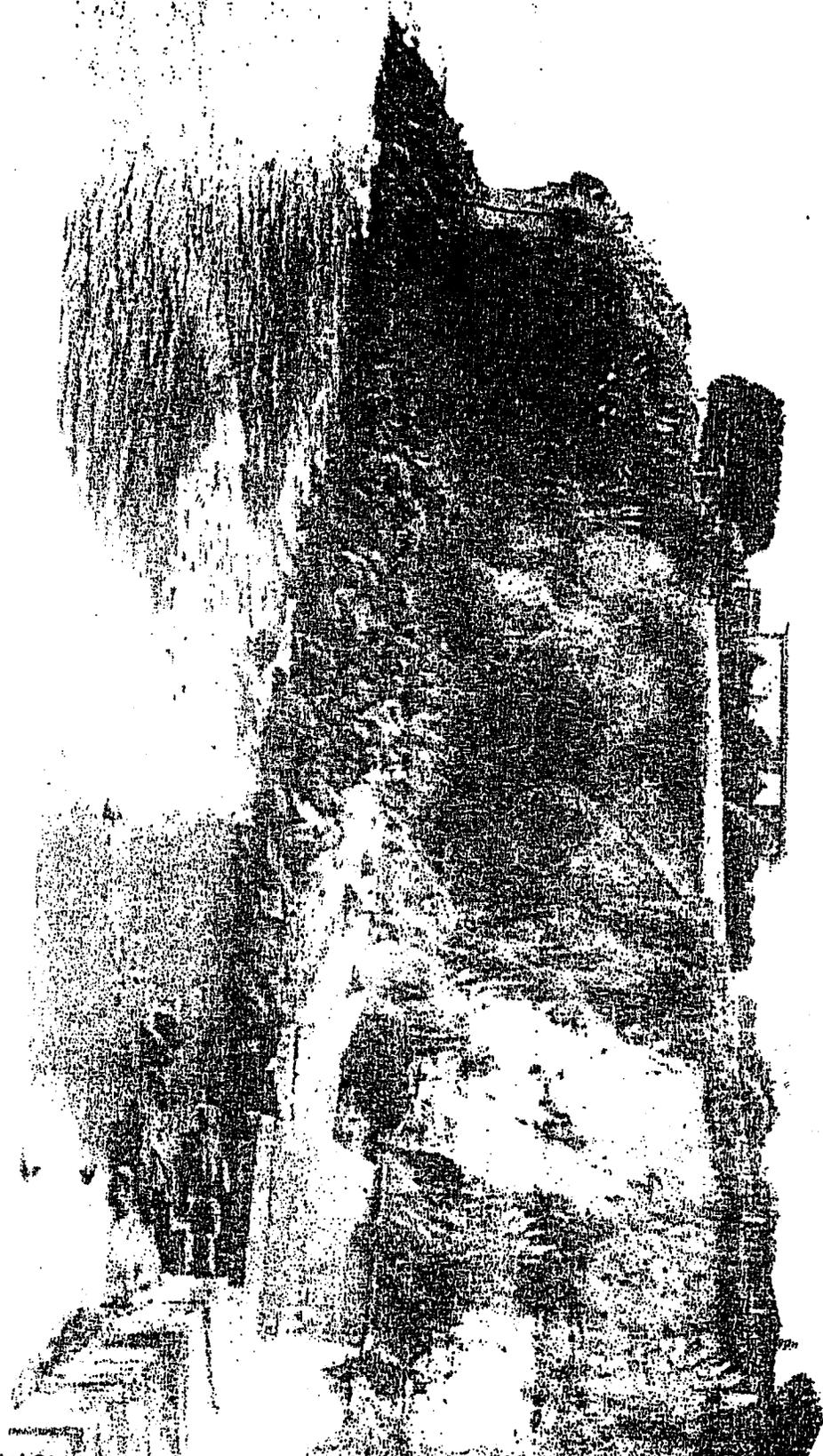
Photos of show the pre and post construction

Environmental Review Initial Study

ATTACHMENT 6 (page 1 of 3)
APPLICATION 01-0137 and 00-0704

CCC Exhibit C
(page 21 of 31 pages)

EXISTING PROJECT SITE

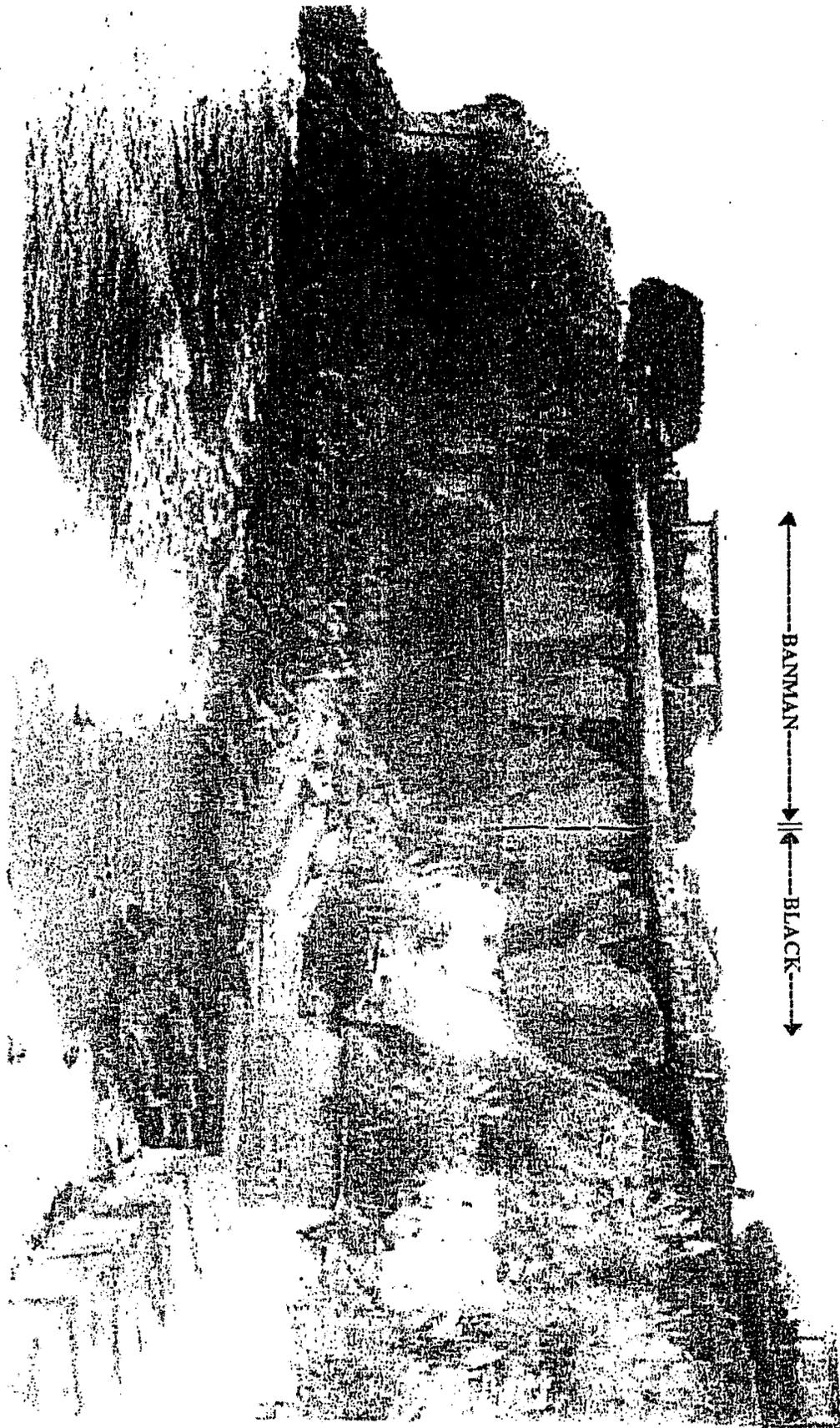


Environmental Review Initial Study
ATTACHMENT 6 page 2 of 3
APPLICATION 01-0137 and 00-0704

CCC Exhibit C
(page 22 of 31 pages)

AT

PHOTO-SIMULATION OF PROPOSED BANMAN EROSION PROTECTION PROJECT
(NOTE PROPOSED CONNECTION LINE WITH ADJACENT BLACK PROJECT)



← BANMAN →
← BLACK →

Environmental Review Initial Study

ATTACHMENT 6 (page 3 of 3)
APPLICATION 01-0137 and 00-0704

CCC Exhibit C
(page 23 of 31 pages)

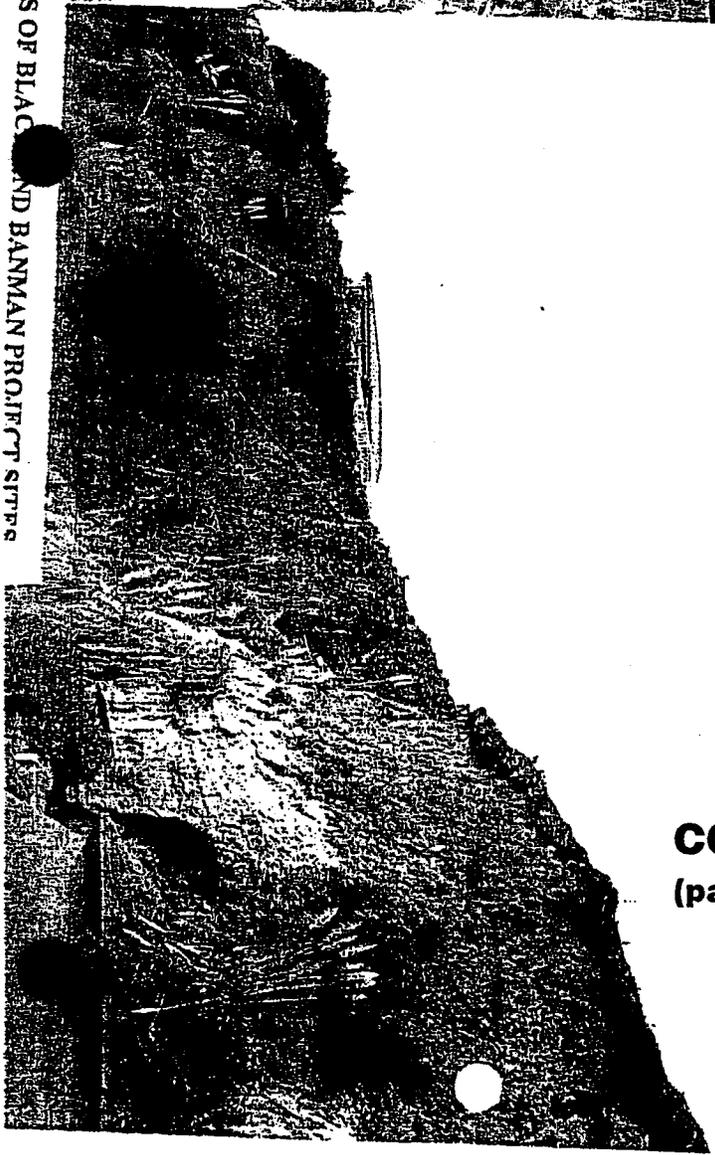
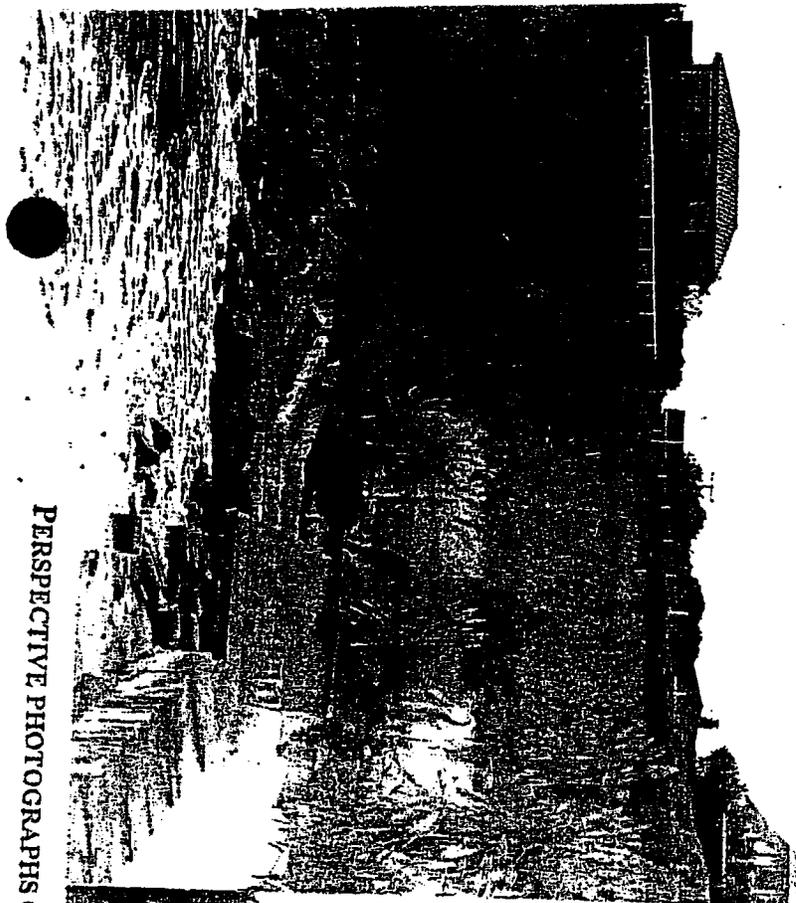
ATTACHMENT 9

COUNTY
VISUAL ANALYSIS -
EXAMPLES OF
AMMORING SIMILAR
TO THAT PROPOSED

Photographs of Previous Treated Shotcrete Walls

Environmental Review Initial Study
ATTACHMENT 9 (page 1 of 8)
APPLICATION 010137 and 000704

CCC Exhibit C
(page 24 of 31 pages)



PERSPECTIVE PHOTOGRAPHS OF BLACK AND BANMAN PROJECT SITES

CCC Exhibit C
(page 25 of 31 pages)

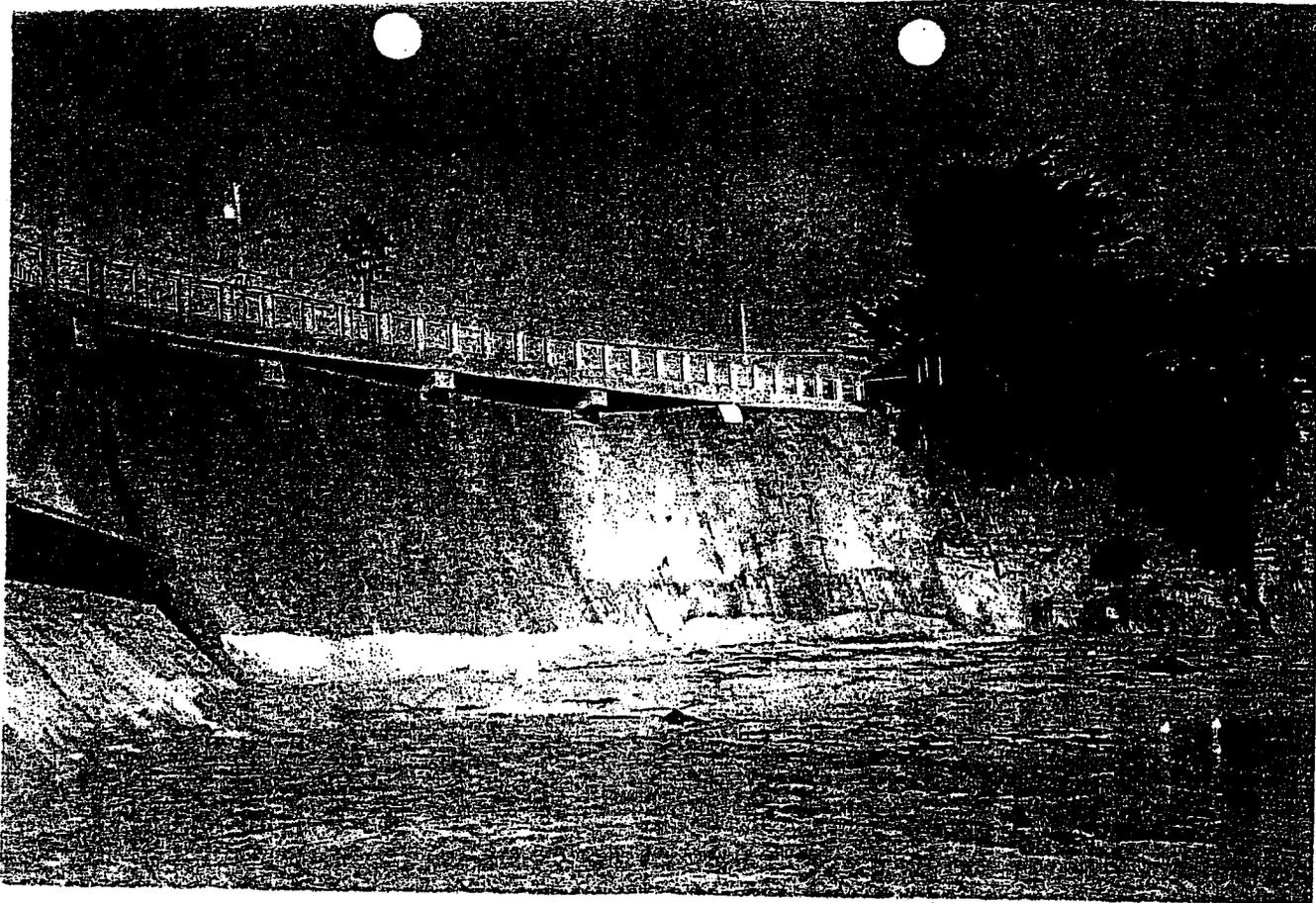
Environmental Review Initial Study
ATTACHMENT 9 (page 208)
APPLICATION 01-0137 and
00-0704



EROSION PROTECTION PROJECT FOR HOUSE ON EAST CLIFF DRIVE, AT INTERSECTION WITH 41ST AVENUE.

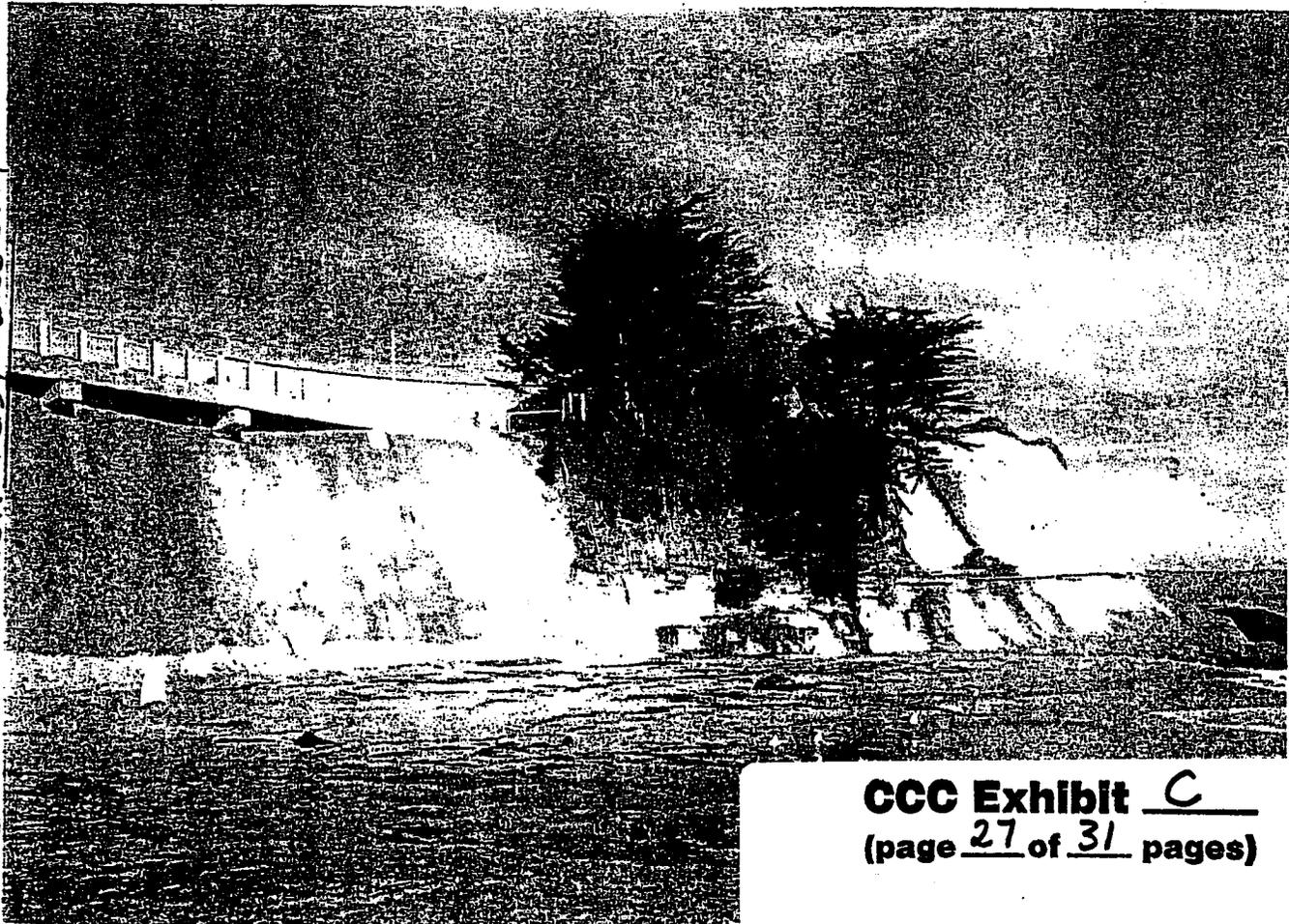


CCC Exhibit C
(page 26 of 31 pages)



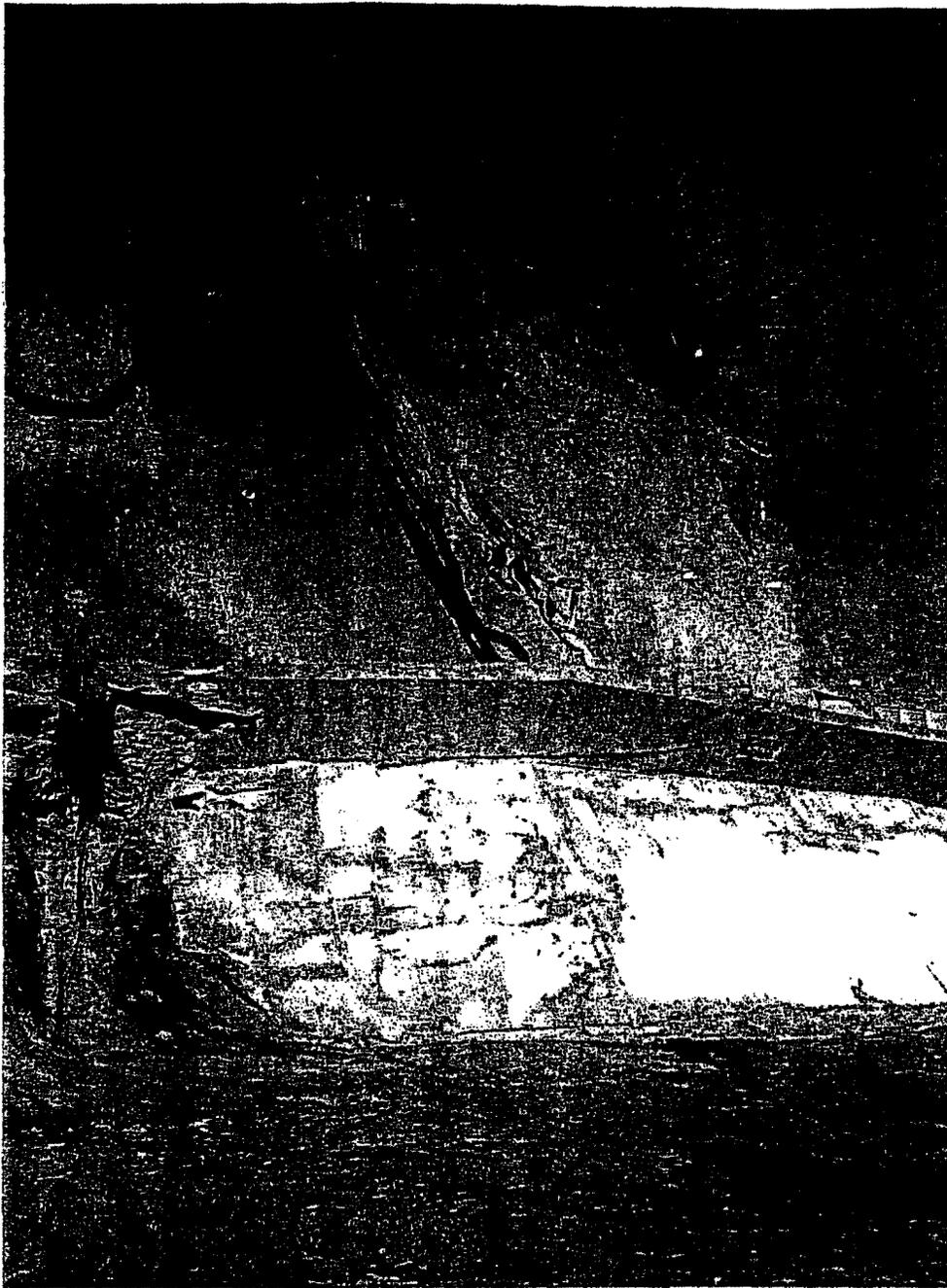
LARCH LANE EROSION PROTECTION PROJECT, COUNTY DEPARTMENT OF PUBLIC WORKS.

