

**CALIFORNIA COASTAL COMMISSION**

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Filed: 3/24/00  
49th Day: 5/12/00  
180th Day: 9/12/00  
Staff: J. Johnson *CD*  
Staff Report: 4/25/00  
Hearing Date: 5/9/00  
Commission Action:

**STAFF REPORT: REGULAR CALENDAR****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.

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

**SUMMARY OF STAFF RECOMMENDATION**

Staff recommends **denial** of the proposed project. The applicant has not demonstrated the need for a shoreline protective device to protect the existing residence on the site or its existing septic system located on the landward side of the site within the driveway. The septic system is located outside the wave uprush area. There are feasible alternatives available to the applicant, such as strengthening the existing wood piles or replacing the piles with new piles to support the residence, that do not involve a shoreline protective device. In addition, the construction of a bulkhead on the subject site may over time have a cumulative effect requiring property owners sequentially downcoast to also propose a shoreline protective device. At this time, most of the residences on Carbon Beach do not have shoreline protective devices. Therefore, the Commission can not find that the proposed bulkhead is consistent with Sections 30235, 30253, 30210, 30211, 30212, 30220, and 30221 of the Coastal Act.

**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; Memorandum from Lesley Ewing to James Johnson, dated March 22, 2000; Memorandum from Mark Johnsson to James Johnson, dated March 27, 2000; Regional Cumulative Assessment Project (RECAP) Preliminary Draft Findings and Recommendations Santa Monica Mountains/Malibu Area, dated October 1998, California Coastal Commission.

**STAFF RECOMMENDATION**

**MOTION:** *I move that the Commission approve Coastal Development Permit No. 4-99-268 for the development proposed by the applicant.*

**STAFF RECOMMENDATION OF DENIAL:**

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

**RESOLUTION TO DENY THE PERMIT:**

The Commission hereby **denies** a coastal development permit for the proposed development on the ground that the development will not conform with the policies of Chapter 3 of the Coastal Act and will prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit would not comply with the California

Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

#### **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 and 4). 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 includes an offer to dedicate a new lateral public access easement.

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, there is no evidence that protection of the existing development on this site requires a shoreline protective device. In addition, the proposed bulkhead has the potential on an individual and cumulative basis to adversely impact natural shoreline processes. Therefore, it is necessary to review the proposed project for its consistency with Sections 30235 and 30253 of the Coastal Act and with past Commission action.

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.

To evaluate the cumulative effects of the implementation of Coastal Act Policies, the Commission completed a report titled, Regional Cumulative Assessment Project (RECAP) Preliminary Draft Findings and Recommendations Santa Monica Mountains/Malibu Area, dated October 1998. The RECAP Study focused on permit activity over the past 19 years and more specifically on the overall permitting activity from 1986 to 1996. As the Commission found in the RECAP Study, the cumulative effect of armoring the shoreline exacerbates erosion problems by fixing the back of the beach and eliminating the influx of sediment from coastal bluffs, and by causing localized scour in front or at the end of the shoreline protective devices. Further, by allowing shoreline armoring in areas with existing development, the cycle of rebuilding storm damaged or destroyed development in the same hazardous areas is often perpetuated. Shoreline development may result in encroachment on lands subject to the public trust thereby physically excluding the public and interfering with the natural shoreline processes necessary to maintain publicly-owned tidelands and other public beach areas. To improve the measures addressing cumulative impacts of armoring, RECAP recommended a range of measures for implementation by the Commission through its management program or by local governments through their LCP planning. The RECAP Report estimated that close to half of the shoreline in the Santa Monica Mountains/Malibu study area is affected by shoreline structures and that steps to prevent armoring of the remaining unarmored sections of the shore will help protect the regional sand supply. RECAP Report made two recommendations to prevent the armoring of the remaining unarmored sections of the shoreline. Preliminary Recommendation V-2 states:

The Commission should, as a condition of new development for demolition and rebuilding of structures subject to wave hazards, require that new development be sited outside areas subject to wave hazard or built on caissons and setbacks as far landward as possible. As part of reconstruction, require alternatives for waste treatment, including the redesign and/or relocation of septic systems which may avoid the need for bulkheads or retaining walls. ...

