

CALIFORNIA COASTAL COMMISSION

SOUTH CENTRAL COAST AREA
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Staff Report: 7/20/00
Hearing Date: 8/8/00
Commission Action:



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STAFF REPORT: REVISED FINDINGS

APPLICATION NO.: 4-99-268

APPLICANT: David Geffen

AGENT: Susan McCabe

PROJECT LOCATION: 22108 Pacific Coast Highway, City of Malibu; Los Angeles County.

PROJECT DESCRIPTION: Construct a 46 foot long timber bulkhead with concrete caissons and a 48 foot long return wall on east property boundary to protect an existing two story residence. In addition, the project includes an offer to dedicate a new lateral public access easement.

Lot area:	8,464 sq. ft.
Building coverage:	2,466 sq. ft.
Deck coverage:	342 sq. ft.
Ht. abv. ext. grade:	28 ft.

DATE OF COMMISSION ACTION: May 9, 1999 in Los Angeles

COMMISSIONERS ON PREVAILING SIDE: Commissioners Dettloff, Estolano, Hart, Krueger, McClain-Hill, Woolley, and Soto.

SUMMARY OF COMMISSION ACTION

Staff recommends that the Commission adopt the following revised findings in support of the Commission's decision on May 9, 2000, to approve the proposed project subject to five (5) special conditions addressing a Lot Merger, Limited Term for Shoreline Protective Structure, Assumption of Risk, Waiver of Liability and Indemnity, Sign Restriction, and Offer to Dedicate Lateral Public Access. Page two identifies the recommended motion. The Commission found that the proposed bulkhead is the preferred alternative and as conditioned, it will not have adverse impacts on coastal resources. Therefore, the proposed project, as conditioned, is consistent with applicable resource protection policies of the Coastal Act.

PROCEDURAL NOTE:

The Commission approved the proposed project with conditions. Because staff originally recommended denial of this proposed project, revised findings are necessary to reflect the action taken by the Commission. Staff therefore recommends that the Commission adopt the following resolution and the revised findings in support of its action to approve this permit with conditions on May 9, 2000. Comments from the public concerning the findings will be limited to discussing the adequacy of the findings to support the Commission's action of May 9, 2000.

LOCAL APPROVALS RECEIVED: Approval in Concept, City of Malibu Planning Department, dated 11/22/99.

SUBSTANTIVE FILE DOCUMENTS: Coastal Engineering Report by David Weiss Structural Engineer & Associates dated July 5, 1999; Alternatives to Protective Bulkhead Wall Proposed, by David Weiss, dated January 27, 2000; Limited Geologic and Soils Engineering Study by Grover Hollingsworth and Associates, dated August 17, 1999; State Lands Commission letter dated January 26, 2000 from Robert Lynch, Chief, Division of Land Management; Coastal Permit Number 4-99-058, McDaniel; Coastal Permit Numbers 4-99-141, -143, -144, -145, O'Hara et. al.; Coastal Permit Number 4-99-185, Broad; Coastal Permit Number 4-97-191, Kim; Coastal Permit Number 4-99-153, Ioki; Coastal Permit Number 4-99-146, Gamma; Coastal Permit Number 4-99-185, Broad; Coastal Permit Number 4-99-266, Daley; Coastal Permit Number 4-98-085, Harris; Coastal Permit Number 4-98-171, Frumkes; Coastal Permit Number 4-98-298, McCellan; Coastal Permit Number 4-98-028, Jacobs; Coastal Permit Number 4-99-141, O'Hara; Coastal Permit Number 4-99-143, Bettelman; Coastal Permit Number 4-99-144, Allen; Coastal Permit Number 4-99-145 Bridges.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

I. Commission Resolution for Adopting Revised Findings for Approval with Conditions of Coastal Development Permit No. 4-99-268

Motion

I move that the Commission adopt the revised findings in support of the Commission's action on May 9, 2000 concerning Coastal Development Permit No. 4-99-268.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote on the motion. Passage of this motion will result in the adoption of revised findings as set forth in this staff report. The motion requires a majority vote of the members from the prevailing side present at the May 9, 2000 hearing, with at least three of the prevailing members voting. Only those Commissioners on the prevailing side of the Commission's action are eligible to vote on the revised findings. (List of Commissioners on page 1.)

RESOLUTION TO ADOPT REVISED FINDINGS:

The Commission hereby adopts the findings set forth below for approving Coastal Permit Number 4-99-268 on the ground that the findings support the Commission's decision made on May 9, 2000 and accurately reflect the reasons for it.

II. 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 term or condition will be resolved by the Executive Director or 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.

III. Special Conditions

1. **Lot Merger**

PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant as landowner shall execute and record a Lot Merger Document that merges

Assessor Parcel Number 4451-005-006 and 4451-006-033, in a form and content acceptable to the Executive Director and provide evidence of such recordation to the Executive Director.

2. Limited Term for Shoreline Protective Structure: Deed Restriction

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 Executive Director, which shall provide that:

- A. The applicant acknowledges that the purpose of the shoreline protective device (bulkhead and return wall) authorized by this permit is to protect the onsite existing residence. The applicant or successor in interest agrees to remove the subject shoreline protective device if the applicant or successor in interest proposes new development involving a replacement foundation or proposes a substantial change (greater than 50 percent) in the foundation of the property in conjunction with a remodel and or addition intensifying the use of the property.
- B. The document 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 Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

3. Assumption of Risk, Waiver of Liability and Indemnity, and Shoreline Protection

- A. By acceptance of this permit, the applicant acknowledges and agrees to the following:
 - 1. The applicant acknowledges and agrees that the site may be subject to hazards from severe ground shaking, liquefaction, tsunami, storm waves, erosion, flooding, and wildfire.
 - 2. The applicant acknowledges and agrees to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development.
 - 3. The applicant unconditionally waives any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards.
 - 4. The applicant agrees 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.

5. No future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to Coastal Development Permit 4-99-268, as shown on Exhibits 3 and 4, shall be undertaken if such activity extends the seaward footprint of the subject shoreline protective device. By acceptance of this permit, the applicant hereby waives, on behalf of itself and all successors and assigns, any rights to such activity that may exist under Public Resources Code section 30235.

- B. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant 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 and an exhibit showing the location of the shoreline protective device approved by this permit. 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. Sign Restriction

No signs shall be posted on the property subject to this permit which (a) explicitly or implicitly indicate that the portion of the beach on the subject site (Assessor's Parcel Number 4451-005-006), located seaward of the residence and decks identified in application number 4-99-268 is private or (b) contain similar messages that attempt to prohibit public use of this portion of the beach. In no instance shall signs be posted which read "*Private Beach*" or "*Private Property*." In order to effectuate the above prohibitions, the permittee/landowner(s) is required to submit the content of any proposed signs to the Executive Director for review and approval prior to posting.

5. Offer to Dedicate Lateral Public Access

In order to implement the applicant's proposal of an offer to dedicate an easement for lateral public access and passive recreational use along the shoreline as part of this project, the applicant agrees to complete the following prior to issuance of the permit: the landowner shall execute and record a document, in a form and content acceptable to the Executive Director, irrevocably offering to dedicate to a public agency or private association approved by the Executive Director an easement for lateral public access and passive recreational use along the shoreline. The document shall provide that the offer of dedication shall not be used or construed to allow anyone, prior to acceptance of the offer, to interfere with any rights of public access acquired through use which

may exist on the property. Such easement shall be located along the entire width of the property from the ambulatory mean high tide line landward to the face of the bulkhead (Exhibit 4).

The document shall be recorded free of prior liens which the Executive Director determines may affect the interest being conveyed, and free of any other encumbrances which may affect said interest. The offer shall run with the land in favor of the People of the State of California, binding all successors and assignees, and shall be irrevocable for a period of 21 years, such period running from the date of recording. The recording document shall include legal descriptions of both the applicant's entire parcel and the easement area. This deed restriction shall not be removed or changed without a Coastal Commission-approved amendment to this coastal development permit, unless the Executive Director determines that no amendment is required.

IV. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description and Background

The project site is located on a beachfront parcel of land approximately 8,464 sq. ft. in size on Carbon Beach between Pacific Coast Highway and the ocean (Exhibits 1 and 2). The area surrounding the project site is characterized as a built-out portion of Malibu consisting of residential development along the beachfront and commercial/residential development along the inland side of Pacific Coast Highway.

The applicant proposes to construct a new 46 foot long timber bulkhead with four concrete caissons connected to and in line with the adjacent bulkhead to the west of the subject site where one residence occupies three lots (Exhibits 3, 4, and 6). Carbon Beach is a sandy beach with residential development typically constructed on pilings without shoreline protective devices. The majority of lots along Carbon Beach do not have shoreline protective devices protecting the residence and or septic systems. There are three connected bulkheads on the three adjacent lots to the west. There is no bulkhead on the adjacent lot to the east of the subject site. A 48-foot long return wall is proposed on the east property boundary supported with four steel rod tie and dead man anchors located beneath the residence. The intent of the bulkhead and return wall is to protect the wood pilings of an existing two-story residence and garage. In addition, the project description includes an offer to of lateral public access to conform to the Commission's standard offer to dedicate.

