

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
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Filed: 7/19/99
49th Day: 9/6/99
180th Day: 1/15/00
Staff: CAREY *ja*
Staff Report: 7/22/99
Hearing Date: 8/13/99



STAFF REPORT: REGULAR CALENDAR

APPLICATION NO: 4-99-075

APPLICANT: Bomel Malibu LLC

AGENT: Barsocchini and Associates

PROJECT LOCATION: 24420 Malibu Road, City of Malibu, Los Angeles County

PROJECT DESCRIPTION: Demolition of single family residence and construction of 3,609 sq. ft., 28 ft. high from existing grade single family residence with 2-car garage, bottomless sand filter septic system, timber bulkhead and offer to dedicate lateral public access on a beachfront lot.

Lot area:	6,216 sq. ft.
Building coverage:	1,922 sq. ft.
Pavement coverage:	461 sq. ft.
Ht above ext grade:	28 ft.

LOCAL APPROVALS RECEIVED: City of Malibu Approval in Concept, Environmental Health Department In-Concept Approval, and Geologic Review Sheet

SUBSTANTIVE FILE DOCUMENTS: Wave Uprush Study, dated 1/27/98; Geotechnical Engineering Report, dated 7/2/98, Addendum Letter No. 1, dated 11/9/98, and Addendum Letter No. 2, dated 12/29/98, all prepared by RJR Engineering Group, Inc.; Permit 4-94-115 (Gadraz)

SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval of the proposed project with Special Conditions relating to the applicant's assumption of risk, implementation of the applicant's offer to dedicate lateral public access, conformance with geologic recommendations, construction responsibilities, and sign restrictions. Only as conditioned to record an assumption of risk deed restriction, to conform with the geotechnical consultant's recommendations, and to remove all construction debris will the proposed project minimize risks to life and property, consistent with §30253. The project, as conditioned to implement the applicant's offer to dedicate lateral public access, and to require permits for signs, will minimize impacts to public access, consistent with §30210, §30211, §30212, and §30220 of the Coastal Act.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

I. Approval with Conditions

The Commission hereby grants, subject to the conditions below, a permit for the proposed development on the grounds that the development, as conditioned, will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976, will not 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 of the Coastal Act, is located between the sea and the first public road nearest the shoreline and is in conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and will not have any significant adverse effects on the environment within the meaning of the California Environmental Quality Act.

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. **Compliance.** All development must occur in strict compliance with the proposal as set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
4. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
5. **Inspections.** The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.
6. **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.
7. **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. Applicant's Assumption of Risk

- A. By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from landsliding, storm waves, erosion, flooding, or wildfire; (ii) 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; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.
- B. Prior to issuance of the coastal development permit, the 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. 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.

2. 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 mean high tide line landward to the dripline of the approved decks as illustrated on the site plan prepared by Barsocchini and Associates, Inc. and dated September 2, 1998.

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(s) 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.

3. 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 Assessor's Parcel Number 4458-11-025, located seaward of the residence or timber bulkhead permitted in this application 4-99-075 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 is required to submit to the Executive Director for review and approval prior to posting the content of any proposed signs.

4. Geology

All recommendations contained in the Wave Uprush Study by Pacific Engineering Group dated 1/27/98, Geotechnical Engineering Report, dated 7/2/98, Addendum Letter No. 1, dated 11/9/98, and Addendum Letter No. 2, dated 12/29/98, all prepared by RJR Engineering Group, Inc, shall be incorporated into all final design and construction including recommendations concerning drainage, foundations, and septic system, and all plans must be reviewed and approved by the consultants prior to commencement of development. Prior to issuance of the coastal development permit, the applicant shall submit evidence to the Executive Director of the consultants' review and approval of all final design and construction plans.

The final plans approved by the consultant shall be in substantial conformance with the plans approved by the Commission relative to construction, grading and drainage. Any substantial changes in the proposed development approved by the Commission which may be required by the consultant shall require an amendment to the permit or a new coastal permit. The Executive Director shall determine whether required changes are "substantial".

5. Construction Responsibilities and Debris Removal

No stockpiling of construction materials or storage of equipment shall occur on the beach and no machinery will be allowed in the intertidal zone at any time. The permittee shall immediately remove from the beach area any and all debris that results from the construction activities.

IV. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description and Background.

The applicant proposes the demolition of an existing single family residence and the construction of a 3,609 sq. ft., 28 ft. high from existing grade single family residence with 2-car garage, bottomless sand filter septic system, timber bulkhead with rock blanket, and offer to dedicate lateral public access on a beachfront lot. The proposed project site is located on the east end of Puerco Beach, a heavily developed beach, in the City of Malibu. The site takes access from Malibu Road, seaward of Malibu Bluffs State Park. The project vicinity map is shown in Exhibit 1. The assessor's parcel map for the immediate area is Exhibit 2. Exhibit 3 is the site plan for the proposed residence.

The proposed project includes the construction of an alternative private sewage disposal system to serve the wastewater disposal needs of the proposed residence. This system includes a 2000-gallon septic tank and a 360-sq. ft. intermittent sand filter at street level, as well as a 262-sq. ft. bottomless sand filter at beach level. This type of system allows for a smaller area at beach level than conventional septic systems. Owing to the geology of the site, the proposed septic system cannot be constructed any further landward. The City of Malibu Environmental Health Department has given in-concept approval for the proposed septic system.

The proposed bulkhead be located beneath the proposed residence and would extend across the width of the project site, with a return wall on the downcoast property line and tying into an approved wall on the upcoast property. The applicant's engineering consultants state that the bulkhead, along with a rock blanket behind, is necessary to protect the drainfield for the new septic system, which would be located at beach level beneath the proposed residence and within the wave uprush zone. The rock blanket, consisting of a layer of rocks placed on top of the bottomless sand filter and behind the timber bulkhead, would serve to protect this portion of the septic system from erosion resulting from wave splash.

Prior Commission Actions

The Commission has approved development on the lot located immediately upcoast of the proposed project site. Permit 4-94-115 (Gadraz, Inc.) was approved for the construction of a 2,822 sq. ft. addition to an existing 4,696 sq. ft. single family residence on two adjacent beachfront lots, new septic system, pool, and extension of bulkhead. This permit was approved with special conditions relating to assumption of risk, lateral public access offer to dedicate, geology, wild fire waiver of liability, and construction debris removal. This permit approved the construction of an extension to an existing single family residence on the adjacent vacant parcel. A new conventional septic

system was approved along with the construction of an extension to the existing vertical concrete seawall across the vacant lot to protect the approved septic system. This approved development is currently under construction.

B. Shoreline Protective Devices.

The applicants propose to demolish an existing residence and construct a new residence on caissons with a vertical timber bulkhead beneath the residence. The proposed bulkhead would extend across the width of the project site, with a return wall on the downcoast property line and tying into an approved wall on the upcoast property. The location of the proposed bulkhead is shown on Exhibit 3. Additionally, the cross section on Exhibit 5 shows the location of the proposed bulkhead relative to the structure and septic system. The applicant's consulting engineers state that the bulkhead, along with a rock blanket behind, is necessary to protect the drainfield for the new septic system, which would be located at beach level beneath the proposed residence. The rock blanket, consisting of a layer of rocks placed on top of the bottomless sand filter and behind the timber bulkhead, would serve to protect this portion of the septic system from erosion resulting from wave splash. The applicant's wave uprush report identifies that the wave uprush zone on this beach would extend up to a line approximately 26 feet seaward of Malibu Road.

The project site contains two levels, an upper level adjacent to Malibu Road, a lower beach level, with a steep slope between (The cross section in Exhibit 5 shows this topography). The existing residence on site, which assessor's records indicate was constructed in 1956, occupies approximately the same area as the proposed structure would. A survey of the existing structure indicates that the proposed new residence would extend approximately the same distance seaward. The applicant indicates that the existing building footprint is approximately 1,723 sq. ft. while the proposed building footprint would be 1,922 sq. ft. The existing residence does not currently employ any shoreline protective device. The existing septic system is located in an open courtyard area adjacent to the existing driveway and between Malibu Road and the house.

In response to recent Commission actions on shoreline development as well as staff's concerns, the applicant's consultants considered alternative designs for the proposed project to avoid or minimize impacts to shoreline processes and public access. One alternative was to locate any proposed septic system sufficiently landward so that it would be outside the wave uprush zone and would not require protection. In many cases, seepage pits can be placed between a house and the road, beneath a driveway or courtyard. In this case, the geologic investigation of the site (discussed in greater detail below) indicated that the upper area is underlain by road fill material and ancient landslide debris. The geologic and geotechnical consultants concluded that septic effluent must not be discharged into these materials both because the introduction of water into the landslide materials could contribute to instability and because road fill and landslide material would not provide appropriate percolation. Additionally, as noted below, the road fill and landslide debris materials extend over 30 feet deep under the

site near Malibu Road. As such, the consultants determined that a drainfield for percolation into sand should be provided at beach level.

The applicant's consultants also considered alternative technologies for the septic system. A conventional system including a septic tank at street level and a leach field at beach level, as well as an alternative system with a septic tank and intermittent sand filter at street level and bottomless sand filter at beach level were considered. The alternative system was selected because with this technology, a smaller field may be provided at beach level. In this case, a bottomless sand filter measuring 5 ft. by 52.5 ft. is necessary to serve the proposed residence. The septic system plan is shown on Exhibit 8. This occupies less area than a leach field sized for the same development would occupy. As a point of comparison, the septic system approved for the development on the adjacent upcoast parcel (Permit 4-94-115) included a 10-ft. by 45-ft. leach field at beach level. The applicant's architect estimates that a leach field for the proposed development would need to be at least 5 ft. wider than the proposed bottomless sand filter. Since the bottomless sand filter system alternative would occupy less area, the shoreline protective device could be located further landward. In this case, the proposed bulkhead would be located approximately 5 feet further landward than if a conventional septic system were proposed.

Because the wave uprush zone on the proposed project site extends to within 26 feet of the road, the proposed septic system, which includes a bottomless sand filter placed at beach level, would need to be protected from waves through the construction of a shoreline protective device. The applicant's coastal engineering consultant considered two alternative types of protective device, a rock revetment, and a vertical timber bulkhead. According to the consultant, a rock revetment designed for this site would need to be approximately 28 feet wide at the base and would occupy a significant area of the beach, including area seaward of the proposed structure and decks. Alternatively, the vertical wall would be located beneath the proposed structure.