ATTACHMENT 4 (page 4 of 8)
APPLICATION 01-037 and 00-0704



CCC Exhibit C
(page 27 of 31 pages)

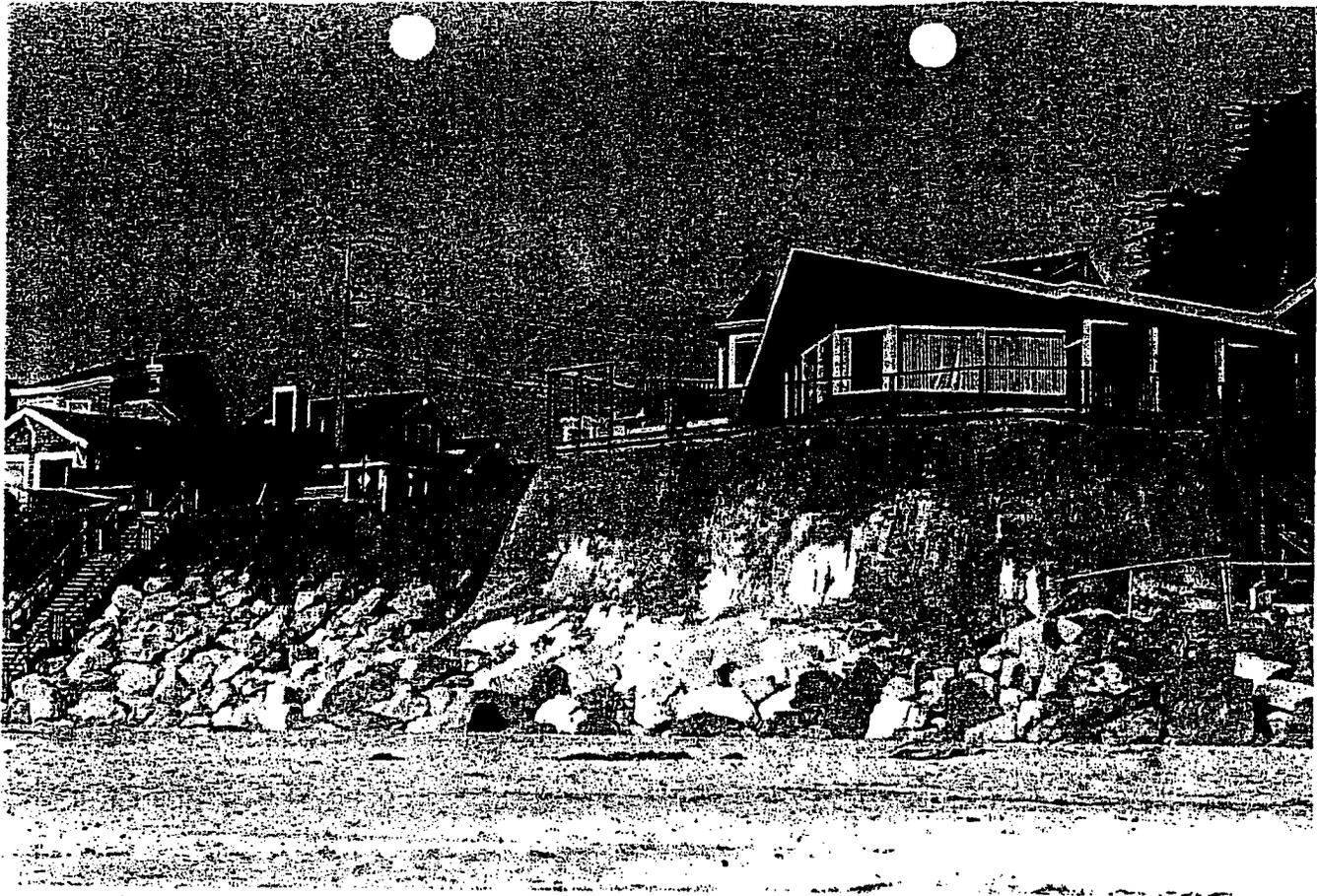
LARCH LANE AND UP-COAST END OF PROJECT AT EAST CLIFF AND 41ST AVENUE.



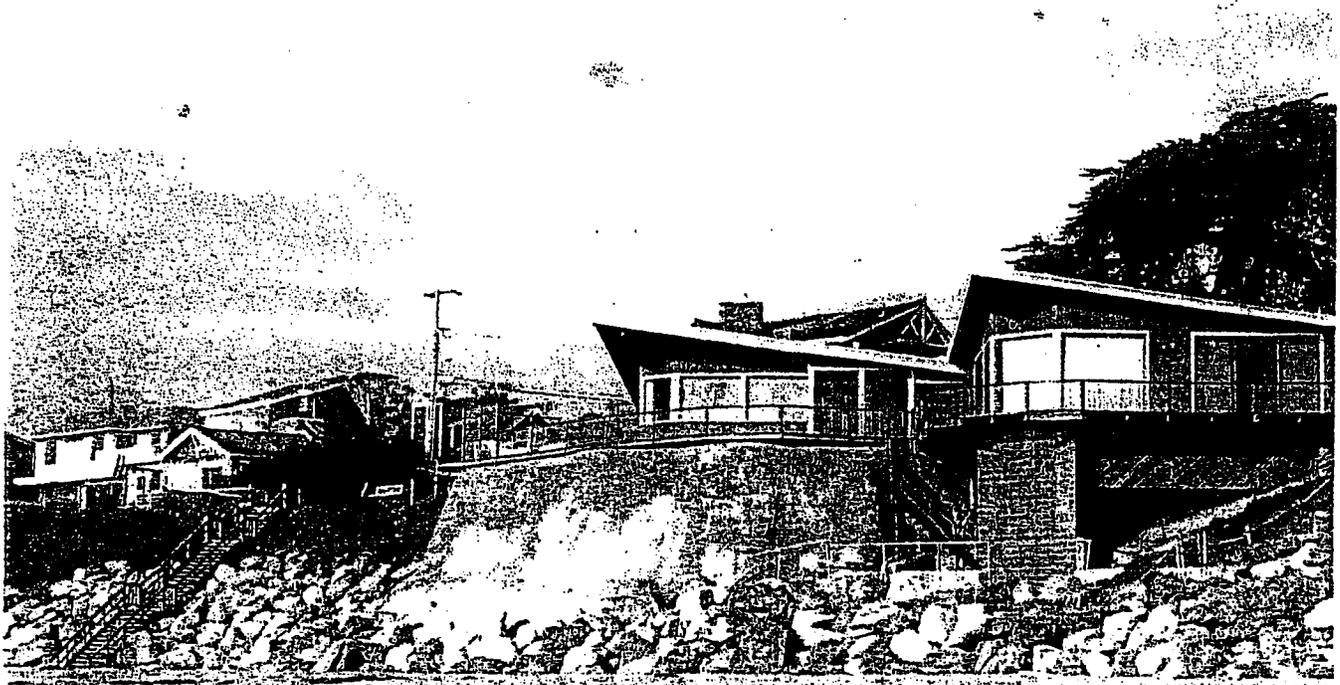
EROSION PROTECTION PROJECT FOR HOUSE LOCATED ADJACENT TO LARCH LANE.
PROJECT CONSISTS OF TIED-BACK, SHOTCRETE PROTECTION OF UPPER DEPOSITS AND A
POURED-IN-PLACE
CONCRETE GRAVITY SEAWALL.

Environmental Review Initial Study
ATTACHMENT 9 (page 5 of 8)
APPLICATION 01-0137 and 00-0704

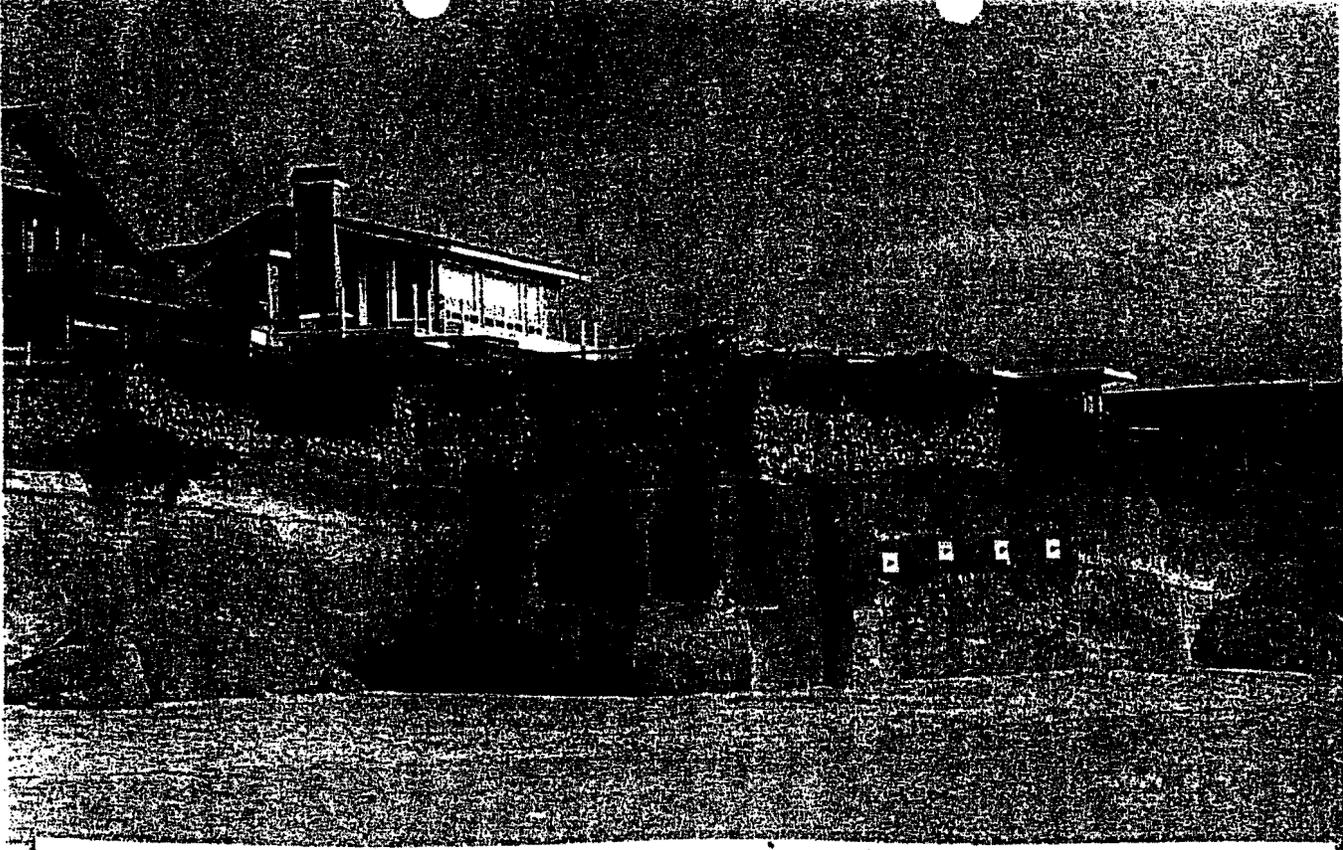
CCC Exhibit C
(page 28 of 31 pages)



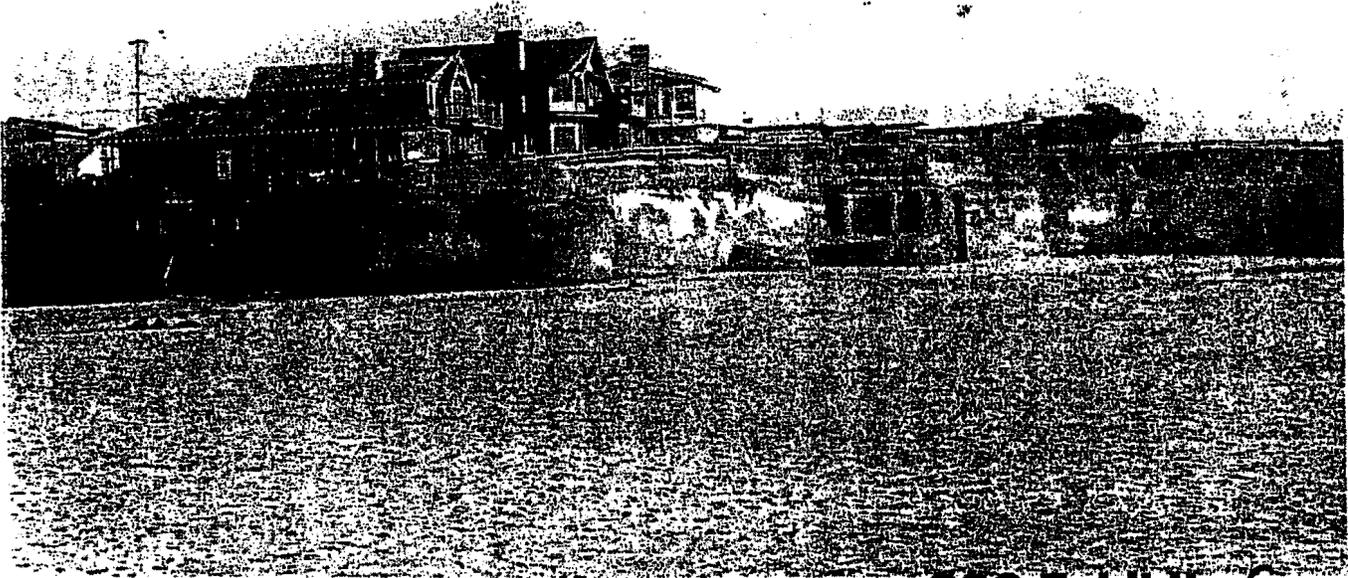
EROSION PROTECTION PROJECT FOR HOUSE AT TERMINUS OF 14TH AVENUE, LIVE OAK.



CCC Exhibit C
(page 29 of 31 pages)

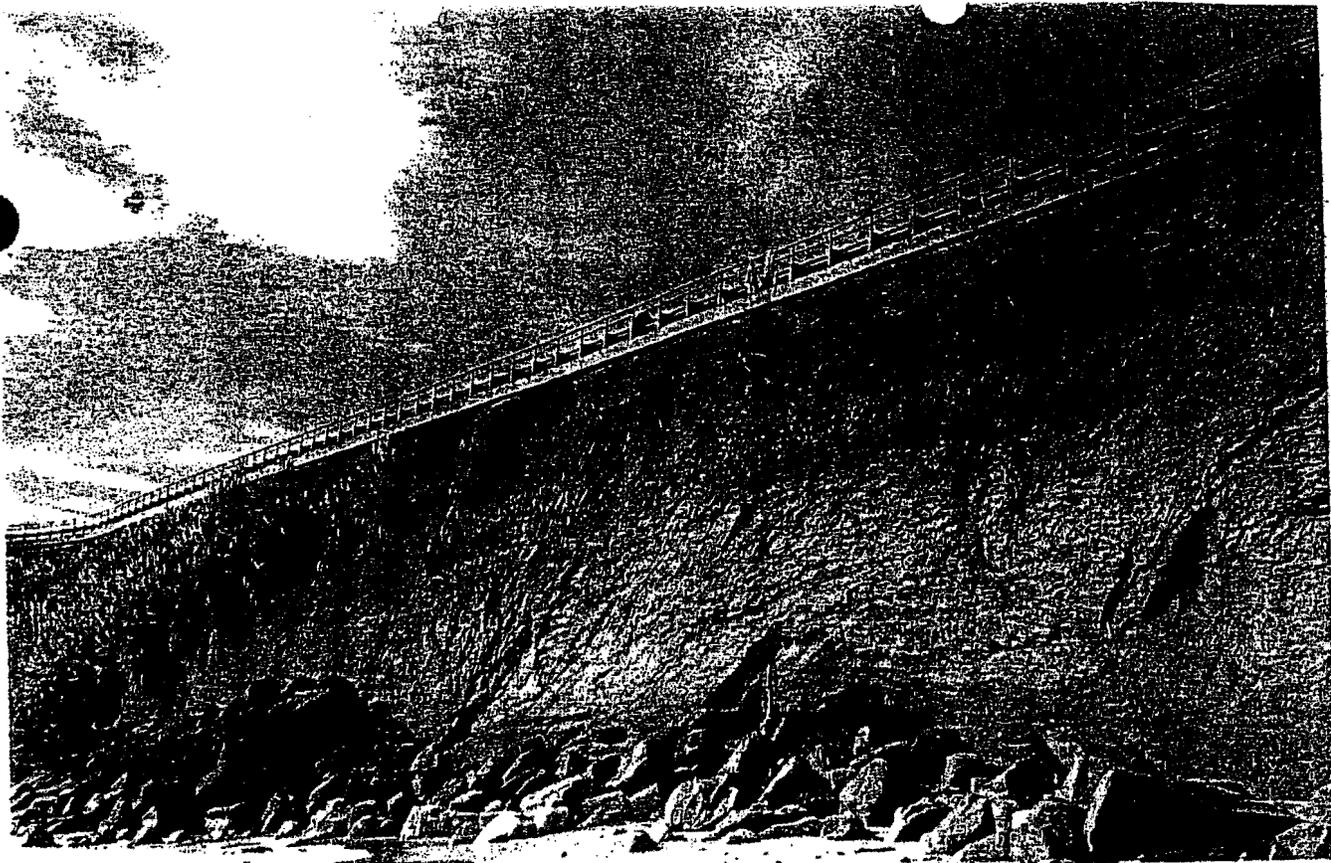


**EROSION PROTECTION FOR LEWIS PROPERTY, GEOFFROY DRIVE, LIVE OAK.
PROJECT INCLUDES UPPER GABION BASKETS AND TIED-BACK, SHOTCRETE WALL AND ROCK-
BOLTS.**



CCC Exhibit C
(page 30 of 31 pages)

Environmental Review Initial Study
ATTACHMENT 9 (page 7 of 8)
APPLICATION 01-0137 and 000704



EROSION PROTECTION FOR EAST CLIFF DRIVE HEADING INTO CAPITOLA VILLAGE, CITY OF CAPITOLA.



CCC Exhibit C
(page 31 of 31 pages)

Environmental Review Initial Study
page 8 of 8
ATTACHMENT 9
180-0704

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
 725 FRONT STREET, SUITE 300
 SANTA CRUZ, CA 95060
 PHONE: (831) 427-4863
 FAX: (831) 427-4877



**APPEAL FROM COASTAL PERMIT
 DECISION OF LOCAL GOVERNMENT**

Please review attached appeal information sheet prior to completing this form.

SECTION I. Appellant(s):

Name, mailing address and telephone number of appellant(s):

Commissioner Sara Wan

Commissioner Dave Potter

California Coastal Commission

California Coastal Commission

45 Fremont Street, Suite 2000

45 Fremont Street, Suite 2000

San Francisco, CA 94105-2219

San Francisco, CA 94105-2219

(415) 904-5200

(415) 904-5200

SECTION II. Decision Being Appealed

1. Name of local/port government:

Santa Cruz County

2. Brief description of development being appealed:

Shotcrete shoreline protection structure.

3. Development's location (street address, assessor's parcel number, cross street, etc.):

Coastal bluff seaward of 4420 Opal Cliff Drive (APN 033-151-23) in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County.

4. Description of decision being appealed:

- a. Approval; no special conditions: _____
 b. Approval with special conditions: XXX
 c. Denial: _____

Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-3-SCO-01-117

DATE FILED: 12-07-01

DISTRICT: Central

RECEIVED

DEC 07 2001

CALIFORNIA
 COASTAL COMMISSION
 CENTRAL COAST AREA

CCC Exhibit D
(page 1 of 8 pages)

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 2)

5. Decision being appealed was made by (check one):

- a. Planning Director/Zoning Administrator
- b. City Council/Board of Supervisors
- c. Planning Commission
- d. Other: _____

6. Date of local government's decision: November 2, 2001

7. Local government's file number: 01-0137

SECTION III Identification of Other Interested Persons

Give the names and addresses of the following parties: (Use additional paper as necessary.)

a. Name and mailing address of permit applicant:

Gene Banman | Representative: Joel Schwartz
272 Delphi Circle | 4355 Diamond Street #3
Los Altos Hills, CA 94022 | Capitola, CA 95010

b. Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearings (s). Include other parties which you know to be interested and should receive notice of this appeal.

- (1) Live Oak Community Association, attn: Georgia Ackley & Everdyn Wescoat
178 24th Avenue
Santa Cruz, CA 95062-5302
- (2) People for the Preservation of Pleasure Point, attn: Charles Paulden
415 Palisades Street
Santa Cruz, CA 95062
- (3) Surfer's Environmental Alliance
P.O. Box 3578
Santa Cruz, CA 95063
- (4) Surfrider Foundation, Santa Cruz Chapter
PO Box 3968
Santa Cruz, CA 95063

SECTION IV. Reasons Supporting This Appeal

Note: Appeals of local government coastal permit decisions are limited by a variety of factors and requirements of the Coastal Act. Please review the appeal information sheet for assistance in completing this section which continues on the next page.

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

Please see attached reasons for appeal

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: *Sara J. Wan*
Appellant or Agent

Date: December 7, 2001

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

(Document2)

CCC Exhibit D
(page 3 of 8 pages)

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

Please see attached reasons for appeal.

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: Dave Potter
Appellant or Agent

Date: December 7, 2001

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal:

Santa Cruz County approved a proposal to install an upper-bluff shoreline protective device (textured and colored concrete wall) spanning two properties: Application Numbers 01-0137 (Banman, APN 033-151-23) and 00-0704 (Black, APN 033-151-08). The Banman portion of the project is the subject of this appeal, but the project is integrally related to the Black portion of the project because although the County processed two separate applications, there is functionally one connected project. The proposed project is located on the seaward side of 4420 (Banman) and 4440 (Black) Opal Cliff Drive in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County. The County-approved project raises Local Coastal program (LCP) and Coastal Act conformance issues and questions as follows:

The LCP addresses whether shoreline protective structures are necessary through Land Use Plan (LUP) Policy 6.2.16 (Structural Shoreline Protection Measures) and Implementation Plan (IP) Chapter 16.10 (Geologic Hazards), particularly Section 16.10.070(h)(3) (Coastal Bluffs and Beaches, Shoreline Protection Structures). These applicable LCP policies only allow for shoreline protection structures "where necessary to protect existing structures from a significant threat." In this case, it is not clear that a significant threat has been demonstrated. The residential structures at this location are roughly 33 feet (Banman) and 27 feet (Black) from the blufftop's edge at their closest point. The setbacks from the bluff range from between 33 and 73 feet (Banman) and 27 and 55 feet (Black) due to the bluff edge configuration and the unusually shaped properties and residences here. The County approval indicates that the subject residences would be threatened from erosion within 30 years. It is not clear whether this 30-year time frame identified was based upon an identified long-term erosion rate (developed based on past steady and episodic erosion processes) for this site. Given that recent reports for similar projects in this area have estimated long-term erosion in the neighborhood of 0.5 feet per year, it is likely that this 30-year time frame was based on such an analysis (i.e., 30 years at 0.5 feet per year represents roughly 15 feet of erosion), but the approval is unclear on this point. Even with an addition 15 years of erosion at 0.5 feet per year, the subject residences would remain roughly 25 feet (Banman) and 20 feet (Black) back from the bluff edge. In fact, these sites are already armored at the base of the bluff by rip-rap and concrete (though these armoring structures' permit history is unclear and needs to be better understood for this application). Accordingly, it is not clear that the required significant threat has been demonstrated and thus the County's approval raises questions of consistency with LCP shoreline protective structure policies.