The subject site has been subject to two past Coastal Commission actions. In 1989, the Commission denied Coastal Development Permit No. 5-89-865 (Lawrence Welk) proposing to square off the existing bowed deck on the seaward side of the residence. In 1990, the Commission approved Coastal Development Permit No. 5-90-089 (Lawrence Welk) to expand the existing deck on the seaward side of the residence

The applicant has submitted evidence of review of the proposed project by the California State Lands Commission (CSLC) dated January 26, 2000, which indicates that the CSLC presently asserts no claims that the project is located on public tidelands although the CSLC reserves the right to any future assertion of state ownership or public rights should circumstances change (Exhibit 5).

B. Shoreline Protective Devices

The applicant proposes to construct a new 46 foot long timber bulkhead with four concrete caissons connected to and in line with the adjacent bulkhead to the west of the subject site. A 48-foot long return wall is proposed on the east property boundary supported with four steel rod tie and dead man anchors located beneath the residence. The bulkhead will be located about 95 feet seaward of the Pacific Coast Highway right-of-way. The entire bulkhead will be located below the grade of the residence seaward of the existing deck. According to the applicant's engineer, the majority of the bulkhead will be buried beneath the sandy beach most of the year. As drawn in the photograph on Exhibit 3, only one to two feet of the top of the bulkhead will be visible during most of the year. The height/depth of the face of the proposed bulkhead is about 15 feet. The intent of the bulkhead and return wall is to protect the wood pilings supporting an existing two-story residence.

As described in the discussion below, the applicant has submitted evidence that protection of the existing development on this site requires a shoreline protective device. In addition, although the proposed bulkhead has the potential on an individual and cumulative basis to adversely impact natural shoreline processes, these impacts will be minimized as proposed by the applicant. The proposed project will be reviewed for its consistency with Sections 30235 and 30253 of the Coastal Act and with past Commission action as noted below.

Section **30235** of the Coastal Act states:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Section **30253** of the Coastal Act states:

New development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way*

require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

Coastal Act Section 30235 provides for two tests applicable to this project. The first test is whether or not the shoreline protective device is needed to protect either coastal dependent uses, existing structures or public beaches in danger of erosion; the second test is whether or not the device is designed to eliminate or mitigate adverse impacts on shoreline sand supply. These two tests under Section 30235 are discussed below. Section 30253 of the Coastal Act mandates that new development provide for geologic stability and integrity to minimize risks to life and property in areas of high geologic, flood, and fire hazard.

By locating shoreline protective devices as far landward as possible, the Commission minimizes the extent that a shoreline structure will physically cover recreational beach area and also minimizes the extent of exposure to wave hazards. The setback also reduces the loss of sand to the littoral system; the location of protective devices in many cases will fix the migration of sand to the littoral system.

The Commission has found in additional recent permit actions that shoreline protective devices can be approved on a provisional basis (i.e. a temporary necessity) if they are the only feasible option to protect existing older residences until such time as the foundation can be repaired or replaced, the septic system is upgraded, relocated or abandoned, or the existing structure is to be demolished and a new structure is proposed. As an example, the Commission has taken this action on Coastal Permit Numbers 4-98-085, Harris, 4-98-171, Frumkes, 4-98-298, McCellan, and 4-98-028, Jacobs. For instance, the Commission approved on a provisional basis, Coastal Permit Number 4-98-298 (McCellan) an 80 ft. long, 14 ft. in height, concrete seawall designed to tie into a proposed seawall on the west side of the parcel and to the existing seawall on the east side of the subject parcel. This site with an existing single family residence was "red-tagged" as the result of storm wave damage during the El Nino conditions of 1997—1998. This site was developed with an older single family residence (approximately 40 years old) and is located on the seaward side of Broad Beach Road near the western end of Broad Beach and immediately east of Lechuza Point. The Commission approved Coastal Permit Number 4-98-298 on the provisional basis that the applicant acknowledged that the purpose of the subject shoreline protective device is solely to protect the existing structures located on site, in their present condition and locations, including the septic disposal system. If the event that repairs or replacement of support piles or caissons or the upgrade or relocation of the septic disposal system, or removal of any structure or construction of a new structure on the subject parcel are proposed, a new coastal permit is required for the shoreline protective device.

The Commission has also approved the strengthening of existing piles with a protective jacket within the footprint of four residences along La Costa Beach immediately downcoast of Carbon Beach. These action were on Coastal Permit Number 4-99-

141, O'Hara, Coastal Permit Number 4-99-143, Bettelman, Coastal Permit Number 4-99-144, Allen, and Coastal Permit Number 4-99-145, Bridges.

Therefore, past Commission review of shoreline residential projects in Malibu has shown that such development results in potential individual and cumulative adverse effects to coastal processes, shoreline sand supply, and public access. Shoreline development, if not properly designed to minimize such adverse effects, may result in encroachment on lands subject to the public trust (thus physically excluding the public); interference with the natural shoreline processes necessary to maintain publicly-owned tidelands and other public beach areas; overcrowding or congestion of such tideland or beach areas; and visual or psychological interference with the public's access to and the ability to use public tideland areas. In order to accurately determine what adverse effects to coastal processes will result from the proposed project, it is necessary to analyze the proposed project in relation to characteristics of the project site shoreline, location of the development on the beach, and wave action.

1. Site Shoreline Characteristics

The proposed project site is located on Carbon Beach in the City of Malibu. Carbon Beach is characterized as a relatively narrow beach that has been developed with numerous single family residences located to the east and west of the subject site. The Malibu/Los Angeles County Coastline Reconnaissance Study by the United States Army Corps of Engineers dated April 1994 indicates that residential development on Carbon Beach has been exposed to recurring storm damage, primarily flooding or damage from floating debris, because of the absence of a sufficiently wide protective beach. The report continues to state that structural and flood-related damage will recur to those residences whose floor elevations are too low and/or foundations are deficient. Furthermore, the Corps of Engineers Report concludes that the coastal reach encompassing Carbon Beach (Reach 9, from Malibu Creek to Big Rock Beach) is either stable or slowly eroding.

The applicant's Coastal Engineering Report completed by David Weiss Structural Engineer & Associates, dated July 5, 1999, further indicates that the Army Corps of Engineers Study states that beaches west of Topanga Canyon are dependent on fluvial discharge i.e., sediments washing out of the canyons for their sand supply and not coastal bluff erosion. The sand supply for this area east of Malibu Creek is dependent on migration of materials around Point Dume, from Malibu Creek and dumping from various debris basins maintained by both Caltrans and the County of Los Angeles. The Coastal Engineering Report concludes that the beaches retreat in response to the lack of discharge from the above sources during dry years and again advance or recover in years of relatively high rainfall. The Coastal Engineering Report also states that according to the Moffatt and Nichol Engineering Report dated 7/92 and completed for the City of Malibu General Plan, this section of beach has been advancing, on average, at a rate of approximately 1.0 feet per year from 1938 to 1988. (This study examined shorter segments of the coast that the Corps of Engineers studied. The pattern of

advance and retreat shows a strong dependence on river and stream sediments, where the larger amounts of advance are closely linked to proximity to stream mouths.) However, the Mean Beach width for Carbon Beach is only between 60 and 80 feet. The applicant's coastal engineering consultant has concluded that Carbon Beach is at least in equilibrium and is considered an oscillating beach. The beaches retreat in response to the lack of discharge from the migration of the sand supply around Point Dume, from Malibu Creek, and dumping from various debris retention basins maintained by Caltrans and the County of Los Angeles during dry years and again advance or recover in years of relatively high rainfall.

2. Wave Uprush and Mean High Tide Line

The applicant's Coastal Engineering Report states that the wave uprush extends to approximately 35 feet seaward of the Pacific Coast Highway right-of-way. At a site visit conducted on March 28, 2000 with the applicant's agents and coastal engineer, the applicant's engineer stated his belief that the septic system was located beyond the wave uprush area within the driveway area. The Coastal Engineering Report also identified known Mean High Tide Lines (MHTL's) on the subject beach, two of which, the March 1967 and April 25, 1999 MHTL's are located in Exhibit 3. The March 1967 MHTL is located 195 feet seaward of the Pacific Coast Highway right-of-way, while the April 23, 1999 MHTL is located 184 feet seaward of the Pacific Coast Highway right-of-way. A third MHTL, surveyed in 1928, was located 127 feet seaward of the Pacific Coast Highway right-of-way. A fourth MHTL, surveyed in 1961, was also identified in the Report as being located 185 feet seaward of the Pacific Coast Highway right-of-way. The bulkhead is proposed to be located about 95 feet seaward of the Pacific Coast Highway right-of-way. Therefore, the proposed bulkhead will be located landward by about 32 feet from the closest surveyed MHTL. According to the Coastal Engineering Report, the more recent MHTL's indicate that the beach is stable.

The maximum wave run-up elevation for the site, as provided by the applicant's engineer, is +16.8 M.S.L. This compares well with the Corps of Engineers' estimated 100-year water elevation of 17' Mean Lower Low Water (+14.16 Mean Tide Level). The existing structure is at or about this elevation and is therefore not in danger from direct wave impact.