After identifying the applicable Coastal Act sections upon which the Commission relies as the standard of review of the proposed project, and the certified Malibu/Santa Monica Mountains Land Use Plan (LUP) policies upon which the Commission has relied as guidance in past permit decisions, the discussion of the impacts of the shoreline protective device will proceed in the following manner:

First, the staff report describes the physical characteristics of the Puerco Beach shoreline; second the report analyzes the dynamics of the Puerco Beach shoreline; and third, the report analyzes the location of the proposed shoreline protective device in relation to wave action. Finally, the report evaluates whether the proposed shoreline protective device is warranted, weighing the available evidence in light of the Coastal Act requirements and the past guidance of the LUP policies, and whether the proposed revetment will adversely impact the shoreline sand supply and shoreline processes.

Section 30235 of the Coastal Act states that:

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 30250(a) states that:

(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.

Section 30253 states that:

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.

Additionally, to assist in the determination of whether a project is consistent with sections 30235, 30250(a), and 30253 of the Coastal Act, the Commission has, in past Malibu coastal development permit actions, looked to the certified Malibu/Santa Monica Mountains Land Use Plan (LUP) for guidance. The Malibu LUP has been found consistent with the Coastal Act and provides specific standards for development along the Malibu coast. For example, policies 166 and 167 provide, in concert with Coastal Act section 30235, that revetments, seawalls, cliff retaining walls and other shoreline protective devices be permitted only when required to serve coastal-dependent uses, to protect existing structures or new structures which constitute infill development and only when such structures are designed and engineered to eliminate or mitigate the resultant adverse impacts on the shoreline sand supply. In addition, Policy 153 indicates that development of sites that are exposed to potentially heavy tidal and wave action shall require that development be set back a minimum of ten (10) feet landward from the mean high tide line.

1. Site Shoreline Characteristics and Beach Erosion Pattern

The City of Malibu includes a narrow strip of coast that is some 27 miles long, backed inland of Pacific Coast Highway and frontage streets by the Santa Monica Mountains. The applicants' proposed project is located on Puerco Beach, a narrow sandy beach backed by bluffs inland of Malibu Road. The Puerco Beach area is heavily developed, the parcels are small and generally built out with either single or multiple family residences.

Having defined Puerco Beach as a narrow, heavily developed beach, the next step is to consider the overall trend of sand supply on the beach. Evaluating whether or not a pattern of beach erosion exists is the key factor in determining the impact of the proposed seawall on the shoreline. Generally, beaches fit into one of three profile categories: 1) eroding; 2) equilibrium, or 3) accreting. The persistent analytical problem in dealing with shore processes in California is distinguishing long-term trends in shoreline change from normal seasonal or cyclical variation.

The applicants have submitted a wave uprush study dated January 27, 1998, prepared by Pacific Engineering Group. The applicant's consultants state that Puerco Beach is considered an oscillating beach with a seasonal foreshore slope movement that can be as much as 45 feet. Puerco Beach has been identified by others as an eroding beach. The U.S. Army Corps of Engineers, Los Angeles District, identifies Puerco Beach as trending from stable to slowly eroding (Reconnaissance Study of the Malibu Coast, 1994). An earlier study, titled Shoreline Constraints Study, by Moffatt and Nichols (June 30, 1992) determined that Puerco Beach is a slightly eroding beach, retreating at a rate of one-fourth to three-fourths of a foot per year, and provides confirmation of the Army Corp analysis that the beach shows evidence of a long term erosional trend.

Furthermore, the Commission notes that many studies performed on both equilibrium and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device is placed. Therefore, based on the preponderance of evidence of these studies, considered in conjunction with site-specific evidence of beach erosion, the Commission concludes that the site proposed for placement of a seawall is located on an eroding beach.

2. Location of the Proposed Shoreline Protective Device in Relation to the Mean High Tide Line and Wave Action.

The Commission notes that loss of beach is widely understood to occur when shoreline protective devices are placed on equilibrium or eroding beaches. To determine what the impacts of the proposed revetment on the shoreline are likely to be, the location of the proposed protective device in relationship to the expected wave runoff as calculated by the Mean High Tide Line (MHTL) must be analyzed.

a. Mean High Tide Line

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. The applicant has submitted no information with regard to the location of the proposed development in relation to documented locations of the Mean High Tide Line. However, the applicant has submitted a letter from the State Lands Commission (SLC) dated July 2, 1998 indicating that the State Lands Commission has reviewed the proposed project, including the bulkhead and presently does not assert a claim that the project intrudes onto sovereign lands.

b. Wave Uprush

The Wave Uprush Study dated January 27, 1998, prepared by Pacific Engineering Group Wave Uprush Study, referenced above, indicates that the maximum wave uprush at the subject site extends within 26 feet seaward of Malibu Road. As noted in this report, the proposed bulkhead is needed to protect the proposed septic system, as the bottomless sand filter area would be located within the wave uprush zone. The report acknowledges that the proposed bulkhead will be exposed to wave uprush from non-storm waves at high tide as well as storm waves, both in the winter season.

It is important to accurately calculate the potential of wave runup and wave energy to which the seawall will be subject. Dr. Douglas Inman, a widely recognized authority on Southern California shoreline processes, states that¹:

While natural sand beaches respond to wave forces by changing their configuration into a form that dissipates the energy of the waves forming them, seawalls are rigid and fixed, and at best can only be designed for a single wave condition. Thus, seawalls introduce a disequilibrium that usually results in the reflection of wave energy and increased erosion seaward of the wall. The degree of erosion caused by the seawall is mostly a function of its reflectivity, which depends upon its design and location.

In past permit actions, the Commission has found that one of the most critical factors controlling the impact of a shoreline protective device on the beach is its position on the beach profile relative to the surf zone. All other things being equal, the further seaward the device is, the more often and more vigorously waves interact with it. The best place for a revetment or seawall, if one is necessary, is at the back of the beach where it provides protection against the largest of storms. By contrast, a shoreline protective device situated too close to the MHTL is likely to cause constant interference with normal shoreline processes, resulting in frontal and end scour of the beach adjacent to

¹ Letter from Dr. Inman to Coastal Commission staff civil engineer Lesley Ewing dated February 25, 1991.

and seaward of the wall, in addition to upcoast sand impoundment.

Based on the above discussion, the Commission finds that the proposed timber bulkhead, at its proposed location, has the potential to encroach into an area of the beach that is currently subject to wave action during storm and high tide events. As previously discussed, the Commission finds that Puerco Beach is a narrow, eroding beach and that the proposed bulkhead will, at times, be subject to wave action during storm and/or high tide events. Therefore, the following section evaluates the impacts of the proposed bulkhead on the beach based on the above information that identified the specific structural design, the location of the structure, and the shoreline geomorphology.

3. Effects of the Shoreline Protective Device on the Beach

As described above, the proposed timber bulkhead would be constructed beneath the proposed residence, 5 ft. seaward of the proposed bottomless sand filter component of the septic system. Owing to the geology of the site, the proposed septic system cannot be constructed any further landward. As such, the bulkhead needed to protect the septic system would be at the most landward location that is feasible. Nonetheless, the proposed bulkhead would be located within the wave uprush zone and as the result of wave interaction, would still have the potential to adversely impact the configuration of the shoreline and the beach profile.

Although the precise impact of a structure on the beach is a persistent subject of debate within the discipline of coastal engineering, and particularly between coastal engineers and marine geologists, it is generally agreed that a shoreline protective device will affect the configuration of the shoreline and beach profile. Adverse impacts upon the shoreline may accrue as the result of beach scour, end scour (undermining of the beach areas at the ends of the seawall), the retention of potential beach material behind the wall, the fixing of the back beach and the interruption of alongshore processes. To evaluate these potential impacts relative to the proposed structure and its location at Puerco Beach, each of the identified effects will be evaluated below.

a. Beach Scour

Scour is the removal of beach material from the base of a cliff, seawall or revetment due to wave action. The scouring of beaches caused by seawalls and revetments is a frequently observed occurrence. When waves impact a hard surface such as a coastal bluff, rock revetment, or vertical bulkhead, some of the energy from the wave is absorbed, but much of the energy is reflected back seaward. This reflected wave energy in combination with the incoming wave energy, will disturb the material at the base of the seawall and cause erosion to occur in front and down coast of the hard structure. This phenomenon has been recognized for many years and the literature acknowledges that such shoreline protective devices do affect the supply of beach sand. The wave uprush study prepared by the applicants' coastal engineer notes that



the maximum wave uprush applicable to the subject site, absent a seawall or other shoreline protective device, extends to within 26 ft. of Malibu Road.

The Commission notes that the proposed, the timber bulkhead is located seaward of the maximum wave uprush and will therefore be periodically acted upon by wave action. In past permit actions, the Commission has found that shoreline protective devices that are subject to wave action tend to exacerbate or increase beach erosion. The following quotation summarizes a generally accepted opinion within the discipline of coastal engineering that:

These structures are fixed in space and represent considerable effort and expense to construct and maintain. They are designed for as long a life as possible and hence are not easily moved or replaced. They become permanent fixtures in our coastal scenery but their performance is poor in protecting community and municipalities from beach retreat and destruction. Even more damaging is the fact that these shoreline defense structures frequently enhance erosion by reducing beach width, steepening offshore gradients, and increasing wave heights. As a result, they seriously degrade the environment and eventually help to destroy the areas they were designed to protect.²

The above 1981 statement signed by 94 coastal geologists indicates that sandy beach areas available for public use can be harmed through the introduction of shoreline protective devices. Thus, in evaluating an individual project, the Commission assumes that the principles reflected in that statement are applicable. To do otherwise would be inconsistent with the Commission's responsibilities under the Coastal Act to protect the public's interest in shoreline resources and to protect the public's access along the ocean and to the water, as discussed in more detail in the subsequent section concerning public coastal access.

The impact of shoreline protective devices as they are related to sand removal on the sandy beaches is further documented by the State Department of Boating and Waterways:

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 the waves striking the wall rapidly remove sand from the beach.³

Finally this observation was underscored more recently in 1987 by Robert G. Dean in "Coastal Sediment Processes: Toward Engineering Solutions":

² Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 4.

³ State Department of Boating and Waterways (formerly called Navigation and Ocean Development), Shore Protection in California (1976), page 30.

