

CALIFORNIA COASTAL COMMISSION

SOUTH CENTRAL COAST AREA
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STAFF REPORT: CONSENT CALENDAR

APPLICATION NO.: 4-98-108

APPLICANT: Beny & Adele Alagem AGENT: Jamie Harnish

PROJECT LOCATION: 23864 Malibu Road, City of Malibu, Los Angeles County

PROJECT DESCRIPTION: Reconstruct twelve (12) foot high (from Mean Sea Level), 71 foot long, concrete bulkhead connected to bulkheads on adjoining properties to west and east; no return walls are proposed. Replace glass windscreen on top of bulkhead. Complete remedial underpinning below an existing teahouse. Remove isolated imported rocks from beach seaward of bulkhead and place rocks beneath patio landward of bulkhead; reconstruct patio.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends approval of the proposed project with one (1) Special Condition regarding the Assumption of Risk, Waiver of Liability and Indemnity. The applicant is requesting approval for the construction of a replacement twelve (12) foot high, 71 foot long, concrete bulkhead connected to bulkhead on adjoining properties to west and east, replace a glass windscreen, and complete the remedial underpinning below an existing tea house. No development is proposed seaward of the former bulkhead except for the removal of isolated imported rocks from the beach and install them beneath the reconstructed patio landward of the bulkhead. This work has been completed under an approved Emergency Coastal Development Permit (No. 4-98-108-G).

LOCAL APPROVALS RECEIVED: Approval in Concept by City of Malibu Planning Department, dated 6/1/98 and 2/8/99.

SUBSTANTIVE FILE DOCUMENTS: Limited Soils Engineering Investigation, Proposed Sea Wall and Remedial Underpinning, 23864 Malibu Road, Malibu, California, dated June 2, 1998; California State Lands Commission Determination Letter dated August 28, 1998; Coastal Permit No. 4-98-219, Clemmer; Coastal Permit No. 4-98-051, Tuchman.

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 conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and will not have any significant adverse impacts 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. Assumption of Risk, Waiver of Liability and Indemnity

- A. By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from waves, storm waves, flooding, and erosion; (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.

IV. Findings and Declarations

The Commission hereby finds and declares as follows:

A. Project Description and Background

The subject site is a 27,010 sq. ft. beach front parcel developed with a single family residence, teahouse, and a 32 ft. long wood bulkhead along Malibu Road (Exhibits 1 and 2). The site is located on Amarillo Beach, a heavily developed residential area of Malibu. The former bulkhead on site is part of a continuous concrete bulkhead that protects several single family residences along the beach (Exhibits 3 and 4).

The applicant proposes to reconstruct a twelve (12) foot high (Mean Sea Level), 71 foot long, concrete bulkhead connected to bulkheads on adjoining properties to west and east (no return walls are proposed), replace a glass windscreen five feet high on top of the bulkhead, and complete the remedial underpinning below an existing tea house. The applicant proposes no development seaward of the former bulkhead except for the removal of isolated imported rocks from beach seaward of bulkhead and placing rocks beneath patio landward of bulkhead, and reconstruct patio. The replacement bulkhead is located no further seaward than the former bulkhead, although it is located about two to three feet deeper than the former bulkhead and founded into bedrock.

The proposed project is a replacement of the former concrete bulkhead, windscreen, and patio, while the underpinning of the tea house is remedial in nature (Exhibits 3 - 5). This work has been completed under an Emergency Coastal Development Permit issued on April 27, 1998 (No. 4-98-108-G). The applicant's agent has confirmed that this work has been completed. In compliance with Condition Four (4) of the emergency permit approval, the applicant has submitted the pending application for a regular coastal development permit to have the emergency work considered permanent. The 300 sq. ft. tea house was constructed in 1965 according to a County of Los Angeles Building Permit submitted by the applicant.

B. Shoreline Protective Devices

After identifying the applicable Coastal Act sections and the Los Angeles County Land Use Plan (LUP) policies, the discussion of whether or not the proposed replacement of the shoreline protective device (concrete bulkhead) is necessary will proceed in the following manner. First, the staff report describes the physical characteristics of the Amarillo Beach shoreline. Second, the staff report analyzes the dynamics of the Amarillo Beach shoreline. Third, the staff report analyzes the location of the proposed replacement concrete bulkhead in relation to wave action. Finally, the staff report analyzes whether a shoreline protective device¹ is needed.

As described in the discussion below, there is evidence that most developments along this section of Amarillo Beach may require a shoreline protective device that has the potential to impact the natural shoreline processes. Therefore, it is necessary to review the proposed project for its consistency with Sections 30235, 30250(a), and 30253 of the Coastal Act.

Section 30235 of the Coastal Act states:

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

Section 30250(a) of the Coastal Act states (in part):

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.