3. Need to Protect Existing Structure from Erosion

The first test of Section 30235 relative to the proposed project requires that shoreline protective devices shall be permitted when required to protect existing structures in danger from erosion. In effect, this test is whether or not a shoreline protective device is **needed** to protect an existing structure in danger from erosion. A review of the applicant's engineering and geologic reports to address this issue will be discussed.

The applicant submitted three reports addressing the proposed bulkhead, a shoreline protective device. The first report, identified above, is the Coastal Engineering Report,

dated July 5, 1999, by David Weiss. This Coastal Engineering Report states the following justification for the proposed shoreline protective device:

The house is supported on a series of timber piling driven during the construction of the original structure in the 1970's. Given the age of the pilings and the elevations of the wave uprush, and wave under the building, this structure is subject to severe damage due to floating debris. In a storm of design Magnitude, when the Design Beach Profile is at its lowest anticipated condition for storms of magnitude considered in this geographic area, there will be a loss of approximately 7' of sand at the most seaward line of piles. This condition will leave those piles vulnerable to the impact of almost 10' of water. The impact force of the water against those piles can be as large as 6500 lbs. per foot of pile width. As important, this leaves those piles exposed to severe damage due to floating debris. Just a 5' length of 12" diameter pile could cause an impact force of 700 lbs. As a result of the above, the following are this office's recommendations for protection of the timber pile system:

1. The timber pile system should be protected from floating debris and ocean wave action by a timber bulkhead. The bulkhead should be located in line with the bulkhead on the property to the west. ...

This report addresses the frequency of overtopping and verification that the structure is designed to withstand storms comparable to the winter storms of 1982-83. The Coastal Engineering Report states:

... The purpose of the proposed structure is to protect the existing timber piles from excessive wave force damage from floating debris. In order to keep the proposed bulkhead structure no higher than the one next door to the west, approximately 1.5' of overtopping will have to be tolerated. The wave forces due to the small amount of possible overtopping indicated by the calculations will be small. More importantly, no floating debris of significance will ride in upon approximately 1.5' of overtopping.

In response to staff's request for more information on the need for the bulkhead and the pro's, con's, and costs of additional alternatives, the applicant's coastal engineer submitted a second report titled, Alternatives to Protective Bulkhead Wall, dated January 27, 2000. This second report identifies two events that could make the residence vulnerable to damage and discusses six alternative designs or locations. This report states:

... The house is constructed of light timber frame materials and is supported on a timber pile foundation system. The building was constructed in 1970's. At that time, the standard of practice for the construction of timber pile supported residences on the sandy beach was to drive the piles to "refusal" or a minimum of twelve feet below the elevation of the beach **on the date of driving,**

whichever is greater. Because of the equipment used at that time for this type of project and the make up of the sand profile on the Carbon Beach section of Malibu, experience has shown that the piles usually didn't penetrate much deeper than the minimums required. The Design Beach Profile generated for the Coastal Engineering Report, and experience, have shown that in a storm of design magnitude, seven or eight feet of sand can scour off the beach in the vicinity of the most seaward piles under this house. This condition leaves the house vulnerable (to) two possible events that could occur either separately or simultaneously. These events are:

1. Abnormal and excessive settlement of the structure due to loss of sand supporting the timber piles. While this could potentially cause failure of the structure, most likely, it will only cause very expensive damage in the form of out of level floors, racked doors and windows, cracked drywall, misaligned exterior siding. Of more concern would be the potential for the fireplace to settle. The fireplace is the single heaviest object in the building. Because of its weight and mass, should the fireplace begin to settle, it could tip and fall. It would be terrible if it falls onto the applicant's house; it would be horrible if it fell onto the neighbor's house.
2. Severe damage to the timber piles supporting the house due to floating debris. The Design Beach Profile shows that the depth of the uprushing water under the house could be as much as six feet. The velocity of uprushing wave will vary from twelve feet per second (for the wave of $H'o=3.3'$, $t=10\text{Sec.}$) to eighteen feet per second (for the wave of $H'o=11.7'$, $t=18\text{Sec.}$). The force of the uprush will vary from approximately 2100 pounds per foot of pile width for the smaller wave to as much as 6500 pounds per foot of pile width for the larger wave. More importantly, a piece of timber debris, such as a log or a part of a timber pile can be carried in on one of the waves. If this happens, there is the very real possibility that it will shatter the pile or piles it hits. This could cause a disastrous collapse.

The applicant submitted a third report titled, Limited Geologic and Soils Engineering Study by Grover Hollingsworth and Associates, dated August 17, 1999. This Study states that the purpose of the report is to evaluate the feasibility of construction of a bulkhead along the seaward side of the existing residence. This study also states:

The foundation system exposed under the house is in good condition. Records regarding the depth of the piles are not on file at the City of Malibu.

The Study notes that two borings were drilled in 1991 on the adjoining property to the west as part of the exploration for the proposed bulkhead on the adjoining property. The Study states:

Bedrock was encountered at an elevation of about -8.0 feet mean sea level. At the time of the exploration, the bedrock elevation was at about 16-18 feet below existing grade. The bedrock was overlain by beach deposits consisting of sand, gravel, cobbles, and small boulders.

Further, the applicant's current residence, located immediately to the west of the subject site, suffered major damage from severe storms during the winter of 1982 - 1983 including total destruction of a stone deck area, the rear deck and steps, a greenhouse, and jacuzzi. Additionally, the severe storm waves forced large amounts of sand up under the open foundation and through the heating and air conditioning system causing interior damage to the house. In light of the damage to that residence and its proximity to the subject property, and the fact that the subject residence is constructed on piles driven until refusal, as is typical in the 1970's, and not founded in bedrock, the foundation is vulnerable to beach erosion during storm events.

The applicant has demonstrated that a shoreline protective device is needed to protect an existing structure in danger from erosion. Further, as conditioned, the applicant will merge the subject lot to the adjoining lot to the west. This adjoining lot includes an existing pool and accessory building protected by an existing wooden bulkhead. The lot merger will be implemented by Special Condition number one. Once merged, the properties at 22114 (lot with the pool and accessory building) and 22126 (subject lot with residence) Pacific Coast Highway, will reduce the intensity of use from what could be allowed; i.e., a second residence may not be approved for the property now at 22114 Pacific Coast Highway. As a result, the proposed bulkhead will connect directly to the existing bulkhead to the west to protect the entire beachfront of the merged lots with one residence, a pool, and an accessory structure. Therefore, based upon the above review of the applicant's submitted coastal engineering and geology and soils reports and the resulting merged lots as required by Special Condition number one, the Commission finds that the proposed project does meet the first test of Coastal Act Section 30235.

The Commission also finds that the proposed project meets the second test that addresses whether or not the shoreline protective device is designed to eliminate or mitigate adverse impacts on local shoreline sand supply. The proposed bulkhead has the potential to adversely impact local shoreline sand supply by scour, which is the removal of sand from the base of the vertical bulkhead due to wave action. However, the proposed project is located as far landward as feasible as discussed in more detail below in section 4. Analysis of Alternatives, below.

4. Alternatives

The Commission has found that the further landward a shoreline protective device is located, the less beach scour will result. Wave energy as it passes beneath the residence will minimize the beach scour in front of the residence.

In response to application materials submitted by the applicant, Staff requested in a letter dated December 22, 1999 and a site visit on December 21, 1999, additional analysis of alternatives to the bulkhead design and location proposed by the applicant. The applicant submitted a report titled, Alternatives to Protective Bulkhead Wall, prepared by David Weiss and dated January 27, 2000. This report discussed six options including the applicant's proposal for a bulkhead. The following is a summary of the options presented in this Report.

The first option is the applicant's preferred alternative. Regarding the first option, Mr. Weiss states that the bulkhead would be located in line with the existing bulkhead to the west paralleling the seaward edge of the existing cantilevered deck. At the eastern edge of the deck, the wall would connect with a new 48-foot long return wall that runs perpendicular to the bulkhead. The applicant's estimated cost of construction of this proposed bulkhead is approximately \$1500 per lineal foot plus the cost of marshalling equipment and setup.

The second option is also a bulkhead located immediately seaward of the most seaward row of piles supporting the residence and cantilevered deck. This location is about ten feet further landward than the proposed location of the bulkhead in option one. This bulkhead would connect with a new shorter return wall, approximately 38-foot long, that runs perpendicular to the bulkhead. According to the Report, this bulkhead location would create a serious problem as the uplift forces of waves could destroy the deck and dislodge flooring and wooden beams. In a subsequent site visit on March 28, 2000, it was discussed that this bulkhead location would require that the deck be reinforced to prevent it from being torn off. The applicant's estimated cost of construction for a bulkhead in this location would be between \$2000 and \$2500 per lineal foot plus the cost of marshalling equipment and setup. The increased cost is because the work is under the residence and deck. Additional costs are needed to reinforce the deck.