Armoring can cause localized additional storm scour, both in front of and at the ends of the armoring...Under normal wave and tide conditions, armoring can contribute to the downdrift deficit of sediment through decreasing the supply on an eroding coast and interruption of supply if the armoring projects into the active littoral zone.⁴

Dr. Craig Everts found that on narrow beaches where the shoreline is not armored, the most important element of sustaining the beach width over a long period of time is the retreat of the back beach and the beach itself. He concludes that:

Seawalls inhibit erosion that naturally occurs and sustains the beach. The two most important aspects of beach behavior are changes in width and changes in the position of the beach. On narrow, natural beaches, the retreat of the back beach, and hence the beach itself, is the most important element in sustaining the width of the beach over a long time period. Narrow beaches, typical of most of the California coast, do not provide enough sacrificial sand during storms to provide protection against scour caused by breaking waves at the back beach line. This is the reason the back boundary of our beaches retreats during storms.⁵

Dr. Everts further concludes that armoring in the form of a seawall or revetment interrupts the natural process of beach retreat during a storm event and that:

...a beach with a fixed landward boundary is not maintained on a recessional coast because the beach can no longer retreat.⁶

The Commission has observed this phenomenon up and down California's coast where a seawall has successfully halted the retreat of the shoreline, but only at the cost of usurping the beach. For example, at La Conchita Beach in Ventura County, placement of a rock revetment to protect an existing roadway has caused narrowing of the existing beach. Likewise, at City of Encinitas beaches in San Diego County, construction of vertical seawalls along the base of the bluffs to protect existing residential development above has resulted in preventing the bluffs' contribution of sand to the beaches, resulting in narrowing.

As set forth in earlier discussion, Puerco Beach is a narrow, oscillating to receding beach. The applicants' coastal engineering consultant has indicated that the bulkhead will be acted upon by waves during high tide and storm conditions. If a seasonal eroded beach condition occurs with greater frequency due to the placement of a bulkhead on the subject site, then the subject beach would also—at a minimum—accrete at a slower rate. The Commission notes that many studies performed on both eroding and oscillating beaches have concluded that loss of beach occurs on both

⁴ Coastal Sediments '87.

⁵ Letter Report dated March 14, 1994 to Coastal Commission staff civil engineer Lesley Ewing from Dr. Craig Everts, Moffatt and Nichol Engineers.

⁶ *ibid.*

types of beaches where a shoreline protective device exists. Therefore, the Commission notes that the proposed bulkhead, over time, will result in potential adverse impacts to the beach sand supply resulting in increased seasonal erosion of the beach and longer recovery periods.

The impacts of potential beach scour are important relative to beach use for two reasons. The first reason involves public access. The subject property is located approximately 115 feet (the width of two parcels) east or downcoast of an existing vertical public accessway at 24434 Malibu Road. Additionally, there is an existing vertical accessway approximately 660 feet east or downcoast of the site at 24318 Malibu Road. These vertical accessways are shown in relation to the proposed project site on Exhibit 2. Finally, there are several existing and potential lateral access easements across several properties near the proposed project site. If the beach scours at the base of the bulkhead, even minimal scouring in front of the timber bulkhead will translate into a loss of beach sand available (i.e., erosion) at an accelerated rate than would otherwise occur under a normal winter season if the beach were unaltered. The second impact relates to the potentially turbulent ocean conditions. Scour at the face of a revetment will result in greater interaction with the revetment and thus, make the ocean along Puerco Beach more turbulent than it would be along an unarmored beach area.

Thus, the Commission has ordinarily required that shoreline protection devices be located as far landward as possible to reduce adverse impacts from scour and erosion. The applicants have provided evidence that the proposed bulkhead cannot be relocated further landward than is presently proposed because the bottomless sand filter component of the proposed septic system must be provided at beach level. The alternative technology proposed for the septic system would minimize the area devoted to the septic system, thus enabling the most landward position of the bulkhead feasible.

In past permit actions, the Commission has also required a lateral public access easement for new shoreline protection devices to mitigate adverse impacts to beach sand supply and public access. To ensure that any potential adverse effects of the proposed revetment are mitigated to the maximum extent feasible, the applicants have proposed to offer a dedication for a lateral public access easement along the beach. Special Condition 2 has been included to implement the applicants' proposal of an offer to dedicate a new lateral public access easement. Therefore, as conditioned, the project will minimize the adverse impacts resulting from construction of the timber bulkhead and is consistent with the applicable Coastal Act sections and with past Commission action. Public access is discussed in more detail below.

b. End Effects

End scour effects involve the changes to the beach profile adjacent to the shoreline protection device at either end. One of the more common end effects comes from the way reflection of waves off of the shoreline protection device in such a way that they

add to the wave energy which is impacting the unprotected coastal areas on either end. Coastal engineers have compared the end effects impacts between revetments and bulkheads. In the case of a revetment, the many angles and small surfaces of the revetment material reflect wave energy in a number of directions, effectively absorbing much of the incoming wave rather than reflecting it. Because of the way revetments modify incoming wave energy, there is often less problem with end effects or overtopping than that which occurs with a vertical bulkhead. In the case of a vertical bulkhead, return walls are typically constructed in concert with the seawall, and, thus, wave energy is also directed to the return walls causing end erosion effects.

In addition, the Commission notes that the literature on coastal engineering repeatedly warns that unprotected properties adjacent to any shoreline protective device may experience increased erosion. Field observations have validated this concern. Although it is difficult to quantify the exact loss of material due to end effects, Gerald G. Kuhn of the Scripps Institute of Oceanography concludes in a paper entitled, "Coastal Erosion along Oceanside Littoral Cell, San Diego County, California," (1981) that erosion on properties adjacent to a rock seawall is intensified when wave runup is high.

An extensive literature search on the interaction of seawalls and beaches was performed by Nicholas Kraus in which he found that seawalls have the same effects on narrow beaches or beaches eroded by storm activity as Dr. Kuhn observed in relation to rock seawalls. Dr Kraus' research indicated that the form of the erosional response to storms that occurs on beaches without seawalls that are adjacent to beaches with seawalls is manifested as more localized toe scour and end effects of flanking and impoundment at the seawall.⁷ Dr. Kraus' concluded that seawalls were a likely cause of retained sediment, increased local erosion and increased end erosion. Dr. Kraus states:

At the present time, three mechanisms can be firmly identified by which seawalls may contribute to erosion at the coast. The most obvious is retention of sediment behind the wall which would otherwise be released to the littoral system. The second mechanism, which would increase local erosion on downdrift beaches, is for the updrift side of the wall to act as a groin and impound sand. This effect appears to be primarily theoretical rather than actualized in the field, as a wall would probably fail if isolated in the surf zone. The third method is flanking, i.e. increased local erosion at the ends of walls. (underline added for emphasis)

In addition, the results of other researchers investigating the length of shoreline affected by heightened erosion adjacent to seawalls concluded that:

...erosion at the ends of seawalls increases as the structure length increases. It was observed in both the experimental results and the field data of Walton and Sensabaugh (1978) that the depth of excess erosion is approximately 10% of the

⁷ "Effects of Seawalls on the Beach", published in the Journal of Coastal Research, Special Issue #4, 1988.

seawall length. The laboratory data also revealed that the along-coast length of excess erosion at each end of the structure is approximately 70% of the structure length.⁸

A more comprehensive study was performed over several years by Gary Griggs, which concluded that beach profiles at the end of a seawall are further landward than natural profiles.⁹ This effect appears to extend for a distance of about 6/10 the length of the seawall and represents both a spatial and temporal loss of beach directly attributable to seawall construction.

The Commission notes that end effect erosion may be further minimized by locating a proposed shoreline protection device as landward as possible to reduce the frequency with which the seawall is subject to wave action. In the case of the proposed project, and as noted previously, the proposed bulkhead will be located as landward as feasible to protect the proposed septic system. The applicants have demonstrated that no feasible location for the septic system exists at this time and therefore the bulkhead necessary to protect it cannot be located further landward than the proposed location.

The proposed bulkhead would be located approximately 5 ft. landward of the concrete bulkhead approved on the property immediately upcoast of the project site. The applicant's architect states that the proposed bulkhead would be tied into the return wall of the adjacent bulkhead. On the downcoast side of the project site, a return wall would be provided along the property line. The applicant's architect has stated that the downcoast property, containing a single family residence, is developed with a vertical wall, but its location is too far landward to tie in with the proposed bulkhead. This wall on the neighboring property is located further landward to protect a non-conforming septic system located at street level.

c. Retention of Potential Beach Material

A shoreline protective device's retention of potential beach material impacts shoreline processes simply by depriving beaches of nutrients that would normally be fed into the littoral cell and deposited on beaches through the actions of normal shoreline processes. A revetment prevents upland sediments from being carried to the beach by wave action and bluff retreat. In the case of Puerco Beach, which is located in the Santa Monica Littoral Cell, the back of the beach is fixed at Malibu Road. One of the main sources of sediment for beaches are the bluffs themselves, as well as the material that has eroded from inland sources and is carried to the beach by coastal streams.

⁸ "Laboratory and Field Investigations of the Impact of Shoreline Stabilization Structures on Adjacent Properties" by W.G. McDougal, MA Sturtevant, and P.D. Komar in Coastal Sediments '87.

⁹ "the Interaction of Seawalls and Beaches: Seven Years of Field Monitoring, Monterey Bay, California" by G. Griggs, J. Tait, and W. Corona, in Shore and Beach, Vol. 62, No. 3, July 1994.

The protective device may be linked to increased loss of material in front of the wall. The net effect is documented in "Responding to Changes in Sea Level, Engineering Implications" which provides:

A common result of sea wall and bulkhead placement along the open coastline is the loss of beach fronting the structure. This phenomenon, however, is not well understood. It appears that during a storm the volume of sand eroded at the base of a sea wall is nearly equivalent to the volume of upland erosion prevented by the sea wall. Thus the offshore profile has a certain "demand" for sand and this is "satisfied" by erosion of the upland on a natural beach or as close as possible to the natural area of erosion on an armored shoreline...¹⁰

As explained, the bulkhead would protect the applicant's septic system from wave damage. However, the result of this protection, particularly on a narrow beach, is a loss of sediment on the sandy beach area that fronts the seawall. Furthermore, as explained previously, this loss of sediment from the active beach leads to a lower beach profile, seaward of the protective device, where the bulkhead will have greater exposure to wave attack.

In past permit actions, the Commission has required a lateral public access easement for new shoreline protection devices to mitigate adverse impacts to beach sand supply and public access. In the case of this project, to mitigate any possible adverse effects upon public access along the beach, the applicants propose to dedicate a new public lateral access easement along the beach. Special Condition 2 has been included to implement the applicants' offer to dedicate a new lateral public access easement. Therefore, as conditioned, the project will minimize the adverse impacts resulting from construction of the bulkhead and is consistent with the applicable Coastal Act sections and with past Commission action.