Under current Coastal Act policies, the Commission has approved numerous applications for shoreline armoring that have come before it in the past 19 years in Malibu. While these actions are not as significant as the impacts on the development existing prior to the Coastal Act, the result is still a contribution to the cumulative armoring of the shoreline with resultant adverse impacts to sandy beaches and shoreline processes. The cumulative effect of these authorizations is that since 1978, an additional 2.8 miles of shoreline has been approved for armoring along the Malibu coast. Representing about nine percent of the project area's shoreline, with the average size of a vertical wall or revetment, about 3.5 acres of beach area has been covered by shoreline armoring in Malibu since 1978. This additional armoring

represents beach area lost to recreational use and sand lost to the littoral system. When added to the amount of shoreline armored prior to 1978 and the armoring for which no permit has been identified (about 0.6 miles) the result is that a total of about 14.8 miles, or roughly 45 % of the project area shoreline is affected by shoreline structures. Unless future armoring is avoided, RECAP's projections of future buildout of shoreline lots indicate that up to five miles of additional shoreline (or an additional 15 % of the project area shoreline) could be armored with hard structures. The remaining unarmored area would consist mostly of public parks or un-threatened bluff areas.

It is important to note that in areas currently built out, the greatest opportunity to avoid or minimize additional armoring is in projects where major demolition or redevelopment is likely to occur. In these cases, measures could be instituted through permits and LCP's to re-site structures landward or to place structures on pilings to allow sand movement under the houses so no shoreline protective device is needed.

RECAP included an additional recommendation to require in projects involving demolition and reconstruction of existing development that any permitted shoreline structures be set back landward from the landward most Mean High Tide Line as far as possible. Preliminary Recommendation V-3 states:

Require in the review of coastal development permits for new development and for demolition and reconstruction of existing development, any permitted shoreline structures be setback as far back as possible from the landward most mean high tideline (MHTL) regardless of the presence of protective devices on adjacent lots. The stringline for shoreline protective devices should be applied in a manner to ensure that it is applied only as a maximum extent of development and only if no further landward setback is possible. Similar requirements should be incorporated into the LCP planning for the City of Malibu.

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.

These reports were reviewed by both the Commission staff's coastal engineer and geologist. Lesley Ewing, the staff coastal engineer, prepared a memo on March 22, 2000 (attached as Exhibit 6) concluding that the applicant's engineer has not demonstrated that a seawall or bulkhead is needed to protect the existing structure from erosion. Lesley Ewing states:

As noted above, the application has not demonstrated that there is an existing structure in danger from erosion. This structure has been in place since the 1970's and has withstood all the storms that were used as design conditions for the proposed bulkhead. Again, Mr. Weiss has stated his opinion that this is not an eroding beach, nor has he presented any evidence that conditions at the beach or coast have changed so that the current structure is at risk now from conditions that did not threaten it previously. The deterioration of the foundation can be handled as a maintenance issue, looking at either Option 5 or 6 (project alternatives discussed below).

Mark Johnsson, the Commission staff geologist prepared a memo on March 27, 2000 (attached as Exhibit 7) also concluded that the applicant's engineer has not demonstrated that a seawall or bulkhead is needed to protect the existing structure from erosion. Mark Johnsson states:

From a geologic point of view, it is my opinion that the applicant has not demonstrated the need for the structure. As indicated in the "Coastal Engineering Report" by David Weiss, dated 5 July 1999, the beach at the subject site does not appear to be undergoing erosion that would threaten the structure. In his letter to you dated 27 January 2000 he identifies two threats to the property that could result from the removal of sand from beneath the structure as a part of normal reworking of the beach: 1) excessive or differential settlement, and 2) exposure of the piles supporting the structure to damage by floating debris during wave runup. The applicant documents neither the depths of the existing piles nor any settlement that has occurred since the construction of the building. Without either piece of information, it is difficult to evaluate the magnitude of the first type of risk. For example, if the piles are, in fact, seated in the bedrock beneath the beach deposits at the site, then this risk is very small; the applicant's engineer only postulates that the piles are not so founded. The applicant has, however, documented that the structure could be placed at risk if the piles are exposed by sand loss, and then subjected to forces generated by floating debris during wave run-up of the magnitude discussed in the Coastal Engineering Report. What is missing from this analysis is documentation of a recurrence interval for such a design wave—what is the likelihood of a wave of this magnitude reaching the site?

