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## RECORD PACKET COPY

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Filed: July 19, 2001  
Hearing Opened: September 13, 2001  
Staff: Jim Baskin  
Staff Report: April 19, 2002  
Hearing Date: May 10, 2002  
Commission Action:

STAFF REPORT: APPEALDE NOVO HEARING

APPEAL NO.: **A-1-MEN-01-043**

APPLICANTS: **David and Suzanne Wright**

CURRENT OWNERS: **Ken and Jill Roost**

AGENT(S): **Bud Kamb**

LOCAL GOVERNMENT: **County of Mendocino**

DECISION: **Approval with Conditions**

PROJECT LOCATION: **45501 Headlands Drive, Little River, Mendocino County,  
APN 121-260-10.**

PROJECT DESCRIPTION: **Construction of a 2,550-square-foot, 18-foot-high, single-family residence with a 625-square-foot detached garage, onsite sewage disposal system, extension of utilities, and installation of 2,500-square-feet of paving for a driveway.**

APPELLANT: **Wendy Weikel**

SUBSTANTIVE FILE:  
DOCUMENTS **1) Mendocino County CDB No. 17-01; and  
2) County of Mendocino Local Coastal Program.**

**STAFF NOTES:**

**1. Continuance from February Agenda.**

This appeal had been previously scheduled for a continued hearing on the *de novo* portion of the appeal at the February 13, 2002 Commission meeting. Prior to the hearing, the applicants requested that the hearing be postponed to allow additional time to respond to the Commission staff geologist's recommendations regarding building setbacks from unstable areas at the project site, particularly areas underlain by sea caves.

Since the February postponement, the applicants' geologist has met onsite with the Commission's geologist and staff, and has submitted additional information (see Exhibit No. 9). Sections IV.D.2 of the findings of this staff report addresses the Commission geologist's site visit and review of the materials provided by the applicants' geologist. Despite the onsite meeting and the opportunity to view site conditions first-hand, disagreement continues to exist between the applicant's and the Commission's geologists as to the appropriate building setback distance from the sea caves needed to ensure long-term stability.

This revised staff recommendation also includes revisions to the visual resource finding (Section IV.G) based on a determination made at the onsite meeting that less of the project site is visible from certain public vantage points than had been indicated in the report prepared before the February Commission meeting.

**2. Procedure.**

On September 13, 2001, the Coastal Commission found that the appeal of the County of Mendocino's approval raised a substantial issue with respect to the grounds on which the appeal had been filed, pursuant to Section 13115 of the Title 14 of the California Code of Regulations. As a result, the County's approval is no longer effective, and the Commission must consider the project *de novo*. The Commission may approve, approve with conditions (including conditions different than those imposed by the County), or deny the application. Since the proposed project is within an area for which the Commission has certified a Local Coastal Program (LCP) and is between the first public road and the sea, the applicable standard of review for the Commission to consider is whether the development is consistent with the County's certified LCP and the public access and public recreation policies of the Coastal Act. Testimony may be taken from all interested persons at the *de novo* hearing.

**2. Incorporation of Substantial Issue Findings.**

The Commission hereby incorporates by reference the Substantial Issue Findings contained in the Commission staff report dated August 31, 2001. For purposes of *de novo* review by the Commission, the applicant has provided Commission staff with supplemental information including additional geotechnical assessments, stormwater drainage calculations, and a runoff treatment plan. The supplemental information provides clarification of the proposed project and

additional information regarding issues raised by the appeal that was not part of the record when the County originally acted to approve the coastal development permit.

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**SUMMARY OF STAFF RECOMMENDATION *DE NOVO*:**  
**APPROVAL WITH CONDITIONS**

The staff recommends that the Commission approve with conditions the coastal development permit for the proposed project on the basis that, as conditioned by the Commission, the project is consistent with the County of Mendocino certified LCP and the access policies of Chapter 3 of the Coastal Act.

Since the September hearing on the Substantial Issue determination, the applicant has provided considerable additional information on the effects of the project on coastal resources. Further geotechnical assessments have been presented. Furthermore, the applicant has provided a drainage plan to offset any impacts from the currently proposed development of stormwater runoff on blufftop stability and coastal resources.

The proposed development site is subject to dynamic coastal erosion and instability associated with the project's ocean headland location and the presence of sea caves underlying the blufftop parcel even though the applicants are proposing structural setbacks of 25 feet from the bluff edges and five feet from the back of the sea caves. The staff has determined that the proposed project is inconsistent with the geologic hazard policies of the certified LCP requiring that new development 1) minimize risk to life and property, 2) assure stability and structural integrity and neither create nor contribute significantly to geologic instability and 3) not require construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. However, staff believes that four recommended special conditions can eliminate these inconsistencies.

Special Condition No. 1 requires the submittal of revised site plans showing the proposed development setback 25 feet from the bluff edge or from the blufftop projection of the back of all parts of the underlying sea cave walls, whichever is further landward. Special Condition No. 2 requires the submittal of final foundation, construction, and site drainage plans that incorporate all recommendations of the submitted geotechnical report intended to avoid creating or contributing to geologic hazards. Special Condition No. 3 requires recordation of a deed restriction stating that no shoreline protective device shall be constructed on the parcel, that the landowner shall remove the house and its foundation when bluff retreat reaches the point where the structure is threatened, and that the applicant accepts sole responsibility for the removal of any structural debris resulting from landslides, slope failures, subsidence, or erosion of the site. Special Condition No. 4 requires recordation of a deed restriction stating that the applicant acknowledges and assumes the inherent and extraordinary risk of developing the blufftop property and waives and indemnifies the Commission against any claim of liability.

Staff is recommending other special conditions to ensure the project's consistency with all applicable policies of the County's certified LCP and the Coastal Act. The principal

recommended conditions would require the applicant to construct the site drainage improvements consistent with findings and recommendations contained within the approved geotechnical and drainage plans. Restrictions on the choice of exterior building materials, colors, and lighting elements have also been recommended to ensure that the exterior appearance of the development is compatible with the project's surrounding. If the relocation of the residential structures should require redesign of the septic disposal system, the applicants would then be required to provide verification of the appropriateness of the new design from the County's Public Health Department.

Staff recommends that the Commission find the project, as conditioned, is consistent with the policies contained in the County's certified LCP and the Coastal Act public access and recreation policies.

**I. MOTION, STAFF RECOMMENDATION *DE NOVO*, AND RESOLUTION:**

**Motion:**

I move that the Commission approve Coastal Development Permit No. A-1-MEN-01-043 pursuant to the staff recommendation.

**Staff Recommendation of Approval:**

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

**Resolution to Approve Permit:**

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development, as conditioned will be in conformity with the certified County of Mendocino LCP, is located between the sea and the nearest public road to the sea and is in conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

**II. STANDARD CONDITIONS: See attached.**

**III. SPECIAL CONDITIONS:**

**1. Revised Site and Erosion/Runoff Control Plans**

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-MEN-01-043**, the applicant shall submit revised site and erosion & runoff control plans to the Executive Director for review and approval. The revised plans shall substantially conform with the site plan and landscaping plan submitted to the County of Mendocino Department Planning & Building Services on February 12, 2001 and May 17, 2001, respectively, and received by the Commission on August 2, 2001 as Exhibits C, H, I, and J, respectively, of the June 28, 2001 staff report contained in the County's public record for the project, except that the plans shall also provide for the following changes to the project:

1) Site Plan Revision

- a. All structural improvements, including the proposed residence, garage, and leach field for the on-site wastewater treatment system shall be setback at least twenty-five (25) feet from the bluff edge, or from the bluff-top projection of the back of all sea cave walls underlying the site and the existing top of bluff, whichever is further landward. In addition, these improvements shall be set back at least six (6) feet from side property lines, and at least twenty (20) feet from the front property line.

2) Erosion and Runoff Control Plan

- a. The proposed erosion and runoff control facilities, comprised of the rooftop collection, conveyance, and leachfield treatment system, and the driveway runoff absorption area, shall be redesigned as follows:
  - (i) The erosion and runoff control facilities shall be sited within those portions on the northernmost 100 feet of the project parcel situated outside of all blufftop edge and sea cave setbacks so as to accommodate the relocation of residential and accessory structures required by subsection 1.A.1)a; and
  - (ii) Runoff from the driveway shall be collected and conveyed either into a driveway runoff absorption area redesigned to account for the topographical constraints affecting the development as resited or a leachfield treatment system properly designed and sized to accept the driveway runoff. This system may be combined with the roof stormwater leachfield treatment system provided such a combined system is consistent with subsection 1.A.2)a.(i) above and is designed and sized to accept the runoff from both the roof and driveway. Alternately, the driveway may be constructed to have a permeable gravel surface with no leachfield treatment required.

- B. The permittee shall undertake development in accordance with the approved revised site plans. Any proposed changes to the approved site plans shall be reported to the Executive Director. No changes to the approved revised site plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

**2. Conformance of the Design and Construction Plans to the Geotechnical Report**

- A. All final design and construction plans, including foundations, grading and drainage plans, shall be consistent with the recommendations contained in the geotechnical report dated November 14, 2001 prepared by BACE Geotechnical Consultants, except that the plans shall be revised consistent with Special Condition 1, including but not limited to the requirement that all structures shall be setback twenty-five feet (25') from the blufftop projection of the back of the sea cave. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the Executive Director's review and approval, evidence that a licensed professional (Certified Engineering Geologist or Geotechnical Engineer) has reviewed and approved all final design, construction, and drainage plans and has certified that each of those plans is consistent with all of the recommendations specified in the above-referenced geotechnical report approved by the California Coastal Commission for the project site.
- B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

**3. No Future Bluff or Shoreline Protective Device**

- A(1) By acceptance of this permit, the applicants agree, on behalf of themselves and all successors and assigns, that no bluff or shoreline protective device(s) shall ever be constructed to protect the development approved pursuant to Coastal Development Permit No. A-1-MEN-01-043, including, but not limited to, the residence, foundations, garage and driveway in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions, bluff retreat, landslides, ground subsidence or other natural hazards in the future. By acceptance of this permit, the applicants hereby waive, on behalf of himself and all successors and assigns, any rights to construct such devices that may exist under Public Resources Code Section 30235 or under the policies of the Mendocino County Land Use Plan and Coastal Zoning Code Chapter 20.532.
- A(2) By acceptance of this permit, the applicants further agrees, on behalf of themselves and all successors and assigns, that the landowner shall remove the development authorized by this permit, including the residence, garage, foundations, and driveway, if any government agency has ordered that the structures are not to be occupied due to any of

the hazards identified above. In the event that portions of the development fall to the beach before they are removed, the landowner shall remove all recoverable debris associated with the development from the beach and ocean and lawfully dispose of the material in an approved disposal site. Such removal shall require a coastal development permit.

- A(3) In the event the edge of the bluff recedes to within 10 feet of the principal residence but no government agency has ordered that the structures not be occupied, a geotechnical investigation shall be prepared by a licensed geologist or civil engineer with coastal experience retained by the applicant, that addresses whether any portions of the residence are threatened by wave, erosion, storm conditions, or other natural hazards. The report shall identify all those immediate or potential future measures that could stabilize the principal residence without shore or bluff protection, including but not limited to removal or relocation of portions of the residence. The report shall be submitted to the Executive Director and the appropriate local government official. If the geotechnical report concludes that the residence or any portion of the residence is unsafe for occupancy, the permittee shall, within 90 days of submitting the report, apply for a coastal development permit amendment to remedy the hazard which shall include removal of the threatened portion of the structure.

- B. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-MEN-01-043**, the applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which reflects the above restrictions on development. The deed restriction shall include a legal description of the applicants' entire parcel. The deed restriction shall run with the land binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

4. **Assumption of Risk, Waiver of Liability and Indemnity Agreement**

- A. By acceptance of this permit, the applicants acknowledge and agree: (i) that the site may be subject to hazards from landslide, bluff retreat, erosion, subsidence, and earth movement; (ii) to assume the risks to the applicants and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.
- B. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicants shall execute and record a deed restriction, in a form and content acceptable to

the Executive Director incorporating all of the above terms of this condition. The deed restriction shall include a legal description of the applicant's entire parcel. The deed restriction shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

**5. Design Restrictions**

A(1) All exterior siding of the proposed structures shall be composed of natural or natural appearing materials, and all siding and roofing of the proposed structures shall be composed of materials of dark earthtone colors only. The current owner or any future owner shall not repaint or stain the house with products that will lighten the color the house as approved. In addition, all exterior materials, including roofs and windows, shall be non-reflective to minimize glare; and

A(2) All exterior lights, including any lights attached to the outside of the buildings, shall be the minimum necessary for the safe ingress and egress of the structures, and shall be low-wattage, non-reflective, shielded, and have a directional cast downward such that no light will shine beyond the boundaries of the subject parcel.

**B. PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-MEN-01-043**, the applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which reflects the above restrictions on development. The deed restriction shall include a legal description of the applicants' entire parcel. The deed restriction shall run with the land binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

**6. Approved Design for Relocated Septic Disposal System**

In the event the permittee reconfigures the proposed development pursuant to Special Condition No. 1 in a manner that requires relocating the proposed septic disposal system, **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-MEN-01-043**, the permittee shall submit evidence for the review and approval of the Executive Director that the Mendocino County Department of Public Health's Division of Environmental Health has made a preliminary determination that the relocated septic system will be adequate to serve the approved development.

**7. Conditions Imposed By Local Government.**

This action has no effect on conditions imposed by a local government pursuant to an authority other than the Coastal Act.



#### IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares as follows:

##### A. Project History / Background.

The subject parcel is Lot 10 of the Little River Headlands Subdivision, created by parcel map in 1965. The site is one of fifteen blufftop lots located west of Highway One on Headlands Drive, a private road located at the western terminus of Peterson Lane, approximately ½ mile northwest of the unincorporated town of Little River and just north of the beach at Van Damme State Park (see Exhibit No. 2).

On February 7, 2001, Bud Kamb, agent-of-record for David and Suzanne Wright, submitted Coastal Development Permit Application No. 17-01 (CDP #17-01 to the Mendocino County Planning and Building Services Department for a coastal development permit seeking authorization to construct a single-family residence, detached garage, onsite sewage disposal system, extension of utilities, and a paved driveway on an approximately one-acre parcel.

On June 28, 2001, the Coastal Permit Administrator for the County of Mendocino approved Coastal Development Permit No. #17-01 (CDP #17-01) for the subject development. The Coastal Permit Administrator attached a number of special conditions, including requirements that: (1) final paint color be submitted, reviewed and approved by the Coastal Permit Administrator prior to issuance of the coastal development permit; (2) building materials and finishes match those specified in the permit application; (3) site landscaping be installed and maintained consistent with the approved landscaping plan; and (4) a deed restriction be recorded stating that the landowner shall not construct shoreline protective devices and shall remove the house and foundation when bluff retreat reaches the point when the structure is threatened. The Coastal Permit Administrator did not attach conditions expressly requiring the house to be built in conformance with the recommendations of the geotechnical report.

The decision of the Coastal Permit Administrator was not appealed at the local level to the County Board of Supervisors. The County then issued a Notice of Final Action on July 9, 2001, which was received by Commission staff on July 10, 2001.

On June 19, 2001, the project was appealed by Wendy Weikel. The appeal cited numerous inconsistencies between the project as approved by the County and the policies of the County's certified LCP. On September 13, 2001, the Commission found that a Substantial Issue had been raised with regard to the consistency of the project as approved and the applicable policies of the LCP concerning: (1) geologic stability of the building sites; and (2) conformance with stormwater runoff and drainage standards.

The Commission continued the *de novo* portion of the appeal hearing so that the applicant could provide additional information relating to the substantial issues. Additional geotechnical and drainage assessments were subsequently provided to the Commission. The continued hearing

was scheduled for February 13, 2001. At the applicants' request, the continued hearing on the *de novo* portion the appeal was continued from the February 13, 2002 meeting to allow additional time to respond to the Commission's staff geologist's recommendations regarding building setbacks from unstable areas at the project site, particularly areas underlain by sea caves.

**B. Project and Site Description.**

**1. Project Setting**

The roughly triangular-shaped property is approximately one acre in size and consists of a generally flat, grass-covered blufftop lot with scattered tree cover along its margins. Plant cover on the blufftop portions of the parcel is comprised of upland grasses, forbs, and shrubs, including coyotebrush (*Baccharis pilularis*) and bracken fern (*Pteridium aquilinum*). The property is bordered by thickets of shore pine (*Pinus contorta* ssp. *contorta*) on its eastern and western sides. The site does not contain any known environmentally sensitive habitat areas.

The project site lies within the LCP's Russian Gulch and Van Damme State Park Planning Area. The subject property is a vacant, legal non-conforming (to current minimum lot size standards) parcel designated in the Land Use Plan and on the Coastal Zoning Map as Rural Residential – 5-acre Minimum Lot Area (RR:L-5). The subject property is within a highly scenic area as designated on the Land Use Map (see Exhibit Nos. 2, 3 and 4). Due to the property's location within a gated community on a private road, public views to and along the ocean across the property are limited. Additionally, given the ¼-mile distance to the highway and the presence of other bluff headlands lying between the highway and project parcel, views of the site from Highway One and other public recreational areas are limited to a relatively brief gap in the roadside vegetation along northbound Highway One as it descends the slope to the mouth of Little River, and from the beachfront at the southwestern corner of Van Damme State Park.

**2. Project Description**

The development entails the construction of a 2,550-square-foot, 18-foot-height, one-story residence and 625-square-foot detached garage with a 2,500-square-foot asphalt driveway and septic system (see Exhibit No. 4). The house and detached garage are proposed to be built in the mid-center of the approximately one-acre parcel with the closest point of the house located 25 feet back from the bluff edge. Water service would be provided to the residence by the Little River Headlands Mutual Water Company. The development would be partially screened by the presence of existing vegetation. To further screen site improvements visible from those public vantage points, the applicants have proposed that additional landscaping be installed along the eastern side of the parcel consisting of one Japanese black pine (*Pinus thunbergiana*), two shore pines (*Pinus contorta*), and three coast silk-tassel trees (*Garrya elliptica*).

**C. Planning and Locating New Development.**

**1. LCP Provisions**

LUP Policy 3.9-1 of the Mendocino County Land Use Plan states that new development shall be located within or near existing developed areas able to accommodate it or in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. The intent of this policy is to channel development toward more urbanized areas where services are provided and potential impacts to resources are minimized.

LUP Policy 3.8-1 states that Highway 1 capacity, availability of water and sewage disposal system and other know planning factors shall be considered when considering applications for development permits.

LUP Appendix No. 6, titled "Division of Environmental Health Land Division Requirements," contains the standards for the development of individual sewage disposal systems for the safe disposal of all human and domestic waste necessary to protect the health of the individual family and the community and to prevent the occurrence of nuisances. Although the appendix represents a compilation of laws, regulations, and policies that are primarily intended for use by those engaged in assessing the environmental health aspects of land divisions in Mendocino County, the standards are also used by the County in considering coastal development permits for new development on existing parcels or where further subdivision is not being proposed. The sewage disposal system standards include criteria addressing: (1) proper design to assure discrete subsurface disposal of wastes; (2) topographic siting constraints; (3) minimum depth-to-groundwater separation requirements; (4) acceptable soil texture and infiltration rate parameters; (5) minimum setback distances for septic tanks and leachfields (see Exhibit No. 7); (6) reservation of a replacement area should the primary system fail; and (7) the cumulative effects of multiple septic systems.

The subject property is zoned in the County's LCP as Rural Residential, 5-Acre Minimum Parcel Size [Rural Residential, 1-Acre Minimum Parcel Size, Conditional with Proof of Water] (RR:L-5 [RR-1]), meaning that there may be one parcel for every five acres, or one parcel per acre with proof of water. Coastal Zoning Code Chapter 20.376 establishes the prescriptive standards for development within Rural Residential (RR) zoning districts. Single-family residences are a principally permitted use in the RR zoning district. Setbacks for the subject parcel are twenty feet to the front and rear yards, and six feet on the side yards, pursuant to CZC Sections 20.376.030 and 20.376.035, respectively. Unless a further increase in height were found to not affect public views or be out of character with surrounding development, the maximum building height is 18 feet above natural grade. CZC Section 20.376.065 sets a maximum of 20% structural coverage on RR lots of less than two acres in size.

## 2. Discussion

The proposed residence would be constructed within an existing developed residential subdivision known as Little River Headlands. The proposed use is consistent with the Rural Residential zoning for the site. The subject parcel, created in 1965 before adoption of the County's coastal zoning regulations, is a legal, non-conforming parcel of approximately 0.99 acre in size. The applicants propose to construct a total of 5,675 square feet of single-family

residential structural improvements, representing approximately 13% lot coverage. The proposed maximum building height is 18 feet. The proposed lot coverage and building height are consistent with the standards for the zoning district. Therefore, the proposed development is consistent with the LUP and Zoning designations for the site and would be constructed within an existing developed area consistent with applicable provisions of LUP Policy 3.9-1.

The proposed development would be served by off-site community water supply system operated by the Little River Headlands Mutual Water Company. Sewage would be processed by a proposed septic system that has been approved by the Mendocino County Department of Public Health's Division of Environmental Health.

In a comment letter submitted for the Commission's *de novo* review of the project (see Exhibit No. 15), the appellant raises concerns regarding drainage impacts from the proposed location for the primary and reserve sewage disposal leachfields along the northwestern side of the project parcel, adjacent to the adjoining lot to the west owned by her parents. Ms. Weikel contends that the proposed siting for the Wright leachfield system near their common property line is inappropriate as it would result in drainage impacts to the down slope Weikel parcel. Ms. Weikel asserts that locating the leachfield toward the eastern and northern end of the project parcel would prevent the Weikel property from being saturated with drainage. Ms. Weikel also notes the presence of a community water well on the Weikel property and reasons that its water quality may be adversely impacted by leachfield runoff from the Wright parcel. Ms. Weikel further requests that the presence of the water well be included within any final plans for the project and that an analysis of the capacity of project site soils to absorb leachfield effluent given the amount of seasonal precipitation the area receives also be conducted.

With regard to the appropriateness of the design and siting of the proposed sewage disposal system, the Mendocino County DEH approved the system based upon a review of the system's conformance with its sewage disposal system standards (see Exhibit No. 7). This review included consideration of the effects of wastewater infiltration on surface and subsurface drainage in adjacent areas, area topography, and the proximity of the system to nearby water wells. Although a waiver to the 36-inch minimum depth leachfield-to-groundwater separation standard was granted by the DEH authorizing a reduced 33-inch distance, the Deputy Health Officer found the waiver to be supportable, stating, "after reviewing the conditions on the property in question, ...public health will not be endangered nor water quality impaired as a result of issuance of the waiver."

As to the appellant's suggestion that the system should be located further to the northeastern portions of the property, such a relocation has not been determined by the DEH to be necessary and would be constrained by a DEH standard that disposal systems maintain a 50-foot setback from "cut banks, natural bluffs, and sharp changes in slope" (i.e., the bluff edge that runs along the eastern side of the Wright parcel). With respect to setbacks from the adjoining Weikel parcel on the west side of the project parcel, the wastewater disposal system could be located as close as five feet from the property line and comply with DEH standards, provided that minimum setbacks of 50 feet and 100 feet are maintained between the septic tank and leachfield, and the wells on the western side of the Weikel property, respectively. Furthermore, although some

difference in elevation may exist between the Wright and Weikel parcels, the amount and intensity of the change does not constitute a cliff, cut bank, or sharp break in slope similar to that along the eastern side of the project parcel where a 50-foot setback would be required. Accordingly, with respect to the requirements of LUP Policies 3.8-1 and 3.9-1 that the availability, capacity, and adequacy of sewage disposal be demonstrated prior to issuance of a coastal development permit, the Commission finds that the proposed project is consistent with these LCP policies and standards.

As discussed further below, to provide an adequate setback from geologically unstable areas, Special Condition No. 1 requires the house to be moved. The applicants may choose to relocate the septic system under the new site plan that is prepared to satisfy Special Condition No. 1. To ensure that any new location for the septic system is adequate to serve the development, Special Condition No. 6 requires that prior to issuance of the permit, the applicants submit evidence that the County's Department of Public Health – Division of Environmental Health has determined that the septic system as relocated will be adequate to serve the approved development.

Use of the site as a single-family residence is envisioned under the certified LCP. The cumulative impacts on traffic capacity of development approved pursuant to the certified LCP on lots recognized in the certified LCP were addressed at the time the LCP was certified. Therefore, as conditioned, the proposed development is located in an area able to accommodate the proposed development, consistent with the applicable provisions of LUP Policy 3.9-1.

As discussed below, the proposed development has been conditioned to include mitigation measures which will minimize all adverse environmental impacts.

Therefore, the Commission finds that as conditioned, the proposed development is consistent with LUP Policies 3.9-1 3.8-1, and with Zoning Code Sections 20.376 as the development will be located in a developed area, there will be adequate services on the site to serve the proposed development, and the project will not contribute to significant adverse cumulative impacts on highway capacity, scenic values, or other coastal resources.

**D. Geologic Hazards and Site Stability.**

**1. Summary of LCP Provisions**

LUP Policy 3.4-7 states that:

*The County shall require that new structures be set back a sufficient distance from the edges of bluffs to ensure their safety from bluff erosion and cliff retreat during their economic life spans (75 years). Setbacks shall be of sufficient distance to eliminate the need for shoreline protective works. Adequate setback distances will be determined from information derived from the required geologic investigation and from the following setback formula:*

$$\text{Setback (meters)} = \text{Structure life (years)} \times \text{Retreat rate (meters/year)}$$

*The retreat rate shall be determined from historical observation (e.g., aerial photographs) and/or from a complete geotechnical investigation.*

*All grading specifications and techniques will follow the recommendations cited in the Uniform Building Code or the engineering geologist's report.*

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*Note: This language is reiterated in Zoning Code Section 20.500.020(B).*

LUP Section 3.4-8 states that:

*Property owners should maintain drought-tolerant vegetation within the required blufftop setback. The County shall permit grading necessary to establish proper drainage or to install landscaping and minor improvements in the blufftop setback.*

LUP Section 3.4-9 states that:

*Any development landward of the blufftop setback shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to the instability of the bluff itself.*

LUP Section 3.4-12 states that:

*Seawalls, breakwaters, revetments, groins, harbor channels and other structures altering natural shoreline processes or retaining walls shall not be permitted unless judged necessary for the protection of existing development or public beaches or coastal dependent uses. Allowed developments shall be processed as conditional uses, following full environmental, geologic and engineering review. This review shall include site specific information pertaining to seasonal storms, tidal surges, tsunami runups, littoral drift, sand accretion and beach and bluff face erosion. In each case, a determination shall be made that no feasible less environmentally damaging alternative is available and that the structure has been designed to eliminate or mitigate adverse impacts upon local shoreline sand supply and to minimize other adverse environmental effects. The design and construction of allowed protective structures shall respect natural landforms, shall provide for lateral beach access, and shall minimize visual impacts through all available means. [emphasis added]*

Zoning Code Section 20.500.010 states that development shall:

- (1) *Minimize risk to life and property in areas of high geologic, flood and fire hazard;*
- (2) *Assure structural integrity and stability; and*

- (3) *Neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding areas, nor in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Zoning Code Section 20.500.020(B) states that:

*Construction landward of the setback shall not contribute to erosion of the bluff face or to instability of the bluff.*

## 2. Discussion

The parcel involved in the proposed residential development contains approximately 400 lineal feet of shoreline bluff atop the Little River Headlands along the north side of the mouth of Little River in west-central Mendocino County. The subject site occupies the eastern side of a rocky promontory that forms a dramatic southeast-facing cliff that drops roughly 65 feet to the ocean. Portions of the cliff face are pocked by surficial rock falls of apparent recent origin. At the base of the bluff, a series of sea caves or tunnels have formed beneath the southeastern portion of the parcel, with four openings appearing on the south and east sides of the headland. Approximately 30 feet of overlying bedrock and marine terrace deposits are between the roof of the caves and the top of the bluff.

The geotechnical information initially submitted with the project application to the County in March, 2001 (Earth Mechanics Consulting Engineers, August 23, 1993), was prepared as a preliminary assessment of stable building sites for generic residential development at the site (see Exhibit No. 8). The report concluded that structures could be placed as close as 20 feet from the bluff edge and constructed above the area of the sea tunnels, provided that the structures were supported on reinforced concrete grade beams and drilled piers extending into bedrock in conformance with the report recommendations.

In response to the Commission's request for additional geologic information, the applicants submitted two supplemental geo-technical analyses. The first, prepared by Earth Mechanics, revisited their 1993 recommendations and provided additional substantiation for the 20-foot bluff top setback. A second geotechnical investigation (BACE Geotechnical, November 14, 2001) concluded that the site was suitable for development of single-family-residential "critical structures" (i.e., human-occupied dwellings) with a bluff setback of 25 feet and spread-footing foundations, and "non-critical structures" (i.e., decks, spas, gazebos, etc.) with a 12½-foot setback. The geotechnical report goes on to state that the 25-foot setback is based on an erosion rate of one inch per year for 75 years, multiplied by a safety factor of four. The proposed residence is sited 25 feet from the bluff edge, five feet further landward than the recommendation of the Earth Mechanics report and at the minimum distance recommended by the BACE Geotechnical report.

Dr. Mark Johnsson, the Commission's staff geologist, has reviewed all of the submitted reports and states in his January 17, 2002 memo (see Exhibit No. 10), with regard to the proposed bluff edge setbacks:

The relatively strong sandstone of the Franciscan formation have, in my experience, been observed to erode at long-term rates of between one and four inches per year, figures widely quoted in the literature (see, for example, Griggs and Savoy, 1985). In fact, little detailed work has been done in northern California and actual bluff retreat rates are poorly constrained. At the subject site, as for much of the Franciscan bluffs in Sonoma and Mendocino Counties, grain-by-grain erosion tends to be very slow. Erosion along fractures is more rapid, however, and results in the formation of fissures and sea caves. Bluff retreat occurs through sudden rock topples and failure of sea caves, arches, and other erosional features...

Given the slow grain-by-grain erosion that such strong sandstone exhibit, relatively small setbacks from erosional features such as bluff edges, eroding fissures, and sea caves is probably adequate. From the data presented, I cannot concur, however, that a long-term average bluff retreat rate of one inch per year is well-documented. Nevertheless, given the "factor of safety" of four that the applicant's geologist applies when recommending a 25 foot setback, he effectively is guarding against bluff retreat rates as high as 4 inches per year, a value that is probably higher than the long-term average for this area. Even allowing for a 10-foot buffer to ensure that foundation elements are not actually undermined at the end of their economic life, a 25 foot setback is adequate given long-term bluff retreat rates of up to 2.4 inches per year. Given the nature of coastal erosion at this site, such a setback is probably adequate.

Accordingly, the staff geologist concurs that the recommended 25-foot setback prescribed within the BACE Geotechnical report is appropriate and prudent given the dearth of reliable long-term data on which to base setbacks of lesser width, such as that recommended by the Earth Mechanics reports.

The primary issue of disagreement between the applicants' geologist and the Commission's staff geologist remains the amount of separation that should be provided between the proposed structures and the blufftop expression of the underlying sea caves. With respect to development in proximity to areas above the underlying sea caves, the BACE Geotechnical report first addresses the findings of previously prepared geotechnical analyses, stating in applicable part:

According to the Ballerino report, 'a small area above the tunnel exits was noted to have undergone a degree of settling. There appears to be a direct relationship between the tunnel and this slight settlement of the soil mantle. The indication is that fractures extend from the back of the tunnel up to the surface and constitute a zone of instability which is considered unsafe for building purposes. The block is not likely to slump suddenly, nor is it likely to undergo accelerated erosion of fall



suddenly into the ocean, as there is still 30 feet of bedrock between the back of the tunnel and the surface above.'

According to the Ballerino report, the south portal of the sea cave ('tunnel') is the 'entrance' and the two portals facing the easterly inlet are the sea cave 'exits.' Therefore, the 'small area above one of the tunnel exits' must be above or between the east and northeast portals. Other than the rockfall area between the two portals, no ground surface depressions or other evidence of 'settling' was observed within the sea cave roof during our marine reconnaissance. Therefore, it appears the 'settling' observed by Ballerino was incipient movement of the terrace soils at the rock fall location. We conclude that the settling soils must have dropped away prior to BACE's investigation.

The BACE Geotechnical report goes on to conclude:

The 'A'-shaped cave roof has formed by erosion along an ancient, inactive fault trace. Since continued erosion along this fault trace could lead to partial roof collapse, possibly prior to 75 years from now, an additional cave setback of five feet from the cave wall, is recommended. The cave setback need not apply to non-critical structures, as per above.

Notwithstanding the variety of data on which the geotechnical report's recommendations were founded (i.e., photogrammetric comparisons, *in situ* examination of cave conditions, exploratory borings), an issue of conformance with the standards of the LCP for assuring that adequate setbacks are provided from unstable areas would continue to exist should the development be constructed consistent with the recommendations of the geotechnical reports. At its closest point, the proposed house would be five feet from the blufftop projection of the back of the sea cave, in conformance with the minimum setback recommended in the BACE Geotechnical report. Although the five-foot setback has been recommended to presumably keep the structures out of the areas most prone to ground subsidence due to cave instability for the full economic life of the structures, the efficacy of the five-foot width was not addressed. This five-foot-width is especially of concern given that the setback is less than the 6¼-foot setback (1" per year bluff retreat rate x 75 years = 75") prescribed for the bluff edge with no margin of safety having been included. Should the ground area above the sea cave collapse during the life of the structures, the recommended 5-foot setback would provide very little buffer between the structures and the bluff edge resulting after the collapse of the sea cave.

Dr. Johnsson confirms that the presence of the fault-formed sea caves is an important aspect of geologic stability at the subject site, stating:

Given the history of the subject site and adjacent areas, episodic bluff retreat in the form of rock fall is to be expected. In particular, the collapse of erosional features such as the sea cave on the site is to be expected. Sea caves are well recognized as erosional hazards to bluff top development, and the Commission has seen many applications for the construction of seawalls, revetments, and

infilling of sea caves as a response to the threat posed by sea cave collapse (see, for example, permits granted in San Diego County for the infill of sea caves in dense sandstones similar to the subject site, such as F8915 [Phillips], F9143 [Seascape Shores], 6-96-102 [Solana Beach and Tennis Club Homeowners Association], 6-98-027 [O'Neal], 6-98-021 [Blackburn], 6-00-066 [Monroe and Pierce] and A-42-79-A1 [22-240 Associates]).

With respect to the five-foot sea cave setback recommended within the November 14, 2001 BACE Geotechnical report, Dr. Johnsson states:

Since the sea cave may be expected to fail within the project life, a five-foot setback from the rear wall of the cave was recommended. The resulting "cave setback," although apparently intended to yield a conservative setback from the cave, varies from 0 to only about 8 feet landward of a 25-foot setback line from the edge of the bluff [Exhibit No. 8]. No explanation was provided for why five feet was considered an appropriate setback from the cave.

As regards an appropriate setback from the areas on the lot underlain by sea caves, Dr. Johnsson concludes:

Accordingly, I recommend that the 25 foot setback recommended above [in the BACE Geotechnical report from blufftop margins] be measured from the most landward part of all portions of the sea cave. Because of the large size of this cave, such a setback will result in a setback from one part of the bluff edge of as much as 54 feet. It is my opinion that such a setback is appropriate. It is impossible to predict when the cave will fail, but when it does, the most landward portion of the cave will be the new bluff edge. If the cave were to collapse early in the lifetime of the development, it is important that a 25 foot setback be maintained to provide assurance that no seawall or other shoreline protective devices would be needed over the lifetime of the development.

With respect to the likelihood of failure of the sea cave roof and the differing setback recommendations, Mr. Olsberg in his February 22, 2002 letter-report states:

Sinkholes with total roof collapse are a relatively rare phenomena. Although there are hundreds, if not thousands, of sea caves on the Sonoma and Mendocino coasts, BACE has observed only 4 or 5 sinkholes or blowholes with total roof collapse. In addition, BACE has observed several caves with small caves with small (a few feet across) open holes in the sides or roof. Sinkholes or blowhole development with total roof collapse is a long process that generally takes hundreds of years, as judged by BACE's observations over the last quarter of a century.