4. Past Commission Actions on Residential Shoreline Development

Many portions of the Malibu coastline are intensely developed with single family residences. The eastern and central portion of the Malibu coastline, form an almost solid wall of residential development along a five mile stretch of the shoreline. Puerco Beach and the adjacent Amarillo Beach are highly developed with few vacant lots. This residential development extends over the sandy and rocky beach in many areas and most of the residences have shoreline protective devices such as rock revetments and concrete or timber seawalls. This residential development and their associated protective devices prevent access to the coast, obscure the views to the beach and water from Pacific Coast Highway, interrupt shoreline processes and impact the fragile biological resources in these areas.

¹⁰ "Responding to Changes in Sea Level: Engineering Implications," National Academy of Sciences, National Academy Press, Washington, D.C., 1987 (at page 74).

Given Malibu's close proximity to the Los Angeles metropolitan area it is understandable why the Malibu coastline has experienced such intensive development of its coastline over the past 50 years. The vast majority of this development took place prior to the passage of Proposition 20, which established the Coastal Commission and the 1976 Coastal Act. As previously stated, Section 30235 of the Coastal Act allows for the construction of protective devices only if the device serves to protect coastal dependent uses, or to protect existing structures or public beaches in danger from erosion. The construction of protective devices to protect new residential development is generally not allowed under this Coastal Act section. The majority of the residential development described above required some type of shoreline protective device in order to be developed. Therefore, it is safe to assume under this policy and the other resource protection policies of the Coastal Act that this type of development along Malibu's coastline would either not have been approved or would be developed in a much different configuration or design than it is today.

a. Infill Development

The Commission has previously permitted a number of new residential developments with protective devices on the Malibu coast, but only when that development was considered "infill" development. The developed portions of the Malibu coastline include a number of vacant parcels between existing structures. Typically, there is no more than one to two vacant lots between existing structures. Infill development can be characterized as the placement of one to two residential structures on one to two lots with protective structures provided those protective structures tie into adjacent protective structures.

The term "infill development," as applied by the Commission in past permit decisions, refers to a situation where construction of a single-family residence (and/or in limited situations a duplex) on a vacant lot or the demolition of an existing single-family residence (SFR) and construction of a new single-family residence is proposed in an existing geographically definable residential community which is largely developed or built out with similar structures. When applied to beachfront development, this situation typically is applied to an existing linear community of beach-fronting residences where the majority of lots are developed with SFRs and relatively few vacant lots exist. In other words, within the linear stretch of developed beachfront lots, there is an occasional undeveloped lot or two which can be expected to be developed in a similar fashion. By nature of this description, an "infill development" situation can occur only in instances where roads and other services are already existing and available within the developed community or stretch of beach. Typically, the term "infill development" would not be applied to a large or long stretch of undeveloped beach (i.e. several lots or a large lot which is not similar in size and character to developed lots in the community or areas which do not contain existing roads and infrastructure).

Another characteristic of largely developed beachfront communities is that many, but not all, existing SFRs have some form of shoreline protective device. In Malibu, all

beachfront homes utilize a septic system which, when determined to be subject to wave uprush by a coastal engineer, are required to have a shoreline protective device to protect the system. This requirement of assessing wave uprush applies to all new development, extensive remodels, and/or reconstruction, as well as any changes to an existing septic system or when a new septic system is required or proposed.

In "infill development" situations only, as described above, the Commission has found in past permit actions in Malibu pursuant to Section 30235 of the Coastal Act, that seawalls, revetments, or other types of shoreline protective devices can be permitted to protect existing structures or new structures which constitute infill development and when designed and engineered to eliminate or mitigate adverse impacts on the shoreline (certified Malibu LUP Policies 166 and 167). The Commission has also found, in past permit actions in Malibu, that in beach areas largely committed to residential development having shoreline protective devices, the construction of shoreline protective devices should tie into adjacent seawalls where appropriate or possible (Malibu LUP Policy 251).

To the maximum extent feasible, protective structures are required to tie into adjacent protective structures. Depending on past development that has occurred on developed beaches, requiring seawalls to form one contiguous line is not always possible. In addition, many of the protective devices that were constructed on these beaches were built under emergency situations where it is difficult to place the seawall under an existing structure. Therefore, the majority of the developed beaches along the eastern end of Malibu, consist of a patchwork of protective devices ranging from wooden bulkheads, rock revetments, shotcrete or gunite walls, or a combination of a bulkhead with a revetment. Thus, the seawalls do not always tie into adjacent structures at every location on a developed beach.

The Commission recognized that the infilling of residential development between existing structures would not result in significant adverse impacts to coastal resources within these existing developed shoreline areas. The Commission also acknowledged that the gaps these vacant parcels created between protective devices focused wave energy between these structures resulting in erosion of the vacant property between the structures and potentially endangering infrastructure along Pacific Coast Highway or adjacent frontage roads and endangering adjacent structures. Faced with the prospect of denying beach front residential development with protective devices due to inconsistency with section 30235 of the Coastal Act, the Commission has approved "infill" development through permit actions on beach front development in Malibu. The Commission has found that infilling these gaps would prevent this type of focused shoreline erosion and would not significantly further impact shoreline processes or adversely impact other coastal resources given the prevailing development pattern along these sections of the Malibu coast, so long as shoreline protective devices are designed and located as far landward as possible to avoid or minimize impacts to access and shoreline processes.

The Commission notes that the area surrounding the subject site is characterized as a substantially developed beach. In the case of the proposed development, the demolition of an existing residence and the construction of a single-family residence with a wooden bulkhead and septic system can clearly be considered as infill development within an existing developed area.

b. Seaward Encroachment

In 1981 the Commission adopted the "District Interpretive Guidelines" for Malibu/Santa Monica Mountains area of the coastal zone. These guidelines established specific standards and criteria for shoreline development along the Malibu Coast. The guidelines included the "stringline" policy for the siting of infill development:

In a developed area where new construction is generally infilling and is otherwise consistent with Coastal Act policies, no part of a proposed new structure, including decks and bulkheads, should be built further onto a beach than a line drawn between the nearest adjacent corner of the adjacent structures. Enclosed living space in the new unit should not extend farther seaward than a second line drawn between the most seaward portions of the nearest corner of the enclosed living space of the adjacent structure.

In 1986 the Commission certified the Los Angeles County Malibu/Santa Monica Mountains Land Use Plan which also contains specific policies addressing infill shoreline development:

Policy 153 ...In a developed area where new construction is generally considered infilling and is otherwise consistent with LCP policies the proposed new structure may extend to the stringline of the existing structures on each side.

Policy 166 ...Revetments and seawalls shall be permitted when required to serve coastal dependent uses or to protect existing structures or new structures which constitute infill development.

The intent of the stringline policies was to limit infill development to only existing developed shoreline areas and limit the encroachment of new structures out onto the beach. In past permit actions in Malibu the Commission has typically limited infill development to the construction of one to two structures on one to two vacant parcels between existing structures.

In the case of the proposed project, the Commission notes that all proposed development will be located landward of the appropriate stringlines as drawn from the corners of the adjacent structures and decks. Therefore, the Commission finds that the proposed development, relative to seaward encroachment, is consistent with the relevant sections of the Coastal Act.

5. Conclusion

Coastal Act sections 30235, 30253 and 30250(a) set forth the Commission's mandate relative to permitting shoreline protective devices and beachfront development. In order for the Commission to permit the proposed project, which includes a 50 ft. long, approximately 14 ft. high above maximum scour level, rock revetment, it must find the project consistent with the Chapter 3 policies of the Coastal Act.

Coastal Act section 30235, cited above, states that shoreline protective devices such as revetments, bulkheads, and other construction that would alter natural shoreline processes shall be permitted when those structures are necessary to serve coastal-dependent uses or to protect existing structures or to protect public beaches in danger from erosion and when they are designed to eliminate or mitigate adverse impacts on local shoreline sand supply. In addition to the consideration of Section 30235, the Commission has approved new development on the beach where such development is consistent with the Commission's treatment of "infill development" as described above in detail. In the case of this project, the proposed timber bulkhead is necessary to protect the septic system which would serve the proposed residence. The bulkhead is proposed to be located at the most landward location feasible. In addition, the proposed project meets the Commission's interpretation of infill development, as defined in past permit decisions. As designed, the proposed project would minimize adverse impacts on shoreline sand supply.

Coastal Act section 30253, (also cited above) mandates that new development neither create nor contribute significantly to erosion, or contribute to 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 or cliffs. In past permit actions, the Commission has required that new shoreline protection devices be located as landward as possible to reduce adverse impacts to sand supply and public access resulting from the development. In the case of this project, the bulkhead is proposed to be located at the most landward location feasible.

Further, in past permit actions, the Commission has also required a lateral public access easement for new shoreline protection devices to mitigate adverse impacts to beach sand supply and public access. In the case of this project, to mitigate any possible adverse impacts to public access along the beach that may be caused by the subject proposal, the applicants have offered to dedicate a new public lateral access easement along the beach. Special Condition 2 has been included to implement the applicants' offer to dedicate a new lateral public access easement.

Section 30250(a) of the Coastal Act states, in part, that new development not adversely affect, either individually or cumulatively, coastal resources. As explained in the preceding section regarding past Commission action on residential development, the proposed project is located on a fully developed stretch of beach and is considered to

be infill development. In addition, the project minimizes adverse impacts resulting from the construction of the proposed timber bulkhead by ensuring that the structure is located as far landward as possible and by including an offer to dedicate lateral public access in the project description. Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Sections 30235, 30250, and 30253 of the Coastal Act.

C. Hazards and Geologic Stability

Coastal Act Section 30253 states, in part, that:

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.

Section 30253 of the Coastal Act mandates that new development provide for geologic stability and integrity and minimize risks to life and property in areas of high geologic, flood, and fire hazard. The proposed development would be located in the Santa Monica Mountains, an area that is generally considered to be subject to an unusually high amount of natural hazards. Geologic hazards common to the Santa Monica Mountains include landslides, erosion, and flooding. In addition, fire is an inherent threat to the indigenous chaparral community of the coastal mountains. Even beachfront properties have been subject to wildfires. Finally, beachfront sites are subject to flooding and erosion from storm waves.