Based upon the above review of the applicant's submitted coastal engineering and geology and soils reports, the Commission finds that the proposed project does not meet the first test of Coastal Act Section 30235. No evidence of prior damage to the subject residence was submitted. No information was submitted on changes to Carbon Beach such that it is now an eroding beach. Further, no information was submitted that the existing structure is now at risk or in danger of damage from coastal erosion. Therefore, the applicant has not demonstrated that a shoreline protective device is needed to protect an existing structure in danger from erosion.

In addition to finding that the proposed project does not meet the first test, the Commission also finds that the proposed project does not meet 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. The proposed project also has the potential to cause adverse impacts on sand supply through "end effects", the increase in erosion adjacent to the bulkhead due to wave action around the end of the bulkhead. The adverse impacts from scour and end effects are discussed in more detail below in section 5. 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. The adverse effects from option 2 would be less than from option 1; nevertheless both could result in increased localized scour and end effects.

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"<sup>1</sup> 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."<sup>2</sup> 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."<sup>3</sup>

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

<sup>2</sup> 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.

<sup>3</sup> 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 22<sup>nd</sup> International Coastal Engineering Conference, Delft, The Netherlands, American Society of Civil Engineers, pg. 2810 - 2823.

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.

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.

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 far 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. Options 4 and 5 both minimize adverse effects on local sand supply. The alternatives analysis does not provide any comparison of the costs or the ability to construct these two options; however, from the standpoint of impacts to coastal resources, the two options seem similar. Both options are environmentally preferable to either the applicant's proposal or to option 2.



## 6. Conclusion

Staff has reviewed these alternatives and past Commission action on similar projects to these options. Options four and five are the least intrusive options on the local shoreline sand supply and the beach environment. It is important to note that the Commission has approved four Coastal Permits to strengthen the foundation and piles of four residences along La Costa Beach downcoast of Carbon Beach at the January 13, 2000 Commission meeting. Coastal Permit Numbers 4-99-141 (O'Hara), 143 (Bettleman), 144 (Allen), and 145 (Bridges) were approved to install bracing, concrete and rebar jackets on existing piles supporting four separate residences. These applicants proposed to enclose either three or four existing wood piles in a protective reinforced concrete jacket with epoxy coated rebar and brace the existing piling system. Therefore, the Commission finds that constructing a new bulkhead is not the environmentally preferred feasible alternative. The Commission finds that an alternative to strengthen the existing piles or replace them with new piles and a foundation will minimize the beach scour effects of the shoreline protective device and ensure the project will minimize any significant adverse effects on the local shoreline sand supply or shoreline processes. The Commission also finds that the proposed project will not minimize risks to life and property in areas of flood hazard and assure stability and structural integrity that will not require the cumulative construction of additional shoreline protective devices on downcoast properties that could substantially alter the natural landform along the beach and bluff. Therefore, the proposed project is not consistent with Sections 30235 and 30253 of the Coastal Act.

### 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. It is important to note that the proposed project is not located on the landward portion of the beach as far landward as feasible. 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 century<sup>4</sup>. Sea level rise is expected to increase by 8 to 12 inches in the 21<sup>st</sup> century.<sup>5</sup> 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.

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<sup>4</sup> 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.

<sup>5</sup> Field et. al., Union of Concerned Scientists and the Ecological Society of America (November 1999) Confronting Climate Change in California, [www.ucsusa.org](http://www.ucsusa.org).

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 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 not located as landward as feasible.

### **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 past permit actions, the Commission has required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts to the sand supply and public access resulting from the development. The Commission notes that the applicant has not located the proposed bulkhead or alternative project as landward as feasible to minimize scour and erosion of the sandy beach. An alternative design, such as strengthening existing piles or replacing them with new piles, could be proposed by the applicant to further reduce any impact on the sandy beach and public tidelands. 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.

Further, 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. Although in this case the applicant has offered an easement for lateral public access in the subject application, alternative designs addressing the pilings thereby avoiding the need for a shoreline protective device have not been proposed. Lastly, the applicant has not demonstrated a need for the proposed shoreline protective device as noted above.

Therefore, the Commission finds that the proposed project is not 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 not be in conformity with the provisions of Chapter 3. The proposed development will create adverse impacts and is found to be inconsistent with the applicable policies contained in Chapter 3. Therefore, the Commission finds that approval of the proposed development will 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 have significant adverse effects on the environment and that there are 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 inconsistent with the requirements of CEQA and the policies of the Coastal Act.