Based upon his perceived potential for roof collapse, Dr. Johnsson recommends a 25-foot setback from the most landward part of the sea cave. As stated on Page 8,

2<sup>nd</sup> Paragraph of BACE's report: 'The "A" shaped cave roof has formed along an ancient, inactive fault trace. Since continued erosion along this fault trace could lead to partial roof collapse, possible prior to 75 years from now, an additional cave setback of five feet from the cave wall is recommended.' The type of 'partial roof collapse...prior to 75 years from now' that is envisioned by BACE is shown on modified Cross Section A-A', Plate 12, attached to this letter. Based on this type of roof collapse, which could possible occur within the next 50 to 75 years, a 5-foot setback from the cave wall, as recommended in BACE's report should be adequate. Total roof collapse, as envisioned by Dr. Johnsson could take an additional several hundred years...

Mr. Olsborg also took issue with the extent and non-local basis for Dr. Johnsson's recommended 25-foot setback:

Dr. Johnsson further recommends that setbacks be measured from the landward part of 'all portions of the sea cave.' He then states that there is a precedent (San Diego Municipal Code) for using the most landward portion of an erosional feature such as a sea cave to establish setbacks. BACE is very concerned by this viewpoint. Many sites, if not most, on the Sonoma and Mendocino coasts have sea caves. BACE considers it very important (critical) that a geological / geotechnical investigation for coastal properties include a reconnaissance into the cave to see if the cave increases in size within, and whether significant erosion is occurring. For example, a sea cave that is a few feet high, which goes 30 feet into a bluff, where there is 60 feet of hard rock over the cave and no signs of accelerated erosion can be observed, is of little concern to BACE. While it is generally not desirable to build directly over a sea cave, there is no reason to apply a bluff edge setback to the inside of such a sea cave, as described. It is important to perform a specific evaluation for each cave.

Mr. Olsberg further states his disagreement with Dr. Johnsson over the feasibility of relocating the proposed residential improvements to accommodate a 25-foot setback from the back walls of the sea cave:

Finally, Dr. Johnsson expresses his opinion that 'on this particular lot, a 25 foot setback from the most landward parts of the sea cave still leaves a very usable lot.' Apparently Dr. Johnsson is unaware of the 20-foot setback from the property line with the neighboring parcel. With these setbacks, the house will be moved further to the north resulting in the planned leach field being crowded closer to the planned storm drain field, and the planned driveway. Therefore, the expanded cave setback would result in a geologically/geotechnically less desirable condition than is presently planned based upon our recommendations.

BACE also has concerns about CCC Staff Report Special Condition 1(A)2(b) wherein the 'required landscaping shall be situated outside of all bluff edge and sea cave setbacks...' This condition will result in an adding another 10 feet or

more to the building setback to allow a sufficient distance between the house and the proposed trees. Furthermore, trees are generally beneficial to bluff stability by removing potentially-destabilizing water from the subsurface, as well as 'tying' the soil and rock materials together with their roots. On this basis it is more beneficial to have the trees within the setback as an erosion protection measure.

The applicants' geologist, Eric Olsberg, CEG of BACE Geotechnical, requested that a site visit be scheduled to allow Dr. Johnsson to examine site conditions first-hand. On February 27, 2002, Dr. Johnsson and other Commission staff met with the current lot owner, Ms. Jill Roost, Mr. Olsberg, and agent Bud Kamb. A planned kayak excursion into the sea caves had to be cancelled due to the rough sea state, however Dr. Johnsson was able to rappel down the bluff face and inspect the caves from their openings. In addition, Dr. Johnsson and Mr. Olsberg took the opportunity to review other site conditions, including whether any surface failures on the bluff top above the caves was evident and the route and discharge point for roadside stormwater drainage. Mr. Olsberg also provided further written justification, dated February 22, 2002, for his recommended five-foot sea cave setback (see Exhibit No. 9).

In a responding memo dated April 11, 2002, Dr. Johnsson addresses the results of the February 27, 2002 site visit. The memo begins with Dr. Johnsson stating his concurrence with Mr. Olsberg that sinkhole formation on the blufftop previously observed in the Ballerino geological report and previously noted as a concern in Dr. Johnsson's January 17, 2002 memo were unfounded. Similar to Mr. Olsberg's conclusions, Dr. Johnsson reasoned that the small depression on the blufftop was not related to any subsidence caused by an appreciable amount of surface materials filtering through the inactive fault on which the cave is developed.

With regard to Mr. Olsberg's position on an appropriate sea cave setback distance, Dr Johnsson responds as follows:

The 22 February 2002 BACE letter suggests that a partial roof collapse leading to a skylight entrance to the cave is the most likely failure mechanism, and provides a schematic of what such a collapse might look like, using a modified version of cross section A-A' from their earlier report. The letter further states that a collapse of the entire roof of the cave, along a failure plane closer, or coincident with, the rear wall of the cave "could take an additional several hundred years." Although the failure mechanism envisioned in the BACE letter is quite possible, I believe a "total collapse," in addition to other types of "partial collapse," are equally possible. Experience in other parts of the state has demonstrated that sea caves can and do collapse suddenly in their entirety (several recent collapses in Solana Beach have been of this variety), or more gradually, in parts, leading to arches, sea stacks, and similar offshore features such as are common on the Mendocino coast. Maps of sea caves on Santa Cruz Island, prepared by the Southern California Sea Cave Survey (see Bunnell, 1988), show a wide variety of collapse features. In the present case, there simply are not sufficient data available to constrain the most likely collapse mechanism.

Further, with regard to Mr. Olsborg's prediction that failures within a 50 to 75-year timeframe would be limited to the partial collapse and/or erosion along the existing fault trace, or that a total sea cave collapse might take several hundred years to occur, Dr. Johnsson replies:

Placing time constraints on such a collapse—or partial collapse by another mechanism—is, in my opinion, highly speculative at best. It is quite possible that the cave will not collapse during the 75-year assumed economic lifespan of the development. But it is equally possible that the cave could collapse unexpectedly at any time in the future. In my opinion, given the current state of the science, it is neither possible to accurately predict a failure mechanism nor to place meaningful constraints on the timing of any particular type of failure.

In holding to his recommendation for a 25-foot setback, Dr. Johnsson states:

I acknowledge that the proposed 25-foot setback from the rear wall of the cave is conservative. But in my opinion, the 5-foot setback proposed by Mr. Olsborg would be insufficient if the cave failed totally and suddenly. Irrespective of long-term bluff retreat, the terrace deposits making up the upper part of the newly-created bluff would likely lay back to a shallow angle due to their low cohesion and to surficial erosion, potentially threatening a structure cited only five feet from the new bluff edge.

With respect to basing the setback from the back wall of all portions of the sea cave and precedent established in other areas of the state, Dr. Johnsson states:

The 22 February 2002 BACE letter further takes issue with the recommendation in my earlier memo that setbacks be established, as in the San Diego LCP, from the rear wall of any sea cave present on a property. The letter contends that small sea caves, with ample overburden and no evidence of erosion, pose little threat and little or no setback is appropriate. The letter does concede, however, that it generally is not desirable to build directly over a sea cave. It is true that a cave such as described (which is in marked contrast to the cave on the subject site—a large cave, with four entrances, developed along a prominent fault) would pose little present danger to a structure located on the bluff above. It also is true that if a cave were to unexpectedly increase in size due to erosion, that it could endanger such a structure in the future. Ample time may be available to recognize the danger and take remedial action... By siting the structure well away from the geologic hazard, much more assurance can be provided that a shoreline protective device will never be required to protect the structure.

Dr. Johnsson closes his memo, stating:

To summarize, I find little disagreement between the positions taken by BACE and myself. What disagreement does exist largely reflects a level of conservatism with regard to assuring that no shoreline protective devices will ever be required

at the site. I concur that the proposed 25-foot setback from the rear wall of the sea cave is conservative; it is entirely possible that the cave will neither collapse nor enlarge sufficiently to threaten the structure over the 75 years. There is, however, no geologic or scientific assurance that can be given to that effect. Given the uncertainty of predicting coastal erosion in general, together with the relatively unarmored condition of this section of the coast, I recommend that setback criteria err in the direction that would be most protective of the coast while preserving the rights of land owners to develop their property.

Thus, the Commission's staff geologist continues to support application of the previously recommended 25-foot setback from the landward backside of the sea cave walls for the following reasons:

- The partial failure scenario envisioned by Mr. Olsborg is not the only or most likely failure mechanism to occur during the economic life of the structures. Other, much more extensive blufftop failures are equally probable. Numerous examples of a variety of sea cave collapses exist at other locations throughout the state in similar lithologies to that underlying the project site.
- Prediction of specific time constraints in which the project site would be immune to different or more extensive blufftop failures than that envisioned under the partial failure scenario is speculative. Given the current state of statistical analysis, similar probabilities could be assigned to an unexpected partial or complete collapse at any time.
- Given the likelihood that the friable soil mantle overlying the collapsed area would erode back to a shallow angle of repose, a 25-foot setback would provide greater protection for the structure than would a five-foot setback. In addition, if the cave were to unexpectedly increase in size due to erosion to a degree that could endanger structures in the future, a greater setback would afford ample time to recognize the danger and take remedial action (i.e. relocate the structure, re-engineer the foundation) short of having to immediately install a shoreline protective structure such as a sea wall.
- Unlike other situations where underlying sea caves are relatively minor in their extent or have substantial overburden that would make failure of the overlying terrace less likely, the subject site is underlain by a significant sea cave with multiple entries, formed along a prominent fault.

With respect to the other site constraints that affect the feasibility of relocating site improvements to accommodate the recommended 25-foot setback, RR-1 zone minimum front and side yard standards require that above-ground structures not be constructed within 6 feet and 20 feet from the property's west and north boundaries, respectively. In addition, within the deed for each of the Little River Headlands Subdivision lots are title Covenants, Conditions and Restrictions (CC&Rs) that require owners to maintain 30-foot front yard and 20-foot side yard areas clear of all above-grade structures. Thus, the proposed septic system leachfield and any needed runoff drainage field can be located within the front and side yard setbacks and still be

consistent with the CC&Rs and Coastal Zoning Code requirements. Although the lot's available building area is constrained by the need to maintain these yard setbacks, the Commission finds additional area exists along the parcel's north side in which the proposed structures could be placed such that a larger sea cave setback could be provided. An area of approximately 125 feet longitudinally and 45 to 115 feet laterally landward of the proposed house site is available on the lot for building placement without encroaching into the front and side yard setbacks.

As shown in Exhibit No. 4, much of the available space into which the structures could be further set back has been proposed as the locations for stormwater infiltration systems. Notwithstanding the need to develop required wastewater and drainage facilities, there is adequate area on the parcel to reconfigure the improvements to provide a 25-foot setback between proposed structures, the bluff edge, and the blufftop projection of the back of the sea caves, comply with zoning district and subdivision yard standards, and accommodate development of requisite wastewater and drainage facilities.

For example, as illustrated in Figure 1 below, it would be feasible to move the house and garage to meet the setback requirements in a manner that would not require moving the proposed and tentatively approved primary and reserve septic system areas should the applicants choose to do so. (Note: For additional information regarding sewage disposal location requirements, refer to Findings Section IV.C.2, above.) In such a case, the house could be relocated approximately 108 feet northeasterly to the north-central portion of the lot. The garage would also need to be relocated approximately 85 feet to the northwest to clear area for the relocated residence and provide a minimum ten-foot separation between the structures, consistent with uniform building and fire codes adopted by the County. Similar reconfiguring would also be necessary for the proposed driveway. This reconfiguration would also have the added benefit of reducing the amount of impervious surface by shortening the required length of the driveway needed for accessing the garage.

Such a relocation would necessitate both removing two trees to the east of the house and possibly shifting the garage more to the west of the house than originally proposed. Removing the trees would not have a significant adverse effect on views from public vantage points because as discussed in Visual Resources Findings Section IV.G.2, below, this portion of the lot where the trees exist is screened from view of the principal public vantage points. Although such a site plan may require clustering of the buildings greater than originally envisioned, area on the lot exists to relocate the proposed structures to accommodate a 25-foot setback, develop required sewage disposal systems consistent with County standards, and provide stormwater treatment facilities for roof and driveway runoff, while abiding by zoning district and subdivision setback standards.

Another siting alternative, illustrated in Figure 2 below, would involve relocating the structures the minimal amount necessary to achieve the recommended 25-foot sea cave setback while maintaining minimum front and side yard standards. For example, the main residence could be relocated approximately 78 feet to the north. The garage would also need to be relocated approximately 65 feet to the northeast to clear area for the relocated residence and provide a minimum ten-foot separation between the structures, consistent with uniform building and fire

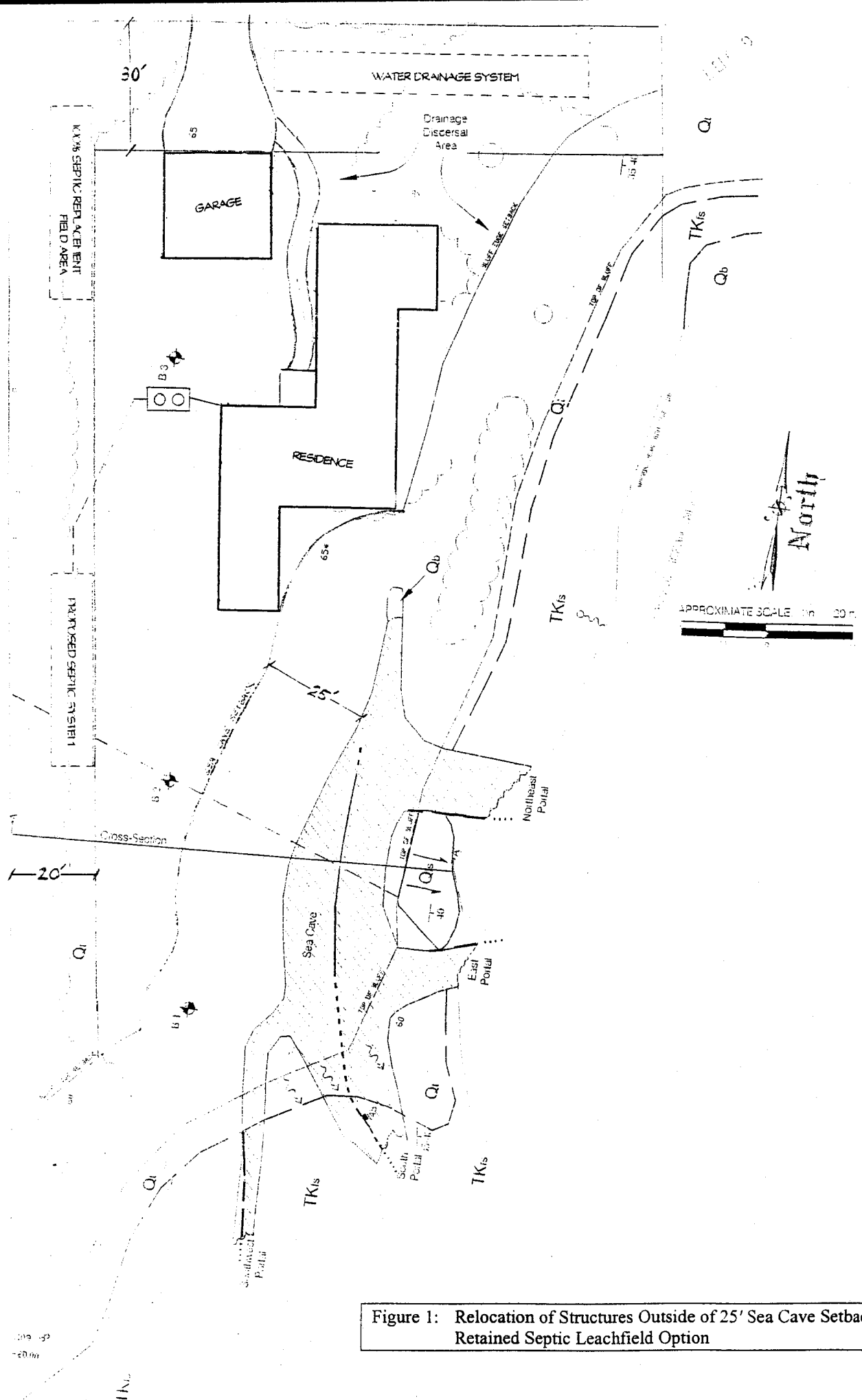


Figure 1: Relocation of Structures Outside of 25' Sea Cave Setback Retained Septic Leachfield Option



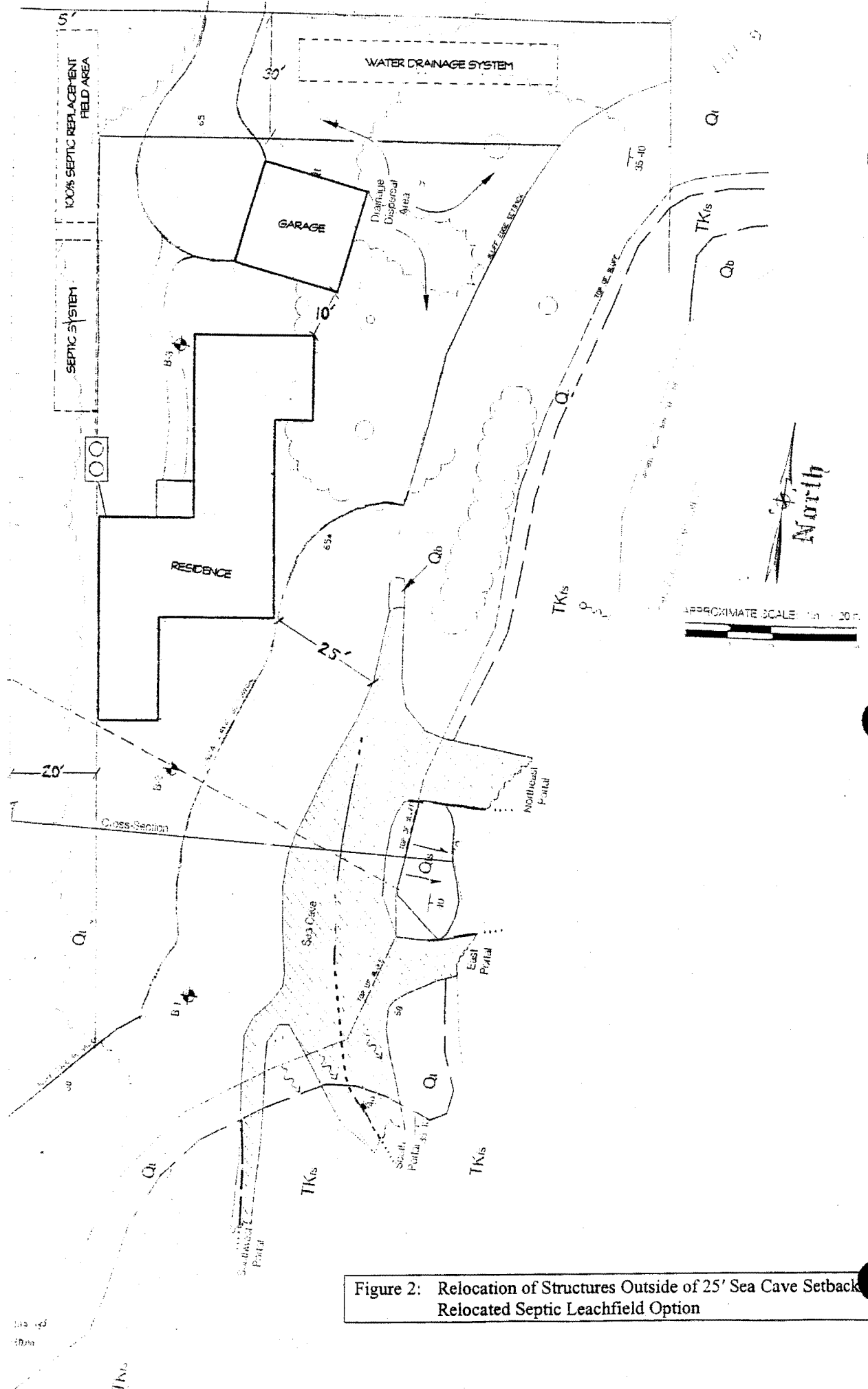
codes adopted by the County. This option would not necessitate removing any trees, however, to maintain the same plumbing outlet point and comply with sewage disposal system standards for minimum setbacks from structures, the septic system would need to be relocated.

Figure 2 shows one potential configuration wherein the septic system has been shifted northerly within the western side yard approximately 70 feet. The soil suitability information developed for the site indicates that septic capacity of the parcel is good (i.e., Zones "2A" and "2B") and this location is generally in the same location where the DEH approved the siting of the replacement leach field system under the applicants' proposed site plan. In addition, both the certified professional soil scientist who prepared the sewage disposal system proposal and the DEH staff member who approved the proposed design have indicated that the site has some flexibility to accommodate relocating the septic system to other portions of the parcel subject to field verification of compliance with requisite setbacks. As discussed in Findings Section IV. C.2 above, Special Condition No. 6 requires that if the septic system is relocated, the applicants are required to submit evidence that DEH approves of the new location to ensure that the project would be developed in a manner consistent with the septic system requirements incorporated into the LCP.

The Commission also finds that there may be other variations to these alternatives that could also work such as shifting the garage further to the west or locating the garage and house closer to one another, provided necessary fire wall rating upgrades are included in the design of these structures. The Commission also notes that should the applicants choose not to relocate the house and garage structures as currently designed in the manner discussed above, the applicants also have the option of meeting the geologic setback requirements by submitting a new house design that changes the structure footprints and elevations of the structures. Such a new design would require an amendment to the permit, as the Commission would need to evaluate whether any newly proposed design conforms with the other standards of the LCP, particularly the visual standards.

In order to approve the development currently proposed, the Commission must determine whether the proposed development would assure stability and structural integrity for the economic lifespan of the development. Due to the unpredictable nature of the overburden above the sea caves and their significance in influencing the rate of bluff retreat and subsidence at the site, the Commission must first consider the "worst case scenario" to determine consistency with the policies of the LCP. As observed within the findings of the BACE geotechnical report prepared on behalf of the applicants, it is likely that portions of the sea caves may collapse within the 75-year economic design life of the structures.

Assuming such a collapse were to be vertical in nature and included the entire cave area, the residence as proposed would be only five feet from the edge of the collapsed cave. Under this scenario, an economic lifespan less than the standard 75 years required by Coastal Zoning Code Section 20.500.020(B)(1) of the certified LCP could result if a sea cave collapse were to unexpectedly occur. If so threatened by catastrophic sea cave collapse or incremental subsidence, the property owners may seek bluff protection that may indirectly benefit the subject site and potentially further the economic lifespan of the residence.



LUP Policy 3.4-12 and Zoning Code Section 20.500.020(E)(1) allow the construction of shoreline protective devices only for the protection of existing development. The construction of a shoreline protective device to protect new residential development is not permitted by the LCP. Furthermore, as discussed below, the construction of a protective device to protect new residential development would also conflict with the visual policies of the certified LCP.

Therefore, the Commission finds that repositioning the buildings to more landward locations to provide a minimum 25-foot setback from both bluff edge and sea cave underlain areas is necessary for the project to conform to the requirements of Coastal Zoning Code Section 20.500.010 that development "*minimize risk to life and property in areas of high geologic, flood and fire hazard*" and "*assure structural integrity and stability.*" Therefore, the Commission attaches Special Condition No. 1. Special Condition No. 1 requires submittal of revised site plans showing the proposed residence and garage set back a minimum of 25 feet from blufftop and sea cave walls, thereby increasing the assurance of structural stability and integrity. Special Condition No. 1 also requires the permittee to construct the development consistent with the approved final plans.

In addition to the recommendations relating to setbacks, the BACE Geotechnical report also provides recommendations regarding site preparation, the construction of foundations, slabs, grading, and drainage facilities to accommodate the geologic characteristics and hazards of the site. Special Condition No. 2 requires submittal of final foundation, construction, and site drainage plans that incorporate all recommendations of the initial geotechnical report intended to avoid creating a geologic hazard. Special Condition No. 2 also requires development to proceed consistent with the approved plans.

The Commission also attaches Special Condition No. 3, which prohibits the construction of shoreline protective devices on the parcel and requires that the landowner provide a geotechnical investigation and remove the house and its foundation if bluff retreat reaches the point where the structure is threatened, and that the applicant accepts sole responsibility for the removal of any structural debris resulting from landslides, slope failures, or erosion of the site.

These requirements are consistent with LUP Policy 3.4-7 and Section 20.500.010 of the Mendocino County Coastal Zoning Ordinance, which state that new development shall minimize risk to life and property in areas of high geologic, flood, and fire hazard, assure structural integrity and stability, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas, nor in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The Commission finds that the proposed development could not be approved as being consistent with Zoning Code Section 20.500.010 if projected bluff retreat would affect the proposed house and necessitate construction of a seawall to protect it.

The applicant is proposing to construct a new house. The house will be located on a  $\pm 65$ -foot-high bluff top that is eroding and underlain by sea caves. Thus, the house would be located in an area of high geologic hazard. The new development can only be found consistent with the above-referenced provisions if the risks to life and property from the geologic hazards are

minimized and if a protective device would not be needed in the future. The applicant has submitted information from a geologist which states that if the new development is set back 25 feet from the bluff edge, the development would be safe from erosion and would not require any devices to protect the proposed development during its useful economic life. Similarly, the Commission's staff geologist has recommended the bluff edge setback also be applied to the areas on the parcel underlain by sea caves so structures would be further safe-guarded from geologic hazards associated with catastrophic or incremental collapse of the materials above the sea caves.

Although a comprehensive geotechnical evaluation is a necessary and useful tool that the Commission relies on to determine if proposed development is appropriate at all on any given blufftop site, the Commission finds that a geotechnical evaluation alone is not a guarantee that a development will be safe from bluff retreat. It has been the experience of the Commission that in some instances, even when a thorough professional geotechnical analysis of a site has concluded that a proposed development will be safe from bluff retreat hazards, unexpected bluff retreat episodes that threaten development during the life of the structure sometimes still do occur. Examples of this situation include:

- The Kavich Home at 176 Roundhouse Creek Road in the Big Lagoon Area north of Trinidad (Humboldt County). In 1989 the Commission approved the construction of a new house on a vacant blufftop parcel (Permit 1-87-230). Based on the geotechnical report prepared for the project it was estimated that bluff retreat would jeopardize the approved structure in about 40 to 50 years. In 1999 the owners applied for a coastal development permit to move the approved house from the blufftop parcel to a landward parcel because the house was threatened by 40 to 60 feet of unexpected bluff retreat that occurred during a 1998 *El Niño* storm event. The Executive Director issued a waiver of coastal development permit (1-99-066-W) to authorize moving the house in September of 1999.
- The Denver/Canter home at 164/172 Neptune Avenue in Encinitas (San Diego County). In 1984 the Commission approved construction of new house on a vacant blufftop lot (Permit 6-84-461) based on a positive geotechnical report. In 1993, the owners applied for a seawall to protect the home (Permit Application 6-93-135). The Commission denied the request. In 1996 (Permit Application 6-96-138), and again in 1997 (Permit Application 6-97-90) the owners again applied for a seawall to protect the home. The Commission denied the requests. In 1998, the owners again requested a seawall (Permit Application 6-98-39) and submitted a geotechnical report that documented the extent of the threat to the home. The Commission approved the request on November 5, 1998.
- The Bennett home at 265 Pacific Avenue, Solana Beach (San Diego County). In 1995, the Commission approved a request to construct a substantial addition to an existing blufftop home (Permit 6-95-23). The minimum setback for the area is normally 40 feet. However, the applicants agreed to waive future rights to shore/bluff protection if they were allowed to construct 25 feet from bluff edge based on a favorable geotechnical report. The Commission approved the request on May 11, 1995. In 1998, a substantial bluff failure occurred, and an emergency permit was issued for a seawall. The follow-up regular permit (#6-99-56) was

approved by Commission on May 12, 1999. On August 18, 1999, the Commission approved additional seawall and upper bluff work on this and several other properties (Permit #6-99-100).

- The McAllister duplex at 574 Neptune Avenue, Encinitas (San Diego County). In 1988, the Commission approved a request to construct a duplex on a vacant blufftop lot (Permit #6-88-515) based on a favorable geotechnical report. By October 1999, failure of the bluff on the adjoining property to the south had spread to the bluff fronting 574 Neptune. An application is pending for upper bluff protection (Permit #6-99-114-G).
- The Arnold project at 3820 Vista Blanca in San Clemente (Orange County). Coastal development permit (Permit # 5-88-177) for a blufftop project required protection from bluff top erosion, despite geotechnical information submitted with the permit application that suggested no such protection would be required if the project conformed to 25-foot blufftop setback. An emergency coastal development permit (Permit #5-93-254-G) was later issued to authorize blufftop protective works.

The Commission notes that the examples above are not intended to be absolute indicators of bluff erosion on the subject parcel, as coastal geology can vary significantly from location to location. However, these examples do illustrate that site specific geotechnical evaluations cannot always accurately account for the spatial and temporal variability associated with coastal processes and therefore cannot always absolutely predict bluff erosion rates. Collectively, these examples have helped the Commission form it's opinion on the vagaries of geotechnical evaluations with regard to predicting bluff erosion rates.

The BACE geotechnical report states that their geological and engineering services and review of the proposed development was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities, stating, "No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in the report." This language in the report itself is indicative of the underlying uncertainties of this and any geotechnical evaluation and supports the notion that no guarantees can be made regarding the safety of the proposed development with respect to bluff retreat.

Geologic hazards are episodic, and bluffs that may seem stable now may not be so in the future. Therefore, the Commission finds that the subject lot is an inherently hazardous piece of property, that the bluffs are clearly eroding both at its margins and underneath the landform, and that the proposed new development will be subject to geologic hazard and may someday require a bluff or shoreline protective device, inconsistent with Zoning Code Section 20.500.010. Based upon the geologic report prepared by the applicant and the evaluation of the project by the Commission's staff geologist, the Commission finds that the risks of geologic hazard are minimized if the residence is set back 25 feet from the bluff edge and the back wall of the sea caves.

However, given that the risk cannot be eliminated and the geologic report does not assure that shoreline protection will never be needed to protect the residence, the Commission finds that the

proposed residence is consistent with the certified LCP only if it is conditioned to provide that shoreline protection will not be constructed. Thus, the Commission further finds that due to the inherently hazardous nature of this lot, the fact that no geology report can conclude with any degree of certainty that a geologic hazard does not exist, the fact that the approved development and its maintenance may cause future problems that were not anticipated, and because new development shall not engender the need for shoreline protective devices, it is necessary to attach Special Condition No. 3 requiring a deed restriction prohibiting the construction of seawalls and Special Condition No. 4 requiring a deed restriction waiving liability.

As noted above, some risks of an unforeseen natural disaster, such as an unexpected landslide, massive slope failure, erosion, etc. could result in destruction or partial destruction of the house or other development approved by the Commission. In addition, the development itself and its maintenance may cause future problems that were not anticipated. When such an event takes place, public funds are often sought for the clean up of structural debris that winds up on the beach or on an adjacent property. As a precaution, in case such an unexpected event occurs on the subject property, the Commission attaches Special Condition No. 3(A)(2), which requires the landowner to accept sole responsibility for the removal of any structural debris resulting from landslides, slope failures, or erosion on the site, and agree to remove the house should the bluff retreat reach the point where a government agency has ordered that the structure not be occupied.

The Commission finds that Special Condition No. 3 is required to ensure that the proposed development is consistent with the LCP and that recordation of the deed restriction will provide notice of potential hazards of the property and help eliminate false expectations on the part of potential buyers of the property, lending institutions, and insurance agencies that the property is safe for an indefinite period of time and for further development indefinitely into the future, or that a seawall could be constructed to protect the development.

Additionally, the Commission attaches Special Condition No. 4, which requires the landowner to assume the risks of extraordinary erosion and geologic hazards of the property and waive any claim of liability on the part of the Commission. Given that the applicants have chosen to implement the project despite these risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards. In addition, the condition ensures that future owners of the property will be informed of the risks, the Commission's immunity from liability, and the indemnity afforded the Commission.

The Commission notes that Section 30610(a) of the Coastal Act and Chapter 20.532 of the County's Coastal Zoning Code exempt certain additions to existing single family residential structures from coastal development permit requirements. Pursuant to this exemption, once a house has been constructed, certain additions and accessory buildings that the applicant might propose in the future are normally exempt from the need for a permit or permit amendment.

However, in this case because the project site is located within a highly scenic area, future improvements to the approved project will not be exempt from permit requirements pursuant to Section 30610(a). Section 30610(a) requires the Commission to specify by regulation those classes of development which involve a risk of adverse environmental effects and require that a permit be obtained for such improvements. Pursuant to Section 30610(a) of the Coastal Act, the Commission adopted Section 13250 of Title 14 of the California Code of regulations. Section 13250 specifically authorizes the Commission to require a permit for additions to existing single family residences that could involve a risk of adverse environmental effect. For example, installing a landscape irrigation system on a blufftop property in a manner that leads to saturation of the bluff could increase the potential for landslides or catastrophic bluff failure.

Another example would be installing a sizable accessory structure for additional parking, storage, or other uses normally associated with a single family home in a manner that does not provide for the collection, conveyance, and discharge of roof runoff to areas away from the bluff edge. Such runoff to the bluff edge could potentially exacerbate bluff erosion at the subject site. In addition, Section 13250(b)(1) indicates that improvements to a single-family structure in an area designated as highly scenic in a certified land use plan involve a risk of adverse environmental effect and therefore are not exempt. As discussed previously, the entire subject property is within an area designated in the certified Mendocino Land Use Plan as highly scenic. Therefore, pursuant to Section 13250(b)(1) of the Commission's regulations, future improvements to the approved development would not be exempt from coastal development permit requirements and the County and the Commission would have the ability to review all future development on the site to ensure that future improvements will not be sited or designed in a manner that would result in a geologic hazard.

Finally, as regards the provisions of LUP Policy 3.4-8 that property owners should maintain drought-tolerant vegetation within the required blufftop setback, no site development, including grubbing or clearing for building sites has been proposed within the 25-foot-wide blufftop setback areas (or within the required 25-foot-wide sea cave setback in which proposed building sites are to be relocated) for which revegetation would be necessary. These areas are currently covered with grass and sod that should continue to provide protection to the blufftop edge from the erosive forces of rainfall and runoff.

The Commission thus finds that the proposed development, as conditioned, is consistent with the policies of the certified LCP regarding geologic hazards, including LUP Policies 3.4-7, 3.4-8, 3.4-9, 3.4-12, and Zoning Code Sections 20.500.010 and 20.500.020, as the development will not result in the creation of any geologic hazards, will not have adverse impacts on the stability of the coastal bluff or on erosion, and the Commission will be able to review any future additions to ensure that development will not be located where it might result in the creation of a geologic hazard. Only as conditioned is the proposed development consistent with the LCP policies on geologic hazards.

**E. Stormwater and Drainage.**

**1. LCP Provisions**

LUP Section 3.4-9 states that:

*Any development landward of the blufftop setback shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to the instability of the bluff itself.*

Coastal Zoning Code Section 20.500.020(B)(3) states that:

*Construction landward of the setback shall not contribute to erosion of the bluff face or to instability of the bluff.*

## 2. Discussion

On September 13, 2001, the Commission found that the filed appeal raised a substantial issue of the County-approved project's conformance with the geologic stability and drainage standards of the certified LCP as relate to the treatment of stormwater runoff. As revised by the applicants for purposes of the *de novo* hearing, the proposed development includes the construction of stormwater runoff treatment facilities comprised of a leachfield-based infiltration basin for building rooftop rainfall drainage, and a percolation drain field for sheetflow runoff from the proposed paved driveway. These drainage facilities are intended to intercept stormwater runoff that would flow toward the erosion-prone blufftop edge and direct it where the runoff can be absorbed into the ground underlying the more stable areas on the northern portion of the parcel. Preventing drainage from flowing over the bluff edge where it could contribute to erosion of the bluff face is consistent with the requirements of LUP Policy 3.4-9 and CZC Section 20.500.020(B)(3).

After reviewing all of the evidence pertaining to drainage and geologic hazards contained in the local record, the Commission finds that, as conditioned, the proposed development with the inclusion of stormwater drainage treatment facilities will not contribute to the erosion of the bluff face or to the instability of the bluff itself. Further, the proposed drainage facilities were evaluated in a supplemental geotechnical review prepared by BACE Geotechnical, dated November 14, 2001. BACE Geotechnical concluded that the proposed drainage improvements to collect, divert and discharge the runoff over the more stable portions of the lot would reduce potential bluff edge erosion while having minimal adverse impact on the site stability. The report bases this conclusion on the site conditions, the geologist's observations, and the relatively low bluff retreat rate on the site.