The applicant submitted a Geotechnical Engineering Report, dated 7/2/98, Addendum Letter No. 1, dated 11/9/98, and Addendum Letter No. 2, dated 12/29/98, all prepared by RJR Engineering Group, Inc. The consulting geologist and engineer determined that the proposed project site is underlain by fill material associated with the development of Malibu Road, beach deposits primarily located in the most seaward areas of the site, landslide debris, and bedrock underlying the beach deposits. The consultants identify the project site as located on a large, ancient landslide that extends off site. The Geotechnical Engineering Report states that:

In general, the depth of the slide is approximately 33 feet thick at Malibu Road, and is exposed in the bluff face at the beach. In general, a design depth of 35 feet has been utilized in the analysis to account for variations in the toe area...

The consultants conclude that the site, while located on an ancient landslide, will be stable and appropriate for the proposed development. The report states that:

Based on the analysis performed for the site and recent studies performed by other consultants on adjacent sites, the landslide has a factor of safety greater than 1.5. In addition, no evidence was found at the site or immediate off-site area that would indicate any evidence of 'historic' movement. In this regard, RJR considers this slide to be stable. However, it should be noted, that the stability is based on the model that meets current City standards. It is possible that in the future, conditions could occur that were not considered in the analysis. To reduce the potential for possible future movement at the site, the residence will be supported on piles that derive support from the underlying bedrock.

The applicant does propose the construction of the residence on concrete caissons which extend through the landslide debris to the bedrock below. In addition to this design feature, the consultants recommend that no septic effluent be introduced to the road fill or landslide debris materials, for instance by seepage pits at street level. Rather, as discussed above, they recommend that any drain field is constructed at beach level and effluent be percolated into beach sand.

The consulting geologist and engineer conclude that:

Based upon our review of the site and the available data, and based upon Section 111 of the Los Angeles County Building Code, the proposed improvements are feasible from a geologic and geotechnical standpoint, and should be free of landslides, slumping and excess settlement as described in this report, assuming the recommendations presented in this report are implemented during the design and construction of the project. In addition, the stability of the site and surrounding areas will not be adversely affected by the proposed residence.

Finally, as discussed above, the applicant has submitted a Wave Uprush Study, dated 1/27/98, prepared by Pacific Engineering Group, which addresses site conditions and design considerations. The consultant determined that the maximum wave uprush at the subject site would extend to approximately 26 feet seaward of the property line at Malibu Road. The consultant makes recommendations regarding the foundations of the residence and the location of the septic system.

Based on the recommendations of the consulting geologist, geotechnical engineer, and coastal engineer, the Commission finds that the proposed development will minimize risks from geologic hazards, consistent with Section 30253 of the Coastal Act so long as the consultants' recommendations are incorporated into the project plans. Therefore, the Commission finds it necessary to require the applicant to submit project plans that have been certified in writing by the consulting geologists as conforming to their recommendations. This is included as Special Condition 4.

However, the Commission notes that the proposed development is located on a beachfront lot in the City of Malibu. The Malibu coast has historically been subject to

substantial damage as the result of storm and flood occurrences—most recently, and perhaps most dramatically, during the past 1997-1998 El Nino severe winter storm season.

The subject site is clearly susceptible to flooding and/or wave damage from storm waves, storm surges and high tides. Past occurrences have caused property damage resulting in public costs through emergency responses and low-interest, publicly subsidized reconstruction loans in the millions of dollars in Malibu area alone from last year's storms.

In the winter of 1977-1978, storm-triggered mudslides and landslides caused extensive damage along the Malibu coast. According to the National Research Council, damage to Malibu beaches, seawalls, and other structures during that season caused damages of as much as almost \$5 million to private property alone.

The El Nino storms recorded in 1982-1983 caused high tides of over 7 feet, which were combined with storm waves of up to 15 feet. These storms caused over \$12.8 million to structures in Los Angeles County, many located in Malibu. The severity of the 1982-1983 El Nino storm events are often used to illustrate the extreme storm event potential of the California, and in particular, Malibu coast. The 1998 El Nino storms also resulted in widespread damage to residences, public facilities and infrastructure along the Malibu Coast.

Thus, ample evidence exists that all beachfront development in the Malibu area is subject to an unusually high degree of risk due to storm waves and surges, high surf conditions, erosion, and flooding. The Coastal Act recognizes that development, such as the proposed residence, even as designed and constructed to incorporate all recommendations of the consulting coastal engineer, may still involve the taking of some 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 the subject property.

Finally, due to the fact that the proposed project is located in an area subject to an extraordinary potential for damage or destruction from wild fire, the Commission will only approve the project if the applicant also agrees to indemnify the Commission from any liability associated with such risks.

The Commission finds that due to the possibility of liquefaction, storm waves, surges, erosion, flooding, and threat from wildfire, the applicant shall assume these risks as conditions of approval. Because this risk of harm cannot be completely eliminated, the Commission requires 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 applicant's assumption of risk, as required by Special Condition 1, when executed and recorded on the property deed, will show that the applicant is

aware of and appreciates the nature of the hazards which exist on the site, and that may adversely affect the stability or safety of the proposed development.

The proposed development, with its excavation and construction staging on the sandy beach and the possible generation of debris and or presence of equipment and materials that could be subject to tidal action could pose hazards to beachgoers or swimmers if construction site materials were discharged into the marine environment or left inappropriately/unsafely exposed on the project site. In addition, such discharge to the marine environment could result in disturbance through increased turbidity caused by erosion and siltation of coastal waters. To ensure that effects to the marine environment are minimized and that the construction phase of the proposed project poses no hazards, Special Condition 5, Construction Responsibilities and Debris Removal requires the applicant to ensure that stockpiling of dirt or materials shall not occur on the beach, that no machinery will be allowed in the intertidal zone at any time, and that all debris resulting from the construction period is promptly removed from the beach and seawall area.

The Commission finds, for the reasons set forth above, that the proposed development, as conditioned to conform to geologic and engineering recommendations, to assume the risk of development, and to minimize impacts from construction debris, is consistent with Section 30253 of the Coastal Act.

D. Public Access.

The Coastal Act mandates the provision of maximum public access and recreational opportunities along the coast. The Coastal Act contains several policies which address the issues of public access and recreation along the coast.

Section 30210 of the Coastal Act states that:

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 that:

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

Section 30212(a) of the Coastal Act provides that in new shoreline development projects, access to the shoreline and along the coast shall be provided except in specified circumstances, where:

- (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources.
- (2) adequate access exists nearby, or,
- (3) agriculture would be adversely affected. Dedicated access shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Section 30220 of the Coastal Act states that:

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

Finally, Section 30251 of the Coastal Act states that:

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

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 adequate public access to the sea be provided to allow use of dry sand and rocky coastal beaches.

The major access issue in this permit application is the occupation of sandy beach area by a structure and potential effects on shoreline sand supply and public access in contradiction of Coastal Act policies 30211 and 30221. As proposed, the bulkhead would be constructed on the sandy beach beneath the proposed residence as shown on Exhibit 3. As stated previously, the proposed project is located on Puerco Beach, approximately 115 feet east (downcoast) of the nearest public vertical coastal accessway. Additionally, the site is located approximately 660 feet west (upcoast) of another vertical accessway. These vertical accessways are shown in relation to the proposed project site on Exhibit 2. Further, there are several existing and potential lateral public access easements across several lots near the project site.

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.

As noted above, interference by a shoreline protective device 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 reduced beach 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 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 revetments and 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 eventually affect the profile of a public beach. Fourth, if not sited landward in a location that insures that the revetment 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' energy. Finally, revetments and bulkheads interfere directly with public access by their occupation of beach area that will not only be unavailable during high tide and severe storm events but also potentially throughout the winter season.

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, 30220, and 30211 of the Coastal Act. Along the California coast, the line between land and ocean is complex and constantly moving.

The State owns tidelands, which are those lands below 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 relation to the ordinary high water mark. 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 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.

The Commission must consider a project's direct and indirect impact on public tidelands. 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.

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 (SLC letter dated July 2, 1998).

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. The applicants seek Commission approval of a new beachfront residence with a timber bulkhead. As discussed elsewhere in the Commission's findings, there is substantial evidence that this project will result in some indirect impacts on tidelands because the new proposed revetment is located in an area that is subject to wave attack and the

effects of wave energy. The applicants have offered a lateral public access easement, however, to mitigate any adverse effects on coastal access or recreation that the subject revetment may have.

The Commission must also consider whether a project affects any public right to use shorelands that exist independently of the public's ownership of tidelands. In addition to a development proposal's impact on tidelands and on public rights protected by the common law public trust doctrine, the Commission must consider whether the project will affect a public right to use beachfront property, independent of who owns the underlying land on which the public use takes place. Generally, there are three additional types of public uses identified as: (1) the public's recreational rights in navigable waters guaranteed to the public under the California Constitution and state common law, (2) any rights that the public might have acquired under the doctrine of implied dedication based on continuous public use over a five-year period; and (3) any additional rights that the public might have acquired through public purchase or offers to dedicate.

These use rights are implicated as the public walks the wet or dry sandy beach below the mean high tide plane. This area of use, in turn moves across the face of the beach as the beach changes in depth on a daily basis. The free movement of sand on the beach is an integral part of this process, and it is here that the effects of structures are of concern.

In this case, no evidence has been presented in connection with this application that the public may have acquired rights of use under the doctrine of implied dedication. Although the Commission notes that the subject bulkhead is located as landward as possible in relation to the proposed septic system, there is still evidence that the timber bulkhead will be subject to wave uprush which may result in some potential adverse individual and cumulative impacts on sand supply, beach profile, and ultimately, public access as a result of localized beach scour, retention of beach material and interruption of the alongshore and onshore sand transport process.

The beaches of Malibu are extensively used by visitors of both local and regional origin and most planning studies indicate that attendance of recreational sites will continue to increase significantly 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. In the case of the proposed project, the potential for the permanent loss of sandy beach as a result of the change in the beach profile or steepening from potential scour effects, as well as the presence of a residential structure out over the sandy beach does exist.

In past permit actions, the Commission has required that new shoreline protective devices be located as landward as possible to reduce adverse impacts to the sand

supply and public access resulting from development. In the case of the proposed project, the applicants have demonstrated that the proposed bulkhead is located as landward as feasible, as discussed in greater detail above.