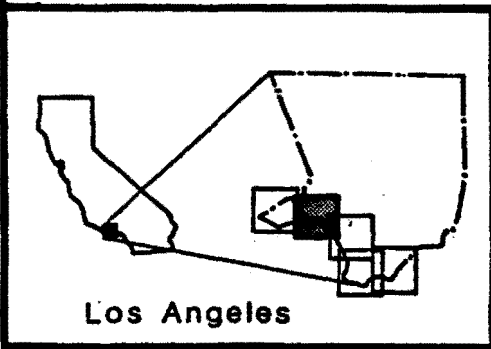
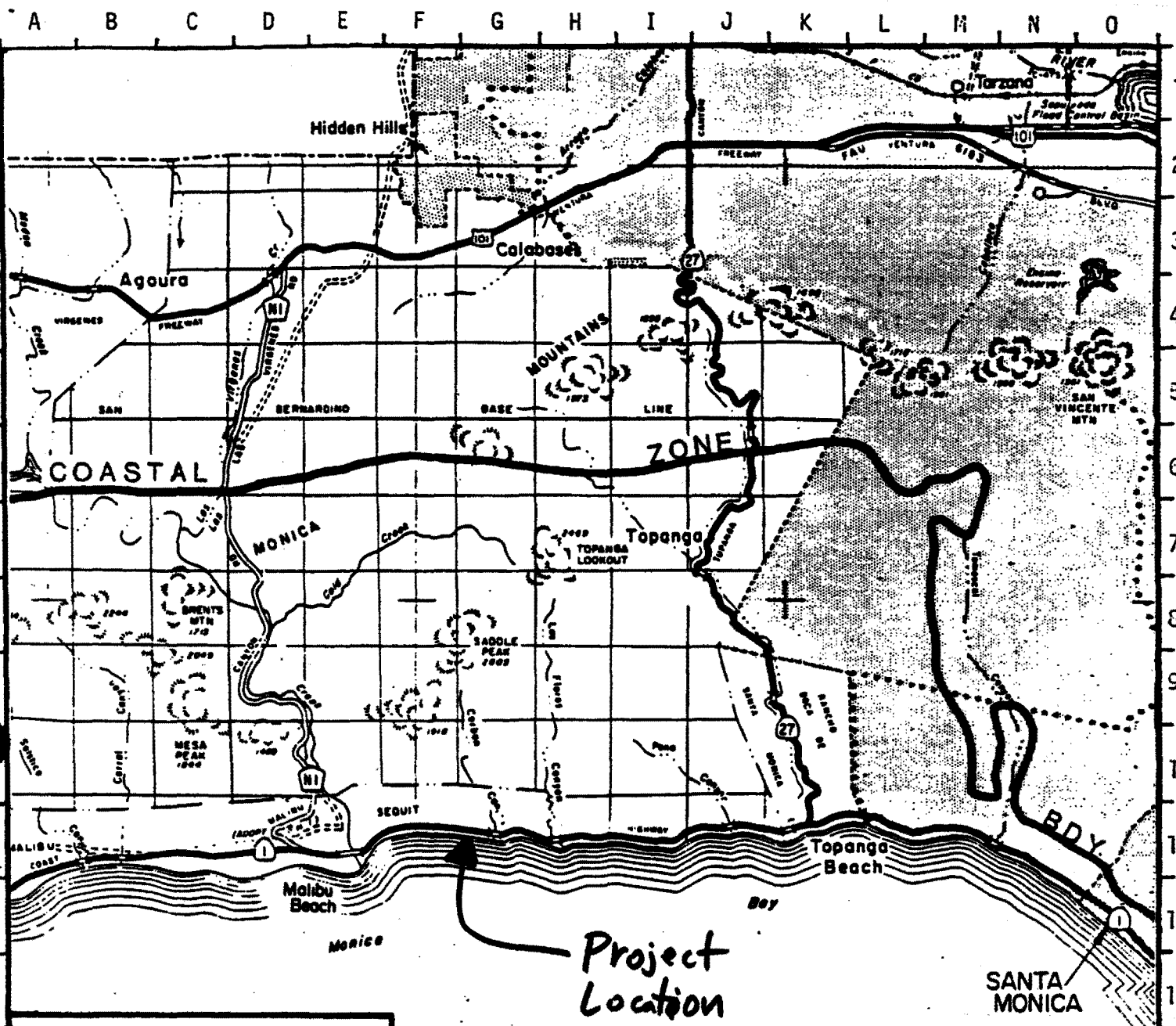