Section 30253 of the Coastal Act states (in part):

New development shall:

¹ Shoreline Protective Device is also referred to in the findings as a bulkhead or seawall.

- (1) *Minimize risks to life and property in areas of high geologic, flood, and fire hazard.***
- (2) *Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.***

Coastal Act Section 30235 provides for two tests applicable to this project. The first test is whether or not the shoreline protective device is needed to protect either coastal dependent uses, existing structures, or public beaches in danger of erosion; the second test is whether or not the device is designed to eliminate or mitigate adverse impacts on shoreline sand supply.

Regarding Section 30250, the Coastal Act requires that new development be located in existing developed areas able to accommodate it, or other areas where it will not have significant adverse effects on coastal resources.

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.

In addition, 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 to be consistent with the Coastal Act and provides specific standards for development along the Malibu coast. For example, policies P166 and P167 provide, together 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 significant adverse impacts on the shoreline and sand supply.

The subject property is developed with a residence, garage, tea house, septic system and a former concrete bulkhead wall protecting the residence and tea house seaward of Malibu Road. The project involves the construction of a replacement concrete bulkhead in the same location as the former concrete bulkhead, and the underpinning of the foundation of the tea house. The proposed concrete bulkhead will protect existing structures on the subject property; a residence, garage and tea house (Exhibits 3 – 5).

The project does not fall into two of the three categories in which a shoreline protective device must be permitted by the Commission under Section 30235. The proposed replacement bulkhead does not protect a public beach nor would it serve a coastal-dependent use. Residential structures and garages are not coastal dependent developments or uses pursuant to Section 30101 of the Coastal Act. However, the proposed reconstruction of the concrete bulkhead does protect an existing residential structure in danger from erosion, therefore a shoreline protective device may be permitted. Therefore, the Commission finds that the

proposed project meets the first test of Section 30235. The second test of Section 30235 will be discussed below.

Regarding Section 30250, the new development proposed in this project consists of the concrete bulkhead with a deeper foundation than the former concrete bulkhead. The repair of the underpinning of the tea house, the windscreen, and replacement patio are not considered new development. Because an existing residence already exists on site with adequate public services, (i.e. public road access, water, electricity, and telephone) and surrounding properties are already developed with residential development, the Commission finds that the new development proposed in this application will be located within an existing developed area able to accommodate it. Thus, the Commission finds that the proposed project meets Section 30250 of the Coastal Act.

Regarding Section 30253, the proposed development is located within an area of high geologic and flood hazard due to waves, storm waves, flooding, and erosion. This section 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 location of the proposed replacement bulkhead is located within the ocean wave scour area, as determined by the applicant's engineer. These issues are further discussed below.

1. Proposed Project and Site Shoreline

The City of Malibu includes a 27 mile long narrow strip of coast that is backed by the steep Santa Monica Mountains. Unlike most of the California coast, the shoreline in Malibu runs from east to west and forms south-facing beaches. Amarillo Beach is located seaward of the intersection of Pacific Coast Highway and Malibu Canyon Road. Amarillo Beach is developed with single family residences. The majority of the residences on the eastern portion of Amarillo Beach are constructed on the sandy beach with bulkhead walls protecting the residences.

Amarillo Beach is located within the Dume Littoral Subcell, which geographically extends from approximately Point Dume to Redondo Beach. The Dume Subcell is part of the larger Santa Monica Littoral Cell. The fluvial sediment from Malibu Creek and Topanga Canyon Creek is the major contributing sediment source in this Subcell. Given that Amarillo Beach is upcoast from Malibu Creek and Topanga Canyon Creek, sediment to this beach is predominately derived from the upcoast Zuma Littoral Subcell, in which approximately 90% of the sediment continues downcoast bypassing the Dume Canyon Submarine Canyon. In contrast to the Dume Littoral Subcell, where the major sediment source is the large streams referenced above, 60% of the sediment from Zuma Cell's net total sediment is derived from beach/bluff erosion and only 40% is derived from the local streams.²

The main sources of sediment for bluff backed beaches are the bluffs themselves, as well as the material that has eroded from inland sources and is carried to the beach by small coastal streams. While beaches seaward of coastal bluffs follow similar seasonal and semiannual

² Army Corps of Engineers, Los Angeles District, Reconnaissance Study of the Malibu Coast. 1994.

changes as other sandy beaches, they differ from a wide beach in that a narrow, bluff backed beach does not have enough material to maintain a dry sandy beach area during periods of high wave energy. Thus, unlike a wide sandy beach, a narrow, bluff backed beach may be scoured down during the winter months. In the case of Amarillo Beach, a road was constructed at the base of the bluff in the 1920's and has altered the natural process of shoreline nourishment in which beaches such as Amarillo would expose the back of the bluff to frequent wave attack as the beach erodes. In a natural setting, this wave attack leads to eventual erosion and retreat of the lower portions of the bluff. The dynamic of bluff erosion and retreat results in landward movement of the beach's location and, in turn, eroded bluff material provides beach nourishment material to establish a new beach area. In the case of Amarillo Beach, the back of the beach has been fixed in part by Malibu Road and in part by shoreline protective devices that have been constructed on the sandy beach to protect single family residences.