In addition, in past permit actions, the Commission has also required a lateral public access easement for new shoreline protection devices to mitigate adverse impacts to beach sand supply and public access. In the case of this project, to conclude with absolute certainty what impacts the proposed development would cause on the shoreline processes and public access, a historical shoreline analysis based on site-specific studies would be necessary. Although this level of analysis has not been submitted by the applicants, the applicants have proposed to offer a dedication of a public lateral access easement along the beach to mitigate any possible adverse impacts the proposed revetment may have on public access. Because the applicants have proposed, as part of the project, an offer to dedicate a new lateral access easement along the width of the lot, it has not been necessary for Commission staff to engage in an extensive analysis of the potential adverse effects to public access resulting from the proposed project. As such, Special Condition 2 has been included to implement the applicants' offer to dedicate a new lateral public access easement prior to the issuance of the coastal development permit.

The Commission further notes that chronic unauthorized postings 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 3 to ensure that similar signs are not posted on or near the proposed revetment or existing apartment structures. The Commission finds that if implemented, Special Condition 3 will protect the public's right of access to the sandy beach below the MHTL.

In addition, the Commission notes that as proposed, the bulkhead would be located beneath the proposed structure. The proposed residence and decks would extend no further seaward than existing development on either side as defined by a stringline connecting adjacent development. As such, the Commission finds that the proposed project will not significantly affect public views of the coast from the sandy beach.

For all of these reasons, therefore, the Commission finds that as conditioned, the proposed project is consistent with Sections 30210, 30211, 30212, 30220, and 30251 of the Coastal Act.

E. Septic System.

The proposed development includes the installation of an on-site septic system to provide sewage disposal. The Commission recognizes that the potential build-out of

lots in the Santa Monica Mountains, and the resultant installation of septic systems, may contribute to adverse health effects and geologic hazards in the local area. Section 30231 of the Coastal Act states that:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

In addition, the Malibu/Santa Monica Mountains Land Use Plan, which the Commission has relied upon for guidance in past decisions, contains the following policies concerning sewage disposal:

P217 Wastewater management operations within the Malibu Coastal Zone shall not degrade streams or adjacent coastal waters or cause or aggravate public health problems.

The proposed development includes the installation of a new on-site septic system to serve the proposed residence. The applicant has submitted evidence of the City of Malibu Environmental Health Department's in-concept approval of the proposed septic system. The City determined that the system meets the requirements of the plumbing code. The Commission has found that conformance with the provisions of the plumbing code is protective of resources. Therefore, the Commission finds that the proposed septic system is consistent with Section 30231 of the Coastal Act.

F. 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 Chapter 3 (commencing with Section 30200) and that the permitted development will not prejudice the ability of the local government to prepare a local coastal program that is in conformity with Chapter 3 (commencing with Section 30200). A denial of a coastal development permit on grounds it would prejudice the ability of the local government to prepare a local coastal program that is in conformity with Chapter 3 (commencing with Section 30200) shall be accompanied by a specific finding which sets forth the basis for that conclusion.

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 if certain conditions are incorporated into the project and accepted by the applicants. As conditioned, 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, as conditioned, will not prejudice the City'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).

G. CEQA

Section 13096(a) of the Commission's administrative regulations requires Commission approval of a Coastal Development Permit application to be supported by a finding showing the application, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect, which the activity would have on the environment.

The Commission finds that the proposed project, as conditioned, will not have any significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. Therefore, the proposed project, as conditioned, has been adequately mitigated and is consistent with CEQA and the policies of the Coastal Act.

1992

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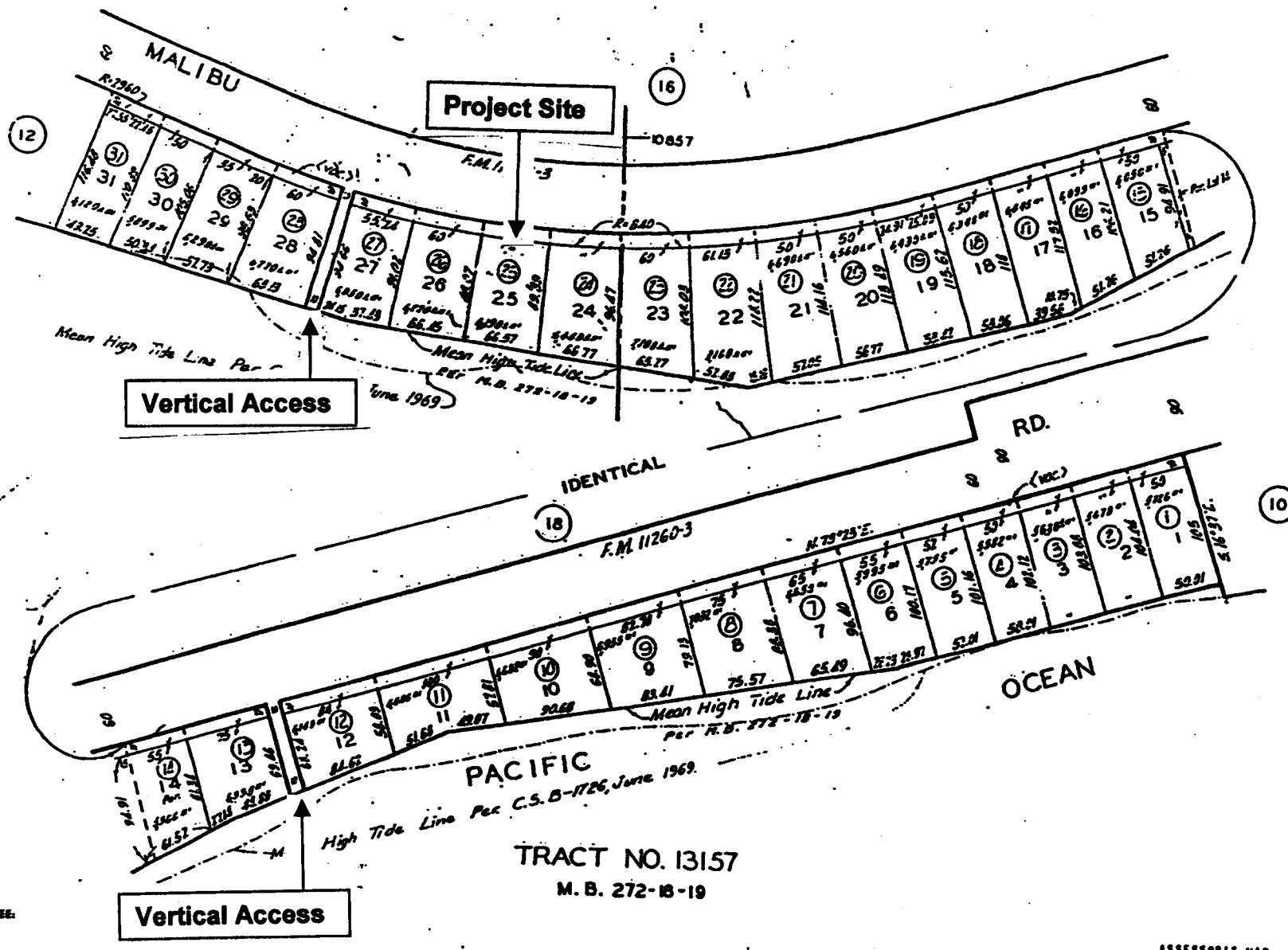


EXHIBIT 2
Permit 4-99-075 (Bomei)
Assessor's Parcel Map

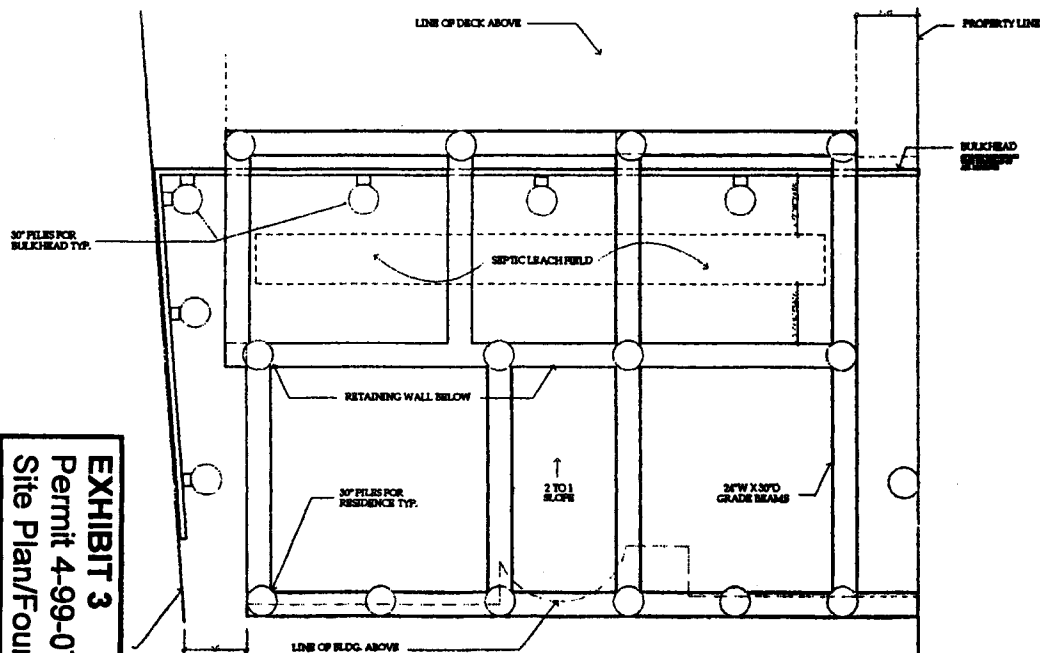
EV. ASSNT. SEE:
11

ASSESSOR'S MAP
COUNTY OF LOS ANGELES, CALIF.