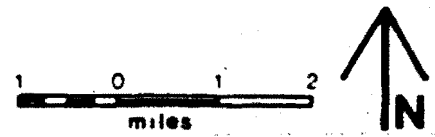
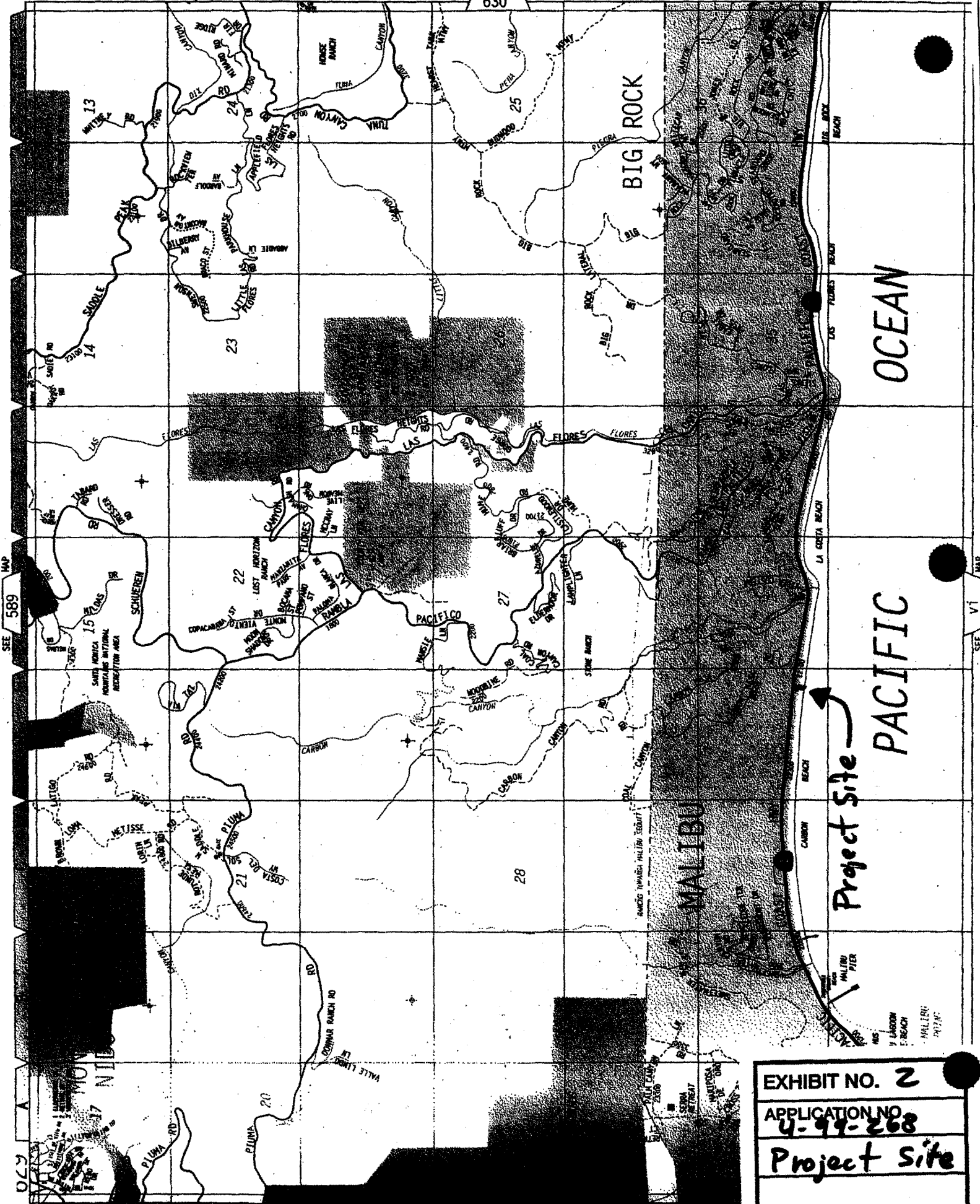