The third option is to construct a rock revetment to protect the timber piles. Mr. Weiss notes that although this option is viable from a technical viewpoint, it is not practical as the lot is not wide enough for an east return wall using revetment rock. Also, the protective revetment would have to be placed approximately fifteen feet seaward of the proposed location of the bulkhead in option one, thereby having adverse impacts on lateral beach access by the public. The applicant's estimated cost of placing rock is about \$720 to \$900 per lineal foot plus the cost of hauling the rock along the beach from its point of drop off. The report indicates that Mr. Weiss is not aware of a nearby access lot to haul rock from to the subject site; the greater the distance to the site, the greater the cost to haul the rock.

The fourth option is to jacket the most seaward row of piles and the piles supporting the fireplace with concrete. The concrete jacket would need to be a minimum of three feet in diameter and be founded well below the wave scour elevation. Excavations to the

depths below the timber piles would be very difficult to reach in the locations of the nine piles indicated. The Report identifies why this option would be very difficult by stating:

First the structure would have to be shored in order to prevent damage due to settlement. Second, the excavation would have to be performed by hand. The excavations could not be performed with a loader or a drill rig.

The Report indicates that the cost to construct this fourth option and the fifth option discussed below was not possible to estimate by contractors that were contacted. Because options four and five require deep excavations by hand, the work would need to be done on a time and materials basis based on an estimate prepared from a set of working drawings.

The fifth option is to replace the most seaward piles and fireplace piles with a new system of concrete piles and a steel beam to support the residence. Mr. Weiss states that the construction of this system would entail the same problems as those noted in option four. Mr. Weiss states that there is another problem with this option. His report states:

As stated at the beginning of this writing, the purpose of the proposed construction is to protect the piles from damage from floating debris. If this option were implemented in its most efficient form, i.e., two new piles spanned by a new steel beam, it would leave the next row of piles exposed to the same dangers as the present seaward row of piles. Possibly, a second row of piles would have to be replaced; ...

The sixth and final option is beach nourishment; no cost estimate was provided. The report discusses this option briefly by stating:

If the width of the beach could be increased enough to place the house beyond the wave uprush limits, even in the severest of storms, there would be no need for a protective structure. Unfortunately, this is not possible as a site-specific solution. Implementation of such a project requires the political and financial co-operation of all the property owners in the area.

5. Analysis of Alternatives

A review of these six alternatives indicates that neither option 3 (a rock revetment) nor option 6 (beach nourishment) are feasible alternatives for the protection of the foundation of a single family home on a relatively narrow lot. Options 1 and 2 both propose to build a new shoreline protective device (bulkhead and return wall) to protect the foundation of the structure from wave damage. Options 4 and 5 both propose to modify or replace the existing piles with piles that can withstand anticipated wave forces. The two options for a new shoreline protective device both have the potential to adversely affect local sand supply through beach scour.

Scour is the removal of sand or other beach material from the base of a vertical surface, due to wave action. When waves impact a hard surface, such as a bulkhead, some of the energy may be reflected downward, either due to the wall design, or due to the interaction of the reflected wave and the next incoming wave. This effect can remove material seaward of the bulkhead and create an erosional trench or scour trough. While it is not now possible to quantify this phenomenon, it has been recognized for many years. A 1976 Department of Navigation and Ocean Development publication entitled "Shore Protection in California"¹ found that:

While seawalls may protect the upland, they do not hold or protect the beach which is the greatest asset of shorefront property. In some cases, the seawall may be detrimental to the beach in that the downward forces of water created by waves striking the wall rapidly remove sand from the beach.

End effects are the changes to a beach that can occur up and down coast of a seawall or bulkhead. Wave refraction and diffraction around the ends of a seawall or bulkhead can contribute to increased erosion adjacent to the structure. Reporting on a long-term study of seawalls along the rather sand-rich portions of northern Monterey County, Griggs and Tait found that seawalls could cause a "loss of beach up to 150 m. downcoast from the seawalls due to reflection from the end of the structure."² A follow-up study by Griggs, Tait and Scott concluded that the "most prominent example of the lasting impacts from seawalls on the shore is the creation of end scour" which "exposes the back beach, bluff, or dune areas to higher swash energies and wave action."³

The end effects can result from several different conditions. Two of the most common are for waves approaching at an angle to the bulkhead. When waves approach from the west, some of the energy will reflect down the length of the wall and increase the total wave energy occurring at the eastern end of the wall. For waves approaching from the east, the return wall will reflect some of the incoming wave energy, also increasing the total wave energy occurring at the eastern end of the wall. These effects will occur only when the bulkhead is being impacts by waves and will not be an on-going occurrence.

¹ California Department of Navigation and Ocean Development (currently called California Department of Boating and Waterways) (1976) "Shore Protection in California," Sacramento, CA.

² Griggs, Gary B. and James F. Tait (1988) "The Effects of Coastal Protection Structures on Beaches Along Northern Monterey Bay, California," Journal of Coastal Research, Special Issue No. 4, pg. 93 – 111.

³ Griggs, Gary B., James F. Tait and K. Scott (1990) "The Effects of Coastal Protection Structures on Beaches Along Northern Monterey Bay, California," Proceedings of the 22nd International Coastal Engineering Conference, Delft, The Netherlands, American Society of Civil Engineers, pg. 2810 – 2823.

On accreting or stable sand beaches, scour and end effects tend to be short-term, reversible effects. They occur during periods of high wave energy and are soon reversed as storm conditions subside. However, these effects to local sand supply and especially to down coast areas occur too when the down coast areas are most vulnerable and when additional scour or reversible erosion can be most damaging. And even though these effects cannot be easily quantified, they are well recognized and are regularly associated with vertical walls that are exposed to wave action. The best way to address these potential adverse impacts is to avoid constructing new structures except in situations where they are clearly needed. If a new shoreline structure is needed, the effects can be minimized by locating the structure as far back from direct wave action as possible and thus minimizing the frequency with which waves impact against the structure. Neither option one nor two would completely avoid potential scour and end effects; the more landward location of option two would provide some reduction in impacts below that which would be expected from option one. However, the bulkhead needs to be located along the front of the deck to protect the deck and the pilings located beneath the deck.

Options four and five both appear to minimize potential adverse impacts to the local shoreline sand supply and public access to and along the beach. Alternative four and five involve the repair or reconstruction of the piling foundation located beneath the residence within the footprint of the structure. With option four, the jacketed piles would increase in diameter from about 1 foot to 3 feet. This would increase the surface area of the pile that would be exposed to wave action and could increase slightly the localized scour from reflected wave energy. However, the scour and end effects would be far less that from a continuous vertical wall. Option 5 would replace the existing timber piles with new concrete piles. The applicant's alternatives analysis did not provide detailed designs for either options 4 or 5, however, the engineering report notes that the most efficient method for new piles would be one or two rows of two concrete piles spanned by steel beams. Again, the expected scour and end effects would be less than from a vertical wall. Since neither of these options would require a return wall, all wave reflection by the return wall would be eliminated. Although options 4 and 5 both minimize adverse effects on local sand supply, they are not feasible as without demolishing the existing residence to construct them. To construct option 4, a concrete jacket around the six seaward piles located under the house, the jackets must extend below the existing piles to bedrock. Because bedrock is located about eight feet below the zero elevation MSL and well into the water table, it is not possible to construct this option by hand. A drill rig is needed to drill into bedrock. As a result, the residence would need to be removed to accomplish the drilling. To construct option 5, replace the most seaward piles and fireplace piles with a new system of concrete piles and a steel beam to support the residence, the residence would also have to be removed to drill into the bedrock. Therefore, the environmentally preferable alternative is the applicant's proposal to locate the bulkhead at the seaward edge of the existing deck.

Further, to ensure that the proposed project does not result in new future adverse effects to shoreline sand supply and public access and that future impacts are reduced

or eliminated, Special Condition Number Two (2) requires the applicant to acknowledge that the purpose of the shoreline protective device (bulkhead and return wall) authorized by this permit is to protect the onsite existing residence. The applicant or successor in interest also agrees to remove the subject shoreline protective device if the applicant or successor in interest proposes new development involving a replacement foundation or proposes a substantial change (greater than 50 percent) in the foundation of the property in conjunction with a remodel and or addition intensifying the use of the property.

The Commission finds that the proposed project, as conditioned, will minimize any significant adverse effects on the local shoreline sand supply or shoreline processes. The Commission also finds that the proposed project will minimize risks to life and property in areas of flood hazard and assure stability and structural integrity. Therefore, the proposed project, as conditioned, is consistent with Sections 30235 and 30253 of the Coastal Act.

6. Storm, Wave, Flood, and Fire Hazards

The Malibu coast has been subject to substantial damage as a result of storm and flood occurrences, fires, and geological failures. Therefore, it is necessary to review the proposed project and project site against the area's known hazards. The proposed project involves the construction of a bulkhead and return wall described in detail above along a developed stretch of Carbon Beach.