AREA TABULATIONS		SETBACKS	NOTES
LOT AREA	6,216 S.F.	EAST SIDE YARD SETBACK	
ALLOWED BULDABLE AREA		WEST SIDE YARD SETBACK	
PROPOSED BULDABLE AREA	4,050 S.F.	REAR YARD SETBACK	
PROPOSED STRUCTURES	4,050 S.F.	FRONT YARD SETBACK	
NEW RESIDENCE			
GROUND LEVEL	1,491 S.F.		
UPPER LEVEL	803 S.F.		
LOWER LEVEL	1,205 S.F.		
TOTAL LIVABLE AREA	3,499 S.F.		
GARAGE	441 S.F.		
TOTAL BUILT AREA	4,050 S.F.		
TOTAL PROPOSED STRUCTURES	4,050 S.F.		
4,050 S.F. <	OK		



NO LANDSCAPING PROPOSED
NO GRADING PROPOSED



PROPOSED PILE / LEACH FIELD LAYOUT

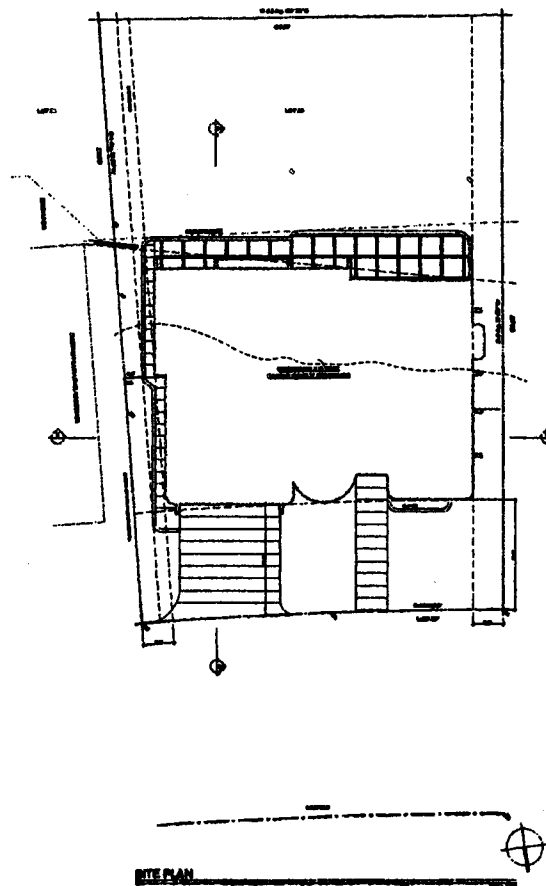
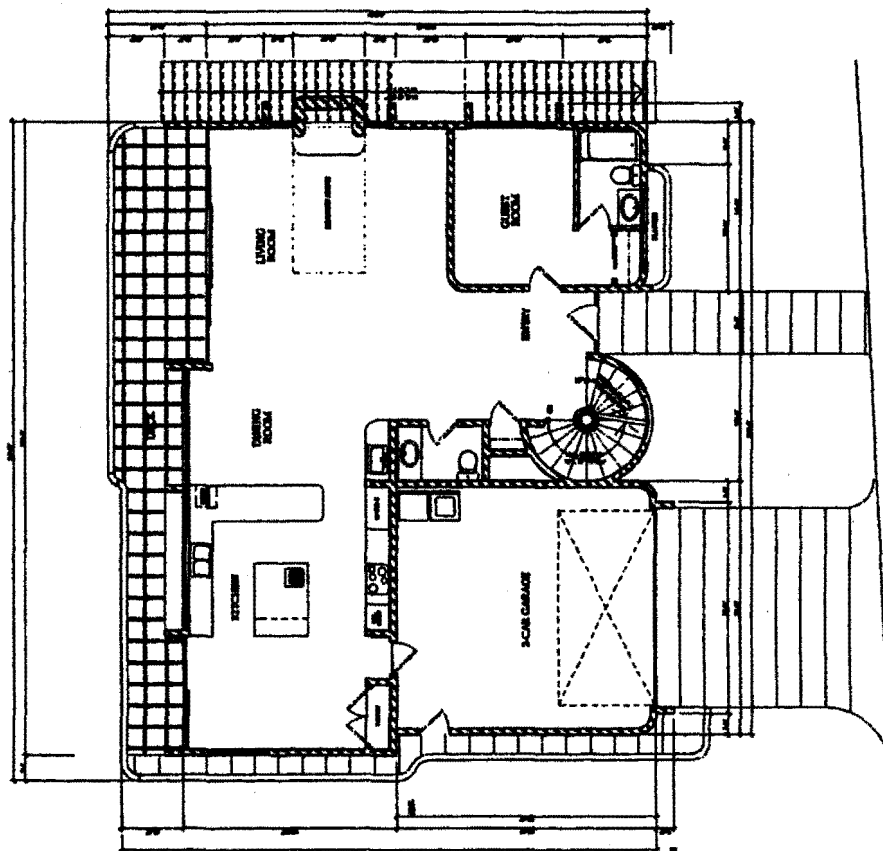


EXHIBIT 3
Permit 4-99-075 (Borne)
Site Plan/Foundation Layout

BARBOCCHINI & ASSOCIATES, INC. ARCHITECTS MICHAEL E. BARBOCCHINI, AIA - 8109 48th AVE 3RD COAST VIEW DRIVE - MALIBU, CA 90265	BONNEL MALIBU RESIDENCE 24420 Malibu Road Malibu, CA 90265
SITE PLAN	
1-A-1	



GROUND LEVEL PLAN



LOWER LEVEL PLAN

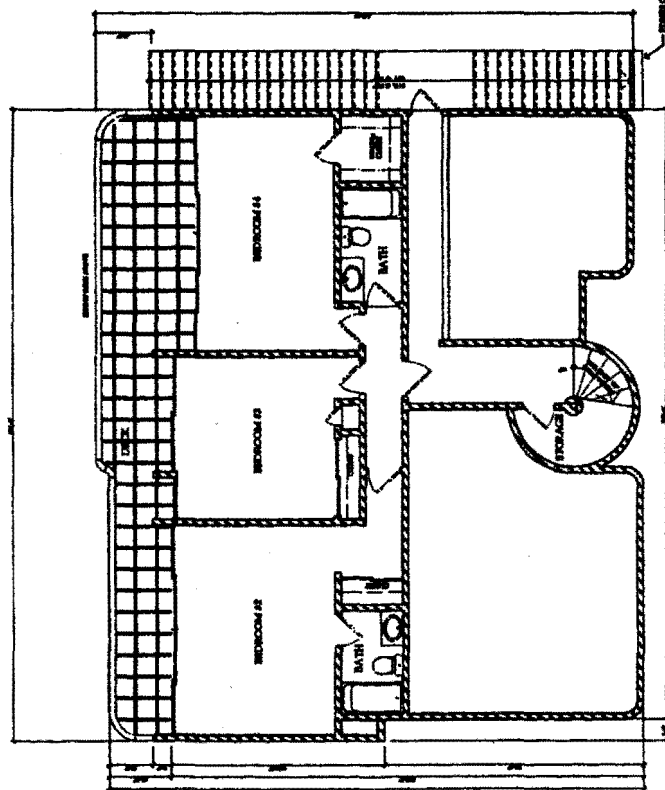
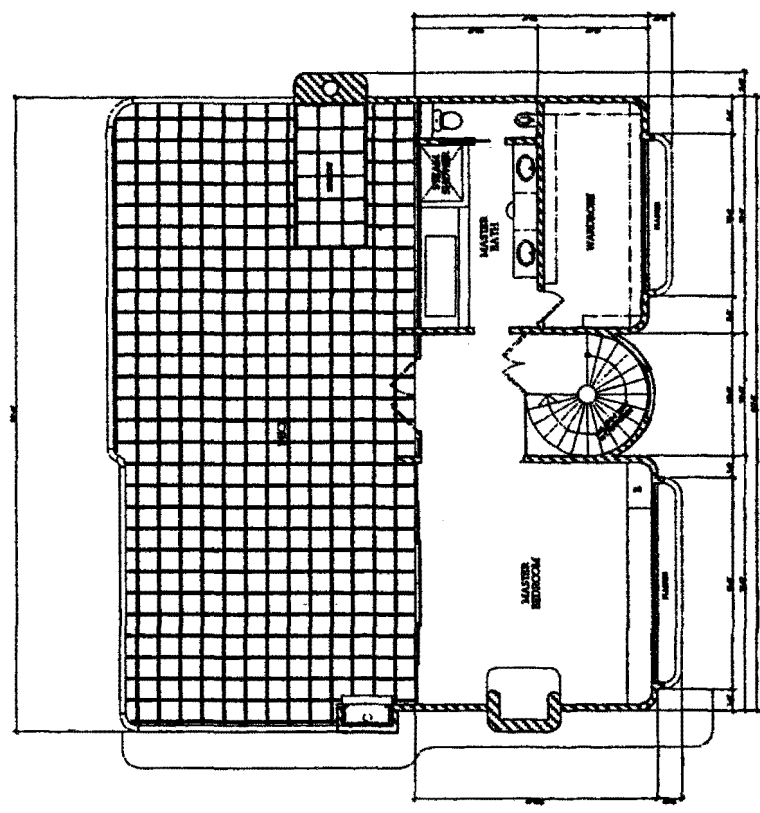


EXHIBIT 4a
Permit 4-99-075 (Bomel)
Floor Plans



UPPER LEVEL PLAN

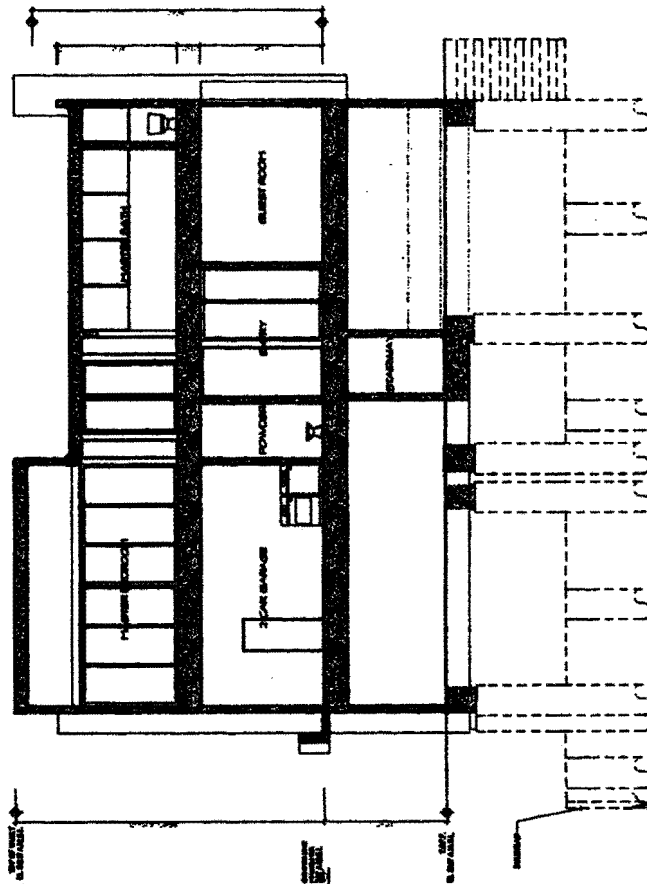
EXHIBIT 4b
Permit 4-99-075 (Bomel)
Floor Plans