EXHIBIT NO. 1
APPLICATION NO. 4-19-268
Project Location



**LOCATION MAP**



SEE 589 MAP

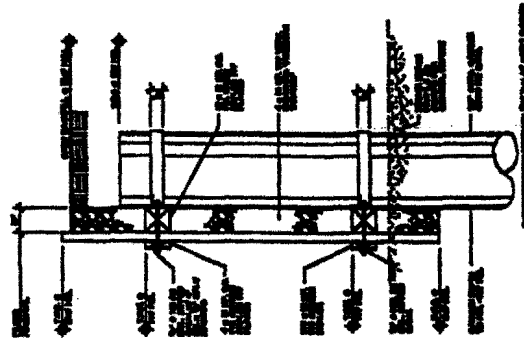
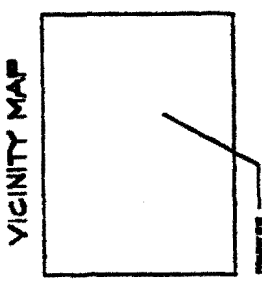
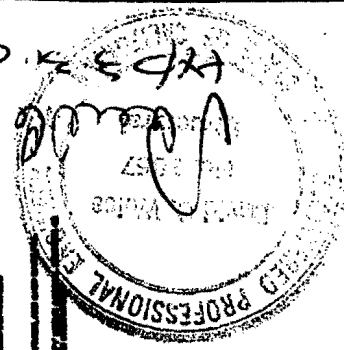
SEE V1 MAP

Project Site →  
 PACIFIC OCEAN

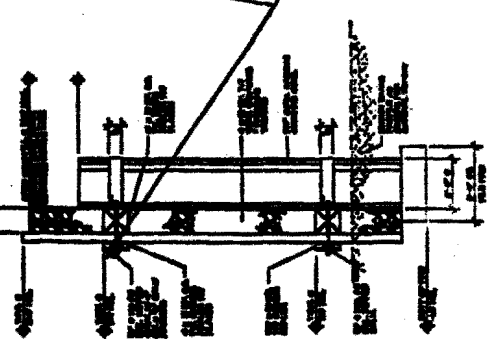
EXHIBIT NO. 2  
 APPLICATION NO.  
 4-99-268  
 Project Site

26

- 1. EXISTING STRUCTURE
- 2. PROPOSED STRUCTURE
- 3. PROPOSED REPAIRS
- 4. PROPOSED DEMOLITION
- 5. PROPOSED FOUNDATION
- 6. PROPOSED ROOFING
- 7. PROPOSED INTERIORS
- 8. PROPOSED EXTERIORS
- 9. PROPOSED MECHANICAL
- 10. PROPOSED ELECTRICAL
- 11. PROPOSED PLUMBING
- 12. PROPOSED PAINTING
- 13. PROPOSED LANDSCAPING
- 14. PROPOSED SIGNAGE
- 15. PROPOSED ACCESS
- 16. PROPOSED UTILITIES
- 17. PROPOSED SCHEDULE
- 18. PROPOSED BUDGET
- 19. PROPOSED PERMITS
- 20. PROPOSED INSURANCE