The site is susceptible to flooding and/or wave damage from storm waves and storm surge conditions. Past occurrences have resulted in public costs (through low-interest loans) in the millions of dollars in the Malibu area alone. Along the Malibu coast, significant damage has occurred to coastal areas from high waves, storm surge and high tides. In the winter of 1977-78, storms triggered numerous mudslides and landslides and caused significant damage along the coast. Damage to the Malibu coastline was well documented in the paper presented at the National Research Council, which stated that:

The southerly and southwesterly facing beaches in the Malibu area were especially hard hit by waves passing through the open windows between offshore islands during the 1978 and 1980 storms. These waves broke against beaches, seawalls, and other structures, causing damages of between \$2.8 and \$4.75 million to private property alone. The amount of erosion resulting from a storm depends on the overall climatic conditions and varies widely from storm to storm. Protection from this erosion depends largely on the funds available to construct various protective structures that can withstand high-energy waves.⁴

⁴ "Coastal Winter Storm Damage, Malibu, Los Angeles County, Winter 1977-78", part of the National Research Council proceedings, George Armstrong.

The "El Nino" storms in 1982-83 caused additional damage to the Malibu coast, when high tides of over 7 feet were combined with surf between 6 and 15 feet. These storms caused over \$12.8 million in damage to structures in Los Angeles County, many located in Malibu. Due to the severity of the 1982-83 storm events, they have often been cited as an illustrative example of an extreme storm event and used as design criteria for shoreline protective structures. Damage to the Malibu coastline was documented in an article in California Geology. This article states that:

In general, the storms greatly affected the character of the Malibu coastline. Once quiet, wide, sandy beaches were stripped of their sand and high surf pounded residential developments The severe scour, between 8 to 12 feet, was greater than past scour as reported by "old timers" in the area. Sewage disposal systems which rely on the sand cover for effluent filtration were damaged or destroyed creating a health hazard along the coast. Flotsam, including pilings and timbers from damaged piers and homes, battered coastal improvements increasing the destruction. Bulkhead failures occurred when sand backfill was lost due to scour exceeding the depth of the bulkhead sheeting, or scour extending beyond the return walls (side walls of the bulkhead which are extended toward the shore from the front wall of the bulkhead).⁵

Other observations that were noted included the fact that the storm's damage patterns were often inconsistent. Adjacent properties suffered different degrees of damage sometimes unrelated to the method or age of construction. The degree of damage was often related to past damage history and the nature of past emergency repairs. Upcoast (west) of Big Rock Beach, walls at Zuma Beach and the parking lots were damaged by wave uprush and scour. Debris was deposited onto the margin of Pacific Coast Highway.

Storms in 1987-88 and 1991-92 did not cause the far-reaching devastation of the 1982-83 storms, however, they too were very damaging in localized areas and could have been significantly worse except that the peak storm surge coincided with a low tide rather than a high tide. The 1998 El Nino Storms have damaged a number of residences and public facilities and infrastructure in Malibu and is being assessed.

The Coastal Act recognizes that development, such as the proposed residential addition and sewage disposal system, may involve the taking of some risk. Coastal Act policies require the Commission to establish the appropriate degree of risk acceptable for the proposed development and to determine who should assume the risk. When development in areas of identified hazards is proposed, the Commission considers the hazard associated with the project site and the potential cost to the public, as well as the individual's right to use his property.

⁵ "Assessment of 1982-83 Winter Storms Damage Malibu Coastline", by Frank Denison and Hugh Robertson, in California Geology, September 1985.

The Commission finds that due to the unforeseen possibility of severe ground shaking, liquefaction, tsunami, storm waves, erosion, flooding, and wildfire hazards, the applicant shall assume these risks as a condition of approval. Because this risk of harm cannot be completely eliminated, the Commission is requiring the applicant to waive any claim of liability against the Commission for damage to life or property which may occur as a result of the permitted development. The applicants' assumption of risk, as required by Special Condition Number Three (3), when executed and recorded on the property deed, will show that the applicants are aware of and appreciates the nature of the hazards which exist on the site and which may adversely affect the stability or safety of the proposed development. Moreover, through acceptance of Special Condition Number Three, (3) the applicants also agree to indemnify the Commission, its officers, agents, and employees against any and all expenses or liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project.

a. Fire Hazard

The Malibu coast has been subject to substantial damage as a result of wildfires. Therefore, it is necessary to review the proposed project and project site against the area's known fire hazard. The Malibu area has burned in wildfires numerous times in the past, most recently in the 1993 wildfire. These wildfires have burned structures even on beachfront lots such as the subject site.

The Coastal Act recognizes that development, such as the proposed residential addition and sewage disposal system, may involve the taking of some risk. Coastal Act policies require the Commission to establish the appropriate degree of risk acceptable for the proposed development and to determine who should assume the risk. When development in areas of identified hazards is proposed, the Commission considers the hazard associated with the project site and the potential cost to the public, as well as the individual's right to use his property. The Commission finds that due to the unforeseen possibility of wildfire hazards, the applicant shall assume these risks as a condition of approval. Because this risk of harm cannot be completely eliminated, the Commission is requiring the applicant to waive any claim of liability against the Commission for damage to life or property which may occur as a result of the permitted development. The applicants' assumption of risk, as required by Special Condition Number Three (3), when executed and recorded on the property deed, will show that the applicants are aware of and appreciates the nature of the hazards which exist on the site and which may adversely affect the stability or safety of the proposed development. Moreover, through acceptance of Special Condition Number Three (3), the applicants also agree to indemnify the Commission, its officers, agents, and employees against any and all expenses or liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project.

C. Public Access.

One of the basic mandates of the Coastal Act is to maximize public access and recreational opportunities along the coast. The Coastal Act has several policies that address the issues of public access and recreation along the coast.

Section 30210 of the Coastal Act states:

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

Section 30211 of the Coastal Act states:

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 of the Coastal Act states (in part):

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:

...

(2) adequate access exists nearby...

Section 30220 of the Coastal Act states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30221 of the Coastal Act states:

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

1. Public Access

Coastal Act Sections 30210 and 30211 mandate that maximum public access and recreational opportunities be provided and that development not interfere with the public's right to access the coast. Likewise, section 30212 of the Coastal Act requires that public access to the sea be provided, except where adequate access exists

nearby. Section 30211 provides that development not interfere with the public's right of access to the sea including the use of dry sand and rocky coastal beaches. Section 30220 of the Coastal Act requires coastal areas suited for coastal recreational activities, which cannot be provided at inland water areas, be protected. Section 30221 of the Coastal Act requires that oceanfront land suitable for recreational use shall be protected for recreational use.

The major access issue in this permit application is the occupation of sand area by a structure, in contradiction of Coastal Act policies 30210, 30211, and 30212. Section 30211 requires that development shall not interfere with access.

As proposed, this proposed bulkhead would extend seaward onto a sandy beach area approximately along a bowed deck area enclosing an area approximately 10 feet wide by 46 feet long (occupying about 460 sq. ft. of beach) beyond the existing residence structure and its supporting pilings. A portion of this sandy area is located beneath the cantilevered deck. All projects requiring a coastal development permit must be reviewed for compliance with the public access and recreation provisions of Chapter 3 of the Coastal Act. Based on the access, recreation and development sections of the Coastal Act, the Commission has required public access to and along the shoreline in new development projects and has required design changes in other projects to reduce interference with access to and along the shoreline.

Interference by the proposed bulkhead has a number of effects on the dynamic shoreline system and the public's beach ownership interests. First, changes in the shoreline profile, particularly changes in the slope of the profile which results from a reduced beach berm width, alter the usable area under public ownership. A beach that rests either temporarily or permanently at a steeper angle than under natural conditions will have less horizontal distance between the mean low water and mean high water lines. This reduces the actual area in which the public can pass on their own property. The second effect on access is through a progressive loss of sand as shore material is not available to nourish the bar. The lack of an effective bar can allow such high wave energy on the shoreline that beach materials may be lost far offshore where it is no longer available to nourish the beach. The effect of this on the public is again a loss of area between the mean high water line and the actual water. Third, shoreline protective devices such as bulkheads cumulatively affect public access by causing accelerated and increased erosion on adjacent public beaches. This effect may not become clear until such devices are constructed individually along a shoreline and they reach a public beach. Fourth, if not sited landward in a location that ensures that the bulkhead or an alternative proposal to strengthen or replace existing pilings beneath the residence is only acted upon during severe storm events, beach scour during the winter season will be accelerated because there is less beach area to dissipate the wave's energy.

Due to the aforementioned adverse impacts of shoreline protective structures on public access, the proposed shoreline protection device must be judged against the public

access and recreation policies of the State Constitution, Sections 30210, 30211, 30212, 30220, and 30221 of the Coastal Act. Along the California coast, the line between land and ocean is complex and constantly moving.

1. Mean High Tide Line and Tidelands

The State owns Tidelands, which are those lands seaward of the Mean High Tide Line as it exists from time to time. By virtue of its admission into the Union, California became the owner of all tidelands and all lands lying beneath inland navigable waters. These lands are held in the State's sovereign capacity and are subject to the common law public trust. The public trust doctrine restricts uses of sovereign lands to public trust purposes, such as navigation, fisheries, commerce, public access, water-oriented recreation, open space and environmental protection. The public trust doctrine also severely limits the ability of the State to alienate these sovereign lands into private ownership and use free of the public trust. Consequently, the Commission must avoid decisions that improperly compromise public ownership and use of sovereign tidelands.