As discussed further in Findings Section IV.C.2 above, the project permit has been conditioned upon providing a greater geologic setback between the proposed structures and the blufftop projection of the underlying sea caves. This requirement may necessitate relocation of the residence and garage into areas proposed for the drainage treatment works. Notwithstanding this intrusion, there is adequate remaining space within the northern portion of the parcel for developing the rooftop runoff leachfield and driveway infiltration areas. Furthermore, the required relocation of the residential structures toward the road frontage of the parcel would



effectively shorten the required length of the driveway, reducing the amount of impervious surface requiring water quality treatment measures. To ensure that the necessary drainage improvements are redesigned to accommodate the revised arrangement of development under the revised site plan required by Special Condition 1(A)(1), the Commission includes within Special Condition No. 1 the requirement that a revised erosion and runoff plan be submitted for the review and approval of the Executive Director. The condition allows for several design options to provide flexibility for dealing with site constraints including allowing a driveway runoff absorption area as originally proposed that is redesigned to account for the topographical differences of the new location, developing combined or separate leachfield treatment systems for the roof and driveway runoff, and allowing for the driveway to be constructed with a permeable gravel surface to avoid the need for treatment of runoff from the driveway.

Given the assurances of the geotechnical evaluation that: (a) development of the proposed drainage improvements within the northern portion of the project parcel would have minimal adverse impact on the bluff stability; and (b) adequate geologically stable area exists within this portion of the lot to accommodate relocation of the facilities in association with reconfiguration of the building sites, the Commission finds that development of the drainage treatment facilities as conditioned, and the resulting rerouting of the drainage from the parcel is consistent with the provisions of LUP Policy 3.4-9 and Zoning Code Section 20.500.020(B)(3) that proposed development shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to instability of the bluff.

Therefore, the Commission finds that, as conditioned, the proposed development is consistent with LUP Policy 3.4-9, and with Zoning Code Section 20.500.020(B)(3), because Special Condition Nos. 1 and 2 of this permit will ensure that the approved site drainage modifications are installed and will not contribute to the erosion of the bluff face or the instability of the bluff.

**F. Public Access and Recreation.**

**1. Coastal Act Access Policies**

Projects located between the first public road and the sea and within the coastal development permit jurisdiction of a local government are subject to the coastal access policies of both the Coastal Act and the LCP. Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions. Section 30210 states that maximum access and recreational opportunities shall be provided 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 states that 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 30212 states that public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, adequate access exists nearby, or agriculture would be adversely affected.

2. LCP Provisions

The Mendocino County LUP includes a number of policies regarding standards for providing and maintaining public access. Policy 3.6-9 states that offers to dedicate an easement shall be required in connection with new development for all areas designated on the land use plan maps. Policy 3.6-28 states that new development on parcels containing the accessways identified on the land use maps shall include an irrevocable offer to dedicate an easement.

LUP Policy 3.6-27 states:

*No development shall be approved on a site which will conflict with easements acquired by the public at large by court decree. Where evidence of historic public use indicates the potential for the existence of prescriptive rights, but such rights have not been judicially determined, the County shall apply research methods described in the Attorney General's 'Manual on Implied Dedication and Prescriptive Rights.' Where such research indicates the potential existence of prescriptive rights, an access easement shall be required as a condition of permit approval. Development may be sited on the area of historic public use only if: (1) no development of the parcel would otherwise be possible, or (2) proposed development could not otherwise be sited in a manner that minimizes risks to life and property, or (3) such siting is necessary for consistent with the policies of this plan concerning visual resources, special communities, and archaeological resources. When development must be sited on the area of historic public use an equivalent easement providing access to the same area shall be provided on the site.*

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Note: This policy is implemented verbatim in Section 20.528.030 of the Coastal Zoning Code

3. Discussion

In its application of the above policies, the Commission is limited by the need to show that any denial of a permit application based on this section, or any decision to grant a permit subject to special conditions requiring public access is necessary to avoid or offset a project's adverse impact on existing or potential access.

The subject site is located within a locked-gate subdivision west of the first public road and sits atop a steep coastal bluff. The County's land use maps do not designate the subject parcel for public access, and there does not appear to be any safe vertical access to the rocky shore down the steep bluffs. According to the County, there is no evidence of public prescriptive use of the subject site, and so the County did not instigate a prescriptive rights survey. Since the proposed development would not significantly increase the demand for public access to the shoreline and would have no other significant adverse impacts on existing or potential public access, the Commission finds that the proposed project, which does not include provision of public access, is consistent with the public access policies of the Coastal Act and the County's LCP.

**G. Visual Resources.**

**1. Summary of LCP Provisions**

LUP Policy 3.5-1 states in applicable part:

*The scenic and visual qualities of Mendocino county 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 designated by the County of Mendocino Coastal Element shall be subordinate to the character of its setting.*

LUP Policy 3.5-3 states in applicable part:

*The visual resource areas listed below are those which have been identified on the land use maps and shall be designated as 'highly scenic areas,' within which new development shall be subordinate to the character of its setting. Any development permitted in these areas shall provide for the protection of ocean and coastal views from public areas including highways, roads, coastal trails, vista points, beaches, parks, coastal streams, and waters used for recreational purposes.*

- *Portions of the coastal zone within the Highly Scenic Area west of Highway 1 between the Ten Mile River estuary south to Navarro River as mapped with noted exceptions and inclusions of certain areas east of Highway 1...*

*In addition to other visual policy requirements, new development west of Highway One in designated 'highly scenic areas' is limited to one story (above natural grade) unless an increase in height would affect public views to the ocean or be out of character with surrounding structures... New development should be with visual resource policies and shall not be allowed if new development should be subordinate to natural setting and minimize reflective surfaces...*

LUP Policy 3.5-4 states:

*Buildings and building groups that must be sited within the highly scenic area shall be sited near the toe of a slope, below rather than on a ridge, or in or near the edge of a wooded area. Except for farm buildings, development in the middle of large open area shall be avoided if an alternative site exists... Minimize visual impacts of development on terraces by (1) avoiding development in large open*

*areas if alternative site exists; (2) minimize the number of structures and cluster them near existing vegetation, natural landforms or artificial berms.*

Coastal Zoning Ordinance Section 20.504.015 states, in applicable part:

(C) *Development Criteria.*

- (1) *Any development permitted in highly scenic areas shall provide for the protection of coastal views from public areas including highways, roads, coastal trails, vista points, beaches, parks, coastal streams, and waters used for recreational purposes...*
- (2) *In highly scenic areas west of Highway 1 as identified on the Coastal Element land use plan maps, new development shall be limited to eighteen feet (18) feet above natural grade, unless an increase in height would not affect public views to the ocean or be out of character with surrounding structures.*
- (3) *New development shall be subordinate to the natural setting and minimize reflective surfaces. In highly scenic areas, building materials shall be selected to blend in hue and brightness with their surroundings...*
- (5) *Buildings and building groups that must be sited in highly scenic areas shall be sited: (a) Near the toe of a slope; (b) Below rather than on a ridge; and (c) In or near a wooded area...*
- (7) *Minimize visual impacts of development on terraces by the following criteria: (a) avoiding development in large open areas if alternative site exists; (b) Minimize the number of structures and cluster them near existing vegetation, natural landforms or artificial berms...*
- (10) *Tree planting to screen buildings shall be encouraged, however new development shall not allow trees to interfere with coastal/ocean views from public areas...*

2. Discussion.

The proposed development includes an 18-foot-high, 2,550-square-foot single-family residence, with a detached, 625-square-foot garage. The development is located in the Little River Headlands Subdivision, a gated residential community situated north of the unincorporated town of Little River. The property lies within a designated highly scenic area along the western side of Highway One. The subject site lies in a grassy opening on an uplifted coastal terrace headland with scattered tree and shrub cover that slopes gently toward the bluffs.

Due to its location on a private road closed to non-residents, no views to and along the ocean from the project site are available to the public. Further, due to intervening development and landforms, and the presence of roadside vegetation, the site is visible in the distance to motorists traveling northbound on Highway 1 for an approximate one-second duration at the posted speed limit along the stretch of highway descending to Little River Beach south of the entrance to Van Damme State Park. Consequently, there are only limited views through the site from Highway One as it passes to the east of the subject site. Portions of the site are, however, visible from the southerly portions of public beach south of the Little River mouth within Van Damme State Park. In addition, portions of the site are visible from various locations in nearshore and offshore waters.

As a one-story structure at the proposed 18-foot maximum height, the development would be consistent with the visual resource protection policies and maximum height standards of LUP Policy 3.5-3, and CZO 20.504.015(C)(2).

Furthermore, as required to be relocated to provide adequate setbacks from geologically unstable areas, the building sites for the proposed developments would: (a) avoid placement within open areas on the terrace; (b) be situated both near the edge of a wooded area; and (c) be clustered near existing vegetation consistent with CZC Sections 20.505.015(C)(5) and (7).

With respect to the protection of views to and along the coast, as illustrated on the site's public visibility study map (see Exhibit No. 13), development of the proposed above-grade structures in the locations proposed by the applicants has the potential to adversely affect such views. To mitigate these potential impacts, the applicants have proposed to install landscaping along the eastern side of the parcel, consisting of one Japanese black pine (Pinus thunbergiana), two shore pines (Pinus contorta), and three coast silk-tassel trees (Garrya elliptica) (see Exhibit No. 4).

With relocation of the house and garage as required by Special Condition No. 1, the proposed structures will be moved to an area where they would not be visible from Highway One and Little River Beach. Although portions of the house would continue to be visible from nearshore and offshore waters, the visual impact of the relocated house from the water would be limited as most of the length of the house in its north-south orientation extending away from the bluff edge would not be visible, leaving only the relatively narrow 40-foot width of the house within view. With the required relocation of the development, the proposed landscaping would not be needed to mitigate visual impacts. As relocated, the house and garage would be near a wooded area on the west side of the property, consistent with the requirements of LUP Policy 3.5-4 and Coastal Zoning Code Sections 20.504.015(C)(5) and 20.504.015(C)(7)(b). In addition, by relocating the structures as required by Special Condition No. 1, the project would protect views to and along the coast consistent with LUP Policies 3.5-1, 3.5-3, and CZC Section 20.504.015.

As regards the new development being subordinate to the character of its setting, other homes, landforms, and existing vegetation will mute the appearance of the residence from those vantage points in the ocean. As the headland where the project is located is interspersed with trees, the development would blend into the visual setting of the project. Furthermore, the portions of the development that would be visible from the beach and ocean would be similar to existing one-

and two-story single-family residential development within the Little River Headlands Subdivision. Therefore, for all of the above reasons the development would be both compatible with the surrounding area and subordinate to the character of its setting consistent with LUP Policies 3.5-1, 3.5-3, and CZC Section 20.504.015.

However, the development's building materials must be found to blend in hue and brightness with its surroundings. The applicants' agent has indicated that the exterior of the residence and garage would be horizontal wood siding painted with Sherwin-Williams™ "Canoe" (SW 2043), a dark tan hue. The roofs would be covered with asphalt-fiberglass singles of a charcoal-gray color. To ensure that the colors of the exterior surfaces of the proposed house will be compatible with the character of the area, the Commission attaches Special Condition No. 5. This condition imposes design restrictions, including a requirement that all exterior siding and roofing of the proposed structure shall be of natural or natural-appearing materials of dark earthtone colors only, such as that chosen by the applicants; that all exterior materials, including the roof and the windows, shall be non-reflective to minimize glare; and that all exterior lights, including any lights attached to the outside of the house, shall be low-wattage, non-reflective, and have a directional cast downward.

The condition further requires that a deed restriction be recorded to ensure that future buyers of the property will be notified that the choice of permissible colors of the structure is limited to better ensure that the development is not painted an inappropriate color in the future that would not be consistent in brightness and hue with its surroundings. These requirements will ensure the project is consistent with the provisions of Coastal Zoning Code Sections 20.504.010 and 20.504.035(A)(2).

The Commission also attaches Special Condition No. 3, which requires recordation of a deed restriction stating that the landowner shall not construct any bluff or shoreline protective devices to protect the residence, garage, septic system, or other improvements in the event that these structures are subject to damage, or other natural hazards in the future. This condition will ensure that in the future, no seawall will be constructed that would have significant adverse impacts on visual resources.

As noted in Findings Section IV.F.2 above, the comment letter submitted by Dr. Hillary Adams (see Exhibit No. 15) contends that a gravel driveway surface may be more in keeping with the character of the surrounding area than would a paved driveway. The Little River Headlands is comprised of a mixture of single-family residences, some served by gravel driveways, others with paved driveways. Furthermore, the driveway will be screened from all public vantage points by the approved structures on the site and intervening development and topographical features and vegetation. Moreover, driveways by themselves do not dictate the overall character of the surrounding area. Rather, the area's character is dictated by the particular combination of natural and built environmental elements found there, including terrain, landforms, vegetation, as well as its structures. Accordingly, given the significant reduction in the length of the driveway needed to serve the development resulting from the required relocation of the residential structures, the presence of other homes with paved driveways in the project's vicinity, and the fact that the driveway will be screened from view from public vantage points, the Commission

finds the proposal for a paved driveway to be consistent with the provisions of LUP Policy 3.5-1 that require permitted development be visually compatible with the character of surrounding areas.

In conclusion, the visual resource impacts of the development have been minimized by a combination of existing site conditions, the design of the structures, the inclusion of landscaping within the project, and by the attachment of special conditions to the project approval. The project site is inherently visually obscured by its location within a gated community and the presence of interposed vegetation and landforms that conceal it from most public vantages, especially given the requirement that the approved structures be relocated to meet the geologic setback requirements of Special Condition No. 1. The proposed height for the structures will not exceed the maximum height established in the LCP for highly scenic areas. These factors in conjunction with lighting restrictions will further protect views to and along the coast, ensure compatibility with surrounding areas, and assure that the development would be subordinate to the character of its setting. In addition, by requiring relocation of the structures outside of geologically hazardous areas on the parcel into the more vegetated and wooded portions of the lot, impacts to open terrace areas will be avoided. Further, in requiring dark earthtone colors for the structure, the development's building materials will blend in hue and color with those of its surroundings. Additionally, the special condition requiring a waiver of any rights to construct shoreline protection structures will ensure that a seawall that would dominate the appearance of the bluff will not be constructed in the future.

Therefore, the Commission thus finds that the proposed development, as conditioned, is consistent with LUP Policies 3.5-1, and with Zoning Code Sections 20.376.045, 20.504.010, and 20.504.035.

#### **H. California Environmental Quality Act (CEQA).**

Section 13096 of the Commission's administrative regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (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 Commission incorporates its findings on conformity with LCP policies at this point as if set forth in full. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed herein, in the findings addressing the consistency of the proposed project with the certified LCP, the proposed project has been conditioned to be found consistent with the County of Mendocino LCP and the access and recreation policies of the Coastal Act. Mitigation measures which will minimize all adverse environmental impacts have been made requirements of project approval. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any

significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

V. **EXHIBITS:**

1. Regional Location Map
2. Vicinity Map
3. Excerpt, Land Use Plan Map No. 17 – “Mendocino”
4. Site Plan, House and Garage Elevations, Floor Plans, Landscaping Plan
5. Notice of Final Local Action
6. Appeal, filed July 19, 2001 (Weikel)
7. Required Setbacks for Sewage Disposal Systems
8. Excerpts, Geotechnical Assessments
9. BACE Geotechnical Letter-report, dated February 22, 2002
10. Reviewing Geologist’s January 17, 2002 Memorandum
11. Reviewing Geologist’s April 11, 2002 Memorandum
12. Stormwater Drainage Calculations and Plan (Excerpts)
13. Site Visibility Study Map
14. Review Agency Correspondence
15. General Correspondence

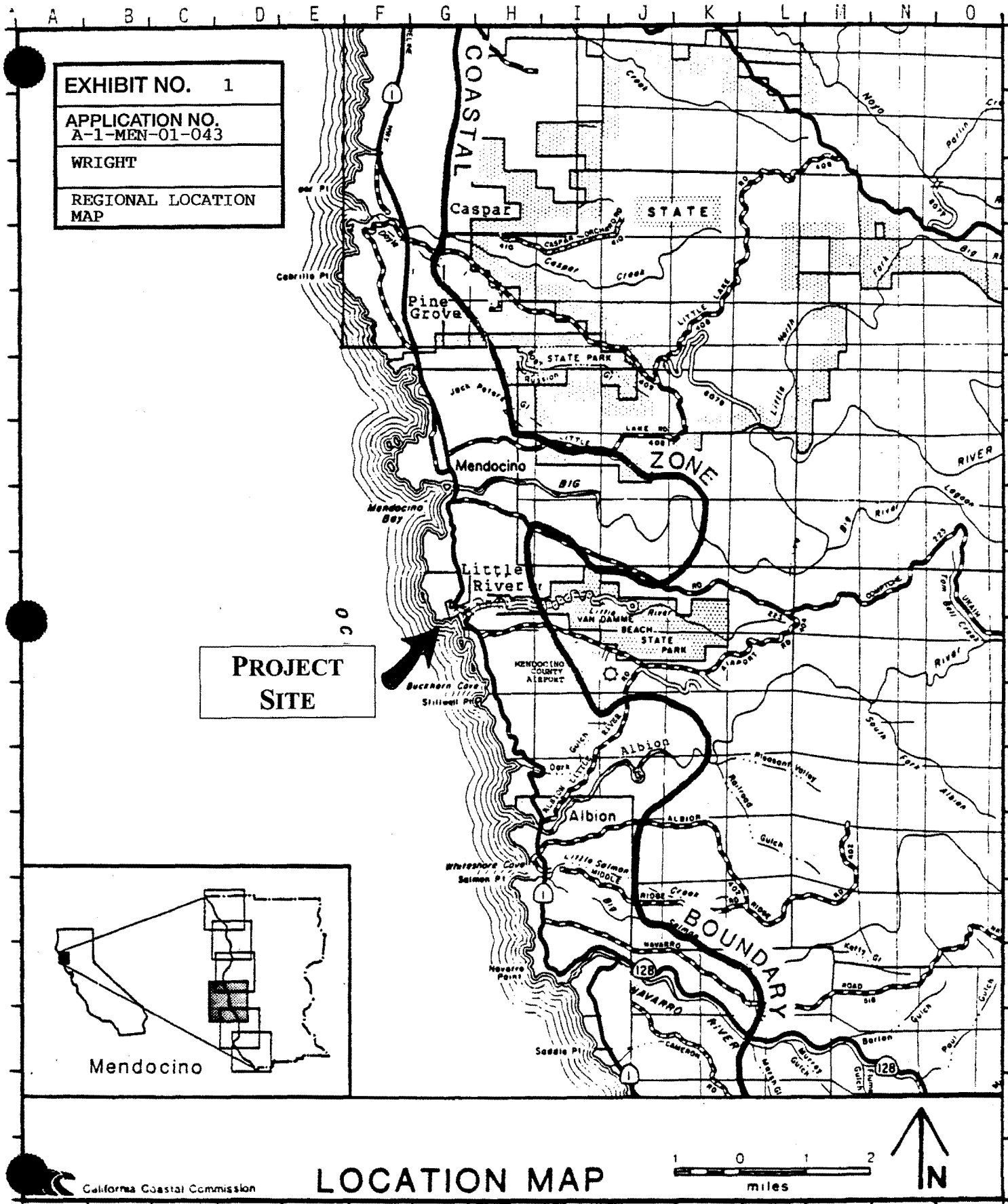


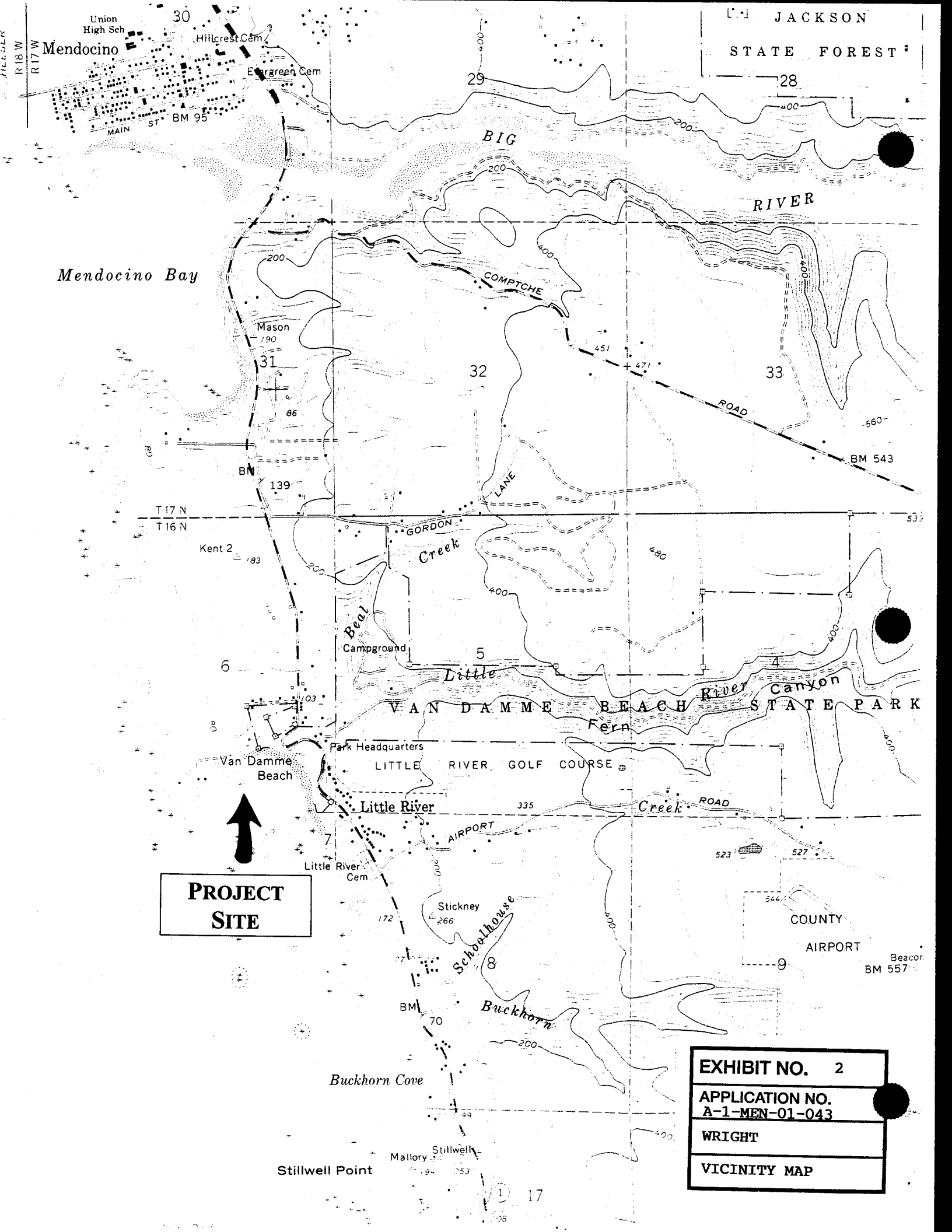
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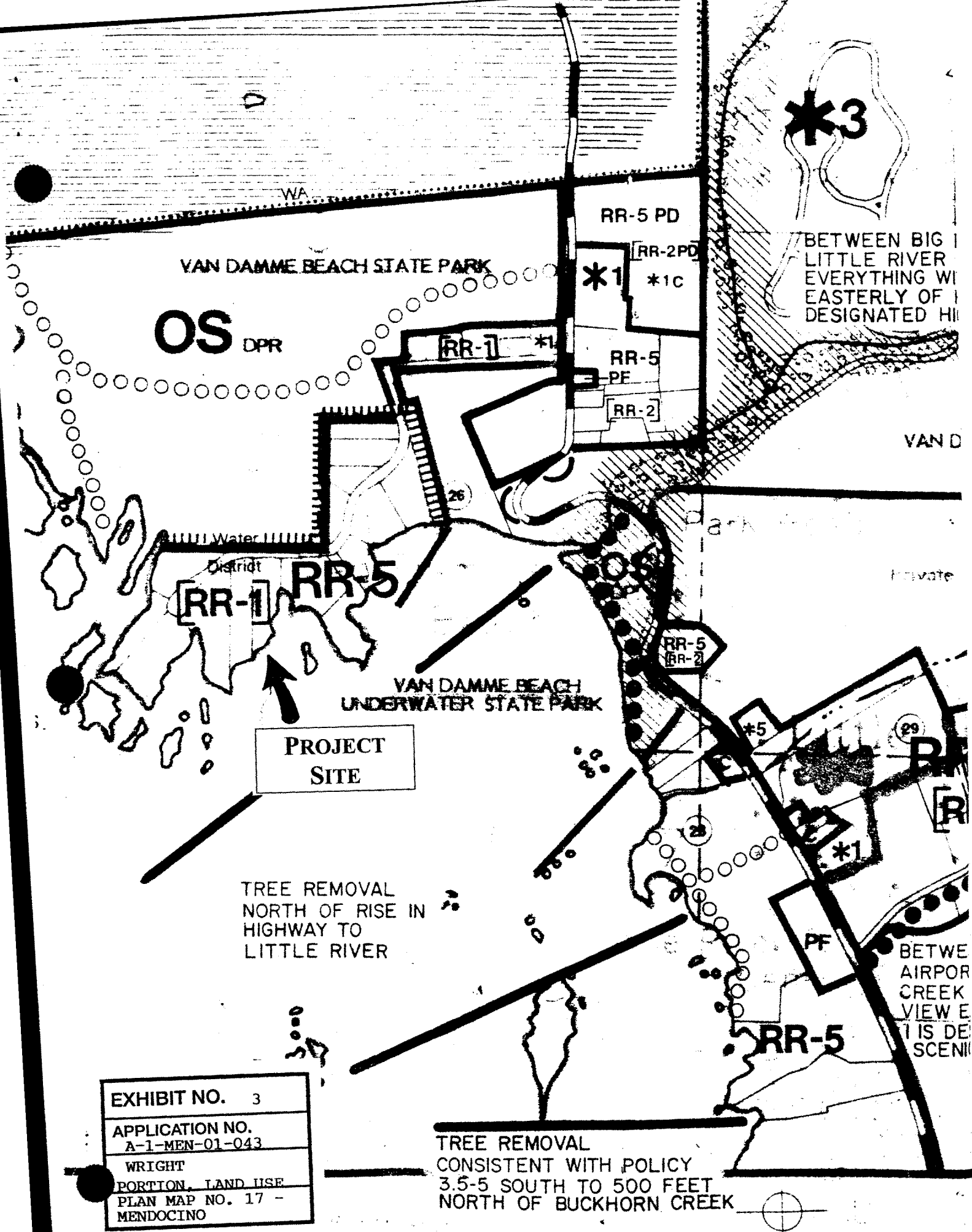
**STANDARD CONDITIONS**

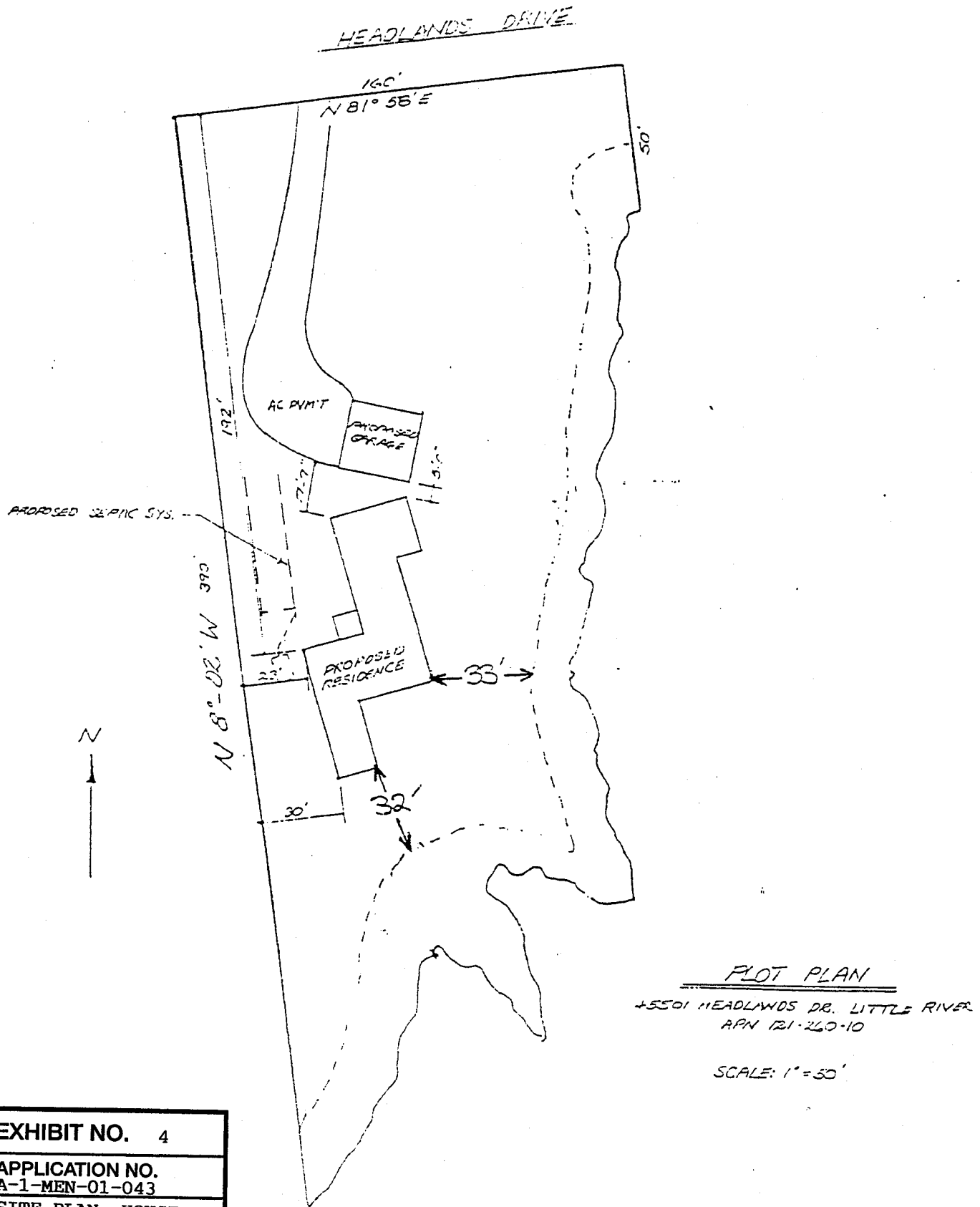
1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.











FLAT PLAN

45501 HEADLANDS DR. LITTLE RIVER  
APN 121-260-10

SCALE: 1" = 50'

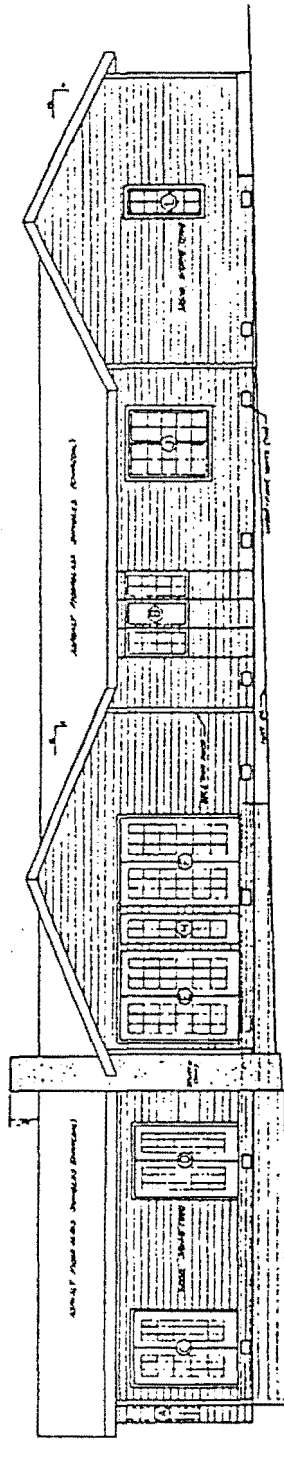
EXHIBIT NO. 4

APPLICATION NO.  
A-1-MEN-01-043

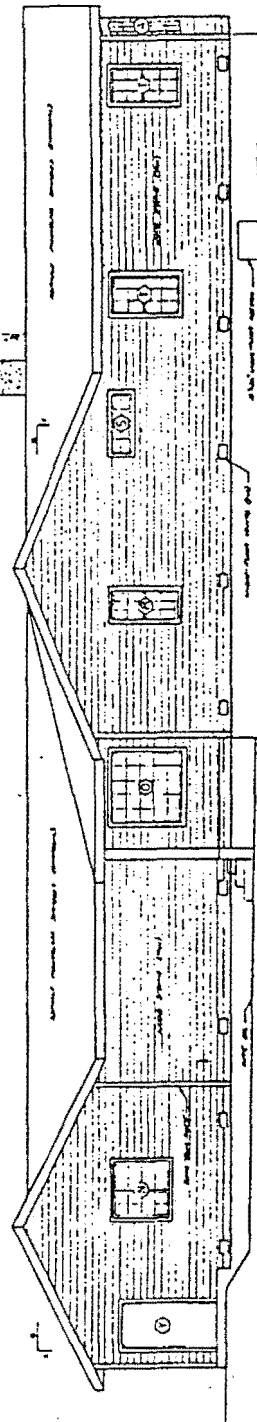
SITE PLAN, HOUSE &  
GARAGE ELEVATIONS,

FLOOR PLANS, LAND-  
SCAPING PLAN (1 of 9)

SITE PLAN

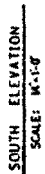
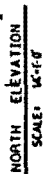


EAST ELEVATION  
 SCALE: 1/4" = 1'-0"



WEST ELEVATION  
 SCALE: 1/4" = 1'-0"

299



3 of 9

**PROCEEDINGS OF THE 1997 ANNUAL MEETING OF THE AMERICAN SOCIETY OF CLIMATE ENGINEERS**

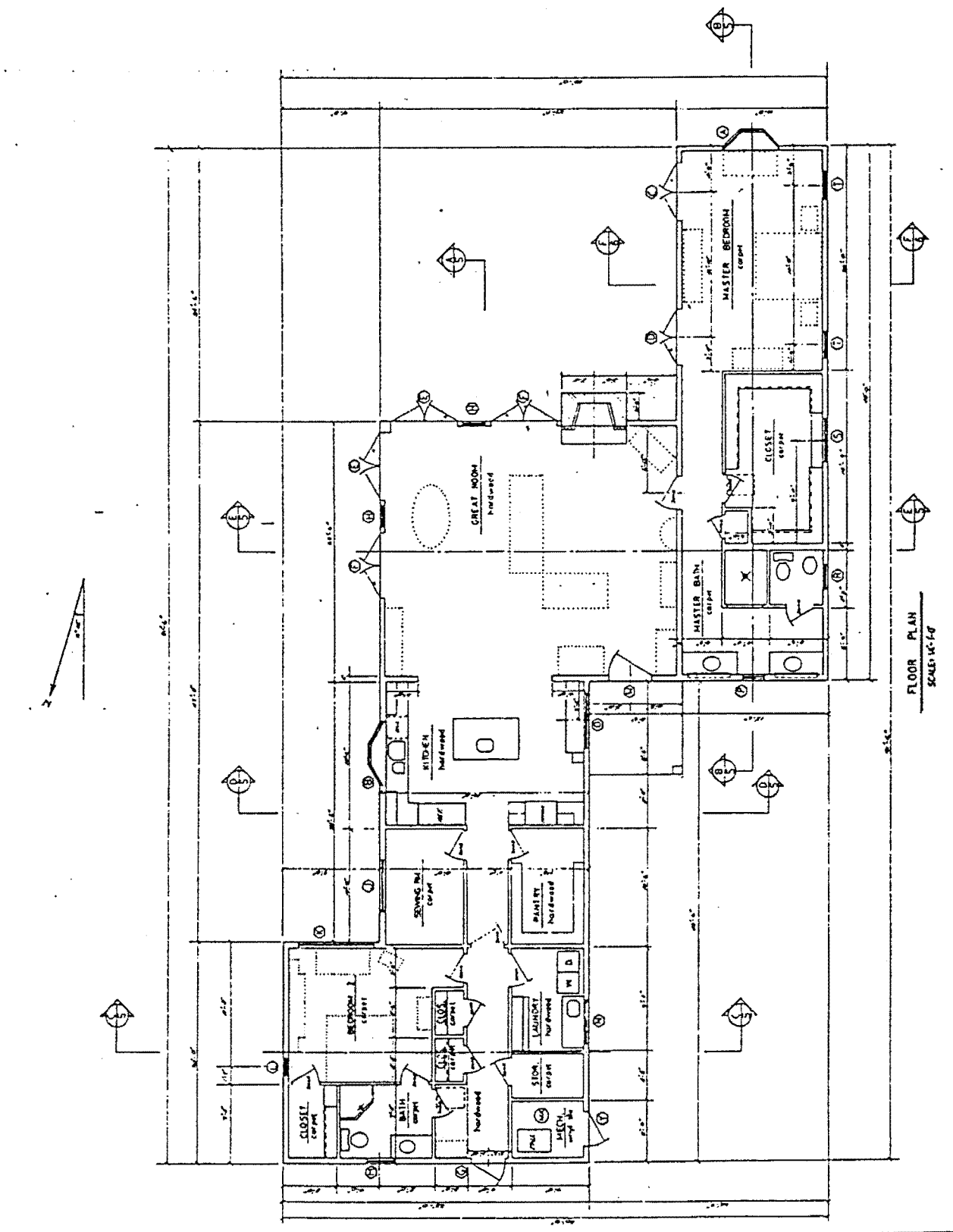
As a result of the program, the company has been able to reduce its inventory levels by 10 percent, which has helped to improve its cash flow. The program has also helped to improve the company's working capital position, which has helped to improve its credit rating. The program has also helped to improve the company's operating leverage, which has helped to improve its profitability. The program has also helped to improve the company's return on equity, which has helped to improve its stock price. The program has also helped to improve the company's return on assets, which has helped to improve its overall performance.

the 1990s, the number of people who have been convicted of crimes has increased. In 1990, there were 1.5 million people in the U.S. who had been convicted of a crime. By 1995, that number had increased to 2.5 million. This increase is due to a number of factors, including the fact that the U.S. has a higher rate of incarceration than most other countries. In 1995, the U.S. had a rate of incarceration of 1,000 per 100,000 people, while most other countries had a rate of less than 100 per 100,000 people. This increase in incarceration is also due to the fact that the U.S. has a higher rate of recidivism than most other countries. In 1995, the U.S. had a rate of recidivism of 65%, while most other countries had a rate of less than 50%.