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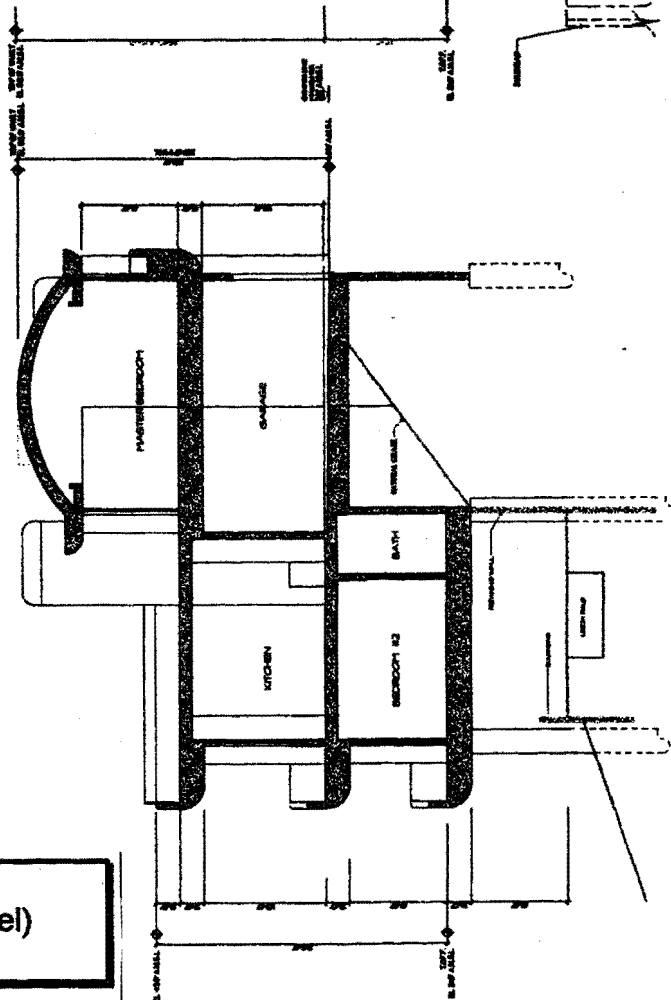
BOMEL MALIBU RESIDENCE
34450 Malibu Road
Malibu, CA 90265

BARBOCCHINI & ASSOCIATES, INC.
ARCHITECTS
3000 WEST WINDY DRIVE • MALIBU, CA 90265
PHONE 310-316-0000 FAX 310-316-0001

SECTIONS

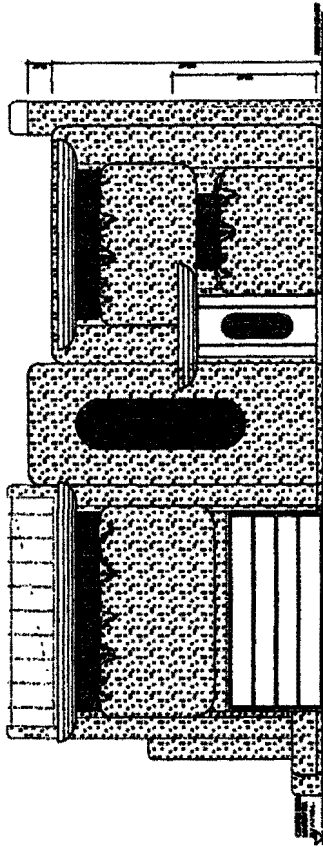


SECTION B

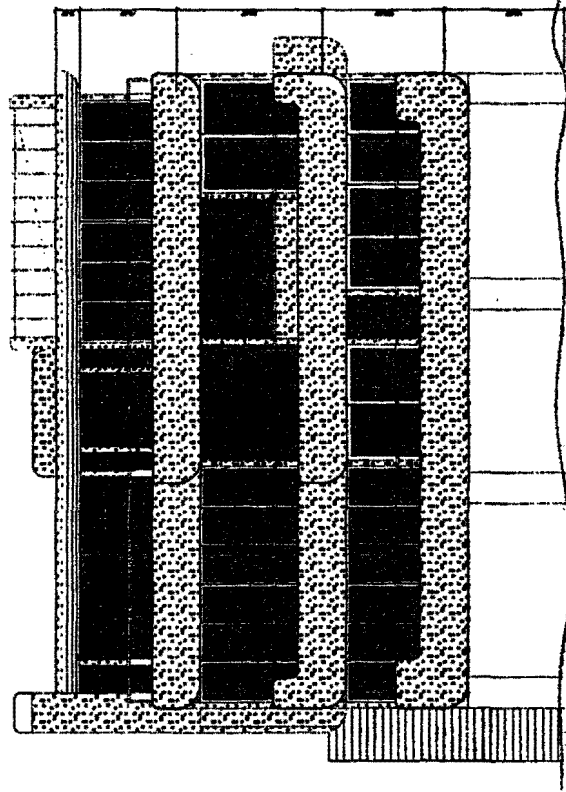


SECTION A

EXHIBIT 5
Permit 4-99-075 (Bomel)
Cross Sections



NORTH ELEVATION



SOUTH ELEVATION

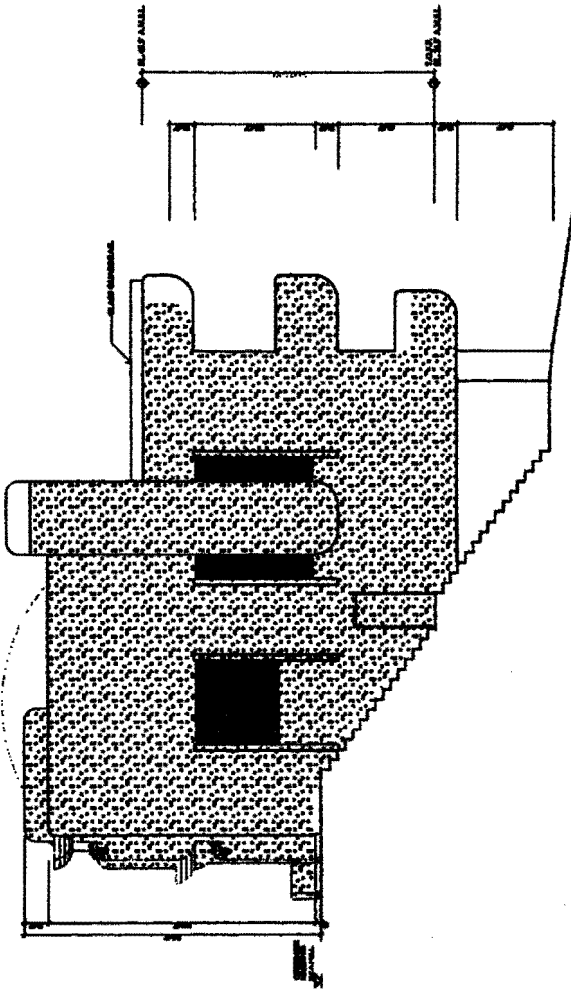
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BOMEL MALIBU RESIDENCE
24450 Malibu Road
Malibu, CA 90263

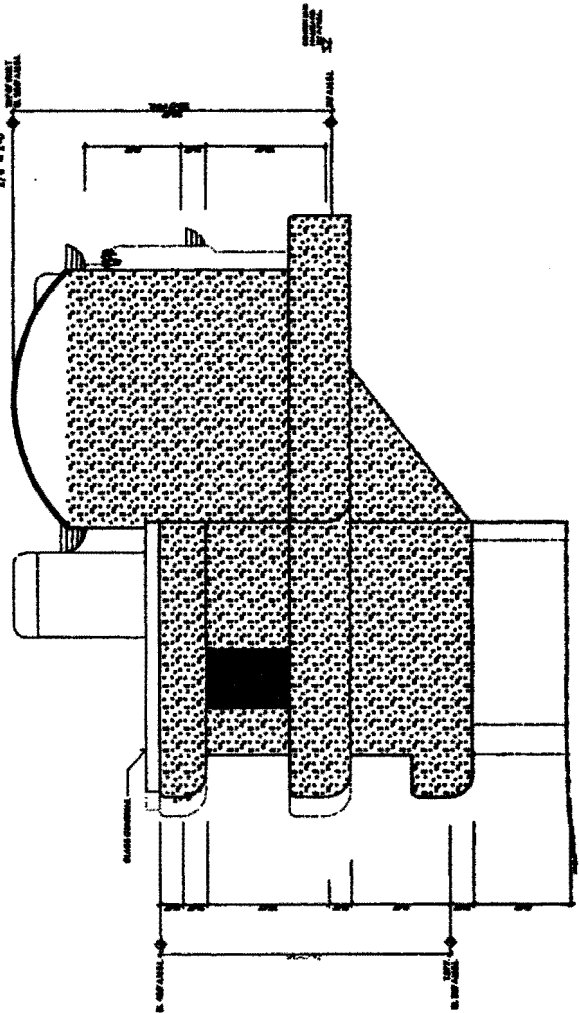
BARBOCKEN & ASSOCIATES, INC.
ARCHITECTS
3555 COASTVIEW DRIVE - MALIBU, CA 90263
TEL: (310) 888-8888

ELEVATIONS

A-6



WEST ELEVATION



EAST ELEVATION

EXHIBIT 6b
Permit 4-99-075 (Bomel)
Elevations

24420 MALIBU RD.
MALIBU, CA 90265

S.F.D.:	5 Bedroom (N)
SEPTIC TANK:	2000 Gallon w/Pump (N)
ACTIVE:	1 - 5' X 52' Bottomless
	Sand Filter (N)
	1 - 13' X 28' Bottomless
	Sand Filter (N)
FUTURE:	N/A
PERC RATE:	Sand Category

NOTES:

1. This approval is for a 5 bedroom single family dwelling. A new private sewage disposal system shall be installed, as shown. Native soil shall be replaced with clean ASTM C-33 Sand in the bottomless sand filter area.
2. This approval only relates to the minimum requirements of the City of Malibu Uniform Plumbing Code and does not include an evaluation of any geological, or other potential problems, which may require an alternative method of wastewater disposal.
3. This approval is valid for one year or until City of Malibu Uniform Plumbing Code and/or Administrative Policy changes render it noncomplying.

CITY OF MALIBU ENVIRONMENTAL HEALTH
IN-CONCEPT APPROVAL
SIGNATURE FEB 09 1999 <i>L Young</i>
FINAL APPROVAL IS REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS.

EXHIBIT 7 Permit 4-99-075 (Borne) Septic System Approval
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