Where development is proposed that may impair public use and ownership of tidelands, the Commission must consider where the development will be located in relation to tidelands. The legal boundary between public tidelands and private uplands is known as the ordinary high water mark. (Civil Code, § 830.) In California, where the shoreline has not been affected by fill or artificial accretion, the ordinary high water mark of tidelands is determined by locating the existing "mean high tide line." The mean high tide line is the intersection of the elevation of mean high tide with the shore profile. Where the shore is composed of a sandy beach whose profile changes as a result of wave action, the location at which the elevation of mean high tide line intersects the shore is subject to change. The result is that the mean high tide line (and therefore the boundary) is an "ambulatory" or moving line that moves seaward through the process known as accretion and landward through the process known as erosion.

Consequently, the position of the mean high tide line fluctuates seasonally as high wave energy (usually but not necessarily) in the winter months causes the mean high tide line to move landward through erosion, and as milder wave conditions (generally associated with the summer) cause the mean high tide line to move seaward through accretion. In addition to ordinary seasonal changes, the location of the mean high tide line is affected by long term changes such as sea level rise and diminution of sand supply.

2. Sea Level Rise

Sea level has been rising slightly for many years. In the Santa Monica Bay area, the historic rate of sea level rise has been 1.8 mm/yr. or about 7 inches per century⁶ Sea

⁶ Lyles, S.D., L.E. Hickman and H.A. Debaugh (1988) Sea Level Variations for the United States 1855 – 1986. Rockville, MD: National Ocean Service.

level rise is expected to increase by 8 to 12 inches in the 21st century.⁷ There is a growing body of evidence that there has been a slight increase in global temperature and that an acceleration in the rate of sea level can be expected to accompany this increase in temperature. Mean water level affects shoreline erosion several ways and an increase in the average sea level will exacerbate all these conditions.

On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore. On a relatively flat beach, with a slope of 40:1, every inch of sea level rise will result in a 40-inch landward movement of the ocean/beach interface. For fixed structures on the shoreline, such as a single family residence, pilings, or seawalls, an increase in sea level will increase the inundation of the structure. More of the structure will be inundated or underwater than are inundated now and the portions of the structure that are now underwater part of the time will be underwater more frequently.

Accompanying this rise in sea level will be increased wave heights and wave energy. Along much of the California coast, the bottom depth controls the nearshore wave heights, with bigger waves occurring in deeper water. Since wave energy increases with the square of the wave height, a small increase in wave height can cause a significant increase in wave energy and wave damage. So, combined with the physical increase in water elevation, a small rise in sea level can expose previously protected back shore development to both inundation and wave attack, and those areas that are already exposed to wave attack will be exposed to more frequent wave attack with higher wave forces. Structures that are adequate for current storm conditions may not provide as much protection in the future.

A second concern with global warming and sea level rise is that the climatic changes could cause changes to the storm patterns and wave climate for the entire coast. As water elevations change, the transformation of waves from deep water will be altered and points of energy convergence and divergence could shift. The new locations of energy convergence would become the new erosion "hot spots" while the divergence points may experience accretion or stability. It is highly likely that portions of the coast will experience more frequent storms and the historic "100-year storm" may occur every 10 to 25 years. For most of California the 1982/83 El Niño event has been considered the "100-year storm." Certain areas may be exposed to storms comparable to the 1982/83 El Niño storms every few decades. In an attempt to ensure stability under such conditions, the Commission has required that all new shoreline structures be designed to withstand either a 100-year storm event, or a storm event comparable to the 1982/83 El Niño. Also, since it is possible that storm conditions may worsen in the future, the Commission has required that structures be inspected and maintained on a regular basis. The coast can be altered significantly during a major storm and coastal structures need to be inspected on a regular basis to make sure they continue to

⁷ Field et. al., Union of Concerned Scientists and the Ecological Society of America (November 1999) Confronting Climate Change in California, www.ucsusa.org.

function as designed. If storm conditions worsen in future years, the structures may require changes or modifications to remain effective. In some rare situations, storm conditions may change so dramatically that existing protective structures may no longer be able to provide any significant protection, even with routine maintenance.

Therefore, if new development along the shoreline is to be found consistent with the Coastal Act, the most landward location must be explored to minimize wave attack with higher wave forces as the level of the sea rises over time. Shoreline protective devices must also be located as far landward as feasible to protect public access along the beach as discussed further below. In the case of this project, the proposed development is located as landward as feasible given the potential to damage the deck.

3. Impacts on Public Tidelands

The Commission must consider a project's direct and indirect impact on public tidelands. In order to protect public tidelands when beachfront development is proposed, the Commission must consider (1) whether the development or some portion of it will encroach on public tidelands (i.e., will the development be located below the mean high tide line as it may exist at some point throughout the year) and (2) if not located on tidelands, whether the development will indirectly affect tidelands by causing physical impacts to tidelands.

In order to avoid approving development that will encroach on public tidelands during any time of the year, the Commission, usually relying on information supplied by the State Lands Commission, will look to whether the project is located landward of the most landward known location of the mean high tide line. In this case, the State Lands Commission presently does not assert a claim that the project intrudes onto sovereign lands (Exhibit 5). In addition, a number of MHTL surveys were completed for the subject site. MHTL's were surveyed in 1928, 1961, April 23, 1999, and March 1967. The most landward of these MHTL's (1928) is located about 32 feet seaward of the proposed bulkhead. The most recent MHTL (1999) is located about 89 feet seaward of the proposed bulkhead.

Even structures located above the mean high tide line, however, may have an impact on shoreline processes as wave energy reflected by those structures contributes to erosion and steepening of the shore profile, and ultimately to the extent and availability of tidelands. That is why the Commission also must consider whether a project will have indirect impacts on public ownership and public use of shorelands. However, as discussed above, the potential indirect impacts on tidelands does appear to create significant adverse impacts on the beach as a result of wave attack and wave energy due to the unique beach site and design of the project located on the sandy beach.

The beaches of Malibu are extensively used by visitors of both local and regional origin and most planning studies indicated that attendance of recreational sites will continue to significantly increase over the coming years. The public has a right to use the

shoreline under the public trust doctrine, the California Constitution and California common law. The Commission must protect those public rights by assuring that any proposed shoreline development does not interfere with or will only minimally interfere with those rights. Here, although it is uncertain it is probable that the proposed bulkhead will generate a permanent loss of sandy beach over time as a result. Presently, the area seaward of the MHTL on this shoreline can be used by the public for access and general recreational activities.

Carbon Beach is a sandy beach of about two miles in length. The project site is located on the eastern half of Carbon Beach. A vertical public access at 22700 Pacific Coast Highway is located about 1,000 feet to the west of the subject site. A second vertical public accessway is located about one mile to the east at 21200 Pacific Coast Highway. The project site is also located about 200 feet to the east of a vertical accessway which has been offered for dedication by the landowner (David Geffen, Coastal Permit Number 5-83-703 located at 22126 – 22132 Pacific Coast Highway) for public use but has not been opened for public use. Further, there are several existing and potential lateral public access easements across several lots in the vicinity of the project site.

In addition, as the level of sea level rises over time, the inland extent of the MHTL's identified in the area will move further seaward. As a result, the proposed bulkhead will affect the public's use of the public tidelands. In past permit actions, the Commission has also required that all new development on a beach, including shoreline protection devices, provide for public lateral access along the beach in order to reduce any adverse impacts to public access if accepted. In this case, the applicant has offered an easement for lateral public access in the subject application. In order to implement the applicant's offer to dedicate an easement for lateral public access on the subject property, Special Condition Number Five (5) is imposed.

The Commission further notes that chronic unauthorized posting of signs illegally attempting to limit, or erroneously noticing restrictions on, public access have occurred on beachfront private properties in the Malibu area. These signs have a chilling effect on the legitimate, protected access of the public to public trust lands. The Commission has determined, therefore, that to ensure that such postings are clearly understood by the applicants to be off limits until or unless a coastal development permit is obtained for such signage, it is necessary to impose Special Condition Number Four to ensure that similar signs are not posted on or near the proposed shoreline protective device or on or near the existing deck or residence. The Commission finds that if implemented, Special Condition Number Four will protect the public's right of access to the sandy beach below the MHTL.

Therefore, the Commission finds that the proposed project is consistent with Sections 30210, 30211, 30212, 30220, and 30221 of the Coastal Act.