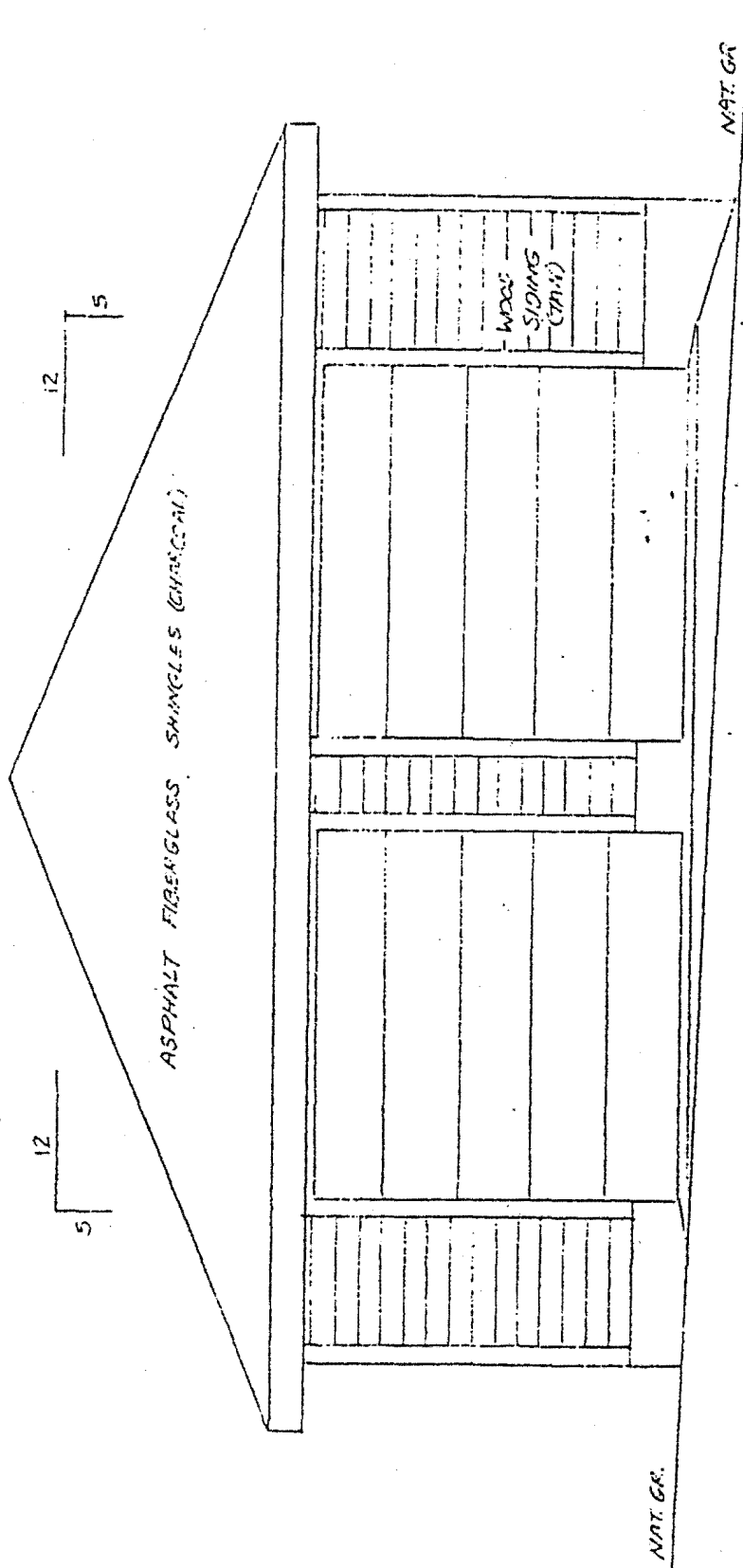
WRIGHT RESIDENCE 43501 MEADOWLANDS DRIVE, LITTLE RIVER, CA	4
PREP'D BY: DAVID WRIGHT GEN. CONTR. NO. 17334 AB 1483 SUTTER ST #508 SAN FRANCISCO PHONE 415/ 528-1583	

4





4 of 9

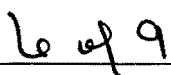


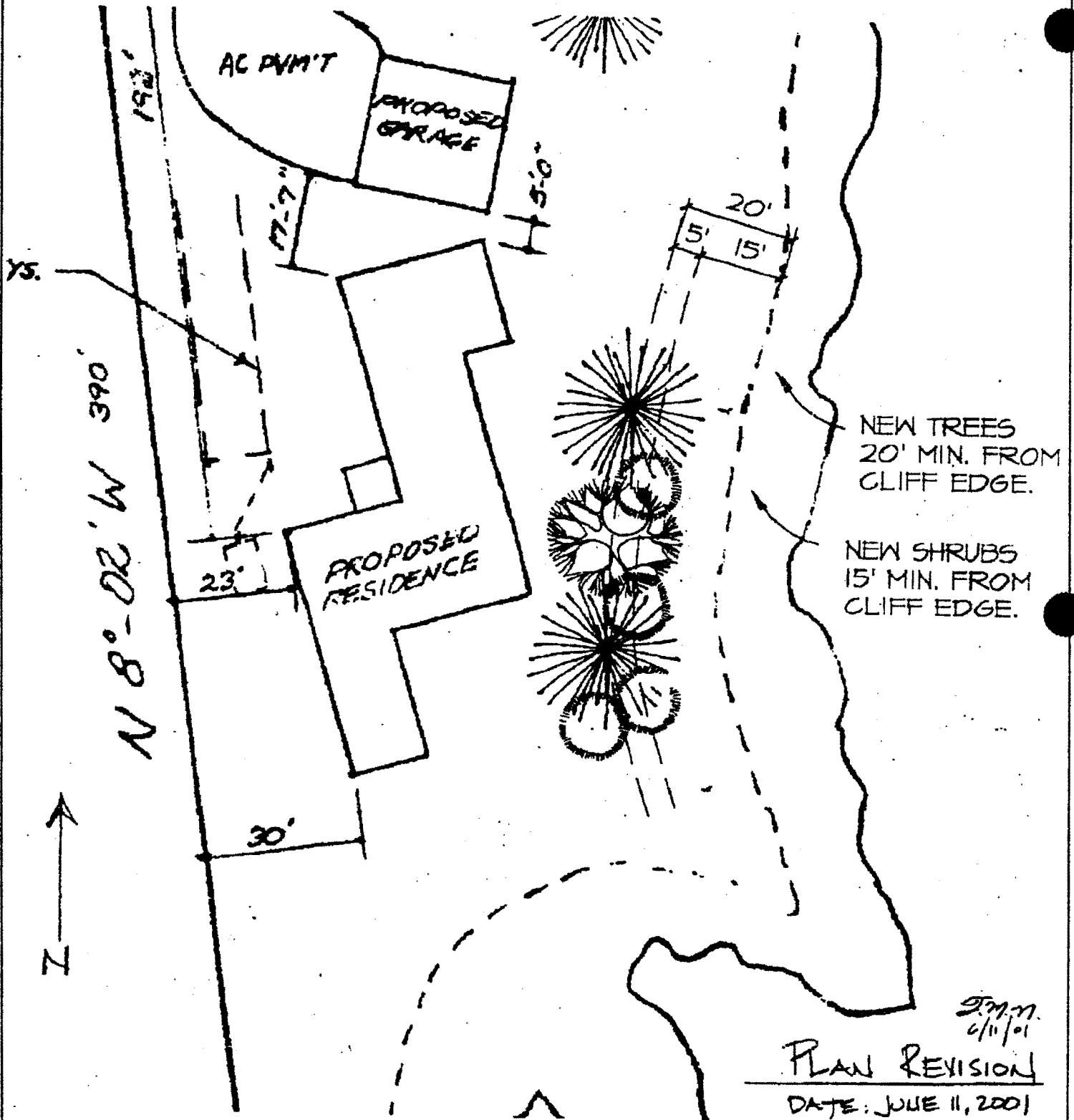
WEST ELEVATION

GARAGE PLAN & SECTIONS

SCALE: 1/4" = 1' 0"

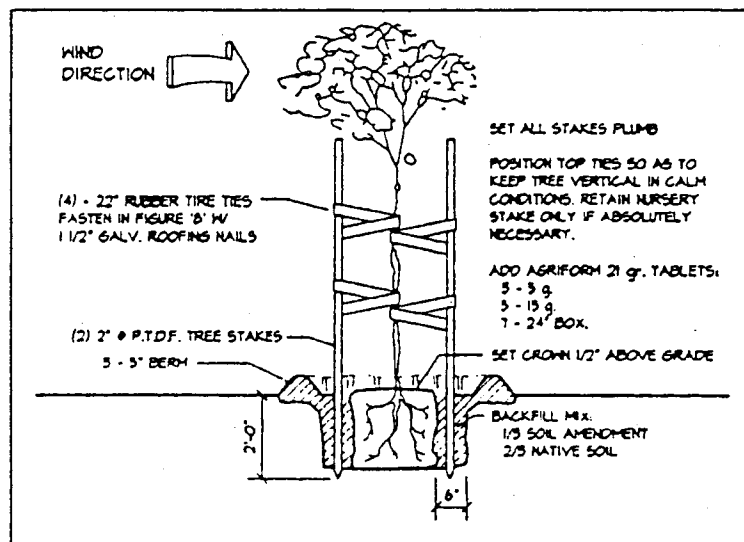
599





PLAN REVISION  
DATE: JUNE 11, 2001  
SCALE: 1" = 25'-0"

7 of 9



3  
LI

## TREE PLANTING DETAIL

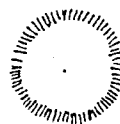
SCALE: 3/8" = 1'-0"



PINUS CONTORTA (SHORE PINE)  
15' TO 30' HEIGHT AND WIDTH  
5 OR 15 GALLON SIZES



PINUS THUNBERGIANA (JAPANESE BLACK PINE)  
50' HEIGHT, 25' WIDTH - 5 OR 15 GALLON SIZES  
5 OR 15 GALLON SIZES



GARRYA ELLIPTICA (COAST SILK TASSEL)  
SHRUB OR SMALL TREE: 8' TO 20' HEIGHT & WIDTH  
5 OR 15 GALLON SIZES

2  
LI

## LANDSCAPE LEGEND

899

#### LANDSCAPE NOTES:

CDP #17-01

June 28, 2001

CPA-18

1. GENERAL CONDITIONS: ALL WORK SHALL BE DONE IN A PROFESSIONAL MANNER AND BE OF THE HIGHEST QUALITY STANDARDS.
2. PLANT MATERIAL:
  - A. ALL PLANTS SHALL BE TOP QUALITY NURSERY STOCK, FREE OF DISEASE AND PESTS.
  - B. ALL PLANTS SHALL BE NORMAL SIZE FOR CONTAINER, VIGOROUS, AND TRUE TO NAME AND VARIETY.
  - C. TREES AND SHRUBS SPECIFIED ON THIS PLAN SHALL BE OBTAINED FROM LOCAL TREE NURSERIES THAT GROW SPECIFIC NATIVE SPECIES.
  - D. PLANT STOCK TO BE USED:

(2) PINUS CONTORTA	5 GALLON OR 15 GALLON SIZE.
(1) PINUS THUNDERGIANA	5 GALLON OR 15 GALLON SIZE.
(4) GARRYA ELLIPTICA	5 GALLON SIZE.
3. SOIL PREPARATION:
  - A. NO ADDITIONAL TOP SOIL NEEDS TO BE IMPORTED INTO THE SITE. THE EXISTING TOPSOIL HORIZON IS SANDY LOAM WITH AN APPROXIMATE DEPTH OF THREE (3) FEET.
  - B. PLANT HOLES SHALL BE TWICE THE DIAMETER AND DEPTH OF THE ROOT BALL. SEE DETAIL 3 / L1 FOR PLANTING INSTRUCTIONS.
  - C. EACH TREE SHALL HAVE 7.5 GALLONS OR 1 CU. FT. OF HUMUS BUILDER OR EQUAL AND 2 TABLESPOONS (2 TBSP.) WATER CRYSTALS ADDED AND MIXED WELL INTO THE BACKFILL MIX TO GIVE THE TREES A BOOST OF NUTRIENTS AND THE SOIL WATER RETENTION. BACKFILL MIX IS 1/3 HUMUS BUILDER, 2/3 NATIVE TOP SOIL.
  - D. AGRIFORM (20-10-5) SLOW RELEASE 21 GRAM FERTILIZER TABLETS OR EQUAL SHALL BE PLACED EVENLY AROUND THE PLANT CIRCUMFERENCE, HALF WAY DOWN ROOT BALL AND 4" AWAY. USE 3 TABLETS PER 5 GALLON TREE AND 5 PER 15 GALLON TREE.
4. PLANTING:
  - A. WHEN PLANTED, CROWN OF PLANT SHALL BE 1 1/2" ABOVE GRADE. PREPARE A WATER BASIN BY FORMING A SOIL RING AT LEAST 3" HIGH AND WIDE AROUND THE OUTER EDGE OF THE NEW PLANT HOLE. WATER PLANTS IN CONTAINER THOROUGHLY PRIOR TO PLANTING AND DIRECTLY AFTER TO ELIMINATE AIR POCKETS AND REDUCE PLANT STRESS.
  - B. ALL PLANTS SHALL RECEIVE 3" MINIMUM OF 3/4" WALK ON FIR BARK MULCH OR EQUAL. EXISTING VEGETATION IN A 3' RADIUS FROM TREE CROWN SHALL BE REMOVED AND MULCH APPLIED.
  - C. PLANTS SHALL BE KEPT MOIST FOR TWO WEEKS FOLLOWING PLANTING AND THEN WATERED WELL, ONCE PER WEEK UNTIL RAINY SEASON BEGINS.
5. STAKING AND WIND PROTECTION:
  - A. SET THREE (3) 2" DIAMETER X 8' TALL, PRESSURE TREATED DOUGLAS FIR (P.T.D.F.), REDWOOD OR LODGEPOLE TREE STAKES FORMING A 90 DEGREE ANGLE ON THE WINDWARD SIDE OF THE TREE, OPENING AWAY FROM THE DIRECTION OF PREVAILING WINDS. SET ALL STAKES 20" FROM THE ROOT CROWN, PLUMB AND 12" MIN. SECURELY INTO UNDISTURBED GRADE BELOW THE TREE ROOT BALL.
  - B. HIGH QUALITY WOVEN LANDSCAPE FABRIC, 4' TALL, SHALL BE STAPLED SECURELY TO THE POLES IN ANTICIPATION OF HEAVY WINDS.
  - C. SECURE FOUR (4) RUBBER OR POLY. TREE TIES FASTENED IN A FIGURE "8" AROUND TREE PER DETAIL 3 / L1. TIES SHALL BE PLACED ON THE TWO STAKES THAT ARE PERPENDICULAR TO THE DIRECTION OF THE PREVAILING WINDS. SECURE TIES TO TREE STAKES WITH 1 1/2" GALV. ROOFING NAILS.
  - D. STAKING AND WIND PROTECTION SHALL REMAIN FOR A MINIMUM OF TWO YEARS OR UNTIL TREE IS WELL ESTABLISHED.
6. IRRIGATION:
  - A. AN AUTOMATED IRRIGATION SYSTEM SHALL BE PROFESSIONALLY INSTALLED AND FUNCTION FOR A MINIMUM OF TWO YEARS. IT SHALL BE MAINTAINED AND RETAINED TO IRRIGATE REPLACEMENT TREES, AS NEEDED, FOR THE LIFE OF THE STRUCTURE.
  - B. SYSTEM SHALL BE INSTALLED IN THE FOLLOWING MANNER:
    1. WATER WILL FLOW FROM A STORAGE TANK THROUGH A 1 1/4" BALL VALVE, 1 1/4" COMMERCIAL AGRICULTURAL FILTER AND A 1 1/4" WILKINS 950 XL DOUBLE CHECK VALVE ASSEMBLY FOR BACK FLOW PREVENTION OR EQUAL.
    2. A HARDIE RAINDIAL 6 STATION CONTROLLER AND IRRITROL 1" ULTRA FLOW 700 SERIES AUTOMATIC IN LINE VALVES OR EQUAL SHALL BE USED IN CONJUNCTION WITH 3/4" POLY. DRIP TUBING LAID NEXT TO EACH TREE CROWN. A ONE GALLON PER HOUR PRESSURE COMPENSATING DRIP EMITTER WILL BE PLACED AT THE CROWN OF EACH TREE AND (2) ONE GALLON PER HOUR PRESSURE COMPENSATING DRIP EMITTERS WILL BE PLACED 14" FROM CROWN EACH SIDE ALONG DRIP LINE TO ENSURE BALANCED WATERING.
    3. THIS SYSTEM WILL PROVIDE 12 TO 15 YEARS OF SERVICE.
7. MAINTENANCE AND REPLACEMENT:
  - A. PROVIDE A MONTHLY MAINTENANCE CHECK ON IRRIGATION AND TREE CONDITIONS TO ENSURE SUCCESS OF THE PLANTING AND IRRIGATION SYSTEM.
  - B. TREES AND SHRUBS SHALL BE REPLACED IN-KIND PER THE LANDSCAPE PLAN AND WRITTEN INSTRUCTIONS AS THEY DIE OR ARE SUBSTANTIALLY DECLINING. THESE CONDITIONS APPLY TO THE LIFE OF THE STRUCTURE.
8. PROTECTION OF EXISTING VEGETATION:
  - A. PRIOR TO ANY SITE DEVELOPMENT ACTIVITIES, TEMPORARY 3 FEET TALL NYLON 1" SO. MESH FENCING SHALL BE PLACED 1 FT. OUTSIDE OF THE DRIP LINE OF ALL VEGETATION WHICH IS IDENTIFIED FOR RETENTION.
  - B. SPECIFICALLY THE SHORE PINES TO THE IMMEDIATE SOUTH-WEST OF THE PROPOSED RESIDENCE WHICH ACT AS VISUAL SCREENING FROM VIEWPOINTS ALONG HIGHWAY ONE.
  - C. NO CONSTRUCTION ACTIVITIES, VEGETATION REMOVAL, EXCAVATION, MATERIALS OR EQUIPMENT STORAGE SHALL BE PERMITTED WITHIN THE DRIFLINE OF THESE TREES.



RAYMOND HALL  
DIRECTOR

TELEPHONE  
(707) 964-5379

COUNTY OF MENDOCINO  
DEPARTMENT OF PLANNING AND BUILDING SERVICES

MAILING ADDRESS:  
790 SO. FRANKLIN  
FORT BRAGG, CA 95437

July 9, 2001

RECEIVED  
JUL 10 2001

NOTICE OF FINAL ACTION

CALIFORNIA  
COASTAL COMMISSION

Action has been completed by the County of Mendocino on the below described project located within the Coastal Zone.

**CASE#:** CDP #17-01  
**OWNER:** David & Suzanne Wright  
**AGENT:** Bud Kamb  
**REQUEST:** Construct a 2,550 square foot, 18' high single-family residence with a 625 square foot detached garage. Install septic system, underground utilities; install approximately 2,500 square feet of asphalt paving for the driveway.  
**LOCATION:** W side of Highway One approximately ½ mile SW of its intersection with Peterson Lane at 45501 Headlands Drive (APN 121-260-10).  
**PROJECT COORDINATOR:** Robert Dostalek

**HEARING DATE:** June 28, 2001

**APPROVING AUTHORITY:** Coastal Permit Administrator

**ACTION:** Approved with Conditions.

See staff report for the findings and conditions in support of this decision.

The project was not appealed at the local level.

The project is appealable to the Coastal Commission pursuant to Public Resources Code, Section 30603. An aggrieved person may appeal this decision to the Coastal Commission within 10 working days following Coastal Commission receipt of this notice. Appeals must be in writing to the appropriate Coastal Commission district office.

EXHIBIT NO. 5

APPLICATION NO.  
A-1-MEN-01-043

NOTICE OF FINAL  
LOCAL ACTION  
(1 of 10)

COASTAL PERMIT ADMINISTRATOR ACTION SHEET

CASE#: CDP 17-01 HEARING DATE: 6/28/01

OWNER: Wright

ENVIRONMENTAL CONSIDERATIONS:

☒ Categorically Exempt  
☐ Negative Declaration  
☐ EIR

FINDINGS:

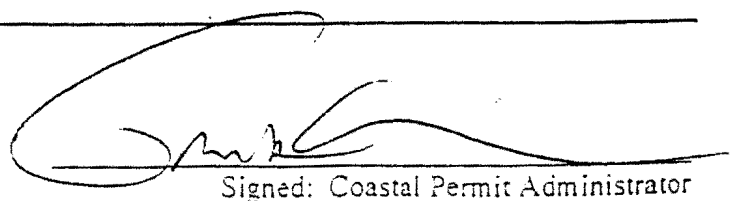
☒ Per staff report  
☐ Modifications and/or additions

ACTION:

☒ Approved  
☐ Denied  
☐ Continued \_\_\_\_\_

CONDITIONS:

☒ Per staff report  
☐ Modifications and/or additions



Signed: Coastal Permit Administrator

6-28-01

2 of 10



STAFF REPORT FOR  
STANDARD COASTAL DEVELOPMENT PERMIT

CDP# 17-01  
June 28, 2001  
CPA-1

**OWNER:** David & Suzanne Wright  
1483 Sutter Street #1501  
San Francisco, CA 94109

**AGENT:** Bud Kamb  
P.O. Box 616  
Little River, CA 95456

**REQUEST:** Construct a 2,550 square foot, 18' high single family residence with a 625 square foot detached garage. Install septic system, underground utilities (propane, water, electric, telephone and cable TV) and approximately 2,500 square feet of asphalt paving for the driveway.

**LOCATION:** On the west side of Highway One, approximately 1/2 mile southwest of its intersection with Peterson Lane at 45501 Headlands Drive (APN: 121-260-10).

**APPEALABLE AREA:** Yes (Highly Scenic Area)

**PERMIT TYPE:** Standard

**TOTAL ACREAGE:** 0.99 acres

**ZONING:** RR: L-5 [RR]

**GENERAL PLAN:** RR5(1)

**EXISTING USES:** Vacant

**SUPERVISORIAL DISTRICT:** 5

**ENVIRONMENTAL DETERMINATION:** Categorically Exempt, Class 3(a)

**OTHER RELATED APPLICATIONS:** 1242-F Septic

**PROJECT DESCRIPTION:** The applicant proposes to construct a 2,550 square foot, 18' high (measured from natural grade) single family residence with a 625 square foot detached garage. The project also includes the installation of a septic system, underground utilities (propane, water, electric, telephone and cable TV) and approximately 2,500 square feet of asphalt paving for the driveway.

**LOCAL COASTAL PROGRAM CONSISTENCY RECOMMENDATION:** The proposed project is consistent with the applicable goals and policies of the Local Coastal Program as described below. A ☒ indicates that the statement regarding policy consistency applies to the proposed project.

Land Use

The proposed residence is compatible with the Rural Residential zoning district and is designated as a principal permitted use. The proposed detached garage is a permitted accessory use pursuant to Section 20.456.015 of the Coastal Zoning Code.

The proposed structures comply with the 20-foot front and rear yard and 6-foot side yard setback required in the Rural Residential zoning district. The proposed structures also comply with the 18' maximum height limit for development in "highly scenic areas" west of Highway One.

### Public Access

- ☒ The project site is located west of Highway 1 and is a blufftop site. However, the parcel is not designated as a potential public access trail location on the LUP maps. There is no evidence of prescriptive access on the site.

### Hazards

- ☒ The project site is less than one acre in size and is exempt from CDF's fire safety regulations. Fire safety issues are addressed as part of the building permit process.

The proposed development is within 100' of a coastal bluff which requires a geotechnical investigation in accordance with Section 20.500.020(B) of the Coastal Zoning Code to determine the rate at which the blufftop is retreating. A geologic reconnaissance report, dated August 23, 1993, was prepared by Earth Mechanics to determine a blufftop setback for the subject parcel. A follow-up letter dated April 14, 1999 confirmed the conclusions contained in the original report.

On February 27, 2001, staff requested an additional letter to clarify the method or formula in which they derived their recommended blufftop setback. Section 20.500.020(B) of the Coastal Zoning Code states:

*"New structures shall be setback a sufficient distance from the edges of bluffs to ensure their safety from bluff erosion and cliff retreat during their economic life spans (seventy-five (75) years). New development shall be setback from the edge of bluffs a distance determined from information derived from the required geologic investigation and the setback formula as follows:*

*Setback (meters) = structure life (75 years) x retreat rate (meters/year)."*

A letter dated March 13, 2001 from Earth Mechanics states:

*"Based on our work and review of available data, we conclude that a retreat rate of 0.08 meters/year would provide an adequate setback to protect the planned residence from cliff retreat. Using the above referenced formula, 75 years x 0.08 meters/years = 6 meters which is approximately equivalent to the 20 foot setback recommended in the project geotechnical report."*

The proposed blufftop setback for the residence is 32 feet at its closest point. Therefore, the project complies with Section 20.500.020(B) of the Zoning Code.

The Coastal Commission and Mendocino County have been applying a deed restriction for blufftop parcels where the development is within 100 feet of the bluff prohibiting the construction of seawalls with the requirement that the structures be removed from the property if threatened by bluff retreat. The restriction also requires that the landowner be responsible for any clean up associated with portions of the development, which might fall onto a beach. It is anticipated that the Coastal Commission will continue to apply this deed restriction for any blufftop development. Staff recommends Special Condition #1 to require, prior to issuance of a Coastal Development Permit, the recordation of a deed restriction on the subject parcel.

### Visual Resources

Coastal Element Policy 3.5-1 provides general guidelines for all development in the coastal zone, requiring that:

*"The scenic and visual qualities 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 designated by the County of Mendocino Coastal Element shall be subordinate to the character of its setting."*

Policy 3.5-3 of the Coastal Element states:

*"Any development permitted in [highly scenic] areas shall provide for the protection of ocean and coastal views from public areas including highways, roads, coastal trails, vista points, beaches, parks, coastal streams, and waters used for recreational purposes."*

Section 20.504.015(C)(2) of the Coastal Zoning Code requires:

*"In highly scenic areas west of Highway 1 as identified on the Coastal Element land use plan maps, new development shall be limited to eighteen (18) feet above natural grade unless an increase in height would not affect public views to the ocean or be out of character with surrounding structures."*

Section 20.504.015(C)(3) also requires:

*"New development shall be subordinate to the natural setting and minimize reflective surfaces. In highly scenic areas, building materials including siding and roof material shall be selected to blend in hue and brightness with their surroundings."*

The subject parcel is located in a designated "highly scenic area" west of Highway One. When viewed from Highway One, it appears a majority of the structure would be screened by existing vegetation on the adjacent parcel to the east. A portion of the residence would be visible briefly to northbound motorists on Highway One through a gap in the trees at 7700 N. Highway One and also near the Little River Market at 7746 N. Highway One.

The proposed exterior materials and colors consist of horizontal wood painted dark tan (Sherwin Williams color A-sw2043 "canoe") for the main portion of the structure. The roofing material would be charcoal colored asphalt fiberglass shingles and the chimney would be tan colored stucco. The "canoe" color proposed for the exterior of the residence appears too light to sufficiently blend with the backdrop of the natural landscape (dark green evergreens) and existing development. Additionally, although a color sample was not submitted for the stucco chimney, tan hues are typically too light to blend well with the landscape. Further, the existing development in the vicinity is mostly dark brown which substantially reduces visibility and softens linear silhouettes. Special Condition #2 is recommended to require the applicant to submit, prior to issuance of the Coastal Development Permit, revised color samples for the exterior of the residence and the stucco for the chimney. The revised samples shall be selected to blend in hue and brightness with the surroundings (i.e. dark brown or dark green) and shall be subject to the review and approval of the Coastal Permit Administrator. Special Condition #3 is recommended to ensure the colors/materials are not changed without further review.

Section 20.504.015(C)(10) states:

*"Tree planting to screen buildings shall be encouraged, however, new development shall not allow trees to interfere with coastal/ocean views from public areas."*

A revised landscape plan was submitted on June 14, 2001. It appears as though it would provide sufficient screening of the visible portion (from Highway One) of the residence. The landscape plan does not specifically identify the location of an irrigation system, but does provide detailed specifications in #6 of the landscaping notes. Special Condition #4 is recommended to require the applicant to adhere to the specifications contained on the landscape plan to ensure the plantings will be established and maintained in perpetuity. The landscape plan recommends the trees be planted a minimum of 20 feet from the bluff edge and the shrubs be planted a minimum of 15 feet from the bluff edge. The geotechnical investigation discussed in the "Hazards" section of this report concludes that the bluff should retreat approximately 20 feet over the course of 75 years. Therefore, the required landscape trees should provide screening of the residence from public view over its required minimum 75-year economic lifespan.

The lighting details received on March 18, 2001 comply with the exterior lighting regulations contained in Section 20.504.035 of the Zoning Code.

#### Natural Resources

- ☒ There are no known rare or endangered plant or animal species located on or in close proximity to the project site.
- ☒ There are no environmentally sensitive habitat areas located within 100' of the proposed development.

#### Archaeological/Cultural Resources

On March 30, 2001, the project was referred to the Northwest Information Center of the California Historical Resources Inventory at Sonoma State University (SSU) for an archaeological records search. On April 9, 2001, SSU responded that the site has the possibility of containing unrecorded archaeological resources and further investigation was recommended. The development proposal and SSU recommendation were reviewed by the Mendocino County Archaeological Commission at the May 9, 2001 hearing where it was determined that a survey of the subject parcel would be required. A survey was conducted and a report was prepared by Max A. Neri (consulting archaeologist with North Coast Resource Management) dated May 7, 2001 in which no evidence of any cultural resources were found within the subject parcel. The survey was reviewed and accepted at the June 13, 2001 Mendocino County Archaeological Commission Hearing.

The applicant is advised by Standard Condition #8 of the County's "discovery clause" which establishes procedures to follow should archaeological materials be unearthed during project construction.

#### Groundwater Resources

- ☒ The proposed development would be served by the Little River Headlands Association community water system and would not adversely affect groundwater resources.
- ☒ The proposed development would be served by a proposed septic system and would not adversely affect groundwater resources.

Transportation/Circulation

- ☒ The project would contribute incrementally to traffic on local and regional roadways. The cumulative effects of traffic due to development on this site were considered when the Coastal Element land use designations were assigned. No adverse impacts would occur.

Zoning Requirements

- ☒ The project complies with all of the zoning requirements of Division II of Title 20 of the Mendocino County Code.

**PROJECT FINDINGS AND CONDITIONS:** Pursuant to the provisions of Chapter 20.532 and Chapter 20.536 of the Mendocino County Code, staff recommends that the Coastal Permit Administrator approve the proposed project, and adopt the following findings and conditions.

**FINDINGS:**

1. The proposed development is in conformity with the certified Local Coastal Program; and
2. The proposed development will be provided with adequate utilities, access roads, drainage and other necessary facilities; and
3. The proposed development is consistent with the purpose and intent of the applicable zoning district, as well as all other provisions of Division II, and preserves the integrity of the zoning district; and
4. The proposed development, if constructed in compliance with the conditions of approval, will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act; and
5. The proposed development will not have any adverse impacts on any known archaeological or paleontological resource; and
6. Other public services, including but not limited to, solid waste and public roadway capacity have been considered and are adequate to serve the proposed development; and
7. The proposed development is in conformity with the public access and public recreation policies of Chapter 3 of the California Coastal Act and Coastal Element of the General Plan.

**STANDARD CONDITIONS:**

1. This action shall become final on the 11<sup>th</sup> day following the decision unless an appeal is filed pursuant to Section 20.544.015 of the Mendocino County Code. The permit shall become effective after the ten (10) working day appeal period to the Coastal Commission has expired and no appeal has been filed with the Coastal Commission. The permit shall expire and become null and void at the expiration of two years after the effective date except where construction and use of the property in reliance on such permit has been initiated prior to its expiration.

To remain valid, progress towards completion of the project must be continuous. The applicant has sole responsibility for renewing this application before the expiration date. The County will not provide a notice prior to the expiration date.

2. The use and occupancy of the premises shall be established and maintained in conformance with the provisions of Division II of Title 20 of the Mendocino County Code.
3. The application, along with supplemental exhibits and related material, shall be considered elements of this permit, and that compliance therewith is mandatory, unless an amendment has been approved by the Coastal Permit Administrator.
4. That this permit be subject to the securing of all necessary permits for the proposed development from County, State and Federal agencies having jurisdiction.
5. The applicant shall secure all required building permits for the proposed project as required by the Building Inspection Division of the Department of Planning and Building Services.
6. This permit shall be subject to revocation or modification upon a finding of any one (1) or more of the following:
  - a. That such permit was obtained or extended by fraud.
  - b. That one or more of the conditions upon which such permit was granted have been violated.
  - c. That the use for which the permit was granted is so conducted as to be detrimental to the public health, welfare or safety or as to be a nuisance.
  - d. A final judgment of a court of competent jurisdiction has declared one (1) or more conditions to be void or ineffective, or has enjoined or otherwise prohibited the enforcement or operation of one (1) or more such conditions.
7. This permit is issued without a legal determination having been made upon the number, size or shape of parcels encompassed within the permit described boundaries. Should, at any time, a legal determination be made that the number, size or shape of parcels within the permit described boundaries are different than that which is legally required by this permit, this permit shall become null and void.
8. If any archaeological sites or artifacts are discovered during site excavation or construction activities, the applicant shall cease and desist from all further excavation and disturbances within one hundred (100) feet of the discovery, and make notification of the discovery to the Director of the Department of Planning and Building Services. The Director will coordinate further actions for the protection of the archaeological resources in accordance with Section 22.12.090 of the Mendocino County Code.