If a significant threat to an existing structure is proven, the LCP requires a "thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure." Although it is questionable as to whether a significant threat exists as described above, the County found a significant threat here. As a result, the LCP requires an alternatives analysis to avoid the use of hard protective structures, with an emphasis on the use of non-structural measures to address the identified threat. The County's alternatives analysis summarily dismisses other non-structural options and lacks a thorough analysis of same. As a case in point, the approval identifies surface runoff, from both landscaping and storm runoff, as a

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal (continued):

“key contributor” to erosion at this location. Even were a significant threat proven here, it would appear that modest drainage improvements atop the bluff could increase bluff stability without the need to shotcrete the bluff face. In addition, though not discussed in the approval, it appears that some form of landscape cover on the upper bluffs is a viable alternative that could increase bluff stability at this location (with and/or without a less steepened bluff face – either through natural erosion processes and/or artificial grading and tiering). Accordingly, the County’s approval raises questions of consistency with LCP shoreline protective structure alternatives analysis policies.

If a significant threat to an existing structure is proven, and non-structural measures are proven infeasible, the LCP requires that such structures “be placed as close as possible to the development or structure requiring protection.” In this case, the County-approved structure would be placed at the bluff edge itself, ranging from between 33 and 73 feet (Banman) and 27 and 55 feet (Black) away from the residences being protected. As previously highlighted, this issue also goes straight to the core LCP question of establishing a significant threat. It is because of the amount of blufftop setback here that the armor is not proposed ‘as close as possible’ to the residences, and it is also because of this significant bluff edge setback that the degree of threat is a question. Accordingly, the County’s approval raises questions of consistency with LCP shoreline protective structure siting policies.

If a hard protective structure is proven necessary and appropriately sited, the LCP only allows such structural protection if it minimizes landform alteration, minimizes visual intrusion, and when it does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. (In addition to the LCP’s shoreline protective structure specific policies, additional LCP policies are relevant to this point, including, but not limited to LUP Objectives 5.10.a and 5.10.b, LUP Policy 5.10.7, LUP Chapter 7, and IP Section 13.20.130. Furthermore, Coastal Act public and recreation policies, applicable because this site is between the first public road and the sea, require similar protections and measures.) In this case, substantial landform alteration has been approved, ultimately to result in a concrete bluff where currently exists a natural bluff landform; visual intrusion is guaranteed for which it is not clear that the colorizing and texturing described in the approval (i.e., in the plans approved but not submitted as part of the final local action notice) is adequate to conceal (in fact, the photo simulations provided as evidence that the shotcrete will harmonize with the existing bluff appear to show just the opposite, and the examples cited as exemplary appear conspicuously artificial); the planting plan shows ice-plant (an exotic invasive species) as opposed to native bluff plantings for the top of the proposed shotcrete; the contribution of bluff materials into the natural shoreline sand supply system at this location will be halted and the County approval includes no mitigation for this impact; the approval does not analyze the potential for the project to negatively alter beach access for the pocket beach at this location and thus, any necessary mitigation for such negative impacts is also missing; there is no analysis of impacts, if any, to marine resources of the Monterey Bay National Marine Sanctuary offshore. These public access, recreation,

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal (continued):

viewshed, landform protection, and (potentially) offshore habitat issues appear to have been inadequately analyzed (if a protective structure were to be proven necessary and appropriately sited). Accordingly, the County's approval raises questions of consistency with such applicable Coastal Act and LCP coastal resource policies.

The County approval requires compliance with the geotechnical reports, and the geotechnical reports state that the rip-rap would be replaced in a configuration to be determined by the consulting engineer. This aspect of the project is not evaluated nor analyzed in the County approval and could result in additional armoring at the base of the bluffs here for which consistency with applicable Coastal Act and LCP policies has not been measured nor guaranteed. Accordingly, the County's approval raises questions of consistency with LCP shoreline protective structure policies.

Shoreline protective structures are only allowed "where necessary to protect existing structures from a significant threat" (LUP Policy 6.2.16, IP Section 16.10.070(h)(3)). As described above, it is not clear that the LCP required significant threat is present at this location that would allow for placement of the existing armoring present at the base of this bluff location. As such, and notwithstanding the lack of clarity over its permit status, the existing base of bluff armoring here appears to constitute a non-conforming structure for which the LCP does not allow its enlargement (IP Section 13.10.265). In fact, for shoreline armoring in particular, the LCP includes a program to implement corrective actions (e.g., removal) for shoreline armoring structures that are leading to the loss of recreational beach areas, as is the case with the base of bluff armoring present at this location (LUP Programs 6.2.d and 6.2.e). The County's approval has not evaluated the question of whether the existing base of bluff armoring is non-conforming, and the LCP requirements pertaining thereto. It has also not evaluated the complementary question of removal to protect recreational beach areas as directed by the LUP; a question particularly relevant in cases such as this where the degree of threat does not appear significant. Accordingly, the County's approval raises questions of consistency with LCP non-conforming structure and shoreline armoring removal policies.

In sum, the County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved.

The County's approval is not consistent with the LCP in that the LCP-required significant threat has not been clearly demonstrated. If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views,

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
FAX: (831) 427-4877



APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please review attached appeal information sheet prior to completing this form.

SECTION I. Appellant(s):

Name, mailing address and telephone number of appellant(s):

<u>Commissioner Sara Wan</u>	<u>Commissioner Dave Potter</u>
<u>California Coastal Commission</u>	<u>California Coastal Commission</u>
<u>45 Fremont Street, Suite 2000</u>	<u>45 Fremont Street, Suite 2000</u>
<u>San Francisco, CA 94105-2219</u>	<u>San Francisco, CA 94105-2219</u>
<u>(415) 904-5200</u>	<u>(415) 904-5200</u>

SECTION II. Decision Being Appealed

1. Name of local/port government:

Santa Cruz County

2. Brief description of development being appealed:

Shotcrete shoreline protection structure.

3. Development's location (street address, assessor's parcel number, cross street, etc.):

Coastal bluff seaward of 4440 Opal Cliff Drive (APN 033-151-08) in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County.

4. Description of decision being appealed:

- a. Approval; no special conditions: _____
- b. Approval with special conditions: XXX
- c. Denial: _____

Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-3-SCD-01-118
DATE FILED: 12-07-01
DISTRICT: Central Coast

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DEC 07 2001

CCC Exhibit E
(page 1 of 8 pages)

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 2)

5. Decision being appealed was made by (check one):

- a. Planning Director/Zoning Administrator
- b. City Council/Board of Supervisors
- c. Planning Commission
- d. Other: _____

6. Date of local government's decision: November 2, 2001

7. Local government's file number: 00-0704

SECTION III Identification of Other Interested Persons

Give the names and addresses of the following parties: (Use additional paper as necessary.)

a. Name and mailing address of permit applicant:

<u>Alistar Black</u>	<u>Representative: Joel Schwartz</u>
<u>4440 Opal Cliff Drive</u>	<u>4355 Diamond Street #3</u>
<u>Santa Cruz, CA 95062</u>	<u>Capitola, CA 95010</u>

b. Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearings (s). Include other parties which you know to be interested and should receive notice of this appeal.

- (1) Live Oak Community Association, attn: Georgia Ackley & Everdyn Wescoat
178 24th Avenue
Santa Cruz, CA 95062-5302
- (2) People for the Preservation of Pleasure Point, attn: Charles Paulden
415 Palisades Street
Santa Cruz, CA 95062
- (3) Surfer's Environmental Alliance
P.O. Box 3578
Santa Cruz, CA 95063
- (4) Surfrider Foundation, Santa Cruz Chapter
PO Box 3968
Santa Cruz, CA 95063

SECTION IV. Reasons Supporting This Appeal

Note: Appeals of local government coastal permit decisions are limited by a variety of factors and requirements of the Coastal Act. Please review the appeal information sheet for assistance in completing this section which continues on the next page.

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

Please see attached reasons for appeal.

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: *Laura J. Ahau*
Appellant or Agent

Date: December 7, 2001

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

(Document2)

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Page 3

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

Please see attached reasons for appeal.

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: Dave Potter
Appellant or Agent

Date: December 7, 2001

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

(Document2)

CCC Exhibit E
(page 4 of 8 pages)

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal:

Santa Cruz County approved a proposal to install an upper-bluff shoreline protective device (textured and colored concrete wall) spanning two properties: Application Numbers 01-0137 (Banman, APN 033-151-23) and 00-0704 (Black, APN 033-151-08). The Black portion of the project is the subject of this appeal, but the project is integrally related to the Banman portion of the project because although the County processed two separate applications, there is functionally one connected project. The proposed project is located on the seaward side of 4420 (Banman) and 4440 (Black) Opal Cliff Drive in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County. The County-approved project raises Local Coastal program (LCP) and Coastal Act conformance issues and questions as follows:

The LCP addresses whether shoreline protective structures are necessary through Land Use Plan (LUP) Policy 6.2.16 (Structural Shoreline Protection Measures) and Implementation Plan (IP) Chapter 16.10 (Geologic Hazards), particularly Section 16.10.070(h)(3) (Coastal Bluffs and Beaches, Shoreline Protection Structures). These applicable LCP policies only allow for shoreline protection structures "where necessary to protect existing structures from a significant threat." In this case, it is not clear that a significant threat has been demonstrated. The residential structures at this location are roughly 33 feet (Banman) and 27 feet (Black) from the blufftop's edge at their closest point. The setbacks from the bluff range from between 33 and 73 feet (Banman) and 27 and 55 feet (Black) due to the bluff edge configuration and the unusually shaped properties and residences here. The County approval indicates that the subject residences would be threatened from erosion within 30 years. It is not clear whether this 30-year time frame identified was based upon an identified long-term erosion rate (developed based on past steady and episodic erosion processes) for this site. Given that recent reports for similar projects in this area have estimated long-term erosion in the neighborhood of 0.5 feet per year, it is likely that this 30-year time frame was based on such an analysis (i.e., 30 years at 0.5 feet per year represents roughly 15 feet of erosion), but the approval is unclear on this point. Even with an addition 15 years of erosion at 0.5 feet per year, the subject residences would remain roughly 25 feet (Banman) and 20 feet (Black) back from the bluff edge. In fact, these sites are already armored at the base of the bluff by rip-rap and concrete (though these armoring structures' permit history is unclear and needs to be better understood for this application). Accordingly, it is not clear that the required significant threat has been demonstrated and thus the County's approval raises questions of consistency with LCP shoreline protective structure policies.

If a significant threat to an existing structure is proven, the LCP requires a "thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure." Although it is questionable as to whether a significant threat exists as described above, the County found a significant threat here. As a result, the LCP requires an alternatives analysis to avoid the use of hard protective structures, with an emphasis on the use of non-structural measures to address the identified threat. The County's alternatives analysis summarily dismisses other non-structural options and lacks a thorough analysis of same. As a case in point, the approval identifies surface runoff, from both landscaping and storm runoff, as a

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal (continued):

"key contributor" to erosion at this location. Even were a significant threat proven here, it would appear that modest drainage improvements atop the bluff could increase bluff stability without the need to shotcrete the bluff face. In addition, though not discussed in the approval, it appears that some form of landscape cover on the upper bluffs is a viable alternative that could increase bluff stability at this location (with and/or without a less steepened bluff face – either through natural erosion processes and/or artificial grading and tiering). Accordingly, the County's approval raises questions of consistency with LCP shoreline protective structure alternatives analysis policies.

If a significant threat to an existing structure is proven, and non-structural measures are proven infeasible, the LCP requires that such structures "be placed as close as possible to the development or structure requiring protection." In this case, the County-approved structure would be placed at the bluff edge itself, ranging from between 33 and 73 feet (Banman) and 27 and 55 feet (Black) away from the residences being protected. As previously highlighted, this issue also goes straight to the core LCP question of establishing a significant threat. It is because of the amount of blufftop setback here that the armor is not proposed 'as close as possible' to the residences, and it is also because of this significant bluff edge setback that the degree of threat is a question. Accordingly, the County's approval raises questions of consistency with LCP shoreline protective structure siting policies.

If a hard protective structure is proven necessary and appropriately sited, the LCP only allows such structural protection if it minimizes landform alteration, minimizes visual intrusion, and when it does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. (In addition to the LCP's shoreline protective structure specific policies, additional LCP policies are relevant to this point, including, but not limited to LUP Objectives 5.10.a and 5.10.b, LUP Policy 5.10.7, LUP Chapter 7, and IP Section 13.20.130. Furthermore, Coastal Act public and recreation policies, applicable because this site is between the first public road and the sea, require similar protections and measures.) In this case, substantial landform alteration has been approved, ultimately to result in a concrete bluff where currently exists a natural bluff landform; visual intrusion is guaranteed for which it is not clear that the colorizing and texturing described in the approval (i.e., in the plans approved but not submitted as part of the final local action notice) is adequate to conceal (in fact, the photo simulations provided as evidence that the shotcrete will harmonize with the existing bluff appear to show just the opposite, and the examples cited as exemplary appear conspicuously artificial); the planting plan shows ice-plant (an exotic invasive species) as opposed to native bluff plantings for the top of the proposed shotcrete; the contribution of bluff materials into the natural shoreline sand supply system at this location will be halted and the County approval includes no mitigation for this impact; the approval does not analyze the potential for the project to negatively alter beach access for the pocket beach at this location and thus, any necessary mitigation for such negative impacts is also missing; there is no analysis of impacts, if any, to marine resources of the Monterey Bay National Marine Sanctuary offshore. These public access, recreation,

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (PAGE 4)

Reasons for appeal (continued):

viewshed, landform protection, and (potentially) offshore habitat issues appear to have been inadequately analyzed (if a protective structure were to be proven necessary and appropriately sited). Accordingly, the County's approval raises questions of consistency with such applicable Coastal Act and LCP coastal resource policies.

The County approval requires compliance with the geotechnical reports, and the geotechnical reports state that the rip-rap would be replaced in a configuration to be determined by the consulting engineer. This aspect of the project is not evaluated nor analyzed in the County approval and could result in additional armoring at the base of the bluffs here for which consistency with applicable Coastal Act and LCP policies has not been measured nor guaranteed. Accordingly, the County's approval raises questions of consistency with LCP shoreline protective structure policies.

Shoreline protective structures are only allowed "where necessary to protect existing structures from a significant threat" (LUP Policy 6.2.16, IP Section 16.10.070(h)(3)). As described above, it is not clear that the LCP required significant threat is present at this location that would allow for placement of the existing armoring present at the base of this bluff location. As such, and notwithstanding the lack of clarity over its permit status, the existing base of bluff armoring here appears to constitute a non-conforming structure for which the LCP does not allow its enlargement (IP Section 13.10.265). In fact, for shoreline armoring in particular, the LCP includes a program to implement corrective actions (e.g., removal) for shoreline armoring structures that are leading to the loss of recreational beach areas, as is the case with the base of bluff armoring present at this location (LUP Programs 6.2.d and 6.2.e). The County's approval has not evaluated the question of whether the existing base of bluff armoring is non-conforming, and the LCP requirements pertaining thereto. It has also not evaluated the complementary question of removal to protect recreational beach areas as directed by the LUP; a question particularly relevant in cases such as this where the degree of threat does not appear significant. Accordingly, the County's approval raises questions of consistency with LCP non-conforming structure and shoreline armoring removal policies.

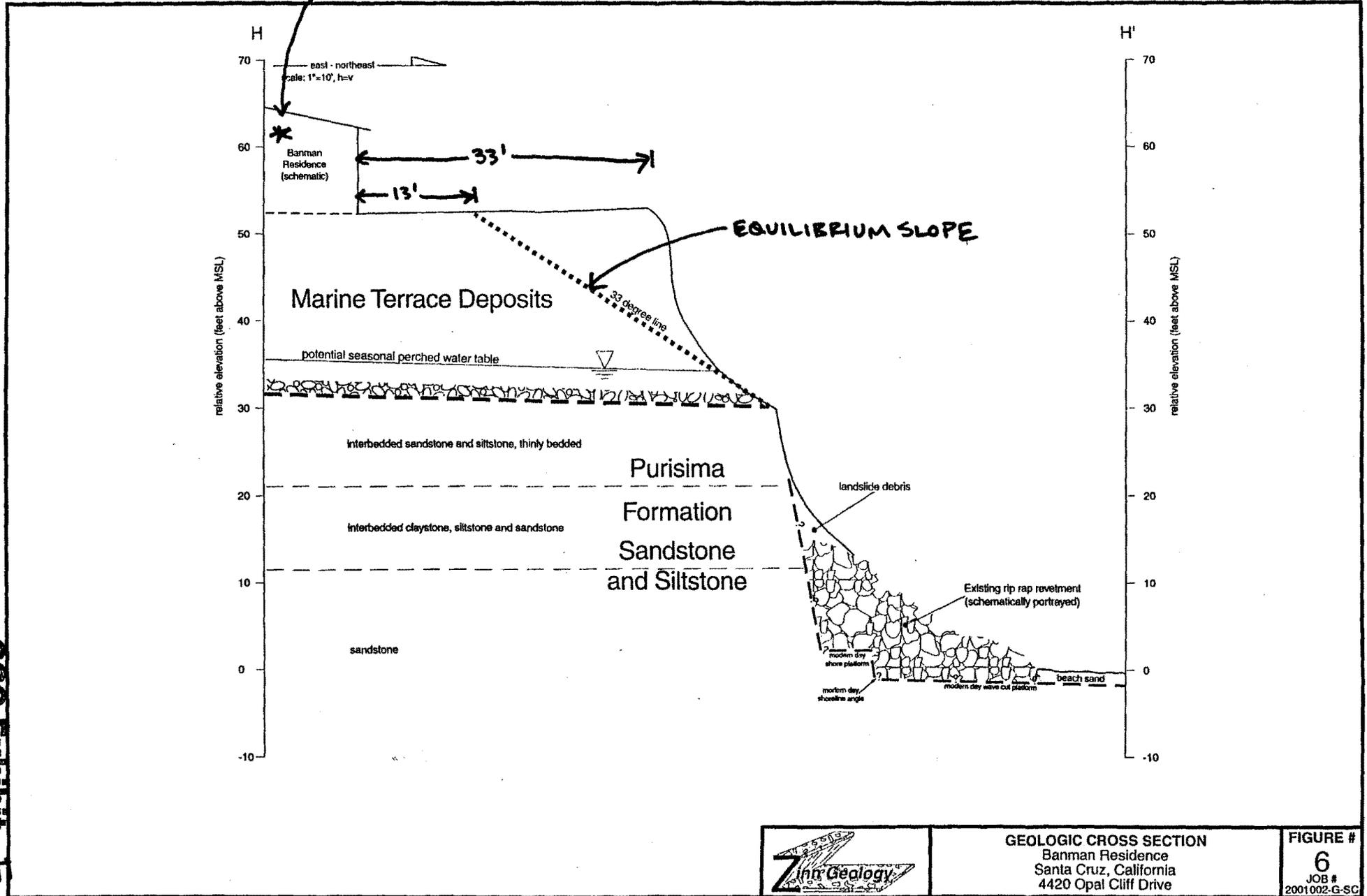
In sum, the County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved.

The County's approval is not consistent with the LCP in that the LCP-required significant threat has not been clearly demonstrated. If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views,

ILLUSTRATIVE SITE PLAN DETAIL

→ BANMAN CROSS SECTION SHOWING MINIMUM SETBACK AND EXPECTED MINIMUM EQUILIBRIUM SLOPE ("ANGLE OF REPOSE") SETBACK

NOTE: BLUFFTOP SETBACK FOR BANMAN RANGES FROM 33 FEET TO 73 FEET. THUS, SCHEMATIC ILLUSTRATES CROSS SECTION AT MINIMUM SETBACK POINT.

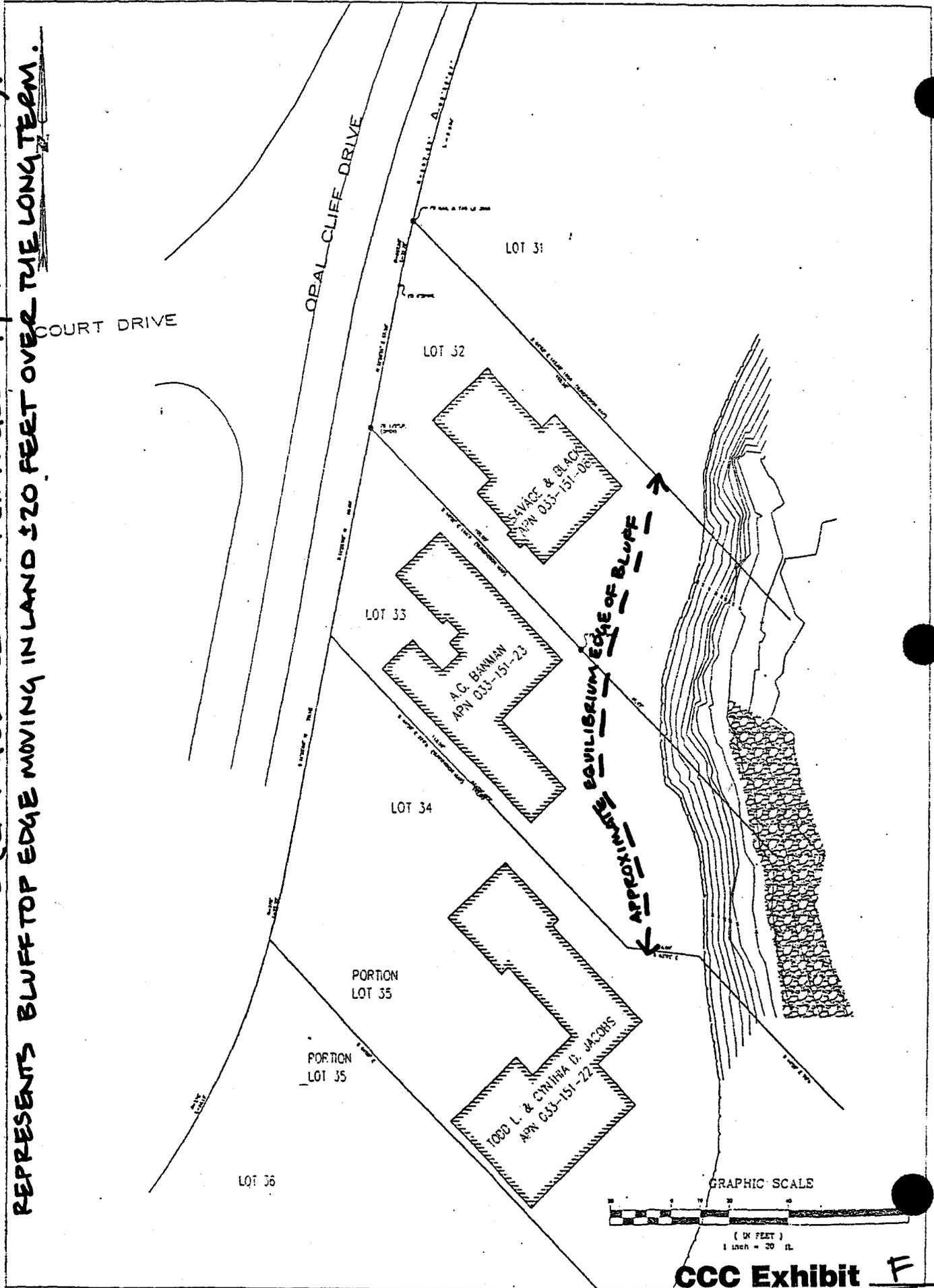


GEOLOGIC CROSS SECTION
 Banman Residence
 Santa Cruz, California
 4420 Opal Cliff Drive

FIGURE #
6
 JOB #
 2001002-G-SC

ILLUSTRATIVE SITE PLAN DETAIL

→ FUTURE SETBACK EXPECTED AFTER TERRACE DEPOSITS LAY BACK TO EQUILIBRIUM SLOPE (EXTRAPOLATED FROM ZINN GEOLOGY CROSS-SECTION). REPRESENTS BLUFF TOP EDGE MOVING INLAND 120 FEET OVER THE LONG TERM.