*Bulkhead Added to Photo  
will be buried most of time*



Mean High Tide  
April 23, 1997

Mean High Tide  
March 1967

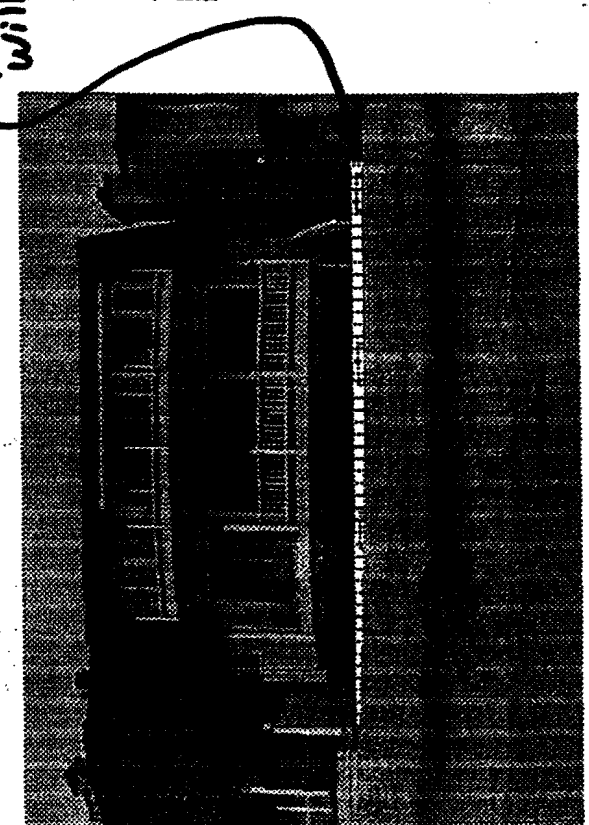
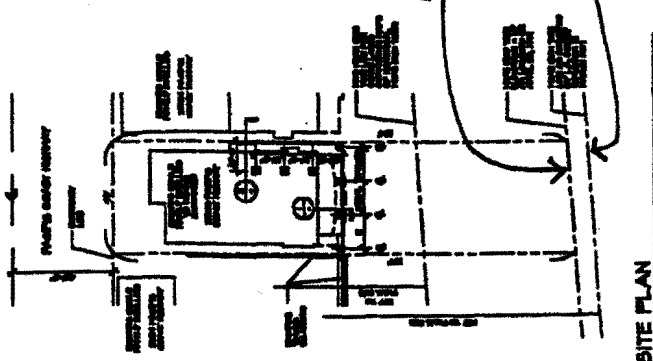


EXHIBIT NO. 3  
APPLICATION NO. 4-99-268  
Project Plan  
& Photo

FRONT BULKHEAD ELEVATION



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 1-800-735-2922  
from Voice Phone 1-800-735-2929

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
1-4-00

January 26, 2000

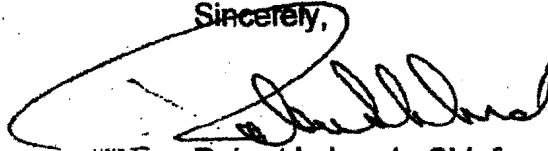
Susan McCabe

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

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State Lands	
Letter 2 of 2	

**CALIFORNIA COASTAL COMMISSION**

45 FREMONT, SUITE 2000  
 SAN FRANCISCO, CA 94105-2219  
 VOICE AND TDD (415) 904-5200  
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3/22/00

TO: James Johnson

FROM: Lesley Ewing

SUBJECT: Application for Wood Protective Bulkhead Wall, David Geffen, 22108 Pacific Coast Highway, Malibu

EXHIBIT NO.	6
APPLICATION NO.	4-99-268
Memo from Lesley	
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Your cover memo discusses construction that occurs at the neighboring property, also owned by Mr. Geffen and provided a staff report from 1991 for the neighboring bulkhead. My believe is that this was provided to indicate what was acceptable in 1991 for approval of a bulkhead. As you know, seawalls and bulkheads receive far more scrutiny now than they did in the early 90's and my comments will address what we would hope to see today in an application for a new seawall or bulkhead.

Section 20235 of the Coastal Act provided the only basis whereby the Commission is in the position that it may be required to approve an application for a seawall –

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.

The most applicable portion of this section for the subject property is to protect an existing structure in danger from erosion. However, Mr. Weiss has provided references and personal observations in support of his belief that the beach is at least in equilibrium, and is an oscillating beach. The stated dangers to the existing structure are that the foundation is not now adequate to protect the structure from settling, or, if a pile were to be struck by floating debris, a possible disastrous collapse. The discussion on page 2 of the January 27, 2000 report notes that the foundation was installed in the 1970's and was built to the minimum standard of practice that was used then. Both Option 4 and Option 5 clearly identify that work on the foundation could remedy the situation and provide the existing structure with a foundation that would be adequate to protect against the same concerns that initiated the request for a bulkhead. One other option that was not considered could be to elevate the structure on a new foundation, or to relocate the existing structure to a less hazardous location.

At this point, it does not seem that the applicant's engineer has demonstrated that a seawall or bulkhead is needed to protect the existing structure from erosion. It would not then fit with Section 30235; however, if a seawall were to be found to be the least environmentally damaging feasible alternative, it should be required to be designed to eliminate or mitigate adverse impacts on local sand supply.

The discussion of a more landward location for a bulkhead points out some of the consequences of putting structures of any kind in the path of ocean waves. Mr. Weiss highlights several dangerous situations that could arise from this bulkhead design – both dangerous to Mr. Geffen's property and even more dangerous to the neighboring property. This brings into question whether the initial location for a bulkhead would be completely free of any potential danger. If any type of bulkhead can be found to be consistent with the Coastal Act, it may be important to also require greater tie-down of the decking to protect against the various dangers noted by Mr. Weiss.