SPECIAL CONDITIONS:

1. Prior to the issuance of the Coastal Development Permit, the applicant as landowner shall execute and record a deed restriction, in a form and content acceptable to the Coastal Permit Administrator which shall provide that:
  - a) The landowner understands that the site may be subject to extraordinary geologic and erosion hazard and landowner assumes the risk from such hazards;
  - b) The landowner agrees to indemnify and hold harmless the County of Mendocino, its successors in interest, advisors, officers, agents and employees against any and all claims, demands, damages, costs, and expenses of liability (including without limitation attorneys' fees and costs of the suit) arising out of the design, construction, operation, maintenance, existence or failure of the permitted project. Including, without limitation, all claims made by any individual or entity or arising out of any work performed in connection with the permitted project;
  - c) The landowner agrees that any adverse impacts to the property caused by the permitted project shall be fully the responsibility of the applicant;
  - d) The landowner shall not construct any bluff or shoreline protective devices to protect the subject single-family residence, garage, septic system, or other improvements in the event that these structures are subject to damage, or other erosional hazards in the future;
  - e) The landowner shall remove the house and its foundation when bluff retreat reaches the point where the structure is threatened. In the event that portions of the house, garage, foundations, leach field, septic tank, or other improvements associated with the residence fall to the beach before they can be removed from the blufftop, the landowner shall remove all recoverable debris associated with these structures from the beach and ocean and lawfully dispose of the material in an approved disposal site. The landowners shall bear all costs associated with such removal;
  - f) The document shall run with the land, bind all successors and assigns, and shall be recorded free of all prior liens and encumbrances, except for tax liens.
2. Prior to issuance of a Coastal Development Permit, the applicant shall submit, for the review and approval of the Coastal Permit Administrator, exterior color samples for the residence and chimney stucco selected to blend in hue and brightness with the surroundings (i.e. dark brown or dark green).
3. All exterior building materials and finishes shall match those specified in the coastal development permit application. Windows shall be made of non-reflective glass. Any change in approved colors or materials shall be subject to the review and approval of the Coastal Permit Administrator for the life of the project.
4. The revised landscaping plan submitted June 14, 2001 shall be implemented and maintained in full accordance with the notes/specifications provided with the plan (i.e. soil preparation, planting, staking and wind protection, irrigation, maintenance and replacement and protection of existing vegetation). The new trees shall be planted prior to

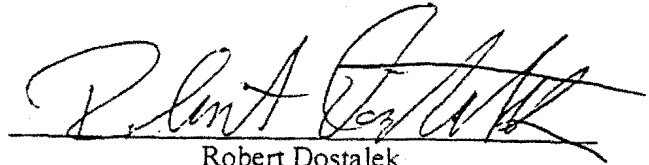
STAFF REPORT FOR  
STANDARD COASTAL DEVELOPMENT PERMIT

CDP# 17-01  
June 28, 2001  
CPA-8

the final building inspection. All required landscaping shall be replaced, as necessary, to ensure the screening of the residence shall be maintained in perpetuity.

Staff Report Prepared By:

6/14/01  
Date

  
Robert Dostalek  
Coastal Planner

Attachments: Exhibit A: Location Map  
Exhibit B: Site Plan  
Exhibit C: East & West Elevation (Residence)  
Exhibit D: North & South Elevation (Residence)  
Exhibit E: Floor Plan (Residence)  
Exhibit F: West Elevation (Garage)  
Exhibit G: Floor Plan (Garage)  
Exhibit H: Landscaping Site Plan  
Exhibit I: Landscape Legend & Tree Planting Detail  
Exhibit J: Landscaping Specifications

Appeal Period: 10 days

Appeal Fee: \$555



## CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE AND TDD (415) 904-5200  
FAX (415) 904-5400

RECEIVE



JUL 19 2001

APPEAL FROM COASTAL PERMIT  
DECISION OF LOCAL GOVERNMENT

CALIFORNIA  
COASTAL COMMISSION

Please Review Attached Appeal Information Sheet Prior To Completing  
This Form.

SECTION I. Appellant(s)

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

Wendy Weikel  
1015 Sierra St.  
Berkeley, CA 94707-2526 (510) 526-2301  
Zip Area Code Phone No.

SECTION II. Decision Being Appealed

1. Name of local/port  
government: Fort Bragg, Ca.

2. Brief description of development being  
appealed: 2550 square foot residence with 625 square feet  
for detached garage and 2500 square feet of asphalt driveway  
+ Septic system and underground utilities

3. Development's location (street address, assessor's parcel  
no., cross street, etc.): 45501 Headlands Drive, Little River, CA  
APN 121-260-10; CDP 17-01

4. Description of decision being appealed:

- a. Approval; no special conditions: \_\_\_\_\_
- ✓ b. Approval with special conditions: \_\_\_\_\_
- 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-1-MEN-01-043

DATE FILED: 7/19/01

DISTRICT: \_\_\_\_\_

H5: 4/88

EXHIBIT NO. 6

APPLICATION NO.  
A-1-MEN-01-043

APPEAL, FILED JULY  
19, 2001 (WEIKEL)  
(1 of 17)

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

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

a. ☒ Planning Director/Zoning Administrator

c. ☐ Planning Commission

b. ☐ City Council/Board of Supervisors

d. ☐ Other \_\_\_\_\_

6. Date of local government's decision: 7/9/01

7. Local government's file number (if any): CDP 17-01  
APN 121-260-10

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:

David and Suzanne Wright  
1483 Sutter St #1501J  
San Francisco, CA 94109

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

(1) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(3) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(4) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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.

2217

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.)

See attached

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.

Wendy M. Weikel

Signature of Appellant(s) or  
Authorized Agent

Date 7/19/01

NOTE: If signed by agent, appellant(s)  
must also sign below.

Section VI. Agent Authorization

I/We hereby authorize \_\_\_\_\_ to act as my/our representative and to bind me/us in all matters concerning this appeal.

\_\_\_\_\_  
Signature of Appellant(s)

Date \_\_\_\_\_

30/17

I am appealing this coastal project primarily because it has 2 negative impacts which have not been adequately considered. **Accelerated bluff retreat** from 5,675 square feet of impermeable surfaces is one. **Caves below the property (a geological hazard)** is the other. According to the Local Coastal Plan they are supposed to be considered.

Of the 6 existing bluff residences in this development of 10 homes so far, 3 have had serious recent bluff retreat problems that I know about (Glen Ricard's, Ted and Marsha Graves' and Richard Towers' bluffs).

In the Land Use Element of the County Plan Chapter 3.9 Section 32253 states, "New development shall: **minimize risks** to life and property in areas of high **geologic**, flood and fire **hazard**; assure **stability** and structural integrity, and neither create nor contribute significantly to **erosion, geologic instability** or destruction of the **site or surrounding area...along bluffs and cliffs....**"

Under "issues" the county plan states that the Coastal Act mandates that new development emphasize: **"avoidance of adverse cumulative impacts on coastal resources..."**

In chapter 3, Section 30231, coastal requirements include, **"minimizing adverse effects of waste water, controlling run-off..."**

Section 30231 states, "...biological productivity and the quality of coastal waters,...wetlands...appropriate to maintain optimum populations of marine organisms...shall be maintained...through minimizing adverse effects of...discharges and entrainment, **controlling runoff...**"

In the Policies portion of Chapter 3 it is stated that the LCP shall maintain performance standards, that, "these

4 of 17

7/10/01 Weikel

standards and measures shall **minimize** potential development **impacts** such as increased **run-off**, sedimentation, biochemical degradation...."

In Appendix 3 the issue of landsliding is addressed. "Because of the **high potential for landsliding in almost all of the coastal zone, all development plans** should undergo a preliminary evaluation of landsliding potential. The effect of development on the landslide potential **must be taken into account**, because **slides can result from excavation, drainage changes**, and deforestation. If landslide conditions exist and cannot be avoided **positive stabilization measures should be taken to mitigate the hazard.**"

*None of the properties on Headlands Drive has an **asphalt driveway**, except **the recently built** one which has **caused landslides** on 2 other downhill properties.*

*The **perimeter** of 45501 Headlands Drive has a high ratio of bluff. **Perhaps 50% is bluff**. Some of this bluff property also **wraps around the Weikel property**. **2,500 square feet of impermeable asphalt will accelerate bluff retreat and /or a landslide.***

Chapter 3 also states the "Local Coastal Plan represents commitment of the County of Mendocino to provide continuing **protection** and **enhancement** of its coastal resources. It is recognized that certain resource areas in this jurisdiction will require public **attention** to ensure their protection and enhancement, such as;...sensitive coastal resource areas which are suffering some form of deterioration or **development pressures....** "

*45501 Headlands Drive land has changed hands recently in this development process. At this moment the property is in escrow, being sold again. Developers want to put 2550 square feet of asphalt on this bluff side area which will accelerate run-off over the abundant bluff periphery.*

5917

7/10/01 Weikel

*It was developers who made the same mistake on Headlands Drive hill with a large curving asphalt driveway. These cement contractors lavished asphalt on a hill which harbored large migrant cranes last winter (I have pictures) and then moved away leaving their 2 downhill neighbors to grumble about the bluff disappearing due to the new asphalt waterfall. To deter bluff retreat the downhill neighbors put curbs (**more** asphalt) on the street to keep the water flow out of their backyard bluffs.*

In this Wright development **permit** at 45501 Headlands Drive **deflecting their accelerated run-off is forbidden by the Permit.** "Special Conditions": "The landowner shall not construct any bluff...protective devices ...in the event that these structures are subject to damage, or other erosional hazards in the future..." And yet 2500 square feet of disastrous asphalt driveway paving was approved to cause a run-off problem. This is not wise planning for an naturally eroding bluff top. **This endangers** this property and the **next door property** of my parents.

The Coastal Zoning Code Sec. 20.492.005 states the approving authority shall review all permit applications for coastal developments, **"to determine the extent of project related impacts due to grading, erosion and runoff"** This does **not** appear to have been **done**. I saw nothing about the adequacy of run-off or grading in the permit. Only disclaimers for the imminent run-off damage were put into the permit!

The permit report also **did not consider or mention the hazard of the caves below the property**. Since these are a **potential hazard** I think they must be mentioned in the **Development Permit** as **evidence** for making the **findings** which approve this project.

Section 20.492.010 states of the Coastal Zoning Code states, "Grading shall not significantly disrupt natural drainage patterns and **shall not significantly increase volumes of surface runoff...**"

The proposed **driveway shall do** precisely what the Mendocino Zoning **Code says it shall not do.**

The same section states, "**Adjoining property shall be protected from...potential soil erosion.**"

Section 20.492.015 states, "The **Erosion rate shall not exceed the natural or existing level before development.**"

This section says, "**where possible, use natural topography and natural vegetation.**"

*A well designed gravel driveway seems sensible. All other homes on Headlands Drive have gravel or dirt driveways except for the new asphalt waterfall driveway on the hill that causes heavy run-off each rainy season.*

*I am very concerned about development in this beautiful and fragile area that is being developed and damaged with seeming abandon. I am attaching the letter I sent to the County permit hearing expressing further concerns. None of these were addressed. They are still concerns. The property has not had a **botanical survey**, nor a **hydric soil test by qualified persons at the proper time of year.** The adjacent state park property across the Headlands Drive is wet and impassible in the winter. The wetlands issue is in question. A wetlands delineation was not done for this project.*

7 of 17

7/16/01 Wenkel

**Rushing this approval through in the driest time of year** with a cursory look at the area seems to ignore the intent of the Coastal Act. Frogs are very much active in the area and have been since 1979 when I became acquainted with it. In the driveway next to 45501 Headlands they used to jump into my car! The frogs still sing much of the year next to 45501 Headlands Drive.

My main concern is the **accelerated bluff run-off** from a total of 5,675 square feet of impermeable surface, almost half of which comes from this **asphalt driveway**. I would also like assurance by a qualified geologist that is referenced by the permit findings that the **caves** underneath 45501 Headlands and construction grading and proposed surface run-off and septic leaching pose no geological danger to the proposed construction and subsequently to neighboring property. These issues appear to pose a danger to both my parents and to the unsuspecting buyers of this development.

The **purpose for making findings** is to provide evidence to support such findings and thus make a rational decision. I see an **analytical gap**. The staff permit report has not given reasoning to justify the permitted setback distance. The report contains **no data** for (or mention of) the effects of water run-off and drainage as it affects the cliff/bluff of this property and neighboring property. There is lack of findings and data to support the approval of the 32 to 33 foot bluff setback.

The staff report for the permit lists the following as **findings** and yet does not give **evidence** as to how these findings were arrived at:

"There are no known rare or endangered plant or animal species located in or in close proximity to the project site."

"There are no environmentally sensitive habitat areas



located within 100' of the proposed development." and

"The proposed development will be provided with adequate utilities, access roads, **drainage**, and other...."

Attached are more **Coastal Commission Guidelines** (p. 7 and 8) applied to the **most recently constructed house on the bluffs** of this Headlands Drive are. The **"adequate" setback** recommended is **50 to 85 feet**.

3 attachments:

1-Questions re discrepancies of 2 geological reports and Coastal Land Planning Guidelines and findings on this bluff area.(p. 7 and 8)

2-Documents (partial) pertaining to setback and drainage on Headlands Drive's most recently built bluff residence.

3-my letter for the Mendocino County Planning hearing.

9/9/17

7/10/01 Weikel

P 7

Information received July 11, 2001

Graves' lot #7 at 455365 Headlands , Little River, CA- most recently built home (1986) on Headlands Drive bluffs.

Geologist was J. R. Bovyer, registered geologist #1463, professional engineer #0412

then at PO Box Mendocino, CA 95460

He found:

"The closest to the approximate residence area to the edge is 50 feet to 85 feet which is considered an adequate setback."

The California Coastal Commission statewide Interpretive Guideline of Dec. 16, 1981, superseding the one of May 5, 1981, p. 2 says, "The report should indicate the **location of the cliff or bluff edge, the toe of the cliff or bluff and other significant geologic features by distance from readily identified fixed monuments such as the centerline of the road** nearest the bluff or cliff."

It continues, "The applicant for a permit for a blufftop development should be required to **demonstrate that the area of demonstration is stable for the development and that the development will not create a geologic hazard or diminish the stability of the area.**"

The Coastal Commission staff report to the Coastal Commission for the meeting of the Coastal Commission (then located in San Francisco) to approve the Graves' permit stated under Geological Hazards Section 30253 affirmed the above registered geologists findings and states that the development, "**assure stability and not contribute to significant erosion**". The Coastal Commission report states, "the proposed building setback of **50 feet to 85 feet** (an irregular bluff line) is **adequate since the rock bluff is stable**, eroding less than one foot per year."

Furthermore the Coastal Guidelines stated concerns about

10 of 17

Waited

J. R. BOVYER

Consultant

Registered Geologist  
#1463  
Professional Engineer  
#0412

P. O. Box 56  
Mendocino, CA 95460  
18 April 1985

GEOLOGIC REPORT

Mr. & Mrs. T. Graves

Lot #7, Little River Highlands Subdivision

Mendocino County (A.P. # 121-260-07)

SE $\frac{1}{4}$ ; Sec. 6; T16N; R17W; M.D.B. & M.

11417

with wild grasses, weeds, flowers, vines and bushes under several pine trees. There is no gullying even though the lot is generally flat and slopes easterly at four percent toward the bluff. (Please refer to topo and plot plan map.)

### GEOLOGIC FACTORS

The bluffs on this property have a slope angle, from the horizontal, as high as  $75^{\circ}$ . The steep part of the cliffs is composed of the Franciscan complex which is up to 70' above sea level on top of which lies the flat marine terrace. It is unconformable so can vary widely in thickness having been deposited on and around islands, hills, washes, etc. of the old bedrock surface. The edge of the bluffs is the most fragile part of the environment as can be seen in the slumping observed all along the cliffs. The part of the site wherein the residence is wished to be located is fairly flat with an easterly drainage slope of about four percent and has no erosional features.

Since the Franciscan is so highly-indurated, it is thought erosion will be minimal. The cliffs here show high angles of formation dips because of the usual contortions and shears due to the metamorphism. Numerous small islands, peninsulas and reefs afford considerable protection. An article in California Geology (October, 1975) states that bluffline retreat may average one foot per year, but it is thought that this varies widely within short distances and in this particular case, is less. The closest to the approximate

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CALIFORNIA

COASTAL COMMISSION

## STATEWIDE INTERPRETIVE GUIDELINES

These Statewide Interpretive Guidelines were adopted by the California Coastal Commission pursuant to Public Resources Code Section 30620 (b) and are "designed to assist local governments, the commission, and persons subject to the provisions of this chapter in determining how the policies of this division shall be applied in the coastal zone prior to certification of local coastal programs."

The guidelines should assist in applying various Coastal Act policies to permit decisions; they in no case supersede the provisions of the Coastal Act nor enlarge or diminish the powers or authority of the Commission or other public agencies.

Interpretive guidelines for the six districts are published separately.

AS OF DECEMBER 16, 1981

(SUPERSEDES MAY 5, 1981 EDITION)

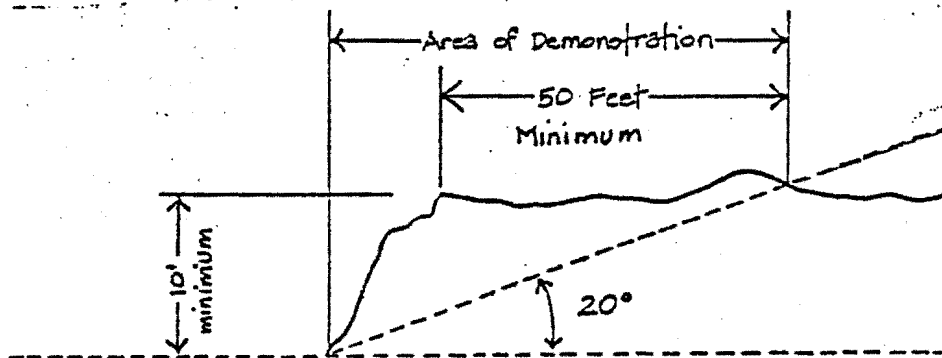
13 of 17

- (2) to protect principle structures in existing developments that are in danger from erosion; or
- (3) in Los Angeles, Orange, and San Diego Counties, to infill small sections of wall in subdivisions where a predominant portion of a wall is already in place, provided that such infilling would have no substantial adverse environmental effects.

A geologic investigation and report will be required when a development is proposed to be sited within the area of demonstration as defined below.

As a general rule, the area of demonstration of stability (Illustration A) includes the base, face and top of all bluffs and cliffs. The extent of the bluff top considered should include the area between the face of the bluff and a line described on the bluff top by the intersection of a plane inclined at a  $20^{\circ}$  angle from horizontal passing through the toe of the bluff or cliff, or 50 feet inland from the edge of the cliff or bluff, whichever is greater. However, the Commission may designate a lesser area of demonstration in specific areas of known geologic stability (as determined by adequate geologic evaluation and historic evidence) or where adequate protective works already exist. The Commission may designate a greater area of demonstration or exclude development entirely in areas of known high instability.

The report should indicate the location of the cliff or bluff edge, the toe of the cliff or bluff and other significant geologic features by distance from readily identified fixed monuments such as the centerline of the road nearest the bluff or cliff.



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The report should evaluate the off-site impacts of development (e.g. development contributing to geological instability on access roads) and the additional impacts that might occur due to the proposed development (e.g. increased erosion along a footpath). The report should also detail mitigation measures for any potential impacts and should outline alternative solutions. The report should express a professional opinion as to whether the project can be designed so that it will neither be subject to nor contribute to significant geologic instability throughout the lifespan of the project. The report should use a currently acceptable engineering stability analysis method and should also describe the degree of uncertainty of analytical results due to assumptions and unknowns. The degree of analysis required should be appropriate to the degree of potential risk presented by the site and the proposed project.

In areas of geologic hazard, the Commission may require that a development permit not be issued until an applicant has signed a waiver of all claim against the public for future liability or damage resulting from permission to build. All such waivers should be recorded with the County Recorder's Office.

Adopted May 3, 1977

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1015 Sierra St.  
Berkeley, CA 94707

June 18, 2001

Project Coordinator  
Department of Planning and Building Services  
790 South Franklin  
Fort Bragg, CA 95437

Dear Robert Dostalek;

I wish to express my concern about the development plans for David and Suzanne Wright at 45501 Headlands Drive (APN 121-260-10), case # 17-01. Since I cannot be present at the hearing on June 28th this letter is my comment for the hearing.

My biggest concern is that the planned asphalt **paving** will cover too much of the coastal property .

This headlands neighborhood recently had another developer build a home on the hill by the water tank which caused bluff landslides on the two downhill properties. Asphalt curbs and mounds had to be added to compensate for the thoughtless and bad design of this developer's **asphalt driveway**.

Another occasional resident manages the area's water while residing in Ohio and remains unaware of California land and weather patterns. Last winter he emptied one of the 2 water tanks in the heaviest of winter rains and precipitated a **landslide** on state park property.

Again, the proposed 5,675 square feet of paving will drastically **accelerate run-off and ocean bluff collapse**. The 20 foot bluff set-back will be gone more quickly than in 75 years, cited by **Earth Mechanics** for this delicate area. Across the road (Headlands Drive) is a **seasonal wetlands (wet and mushy in winter)** and possibly habitat for **endangered species**. The next door Weikel property has had tree frogs croaking into Summer for the last 22 years. This delicate land and soil needs proper assessment which has not been done. The current proposal states "**There are no environmentally sensitive habitat areas located within 100' of the proposed development.**" This is **not true**.

The roof area and pavement will accelerate and funnel water run-off while eliminating probable frog habitat. Ideal **grading** would funnel

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water back into across the street seasonal wetlands instead of onto the bluff of this property and neighboring property(my parents' property). The driveway should not be asphalt, an impermeable surface, but perhaps gravel.

I know of no **hydric soil test** having been done on the proposed development. Besides a hydric soil test I would like a **botannical survey** done of the property and **I would like to receive a copy of the report.**

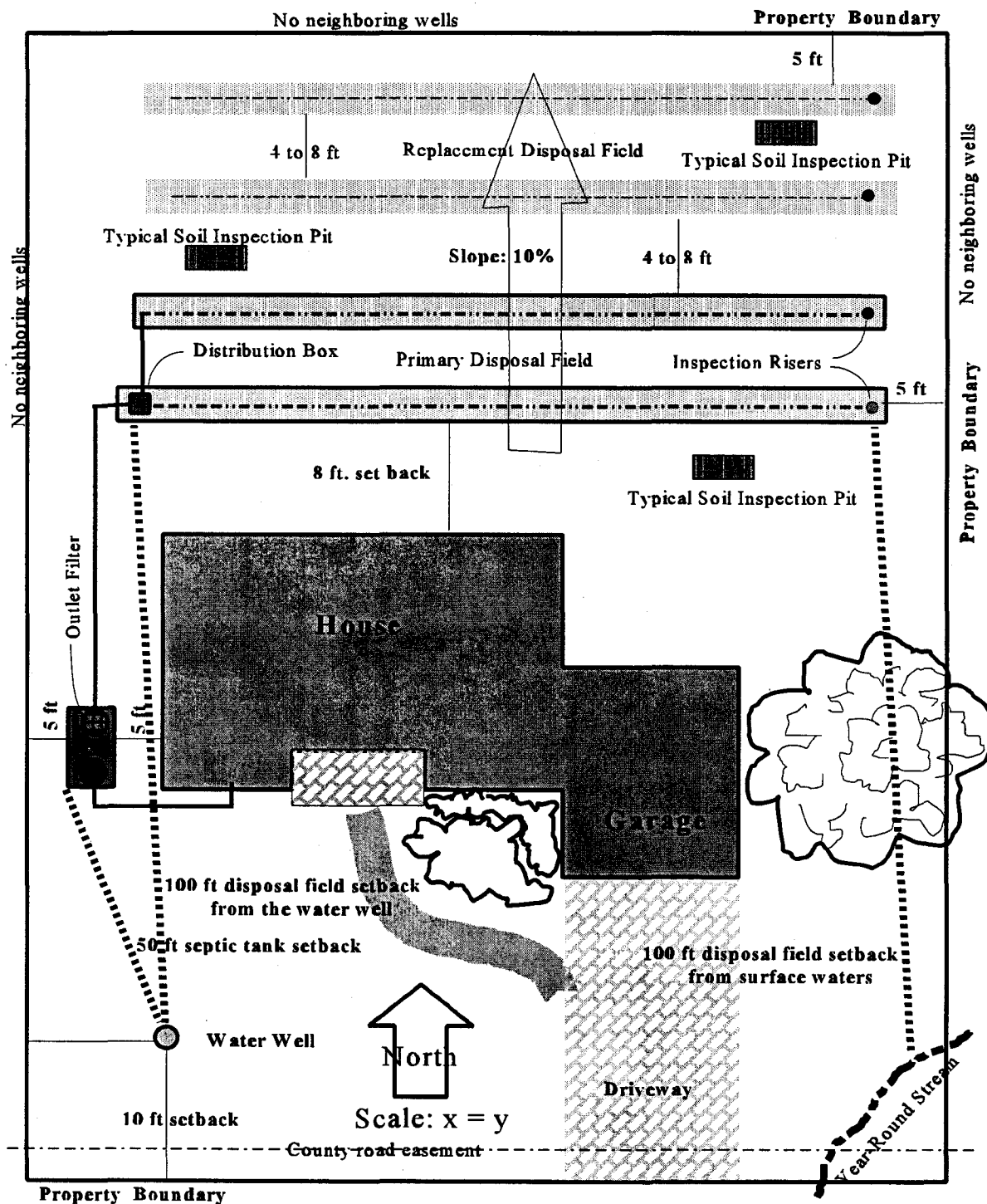
Furthermore there are caves which friends and kayakers have explored under the proposed development. **I want to see the geotechnical report to ascertain how they evaluate these caves.**

Sincerely,



Wendy Weikel

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## Required Setbacks

EXHIBIT NO. 7

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT

REQUIRED SETBACKS  
FOR SEWAGE DISPOSAL  
SYSTEMS

# GEOTECHNICAL INVESTIGATION

## PROPOSED ROOST RESIDENCE 45501 HEADLANDS DRIVE LITTLE RIVER, CALIFORNIA

11654.1

Prepared for

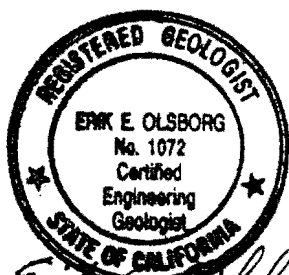
Ken and Jill Roost  
2151 Oaks Drive  
Hillsborough, CA 94010

Prepared by

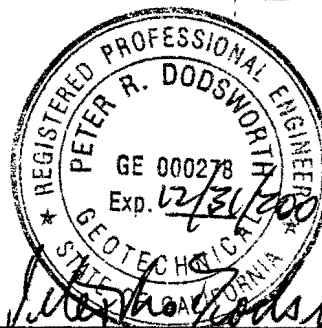
BACE GEOTECHNICAL  
A Division of Brunsing Associates, Inc.  
P.O. Box 749  
Windsor, CA 95492  
(707) 838-0780

November 14, 2001

EXHIBIT NO.	8
APPLICATION NO.	A-1-MEN-01-043
WRIGHT EXCERPTS, GEOTECHNICAL ASSESSMENTS (1 of 24)	



*Erik E. Olsborg*  
Erik E. Olsborg  
Engineering Geologist - 1072



*Peter R. Dodsworth*  
Peter R. Dodsworth  
Geotechnical Engineer - 278



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## 1.0 INTRODUCTION

This report presents the results of our Geotechnical Investigation for your planned residence at 45501 Headlands Drive in Little River, California. The property, A. P. No. 121-260-10, is located on the south side of Headlands Drive, approximately 1,400 feet west of the Little River mouth, as shown on the Vicinity Map, Plate 1.

No building plans have been prepared yet, but according to your plan sketches, the proposed one- or two-story house will be located back of the bluff setback lines shown on the Site Geologic Map, Plate 2. The attached garage will be at the north end of the structure. The leach field will be on the west side of the structure. We understand that site grading will be limited to minor, if any, cuts or fills for drainage around the structure, and reprocessing of weak soils for support of slab-on-grade floors in the garage and/or elsewhere within the structure.

Our approach to providing the geotechnical guidelines for the design of the project utilized our knowledge of the soil/geologic conditions in the site vicinity, and experience with similar projects. Field exploration and laboratory testing for this investigation were directed toward confirming anticipated soil/geologic conditions, in order to provide the basis for our conclusions and recommendations.

As outlined in our Service Agreement dated July 31, 2001, the scope of our geotechnical investigation included geologic map and literature research, study of 1981 and 1963 aerial photographs, geologic reconnaissance, subsurface exploration, laboratory testing, and engineering and geologic analyses in order to provide conclusions and recommendations regarding:

- Geologic suitability of the site, including a discussion of geologic hazards;
- Historic, current, and anticipated bluff retreat rate;
- Sea cave stability;
- Building and leach field setback criteria from bluff edges and weak or fractured areas of the cave roof;
- The potential effects of seismicity and fault rupture;
- Foundation design criteria;
- Site drainage;
- The need for additional geotechnical engineering services.

3 of 24  
1



## 2.0 INVESTIGATION

### 2.1 Research

As part of our study, we reviewed the following published geologic references:

- Ukiah Sheet, Geologic Map of California, 1960, California Division of Mines and Geologic (CDMG);
- Geologic Factors in Coastal Zone Planning: Russian Gulch to Buckhorn Cove, Mendocino County, California, 1976, Open File Report 76-4, CDMG;
- Geology and Geomorphic Features Related to Landsliding, Mendocino 7.5 Minute Quadrangle, Mendocino County, California, 1983 Open File Report 83-15, CDMG.

We also reviewed the following previous consultants' geotechnical reports:

- Geologic Report for Assessor's Parcel No. 121-260-10, dated August 1986, prepared by James Ballerino, Registered Geologist;
- Geotechnical Investigation Report, 45501 Headlands Drive, Little River, dated August 23, 1993, prepared by Earth Mechanics Consulting Engineers;
- Consultation Letters dated April 14, 1999, and March 13, 2001, prepared by Earth Mechanics Consulting Engineers.

### 2.2 Reconnaissance

Our Principal Engineering Geologist and Project Engineer performed a surface reconnaissance and a marine reconnaissance on August 9, 2001. The marine reconnaissance consisted of kayaking to the site from Van Damme Beach during a tide level of approximately plus one foot, according to published tide tables. The geologic conditions of the exterior bluff faces and the sea cave interior were examined and photographed from the kayaks. The sea cave interior dimensions were visually estimated from inside the cave.

The surface reconnaissance consisted of close examination of the soil and rock materials exposed on the upper bluffs. As part of our reconnaissance, we also examined aerial photographs, dated June 30, 1963 and June 23, 1981, both enlarged to a scale of one-inch equals approximately 200 feet. The bluff lines in both photographs were compared with existing bluff conditions in order to



determine the relative bluff retreat rate. The results of our aerial photograph study are incorporated into the Site Geology and Soils and the Conclusions sections of this report.

### 2.3 Subsurface Exploration

On August 9, 2001, three exploratory test borings were drilled adjacent to the planned building areas using an all-terrain drill rig, to depths ranging from about 9.0 feet to 15.7 feet below the ground surface. The approximate locations of the borings are shown on the Site Geologic Map, Plate 2. Our Project Geologist made a descriptive log of each test boring. Samples of the soil and rock materials encountered were obtained using a split-barrel sampler, driven by a 140-pound drop hammer falling 30 inches per blow. Blows required to drive the sampler were converted to equivalent "Standard Penetration" blow counts for correlation with empirical test data. Sampler penetration resistance (blow counts) provides a relative measure of soil/rock consistency and strength.

Logs of the test borings, showing the various soil and rock types encountered and the depths at which samples were obtained, are presented on Plates 3 through 5. The soils are classified in accordance with the Unified Soil Classification System outlined on Plate 6. The various physical properties used to describe the soils are outlined on Plate 7. The bedrock materials are described using the criteria shown on Plate 8.

### 2.4 Laboratory Testing

Selected samples were tested in our laboratory to determine their pertinent geotechnical engineering characteristics. Laboratory testing consisted of moisture content/dry density and triaxial shear strength tests. The test results are summarized opposite the samples tested on the boring logs; see the Key to Test Data presented on Plate 6, for an explanation of test data.

## 3.0 SITE CONDITIONS

The property is situated on the south side of Headlands Drive approximately two and one-half miles south of the town of Mendocino. The site is on the west side of a small, north trending, ocean inlet within Van Damme Cove. The property consists of a near-level marine terrace bordered on the east and south by steep ocean bluffs.

The south bluff is approximately 55 to 61 feet in vertical height with slope gradients that vary from about one-half horizontal to one vertical (1/2H:1V) to near vertical. The upper approximately one-quarter of the south bluff has a slope

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gradient of about 1-1/2H to 2H:1V. The east bluff is approximately 61 to 65 feet in vertical height with slope gradients that vary from about 1/2H to 1/4H:1V.

The upper terrace level and south bluff face are shown in Photographs A and B, respectively, Plate 9. As can be seen in Photograph B, there are two sea cave portals (entrances) within the south bluff.

There are also two sea cave portals in the east bluff within the north-trending inlet, as shown in Photograph C, Plate 10. Photograph C also shows a portion of the beach at the north end of the inlet.

The four sea cave portals are joined into one large cave, as shown on Plate 2. The sea cave interior is shown in Photographs D, E, F, and G, on Plate 11. The cave roof rises in the shape of an "A", as presented on Cross Section A-A', Plate 12. The apex of the roof is estimated to be approximately 35 feet above the water; therefore, the cave roof is within 25 to 30 feet from the ground surface.

One branch of the cave continues to the north, where it ends with a small beach. This branch of the cave gradually diminishes in size to approximately 5 to 7 feet wide by about 8 to 10 feet high. Several large rocks, 3 to 4 feet across, were observed just below the water surface on the floor of the northeast cave portal. These rocks appear to have been deposited there from a relatively recent (last 5 to 10 years) rock fall.

The upper terrace level of the property is covered with grasses and weeds with stands of pine trees along the westerly property line and in the northeast corner of the property.

No surface water was observed on the upper terrace at the time of our August 2001 field exploration. No ground water was encountered in our borings. Only one small area of ground water seepage was observed on the lower bluff face, as evidenced by a patch of green algae approximately five feet across, as shown on Plate 2.

#### 4.0 SITE GEOLOGY AND SOILS

The site bedrock consists of dark gray sandstone and yellow-orange silty sandstone of the Cretaceous-Tertiary Franciscan Complex coastal belt. As encountered in our borings, the upper 2 to 3 feet of the bedrock is generally crushed to intensely fractured, friable to low in hardness, and deeply weathered. In the lower portions of our borings, and where exposed on the bluff face, these rocks are closely to little fractured, moderately hard to hard, and little weathered.





The orientation of the rock bedding at this site, as is typical of the Franciscan Complex, is somewhat chaotic. Locally, however, the bedrock has a northerly strike with a moderately steep dip to the east (dipping 35 to 40 degrees from horizontal out of the easterly bluff). Drill rig practical refusal was encountered in hard bedrock at 15.5, 11.5, and 9.0 feet below the ground surface in Test Borings B-1, B-2, and B-3, respectively.

Five to eight feet of Pleistocene terrace deposits and topsoils overlie the bedrock at the site. The lower three feet of the terrace deposits in Borings B-1 and B-2 consist of dark brown to dark yellow-orange clean (little or no clay or silt content) sand that is medium dense to very dense. No clean sand was encountered in Boring B-3.

Overlying the clean sands in Borings B-1 and B-2 and the bedrock in Boring B-3, is one to two feet of dark brown silty sand that is medium dense to dense. The upper 2 to 3 feet of the terrace deposits are dark brown silty sand topsoils. The silty sands are loose to medium dense. The upper one to one and one-half feet of the silty sands are porous and contain fine roots.

Minor to moderate caving occurred within the terrace sands below 7, 4.5, and 3.5 feet in Borings B-1, B-2, and B-3, respectively. The terrace deposits appear low in expansion potential (tendency for volume change with changes in moisture content). Portions of the lower terrace deposits are locally cemented, as observed in upper bluff exposures at the south end of the property and northeast of the property.

One landslide (rock fall) on the upper bluff face was observed at the property, as shown on Plate 2. This landslide is shown between the east and northeast sea cave portals in Photograph C, Plate 10. Several bedrock slabs (sandstone beds) and the overlying terrace deposits, have dropped into the adjacent inlet. The rockfall is visible in the 1981 aerial photograph, but appears to be a few feet less in width in the 1963 aerial photograph.

There is also a shallow erosion area on the upper bluff edge above the sea cave south portal shown on Plate 2 and Photograph B, Plate 9. The terrace deposits and deeply weathered bedrock in this area have been eroded back to a slope angle of about 2H:1V.