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FEB 18 2002

TO: CALIFORNIA COASTAL COMMISSIONERS

CALIFORNIA
COASTAL COMMISSION

SUBJECT: Applicant's Response to Coastal Commission Appeals A-3-SCO-01-117
And A-3-SCO-01-118. Owners Black and Banman.

I. CONTEXT OF PROJECT

- This Project is Not a "Shoreline Protection Measure". The proposed project consists *solely* of upper bluff stabilization and landscaping measures. Shoreline protection measures for the properties, located at the base of the bluff, have been in place since at least 1961, and this project does not involve any modification to those structures (see Attachment 1 - page 3, "lower bluff protection"). The County's determination of its General Plan (LCP) Policies is correct - the proposed project is not a "shoreline protection measure", as defined in the County's General Plan (LCP) section 6.2.16 (see Attachment 2). This LCP section states, "Require any application for shoreline protection measures to include a thorough analysis of all reasonable alternatives, including but not limited to, ... protection of the upper bluff or area immediately adjacent to the threatened structure ...". Since the LCP defines upper bluff protection projects as *preferred alternatives* to shoreline protection measures, they obviously cannot be categorized as shoreline protection measures. This type of project, therefore, is not controlled by the policies and implementing ordinances pertaining to shoreline protection measures.

Since the essential reasons for this appeal are based upon County policy pertaining to shoreline protection measures, the adequacy of this entire appeal is in question. Since the County's determination is correct, then this appeal appears to have been made in error and should be dismissed.

- Controlling Precedents Exempt This Project From Regulations Governing "shoreline protection measures." Historically in Santa Cruz County, the Planning Department and Coastal Commission staff have *never* categorized upper bluff protection projects as shoreline protection measures. This project is similar to other upper bluff stabilization projects that have been approved by the County and the Coastal Commission, and constructed during the past several years. It is virtually identical to the project constructed just last year in this area, under Coastal Permit 98-0689 (see Attachments 3). Numerous examples of upper bluff stabilization projects establish the precedent of treating these structures more favorably than "shoreline protection measures" (see Attachment 4).

- Existing Geologic Hazard. Even though project approval is not dependent upon the determination of a significant or imminent geologic threat, it is best to complete this work and address this situation at this point in time. The residences are already too close to the bluff edge, and the parcels have minimal front and side yard areas(see Attachment 5). The project geologist, soils engineer and the County planner/Certified Engineering Geologist, have all determined that bluff erosion poses a significant hazard to the residences. These experts support installation of bluff top protection. Their investigations led them to conclude that significant winter storms, in a single season, would threaten the stability of the residence(see Attachment 6, Attachment 7 - p.2, items 2b and 2c, and Attachment 1 - p.1 and 2, "Significant Threat" section).
- Erosion Would Require Emergency Response. When the bluff erodes to the point of creating a structural hazard, bluff stabilization work will necessarily occur under an "emergency" condition(see Attachment 8 and Attachment 7 - p.2, item 2.c). Construction equipment access and staging areas will be severely restricted or eliminated. This would be an unreasonable approach for the situation, and will only serve to continue the potentially dangerous setting present at the site. This can also lead to visual blight, as shown on Attachment 18 - plastic coverings on the bluff). Constructing the project now is a reasonable approach to avoiding this adverse situation.
- Project Will Not Be Visually Intrusive. The project will mimic the natural composition and topography of the bluff, thereby maintaining the aesthetic values of this area. This is in conformance with County Policies and the guiding principles of the Coastal Commission ReCAP Report recommendations for a uniform, comprehensive shoreline protection plan for this portion of the coast line(see Attachments 9 and 10). A completed upper bluff stabilization project, as approved under Coastal Permit 98-0689, as well as other similar projects, clearly demonstrate how the finished product can blend seamlessly into the natural surroundings(see Attachments 3 and 11). Aesthetically, the project is far superior to numerous wood retaining walls, approved by the County and Coastal Commission and built during recent years(see Attachment 12). If the project is not approved until a future emergency exists, then at that point the houses will be visually intrusive, and some type of protection project will still require approval and construction. This scenario would *not* serve the public's best interest.
- Project Will Protect Public Safety and Serve the Public's Best Interest. If not stabilized, the eroding bluff will continue to pose a significant health and safety threat to residents of the property due to bluff top failures and landslides, and public beach users due to falling debris and landslides(see Attachment 13). These conditions create a continuous, adverse liability for the property owners,

These conditions create a continuous, adverse liability for the property owners, degrade property values and are not in the public's best interest. It is a very real possibility that failure to stabilize the bluff now, will eventually create structural distress and damage to the residences(see Attachment 1 - "significant threat" section, and Attachment 7 - p.2, item 2.b). This could then result in the owners being denied the economic use of their property. As for beach users, the situation is already a potential attractive nuisance, which may result in liability to the property owners. An adverse ruling on this project will result in the Coastal Commission prohibiting the land owner from correcting this situation, and thereby create potential liability for the Commission itself. Again, project approval would serve the best interest of the public.

II. REASONS THIS PROJECT SHOULD BE APPROVED:

A. This Project is Consistent With Coastal Act/Plan Policies.

1. *Compliance With County Design Criteria.* As detailed in the County staff report findings, the project conforms to LCP policies and implementing ordinances(see Attachment 14). In particular, it is the least visually intrusive means of upper bluff structural stabilization, it maintains the aesthetic character of the area, it improves public beach use (by eliminating landslide debris along the toe of the bluff) and it supports the existing residential, open space and recreational (beach) uses of the site. These are all significant public benefits, especially when compared to any alternatives.

2. *Compliance With ReCAP.* The Coastal Commission's 1993 ReCAP report recognizes that all beach-front parcels along Opal Cliff Drive are developed with residences, and most already have some type of shoreline protection measure in place. It recommends a comprehensive and uniform bluff and beach protection plan for the Opal Cliff Drive stretch of coast line. The report recommends use of stabilization measures that maintain the natural beauty and aesthetics of the coast line. Similar projects have been approved and constructed elsewhere along the coast, and are the most-preferred and recommended alternatives to concrete seawalls or rip-rap. This project can be viewed as a pilot project for a more comprehensive program - one that can hopefully be developed in the future with the cooperation of the affected residents, the County and the Coastal Commission.

This project has been planned and approved in a manner consistent with all County and Coastal Commission rules and regulations. Such an effort ought to be commended and supported. There is great public benefit from constructing the project at this point in time, including public safety, improved beach access and preservation of important public vistas.

B. Denial Would Violate Established Planning Policies:

1. *Site Planning Principles Demand Useable Open Space.* These parcels have minimal open space(Attachment 5). Continued erosion will remove useable open space. Project denial will ensure unrestricted bluff retreat that would necessarily result in total removal of all rear yard open space. The consequence of continued erosion is that these parcels will become nonconforming as to lot area. That result is contrary to the established policies for residential development and uses such as this(see Attachments 15 and 16).

2. *Visual Blight Would Result From Project Denial.* Should the project be denied and the bluff allowed to retreat to within a few feet of the existing residence, the result would be in direct conflict with the objectives of LCP policies 6.2 and implementing ordinance 13.20.130(d)1. These policies require structures to be set back from the bluff top sufficiently to be "out of sight from the shoreline", and "not visually intrusive" (see Attachments 15 and 16).

3. *Project Denial Would Result in Unsafe Conditions.* LCP Implementing ordinance 16.10 requires development to be adequately setback from geologic hazards, such as failing bluffs(see Attachment 17). Denying this project would ensure that these policies would be violated. This potentially puts the property owners in a situation where it is impossible to protect and stabilize the property due to conflicts with LCP and County Ordinances, and therefore approaches a taking of the property.

4. *This appeal appears to be antagonistic to the property owner protecting the bluff under any circumstances.* It is impossible to comply fully with all arguments and angles put forth by the appellant, if they all in fact apply. The appellants argue that the situation is currently not bad enough to warrant project approval, but even if it was, the structure must meet a 100-year stability requirement. On the other hand, if one waits, there will be other significant problems, such as unsafe conditions, visual intrusiveness and not enough useable open space. Accordingly, an acceptance of the appellant's arguments results in a "Catch-22" for the property owners, that in effect may result in a deprivation of the economic use of the property.

C. The Project Responds To an Imminent Threat.

Again, although not required as a basis for project approval, there exists an immediate threat to the safety of the existing residence as evidenced by the following facts:

1. *Expert Opinion of County Geologist, Soils Engineer and Project Geologist.* The County Geologist/Staff Planner concludes that:

"A significant threat, thereby necessitating a bluff top protection structure, has been determined to exist at the site. The owners, and

their consulting geologists and geotechnical engineers have evaluated the site and have determined that within the next few storm events, the homes will be threatened by the retreat of the coastal bluff.”(see Attachment 1, Attachment 6 and Attachment 7 - items 1.a and 2.b).

2. *Expert Opinion of County Zoning Administrator.* The County's Zoning Administrator, at the public hearing for the approved Coastal Permit, concluded that, "Given the site situation, the proposed protection structure is sited as close to the structures (requiring protection) as possible", and this work should be done "as soon as possible".

3. *Technical Consensus is Unrebutted.* Every technical expert who has examined this project has concluded that there is a present danger to the residences, and that it is appropriate and necessary to complete the proposed stabilization work at this point in time. Two of the most highly qualified Certified Engineering Geologists in this area have stated that winter storms may occur at any time that could cause enough bluff erosion to destabilize the residence. If that were to occur, stabilization of the bluff will necessarily occur under "emergency" conditions. There is no contrary evidence in the record.

D. Project Denial Would Ensure An Emergency Response.

Denial of this project will delay responding to this manifest geologic threat until the home is in imminent peril. That has been the method of responding to bluff retreat in the past. Many, if not most, coastal protection measures in this area have been installed during "emergency" situations following catastrophic storms. This has generally resulted in a limited choice of stabilization projects that are typically not engineered, often of sub-standard quality (e.g. large rip-rap boulders dumped onto the beach, plastic covering the bluff face, etc.), and can result in visual blight. Such projects are normally carried out under conditions that pose significant safety hazards to workers and public beach users. They often contribute to adverse erosion and shoreline processes on adjacent or near-by properties. Approving this project will obviate the need to respond to a future proposal in a climate of crisis.

III. SPECIFIC RESPONSES TO COASTAL COMMISSION "REASONS FOR APPEAL":

A. Project is Not A Shoreline Protection Measure.

As detailed above, the proposed project involves *only* upper bluff stabilization work. The existing shoreline protection measures, located at the base of the bluff since at least 1961, are not involved in the project in any way. County LCP Policy section 6.2.16, paragraph two, identifies upper bluff stabilization projects as a preferred

alternative to shoreline protection measures. A project may not be both a shoreline protection measure and an alternative to a shoreline protection measure. In identifying upper bluff projects as an alternative to shoreline protection measures, the LCP explicitly refutes the argument that such projects may be considered shoreline protection measures. Therefore, County Policies and Implementing Ordinances relied on by Coastal Commission staff for this appeal do not pertain to this project.

B. A significant threat to the existing homes exists.

All of the geotechnical experts involved in this project, conclude that a significant threat to the existing houses does exist at these sites, and it is prudent and appropriate to install the proposed stabilization measures at this point in time(see Attachments 1, 6 and 7).

C. Reasonable alternatives have been evaluated.

A thorough alternatives analysis has been completed, and it has been determined that the proposed project is the most appropriate, and in fact the *only* truly effective means of addressing the bluff erosion and retreat at this site. Other possible non-structural measures cannot effectively halt the bluff retreat processes currently occurring at these sites (see Attachment 1 - p.2 "Non-structural alternatives", Attachment 7 - p.2 item 2.a, and Attachment 8 - last paragraph).

D. Project is as close as possible to the structure requiring protection.

At the County public hearing for the Coastal Permits, the Zoning Administrator and staff planner stated that, given the site conditions and requirements for equipment access, staging and project construction, the project is sited as close as possible to the houses that requires the protection.

E. Objectives of pertinent LCP objectives, sections 5.10.a, 5.10.b, 5.10.7, Chapter 7 and IP section 13.20.130 are being met.

The project meets these LCP objectives and IP ordinances regarding the protection of visual resources, in that the project is designed to fit the topography of the site, it utilizes natural materials and finishes and state-of-the art construction techniques to blend with the character of the area and provide the least amount of visual intrusion(see Attachments 3 and 11). The project is visually compatible with the surrounding area, it serves to preserve the natural bluff land form and aesthetic character, it includes landscaping that will further enhance the view shed, it serves to preserve the ocean vistas - by maintaining the maximum setback from the bluff edge to the house, and thereby maintaining the best possible public view shed from the beach below, it does not interfere with any public beach access, it maintains and

enhances public beach access and coastal recreation by stabilizing the failing bluff, and preventing the continuation of hazardous conditions due to rock falls and landslides. This also serves to protect lateral beach access.

F. Contribution of bluff materials into the natural shoreline sand supply system:

The project geologist has evaluated this issue, and he concludes that the project will have an insignificant affect on the natural shoreline sand supply(see Attachment 1 - pg. 2 and 3). At the public hearing, the County geologist/staff planner stated that, "The amount of sand loss would be minimal during the life time of the homes. We looked at this in the Initial Study, and we thought that it was very insignificant".

G. Objectives of Coastal Act public access and recreation policies:

The project meets these Coastal Act policies in that it does not encroach on, inhibit or affect any public beach access or offshore surf access. As detailed above, the project improves lateral beach access and public safety for beach users.

H. Impacts to marine resources:

Since all construction activities will occur at the top of the bluff, with plans to contain all construction materials in this area, there will be no impact on the beach or offshore marine resources.

I. Existing shoreline protection measures:

As documented by the project geologist, based upon review of historical air photographs, the shoreline protection measures that exist at the base of the bluff have been in place since *at least* 1961(Attachment 1 - p.3). The proposed projects consist *solely* of upper bluff stabilization work and landscaping. The project geologist has evaluated the condition of the existing shoreline protection measures, and these will eventually require repair and maintenance. That work will be the subject of future permit applications. In order to improve the visual aesthetics and public beach access, that future scope of work will consist of similar artificial rock protection to cover existing rip-rap and concrete walls, removal or re-location of existing rock or concrete, to create more useable beach area and improve lateral access - possibly also utilizing a slightly elevated artificial rock shelf along the base of the bluff.

J. LCP requirement for 100-year project stability:

County LCP Policies and ordinances pertaining to 100-year stability were created to address new structures requiring a setback determination from the edge of the bluff.

address new structures requiring a setback determination from the edge of the bluff. (see Attachments 15 and 17, noted sections). The 100 year rule does not, and obviously cannot, apply to actual bluff stabilization projects placed on the bluff face. If the 100 year stability rule were applied to such bluff face projects, no such project could ever be constructed, since it could never meet a 100-year stability setback criterion.

The strained interpretation of the 100 year rule advocated by the Coastal staff has never been used in the past. Numerous bluff-top retaining walls have been approved and constructed in recent years. These projects have neither been categorized as "shoreline protection measures", nor subject to a 100-year stability setback evaluation. Unless the law is changed, this rule should not be given an entirely new interpretation. The public is entitled to rely on past interpretation of Coastal policies in guiding their actions. Changing interpretations of unchanged policies threatens to cast the entire system of coastal regulation into disrepute.



• Engineering Geology
• Coastal Geology
• Hydrogeology

Nolan, Zinn, and Associates

5 February 2002

Job #01076-SC

Alistair Black and A.G. Banman
c/o Joel Schwartz
4355 Diamond Street #3
Capitola, California 95010

RECEIVED

FEB 6 8 2002

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

Re: California Coastal Commission comments
Upper bluff stabilization and erosion control project
4440 and 4420 Opal Cliff Drive
Santa Cruz, California
APN's 033-151-08 and 033-151-23

Dear Mr. Black and Mr. Banman:

This letter summarizes our comments regarding the appeal document generated by the California Coastal Commission (CCC), entitled "Commission Notification Of Appeal, dated 10 December 2001, Numbers A-3-SCO-01-117, -118. We have performed this review and written this letter at the request of your project planner, Joel Schwartz.

The engineering geology issues that California Coastal Commission letter focuses upon are:

1. Whether bluff retreat poses a "significant threat" to the structures;
2. Whether "non-structural" alternatives have been adequately explored;
3. The impact that retaining the marine terrace deposits will have upon the "natural shoreline sand supply system."

"Significant Threat"

It is our opinion that both the Black and Banman Residences are subject to greater than "ordinary" risk, as defined by the Joint Committee on Seismic Safety of the California Legislature (1974) (see Appendix B from the prior geologic reports written by Zinn Geology, dated 15 and 20 March 2001, attached). If the marine terrace deposits of the upper bluff are not adequately retained within the lifetime of these residences, than future failures of the upper bluff may cause a loss of life or serious physical injury due to partial collapse of the structures.

In our opinion, this qualifies the process of upper bluff retreat as a significant threat to the Black and Banman residences.

We also noted that the CCC letter discussed erosion of the upper bluff. Unfortunately their discussion appears to have omitted the *dominant* geologic process of landsliding operating upon

the Black and Banman properties. The landslides within the marine terrace deposits along this stretch of coastal bluff typically occur in response to intense rainfall (preceded by long duration antecedent rainfall), intense seismic shaking, or a combination thereof. A vertical scar exposing the marine terrace deposits is typically left behind by this process.

The combined processes of erosion and shallow landsliding will continue to attack the marine terrace deposits exposed in the vertical to near-vertical upper bluff on the Black and Banman properties, causing the face of the upper bluff to "lay back" to a lower angle. Even after the upper bluff has laid back to a lower angle, it will continue to fail catastrophically during episodes of large earthquakes and storms. A vertical to near-vertical bluff will be left behind by these episodic events, essentially "resetting the clock" for the gentler long term processes of erosion and shallow landsliding. Overall, the upper bluff will steadily march landward toward the Black and Banman residences, with periodic advances made upon the residences during large earthquakes and storms. As stated before, in our opinion, this qualifies the process of upper bluff retreat as a significant threat to the Black and Banman residences.

Non-structural alternatives

The CCC letter recommends that further analysis of "non-structural" methods be pursued. Unfortunately, we were unable to observe the engineering calculations performed by the CCC staff to demonstrate that non-structural methods are feasible. The reader should turn to the reports written by Tharp and Associates, the project geotechnical engineer, for the subject properties. In particular, the reader should refer to the section discussing the recommended design forces for the proposed tie back anchors. We are unaware of any non-structural alternatives that are capable of resisting these magnitudes of forces. Once, again, we point out that the largest geologic problem in the marine terrace deposits is landsliding, not erosion. In our opinion, non-structural alternatives will only slightly forestall erosion, and will not prevent significant long term upper bluff retreat.

Impact upon "natural shoreline sand supply system."

We have attempted to analyze the impact of retaining the marine terrace deposits upon the "natural shoreline sand supply system." The average yearly natural littoral drift in the vicinity of the subject properties has been estimated to be in the range of 260,000 and 326,000 cubic yards by researchers (Griggs and Best, 1991). We interpret the researchers' findings as meaning that this volume of sand, derived from coastal erosion and sediments from local creeks and rivers, moves downcoast (towards Capitola) each year through the near shore littoral system.

We have estimated that the marine terrace deposits are approximately 20 feet high (thick) on the subject properties. It is important to note that the particles comprising the littoral drift along the shoreline are sand size or larger. Hence, we will conservatively assume that the entire 20 foot high (thick) package of marine terrace deposits contains 75% of sand (or larger) size particles by volume, resulting in a 15 foot column (20 feet x 0.75) of sand-size particles of bigger. The bluff top exposure of the marine terrace deposits fronting the properties is about 145 feet (in plan

view). This would result in a window of "sand" of 2175 square feet (15 feet x 145 feet) at any given time.

If we were to assume that the CCC average yearly bluff retreat estimates of ½ foot are correct, than that would result in a yearly average of 1088 cubic feet (2175 square feet x 0.5 feet), or 40 cubic yards of sand being held back by the proposed retaining structure. This would represent between 0.01% and 0.02% of the total volume of average yearly littoral drift cited by Griggs and Best (1991).

If we utilize the highest average yearly bluff retreat rates of 2 feet cited by Foxx, Nielsen and Associates (1998) for their study of the nearby proposed East Cliff Drive Seawall, than that would result in a yearly average of 4350 cubic feet (2175 square feet x 2 feet), or 161 cubic yards of sand being held back by the proposed retaining structure. This would represent between 0.06% and 0.05% of the total volume of average yearly littoral drift cited by Griggs and Best (1991).

So, considering a range of values for both average yearly littoral drift, and average yearly bluff retreat rates, the proposed retaining structure will hold back between 0.01% and 0.06% of sand by volume from the natural littoral drift system *per year*. In our opinion, the impact of the proposed retaining structures upon the littoral drift system will be insignificant, based upon the aforementioned estimates.

Lower bluff protection

The CCC letter briefly touches upon the issue of "additional armoring" at the base of the coastal bluff on the Black and Banman properties. We unaware of any recommendations regarding additional armoring. Our report identified a hybrid seawall-revetment system in disrepair. Inspection of the aerial photographs indicates the hybrid system on the properties started off as a broad rip-rap revetment that was present at least as early as 1961 (the earliest set of aerial photographs we could clearly discern the presence of the protective structure). The revetment was likely placed as part of the coastal protection program pursued by the Army Corps of Engineers many decades ago.

We observed the hybrid revetment and sea wall on the Black property (4440 Opal Cliff Drive) upon aerial photographs dated 5 October 1976. It can be readily discerned as a lighter toned, flat bench projecting out from the bluff face. It is possible that the hybrid revetment and sea wall was present as early as 1965, based upon our observation of aerial photographs dated 11 May 1965, but the resolution and lighting of the photographic prints make this interpretation equivocal. Hence, we conclude that the hybrid revetment and sea wall on the Black property is at least as old 26 years, and possibly older than 37 years.

If the existing protective structures are not adequately repaired and maintained, the lower bluff will begin to retreat at a higher rate. This will cause the upper bluff retreat rate to accelerate, ultimately resulting in an increase of risk to the structure and the occupants. Hence, we are

pursuing a geologic study of the existing protective structures and the lower bluff, so that we may make the proper recommendations regarding the refurbishment of the protective structures.

Sincerely,
Nolan, Zinn and Associates, Inc.



Erik N. Zinn
Principal Geologist
C.E.G. No. 2139

Attachments: Excerpted Appendix B from prior reports written by Zinn Geology, dated 15 and 20 March 2001

REFERENCES

Best, T.C. and Griggs, G.B., 1991, From shoreline to abyss - a sediment budget for the Santa Cruz littoral cell, California, Society for Economic Paleontologists and Mineralogists Special Publication No. 46., 55 p.

California Coastal Commission, 2001, Commission notification of appeal, Numbers A-3-SCO-01-117, -118, unpublished government agency letter.

Foxx, Nielsen and Associates, 1998, Engineering geologic study of proposed coastal bluff stabilization, job number Scr-786-G, unpublished consultant letter.

Joint Committee on Seismic Safety of the California Legislature, 1974, Meeting the earthquake challenge - final report, reprinted by the California Division of Mines and Geology in 1974 as Special Publication 45, p.9.