In review of the overall submittal, there are many elements that are missing.

As noted above, the application has not demonstrated that there is an existing structure in danger from erosion. This structure has been in place since the 1970's and has withstood all the storms that were used as design conditions for the proposed bulkhead. Again, Mr. Weiss has stated his opinion that this is not an eroding beach, nor has he presented any evidence that conditions at the beach or coast have changed so that the current structure is at risk now from conditions that did not threaten it previously. The deterioration of the foundation can be handled as a maintenance issue, looking at either Option 5 or 6.

Page 87 of the Beach Erosion and Response Document provides a quick checklist of information that we normally expect to receive for a new seawall project. This is an easier to read version of the guidance document referenced by Mr. Weiss. Routinely we require an application for a new seawall provide various site maps and cross-sections that provide a good representation of the entire site and site conditions. Mr. Weiss has provided a "Design Beach Profile" referenced to MLLW, that is at an unreadable scale. Horizontal scale is noted as being 1" = 50'0", however, the scaling on the profile seem more like 1" = 100'. Likewise the stated vertical scale does not match the scaling provided on the plan. The profile shows the design beach profile, the surveyed beach profile, the HMT line 1967, MHT 1999, 1928 MHT line, at an unreadable scale. Maps are a tool to provide information; the maps/profiles provided by Mr. Weiss indicate that information is available, but do not make this information available.

We should be provided a readable profile, or profiles of the beach and the full lot. The profile or profiles should show the location of the structure that is to be protected, the full limits of the lot, the full range of beach conditions that have been surveyed for the site, or for a neighboring area that can reasonable be expected to represent this property, and the proposed location for the protective device. Plans of the site should also show the existing structure, property boundaries, any adjudicated boundaries and any surveyed MHT line locations (with name of surveyor and date of survey.)

Since the beaches in front of most properties are not surveyed regularly, many coastal engineers use the wealth of aerial photographs to supplement survey information. Mr. Weiss notes only a 1961 MHT line, a 1967 MHT line and the 1999 Quiros survey and makes no mention of any aerial photographs. The full listing of available surveys should be provided along with any other records that could be used to evaluate site conditions. Page 4 of the July 5, 1999 report states that "site evidence suggests that this (the 1928 shoreline) has not been the most extreme

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Memo from Lesley



shoreward foreshore slope movement." Mr. Weiss should expand on this and provide this evidence for a more shoreward movement.

Mr. Weiss has identified the wave and tide conditions that have been used in the design of the proposed bulkhead/seawall. If this project is found to be necessary, the detailed engineering design plans and calculations should include some estimate for changing conditions – such as sea level rise, changes to beach conditions, or others. The proposed design conditions only address the situation that exists today. The detailed engineering material has not been submitted; however, when it is, it should indicate how this structure would adapt to changing conditions.

Site geology is critical to preparation of acceptable engineering designs. Mr. Weiss has proceeded with an engineering plan without obtaining site geology, and has made engineering recommendations before "spending money on expensive geotechnical studies." It is commendable that Mr. Weiss will try to minimize costs to the applicant; however, it is penny wise and pound foolish to recommend an engineering solution without knowledge of the geologic conditions that could affect the design. Geotechnical information is required for almost every development application and should be required for this project. A Limited Geologic and Soils Engineering Study has been provided and I will give this to our Geologist for review.

Construction can itself have significant impacts on the beach, beach access and habitat areas. The engineering report should indicate how the project would be constructed and note any access that will be required for construction equipment.

The engineering report should estimate the expected life of the bulkhead, necessary monitoring or inspection efforts that should occur and the type and frequency of maintenance that could be required. To the extent practicable, this should be provided for every feasible alternative, since projects may have very different long-term impacts and maintenance requirements.

Finally, while not an engineering issue, the applicant needs to establish that he either holds title to the land upon which the seawall/bulkhead will be build, or that the property owner/easement holder has given permission to proceed with this work. There was no indication that the State Lands Commission has been contacted on this project, but that may be with another part of the file that I did not review.

I look forward to our site visit March 28<sup>th</sup>. At that time, I may be able to add to or clarify this memo.

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