One main fault and several sub-parallel and/or intersecting fault traces were observed within the property bluffs. Wave erosion along the main fault appears to be responsible for formation of the sea cave, including the large, south portal. The fault is shown within the cave roof in Photograph D on Plate 11. Wave erosion along the secondary faults has created the other sea cave portals, as



shown in Photographs B and C, Plates 9 and 10. None of the faults observed within the bedrock appeared to offset the overlying Pleistocene terrace deposits and are, therefore, not considered active. The active San Andreas Fault is located offshore, approximately 4 1/2 miles (7 kilometers) to the west.

## 5.0 CONCLUSIONS

Based upon the results of our investigation and review of the available geologic data, we conclude that the site is suitable for the proposed residential development. The main geotechnical considerations affecting the design and construction of the project are potential settlement, cave stability, bluff retreat rate, and the potential for strong ground shaking due to earthquakes.

### 5.1 Potential Settlement

The topsoils consist of silty sands that are loose to medium dense, and porous. Foundations placed within these soils have a potential for settlement. We conclude that the house can be satisfactorily supported on spread footings that extend through the weak surface soils. The footings can be bottomed in the silty sands at depths in the range of 3 1/2 to 4 feet below existing ground surface.

Assuming footings are designed and constructed in accordance with our recommendations, we estimate that the post-construction settlement due to foundation loads will be less than 1/2 inch. We judge that post-construction differential settlement will be less than 1/4 inch between adjacent footings.

### 5.2 Bluff Stability/Setback Criteria

The referenced 1986 Ballerino and 1993 Earth Mechanics geologic/geotechnical reports recommended bluff setbacks of 50 feet and 20 feet, respectively. However, very little supporting data for these setbacks were provided in either of those reports.

We examined the ocean bluffs at the site during our geologic reconnaissance, including the sea cave interior and exterior. The main concerns regarding bluff stability/setback criteria are the rock fall on the east bluff, the erosion area on the upper south bluff, and the sea cave within the bluff itself.

The ocean bluffs at the property are mostly comprised of hard rock. The rock fall on the east bluff is a result of slippage along dipping bedding planes. The well-bedded rock strata that failed are bounded on two sides by minor, ancient faults. Sea cave portals have developed from erosion along these ancient fault traces. The cave portal formation has ultimately led to the undermining of the rock

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strata that failed. Since the failed, well-bedded rock strata does not extend beyond the faults on either side, the potential for lateral enlargement of the rock fall area is low. Additional setback criteria for headward enlargement of the rock fall area is unnecessary, since the sea cave setback will be the controlling factor for the project location.

The erosion area on the upper south bluff has removed the shallow, weak soils and exposed the underlying hard rock and partially cemented terrace materials. Further enlargement of this erosion area can be mitigated by re-directing surface water runoff away from this area.

According to the Ballerino report, "a small area above one of the tunnel exits was noted to have undergone a degree of settling. There appears to be a direct relationship between the tunnel and this slight settlement of the soil mantle. The indication is that fractures extend from the back of the tunnel up to the surface and constitute a zone of instability which is considered unsafe for building purposes. The block of rock affected is not likely to slump suddenly, nor is it likely to undergo accelerated erosion or fall suddenly into the ocean, as there is still 30 feet of bedrock between the back of the tunnel and the surface above."

According to the Ballerino report, the south portal of the sea cave ("tunnel") is the "entrance" and the two portals facing the easterly inlet are the sea cave "exits". Therefore, the "small area above one of the tunnel exits" must be above or between the east and northeast portals. Other than the rockfall area between the two portals, no ground surface depressions or other evidence of "settling" was observed on the upper bluff. Further, no open fractures or "daylight" were observed within the sea cave roof during our marine reconnaissance. Therefore, it appears that the "settling" observed by Ballerino was incipient movement of the terrace soils at the rock fall location. We conclude that the settling soils must have dropped away prior to BACE's investigation.

Based upon the results of our investigation, including comparisons of the bluff today with the aerial photographs from 1981 and 1963, we conclude that the bluff is eroding at varying, non-uniform rates due to periodic rock falls or infrequent, shallow landslides. The bluff has not significantly changed in the last 38 years.

Therefore, we estimate that a relatively conservative bluff retreat rate of about one inch per year (average) should be used for setback determination. Based upon a period of 75 years, considered by the California Coastal Commission to be the economic lifespan of a house, and a safety factor of four, this retreat rate would result in a setback of 25 feet. For non-critical structures (that can be dismantled and moved), such as decks, spas, gazebos, etc., a factor of safety of two, for a setback of 12-1/2 feet, would be appropriate. The above safety factors

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are intended to provide for potential changes in future erosion rates due to possible climate changes and predictable rise in sea level.

The "A"-shaped cave roof has formed by erosion along an ancient, inactive fault trace. Since continued erosion along this fault trace could lead to partial roof collapse, possibly prior to 75 years from now, an additional cave setback of five feet from the cave wall, is recommended. The cave setback need not apply to non-critical structures, as per above.

### 5.3 Seismicity and Faulting

As is typical of the Mendocino County area, the site will be subject to strong ground shaking during future, nearby, large magnitude earthquakes. The intensity of ground shaking at the site will depend on the distance to the causative earthquake epicenter, the magnitude of the shock, and the response characteristics of the underlying earth materials. Generally, wood-frame structures founded in firm materials, and designed in accordance with current building codes are well suited to resist the effects of ground shaking.

Since the active San Andreas Fault is about 7 kilometers from the site, and no other active faults were observed by us or are shown on published maps in the site vicinity, it is our opinion that the potential for surface fault rupture at this site is very low.

### 5.4 Erosion Control

The planned residence will be intercepting the natural sheet flow drainage across the site. Concentrated runoff (including water from roof gutter downspouts) should be dispersed onto the ground surface on the inland side of the residence. Drain water should be outletted to the north end of the property away from the bluff and the leach field area as described in the Site Drainage Section of this report.

### 5.5 Construction Impact

In general, the proposed residence, constructed in accordance with our recommendations, should have little effect upon bluff stability. The necessary surface (including roofs) drainage facilities, emptying at the north end of the property away from the bluff and leach field, should adequately mitigate increased erosion concerns.

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## 6.0 RECOMMENDATIONS

### 6.1 Site Grading

Areas to be graded should be cleared of existing vegetation, rubbish, and debris. After clearing, surface soils that contain organic matter should be stripped. In general, the depth of required stripping will be about 1 to 2 inches; deeper stripping and grubbing may be required to remove isolated concentrations of organic matter. The cleared materials should be removed from the site; however, strippings can be stockpiled for later use in future landscape areas.

Weak, porous, near-surface soils (1 to 1-1/2 feet in depth at our boring locations) should then be removed to expose firm soils. A BACE representative should observe soils exposed by the recommended excavations. These exposed soils should then be scarified to about six inches deep, moisture conditioned to at least optimum moisture content and compacted to at least 90 percent relative compaction as determined by the ASTM D 1557 test procedure, latest edition. These moisture conditioning and compaction procedures should be observed by BACE.

Fill material, either imported or on-site, should be free of perishable matter and rocks greater than six inches in largest dimension, and have an Expansion Index of less than 40, and should be approved by BACE before being used on site as structural fill. We anticipate most of the on-site soils will be suitable for use as fill. Only select material should be used within select fill zones (upper 30 inches of structural areas).

Fill should be placed in thin lifts (six to eight inches depending on compaction equipment), conditioned to near optimum moisture content, and compacted to at least 90 percent relative compaction as determined by the ASTM D 1557 test procedure, latest edition, to achieve planned grades.

### 6.2 Foundation Support

The residence can be supported on spread footings founded in firm silty sand beneath the upper, porous silty sand topsoils. The footings should extend at least 12 inches into firm supporting soils, which we anticipate will result in the footings being about 3-1/2 to 4 feet in depth. Footings can be assigned a soil bearing pressure of 2,000 pounds per square foot (psf) for dead plus long-term-live loads. A 25 percent increase in bearing pressure is allowable for dead plus all live loads, and a 50 percent increase in bearing pressure is allowable for total loads, including wind or seismic loads. Footings should be no less than 12 inches wide, regardless of load.

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Resistance to lateral loads can be obtained using a combination of passive earth pressure against the face of foundations, and frictional resistance along the base of foundations. An allowable passive pressure of 500 psf plus 100 psf per foot of depth below soil subgrade (trapezoidal distribution), and frictional resistance of 0.35 times the net vertical dead load, are appropriate for footing elements poured neat against approved supporting soils. Passive pressure should be neglected within the upper 12 inches of soil subgrade.

### 6.3 Seismic Design Criteria

The proposed structures should be designed and constructed to resist the effects of strong ground shaking (on the order of Modified Mercalli Intensity IX) in accordance with current building codes. The Uniform Building Code (UBC), 1997 edition, indicates that the following seismic design criteria are appropriate for this site:

Seismic Zone Factor,  $Z = 0.40$

Soil Profile Type =  $S_a$

Seismic Coefficients,  $C_a = 0.44 N_a$

$C_v = 0.64 N_v$

Near Source Factors,  $N_a = 1.1$

$N_v = 1.4$

Seismic Source Type = A (San Andreas Fault)

Distance to Fault = 7.0 km

### 6.4 Concrete Slabs-On-Grade

If concrete floor slabs are not designed to span between foundation elements (gaining no support from the underlying soil), then the slab should be placed on at least 18 inches of compacted fill. The fill should be placed and compacted as described in Section 6.1 of this report.

The slab-on-grade floor should be underlain by at least four-inches of clean, free draining gravel or crushed rock, graded in size from 1-1/2 or 3/4 inches maximum to 1/4 inches minimum, to function as a capillary moisture break. In areas where movement of moisture vapor through the slab would be detrimental to its intended use, the designer should consider installation of a vapor barrier membrane.

### 6.5 Site Drainage

Because surface and/or subsurface water is often the cause of foundation and bluff stability problems, care should be taken to intercept and divert



concentrated surface flows and subsurface seepage away from the bluff edges and building foundations. Concentrated flows, such as from roof downspouts, area drains and the like, should be collected in a closed pipe and discharged into a functioning road drainage system or into a series of level, leach (dispersion) lines at the north end of the property. The leach lines should consist of a 4-inch diameter perforated pipe, near the top of a gravel-filled trench. The trench should be 12 inches wide by 36 inches deep, minimum. The trench bottom and the perforated pipe should be constructed level. Trench lengths and locations should be determined by a qualified civil engineer. Cave and bluff setbacks should apply, as this system should be considered a "critical" structure.

## 6.6 Additional Services

Prior to construction, BACE should review the final grading and building plans and geotechnical-related specifications for conformance with our recommendations.

During construction, BACE should be retained to provide periodic observations, together with field and laboratory testing, during site preparation, placement and compaction of fills and backfills, and foundation construction. Foundation excavations should be reviewed by BACE while the excavation operations are being performed. Our reviews and testing would allow us to verify conformance of the work to project guidelines, determine that the soil conditions are as anticipated, and to modify our recommendations, if necessary. In addition, BACE can also provide construction materials testing and inspection services, if required by the project plans or the permit. These services may include, but are not limited to, observation and/or testing of reinforced concrete, structural masonry, structural steel, welding, and high strength bolting.

## 7.0 LIMITATIONS

This geotechnical investigation and review of the proposed development was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, either expressed or implied, is provided as to the conclusions and professional advice presented in this report. Our conclusions are based upon reasonable geologic and engineering interpretation of available data. A soil corrosion study was not included in our scope of services for this project.

The samples taken and tested, and the observations made, are considered to be representative of the site; however, soil and geologic conditions may vary significantly between borings. 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 BACE Geotechnical (BACE), and revised recommendations be provided as required.

This report is issued with the understanding that it is the responsibility of the Owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of all other design professionals for the project, and incorporated into the plans, and that the Contractor and Subcontractors implement such recommendations in the field. The safety of others is the responsibility of the Contractor. The Contractor should notify the Owner and BACE if he/she considers any of the recommended actions presented herein to be unsafe or otherwise impractical.

Changes in the conditions of a site can occur with the passage of time, whether they are 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. 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.

The recommendations contained in this report are based on certain specific project information regarding type of construction and building location, which has been made available to us. If any conceptual changes are undertaken during final project design, we should be allowed to review them in light of this report to determine if our recommendations are still applicable.

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# EARTH MECHANICS CONSULTING ENGINEERS

Geotechnical Engineering

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October 16, 2001  
Project Number: 01-1684

Jill and Ken Roost  
2151 Oaks Drive  
Hillsborough, CA 94010

Subject: Geotechnical Consultation Regarding Site Drainage  
Proposed Residence  
Assessor's Parcel 121-260-10  
45501 Headlands Drive  
Little River, California

Dear Mr. and Mrs. Roost:

Earth Mechanics Consulting Engineers is pleased to present this letter containing geotechnical consultation regarding site drainage for the proposed residence at 45501 Headlands Drive in Little River, California. We previously provided geotechnical services for the proposed residence at the site and issued a report dated August 23, 1993. Following the issuance of our report, the California Coastal Commission raised issues regarding site drainage in their letter dated July 19, 2001, which are addressed in this letter.

The following drainage recommendations were presented in our geotechnical report for the project dated August 23, 1993.

The site should be graded to provide positive drainage away from building areas as well as the sea cliff and finished cut and fill slopes. Roofs should be provided with gutters and downspouts that discharge into closed conduits, or onto concrete slabs or asphalt pavements that drain away from the foundations and into the site storm drain system. Energy dissipaters, such as riprapped stilling basins, may be required to reduce erosion where drains or culverts discharge into drainage ways.

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Earth Mechanics Consulting Engineers  
Project Number: 01-1684  
45501 Headlands Drive, Little River  
October 16, 2001

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We will provide geotechnical services during construction to confirm that drainage improvements are in general conformance with our recommendations and the County's LCP policies. By diverting runoff away from the bluff and properly locating septic systems, the proposed development would not contribute to the erosion of the bluff face or to instability of the bluff itself. It is our understanding that grading will be minimal and not significantly disrupt natural drainage patterns, except where natural drainage patterns direct runoff over the bluff face. The increase surface runoff from roofs and paved areas will be directed into the site, away from the bluff, for infiltration.

The potential for erosion may be reduced by planting and maintaining vegetation on bare or denuded slopes. If construction occurs during the rainy season, temporary erosion control measures such as silt fences or straw bales will be required. Earth Mechanics Consulting Engineers is available to provide geotechnical design criteria to the contractor regarding erosion control during construction of the planned improvements.

We appreciate the opportunity to be of continued service and trust this letter provides the information required. Please call if you have questions or we can provide additional information.

Sincerely,  
EARTH MECHANICS CONSULTING ENGINEERS

*H. Allen Gruen*

H. Allen Gruen, C.E., G.E.  
Principal Engineer



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# EARTH MECHANICS CONSULTING ENGINEERS

Geotechnical Engineering

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October 12, 2001  
Project Number: 01-1684

Jill and Ken Roost  
2151 Oaks Drive  
Hillsborough, CA 94010

Subject: Geologic and Geotechnical Consultation  
Proposed Residence  
Assessor's Parcel 121-260-10  
45501 Headlands Drive  
Little River, California

Dear Mr. and Mrs. Roost:

Earth Mechanics Consulting Engineers is pleased to present this letter containing geologic and geotechnical consultation regarding the proposed residence at 45501 Headlands Drive in Little River, California. We previously provided geotechnical services for the proposed residence at the site and issued a report dated August 23, 1993. Following the issuance of our report, the California Coastal Commission raised issues in their letter dated July 19, 2001, which are addressed in this letter.

## Background

The property is on the Mendocino County coast, west of Highway 1 and on the south side of Headlands Drive, as shown on the Vicinity Geologic Map, Plate 1. The lot is currently undeveloped. We understand that the proposed project is to construct a 2,550-square foot residence and 625 square foot detached garage on the property. In addition, an onsite sewage disposal system will be installed, as well as utility service into the lot. We understand the residence will be located about 25 feet from the edge of the blufftop. In our 1993 report, we concluded that the proposed residence could be constructed over the sea tunnels and recommended the residence be setback a minimum of 20 feet from the blufftop. We subsequently submitted a March 13, 2001 Geotechnical Consultation letter providing additional clarifications regarding the recommended blufftop setback. We understand that the County of Mendocino and California Coastal Commission are requesting additional documentation to substantiate the recommended 20-foot setback.

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### Scope

Our current evaluation was prepared to following the guidelines of the California Coastal Commission, adopted in a May 5, 1977 *Statewide Interpretive Guidelines Concerning Geologic Stability of Blufftop Development*, Attachment H. In addition, the general requirements of the Mendocino County Local Coastal Program were incorporated into our evaluation to develop an estimate of the bluff erosion and cliff retreat for a 75-year period.

Our scope of services consisted of reviewing geologic/seismic reports and aerial photographs for the site and vicinity; performing a site reconnaissance by a California-certified engineering geologist to observe the exposed geologic conditions; analyzing the data collected; and preparing this letter report.

## FINDINGS

### Local Geologic Setting

The oldest geologic units in the project vicinity consist of deformed sedimentary and volcanic rocks of the Jurassic- to Tertiary-age Franciscan Complex (Kilbourne, 1983). In the site vicinity, the Franciscan Complex consists of a western, Coastal Belt unit, which is made up of deformed sandstone, shale, and conglomerate of Cretaceous to Tertiary age. In the site vicinity, the published mapping shows bedrock striking north-northeast and dipping moderately to the east (Kilbourne, 1983).

The coastal region of California is one of varying, but generally high rates of tectonic uplift. Studies of uplift rates on the southern Mendocino Coast, using elevations and widespread preservation of marine terrace deposits, suggest that rates of uplift in the past 500,000 years in the range of about 2 to 3 centimeters per century (0.2 to 0.3 millimeters per year; Fox, 1976). Regional uplift, combined with episodic changes of sea level, have created a series of wave-cut platforms or terraces which are nearly level to very gently sloping toward the Pacific Ocean. Locally, the terraces were cut into the Franciscan bedrock strata and were subsequently blanketed by poorly consolidated marine sands, which become progressively older inland and with increasing elevation.

Published studies of cliff stability for the vicinity classify the site within a "moderate risk" hazard zone, but note that little information on shoreline erosion is available south of Mendocino (Griggs and Savoy, 1985).

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### Site Reconnaissance

Our certified engineering geologist performed a reconnaissance of the property on October 9, 2001 to review the site conditions. The property is situated on a small point that extends southward into the cove at the mouth of Little River and is bounded on the south and east by sea cliffs. The lot is undeveloped and grass-covered. Pine trees are present at the west edge of the property, and a single, mature pine tree is present at the edge of the blufftop at the southern tip. This position of this tree was used as one of our references for assessing the position of the blufftop in the subsequent aerial photo analysis (see next section). The sea cliff face was measured to slope about 65 to 82 degrees down to the ocean.

Our previous studies, as well as those of others (Ballarino, 1986) identified a sea tunnel beneath the property. The top of the tunnel is described as being about 30 feet below the bedrock surface. Our estimates indicate this is little changed from the prior studies.

The site reconnaissance confirms that bedrock in the cliff face consists of highly fractured, moderately hard sandstone of the Franciscan Complex. Our field measurements indicate bedding strikes about 10 to 20 degrees east of north, and dips 60 to 80 degrees east. We also noted a zone of shearing and quartz veining in the bedrock near the southeastern corner of the site that follows bedding. The shear zone appears to follow the orientation of the bedrock, striking 10 degrees west of north and dipping about 70 degrees southeast. We observed that the tunnel beneath the site corresponds closely to the position and orientation of this shear zone.

Where exposed in the blufftop, the terrace deposits consist of porous silty and gravelly sands three to six feet thick. Prior test pit explorations by others indicate the terrace deposits are locally up to 15 feet thick on the property.

### Review of Historic Blufftop Retreat

To assess possible changes in the sea cliff face over time, aerial photographs taken in 1972, 1988, and 1996 were reviewed stereoscopically at the Mendocino County Assessors Office. The U.S. Geological Survey topographic map of the vicinity was also reviewed for evidence of changes in shoreline morphology.

In the 1972 photos, the property is open and grass covered, with no trees. The only residence in the vicinity is on the adjacent parcel to the west. In 1988, numerous pine trees are growing in the area, and the pine at the south tip of the property is visible.

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The position of the tree with respect to the blufftop appears unchanged from our 2001 site visit. We noted in the aerial photos that the development of inlets, sea tunnels, and facets in the shoreline have a north-northeast orientation, very similar to the orientation of bedrock strata (see Plate 1).

In the 1996 photos, an area at the bluff top on the east side of the property appears to have retreated about four to six feet with respect to the shape of the bluff in the 1972 aerials. Other areas of the sea cliff and blufftop on the property appeared little changed over the period of aerial photos reviewed. Along the southern edge of the property, the terrace deposits sands are highly reflective on the black and white photographs, and detail within the deposits is difficult to see. Therefore, we assume that up to about 5 or 6 feet of localized erosion of the terrace deposits could have occurred since 1972 that would not be evident in the photos.

## DISCUSSION AND CONCLUSIONS

### Estimates of Blufftop Retreat

Our review indicates that blufftop retreat in this section of the coast is not uniform, but most likely occurs as localized failures of bedrock. Based on our observations over a 24 year period (1972 to 1996 aerials), a bedrock failure in the cliff face may have led to a localized area of 5 to 6 feet of blufftop retreat along the east side of the lot. Projected over a 75 year period would give a total blufftop retreat of about 15 to 18 feet.

### Blufftop Setback

Based on the current evaluation, our previously recommended minimum setback of 20 feet (6 meters) from the blufftop appears appropriate. The planned building footprint is 25 feet from the blufftop, which lies well inland of the estimated zone of 75-year bluff retreat. Based on the general shoreline pattern in this section of the coast, it appears that inlet/cove and tunnel development occurs primarily in a north-northeast orientation, parallel to the orientation of bedrock strata and shear zones. Within the site, the tunnel development appears to follow a northeast-oriented zone of shearing. Therefore, future erosion or localized settlement/collapse of the tunnel would also be expected to follow this northwest-oriented shear zone.

20 of 24

Earth Mechanics Consulting Engineers  
Project Number: 01-1684  
45501 Headlands Drive, Little River  
October 12, 2001

Page 5

We appreciate the opportunity to be of service and trust this letter provides the information required. Please call if you have questions or if we can provide additional information.

Sincerely,  
EARTH MECHANICS CONSULTING ENGINEERS

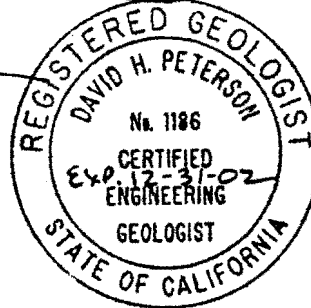
*H. Allen Gruen*

H. Allen Gruen, C.E., G.E.  
Principal Engineer



*David H. Peterson*

David H. Peterson, C.E.G.  
Engineering Geologist



Attachments: References  
Vicinity Geologic Map, Plate 1  
Site Geologic Map, Plate 2

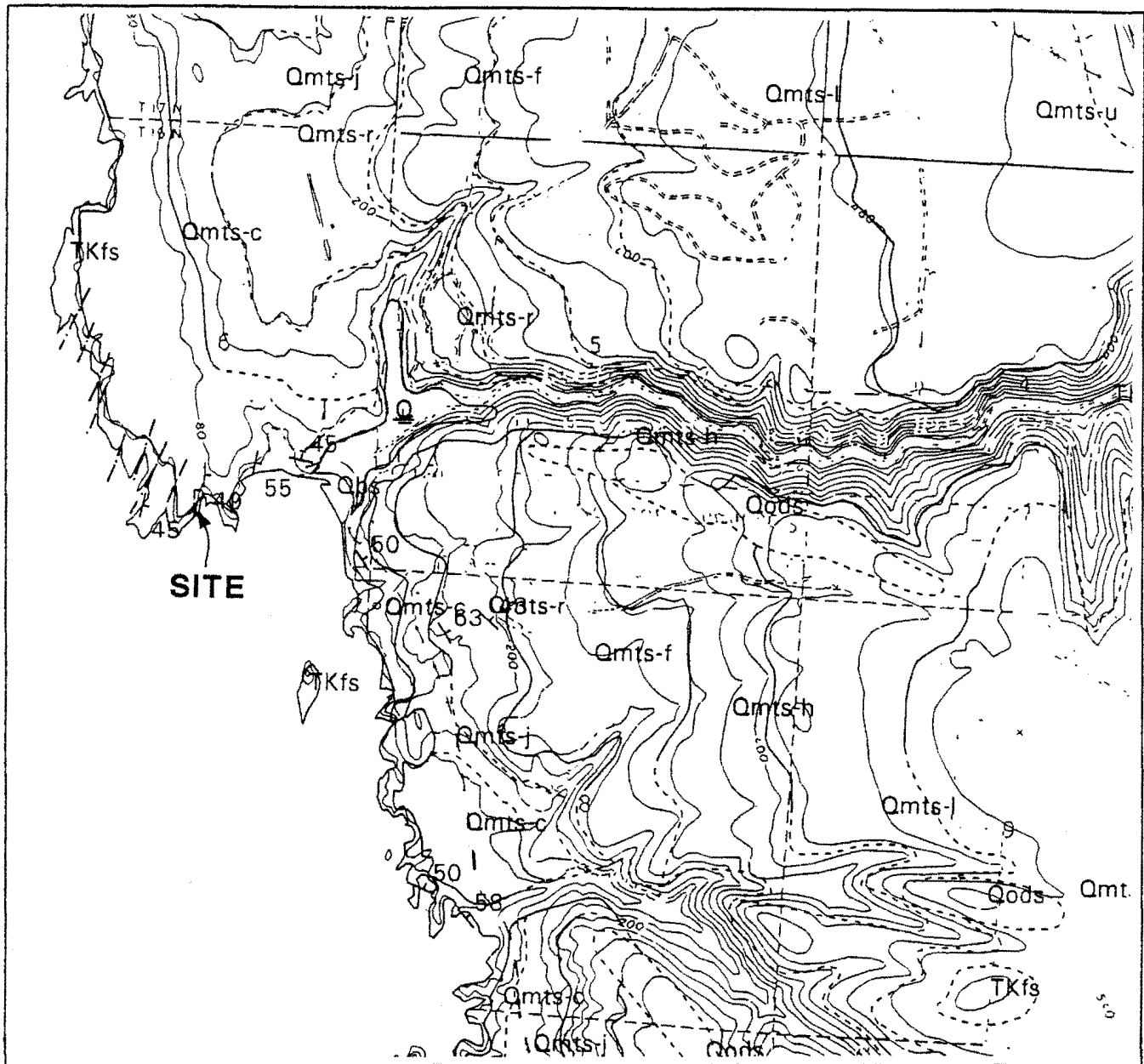
210624

### REFERENCES

1. Aerial Photographs (stereo-paired), obtained from Mendocino County Assessors Office: July 9, 1972, Scale 1:20,000, Photos MEND 6-120 and 6-121. August 19, 1988, Scale 1:31,680, Photos WAC-88CA 27-174 and 27-175. March 24, 1996, Scale 1:13,750, Photos WAC MENDOCINO-96 9-208 and 9-209.
2. Balarino, J., 1986, Geologic Report for Assessor's Parcel No. 121-266-10, - Mendocino County, California: unpublished consultant's report to Robert Steele, dated August 1986, 7p. with illustrations.
3. Earth Mechanics Consulting Engineers, 1993, Report, Geotechnical Investigation, Proposed Single Family Dwelling, 45501 Headlands Drive, Little River, California: unpublished consultant's report to Robert Steele, dated August 23, 1993, 10p.
4. Fox, W. W., 1976, Pygmy Forest, An Ecological Staircase: California Geology, v.29, No. 1, p.3-7.
5. Griggs, G. and Savoy, L. editors, 1985, Living With the California Coast: Sponsored by the National Audubon Society, Duke University Press, Durham, North Carolina, 394p.
6. Kilbourne, R.T., 1983, Geology and Geomorphic Features Related to Landsliding, Mendocino 7.5' Quadrangle, Mendocino County, California: California Division of Mines and Geology, DMG Open File Report 83-15, Scale 1:24,000 (also reproduced on DMG CD 99-002).

22 of 24





Reference: Kilbourne, 1983, CDMG OFR 83-15

# EXPLANATION

- Qbs Beach Sand Deposits
- Qods Older Dune Sands
- Qmts Marine Terrace Deposits
- TKfs Franciscan Complex, Coastal Belt

— Contact between geologic units

- - - Air Photo Lineations (this study)

10 Attitude of bedding

0 2,000  
SCALE IN FEET

**EARTH MECHANICS**  
CONSULTING ENGINEERS

Vicinity Geologic Map  
APN 121-260-10  
45501 Headlands Drive  
Little River, California

PLATE  
**1**

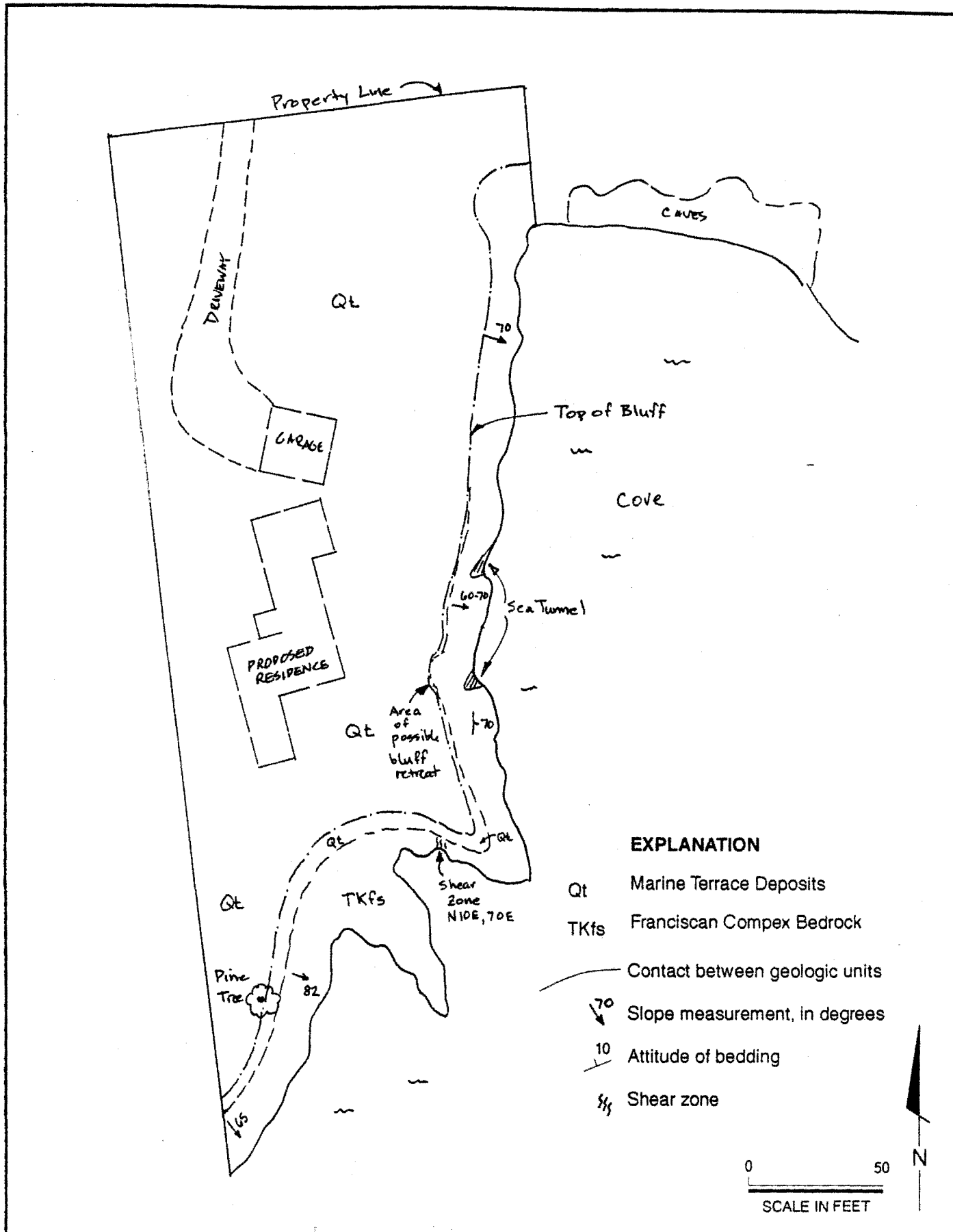
Job Number: 93-127

Drawn: DHP

Approved: *[Signature]*

Date: 10/01

23 of 24



**EARTH MECHANICS**  
CONSULTING ENGINEERS

**Site Geologic Map**  
APN 121-260-10  
45501 Headlands Drive  
Little River, California

PLATE  
**2**

24024



**BACE Geotechnical**  
*A Division of Brunsing Associates, Inc.*

February 22, 2002

Ken and Jill Roost  
2151 Oaks Drive  
Hillsborough, CA 94010

**RECEIVED**

**FEB 27 2002**

**CALIFORNIA  
COASTAL COMMISSION**

**EXHIBIT NO. 9**

**APPLICATION NO.  
A-1-MEN-01-043**

**WRIGHT (1 of 4)**

**BACE GEOTECHNICAL  
LETTER-REPORT DATED  
FEBRUARY 22, 2002**

**RE: Response to California Coastal Commission Staff Report W15a, Proposed  
Roost Residence, 45501 Headlands Drive, Little River, California**

Dear Dr. & Mrs. Roost:

This letter is in response to the California Coastal Commission (CCC) Staff Report by Jim Baskin, dated January 18, 2002, regarding the Appeal by Ms. Wendy Weikel. Enclosed within the Staff Report is a Memorandum, dated January 17, 2002, prepared by Dr. Mark Johnsson, CCC Staff Geologist. Dr. Johnsson lists the geological/geotechnical documents that he reviewed for your project, including BACE Geotechnical's (BACE's) Geotechnical Investigation report dated November 14, 2001.

At the start of his memorandum, Dr. Johnsson acknowledges that he has not been to your property, but is familiar with the area geology and coastal erosion. In general, BACE concurs with the comments in Dr. Johnsson's memorandum. However, there are several points of disagreement that should be noted, as follows:

- On Page 4, 3<sup>rd</sup> paragraph he states: "At the subject site, it appears that soil is filtering through the fracture (variously described as a shear zone or an inactive fault) along which the cave is developed." BACE observed no evidence of "soil filtering through the fracture" either on the ground surface above (which would be observable as a settlement depression) or in the cave roof below. As can be seen in Photograph D on Plate 11 of our report, the fault is a closed fracture that is heavily coated with a marine, organic stain.
- In the same paragraph, Mr. Johnsson mentions that an emergency permit was issued for a house in San Luis Obispo County threatened by a developing sinkhole above a fracture zone. He then continues: "Closer at hand (e.g., Little River, Jug Handle State Reserve [actually Russian Gulch State Park]) large sinkholes or blowholes have developed as a natural enlargement of sea caves in the lower portion of the bluff." Sinkholes with total roof collapse are a relatively rare phenomena. Although there are hundreds, if not thousands, of sea caves on the Sonoma and Mendocino coasts, BACE has observed only 4 or 5 sinkholes or blowholes with total roof collapse. In addition, BACE has observed several caves with small (a few feet across) open holes in the sides or roof. Sinkhole or blowhole development with total roof collapse is a long process that generally takes hundreds of years, as judged by BACE's observations over the last quarter of a century.

- Based upon his perceived potential for total roof collapse, Dr. Johnsson recommends a 25-foot setback from the most landward part of the sea cave. As stated on Page 8, 2<sup>nd</sup> Paragraph of BACE's report: "The "A"-shaped cave roof has

formed by erosion along an ancient, inactive fault trace. Since continued erosion along this fault trace could lead to partial roof collapse, possibly prior to 75 years from now, an additional cave setback of five feet from the cave wall, is recommended." The type of "partial roof collapse...prior to 75 years from now" that is envisioned by BACE is shown on modified Cross Section A-A', Plate 12, attached to this letter. Based upon this type of roof collapse, which could possibly occur within the next 50 to 75 years, a 5-foot setback from the cave wall, as recommended in BACE's report, should be adequate. Total roof collapse, as envisioned by Dr. Johnsson, could take an additional several hundred years.