SCALE OF ACCEPTABLE RISKS FROM SEISMIC GEOLOGIC HAZARDS		
Risk Level	Structure Types	Extra Project Cost Probably Required to Reduce Risk to an Acceptable Level
Extremely low ¹	Structures whose continued functioning is critical, or whose failure might be catastrophic: nuclear reactors, large dams, power intake systems, plants manufacturing or storing explosives or toxic materials.	No set percentage (whatever is required for maximum attainable safety).
Slightly higher than under "Extremely low" level. ¹	Structures whose use is critically needed after a disaster: important utility centers; hospitals; fire, police and emergency communication facilities; fire station; and critical transportation elements such as bridges and overpasses; also dams.	5 to 25 percent of project cost. ²
Lowest possible risk to occupants of the structure. ³	Structures of high occupancy, or whose use after a disaster would be particularly convenient: schools, churches, theaters, large hotels, and other high rise buildings housing large numbers of people, other places normally attracting large concentrations of people, civic buildings such as fire stations, secondary utility structures, extremely large commercial enterprises, most roads, alternative or non-critical bridges and overpasses.	5 to 15 percent of project cost. ⁴
An "ordinary" level of risk to occupants of the structure. ^{3,5}	The vast majority of structures: most commercial and industrial buildings, small hotels and apartment buildings, and single family residences.	1 to 2 percent of project cost, in most cases (2 to 10 percent of project cost in a minority of cases). ⁴
<p>¹ Failure of a single structure may affect substantial populations.</p> <p>² These additional percentages are based on the assumptions that the base cost is the total cost of the building or other facility when ready for occupancy. In addition, it is assumed that the structure would have been designed and built in accordance with current California practice. Moreover, the estimated additional cost presumes that structures in this acceptable risk category are to embody sufficient safety to remain functional following an earthquake.</p> <p>³ Failure of a single structure would affect primarily only the occupants.</p> <p>⁴ These additional percentages are based on the assumption that the base cost is the total cost of the building or facility when ready for occupancy. In addition, it is assumed that the structures would have been designed and built in accordance with current California practice. Moreover the estimated additional cost presumes that structures in this acceptable-risk category are to be sufficiently safe to give reasonable assurance of preventing injury or loss of life during and following an earthquake, but otherwise not necessarily to remain functional.</p> <p>⁵ "Ordinary risk": Resist minor earthquakes without damage; resist moderate earthquakes without structural damage, but with some non-structural damage; resist major earthquakes of the intensity or severity of the strongest experienced in California, without collapse, but with some structural damage as well as non-structural damage. In most structures it is expected that structural damage, even in a major earthquake, could be limited to repairable damage. (Structural Engineers Association of California)</p> <p>Source: <i>Meeting the Earthquake Challenge</i>, Joint Committee on Seismic Safety of the California Legislature, Jan. 1974, p.9.</p>		

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SCALE OF ACCEPTABLE RISKS FROM NON-SEISMIC GEOLOGIC HAZARDS⁶		
Risk Level	Structure Type	Risk Characteristics
Extremely low risk	Structures whose continued functioning is critical, or whose failure might be catastrophic: nuclear reactors, large dams, power intake systems, plants manufacturing or storing explosives or toxic materials.	1. Failure affects substantial populations, risk nearly equals nearly zero.
Very low risk	Structures whose use is critically needed after a disaster: important utility centers; hospitals; fire, police and emergency communication facilities; fire station; and critical transportation elements such as bridges and overpasses; also dams.	1. Failure affects substantial populations. Risk slightly higher than 1 above.
Low risk	Structures of high occupancy, or whose use after a disaster would be particularly convenient: schools, churches, theaters, large hotels, and other high rise buildings housing large numbers of people, other places normally attracting large concentrations of people, civic buildings such as fire stations, secondary utility structures, extremely large commercial enterprises, most roads, alternative or non-critical bridges and overpasses.	1. Failure of a single structure would affect primarily only the occupants.
"Ordinary" risk	The vast majority of structures: most commercial and industrial buildings, small hotels and apartment buildings, and single family residences.	<ol style="list-style-type: none"> 1. Failure only affects owners /occupants of a structure rather than a substantial population. 2. No significant potential for loss of life or serious physical injury. 3. Risk level is similar or comparable to other ordinary risks (including seismic risks) to citizens of coastal California. 4. No collapse of structures; structural damage limited to repairable damage in most cases. This degree of damage is unlikely as a result of storms with a repeat time of 50 years or less.
Moderate risk	Fences, driveways, non-habitable structures, detached retaining walls, sanitary landfills, recreation areas and open space.	<ol style="list-style-type: none"> 1. Structure is not occupied or occupied infrequently. 2. Low probability of physical injury. 3. Moderate probability of collapse.

⁶ Non-seismic geologic hazards include flooding, landslides, erosion, wave runup and sinkhole collapse

6.2.14 Additions to Existing Structures

(LCP) Additions, including second story and cantilevered additions, shall comply with the setback requirements of 6.2.12. (Revised by Res. 81-99)

6.2.15 New Development on Existing Lots of Record

(LCP) Allow development activities in areas subject to storm wave inundation or beach or bluff erosion on existing lots of record, within existing developed neighborhoods, under the following circumstances:

(a) A technical report (including a geologic hazards assessment, engineering geology report and/or soil engineering report) demonstrates that the potential hazard can be mitigated over the 100-year lifetime of the structure. Mitigations can include, but are not limited to, building setbacks, elevation of the structure, and foundation design;

(b) Mitigation of the potential hazard is not dependent on shoreline or coastal bluff protection structures, except on lots where both adjacent parcels are already similarly protected; and

(c) The owner records a Declaration of Geologic Hazards on the property deed that describes the potential hazard and the level of geologic and/or geotechnical investigation conducted.

(Revised by Res. 81-99)

6.2.16 Structural Shoreline Protection Measures

(LCP) Limit structural shoreline protection measures to structures which protect existing structures from a significant threat, vacant lots which through lack of protection threaten adjacent developed lots, public works, public beaches, or coastal dependent uses.

Require any application for shoreline protection measures to include a thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure, protection of the upper bluff or area immediately adjacent to the threatened structure, engineered shoreline protection such as beach nourishment, revetments, or vertical walls. Permit structural protection measures only if non-structural measures (e.g. building relocation or change in design) are infeasible from an engineering standpoint or not economically viable.

The protection structure must not reduce or restrict public beach access, adversely affect shoreline processes and sand supply, increase erosion on adjacent properties, or cause harmful impacts on wildlife and fish habitats or archaeological or paleontological resources.

The protection structure must be placed as close as possible to the development requiring protection and must be designed to minimize adverse impacts to recreation and to minimize visual intrusion.

Shoreline protection structures shall be designed to meet approved engineering standards for the site as determined through the environmental review process.

Detailed technical studies shall be required to accurately define oceanographic conditions affecting the site. All shoreline protective structures shall incorporate permanent survey monuments for future use in establishing a survey monument network along the coast for use in monitoring seaward encroachment or slumping of revetments or erosion trends.



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Attachment 3,
Recently completed
project in Santa Cruz. , p.1 of

STAFF REPORT TO THE ZONING ADMINISTRATOR

APPLICATION NO.: 98-0689

APN: 043-161-08 41

APPLICANT: Howard Potter

OWNER: Soil Engineering Construction, Inc., 927 Arguello Street, Redwood City, CA 94063

PROJECT DESCRIPTION: Proposal to construct a slope stabilization project to include a shotcrete wall/facing with tie backs along the upper bluff. Dimensions of the wall are 70 feet long and 30 feet high. Requires a Coastal Zone Permit.

LOCATION: Property located on the south side of 430 Seaview Drive.

FINAL ACTION DATE: 180 Days after Completeness Determination.

PERMITS REQUIRED: Coastal Zone Permit, Grading Permit and Building Permit

ENVIRONMENTAL DETERMINATION: Negative Declaration with Conditions (attached)

COASTAL ZONE: X yes ___no APPEALABLE TO CCC: X yes ___no

PARCEL INFORMATION

PARCEL SIZE: 9,670 Square Feet

EXISTING LAND USE: PARCEL: Single-Family Residential/Park

PROJECT ACCESS: 16th Avenue

PLANNING AREA: Aptos

LAND USE DESIGNATION: Urban Low Density Residential

ZONING DISTRICT: Single Family Residential (R-1-6)

SUPERVISORIAL DISTRICT: 2nd

ENVIRONMENTAL INFORMATION

<u>Item</u>	<u>Comments</u>
a. Geologic Hazards	a. Soils Engineered by Haro, Kasunich and Associates 10-6-98 reviewed by the County. This report addresses slope stability problems and coastal erosion and provide mitigation.
b. Soils	b. Coastal bluff top will be protected by placing a textured and colored gunite bluff wall.
c. Scenic	c. Within scenic corridor; the wall is visible from the beach. The wall will be textured, colored and landscaped to obscure any visual impact.
d. Drainage	d. Engineer's drainage plans are attached. (Exhibit A's Attachment 1)

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Gray Davis
GOVERNOR

STATE OF CALIFORNIA

Governor's Office of Planning and Research

1400 TENTH STREET SACRAMENTO, CALIFORNIA 95812-3044
916-322-2318 FAX 916-322-3785 www.opr.ca.gov



Loretta Lynch
DIRECTOR

ACKNOWLEDGEMENT OF RECEIPT

*pls place
in file.*

DATE: July 7, 1999
TO: Paia Levine
Santa Cruz County
701 Ocean Street
Santa Cruz, CA 95060
RE: Potter Retaining Wall
SCH#: 99062118

#98-0689

This is to acknowledge that the State Clearinghouse has received your environmental document for state review. The review period assigned by the State Clearinghouse is:

Review Start Date: June 28, 1999
Review End Date: July 27, 1999

We have distributed your document to the following agencies and departments:

- California Coastal Commission
- California Highway Patrol
- Caltrans, District 5
- Department of Fish and Game, Region 3
- Department of Parks and Recreation
- Department of Water Resources
- Native American Heritage Commission
- Regional Water Quality Control Board, Region 3
- Resources Agency
- State Coastal Conservancy
- State Lands Commission

The State Clearinghouse will provide a closing letter with any state agency comments to your attention on the date following the close of the review period.

Thank you for your participation in the State Clearinghouse review process.

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Gray Davis
GOVERNOR

STATE OF CALIFORNIA

Governor's Office of Planning and Research
State Clearinghouse

STREET ADDRESS: 1400 TENTH STREET ROOM 222 SACRAMENTO, CALIFORNIA 95814
MAILING ADDRESS: P.O. BOX 3044 SACRAMENTO, CA 95812-3044
916-445-0613 FAX 916-323-3018 www.opr.ca.gov/clearinghouse.html



Loretta Lynch
DIRECTOR

July 28, 1999

RECEIVED
GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
JUL 29 1999

Paia Levine
Santa Cruz County
701 Ocean Street
Santa Cruz, CA 95060

Subject: Potter Retaining Wall
SCH#: 99062118

Dear Paia Levine:

The State Clearinghouse submitted the above named environmental document to selected state agencies for review. The review period closed on July 27, 1999, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the eight-digit State Clearinghouse number when contacting this office.

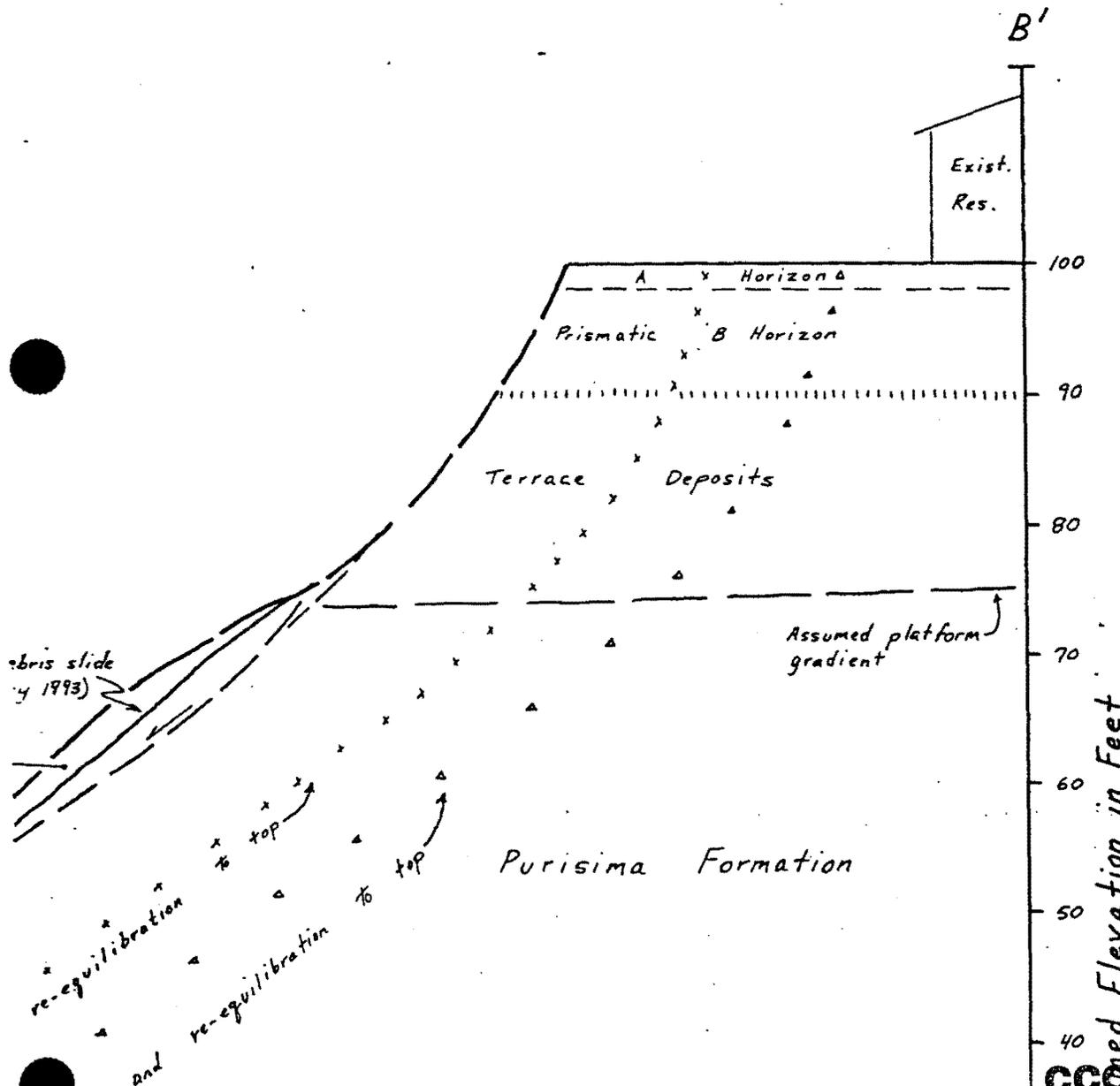
Sincerely,

Terry Roberts
Senior Planner, State Clearinghouse

*pls place in
project file -*

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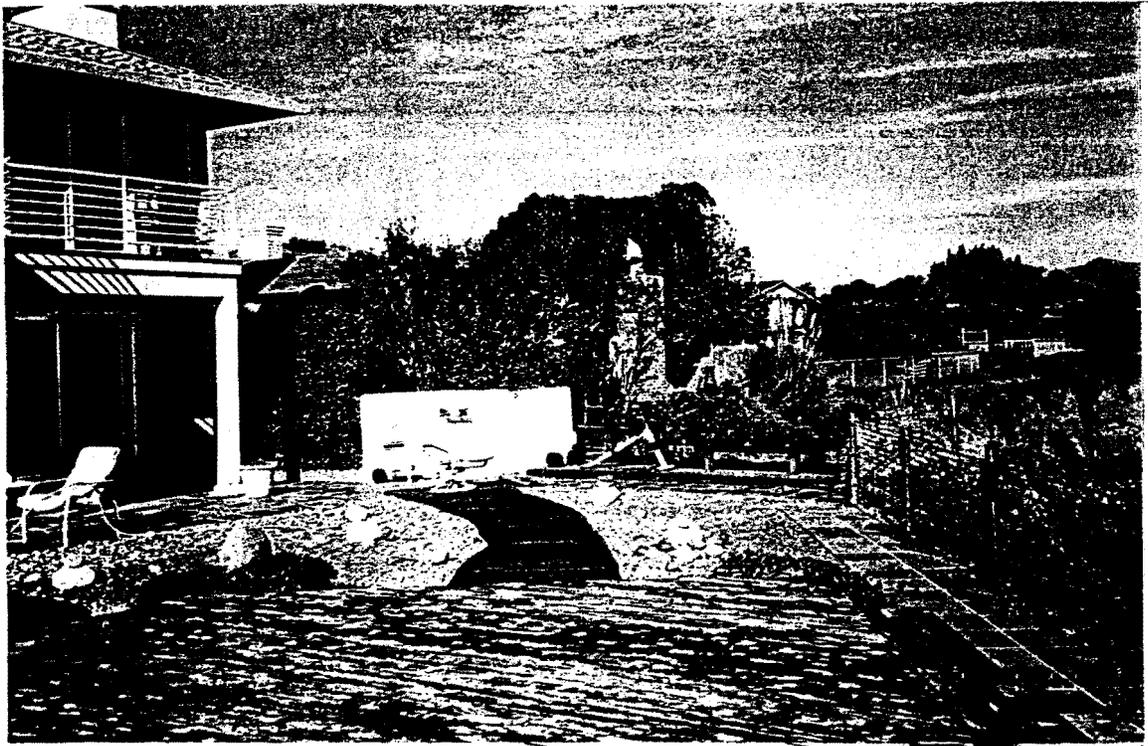
ROGERS E. JOHNSON & ASSOCIATES CONSULTING ENGINEERING GEOLOGISTS 1729 SEABRIGHT AVENUE • SANTA CRUZ, CA 95062 • 408/425-1288		
SCALE 1" = 10' H=V	APPROVED BY	DRAWN BY
DATE 10/93	Job No. C93033-70	AOA/aoa
GEOLOGIC CROSS SECTION		Revised 8-27-98
LANDS OF PORTER, 656 BAY VIEW DRIVE APTOS CA APN 043-161-08		DRAWING NUMBER PLATE 3



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**PREVIOUSLY ISSUED COUNTY PERMITS FOR UPPER BLUFF STABILIZATION
PROJECTS**

<u>Permit Number</u>	<u>Project Type</u>
00-0470	Retaining wall
98-0689	Sculpted/colored reinforced shotcrete wall
98-0705	Sculpted/colored reinforced shotcrete wall
98-0488	Retaining wall
97-0543	Retaining wall
97-0296	Retaining wall
95-0818	Retaining wall
95-0198	Retaining wall (gabion baskets)
95-0149	Repair and extend retaining wall
94-0380	Retaining wall
93-0325	Subsurface piers and grade beam retaining structure
93-0228	Retaining wall
92-0131	Retaining wall (gabion baskets)
90-0729Q	Retaining wall
90-1174Q	Retaining wall



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subsurface saturation and wave cut notching at the toe with subsequent over-steepening of the terrace deposits. The proposed project will control surface drainage and will help to reduce the effects of bluff saturation. This project will have little impact on the beach with regard to loss of beach and little impact on sand supply.



A significant threat, thereby necessitating a bluff top protection structure, has been determined to exist at this site. The owners and their consulting engineering geologists and geotechnical engineers have evaluated the site and have determined that within the next few storm events, the homes will be threatened by the retreat of the coastal bluff.

If the upper bluff terrace retreats to its natural angle of repose, the top of the bluff is expected to be within three feet of the residence. After which, continuing coastal erosion will cause the bluff's toe to erode, resulting in the further retreat of the terrace material. Continued bluff retreat will result in the undermining of the home's foundation unless intervention occurs. Bluff top erosion occurs episodically and rapidly during intense rainfall with the result that the terrace material could retreat to the home's foundations during a few intense storms. This is a real and significant threat to the home. This project will strengthen the upper bluff area, and is expected to protect the existing single-family dwelling from the bluff retreat for a significant length of time. Landscape planting by its self will not stabilize this bluff's instability nor will drainage control alone stabilize the bluff.

Other types of walls and terrace face treatments have been evaluated and the proposed project has been determined to be the least impacting alternative, which allows the continued occupancy of the home. It is also the least disruptive alternative in that it will not cause loss of bluff material, and does not result in the loss of structural integrity of the bluff in the short or long term. The alternative of no project would result ultimately in the placing of a protective structure during a later crisis, which could result in a less desirable project.

Project Nos. 00-41 and 00-113
January 23, 2002

Mr. Alistair Black
18164 Via Encantada
Monte Sereno, California, 95030

RECEIVED

Mr. Gene Banman
272 Delphi Circle
Los Altos, California, 94022-1250

FEB 6 8 2002

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

SUBJECT: Comments Addressing Geotechnical Coastal Commission Concerns
Coastal Bluff Stabilization
4420 and 4440 Opal Cliff Drive
Santa Cruz County, California
APN 033-151-23 and APN 033-151-08, respectively

Dear Mr. Black and Mr. Banman:

1. INTRODUCTION

- a. It is our understanding that the subject project consists of the stabilization of an unstable coastal bluff that support two existing single family residences located at 4420 and 4440 Opal Cliff Drive in Santa Cruz, Santa Cruz County, California. The rapid erosion of this coastal cliff creates high potential for a slope failure that would undermine the foundations of the existing residences.
- b. The proposed stabilization project consists of placing wire mesh on the face of the cliff and spraying the cliff face with a gunite that is like-colored to the bluff, to prevent further erosion of the cliff.

2. CONCERNS

Per our discussions with Mr. Joel Schwartz, it is our understanding that the Coastal Commission has raised three geotechnical issues regarding the proposed stabilization project. Mr. Schwartz has asked us to address the Coastal Commissions' three following concerns:

- a. Possible alternative projects that will stabilize the bluff.
- b. Degree of bluff instability - Bluff retreat mechanics amd threat to structures.
- c. Appropriate timing for installation of mechanical stabilization.

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2. CONCLUSIONS

Our respective response to each of the three Coastal Commission concerns is as follows:

- a. We feel that the proposed stabilization project that involves placing wire mesh and gunite on the cliff face is the most effective method of preventing further erosion from taking place. Other bluff stabilization methods, including vegetation of the slope, grading, drainage control, and/or securing temporary cover over the cliff face, will not halt the erosion of the cliff faces as effectively as mechanical stabilization. Therefore, it is our opinion that the proposed retaining project is the most appropriate and effective stabilization meethod for these two sites at this time.
- b. Tharp and Associates has performed a quantitative stability analysis on the bluff and determined that it is currently unstable. Inspection in the field furthers this determination. The failure potential for the bluff greatly increases with the episodic erosion that occurs against the face of the cliff. The rate of this erosion is such that one severe winter storm season has the potential to cause failure or retreat in the bluff great enough to put the existing residences at risk from geotechnical hazards, such as undermined foundations.
- c. * The appropriate time to install the proposed stabilization wall is as soon as possible. Constructing the proposed project now will allow for the most effective and highest quality of project. If the bluff is left to further erode, especially o the point of immediately threatening the existing residences, then consequent construction will become increasingly more difficult, if not impossible. Waiting to construct the proposed stabilization project will most likely lead to a project of poorer quality, less effectiveness, and one that will require elevated maintenance measures.

3. LIMITATIONS

- a. Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.
- b. The samples taken and tested, and the observations made, are considered to be representative of the site; however, soil and geologic conditions can vary significantly between sample locations.
- c. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Consultant and the Geologist, and revised recommendations be provided as required.

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- d. This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field.
- e. This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.
- f. The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they be due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge.
- g. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

It is a pleasure being associated with you on this project. If you have any questions or if we may be of further assistance please do not hesitate to contact our office.

Sincerely,

THARP & ASSOCIATES, INC.



Jennifer Fuller

Jennifer Fuller
Staff Geologist

Donald M. Tharp, PE
Principal Engineer
R.C.E. 46432
Registration Expires 3/31/03

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(page 27 of 49 pages)

subsurface saturation and wave cut notching at the toe with subsequent over-steepening of the terrace deposits. The proposed project will control surface drainage and will help to reduce the effects of bluff saturation. This project will have little impact on the beach with regard to loss of beach and little impact on sand supply.

A significant threat, thereby necessitating a bluff top protection structure, has been determined to exist at this site. The owners and their consulting engineering geologists and geotechnical engineers have evaluated the site and have determined that within the next few storm events, the homes will be threatened by the retreat of the coastal bluff.

If the upper bluff terrace retreats to its natural angle of repose, the top of the bluff is expected to be within three feet of the residence. After which, continuing coastal erosion will cause the bluff's toe to erode, resulting in the further retreat of the terrace material. Continued bluff retreat will result in the undermining of the home's foundation unless intervention occurs. Bluff top erosion occurs episodically and rapidly during intense rainfall with the result that the terrace material could retreat to the home's foundations during a few intense storms. This is a real and significant threat to the home. This project will strengthen the upper bluff area, and is expected to protect the existing single-family dwelling from the bluff retreat for a significant length of time. Landscape planting by itself will not stabilize this bluff's instability nor will drainage control alone stabilize the bluff.

* Other types of walls and terrace face treatments have been evaluated and the proposed project has been determined to be the least impacting alternative, which allows the continued occupancy of the home. It is also the least disruptive alternative in that it will not cause loss of bluff material, and does not result in the loss of structural integrity of the bluff in the short or long term. The alternative of no project would result ultimately in the placing of a protective structure during a later crisis, which could result in a less desirable project.