D. Local Coastal Program

Section 30604 of the Coastal Act states that:

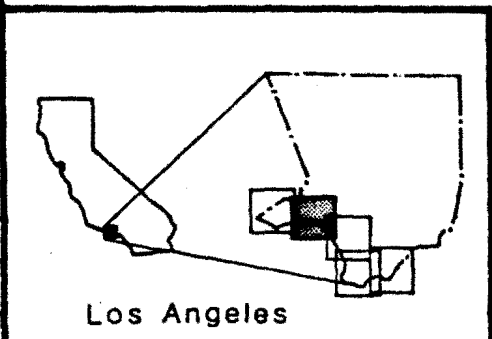
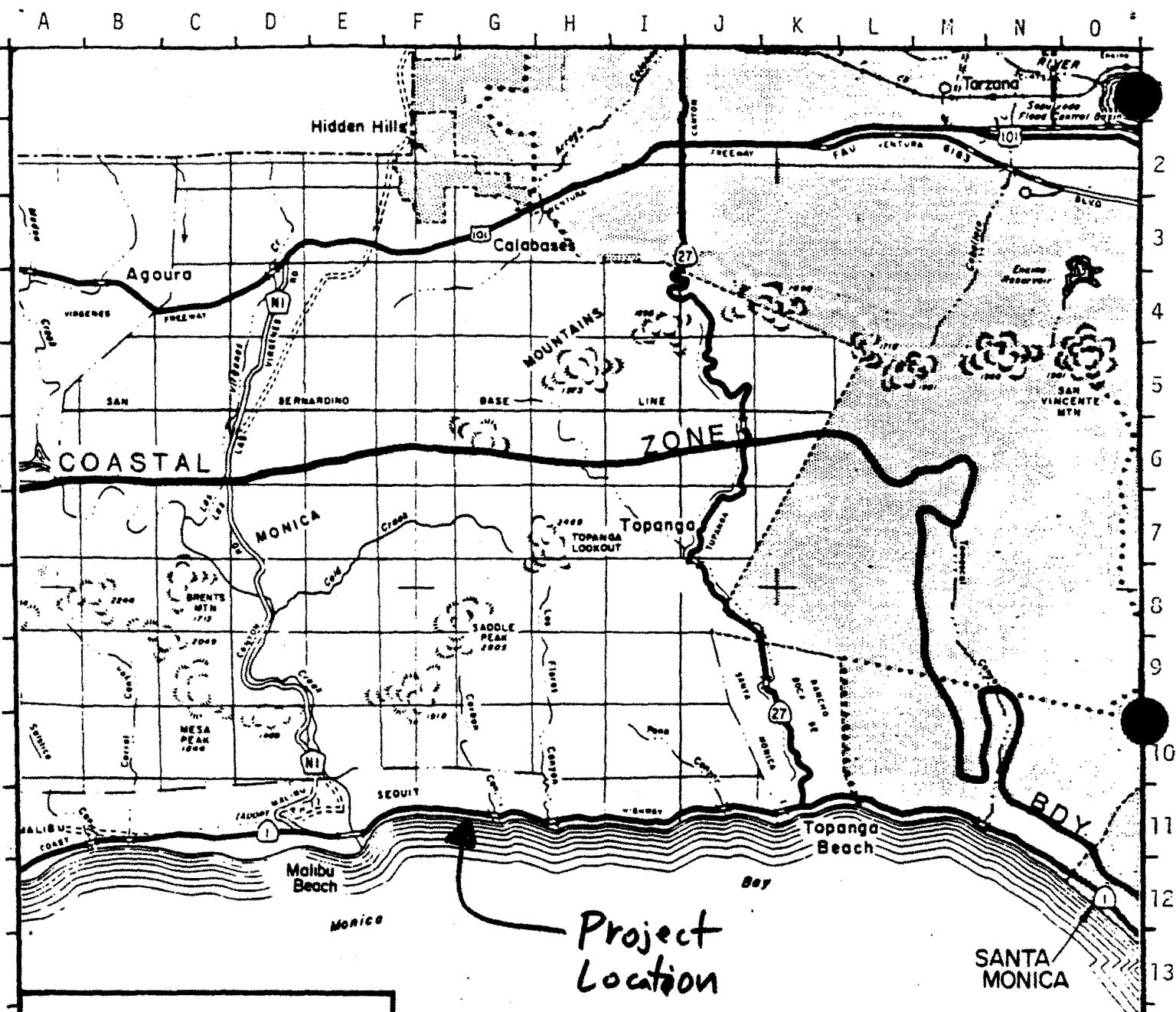
a) Prior to certification of the local coastal program, a coastal development permit shall be issued if the issuing agency, or the commission on appeal, finds that the proposed development is in conformity with the provisions of Chapter 3 (commencing with Section 30200) of this division and that the permitted development will not prejudice the ability of the local government to prepare a local program that is in conformity with the provisions of Chapter 3 (commencing with Section 30200).

Section 30604(a) of the Coastal Act provides that the Commission shall issue a Coastal Permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program which conforms with Chapter 3 policies of the Coastal Act. The preceding sections provide findings that the proposed project will be in conformity with the provisions of Chapter 3. The proposed development will not create adverse impacts and is found to be consistent with the applicable policies contained in Chapter 3. Therefore, the Commission finds that approval of the proposed development will not prejudice the City of Malibu's ability to prepare a Local Coastal Program for Malibu which is also consistent with the policies of Chapter 3 of the Coastal Act as required by Section 30604(a).

E. CEQA

The Coastal Commission's permit process has been designated as the functional equivalent of the California Environmental Quality Act (CEQA). Section 13096(a) of the Commission's administrative regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as conditioned 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 effects which the activity may have on the environment.

The Commission finds that, the proposed project will not have significant adverse effects on the environment and that there are no feasible alternatives which would substantially lessen any significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. Therefore, the Commission finds that the proposed project is consistent with the requirements of CEQA and the policies of the Coastal Act.