- Dr. Johnsson further recommends that setbacks be measured from the landward part of "all portions of the sea cave." He then states that there is a precedent (San Diego Municipal Code) for using the most landward portion of an erosional feature such as a sea cave to establish setbacks. BACE is very concerned by this viewpoint. Many sites, if not most, on the Sonoma and Mendocino coasts have sea caves. BACE considers it very important (critical) that a geological/geotechnical investigation for coastal properties include a reconnaissance into the cave to see if the cave increases in size within, and whether significant erosion is occurring. For example, a sea cave that is a few feet high, which goes 30 feet into a bluff, where there is 60 feet of hard rock over the cave and no signs of accelerated erosion can be observed, is of little concern to BACE. While it is generally not desirable to build directly over a sea cave, there is no reason to apply a bluff edge setback to the inside of such a sea cave, as described. It is important to perform a specific evaluation of each cave.
- Similarly, the northerly extension of your sea cave, which ends at a small beach, is only 5 to 7 feet wide by about 8 to 10 feet high. BACE concludes that a setback from this minor cave extension is not warranted.
- Finally, Dr. Johnsson expresses his opinion that "on this particular lot, a 25 foot setback from the most landward parts of the sea cave still leaves a very usable lot." Apparently, Dr. Johnsson is unaware of the 20-foot setback from the property line with the neighboring parcel. With these setbacks, the house will be moved further to the north, resulting in the planned leach field being crowded closer to the planned storm water drain field, and the planned driveway. Therefore, the expanded cave setback would result in a geologically/geotechnically less desirable condition than is presently planned based upon our recommendations.
- BACE also has concerns about CCC Staff Report Special Condition 1(A)2(b) wherein the "required landscaping shall be situated outside of all bluff edge and sea cave setbacks..." This condition will result in adding another 10 feet or more to the building setback to allow a sufficient distance between the house and the

294

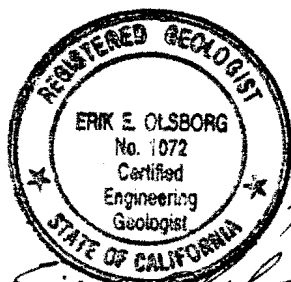


proposed trees. Furthermore, trees are generally beneficial to bluff slope stability by removing potentially-destabilizing water from the subsurface, as well as

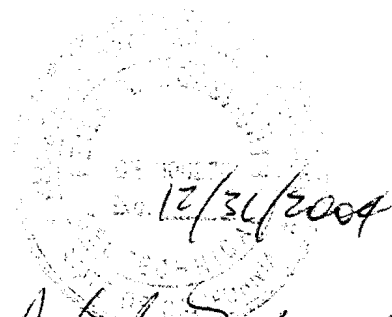
"tying" the soil and rock materials together with their roots. On this basis it is more beneficial to have the trees within the setback as an erosion protection measure.

We trust the above provides insight to the basis of our recommendations. In an effort to resolve these issues, on your behalf, we have extended an invitation to Dr. Johnsson to kayak with BACE to your sea cave for closer examination and further discussion. Dr. Johnsson has agreed to this; he and several other CCC staff will be at your site on February 26, 2002.

Respectfully submitted,



Erik E. Olsborg  
Engineering Geologist - 1072



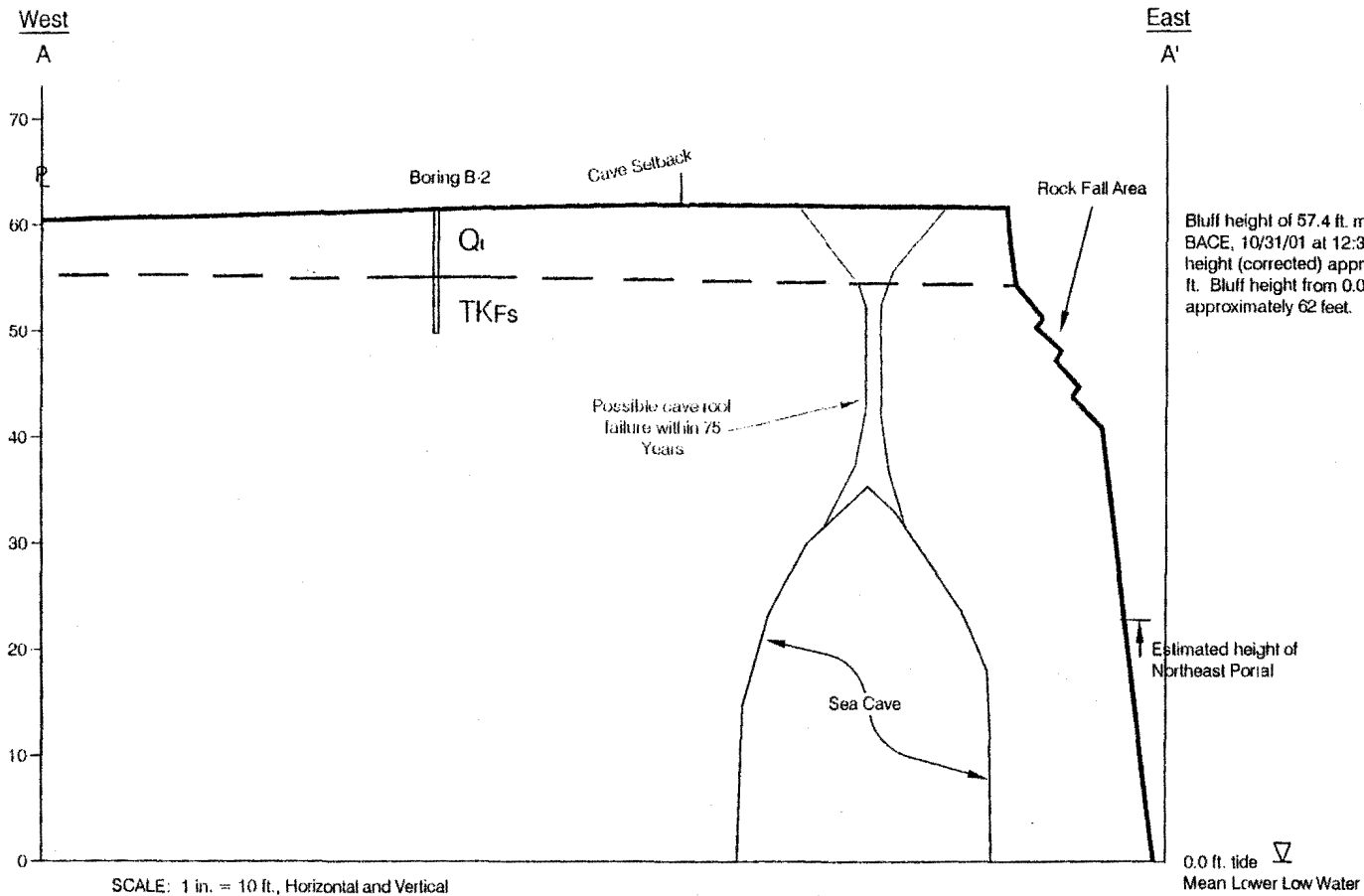
Peter R. Dodsworth  
Geotechnical Engineer - 274

Cc: Dr. Mark Johnsson  
Mr. Jim Baskin  
Mr. Bud Kamb  
Mr. Michael Leventhal

Attachment: Modified Plate 12

3 of 4





**BACE Geotechnical**  
a division of  
Bruning Associates, Inc.  
(707) 838 0780

Job No: 11654.1  
App: EEO  
Date: 11/14/01  
Revised: 2/22/02

**CROSS SECTION A - A'**  
PROPOSED ROOST RESIDENCE  
45501 Headlands Drive  
Little River, California

PLATE  
**12**

## CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE AND TDD (415) 904-5200  
FAX (415) 904-5400



17 January 2002

## GEOTECHNICAL REVIEW MEMORANDUM

To: Jim Baskin, Coastal Program Analyst  
From: Mark Johnsson, Staff Geologist  
Re: Appeal A-1-MEN-01-043 (Wright)

In reference to the above appeal, I have reviewed the following documents:

- 1) J.R. Bovyer 1985, "Geologic report, Mr. and Mrs. T. Graves, Lot#7, Little River Highlands Subdivision, Mendocino County (A.P. # 121-260-07), SE 1/4; Sec 6; T16N; R17W; M.D.B.&M." 6 p. geologic report dated 18 April 1985 and signed by J. R. Bovyer (RG 1463 PE 0412).
- 2) James Ballerino 1986, "Geologic report for Assessor's Parcel No. 121-260-10", 7 p. geologic report dated August 1986 and signed by J. Ballerino (RG 3401).
- 3) Earth Mechanics Consulting Engineers 1993, "Report, geotechnical investigation, proposed single family dwelling, 45501 Headlands Drive, Little River, California", 9 p. geotechnical report dated 23 August 1993 and signed by H. A. Gruen (GE 2147).
- 4) Earth Mechanics Consulting Engineers 1999, "Geotechnical report for proposed residence at 45501 Headlands Drive, Little River, California", 1 p. geotechnical letter report dated 14 April 1999 and signed by H. A. Gruen (GE 2147).
- 5) Earth Mechanics Consulting Engineers 2001, "Geotechnical consultation, proposed residence at 45501 Headlands Drive, APN 121-260-10, Little River, California", 2 p. geotechnical letter report dated 13 March 2001 and signed by H. A. Gruen (GE 2147).
- 6) Earth Mechanics Consulting Engineers 2001, "Geologic and Geotechnical consultation, proposed residence, Assessor's Parcel 121-260-10, 45501 Headlands Drive, Little River, California", 6 p. geotechnical letter report dated 12 October 2001 and signed by H. A. Gruen (GE 2147) and D. H. Peterson (CEG 1186).
- 7) Earth Mechanics Consulting Engineers 2001, "Geotechnical consultation regarding site drainage, proposed residence, Assessor's Parcel 121-260-10, 45501 Headlands Drive, Little River, California", 2 p. geotechnical letter report dated 16 October 2001 and signed by H. A. Gruen (GE 2147).
- 8) Bace Geotechnical 2001, "Geotechnical investigation, proposed Roost residence, 45501 Headlands Drive, Little River, California", 12 p. geotechnical report dated 14 November 2001 and signed by E. E. Olsborg (CEG 1072) and P. R. Dodsworth (GE 278).
- 9) I.L. Welty and Associates 2001, "Drainage calculations, property of the proposed Wright Residence, 45501 Headlands Drive, Little River, California 95432", 4 p. dated 16 November 2001 and signed by I. L. Welty (PE 19461).

EXHIBIT NO. 10

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT

REVIEWING  
GEOLOGIST'S MEMO  
(1 of 6)

I have not had the opportunity to visit the parcel in question, but am familiar with the general area, its geology, and the coastal erosion issues of this part of the California coast.

References (1) and (2), submitted by the appellant, are for a nearby lot and the subject lot, respectively. Both reports identify the basic geologic conditions at the site (well-cemented, relatively resistant Cretaceous-age sandstones of the Franciscan Formation, overlain by marine terrace deposits), and state that, although bluff retreat rates in the area are poorly constrained, they may be as great as one foot to one meter per year. Reference (2) identifies the large sea cave beneath the subject site, and describes an area of settling on the land surface above the sea cave. This report recommends a fifty-foot bluff edge setback for any development on the site. Although the report states that "the on-site disposal drainfield should be located inside the blufftop setback," it appears to mean that the drainfield should be landward (outside) of the setback. Little quantitative justification for the fifty foot setback is provided.

Reference (3) is a new geotechnical report prepared for the property, largely confirming the geologic observations of the previous reports. It indicates that "the average rate of sea cliff retreat in this region has been reported as one foot per year (Tinsley, 1972), but when the roof of a cave collapses, local sea cliff retreat can be as much as several feet in one moment." The report goes on to recommend a 20 foot setback from the bluff edge for structural development. References (4) and (5) merely confirm that the material in the 1993 report (reference 3) remains valid in 1999 and 2001, respectively.

In order to consider the application de novo, Commission staff asked the applicant to address four principal geological concerns:

- 1) An updated quantitative assessment of the bluff retreat rate
- 2) An updated assessment of the site stability, taking into account all pertinent geologic factors, especially the presence of the sea cave beneath the property. A quantitative slope stability analysis was recommended, but not required.
- 3) A description and map showing the extent of the sea cave beneath the property
- 4) A drainage plan identifying the potential erosion and stability impacts that would result from grading, construction, and stormwater runoff at the project site.

References 6-9 were responses to this request.

Reference (6) includes a review of historic bluff retreat at the site, using aerial photographs taken in 1972, 1988, and 1996. Using an easily identified tree as an erosional reference feature, the review found no detectable shoreline change. Because of limitations in the photographs, the report indicated that up to 5-6 feet of localized erosion of the terrace deposits could have occurred between 1972 and 2001, and that this may, indeed, have resulted from a failure of the Franciscan sandstone beneath. Projected over a

2 of 6



75-year period this would yield a blufftop retreat of 15 to 18 feet, and the report concluded that the 20 foot setback remained adequate.

Reference (8) contains a further evaluation of bluff retreat rate at the site. Noting, as in the previous reports, that retreat is largely episodic through block fall, and after examining additional aerial photographs, the report concludes that the bluff has not significantly changed in the last 38 years. The report then goes on to assign a retreat rate of one inch per year, which would yield erosion of less than 6.5 feet in 75 years. Assigning a "factor of safety" of four, the report recommends a 25 foot setback from the bluff edge. Since the sea cave may be expected to fail within the project life, a five-foot setback from the rear wall of the cave was recommended. The resulting "cave setback," although apparently intended to yield a conservative setback from the cave, varies from 0 to only about 8 feet landward of a 25-foot setback line from the edge of the bluff (see attached exhibit). No explanation was provided for why five feet was considered an appropriate setback from the cave.

From this wide range of estimates of bluff retreat and recommended setbacks, what follows is my analysis of the mechanism and nature of bluff retreat at the subject site. The relatively strong sandstone of the Franciscan formation have, in my experience, been observed to erode at long-term average rates of between one and four inches per year, figures widely quoted in the literature (see, for example, Griggs and Savoy, 1985). In fact, little detailed work has been done in northern California and actual bluff retreat rates are poorly constrained. At the subject site, as for much of the Franciscan bluffs in Sonoma and Mendocino Counties, grain-by-grain erosion tends to be very slow. Erosion along fractures is more rapid, however, and results in the formation of fissures and sea caves. Bluff retreat occurs through sudden rock topples and failure of sea caves, arches, and other erosional features. The result is some of the most spectacular coastal scenery in the world.

Slumping of terrace deposits above these bedrock failures results in shallow landslides, which at many sites may constrain development. At least one such small, shallow landslide has been documented on the subject site (reference 8).

The establishment of an appropriate building setback must take into account a long-term retreat rate given site-specific evaluation of erosional features such as fissures and sea caves. Any setback should apply to all structural development and the leach field for the on-site wastewater disposal system. Ancillary structures not requiring deep foundation systems can be located within the building setback, as they can be easily moved if threatened by erosion.

Given the slow grain-by-grain erosion that such strong sandstone exhibit, relatively small setbacks from erosional features such as bluff edges, eroding fissures, and sea caves is probably adequate. From the data presented, I cannot concur, however, that a long-term average bluff retreat rate of one inch per year is well-documented. Nevertheless, given the "factor of safety" of four that the applicant's geologist applies when recommending a 25 foot setback, he effectively is guarding against bluff retreat rates as high as 4 inches

3 of 4

per year, a value that is probably higher than the long-term average for this area. Even allowing for a 10-foot buffer to ensure that foundation elements are not actually undermined at the end of their economic life, a 25 foot setback is adequate given long-term bluff retreat rates of up to 2.4 inches per year. Given the nature of coastal erosion at this site, such a setback is probably adequate.

Given the history of the subject site and adjacent areas, episodic bluff retreat in the form of rock fall is to be expected. In particular, the collapse of erosional features such as the sea cave on the site is to be expected. Sea caves are well recognized as erosional hazards to bluff top development, and the Commission has seen many applications for the construction of seawalls, revetments, and infilling of sea caves as a response to the threat posed by sea cave collapse (see, for example, permits granted in San Diego County for the infill of sea caves in dense sandstones similar to the subject site, such as F8915 [Phillips], F9143 [Seascape Shores], 6-96-102 [Solana Beach and Tennis Club Homeowners Association], 6-98-027 [O'Neal], 6-98-021 [Blackburn], 6-00-066 [Monroe and Pierce] and A-42-79-A1 [22-240 Associates]).

Indeed, the slumping of surface material from above the cave may be a manifestation of just such instability. Sinkholes commonly develop above underground cavities. At the subject site, it appears that soil is filtering through the fracture (variously described as a shear zone or an inactive fault) along which the cave is developed. This process in itself can create a hazard. In Cayucos, the County of San Luis Obispo issued an emergency permit when such a sinkhole (above a fracture zone rather than a sea cave) threatened a house. The response was a massive revetment, which is now under appeal by the Coastal Commission (Appeal A-3-SLO-01-046 [Brett]). Closer at hand (e.g., Little River, and Jug Handle State Reserve) large sinkholes or blowholes have developed as a natural enlargement of sea caves in the lower portion of the bluff. Thus a setback from the erosional feature itself, not from the bluff edge is appropriate.

Accordingly, I recommend that the 25 foot setback recommended above be measured from the most landward part of all portions of the sea cave. Because of the large size of this cave, such a setback will result in a setback from one part of the bluff edge of as much as 54 feet. It is my opinion that such a setback is appropriate. It is impossible to predict when the cave will fail, but when it does, the most landward portion of the cave will be the new bluff edge. If the cave were to collapse early in the lifetime of the development, it is important that a 25 foot setback be maintained to provide assurance that no seawall or other shoreline protective devices would be needed over the lifetime of the development.

I note that there is precedence for using the most landward portion of an erosional feature such as sea cave as the reference point from which to establish setbacks. Indeed, such criteria have even been codified in the San Diego Municipal Code (see Land Development Code/Coastal Bluffs and Beaches/ Section III (Bluff Measurement Guidelines) Section A (Determination of Coastal Bluff Edge for sensitive coastal bluffs) Section 5. (Sea Caves)):

4 of 6

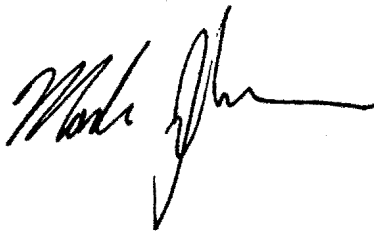
"Where a sea cave (a natural cavity or recess beneath the surface of the earth that is formed by or as a result of marine erosion) or overhang exists, the coastal bluff edge shall be either the simple bluff edge (See Diagram III-5(A)) or a line following the landward most point of the sea cave projected to the ground surface above (See Diagram III-5(B)), whichever is more landward."

I note that on this particular lot, a 25 foot setback from the most landward parts of the sea cave still leaves a very useable lot.

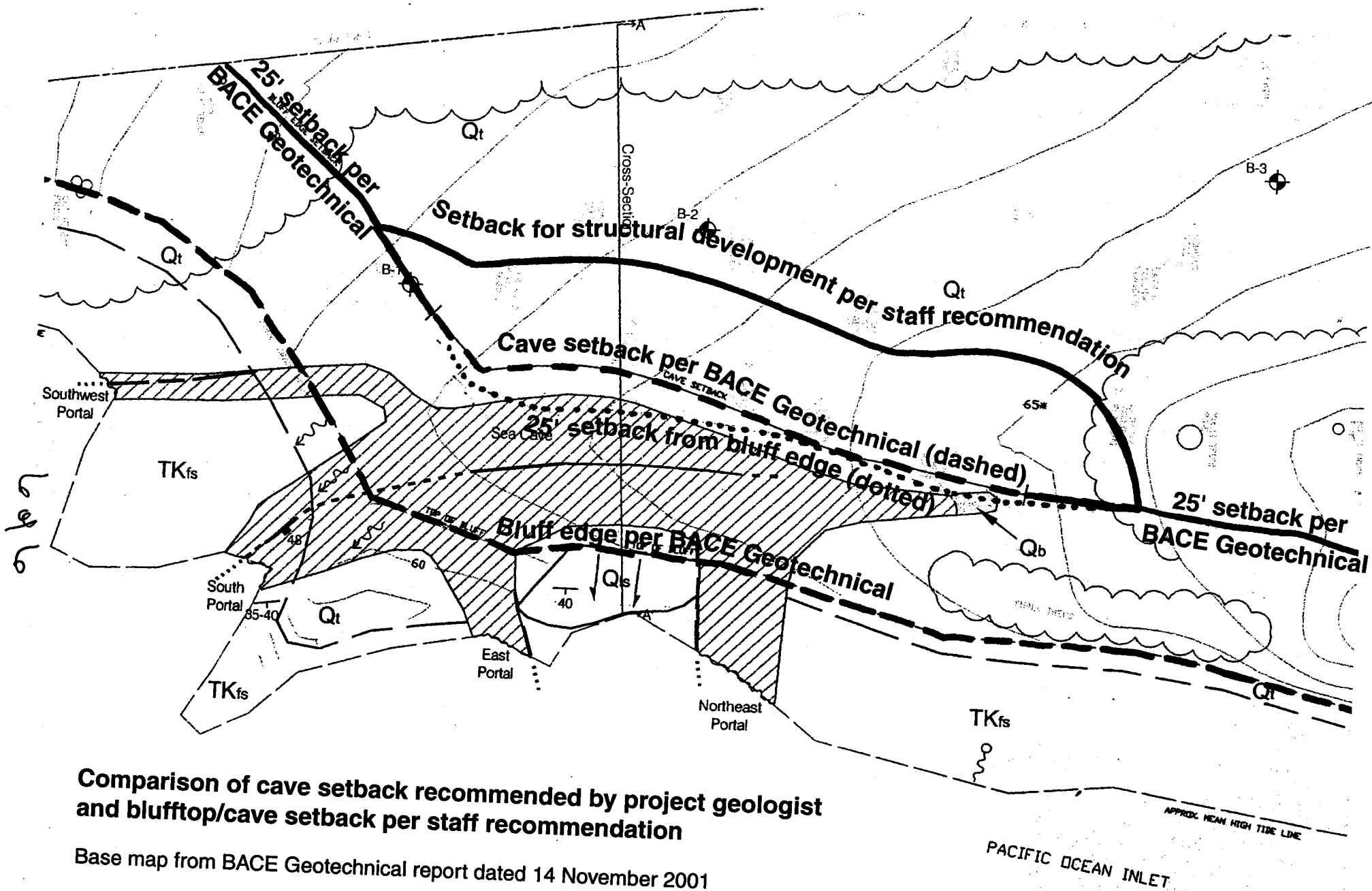
Finally, reference (7) and (9) address drainage concerns at the site. Although the increase in runoff due to the development may be small, as indicated in reference (9), it remains critical that drainage be directed away from the sea cliff, and be conveyed into either natural or artificial drainage channels and be disposed of in a way that will not lead to further erosion of the bluff. References (3, 7, and 9) contains specific recommendations, and these should be imposed on the permit as special conditions.

I hope that this review is helpful. Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Johnsson', with a long horizontal flourish extending to the right.

Mark Johnsson, Ph.D., CEG



## CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE AND TDD (415) 904-5200  
FAX (415) 904-5400



11 April 2002

## GEOTECHNICAL REVIEW MEMORANDUM

To: Jim Baskin, Coastal Program Analyst  
From: Mark Johnsson, Staff Geologist  
Re: Appeal A-1-MEN-01-043 (Wright)

EXHIBIT NO. 11

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT (1 of 3)

REVIEWING

GEOLOGIST'S APRIL  
11, 2002 MEMO

In regard to the referenced appeal, I have reviewed the following document:

BACE Geotechnical 2002, "Response to California Coastal Commission Staff Report W15a, Proposed Roost Residence, 45501 Headlands Drive, Little River, California", 3 p. response letter dated 22 February 2002 and signed by E. E. Olsborg (CEG 1072) and P. R. Dodsworth (GE 278).

In addition, I visited the site on 27 February 2002 with the project geologist, Mr. Erik Olsborg. My site evaluation included rappelling over the coastal bluff for a close inspection of the bluff face and two of the entrances of the sea cave on the subject site. Rough sea conditions precluded entering the cave by kayak, as originally planned. Nevertheless, I was able to make a detailed inspection of the nature of the coastal bluff and, in conjunction with Mr. Olsborg's previous report, to make a good assessment of the stability of the sea cave.

After visiting the site, I concur with Mr. Olsborg that there is no evidence for an incipient sinkhole developing on the subject site, as reported in earlier geotechnical documents cited in my memo of 18 January 2002. Although such a sinkhole may well develop sometime in the future, there currently is no evidence that appreciable amounts of surface materials are filtering through the inactive fault on which the cave is developed. In addition, I concur that one possible failure mechanism for this and similar sea caves is for the future enlargement of such a fault (or other fracture) and the creation of a sinkhole, similar to the large examples found at Russian Gulch State Park (misidentified as Jug Handle State Reserve in my 18 January 2002 memo) and near the Little River cemetery. As acknowledged in the 22 February 2002 BACE letter, this is only one potential failure mechanism of a large sea cave such as found at the site.

The 22 February 2002 BACE letter suggests that a partial roof collapse leading to a skylight entrance to the cave is the most likely failure mechanism, and provides a schematic of what such a collapse might look like, using a modified version of cross section A-A' from their earlier report. The letter further states that a collapse of the entire roof of the cave, along a failure plane closer, or coincident with, the rear wall of

the cave "could take an additional several hundred years." Although the failure mechanism envisioned in the BACE letter is quite possible, I believe a "total collapse," in addition to other types of "partial collapse," are equally possible. Experience in other parts of the state has demonstrated that sea caves can and do collapse suddenly in their entirety (several recent collapses in Solana Beach have been of this variety), or more gradually, in parts, leading to arches, sea stacks, and similar offshore features such as are common on the Mendocino coast. Maps of sea caves on Santa Cruz Island, prepared by the Southern California Sea Cave Survey (see Bunnell, 1988), show a wide variety of collapse features. In the present case, there simply are not sufficient data available to constrain the most likely collapse mechanism. The fact that the cave has four entrances subject to erosional widening, is developed along a prominent fault that is oblique to the bluff face, and that the bedrock is moderately fractured as observed on the bluff face, makes total collapse a distinct possibility. Placing time constraints on such a collapse—or partial collapse by another mechanism—is, in my opinion, highly speculative at best. It is quite possible that the cave will not collapse during the 75-year assumed economic lifespan of the development. But it is equally possible that the cave could collapse unexpectedly at any time in the future. In my opinion, given the current state of the science, it is neither possible to accurately predict a failure mechanism nor to place meaningful constraints on the timing of any particular type of failure.

I acknowledge that the proposed 25-foot setback from the rear wall of the cave is conservative. But in my opinion, the 5-foot setback proposed by Mr. Olsborg would be insufficient if the cave failed totally and suddenly. Irrespective of long-term bluff retreat, the terrace deposits making up the upper part of the newly-created bluff would likely lay back to a shallow angle due to their low cohesion and to surficial erosion, potentially threatening a structure cited only five feet from the new bluff edge.

The 22 February 2002 BACE letter further takes issue with the recommendation in my earlier memo that setbacks be established, as in the San Diego LCP, from the rear wall of any sea cave present on a property. The letter contends that small sea caves, with ample overburden and no evidence of erosion, pose little threat and little or no setback is appropriate. The letter does concede, however, that it generally is not desirable to build directly over a sea cave. It is true that a cave such as described (which is in marked contrast to the cave on the subject site—a large cave, with four entrances, developed along a prominent fault) would pose little present danger to a structure located on the bluff above. It also is true that if a cave were to unexpectedly increase in size due to erosion, that it could endanger such a structure in the future. Ample time may be available to recognize the danger and take remedial action. Given the provisions of the Mendocino County LCP and the Coastal Act, it is likely that a request for a shoreline protective device—a seawall or an infill of the sea cave—would be the result. By siting the structure well away from the geologic hazard, much more assurance can be provided that a shoreline protective device will never be required to protect the structure.

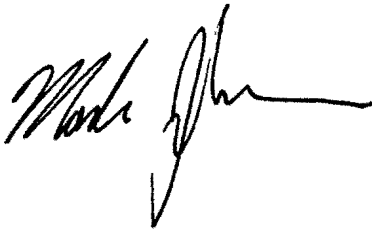
2 of 3

The BACE letter concludes by expressing concern that the bluff edge/sea cave setback will place the planned leach field in a less desirable location, and that prohibiting the required landscaping (a visual buffer) within the geologic setback further reduces the building envelop available on the lot. I concur with the statement in the letter that trees within the geologic setback would generally tend to increase stability, and note that there is no prohibition of landscaping from this zone — only a prohibition from siting the required visual screening within this zone. I further concur that the proposed setback places constraints on the location of the leachfield, and on the location and size of the proposed structure. It may be that appropriately conservative geologic setbacks place constraints on the size and nature of the development that can be supported on the lot. I agree that if there are no alternatives to leach field placement, the scale of the development may need to be reduced.

To summarize, I find little disagreement between the positions taken by BACE and myself. What disagreement does exist largely reflects a level of conservatism with regard to assuring that no shoreline protective devices will ever be required at the site. I concur that the proposed 25-foot setback from the rear wall of the sea cave is conservative; it is entirely possible that the cave will neither collapse nor enlarge sufficiently to threaten the structure over the 75 years. There is, however, no geologic or scientific assurance that can be given to that effect. Given the uncertainty of predicting coastal erosion in general, together with the relatively unarmored condition of this section of the coast, I recommend that setback criteria err in the direction that would be most protective of the coast while preserving the rights of land owners to develop their property.

I hope that this review is helpful. Please do not hesitate to contact me if you have any additional questions

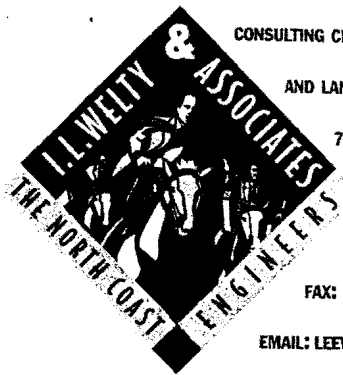
Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Johnsson', with a stylized, flowing script.

Mark Johnsson, Ph.D., CEG

**Additional Reference Cited:**

Bunnell, D., 1988, Sea Caves of Santa Cruz Island: Santa Barbara, California, McNally and Loftin, 123 p.



CONSULTING CIVIL ENGINEERS

AND LAND SURVEYORS

703A NORTH MAIN STREET

FORT BRAGG, CA 95437

PHONE: 707-964-8865

FAX: 964-5920

EMAIL: LEEWELTY@MCN.ORG

EXHIBIT NO. 12

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT

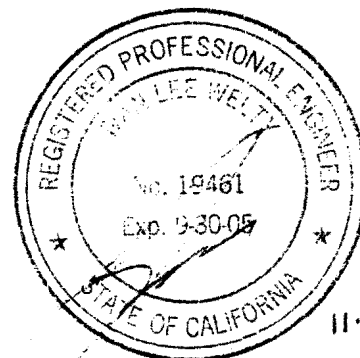
STORMWATER DRAINAGE  
CALCULATIONS & PLAN  
(EXCERPTS) (1 of 12)

## DRAINAGE CALCULATIONS

### PROPERTY OF THE PROPOSED WRIGHT RESIDENCE

45501 Headlands Drive  
Little River, CA 95432

November 16, 2001

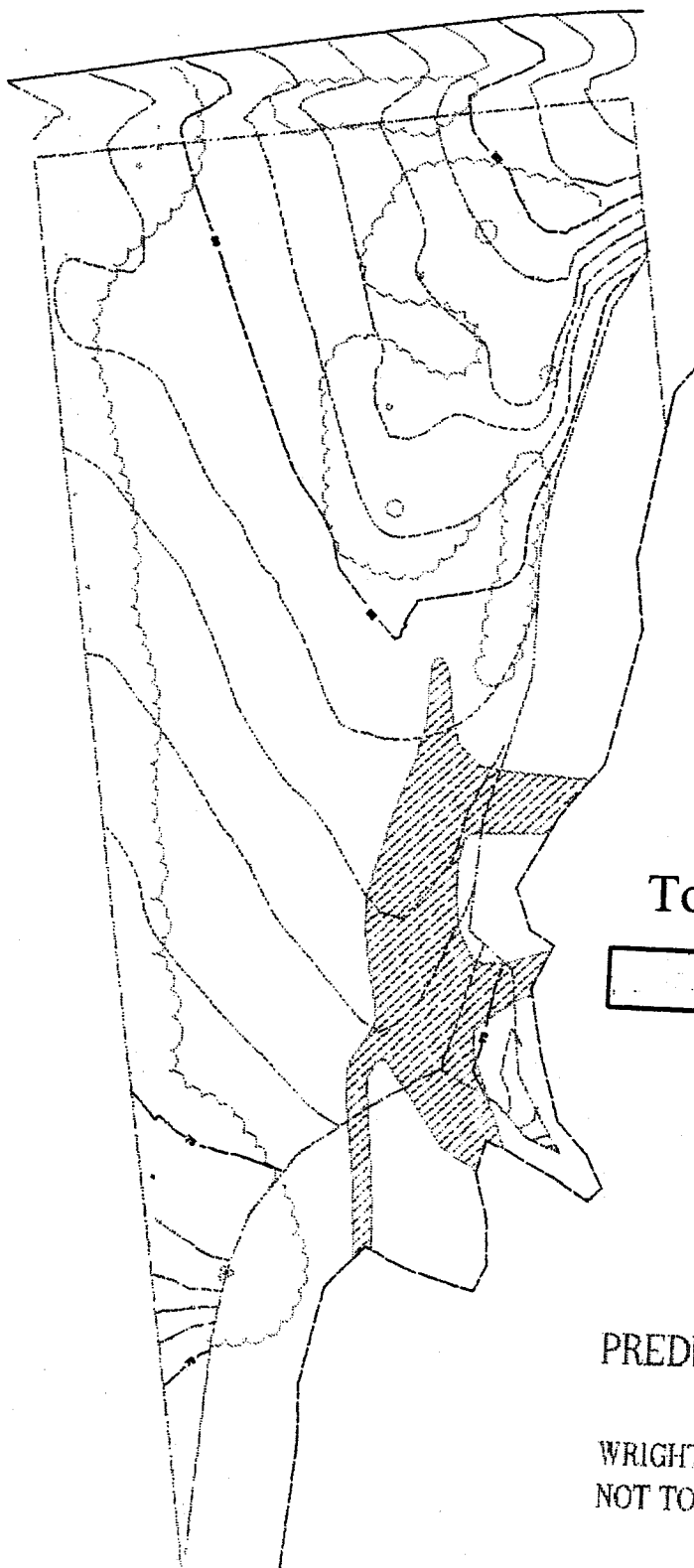


11-19-01

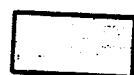


## Drainage Area Maps

2012



Total Site Area: 0.793 Acres

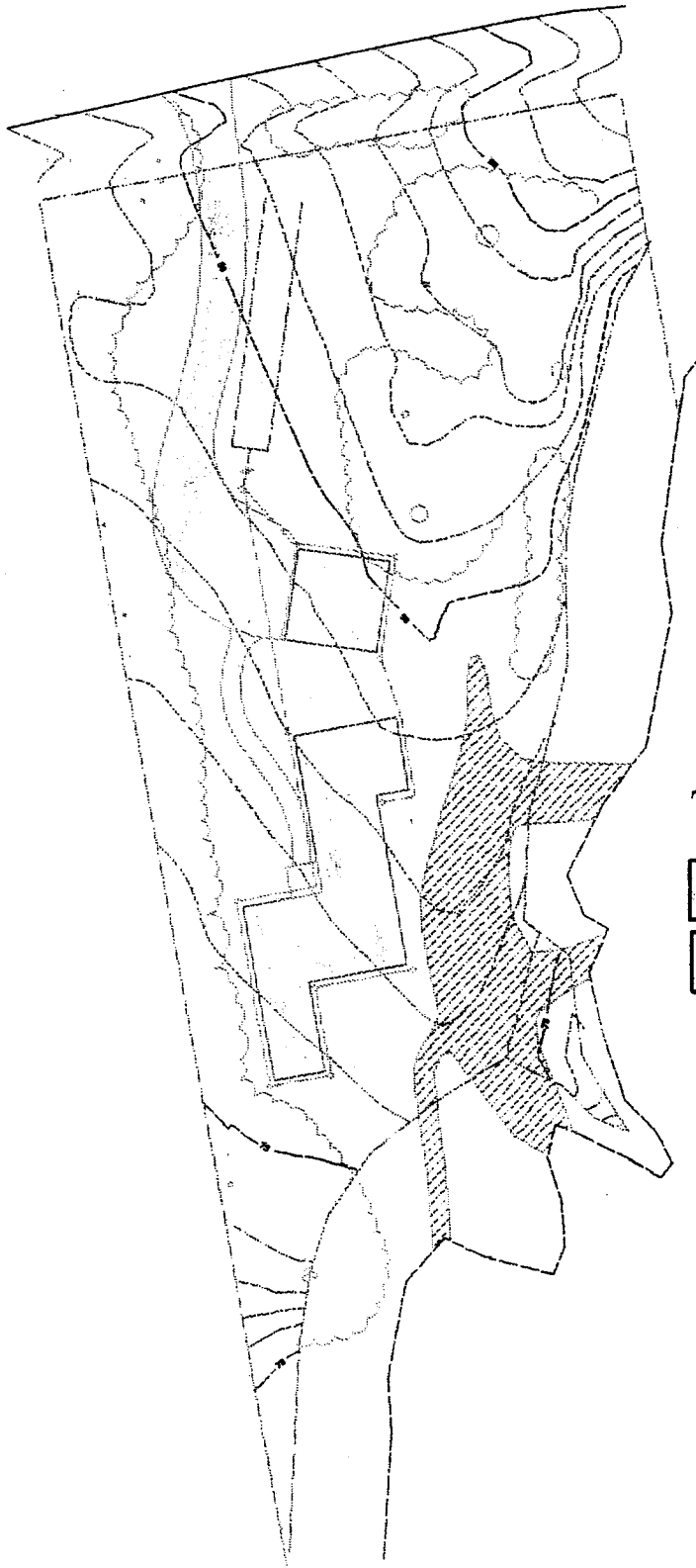


Pervious Area: 0.793 Acres

PREDEVELOPED CONDITION

WRIGHT RESIDENCE  
NOT TO SCALE

3 of 12



Total Site Area: 0.793 Acres



Pervious Area: 0.655 Acres



Impervious Area:

Building Area: 0.067 Acres

Driveway Area: 0.071 Acres

Total: 0.138 Acres

POSTDEVELOPED CONDITION

WRIGHT RESIDENCE  
NOT TO SCALE

4 of 12

## RUNOFF CALCULATIONS

### PreDeveloped Condition (Entire Site)

$$Q = CIA \quad (\text{Rational Method})$$

$Q$  = peak runoff discharge (cfs)

$C$  = runoff coefficient.....  $C = 0.1^*$

$A$  = area (acres).....  $\text{Area } A = 0.793^{**}$

$I$  = rainfall intensity (for  $T_c = 10$  min.).....  $I_{(10 \text{ year storm})} = 2.4^*$

$$Q = (0.1)(0.793)(2.4) \\ = 0.19 \text{ cfs}$$

### PostDeveloped Condition (Entire Site)

$$Q = CIA \quad (\text{Rational Method})$$

$Q$  = peak runoff discharge (cfs)

$C$  = runoff coefficient.....  $C = 0.1^*$

To determine weighted C:

	C	Area **	C x Area
Grass:	0.1	0.655Ac**	0.066
Impervious:	0.95	0.138Ac**	0.131
		0.793Ac**	0.197

$$\text{weighted C: } \frac{0.197}{0.793} = 0.25$$

$A$  = area (acres).....  $\text{Area } A = 0.793^{**}$

$I$  = rainfall intensity (for  $T_c = 10$  min.).....  $I_{(10 \text{ year storm})} = 2.4^*$

$$Q = (0.25)(0.793)(2.4) \\ = 0.47 \text{ cfs}$$

Total Increase in Runoff from the Site for a Ten-Year Storm (PreDevelopment vs. PostDevelopment):

$$0.47 \text{ cfs} - 0.19 \text{ cfs} = 0.28 \text{ cfs}$$

\* See appendix for contributing information

\*\* See Drainage Area Maps

5 of 12

### Runoff from Driveway

$$Q = CIA \quad (\text{Rational Method})$$

$Q$  = peak runoff discharge (cfs)

$C$  = runoff coefficient.....  $C = 0.95^*$

$A$  = area (acres).....  $\text{Area } A = 0.071^{**}$

$I$  = rainfall intensity (for  $T_c = 10$  min.).....  $I_{(10 \text{ year storm})} = 2.4^*$

$$Q = (0.95)(0.071)(2.4) \\ = 0.16 \text{ cfs}$$

### Runoff from Buildings

$$Q = CIA \quad (\text{Rational Method})$$

$Q$  = peak runoff discharge (cfs)

$C$  = runoff coefficient.....  $C = 0.95^*$

$A$  = area (acres).....  $\text{Area } A = 0.067^{**}$

$I$  = rainfall intensity (for  $T_c = 10$  min.).....  $I_{(10 \text{ year storm})} = 2.4^*$

$$Q = (0.95)(0.067)(2.4) \\ = 0.15 \text{ cfs}$$

## **NARRATIVE**

The drainage calculations included indicate that the amount of runoff generated on the property of the proposed Wright Residence is minimal. The property slopes to the southeast, and it is our suggestion that the property including the proposed driveway be permitted to continue to sheet flow in that direction. If it is required that the runoff from the buildings be captured and infiltrated, the geotechnical report of the site should be utilized to determine if the soils in this location are of a permeability to allow for the amount of runoff indicated above.