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EXHIBIT B

COASTAL DEVELOPMENT PERMIT FINDINGS:

1. THAT THE PROJECT IS A USE ALLOWED IN ONE OF THE BASIC ZONE DISTRICTS, OTHER THAN THE SPECIAL USE (SU) DISTRICT, LISTED IN SECTION 13.10.170(d) AS CONSISTENT WITH THE GENERAL PLAN AND LOCAL COASTAL PROGRAM LUP DESIGNATION.

The proposed project is an allowed use in the R-1-5 zone district and is consistent with the Urban Medium Density Residential Land Use designation of the General Plan and Local Coastal Program LUP. The proposed wall is accessory to the existing single-family dwelling and is required for the dwelling's continued occupancy. (See Development Permit Findings, incorporated herewith, and specifically Finding No. 1, which discusses the need for the wall.)

2. THAT THE PROJECT DOES NOT CONFLICT WITH ANY EXISTING EASEMENT OR DEVELOPMENT RESTRICTIONS SUCH AS PUBLIC ACCESS, UTILITY, OR OPEN SPACE EASEMENTS.

The subject property is not affected by any development restrictions that hinder development of the project. The subject property is not affected by any development restrictions that hinder development of the project. There are no public access, utility or open space easements, which will be affected by the development. No public access exists and none is possible from this property to the beach. The beach itself will not be affected by the construction. All construction activities will occur from the interior of the property on the bluff, no traffic will be blocked, and a barrier will be placed along the top of the bluff between the construction site and the beach to prevent material accidentally falling onto the beach. The applicant must obtain all approvals from the State Parks and the State Lands Commission as applicable prior to initiating any construction.

3. THAT THE PROJECT IS CONSISTENT WITH THE DESIGN CRITERIA AND SPECIAL USE STANDARDS AND CONDITIONS OF THIS CHAPTER PURSUANT TO SECTION 13.20.130 et seq.

The construction of the proposed improvements is consistent with the design criteria and special use standards and conditions of this chapter pursuant to Section 13.20.130 et seq., will be visually compatible, minimizes site disturbance, and will be landscaped so as to be compatible with surrounding vegetation. The project does not involve excessive grading, will not be visually intrusive, and will be visually compatible with the character of the surrounding lands. The design of the project is such that it will be subordinate to the natural geologic formation/sand and rock bluff character of the site, will maintain the natural bluff feature of the site, and all visual intrusion will be softened by gunite texturing, staining, and coloring, as well as the final landscaping of all disturbed areas.

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This property is not in a Coastal LUP Designated Special Area, therefore no special policies or development requirements applying to these areas apply to this project.

The coastal bluff is a Designated Coastal Special Scenic Area (Santa Cruz General Plan Section 5.10.2). Visually intrusive structures are not allowed pursuant to Section 5.10.7, which allows only those structures that are compatible with the pattern of existing development, use natural finishes, blend with the character of the area, and that integrate with the adjacent landforms.

Traditional gray shotcrete walls mar the appearance of the coastal bluff and therefore have had a negative impact on the views from the beach, ocean, and the coastal community. This potential visual impact has been recognized by the construction industry and alternative surface treatments have been developed. To reduce visual intrusion, both the facing will match the existing slope, and texture as well as mottled coloring will cause the wall to visually integrate with the existing visual environment.

The goal of integrating the wall with the community appearance is not to exactly match the existing geologic form but to simulate the color and texture of the formation so that the wall blends with the existing conditions. An attempt to match the exact geologic form can lead to a heavy imprint of the geologic structure that can actually cause a mismatch between the wall and the surrounding terrain. Appropriate coloring and staining can avoid the further problem of a uniform contrasting color that can make a well-textured gunite wall stand out from the surrounding colors. To avoid the problem of a uniform contrasting color the contractor must apply appropriate textures, coloring and stains that can produce a mottled terrace color and pattern that match both wet and dry bluff conditions. This has been effectively used by several contractors and can match the bluff under varying conditions. Also, the bluff around the wall will be landscaped.

Visual simulations of a shotcrete wall similar to the proposed wall and a steel beam-wood lagging wall, the most common feasible alternative to shotcrete, are shown in the Initial Study's Attachments 6 and 7. As can be seen, shotcrete walls treated to reduce visual intrusion are successful in reducing impacts. This was confirmed after the wall was complete and inspected by the County staff. The wood-lagging alternative is more visually intrusive, has a dissimilar overall appearance from the natural bluff, and is visible from great distance around the Monterey Bay.

The success of treated shotcrete walls has been confirmed in many circumstances. Attachment 8 shows a variety of treated walls. The walls have successfully matched similar rock appearance and have faded into the background better than wood lagging walls. Treated walls may be noticed as artificial at close range but they are less likely to be noticed as artificial and visually intrusive from a distance.

To confirm that the appropriate texture is applied, County Staff must view the site during the initial blowing of the gunite to assure that the texture matches the general texture of the formation. To assure that the color is appropriate, County Staff shall view test samples of the coloring relative to both with both wet and dry samples of the natural bluff material.

In summary given all the mitigations discussed above, the net result will be a wall treated such that will blend with the character of the area and integrate with the landforms (GP Section 5.10.7)., and the wall will remove an existing damaged wall to restore a scenic area (GP Section 5.10.9).

- 4. THAT THE PROJECT CONFORMS WITH THE PUBLIC ACCESS, RECREATION, AND VISITOR-SERVING POLICIES, STANDARDS AND MAPS OF THE GENERAL PLAN AND LOCAL COASTAL PROGRAM LAND USE PLAN, SPECIFICALLY CHAPTER 2: FIGURE 2.5 AND CHAPTER 7, AND, AS TO ANY DEVELOPMENT BETWEEN AND NEAREST PUBLIC ROAD AND THE SEA OR THE SHORELINE OF ANY BODY OF WATER LOCATED WITHIN THE COASTAL ZONE, SUCH DEVELOPMENT IS IN CONFORMITY WITH THE PUBLIC ACCESS AND PUBLIC RECREATION POLICIES OF CHAPTER 3 OF THE COASTAL ACT COMMENCING WITH SECTION 30200.

The project area is adjacent to 4420 and 4440 Opal Cliff Drive and will not affect public access to the beach below, nor does the project adversely affect recreational use of the adjacent Beach/Parkland.

The project alignment is not identified as a priority acquisition site in the County Local Coastal Program.

- 5. THAT THE PROPOSED DEVELOPMENT IS IN CONFORMITY WITH THE CERTIFIED LOCAL COASTAL PROGRAM.

The proposed placement of the improvements is in conformity with the County's certified Local Coastal Program in that the bluff wall will be constructed to preserve and protect the existing land uses. The wall will minimize site disturbance, be visually non-intrusive, and will conform to the natural landscape of the area.

In accordance with Chapter 13.11 of the County Code, the applicant shall incorporate into the final plans, a visual treatment plan is that conforms to the natural conditions at the site. This plan will be reviewed and approved by Environmental Planning staff prior to issuance of the Building permit.

The Coastal resources of natural shoreline processes, such as adequate sand supplies and beach dynamics on and off-site, will not be adversely affected by this project. Consequently the current erosion pattern will continue for some time and will be stopped only when necessary when the bluff has significantly eroded. The primary source of terrace erosion and toppling is urbanization including uncontrolled surface drainage and

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subsurface saturation and wave cut notching at the toe with subsequent over-steepening of the terrace deposits. The proposed project will control surface drainage and will help to reduce the effects of bluff saturation. This project will have little impact on the beach with regard to loss of beach and little impact on sand supply.

A significant threat, thereby necessitating a bluff top protection structure, has been determined to exist at this site. The owners and their consulting engineering geologists and geotechnical engineers have evaluated the site and have determined that within the next few storm events, the homes will be threatened by the retreat of the coastal bluff.

If the upper bluff terrace retreats to its natural angle of repose, the top of the bluff is expected to be within three feet of the residence. After which, continuing coastal erosion will cause the bluff's toe to erode, resulting in the further retreat of the terrace material. Continued bluff retreat will result in the undermining of the home's foundation unless intervention occurs. Bluff top erosion occurs episodically and rapidly during intense rainfall with the result that the terrace material could retreat to the home's foundations during a few intense storms. This is a real and significant threat to the home. This project will strengthen the upper bluff area, and is expected to protect the existing single-family dwelling from the bluff retreat for a significant length of time. Landscape planting by its self will not stabilize this bluff's instability nor will drainage control alone stabilize the bluff.

Other types of walls and terrace face treatments have been evaluated and the proposed project has been determined to be the least impacting alternative, which allows the continued occupancy of the home. It is also the least disruptive alternative in that it will not cause loss of bluff material, and does not result in the loss of structural integrity of the bluff in the short or long term. The alternative of no project would result ultimately in the placing of a protective structure during a later crisis, which could result in a less desirable project.

ReCAP report

southern portion of Monterey County's coastline consists of mostly resistant granite rock with interlying sandy pocket beaches. Generally in the Monterey Bay pilot area, with the exception of few specific localities, the coastline is eroding, losing large quantities of sand naturally to the offshore submarine canyons and some to the inland dune systems.

While the ReCAP pilot area offers a variety of shoreline types, many smaller portions of the shoreline have common features. Segments of the bay's shoreline may be broken down into "regions" while considering such factors as geology, wave conditions, and natural sand budget, to name a few. At a large scale, the shoreline can be divided into littoral cells which share common characteristics of sediment sources and transport. On a smaller scale, there are stretches of coast bounded by lagoons or headlands which have a similar geology and wave climate. These common factors should affect the types of armoring which will be most effective for a portion of shoreline; however, in many portions of the ReCAP area, the strategies used to provide shoreline protection differ greatly from one property to the next, in spite of the apparent physical similarities between the sites.

Shoreline protective measures in portions of the ReCAP pilot area generally lack any regional scheme for dealing with erosion. For example, in many coastal permits for projects within Santa Cruz County, geologic analyses often consider regional wave conditions and/or tectonics, but rarely do these reports consider sand budgets or regional sand supplies. Santa Cruz Harbor was constructed before the Coastal Act came into effect and thus it never received review through the California Coastal Management Program (CCMP); however, this project illustrates both the regional effects which can accompany a single project and the importance of a regional overview of projects which may modify shoreline processes. Since the harbor has been constructed, an expansive beach has developed upcoast of the jetties where there once had been significant erosion; downcoast areas as far as Capitola have experienced profound decreases in sand supplies and increased shoreline retreat. Since construction of the harbor, there have been at least six regional studies investigating ways to address these downcoast effects.[12]

The Live Oak area of Santa Cruz County illustrates a second situation which can arise when individual projects are undertaken without a regional overview to guide shoreline activity. Much of the shoreline has been armored; numerous protective efforts exist in close proximity to each other and review of permit activity shows repeated activity at some sites. Figure 3-6 shows a mosaic of permit activity for one small section of coast within Live Oak along Opal Cliffs. This plethora of armoring and permit activity makes comprehensive review difficult -- work has been done through the emergency process, through regular Commission issued permits and through local permits. Within this 3,000 foot long section of shoreline, properties have been protected with gunite, vertical walls, rip-rap and concrete cylinders. Some properties were issued two or three permits for different armoring activities, properties received permits for one type of protection and different armoring was actually constructed, new properties have been added to existing permits through the amendment process, and several properties received local permits without any conditions for access.

Figure 3-6: Opal Cliffs Up Close and Personal. [Click here to view Figure 3-6.](#)

A regional overview of this segment of coast could have identified the major factors contributing to erosion and identified an effective strategy for the "region" to address natural shoreline processes. Such an overview might identify recommended treatments for various areas, such as where revetments may be most effective, areas where vertical walls may be most effective, areas where surface treatment of the bluff (gunite, rock bolting, etc.) may be most effective, and finally, areas where beach nourishment or sand management may be most effective. Applicants could use this general direction to design a site-specific solution. As a second type of regional overview, some local governments have prepared "standard" designs for shoreline protection which can be used in specified areas.[13] Applicants can use these designs in the specified areas or identify different efforts for protection which better suit the site-specific conditions.

The existing situation in Live Oak, however, presents a piecemeal confusion of protective measures. From an engineering perspective, the weakest points in shoreline armoring are normally the ends and the junctions between different styles of protection (rock adjacent to concrete to gunite, for example). Such ends and junctions occur frequently in the Live Oak area, and while no engineering evaluation has been prepared, the potential for weaknesses in the protection would be greatly reduced by a regional approach to controlling erosion in the area. In addition, the general look and aesthetic of the area would change if adjoining properties had shoreline protection efforts with a similar visual effect.

A final support for a regional overview of shoreline activity comes from an earlier analysis of coastal hazards by Gary Griggs, James Pepper and Martha Jordan, in which they find,

Since these decisions are usually made on a project-by-project basis, they tend to be evaluated independently, without any systematic consideration of the aggregate or cumulative effects either within or among jurisdictions. Within such a decision-making context any given project can be viewed as small and thus easy to rationalize in terms of approval. Cairns (1986) calls this endemic failure to take into account the aggregate effects of environmental management "the tyranny of small decisions".[14]

A regional overview for individual shoreline activity would provide coastal planners and analysts a perspective on how an individual project would fit into the overall cumulative approach to shoreline management.

Without a regional overview, the piecemeal approach to shoreline protective devices will continue to impact shoreline processes

and resources. The attempt to minimize coastal hazards with various devices (seawalls and numerous rip-rap structures), combined with naturally occurring coastal processes, requires a closer examination of their cumulative impacts. Piecemeal solutions to coastal erosion problems are not generally effective and have the potential to create further problems. Often overlooked are the regional effects of such shoreline protection. Where a regional coastal erosion problem exists, a regional solution should be developed and implemented.

The ReCAP pilot area has had many years of experience with a variety of armoring devices. It should be possible to study the on-site impacts, possible downcoast impacts and maintenance records for these structures and determine which types are most effective in different areas. From such information, local governments would be able to make sound decisions about the types of armoring which would be allowed in the future.

RECOMMENDATIONS

Program Improvements

- Develop procedural guidance for defining and delineating all areas of high coastal hazards in the pilot area coastline; these areas should then further be broken down into smaller regions that share the same geologic and ocean processes. These "regional" or "sub-regional" breakdowns of the pilot area coastline should consider, but not be limited to, such factors as geology, wave conditions, and sand budget situation. Regions would not necessarily be bounded by city or county jurisdictions, but would follow the bounds established by the physical characteristics of the coast.
- Prepare procedural guidance for the development of regional shoreline erosion and bluff retreat management plans suitable for implementation by ReCAP area LCP jurisdictions that are broken down by the defined geologic sub-regions taking into account the specific geologic and geographic constraints of the subject area and incorporating concerns and regulations governing protective devices along the shoreline as well as the sand budget situation within the specified "region". The framework for this guidance would include, but not be limited to:
 - Standard engineering plans defining the specific types of armoring which would be acceptable for specific areas, and where appropriate, identification of the types of armoring which should never be considered for certain areas.
 - Standard alternatives feasibility analysis worksheet that would be a required element of all hazard response projects and that would require applicants to go through a series of steps to assure that hard protective devices were only created as a last resort. The analysis may require, but not be limited to, the use of technical evaluations of the site (geotechnical reports, engineering geology reports, etc.), an examination of all other options (removal, relocation, "do nothing", sand replenishment, etc.), and a conclusion that a shoreline protective device would be the "best option" (most protective of the public trust, best long term solution, etc.) for the subject site.
 - Standard conditions and monitoring requirements that may include discussion of mechanisms to ensure shoreline protection effectiveness and public safety with provisions for the removal of ineffective or hazardous protective structures as well as programs to address beach replenishment and sand supply.

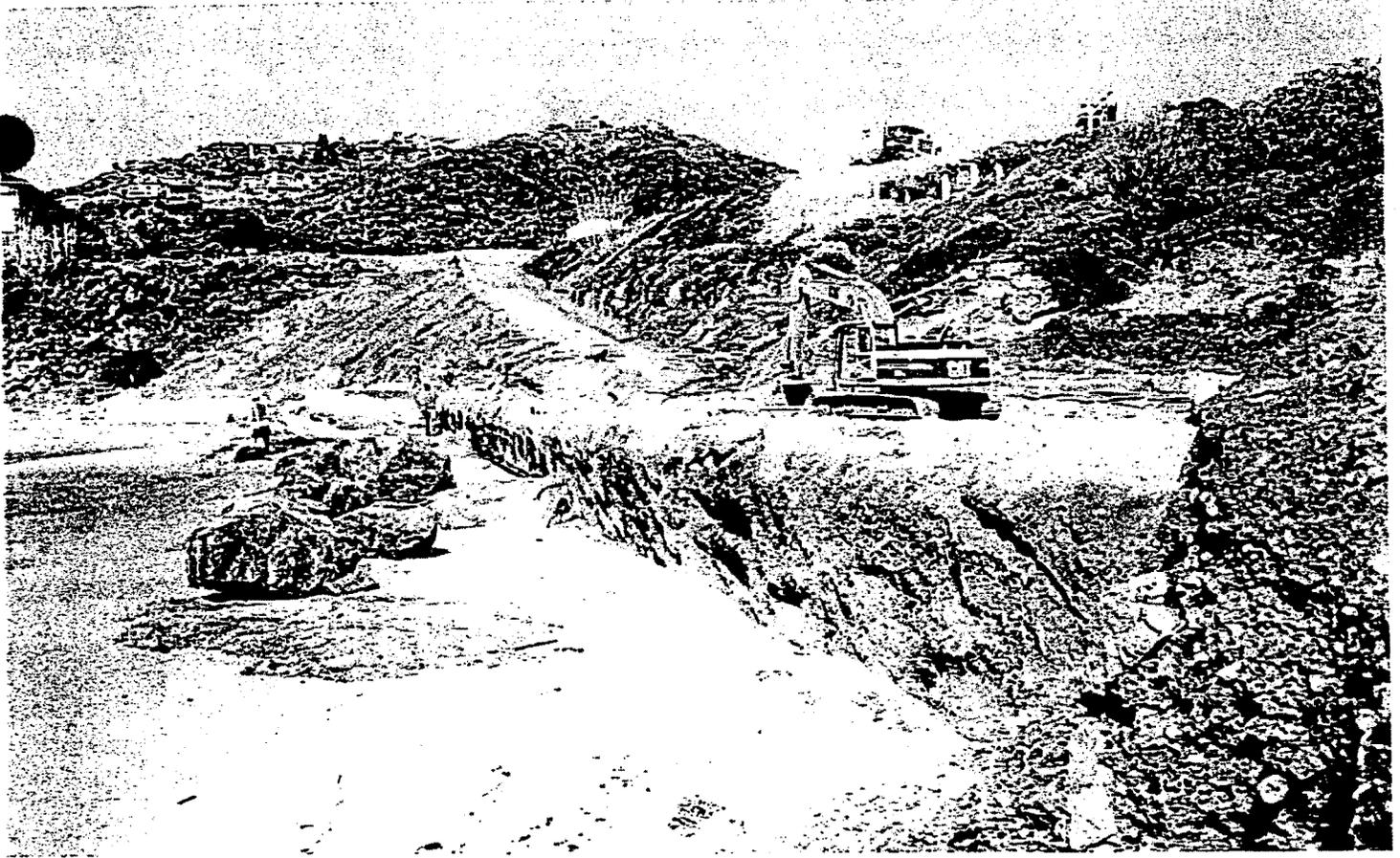
Opportunities In the Longer Term

- Provide guidance for the development of regional programs for managing and expanding shoreline sand resources through such mechanisms as aggressive beach nourishment, especially for areas where beach sand loss exceeds supply.
- Provide guidance for ReCAP area LCP jurisdictions to address major watershed projects -- both in and outside the coastal zone -- for impacts to shoreline sand supply issues, particularly in areas with sediment deficits.
- Pursue expanding Section 30235 of the Coastal Act governing protective devices to require that protective efforts be compatible with both regional conditions and with the protective efforts used for properties in the same shoreline region.

HAZARDS PROBLEM TWO

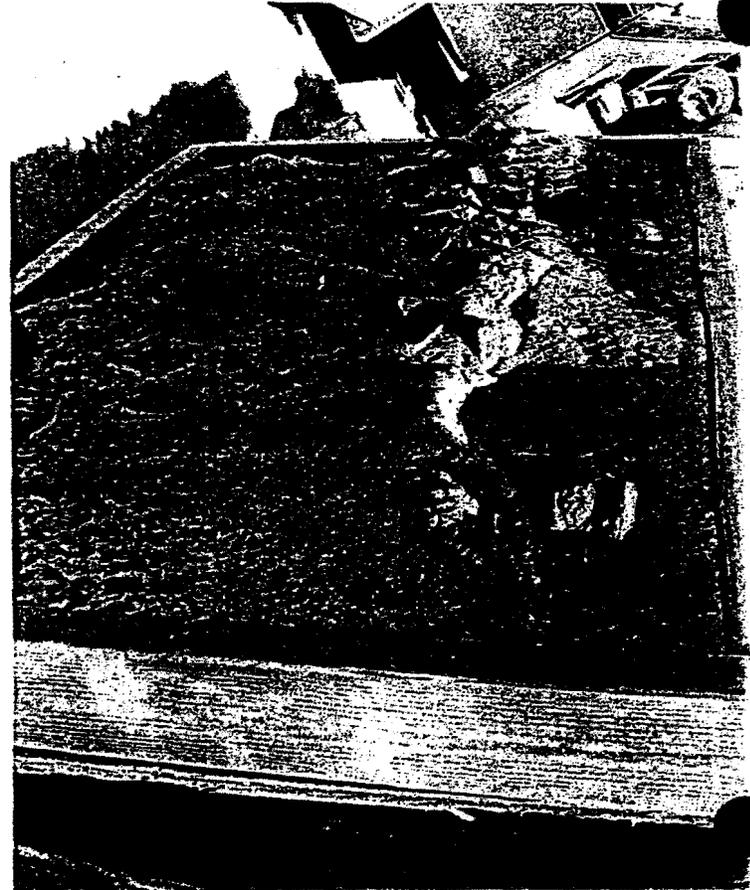
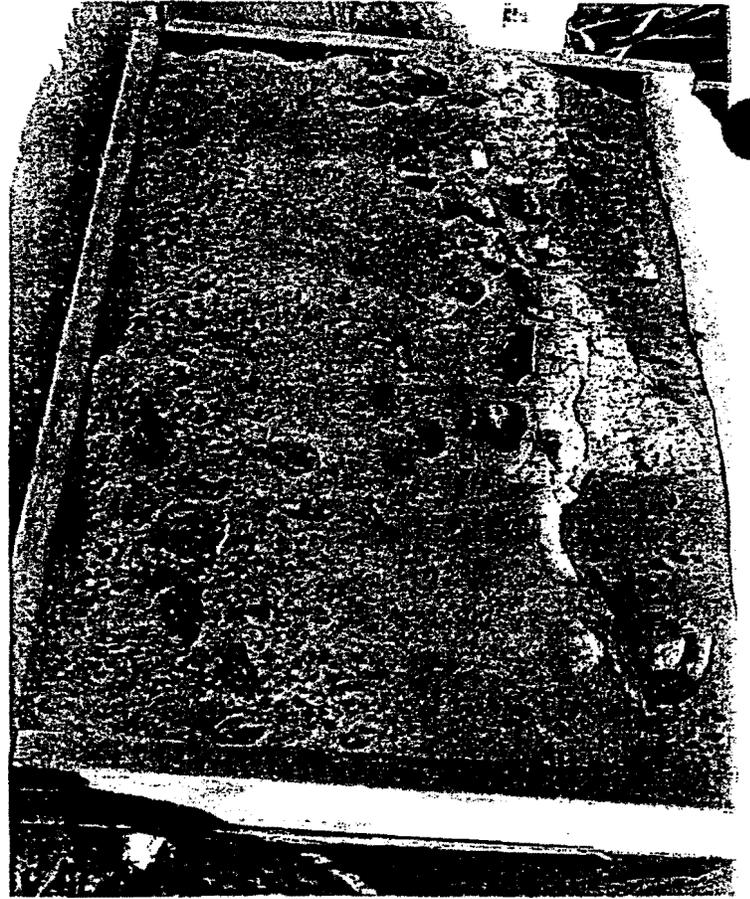
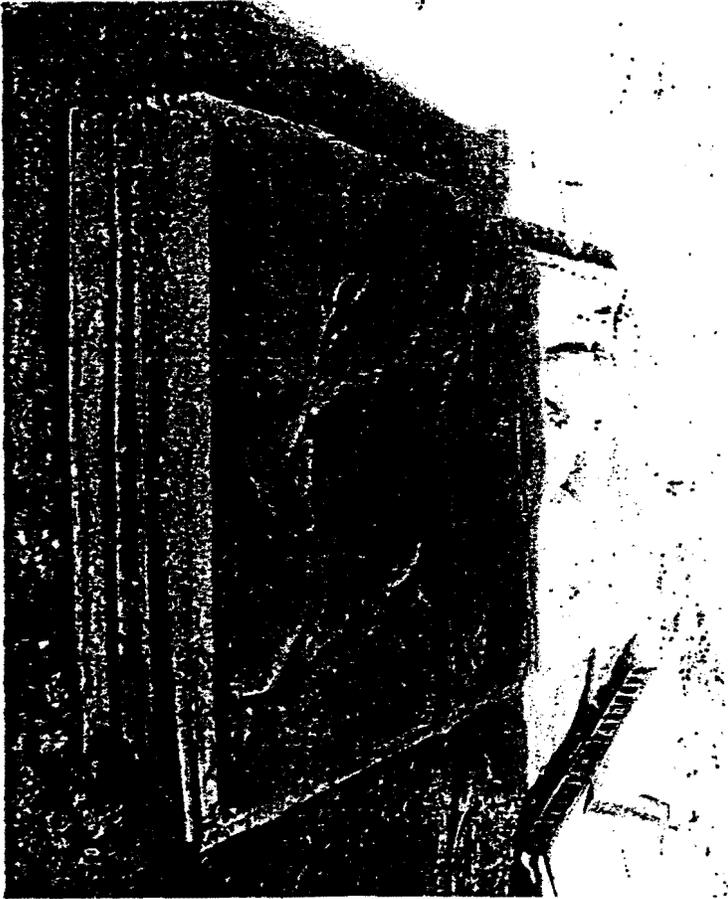
Impacts To Access From Armoring Are Often Overlooked