Los Angeles

EXHIBIT NO.	1
APPLICATION NO.	4-99-268
Project Location	

California Coastal Commission

LOCATION MAP

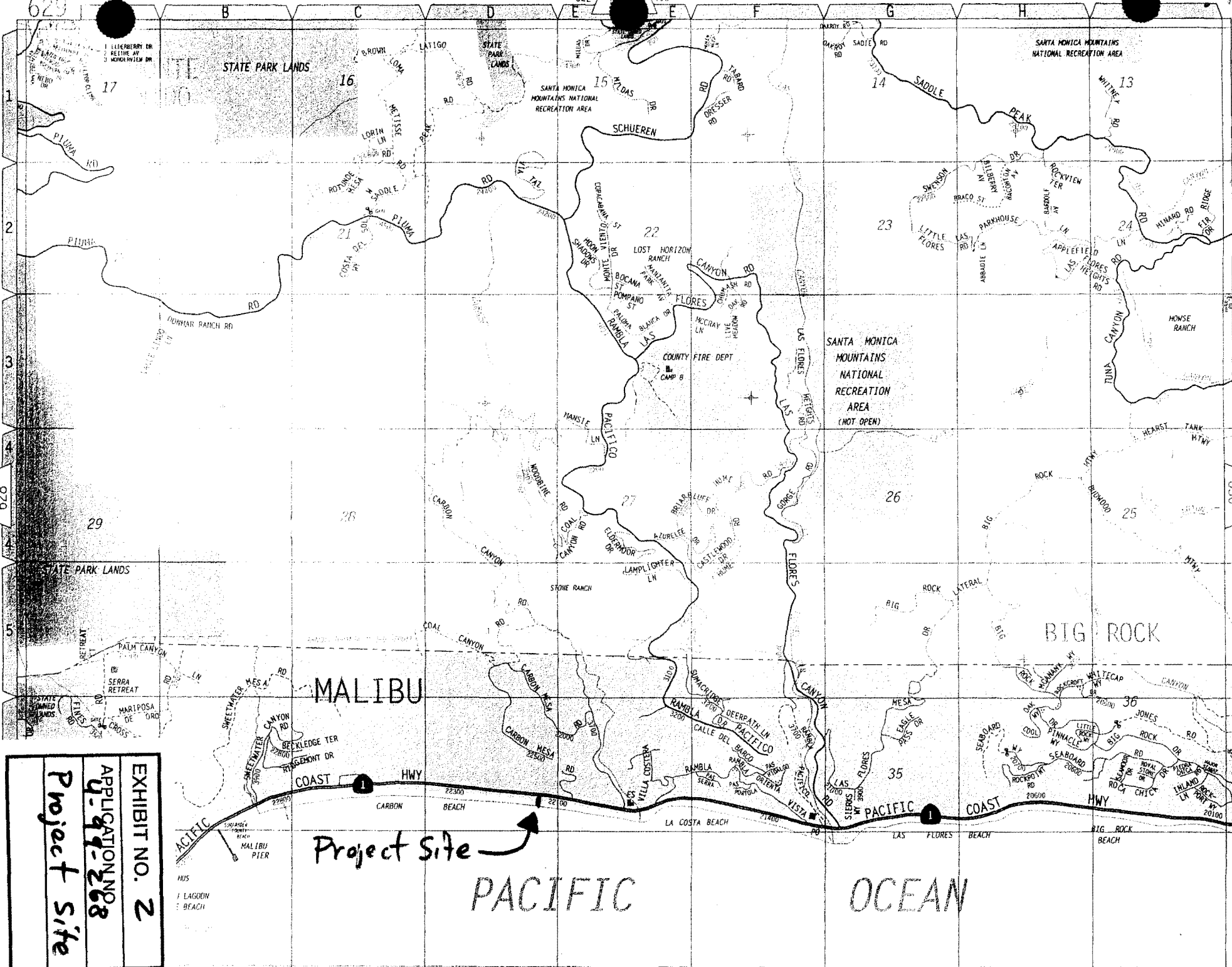


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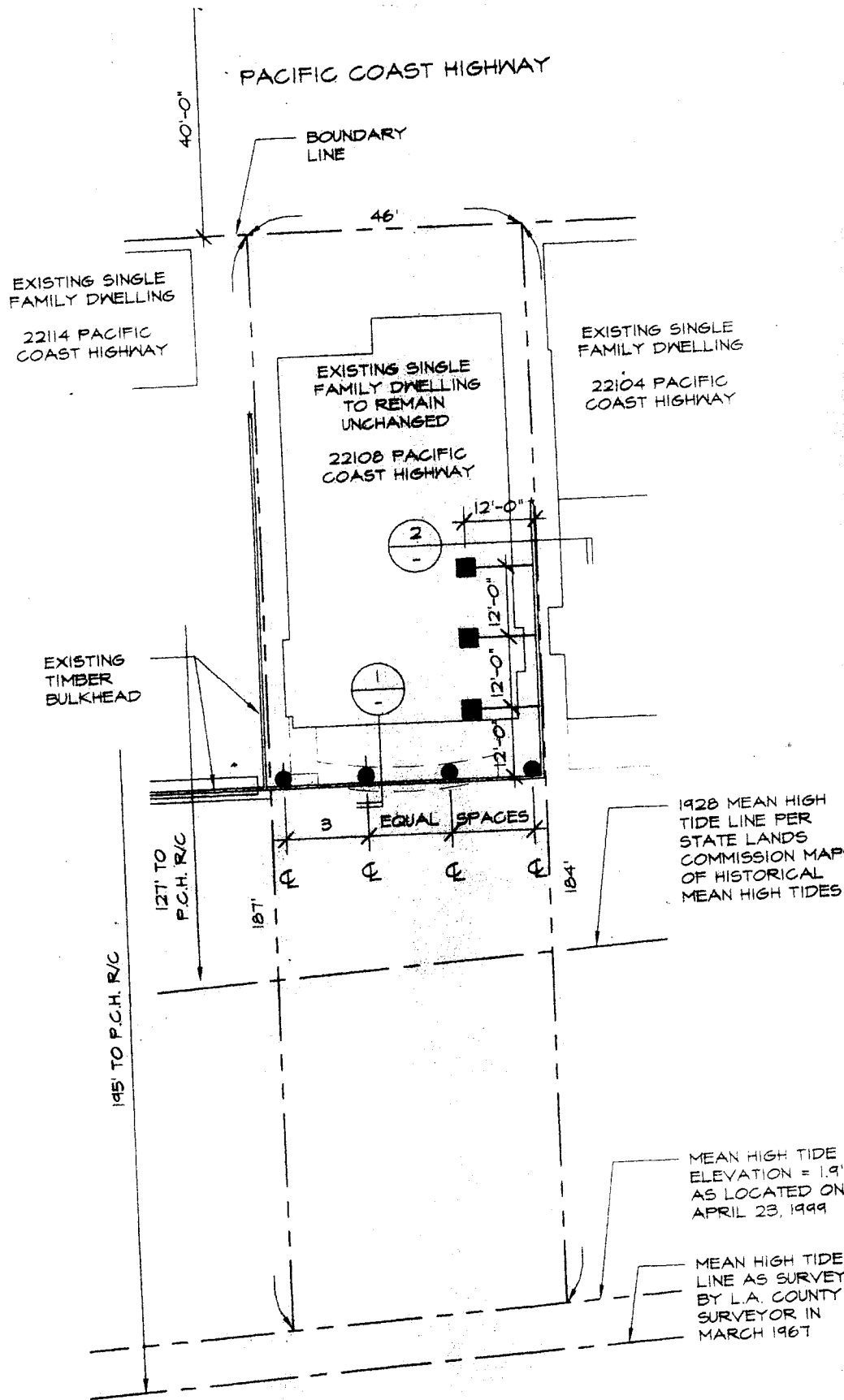
SEE MAP

COPYRIGHT 1998 The Rand McNally Company SEE MAP 630

SEE MAP 628



Project Site	APPLICATION NO. 0-99-268
	EXHIBIT NO. 2



SITE PLAN

EXHIBIT NO. 4
APPLICATION NO. 4-99-268
Site Plan

SCALE: 1" = 20'

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202



PAUL D. THAYER, Executive Officer
California Relay Service From TDD Phone 1-800-735-2925
from Voice Phone 1-800-735-2925

Contact Phone: (916) 574-1892
Contact FAX: (916) 574-1925

January 26 2000

RECEIVED

File Ref: SD 99-12-17.2

MAR 3 2000

CALIFORNIA
COASTAL COMMISSION
SOUTH CENTRAL COAST DISTRICT

Susan McCabe
1930 Purdue Avenue, #10
Los Angeles CA 90025

Dear Ms. McCabe:

**SUBJECT: Coastal Development Project Review for Proposed Seawall at
22108 Pacific Coast Highway, Malibu**

This is in response to your request on behalf of your client, David Geffen, for a determination by the California State Lands Commission (CSLC) whether it asserts a sovereign title interest in the property that the subject project will occupy and whether it asserts that the project will intrude into an area that is subject to the public easement in navigable waters.

The facts pertaining to your client's project, as we understand them, are these:

Your client proposes to construct a timber bulkhead and return wall to protect the foundation at 26112 Pacific Coast Highway in the Carbon Beach area of Malibu. The proposed bulkhead will tie into the bulkhead located on the immediately adjacent property to the west. A return wall extending along the eastern side of the property is also proposed. Based upon the July 16, 1999 plans prepared by David C. Weiss, the proposed timber bulkhead appears to be in conformance with the string lines established by the bulkhead/residences on either side. This is a well-developed stretch of beach with numerous residences both up and down coast.

We do not at this time have sufficient information to determine whether this project will intrude upon state sovereign lands. Development of information sufficient to make such a determination would be expensive and time-consuming. We do not think such an expenditure of time, effort and money is warranted in this situation, given the limited resources of this agency and the circumstances set forth above. This conclusion is based on the location of the property, the character and history of the adjacent development, and the minimal potential benefit to the public, even if such an inquiry were to reveal the basis for the assertion of public claims and those claims were to be pursued to an ultimate resolution in the state's favor through litigation or otherwise.

EXHIBIT NO. 5
APPLICATION NO. 4-99-268
State Lands
Letter 1 of 2

January 26, 2000

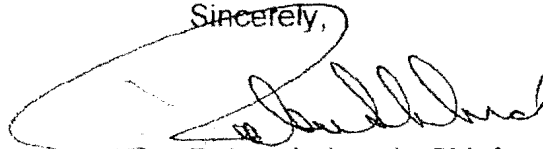
Susan McCabe

2

Accordingly, the CSLC presently asserts no claims that the project intrudes onto sovereign lands or that it would lie in an area that is subject to the public easement in navigable waters. This conclusion is without prejudice to any future assertion of state ownership or public rights, should circumstances change, or should additional information come to our attention.

If you have any questions, please contact Jane E. Smith, Public Land Management Specialist, at (916) 574-1892.

Sincerely,



Robert L. Lynch, Chief
Division of Land Management

cc: Craig Ewing, City of Malibu

EXHIBIT NO. 5
APPLICATION NO. 4-99-268
State Lands
Letter 2 of 2

PACIFIC COAST HIGHWAY

46'

EXISTING SINGLE FAMILY DWELLING

22114 PACIFIC COAST HIGHWAY

↑ N
No Scale

EXISTING SINGLE FAMILY DWELLING TO REMAIN UNCHANGED

22108 PACIFIC COAST HIGHWAY

EXHIBIT NO. 6

APPLICATION NO. 4-41-203

Site Plan

Detail

EXISTING TIMBER BULKHEAD

EXISTING SECOND FLOOR DECK

EXISTING FIRST FLOOR DECK
PROPOSED TIMBER BULK HEAD

127' TO P.C.H. R/C

187'

184'

EQUAL SPACES

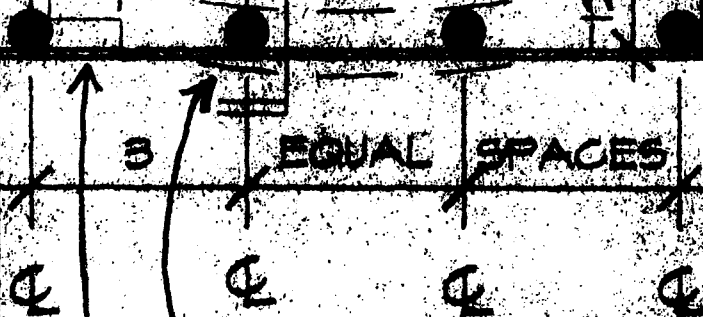
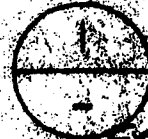
12'-0"

12'-0"

12'-0"

12'-0"

12'-0"



R/C