\*See appendix for contributing information

\*\*See Drainage Area Maps

## Appendix

7 of 12

INTENSITY DURATION FREQUENCY CURVES FOR 1940 - 1979  
 FORT BRAGG MENDOCINO COUNTY  
 STATION F80 3161 0

SEC 06.T18N.R17W.MOUNT DIABLO BASE AND MERIDIAN

LAT 39.446 LONG 123.807

ELEV 80

COEFFICIENT OF DETERMINATION = 0.998

INTENSITY (INCHES/HOUR)

FREQUENCY OF OCCURRENCE (YEARS)

2.4 = 2

NOTE. THESE CURVES REPRESENT ANALYSIS OF DATA DURATIONS OF 5 MIN TO 3 HOURS BASED UPON PEARSON TYPE III DISTRIBUTION

MINUTES \* 1/2 HOURS DURATION

$T_c = 10 \text{ MIN.}$

Fort Bragg Drainage Study  
 Rainfall Intensity Curves

# WATER QUALITY (PREVENTION, IDENTIFICATION, and MANAGEMENT...)

146 Hydrologic Considerations

By V. NOVOTNY

TABLE 3.13 Runoff Coefficients for the Rational Formula

Description of the Area	
<b>Urban Areas</b>	
<b>Business</b>	
Downtown	0.7-0.95
Neighborhood	0.5-0.7
<b>Residential</b>	
Single family	0.3-0.5
Multiunits—detached	0.4-0.6
Multiunits—attached	0.6-0.75
Residential—suburban	0.25-0.4
Apartments	0.5-0.7
<b>Industrial</b>	
Light	0.5-0.8
Heavy	0.6-0.9
<b>Pavements</b>	
→ Asphalt and concrete	0.7-0.95
Bricks	0.7-0.95
→ Roofs	0.75-0.95
<b>Lawns—sandy soils</b>	
Flat, slope 2% or less	0.05-0.10
Average, slope 2%-7%	0.10-0.15
Steep, greater than 7%	0.15-0.20
<b>Lawns—tight soils</b>	
Flat, slope 2% or less	0.15-0.17
Average, 2%-7%	0.18-0.22
Steep, greater than 7%	0.25-0.33
<b>Rural areas</b>	
<b>Topography</b>	
Flat land with slopes less than 1%	0.3
Rolling land with average slopes 1%-3%	0.2
Hilly land with average slopes of 3%-6%	0.1
<b>Soil</b>	
Tight, impervious clay	0.1
Medium, combination of clay and loam	0.2
Open, sandy loam	0.4
<b>Cover</b>	
Cultivated land	0.1
Woodland	0.2

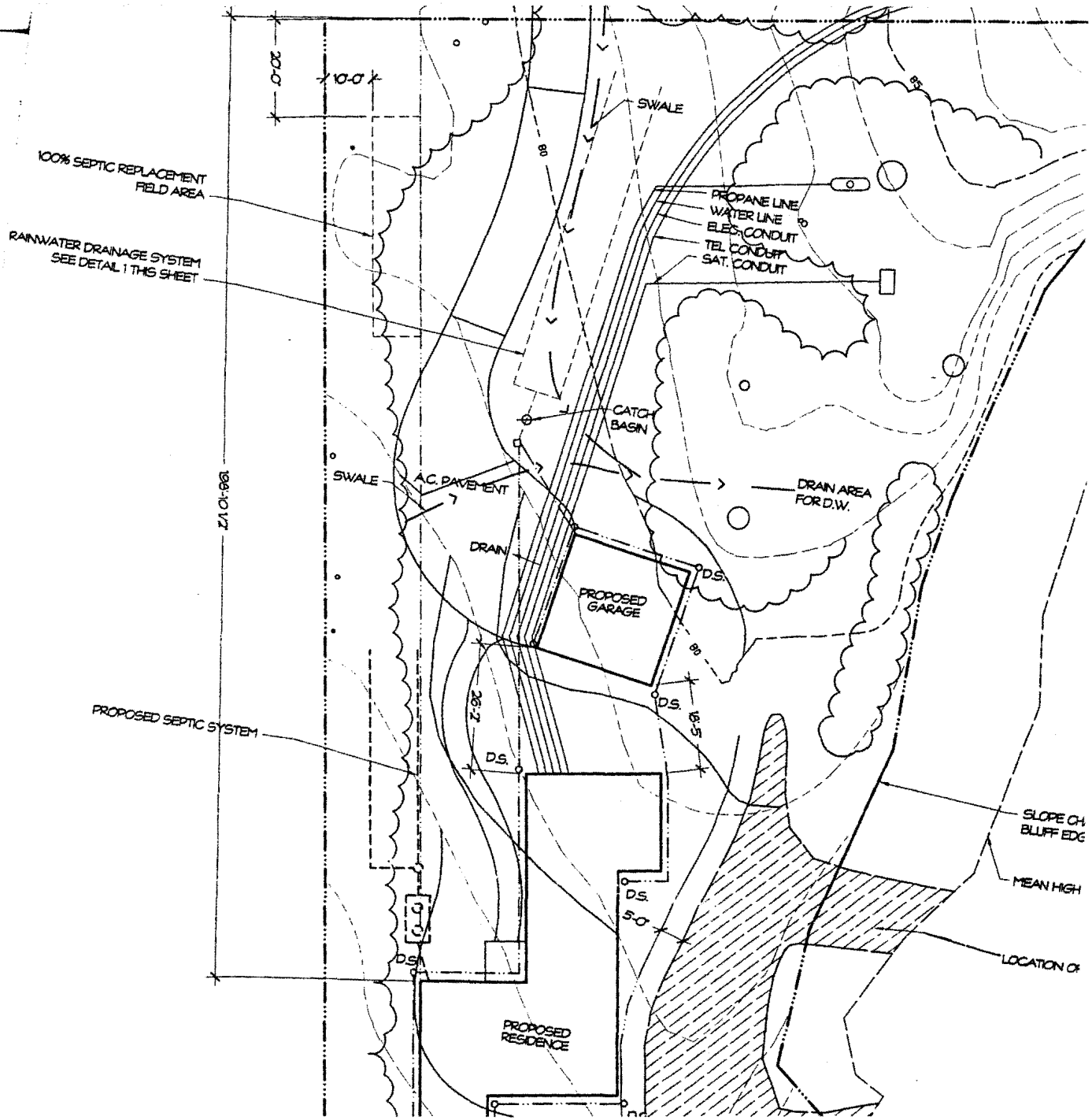
SLOPE OF  
SITE: 5%

Source: Data for urban areas from American Society of Civil Engineers (1982) and for rural areas from Gray (1972).

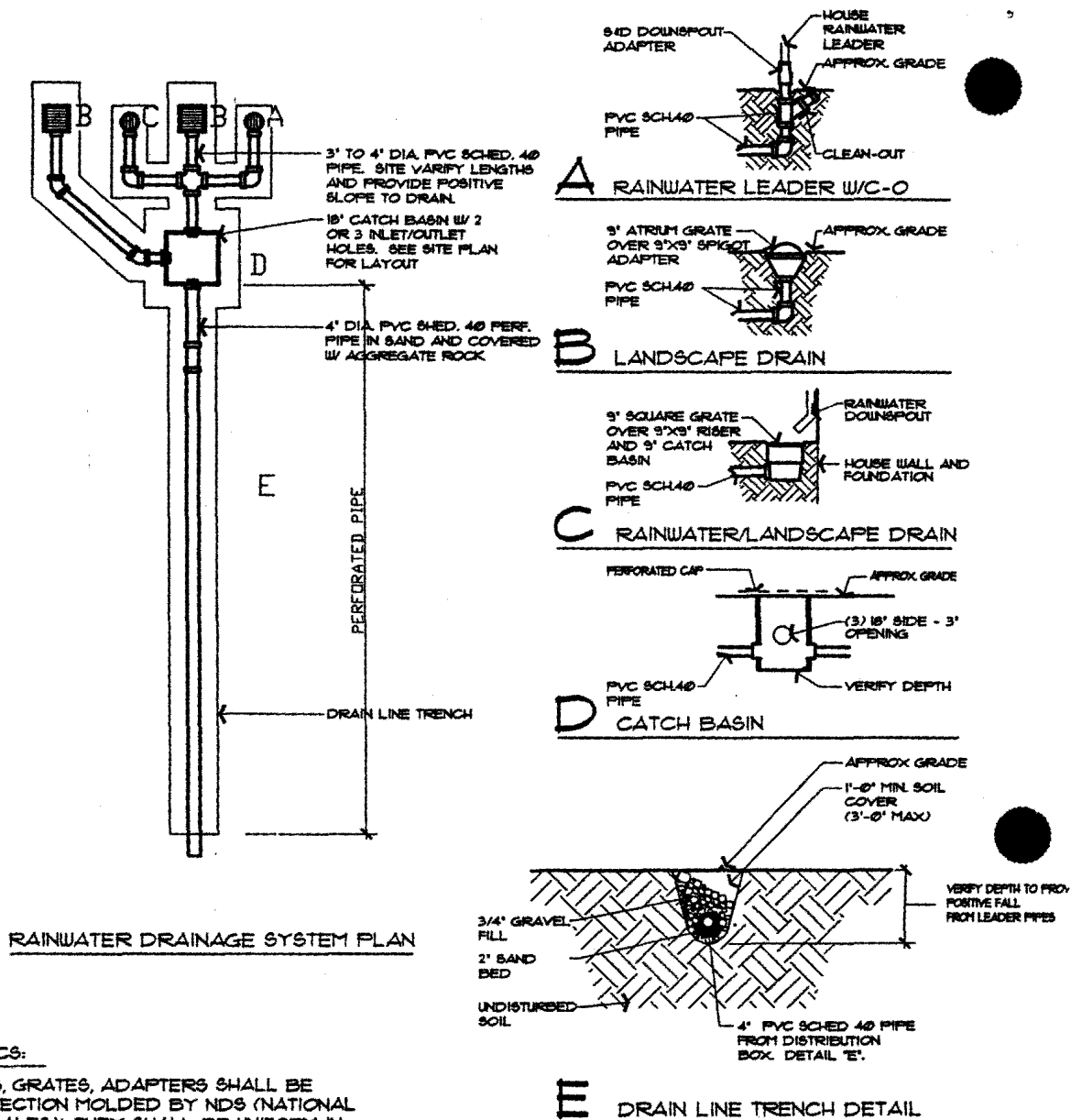
\*The magnitude of the runoff coefficient,  $C$ , is obtained by adding values of  $C$ 's for each of the three factors (topography, soil, and cover) and subtracting the sum from unity. For example, for flat cultivated watershed with medium soils  $C = 1 - (0.3 + 0.2 + 0.1) = 0.4$ .

9 of 12





10 of 12



**GENERAL SPECS:**

CATCH BASINS, GRATES, ADAPTERS SHALL BE ONE PIECE INJECTION MOLDED BY NDS (NATIONAL DIVERSIFIED SALES); THEY SHALL BE UNIFORM IN QUALITY, FREE FROM FLASHING, SHRINKAGE, DISTORTION, AND OTHER DEFECTS. COMPONENT PARTS SHALL FIT TOGETHER IN A SATISFACTORY MANNER.

**1 RAINWATER DRAINAGE SYSTEM**  
NO SCALE

11/9/12

## SITELINK NOTES

### 1. SITE GRADING

AREAS TO BE GRADED SHOULD BE CLEARED OF EXISTING VEGETATION, RUBBISH, AND DEBRIS. AFTER CLEANSING, SURFACE SOILS THAT CONTAIN ORGANIC MATTER SHOULD BE STRIPPED. IN GENERAL, THE DEPTH OF REQUIRED STRIPPING WILL BE ABOUT TO 2 INCHES DEEPER STRIPPING AND GRADING MAY BE REQUIRED TO REMOVE SOLIDIFIED CONCENTRATIONS OF ORGANIC MATTER. ALL MATERIAL, EITHER IMPORTED OR ON SITE, SHOULD BE FREE OF PERISHABLE MATTER AND ROCKS GREATER THAN SIX INCHES IN LARGEST DIMENSION, AND HAVE AN EXPANSION INDEX OF LESS THAN 40. ALL SHOULD BE PLACED IN TUNNELS (BOX TO EIGHT INCHES DEPENDS ON COMPACTION EQUIPMENT) CONDITIONED TO NEAR OPTIMUM MOISTURE CONTENT, AND COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION AS DETERMINED BY THE ASTM D 1557 TEST PROCEDURE, LATEST EDITION, TO ACHIEVE PLANNED GRADES.

ALL GRADING AND ROADWORK SHALL CONFORM TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS).

### AFTER CONSTRUCTION FINISH GRADING

REMOVE ALL EXCAVATED SOIL AND EXCESS CONCRETE GENERATED BY FOUNDATION WORK, AND GRADE ALL AREAS. STRUCTURE USING CLEAN TOPSOIL. GRADING SHALL ACHIEVE A 1% PER FOOT MINIMUM SLOPE AWAY FROM BUILDING FOR A DISTANCE OF 4.0' (MIN) IN ALL DIRECTIONS.

### 2. SITE DRAINAGE

CARE SHOULD BE TAKEN TO INTERCEPT AND DIVERT CONCENTRATED SURFACE FLOWS AND SUBSURFACE SEEPAGE AWAY FROM THE BLUFF EDGES AND THE BUILDING FOUNDATIONS. CONCENTRATED FLOWS SUCH AS FROM ROOF DOWNSPOUTS, AREA DRAINS, AND THE LIKE, SHOULD BE COLLECTED IN A CLOSED PIPE AND DISCHARGED INTO A FUNCTIONING STORM DRAIN SYSTEM OR INTO A NATURAL DRAINAGE AREA AWAY FROM THE BLUFF TOP AND THE BUILDING AREAS. THE STRUCTURE IS TO BE EQUIPPED WITH ROOF GUTTERS AND DOWNSPOUTS, AND DISCHARGED INTO THE AREA STORM DRAIN SYSTEM OR DISCHARGED AWAY FROM ALL BUILDING AND FOUNDATION AREAS. SITE DRAINAGE WATER SHOULD BE DISCHARGED AND WELL DEFERRED IN SUCH A MANNER SO AS NOT TO RESULT IN LOCALIZED EROSION OR SLIDING. CARE SHOULD BE USED SO THAT DRAINAGE WATER IS NOT CONCENTRATED AND DISCHARGED ON DOWNSLOPE OR ADJACENT PROPERTIES. SITE DRAINAGE WATER SHOULD BE WELL DEFERRED IN AS NATURAL A MANNER AS POSSIBLE.

DIRECT ALL SURFACE DRAINAGE AWAY FROM STRUCTURES TOWARD THE DIRECTION OF NATURAL FALL AWAY FROM THE STRUCTURE OR INTO DRAINAGE SWALES. ALL DRAINAGE SWALES SHALL HAVE A 1% PER FOOT (1%) AWAY FROM STRUCTURES TOWARD THE DIRECTION OF NATURAL FALL OR AS SHOWN ON THE DRAINAGE.

WHERE UNDERGROUND DRAINAGE DEBRIS, SYSTEMS ARE SPECIFIED, PROVIDE DRAINAGE PIPES FOR OUTLETS OF ALL DOWNSPOUTS FROM GUTTERS OR ROOF DRAINS INDICATED ON PLANS. WHERE DRAINAGE SYSTEMS ARE SPECIFIED, PROVIDE VERTICAL TIE PIPE AT DOWNSPOUT LOCATION. T SHALL EXTEND 3' ABOVE GRADE, ALLOW A 1" GAP BETWEEN T AND DOWNSPOUT. T SHALL BE LARGER THAN THE WIDEST DIMENSION OF DOWNSPOUT (MIN) RUN. ALL DRAINAGE PIPES TO DOWNLIGHT AT RETIRED SLOPES FILLED WITH 2 CUBIC YARDS OF 3/4 GRAVEL (MIN) AT LOCATION SHOWN ON PLANS.

### 3. EROSION CONTROL

ALL ROADWAY EROSION CONTROL MEASURES ON COUNTY OR SUBDIVISION ROADS SHALL COMPLY WITH THE CURRENT REQUIREMENTS OF THE HENDON COUNTY DEPARTMENT OF PUBLIC WORKS.

### 4. SYSTEMS

FOR WATER SYSTEMS, SEPTIC SYSTEMS AND HOOKUPS TO UTILITY SYSTEMS, COMPLY WITH ALL REQUIREMENTS OF UTILITY SUPPLIERS AND ALL REQUIREMENTS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.

### 5. VEGETATION AND LANDSCAPE PRESERVATION

SITE CLEARING SHOULD BE PERFORMED ONLY WHERE THE ACTUAL STRUCTURE WILL BE LOCATED, AND OUTSIDE OF THE ACTUAL STRUCTURE BUILDING AREA. ALL OF THE EXISTING SITE VEGETATION BE LEFT IN ITS NATURAL CONDITION. PROVIDE TEMPORARY FENCING FOR ALL UNDISTURBED AREAS.

### 6. EROSION CONTROL

IT IS RECOMMENDED THAT PLANTING AND VEGETATION RESTORATION OF BARRIERS AND DISTURBED AREAS OCCUR AFTER CONSTRUCTION IN THE INTERIM PERIOD BETWEEN PLANTING AND VEGETATION GROWTH RE-ESTABLISHMENT. SUPPLY STRAW AND / OR LIME SLOPE PROTECTION MATING TO HELP LIMIT EROSION AS SPECIFIED IN THE MANUAL OF STANDARDS FOR EROSION AND SEDIMENT CONTROL TECHNIQUES PUBLISHED BY THE ASSOCIATION OF BAY AREA GOVERNMENTS (ABAG).

## GRADING / DRAINAGE PLAN



LEVENTHAL, SCHLOSSER, ARCHITECTS

MICHAEL LEVENTHAL and ROBERT SCHLOSSER  
435 NORTH MAIN STREET FORT BRAGG, Ca. 95437  
Phone (707) 961-0911 Fax (707) 961-0912  
www.leedesign.com

New Single Family residence for:

DAVID  
**WRIGHT**

45501 HEADLANDS DRIVE  
LITTLE RIVER, California, 95432

100% SEPTIC REPLACEMENT  
FIELD AREA

WATER DRAINAGE SYSTEM  
SEE DETAIL 1 THIS SHEET

PROPOSED SEPTIC SYSTEM

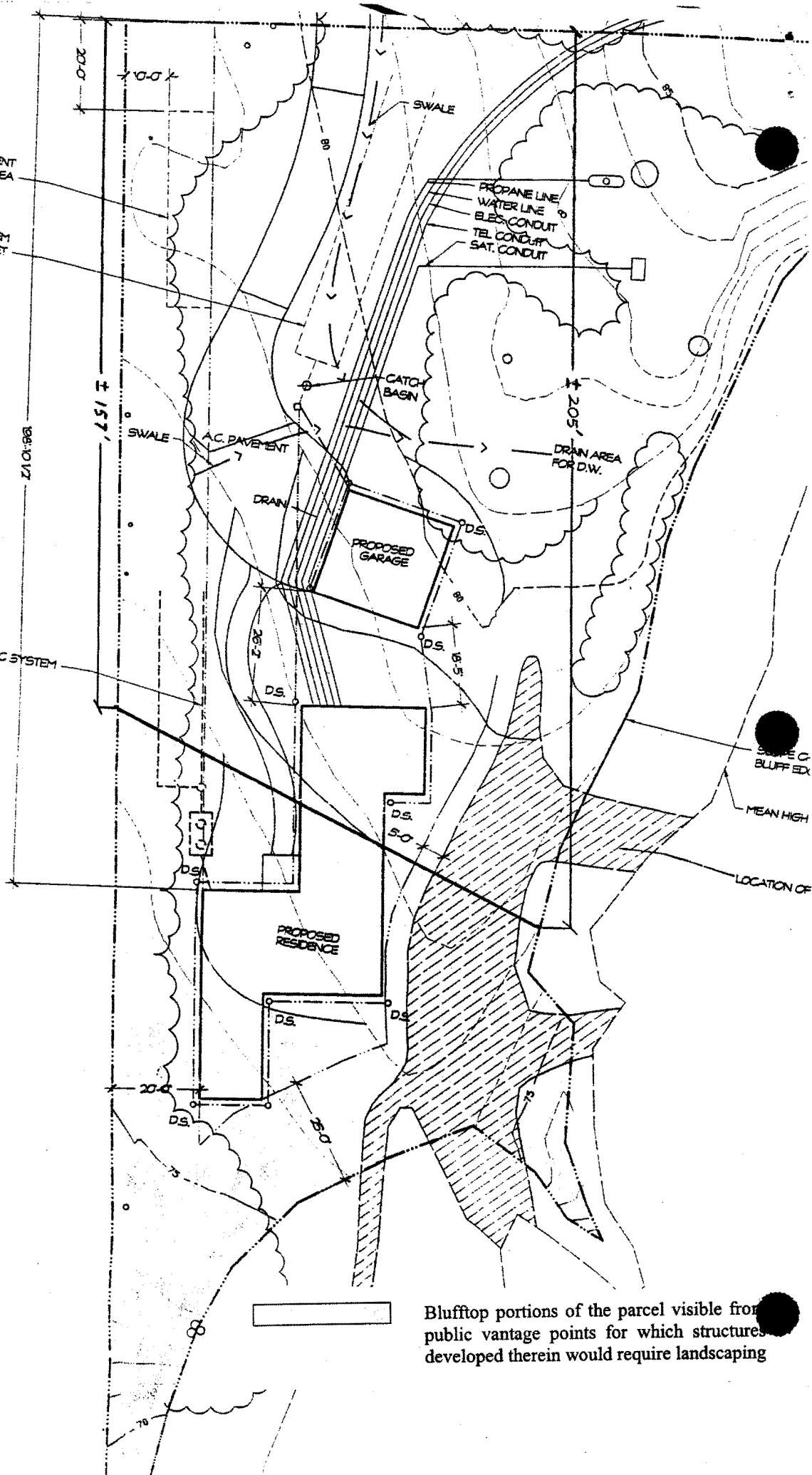


EXHIBIT NO. 13

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT

SITE VISIBILITY  
STUDY MAP

Blufftop portions of the parcel visible from public vantage points for which structures developed therein would require landscaping



RAYMOND HALL  
DIRECTOR

TELEPHONE  
(707) 964-537

COUNTY OF MENDOCINO  
DEPARTMENT OF PLANNING AND BUILDING SERVICES

MAILING ADDRESS:  
790 SO. FRANKLIN  
FORT BRAGG, CA 95437

March 30, 2001

Planning-Ukiah  
DOT  
Environmental Health  
Building Inspection (FB)  
Assessor  
SSU  
Native Plant Society  
Dept of Parks & Recreation  
Coastal Commission

EXHIBIT NO. 14

APPLICATION NO.  
A-1-MEN-01-043

WRIGHT

REVIEW AGENCY  
CORRESPONDENCE

RECEIVED

MAR 30 2001

MENDO. ENV. HEALTH

\*CASE#: CDP #17-01  
OWNER: David & Suzanne Wright  
AGENT: Bud Kamb  
REQUEST: Construct an 18' tall, 2,550 square foot single-family residence with a 625 square foot detached garage and septic system. Install underground utilities and approximately 2,500 square feet of AC paving for the driveway.  
APPEALABLE AREA: Yes  
LOCATION: W side of Highway One approximately 1/2 mile SW of its intersection with Peterson Lane at 45501 Headlands Drive (APN 121-260-10).  
\*PROJECT COORDINATOR: Robert Dostalek  
RESPONSE DUE DATE: April 13, 2001

\*PLEASE NOTE THE CASE NUMBER AND NAME OF PROJECT COORDINATOR WITH ALL CORRESPONDENCE TO THIS DEPARTMENT.

Attached to this form is information describing the above noted project(s). The County Department of Planning and Building Services is soliciting your input, which will be used in staff analysis. If we do not receive a response within fifteen (15) days, we will assume no response is forthcoming.

You are invited to comment on any aspect of the proposed project(s). Please address any concerns or recommendations on environmental considerations and specific information regarding permits you may require to the project coordinator at the above address.

\_\_\_\_\_ No Comment

\_\_\_\_\_ Comment to follow

④

Comments attached or Below

Septic system plot plan and CDP plot plan are identical. Driveway must not move to the west or it would interfere with septic replacement area. DOT can issue a clearance for this CDP. Jim Green, 4 APR 2001

1014 Sierra St.  
Berkeley, CA 94707  
Feb. 2, 2002

California Coastal Commission  
North Coast District Office  
710 E Street Suite 200  
Eureka, CA 95501

RECEIVED

FEB 04 2002

CALIFORNIA  
COASTAL COMMISSION

EXHIBIT NO.	15
APPLICATION NO.	A-1-MEN-01-043
WRIGHT (1 of 5)	
GENERAL CORRESPONDENCE	

Dear Coastal Commission:

I have 2 continuing major concerns with plans for the Wright property-Appeal No. A-1-MEN-01-043. One is about the **large impermeable driveway surface**. The other is about the **drainage adversely impacting** the Weikel property.

I am pleased with page 4 and 5 of the report where III Special conditions state that all improvements including the leach field be set back at least 6 feet from the side property lines. I also concur with the paragraph stating:

The proposed erosion and control facilities, comprised of the rooftop collection, conveyance, and **leach field** treatment system, and the driveway runoff absorption area, shall be reconfigured into those portions on the **northernmost 100 feet of the project parcel** situated outside of all blufftop edge and sea cave setbacks to accommodate the relocation of residential and accessory structures.

In my continuing concerns I wish to emphasize the following:

1. It makes no sense to put in a 2500 square foot impermeable driveway. Drainage is the issue. Such a driveway is bad design. See my initial appeal for further discussion. A gravel driveway or other permeable design makes sense. No houses in this area are so poorly designed. One was and caused cliffside collapsing on 2 bluff front properties. The 30 inch rainfall falls in a few months on soil that is fairly impervious. Drastically reducing permeability is bad design.
2. Putting the **leach field** system down slope adjacent to the

Weikel property is also bad design. The Weikels need drainage too. They need their area for drainage. The Weikels are **downhill by a 10 foot drop along the proposed development lot.**

Put the **leach field toward the eastern and northern end** of the property as the special conditions specified so as not to **saturate** the Weikel property.

Note, moreover, that one **community water well** is on the Weikel's downhill property and it might be adversely impacted by leach field runoff. Be sure to **include this public water system in the final plans.** Please also **include how much water these soils can absorb receiving 30 inches of rain in 3 or 4 months time.**

The above are my main concerns.

In addition I have a request of the Commission to further knowledge and preservation of our California coastline.

1. I request the Coastal Commission to monitor the construction of this development and to scientifically monitor the cliff erosion over 5 year intervals and to put this into public record.

I am concern about long term resident photos and observations being discounted in favor of mounds of paperwork and consumer geology/science.

2. Please address in your Commission Report why the 1986 Ballerino Geology report has been superseded. It cautions a minimum 50 foot setback from the bluffs.

I am concerned about lack of clarity, lack of visual diagrams, maps and pictures and a tendency toward obfuscation of the facts.

Thank You Sincerely,

Wendy Weikel

*Wendy Weikel*  
2.25

Dr. Hillary Adams  
P. O. Box 1936  
Mendocino, CA. 95460

RECEIVED

February 23, 2002

Coastal Commissioners  
California Coastal Commission  
c/o North Coast Office  
P.O. Box 4908  
Eureka, CA. 95502-4908

FEB 28 2002  
CALIFORNIA  
COASTAL COMMISSION

Re: A-1-MEN-01-043

Dear Coastal Commissioners:

I am gravely concerned about safety and hazard of this very dangerous lot at 45501 Headlands Driver, Little River (Subdiv. Lot 10, APN 121-260-11): developer: Wright. The angle and strength of wave action in this small cove has already undermined the area considerably with deep sea caves and is eating into the curve of the cove near the subdivision road. Slumping can be seen at the curve, and fresh earth is falling from the top of the subject lot on the west side above the sea cave entrances. The lot presents a very present danger to the proposed development, and to surrounding properties. If the development is not handled with extreme care, it will become a public liability. The Commission needs to consider the safety of the future owners of this property, who may not be aware of the extreme danger, and not merely the desires of the developer.

I support the recommendation of the Coastal Commissioner's geologist to move the development back 25 feet from the back of the sea cave wall. There is sufficient room to do this, and it would have minimum effect on the property's coastal views. Surely safety of life and property must be of first consideration.

I also strongly urge that the driveway be surfaced with gravel rather than asphalt to minimize runoff and drainage which could effect stability of this lot and neighboring blufftop property. The requirement should be for the least ecologically harmful method. In this case, that is a graveled surface as appears on surrounding driveways in the neighboring area. Ref: LUP 3.4-9. "Any development landward of the blufftop setback shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to the instability of the bluff itself."

I reference the Commissions, and the County's responsibility for safety and hazard protection under Coastal Act 30253, especially (1) "minimize risks to life and property in areas of high geologic, flood and fire hazard," Mendocino County's certified Local Coastal Program 3.4 et seq., (beach erosion: "...bluff erosion by waves, surface runoff and landslides...") and Coastal Zoning Code Chapter 20.500 et seq., especially 20.500.020, geologic hazards.

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I also cite California Coastal Commission "Statewide Interpretive Guidelines, Dec. 16 1981, "...neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding area..."; and "To meet the requirements of the act, bluff and cliff developments must be sited and designed to assure stability and structural integrity for their expected economic lifetimes...Bluff and cliff developments (including related storm runoff, foot traffic, site preparation, construction activity, irrigation, waste water disposal and other activities and facilities accompanying such development) must not be allowed to create or contribute significantly to problems of erosion or geologic instability on the site or on surrounding geologically hazardous areas." The lifetime should be counted from the back of the sea cave wall, since these caves have already significantly undercut the property.

Areas to both sides of this lot (lots 9 and 11) are in jeopardy if the development is allowed to be over the caves themselves. A geologic report dated August 1986 by J. Ballerino for the same property APN 121-260-10 (then Steele) correctly states that "retreat may be very erratic, even over short distances along the coast...with blocks of rock or soil periodical slumping into the ocean." That is clearly the situation above the sea caves on the west side of the subject lot, where earth is continuing to fall into the ocean, and on the curve of the cove on the north (not shown in the maps accompanying the project) where the earth itself is slumping downward at the top. The same report mentions sea caves (p. 6) which are 6-8 feet wide and nearly 20 feet high, in which "fractures extend from the back of the tunnel up to the surface and constitute a zone of instability which is considered unsafe for building purposes." Developer Wright is now intending to build over these very caves.

Storm waves hit the projecting south side of developer Wright's property, as would be expected, but they are also affected by a huge rock in the bay close to the property (not shown in the maps accompanying the project) and are directed into the west and north sides of the project with considerable force even in calm weather. These are also areas with openings to deep sea caves.

Please keep the building envelope 25 feet behind the back wall of the sea caves in order to avoid hazard to life and property, and require the driveway to have a graveled surface to ensure there will be no significant drainage problems.

Sincerely,  
*Hillary Adams*  
Dr. Hillary Adams

encl: photo - west r  
water

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Adams 1: Westside / caves landslide above caves



Adams 2: Northside & cove near subdiv. road / slump ontop

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