Incremental impacts to beach areas, access and the general character of the shoreline have occurred from approval of permits for shoreline armoring. Over the ReCAP time period, there have been measurable losses in beach access through increases in the



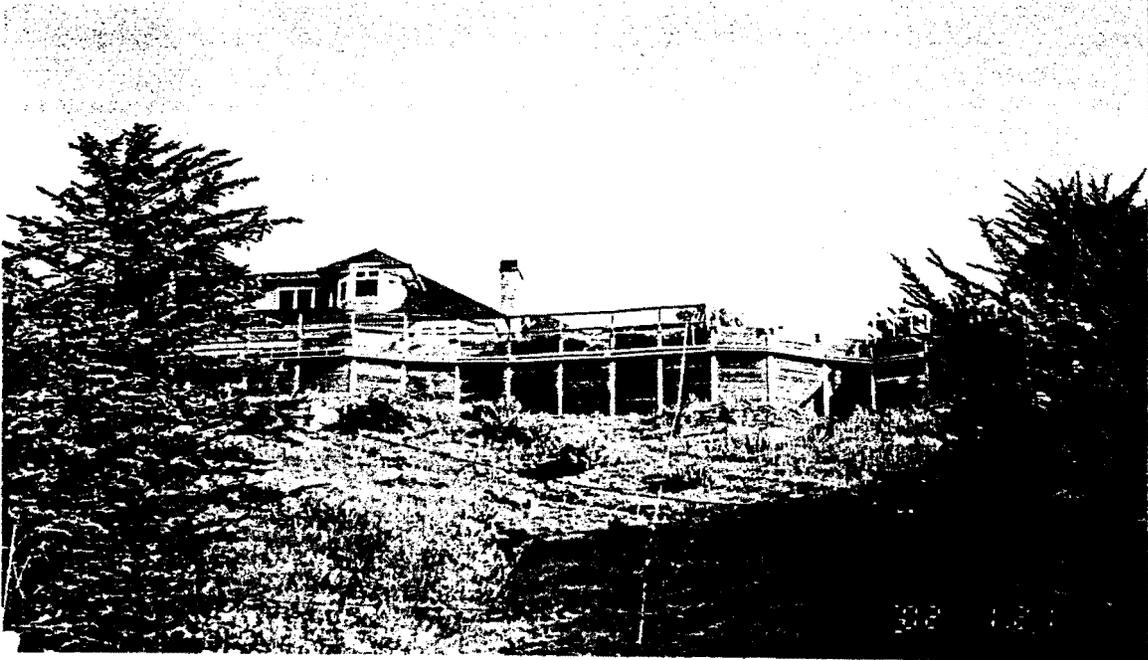
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Attachment 11, p.1 of
Completed project in
California.

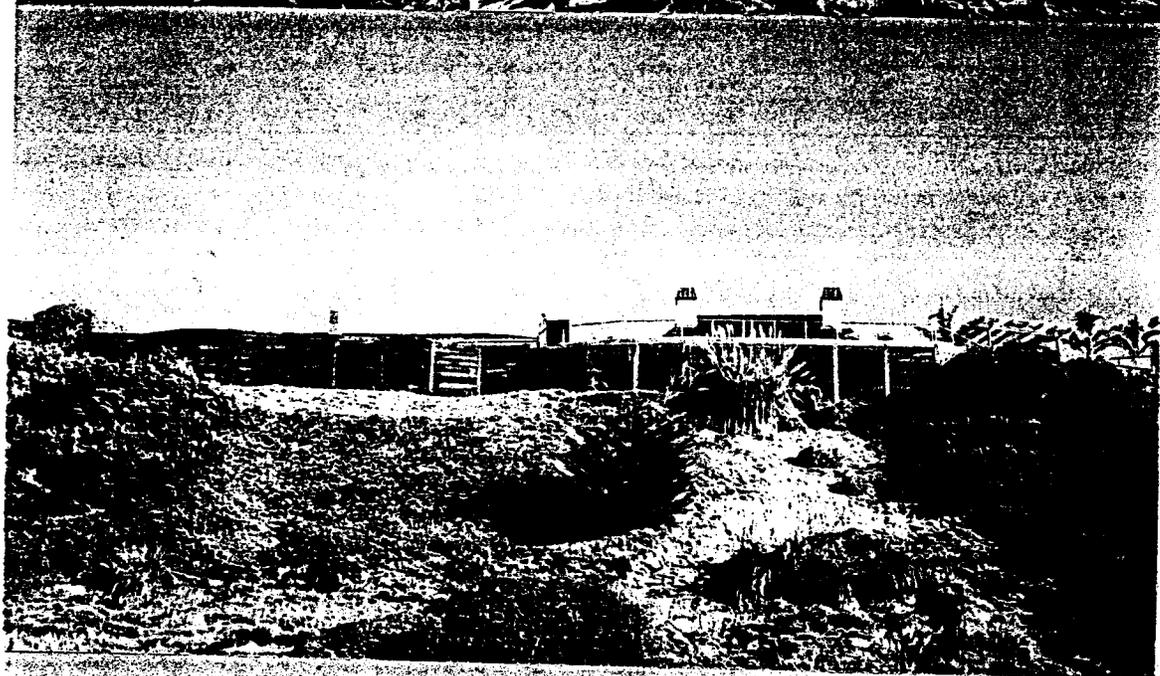


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Attachment 11, p.2of2
Examples of project
treatments.



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DEVELOPMENT PERMIT FINDINGS:

1. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL NOT BE DETRIMENTAL TO THE HEALTH, SAFETY, OR WELFARE OF PERSONS RESIDING OR WORKING IN THE NEIGHBORHOOD OR THE GENERAL PUBLIC, OR BE MATERIALLY INJURIOUS TO PROPERTIES OR IMPROVEMENTS IN THE VICINITY.

The location of the proposed project will not be detrimental to the health, safety or welfare of persons residing or working in the neighborhood or the general public, in that all public areas will be protected from any impacts of the construction by means of a barrier being erected between the construction site and the bluff so that there will be no deleterious impacts to the beach below the site. No traffic will be blocked as all construction vehicles and equipment will be entirely accommodated on the site. Given the site's conditions, the proposed bluff wall is as close to the threatened structure as possible.

A staging and construction plan will be required to ensure that the health, safety, and welfare of all persons in the vicinity will be preserved and that the project is not materially injurious to other properties or improvements in the vicinity, such as the adjacent public beach, and that all coastal resources are preserved and protected as required by this permit.

The project will also not be materially injurious to properties or improvements in the vicinity in that it will protect the existing home. Both the engineering geologist and Geotechnical Engineer have evaluated the project for the potential of adverse off-site impacts. They have determined that the proposed wall will not adversely affect adjacent property. This property is more threatened by bluff erosion than the other properties in the vicinity in that it is located on a point of land. Regional conditions are described in the geologic and geotechnical reports.

These homes conventional foundations are not designed to restrain coastal bluff erosion and during the original home construction no attempt was made to reduce the effect of coastal erosion. Since the original construction was completed, several episodes of bluff erosion/collapse have occurred and the bluff has retreated approximately 25 feet (maximum.) Continued bluff-retreat will result in the undermining of the foundation unless intervention occurs

2. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL BE CONSISTENT WITH ALL PERTINENT COUNTY ORDINANCES AND THE PURPOSE OF THE ZONE DISTRICT IN WHICH THE SITE IS LOCATED.

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The proposed bluff textured gunite facing is an accessory structure that is related to maintaining the existing home. These walls will be constructed and maintained in a manner consistent with all pertinent County Ordinances and the purpose of the zoned residential uses. . The walls will be constructed and maintained in a manner consistent with all pertinent County Ordinances, as conditioned by this permit. The project is consistent with the purposes of the R-1-5 and PR zone district in that it will protect existing single-family residential development.

3. THAT THE PROPOSED USE IS CONSISTENT WITH ALL ELEMENTS OF THE COUNTY GENERAL PLAN AND WITH ANY SPECIFIC PLAN, WHICH HAS BEEN ADOPTED FOR THE AREA.

The project is consistent with all elements of the General Plan. (See Coastal Development Findings for discussion concerning the project's compliance with the Coastal Plan, and particularly finding No. 3 concerning the project's compliance with visual resources policies and the project's compatibility with the community.) No Specific Plan has been adopted for this area.

4. THAT THE PROPOSED USE WILL NOT OVERLOAD UTILITIES AND WILL NOT GENERATE MORE THAN THE ACCEPTABLE LEVEL OF TRAFFIC ON THE STREETS IN THE VICINITY.

The accessory use to an existing single-family residential use will not overload utilities and will not generate any traffic on the streets in the project vicinity. The project in the future will not increase the use of utilities nor increase the traffic in the area in that no increase in population density will be created.

5. THAT THE PROPOSED PROJECT WILL COMPLEMENT AND HARMONIZE WITH THE EXISTING AND PROPOSED LAND USES IN THE VICINITY AND WILL BE COMPATIBLE WITH THE PHYSICAL DESIGN ASPECTS, LAND USE INTENSITIES, AND DWELLING UNIT DENSITIES OF THE NEIGHBORHOOD.

The proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood. As conditioned, the proposed project will have a less than significant visual impact on the surrounding neighborhood. To insure that the visual impacts are minimized, the wall will be textured, colored and stained such that it harmonizes with the surrounding community's appearance, specifically the appearance of the bluff. (See Coastal Development Permit Findings for discussion concerning the project's compliance with the Coastal Plan, and particularly finding No. 3 concerning the project's compliance with visual resources policies and the project's compatibility with the community.) The project will not increase land use intensities or residential densities in the vicinity, as it is an accessory use to an existing single-family dwelling.

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6. THE PROPOSED DEVELOPMENT PROJECT IS CONSISTENT WITH THE DESIGN STANDARDS AND GUIDELINES (SECTIONS 13.11.070 THROUGH 13.11.076), AND ANY OTHER APPLICABLE REQUIREMENTS OF THIS CHAPTER.

The proposed development has no impact on design standards. The portion of the project that is above grade is consistent with the Design Standards and Guidelines of the County Code in that the walls are designed to fit the existing slope contours, the work is designed to minimize removal of existing vegetation, and the proposed landscaping will enhance the natural site amenities.

Programs

- a. Implement a program to document the public and private costs of landslides, to identify existing landslides, and revise County maps as additional information becomes available. Require property owners and public agencies to control landslide conditions which threaten structures or roads. (Responsibility: Planning Department)
- b. Maintain and periodically update public information brochures concerning landslide hazards and guidelines for hillside development as new information becomes available. (Responsibility: Planning Department)

COASTAL BLUFFS AND BEACHES

Policies

6.2.10 Site Development to Minimize Hazards

(LCP) Require all developments to be sited and designed to avoid or minimize hazards as determined by the geologic hazards assessment or geologic and engineering investigations. (Revised by Res. 81-99)

6.2.11 Geologic Hazards Assessment in Coastal Hazard Areas

(LCP) Require a geologic hazards assessment or full geologic report for all development activities within coastal hazard areas, including all development activity within 100-feet of a coastal bluff. Other technical reports may be required if significant potential hazards are identified by the hazards assessment. (Revised by Res. 81-99)

* **6.2.12 Setbacks from Coastal Bluffs**

(LCP) All development activities, including those which are cantilevered, and non habitable structures for which a building permit is required, shall be set back a minimum of 25 feet from the top edge of the bluff. A setback greater than 25 feet may be required based on conditions on and adjoining the site. The setback shall be sufficient to provide a stable building site over the 100-year lifetime of the structure, as determined through geologic and/or soil engineering reports. The determination of the minimum 100 year setback shall be based on the existing site conditions and shall not take into consideration the effect of any proposed shoreline or coastal bluff protection measures. (Revised by Res. 81-99)

6.2.13 Exception for Foundation Replacement and/or Upgrade

(LCP) Foundation replacement and/or foundation upgrades that meet the definition of development activity shall meet the 25-foot minimum and 100-year stability setback requirements. An exception to those requirements may be granted for existing structures that are located partly or wholly within the setback if the Planning Director determines that:

- 1) the area of the structure that is within the setback does not exceed 25% of the area of the structure, OR
 - 2) the structure cannot be relocated to meet the setback due to inadequate parcel size.
- (Revised by Res. 81-99)

No approval shall be given for shoreline protective structures that do not include permanent monitoring and maintenance programs. Such programs shall include a report to the County every five years or less, as determined by a qualified professional, after construction of the structure, detailing the condition of the structure and listing any recommended maintenance work. Maintenance programs shall be recorded and shall allow for County removal or repair of a shoreline protective structure, at the owner's expense, if its condition creates a public nuisance or if necessary to protect the public health and safety. *(Revised by Res. 81-99)*

* **6.2.17 Prohibit New Building Sites in Coastal Hazard Areas**

(LCP) Do not allow the creation of new building sites, lots, or parcels in areas subject to coastal hazards, or in the area necessary to ensure a stable building site for the minimum 100-year lifetime, or where development would require the construction of public facilities or utility transmission lines within coastal hazard areas or in the area necessary to ensure a stable building site for the minimum 100-year lifetime.

6.2.18 Public Services in Coastal Hazard Areas

(LCP) Prohibit utility facilities and service transmission systems in coastal hazard areas unless they are necessary to serve existing residences. *(Revised by Res. 81-99)*

6.2.18.1 Density Calculations

(LCP) Exclude areas subject to coastal inundation, as defined by geologic hazard assessment or full geologic report, from use for density calculations. *(Added by Res. 81-99)*

6.2.19 Drainage and Landscape Plans

(LCP) Require drainage and landscape plans recognizing potential hazards on and off site to be approved by the County Geologist prior to the approval of development in the coastal hazard areas. Require that approved drainage and landscape development not contribute to offsite impacts and that the defined storm drain system or Best Management Practices be utilized where feasible. The applicant shall be responsible for the costs of repairing and/or restoring any off-site impacts.

6.2.20 Reconstruction of Damaged Structures on Coastal Bluffs

(LCP) Permit reconstruction of structures on or at the top of a coastal bluff which are damaged as a result of coastal hazards, including slope instability and seismically induced landslides, or are damaged by non-coastal related hazards (fire, etc.), and where the loss is less than 50 percent of the value, in accordance with the recommendations of the hazards assessment. Encourage relocation to a new footprint provided that the new location is landward of the previous site at the best possible site not affecting resources (e.g. the most landward location, or landward of the area necessary to ensure a stable building site for the minimum 100-year lifetime, or not necessitating a future shoreline protective structure).

When structures located on or at the top of a coastal bluff are damaged as a result of coastal hazards, including slope instability and seismically induced landslides, and where the loss is greater than 50 percent of the value, permit reconstruction if all applicable regulations can be met, including minimum setbacks. If the minimum setback cannot be met, allow only in-kind reconstruction, and only if the hazard can be mitigated to provide stability over a 100 year period.

For structures damaged by other than coastal hazards, where the loss is greater than 50% of the value, allow in-kind reconstruction, subject to all regulations except for the minimum setback. Allow other than in-kind reconstruction only if the minimum setback is met.

located in an existing cluster of buildings, colors and materials shall repeat or harmonize with those in the cluster.

4. Large Agricultural Structures. The visual impact of large agricultural structures shall be minimized by:

- (i) Locating the structure within or near an existing group of buildings.
- (ii) Using materials and colors which blend with the building cluster or the natural vegetative cover of the site (except for greenhouses).
- (iii) Using landscaping to screen or soften the appearance of the structure.

5. Restoration. Feasible elimination or mitigation of unsightly, visually disruptive or degrading elements such as junk heaps, unnatural obstructions, grading scars, or structures incompatible with the area shall be included in site development. The requirement for restoration of visually blighted areas shall be in scale with the size of the proposed project.

6. Signs. Signs shall minimize disruption of the scenic qualities of the viewshed.

- (i) Materials, scale, location and orientation of signs shall harmonize with surrounding elements.
- (ii) Directly lighted, brightly colored, rotating, reflective, blinking, flashing or moving signs are prohibited.
- (iii) Illumination of signs shall be permitted only for state and county directional and informational signs, except in designated commercial and visitor serving zone districts.
- (iv) In the Highway 1 viewshed, except within the Davenport commercial area, only CALTRANS standard signs and public parks, or parking lot identification signs, shall be permitted to be visible from the highway. These signs shall be of natural unobtrusive materials and colors.

* (d) Beach Viewsheds. The following Design Criteria shall apply to all projects located on blufftops and visible from beaches.

* ① Blufftop Development. Blufftop development and landscaping (e.g., decks, patios, structures, trees, shrubs, etc.) in rural areas shall be set back from the bluff edge a sufficient distance to be out of sight from the shoreline, or if infeasible, not visually intrusive. In urban areas of the viewshed, site development shall conform to (c) 2 and 3 above.

2. Beaches. The scenic integrity of open beaches shall be maintained:

- (i) No new permanent structures on open beaches shall be allowed, except where permitted pursuant to Chapter 16.10 (Geologic Hazards) or Chapter 16.20 (Grading Regulations).
- (ii) The design of permitted structures shall minimize visual intrusion, and shall incorporate materials and finishes which harmonize with the character of the area. Natural materials are preferred. (Ord. 3435, 8/23/83; 3487, 12/20/83)

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geologic hazards shall be required, as a condition of development approval and building permit approval, to record a Declaration of Geologic Hazards and the County Recorder. The Declaration shall include a description of the hazards on the parcel, and the level of geologic and/or geotechnical investigation conducted.

(e) Slope Stability.

1. Location: All development activities shall be located away from potentially unstable areas as identified through the geologic hazards assessment, full geologic report, soils report or other environmental or technical assessment.

2. Creation of New Parcels: Allow the creation of new parcels in areas with potential slope instability as identified through a geologic hazards assessment, full geologic report, soils report or other environmental or technical assessment only under the following circumstances:

(i) New building sites, roadways, and driveways shall not be permitted on or across slopes exceeding thirty (30) percent grade.

(ii) A full geologic report and any other appropriate technical report shall demonstrate that each proposed parcel contains at least one building site and access which are not subject to significant slope instability hazards, and that public utilities and facilities such as sewer, gas, electrical and water systems can be located and constructed to minimize landslide damage and not cause a health hazard.

(iii) New building sites shall not be permitted which would require the construction of engineered protective structures such as retaining walls, diversion walls, debris walls or slough walls designed to mitigate potential slope instability problems such as debris flows, slumps or other types of landslides.

3. Drainage: Drainage plans designed to direct runoff away from unstable areas (as identified from the geologic hazards assessment or other technical report) shall be required. Such plans shall be reviewed and approved by the County Geologist.

4. Leach Fields: Septic leach fields shall not be permitted in areas subject to landsliding as identified through the geologic hazards assessment, environmental assessment, or full geologic report.

5. Road Reconstruction: Where washouts or landslides have occurred on public or private roads, road reconstruction shall meet the conditions of appropriate geologic, soils and/or engineering reports and shall have adequate engineering supervision.

6. Notice of Hazards: The developer and/or subdivider of a parcel or parcels in an area of geologic hazards shall be required to record a Declaration of Geologic Hazards with the County Recorder. The Declaration shall include a description of the hazards on the parcel, and the level of geologic and/or geotechnical investigation conducted.

7. Other Conditions: Other permit conditions including but not limited to project redesign, building site elimination and the development of building and septic system envelopes, building setbacks and foundation and drainage requirements shall be required as deemed necessary by the Planning Director.

(f) Floodplains.

1. Critical and Public Facilities: Critical facilities and nonessential public structures and additions shall be located outside of the one hundred year floodplain unless such facilities are necessary to serve existing uses, there is no other feasible location and construction of these structures will not increase hazards to life on property within or adjacent to the floodplain.

2. Creation of New Parcels: Allow the creation of new parcels including those created by minor land division or subdivision in the one hundred year floodplain only under the following circumstances:

(i) A full hydrologic report and any other appropriate technical report must demonstrate that each proposed parcel contains at least one building site, including a septic system and leach field site, which is not subject to flood hazard, and that public utilities and facilities such as sewer, gas, electrical and water systems can be located and constructed to minimize flood damage and not cause a health hazard.

(ii) A declaration indicating the limits and elevations of the one hundred year floodplain certified by a registered professional engineer or surveyor must be recorded with the County Recorder.

in 16.10.025, and within some areas not mapped as part of the Flood Insurance Study, are areas designated as floodways (see also 16.10.040 2d). The floodway is an extremely hazardous area due to the quantity and velocity of flood waters, the amount of debris which may be transported, and the high potential for erosion during periods of large stream flows. In the floodway the following provisions apply:

1. **Development and Building Within Floodway Prohibited:** All development activity, except for the reconstruction, repair, alteration or improvement of an existing structure, is prohibited within the floodway unless exempted by State or Federal laws. Any encroachment which would cause any increase in the base flood level is prohibited.

2. **Sites Where Floodway Not Established.** Where the Flood Insurance Study or other technical report has identified a flood hazard area but has not designated a floodway, the applicant must demonstrate, through hydrologic analysis, that the project will not adversely affect the carrying capacity of the area. For the purposes of this Chapter, "adversely affects" means that the cumulative effect of the proposed development, when combined with all other existing and anticipated development in the watershed, will increase the water surface elevation of the base flood more than one foot at any point. The hydrologic analysis must identify the boundaries of the floodway, and the project must comply with the provisions of Section (g)1, above.

3. **Setback from Floodway:** Where neither a Base Flood Elevation nor a floodway has been identified by the Flood Insurance Study or by a site specific hydrologic study, a minimum setback of 20 feet from the top edge of the banks of a drainage course shall be maintained, and all activity that takes up flood storage area within this setback shall be prohibited. This floodway setback may be reduced by the Planning Director only if a full hydrologic analysis identifies the boundaries of the floodway, demonstrates that a smaller setback will not increase the susceptibility of the proposed activity to flood related hazards, and there is no alternative location outside of the 20 foot setback. (See also Chapter 16.30, Riparian Protection, for vegetation related setbacks from streams.)

4. **Location of Septic Systems.** New septic systems and leach fields shall not be located in the floodway. The capacity of existing systems in the floodway shall not be increased.

5. **Alteration of Structures in Floodway:** Reconstruction, repair, alteration or improvement of a structure in a floodway shall not cause any increase in the base flood elevation. Substantial improvements, regardless of cause, shall only be permitted in accordance with Section 16.10.070(f), above. Repair, reconstruction, alteration, or replacement of a damaged structure which does not exceed the ground floor square area of the structure before the damage occurred shall not be considered an increase in the base flood elevation.

6. **Permit Requirements:** All other required local, state and federal permits must be obtained.

(h) Coastal Bluffs and Beaches:

1. **Criteria in Areas Subject to Coastal Bluff Erosion:** Projects in areas subject to coastal bluff erosion shall meet the following criteria:

* (i) for all development and for non-habitable structures, demonstration of the stability of the site, in its current, pre-development application condition, for a minimum of 100 years as determined by either a geologic hazards assessment or a full geologic report.

* (ii) for all development, including that which is cantilevered, and for non-habitable structures, a minimum setback shall be established at least 25 feet from the top edge of the coastal bluff, or alternatively, the distance necessary to provide a stable building site over a 100-year lifetime of the structure, whichever is greater.

* (iii) the determination of the minimum setback shall be based on the existing site conditions and shall not take into consideration the effect of any proposed protection measures, such as shoreline protection structures, retaining walls, or deep piers.

(iv) foundation replacement and/or foundation upgrades that meet the definition of development per Section 16.10.040(s) and pursuant to Section 16.10.040(r), shall meet the setback described in Section 16.10.070(h)(1), except that an exception to the setback requirement may be granted for existing structures that are wholly or partially within the setback, if the Planning Director determines that:

a) the area of the structure that is within the setback does not exceed 25% of the total area of

the structure, OR

b) the structure cannot be relocated to meet the setback because of inadequate parcel size.

(v) additions, including second story and cantilevered additions, shall comply with the minimum 25 foot and 100 year setback.

(vi) The developer and/or the subdivider of a parcel or parcels in an area subject to geologic hazards shall be required, as a condition of development approval and building permit approval, to record a Declaration of Geologic Hazards with the County Recorder. The Declaration shall include a description of the hazards on the parcel and the level of geologic and/or geotechnical investigation conducted.

(vii) approval of drainage and landscape plans for the site by the County Geologist.

(viii) service transmission lines and utility facilities are prohibited unless they are necessary to serve existing residences.

(ix) All other required local, state and federal permits shall be obtained.

2. Exemption:

(i) Any project which does not specifically require a building permit pursuant to Section 12.10.070(b) is exempt from Section 16.10.070(h)1, with the exception of: non-habitable accessory structures that are located within the minimum 25 foot setback from the coastal bluff where there is space on the parcel to accommodate the structure outside of the setback, above-ground pools, water tanks, projects (including landscaping) which would unfavorably alter drainage patterns, and projects involving grading.

For the purposes of this Section, the unfavorable alteration of drainage is defined as a change that would significantly increase or concentrate runoff over the bluff edge or significantly increase infiltration into the bluff. Grading is defined as any earthwork other than minor leveling, of the scale typically accomplished by hand, necessary to create beneficial drainage patterns or to install an allowed structure, that does not excavate into the face or base of the bluff.

Examples of projects which may qualify for this exemption include: decks which do not require a building permit and do not unfavorably alter drainage, play structures, showers (where run-off is controlled), benches, statues, landscape boulders, benches, and gazebos which do not require a building permit.

(ii) If a structure that is constructed pursuant to this exemption subsequently becomes unstable due to erosion or slope instability, the threat to the exempted structure shall not qualify the parcel for a coastal bluff retaining structure or shoreline protection structure. If the exempted structure itself becomes a hazard it shall either be removed or relocated, rather than protected in place.

3. Shoreline protection structures shall be governed by the following:

(i) shoreline protection structures shall only be allowed on parcels where both adjacent parcels are already similarly protected, or where necessary to protect existing structures from a significant threat, or on vacant parcels which, through lack of protection threaten adjacent developed lots, or to protect public works, public beaches, and coastal dependent uses.

Note: New shoreline protection structures shall not be allowed where the existing structure proposed for protection was granted an exemption pursuant to Section 16.10.070(h)2.

(ii) seawalls, specifically, shall only be considered where there is a significant threat to an existing structure and both adjacent parcels are already similarly protected.

* (iii) application for shoreline protective structures shall include thorough analysis of all reasonable alternatives to such structures, including but not limited to relocation or partial removal of the threatened structure, protection of only the upper bluff area or the area immediately adjacent to the threatened structure, beach nourishment, and vertical walls. Structural protection measures on the bluff and beach shall only be permitted where non-structural measures, such as relocating the structure or changing the design, are infeasible from an engineering standpoint or are not economically viable.

(iv) shoreline protection structures shall be placed as close as possible to the development or structure requiring protection.

(v) shoreline protection structures shall not reduce or restrict public beach access, adversely



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(page 49 of 49 pages)

East Cliff Property Owners Association

James C. Marshall, President
23439 East Cliff Drive
Santa Cruz, CA 95062
(831) 476-0877

Director's: Bill Geisreiter, Harry Blanchard, August Motmans, John Rodgers

February 12, 2002

The California Coastal Commission
c/o Joel Schwartz
Planning and Development
4355 Diamond Street, #3
Capitola, CA 95010

RECEIVED

FEB 14 2002

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

Re: Appeals of Upper Bluff Stabilization Projects for Adams (A-3-SCO-01-109), Black (A-3-SCO-01-117) and Banman (A-3-SCO-01-118).

Dear Commissioners:

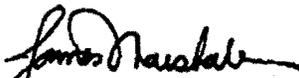
The Board of Directors of the East Cliff Property Owners Association represents 120 members whose properties are located between the Santa Cruz Small Craft Harbor and the Capitola Wharf, and are subject to the direct impact of the ocean's forces.

We have worked diligently over the past 30 years to address the issues of our members, namely the preservation of our rights to protect our homes and properties, and to preserve the public's right to access, safety and aesthetic harmony.

It is our opinion that the above named projects on appeal deserve our whole-hearted support. The projects have undergone close scrutiny and the facts are evident: there is a significant threat, the proposed design is the best alternative, and the construction technique is aesthetically appropriate.

We consider your actions on this issue to be an indication of the direction the Coastal Commission is taking in respect to the rights of homeowners. We are very mindful of the trust placed in you to make sound coastal protection decisions, and we recommend these projects to you in everyone's best interest.

Sincerely,



James C. Marshall, President

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(page 1 of 3 pages)

RECEIVED

FEB 6 2002

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

February 6, 2002

Dear Members of the Coastal Commission:

I am writing in support of the applications for coastal bluff protection submitted by Keith Adams of 500 41st Avenue in Santa Cruz (County Application Number 00-0757; Adams), Alistair Black (number 00-0704) and Gene Banman (01-0137).

My name is Bill Osberg, and I am 47 years old. Ever since I was a teenager I have been drawn to the ocean and the surf. It became a dream of mine to live at the beach, close enough so I could see the surf and walk to surfing. But beach front property has always been very expensive in California, so in pursuit of my goal I studied seriously in school, then worked hard in the software business for almost 25 years. I practically gave up surfing during that time and lived far from the beach.

Three years ago through a combination of determination, hard work, skill, and some luck, I became a coastal property owner on Opal Cliff Drive. This is a very special place, and both my wife and I love our house at the beach. Like all Opal Cliff homeowners, we would like to preserve and protect it, but recent rulings by the Coastal Commission may make that impossible.

My understanding is that the Commission's current position prohibits coastal protection for an existing house until "necessary to protect existing structures from a significant threat" - and the definition of a significant threat is when the bluff top is 3 feet from the foundation of the house! This appears to be a change from last year, when protection was allowed for lots with existing houses much further away than 3 feet from the bluff edge. I'm not a geologist, but I believe any geologist will tell you that bluff erosion is not a gradual process. Bluffs do not erode 4 inches a year, year after year. Instead, they don't erode visibly for perhaps many years, then 10 feet or more can shear away in a single event. The homes lost in Pacifica during the last El Nino year are an example. It was widely publicized that some of those homeowners lost 40 feet of bluff in a single year. Those homes had no coastal protection.

I observed episodic erosion myself in January 2002 at the slide near the Private's stairway on Opal Cliff Drive, where at least 8 feet of bluff top sheared off and landed on the beach below. If the house had been 6 feet from the bluff, and thus not eligible for coastal protection as in the new interpretation, that house would now be hanging over the edge and would be condemned.

Moving houses away from the edge is frequently not a viable option as many of the lots in this area are already quite narrow, so moving the house would run up against other regulations regarding front setbacks. Removing part of the house, like the living room (which is usually the room closest to the bluff), clearly doesn't make sense. The only option would be to demolish the existing house and build a new smaller one.

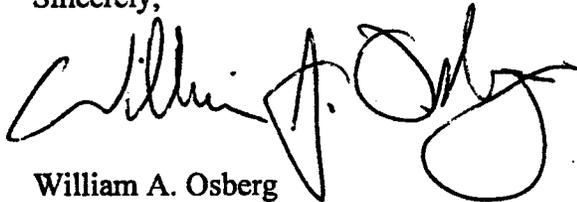
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On the other hand, for building a new house, the Commission requires the structure to be far enough away from the edge of the bluff that it could be expected to remain in place for 100 years. As many lots are not wide enough to achieve this goal without coastal protection, my understanding is that coastal protection is permitted. If this were not the case, then the 100 year regulation would amount to a taking of the property without compensation. Any lot on Opal Cliff Drive overlooking Monterey Bay is worth well over \$1 million today, and many of them are worth several times that.

It is an inconsistent and illogical position to require builders of new homes to provide 100 years of protection while existing homeowners may not add any protection until the bluff is 3 feet away. Because erosion is episodic and frequently occurs in chunks much larger than 3 feet, this position is equivalent to saying that one can do nothing until the house is suspended over the edge, at which point it is an emergency situation and all you can do is demolish it. This is completely unfair.

It would be a consistent and appropriate position to allow owners of existing homes to achieve at least the same level of protection as is required of new home builders. I don't understand why the Coastal Commission doesn't at least tolerate that approach. These applicants are prepared to spend a lot of money in order to construct a state-of-the-art stabilization measure that will blend harmoniously with the natural surroundings. I urge the Commission to approve these projects, and support these reasonable approaches to stabilizing the upper bluff area.

Sincerely,



William A. Osberg
4362 Opal Cliff Drive
Santa Cruz, CA 95062

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
(831) 427-4877



November 14, 2001

Joe Hanna
Santa Cruz County Planning Department
701 Ocean Street, Suite 400
Santa Cruz, Ca 95060-4073

Subject: *Application Numbers 01-0137 (Banman) and 00-0704 (Black); Proposal to Shotcrete the Upper Bluffs at APNs 033-151-08 and 033-151-23 in the Opal Cliffs Area*

Dear Mr. Hanna:

We recently became aware that the above-referenced applications are scheduled for a Zoning Administrator hearing on November 16, 2001. As such, please share this letter with the Zoning Administrator prior to the hearing(s).

We previously forwarded comments to the County on application number 01-0137 (Banman) by letter dated May 7, 2001 (see enclosed). We were not aware at that time that the adjacent property was also included in the proposed project (Black; application number 00-0704). Our May 7, 2001 comments are just as applicable to application number 00-0704 as they are to application number 01-0137; please consider them as comments on both applications. That said, we continue to have reservations about the proposed project (covering the two applications) as it relates to applicable Santa Cruz County Local Coastal Program (LCP) and California Coastal Act policies: all of our previous comments (enclosed) apply. We would also add to our previous comments as follows:

- We were able to quickly review this week the negative declaration prepared for this project, including the geotechnical analysis excerpts and summary therein. The negative declaration asserts that the homes are not likely to be threatened for 30 years. Although we have yet to review the complete geotechnical analyses for the proposed project (as requested in our May 7, 2001 letter but never forwarded), this does not appear to us to constitute the LCP-required 'significant threat' necessary to contemplate such armoring (reference LCP Land Use Plan (LUP) Policy 6.2.16 and Zoning Section 16.10.070(h)(3)).
- The negative declaration identifies surface runoff, from both landscaping and storm runoff, as a "key contributor" to erosion at this location. Even were a significant threat proven here, it would appear that modest drainage improvements atop the bluff could increase bluff stability without the need to shotcrete the bluff face. Furthermore, while dismissed without evidence by the negative declaration, it appears to us that some form of landscape cover on the upper bluffs remains a viable alternative to increase bluff stability at this location (with and/or without a less steepened buff face - either through natural erosion processes and/or

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artificial grading and tiering).

- If a significant threat were proven here, and if a hard protective structure was proven the least environmentally damaging feasible solution to address the proven threat, then the proposed shotcrete shoreline protective structure has not been "placed as close as possible to the development requiring protection" as required by the LCP (Reference LUP Policy 6.2.16, Zoning Section 16.10.070(h)(3)). As previously highlighted, this issue also goes straight to the core LCP question of establishing a significant threat. It is because of the amount of blufftop setback here that the armor is not proposed 'as close as possible' to the residences, and it is also because of this significant bluff edge setback that the degree of threat is a question.
- The photo simulations provided in the negative declaration as evidence that the shotcrete will harmonize with the existing bluff show just the opposite in our opinion. The examples cited as exemplary appear conspicuously artificial. We would observe that any bluff armoring considered here (if otherwise proven LCP consistent) and elsewhere in the County should be held to the very highest aesthetic standards possible consistent with LCP requirements for protecting the natural landform and the critical bluff/beach public viewshed (Reference LCP LUP Objectives 5.10.a and 5.10.b, LUP Policies 5.10.7 and 6.2.16, Zoning Sections 13.20.130 and 16.10.070(h)(3)).
- The negative declaration does not quantify the volume of bluff materials, and the sand content of the bluff materials, between the expected angle of equilibrium (without the shotcrete) and the proposed shotcrete. Per the LCP, this impact must be identified and addressed if armoring is to be considered (Reference LUP Policy 6.2.16, Zoning Section 16.10.070(h)(3)). As we previously noted, the Commission utilizes a sand supply calculation to determine the amount of sand generating materials withheld by armoring; please contact us if you do not already have this information.
- Finally, we were unable to locate any coastal permits in our files for the existing armoring present at the base of the bluffs at this location. It needs to be established when this armoring was installed and under what authorization. In any case, in light of the significant setbacks maintained by the existing residences here, we would suggest an alternative that should be evaluated is removal of the existing toe of bluff armoring as a corrective action to reestablish recreational beach area at this location (as described by LCP LUP Programs 6.2.d and 6.2.e).

We remain very concerned about the project proposed in light of core LCP policies protecting beach and bluff resources at this location; policies for which exacting criteria must be met before such shoreline protective structures can be considered or approved. While we can surely understand the Applicants' motivations, the LCP protects the beach and bluffs here against the intrusion of such hard protective structures when feasible as a means of protecting and preserving the beaches and bluffs for general public enjoyment and use. Lacking any focused

regional planning context for the Opal Cliffs shoreline within which such projects might be otherwise measured or understood (see also our enclosed September 6, 2001 letter on this topic), and based upon our current understanding of the proposed project, it appears to be inconsistent with the LCP.

If you have any questions, please do not hesitate to call me at (831) 427-4893.

Sincerely,



Dan Carl
Coastal Planner

Enclosures: May 7, 2001 project comments on County application number 01-0137
September 6, 2001 comments on potential Opal Cliffs shoreline management options

fax copies (w/enclosures) to Joe Hanna and Don Bussey November 14, 2001

cc (w/enclosures):
Don Bussey, Santa Cruz County Zoning Administrator
Gene Banman (Applicant for 01-0137)
Alistar Black (Applicant for 00-0704)
Joel Schwartz (Representative for Gene Banman and Alistar Black)

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
 725 FRONT STREET, SUITE 300
 SANTA CRUZ, CA 95060
 PHONE: (831) 427-4863
 FAX: (831) 427-4877



May 7, 2001

Joe Hanna
 Santa Cruz County Planning Department
 701 Ocean Street, Suite 400
 Santa Cruz, Ca 95060-4073

Subject: *Project Comments for Application Number 01-0137 (Banman upper bluff shotcrete at 4420 Opal Cliff Drive 41st Avenue)*

Dear Mr. Hanna:

Thank you for forwarding the above-referenced development proposal to our office for review. These comments are based upon the brief project description you have provided, along with the proposed site plans that illustrate the project. After preliminary review of these materials, we have some concerns, questions and comments about the proposed development as it relates to applicable Santa Cruz County Local Coastal Program (LCP) and California Coastal Act policies as follows:

- As you are aware, seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" measures designed to forestall coastal erosion can adversely alter natural shoreline processes. Such shoreline protection structures can have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, all such applications must be carefully examined consistent with the LCP and the Coastal Act.
- The LCP requires that a "significant threat" to an existing structure be documented before a shoreline protection structure is considered. It appears that the subject residence in this case is located approximately 30 feet back from blufftop edge at its closest point; most all of the residence is significantly further inland than that. In addition, the lower portion of the bluff is already armored with a rip-rap revetment. Any findings adopted should be based upon adequate geotechnical information specific to this site documenting evidence of the LCP-required "significant threat" in this case. (Reference LCP Land Use Plan (LUP) Policy 6.2.16, Zoning Section 16.10.070(h)(3).) Please note in any case that the Coastal Commission does not generally recognize accessory structures (such as the deck intervening between the subject residence and the bluff edge, according to the plans) for shoreline protection structure purposes since these accessory structures can generally be protected from erosion by relocation or other means that do not involve shoreline armoring.
- If a significant threat to an existing structure is documented, the LCP requires a "thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure." In this case, the no project alternative should be evaluated. In addition, the expected equilibrium angle of the upper terrace deposits should be calculated for the no project alternative. Another "soft" alternative that should be evaluated is

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the use of a palette of native bluff plantings to stabilize the upper bluff slopes; this alternative should be evaluated both with and without the option of limited stepped retaining walls on the upper bluff. (Reference LCP LUP Policy 6.2.16, Zoning Section 16.10.070(h)(3))

- If a significant threat to an existing structure is documented, and if the tieback shotcrete wall is found to be the least environmentally damaging feasible alternative to protect the threatened existing structure, the proposed shoreline protection structure must be constructed in such a way as to, at a minimum:

- ▶ Minimize landform alteration: It appears from the limited information provided that the proposed wall would significantly alter the natural bluff feature at this location. Any protective structure should be contoured to match the existing natural landform present at this location.

- ▶ Minimize visual intrusion: The proposed project plans indicate that the shotcrete would be finished "rough," but the plans do not include any other representation of the finish. The introduction of such an unnatural landform along the coastal bluff would be a significant visual intrusion for which mitigating aesthetic measures should be required. At a minimum, any otherwise appropriate shotcrete or variations thereof should be sculpted and contoured to mimic the natural bluff surface to the maximum degree feasible, incorporating planting nodes and intrinsically colorized materials to achieve this. The blufftop above any shotcrete wall should include native landscaping that will cascade over the top of the wall to help soften the visual impact. The supplied landscaping plan indicates that iceplant would be planted along the edge of the bluff at this property and the downcoast property. The Applicant should use native bluff plants indigenous to the Opal Cliffs area to the extent feasible. Please ensure that adequate visual representations (i.e., color samples, photo-simulations, potential plant material samples, examples of similar walls, etc.) are made a part of the record and are available for decision makers on this project.

- ▶ Not adversely impact shoreline processes and sand supply: The Commission's experience statewide has been that shoreline protection structures have a significant and measurable effect on shoreline process and sand supply. Natural shoreline processes, such as the formation and retention of sandy beaches, can be significantly altered by construction of protective structures, since bluff retreat is one of several ways that beach quality sand is added to the shoreline. Bluff retreat and erosion is a natural process resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration. Shoreline armoring directly impedes these natural processes. Although the lower bluff is already armored with rip-rap in this location, the proposed tieback shotcrete wall would halt upper bluff erosion. The volume of bluff materials, and the sand content of the bluff materials, between the expected angle of equilibrium (without the shotcrete) and the proposed shotcrete should be estimated. This impact must be mitigated. Please note that for purposes of mitigation, the Commission utilizes a sand supply calculation to determine the amount of sand generating materials withheld by armoring; please contact us if you do not already have this information.

(Reference LCP LUP Objectives 5.10.a and 5.10.b, LUP Policies 5.10.7 and 6.2.16, Zoning Sections 13.20.130 and 16.10.070(h)(3))

- The supplied construction sheet indicates that construction staging would be from the blufftop on the downcoast property. Would there be any required access and/or equipment from below? Please ensure that a detailed staging and construction plan is included with the application. Impacts to coastal resources during construction need to be evaluated within this context. (Reference LCP LUP Policy 6.2.16, Zoning Section 16.10.070(h)(3))
- It is not clear how this proposed project relates (or should relate) to other existing and/or proposed armoring for this stretch of coastline. In other words, has a comprehensive solution been developed to address erosion and loss of beach at this location? If not, are there opportunities to address such issues on a regional basis here as opposed to a parcel by parcel approach in order to better protect coastal resources? It appears from the project plans that the downcoast property already includes a shotcrete wall; is this accurate? The landscaping/construction sheet appears to indicate that the project may include shotcrete of the downcoast property as well. Is the upcoast property already similarly armored as well? Does the rip-rap revetment extend upcoast? Please ensure that the up and down coast features are adequately described on the proposed project plans. The County's environmental review and/or findings should explore such a regional approach. (Reference LCP LUP Policy 6.2.16, Zoning Section 16.10.070(h)(3))
- Finally, complementary Coastal Act policies that likewise provide criteria for the review of proposed armoring projects, and likewise protect coastal resources, may also come into play at this location. (Reference Coastal Act Chapter 3)

Please have the Applicant send us 3 copies of the geotechnical report for this proposed project when the report has been completed.

Thank you for the opportunity to comment in the development stage of this project. As the County moves forward with project analysis and environmental review, the issues identified above, as well as any other relevant coastal issues identified upon further review or due to project modifications, should be considered in light of the provisions of the certified Santa Cruz County LCP. In any event, we may have more comments for you on this project after we have seen additional project information or revisions. If you have any questions, please do not hesitate to call me at (831) 427-4893.

Sincerely,



Dan Carl
Coastal Planner

cc: Joel Schwartz (Representative for Gene Banman)

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(page 6 of 8 pages)

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
FAX: (831) 427-4877



September 6, 2001

Joel Schwartz
Joel Schwartz Consulting
4355 Diamond Street, #3
Capitola, CA 95010

Subject: *Opal Cliffs Shoreline Management*

Dear Joel:

We appreciate your coming into the office earlier this week and updating us on the status of your efforts to date regarding shoreline erosion response along Opal Cliffs in unincorporated Live Oak. As we discussed and as you are aware, the regulatory issues associated with homeowners' response (generally armoring) to ongoing bluff erosion in a dynamic shoreline environment are both complex and challenging. The Commission has long been aware that bluff erosion in the Opal Cliffs area has been fairly constant and has, over the years, resulted in armoring of much of the shoreline there. Because property owners have generally undertaken bluff armoring individually, there are a vast myriad of armoring types along the bluffs and backbeach along this section of coast. As a result, beach access and aesthetics have been compromised, and the integrity of the armoring is in some cases suspect.

We are generally supportive of your attempts to develop a regional solution to the issue of shoreline armoring along Opal Cliffs. We are particularly interested in a solution that results in removal of the rubble and rocks that block much of the beach access in this area, and the measures to sculpt and camouflage any necessary armoring in such a way as to mimic the natural bluff topography and vegetation. Options for building in pedestrian platforms in permitted armoring that allow for lateral access at even higher tides are also intriguing. A vision for Opal Cliffs that provides for enhanced public access and beach aesthetics while simultaneously addressing blufftop homeowners' concerns is a step in the right direction and sorely needed here.

That said, and as we discussed, the appropriate vehicle for realizing such a vision has not yet been established. As opposed to individual homeowners continuing the pattern of piecemeal development, even if such development is premised on some of the above principals, we recommend that more formal planning parameters be developed for the Opal Cliffs shoreline that can instead be incorporated within the County's Local Coastal Program (for example, an Opal Cliffs specific plan, shoreline design guidelines, or equivalent). This approach has the advantage of allowing decision makers at the County and Commission levels to develop appropriate regional planning standards based upon the unique regional geology and existing situation of Opal Cliffs outside of the context of an individual permit application within which the larger planning picture can be muddled. This approach has the added advantage of providing an increased level of certainty in the permitting process since individual applications would then simply need to fit within the regional guidelines so established and agreed upon.

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We are excited about the prospect of developing such a planning solution for Opal Cliffs and are available to consult with you and the County when such an effort more formally commences. In the meantime, we expect that the principals that we discussed (i.e., removal of rock and rubble, contouring and camouflaging, vegetation, lateral access, etc.) will be incorporated into any Opal Cliffs armoring proposals as a matter of course in the future. Please feel free to contact me at (831) 427-4893 if you have any questions or would like to discuss this further.

Sincerely,



Dan Carl
Coastal Planner

cc: Mark Deming, Principal Planner, Santa Cruz County Planning Department Advanced Planning