2. Amarillo Beach is an Eroding Beach

This portion of Amarillo Beach is a sandy beach backed by bulkheads and rock revetments protecting residences. Determining the overall beach erosion pattern is one of the key factors in determining the impact of the bulkhead on the shoreline. In general, beaches fit into one of three 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 the normal, seasonal variation.

Two studies regarding long-term trends in shoreline processes were reviewed. First, a U. S. Army Corps of Engineers 1994 Reconnaissance Report regarding the Malibu/Los Angeles County coastline concludes that Puerco Beach to Amarillo Beach is a narrow beach backed, by a high bluff and frontage road. The Army Corps forecasts long term retreat averaging less than one (1) foot per year for Amarillo Beach. However, this section of Amarillo Beach is a sandy beach without a bluff.² Second, a report prepared for the City of Malibu by Moffatt and Nichol, Engineers dated June 30, 1992 was reviewed. This report concludes that this specific section of Amarillo Beach is retreating over the 1938 - 1988 time period; the estimated rate of erosion is between 0.5 and 1.0 feet per year. This report also indicates that the mean beach width (1960 - 1988) was about 40 feet wide.

The applicant produced a report that discussed the proposed project relative to wave uprush and the shoreline processes: Coastal Engineering Report by David Weiss, Structural Engineer & Associates, dated December 4, 1998.

David Weiss, Structural Engineer & Associates identified the design beach profile, wave uprush calculations, design waves, analyzed possible storm wave damage to existing and proposed structures, and provided coastal engineering recommendations for use by design professionals for the design of the concrete bulkhead and remedial underpinning of the tea house on the subject site located along Amarillo Beach. David Weiss provides no conclusion regarding shoreline advancement or retreat along Amarillo Beach. The report identifies the historical mean high tide line locations (1928 and 1961) on the subject site as about 330 and 300 feet, respectively, seaward from the landward property line along Malibu Road. The

seaward extent of the subject concrete bulkhead is about 170 feet seaward from the landward property line along Malibu Road. Therefore, the bulkhead is at least 130 feet landward from the 1961 mean high tide line.

Staff reviewed the proposed project against the above cited shoreline data. The data presented indicates that this section of Amarillo Beach is an eroding beach. The applicant's consultant has provided no significant analysis to the contrary. The studies performed by the U. S. Army Corp of Engineers, indicate that Amarillo Beach is an eroding beach. More specifically, the Moffatt & Nichol Report identifies in detail this subject beach location as eroding between about 0.5 and 1.0 feet per year. In addition, the Moffatt & Nichol Report identifies this subject beach location as about 40 feet wide as the mean beach width from 1960 to 1988. Therefore, the Commission finds that Amarillo Beach is an eroding beach.

3. Location of the Proposed Bulkhead in Relation to Wave Action

It is important to accurately calculate the potential for wave uprush and wave energy potentially affecting the bulkhead in the future. David Weiss, & Associates, the applicant's engineering consultant state in their December 4, 1998 report, that they completed a Coastal Engineering Report. The purpose of the Report is to establish coastal engineering parameters for the reconstruction of the existing bulkhead wall at the project site that was damaged during the severe storms of February 1998. The services performed in the Report included; performing wave uprush calculations and plots for design beach profile for critical storm generated waves, analyzed possible storm wave damage to proposed structures, and gave recommendations to protect those structures.

A key factor in determining potential impacts on the proposed bulkhead is its locational relationship to the expected wave runoff. The former concrete bulkhead was located seaward of the existing residence along Malibu Road. The applicant proposes to reconstruct the concrete bulkhead in the same location which is no further seaward than about 170 feet of the most landward property line along Malibu Road right-of-way (Exhibit 6). The profile data, cited in detail below, shows that the position of the proposed bulkhead is not located near documented positions of the Mean High Tide Line (MHTL).

The submitted Partial Wave Uprush Study included two wave designs to determine the location of where waves would break and the most landward extent of the wave uprush. According to both wave design scenarios, the waves would break seaward of the design shoreline. Wave uprush would extend to about 148 and 115 feet seaward from the Malibu Road right-of-way, which would be 22 and 58 feet landward of the proposed bulkhead replacement location (Exhibit 6). Therefore, the proposed bulkhead would prevent wave uprush from reaching the residence and tea house landward of the bulkhead.

Based on the above discussion and facts concerning Amarillo Beach, the Commission finds that the proposed 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. Furthermore, the Commission finds that Amarillo Beach is a narrow eroding beach and that the proposed bulkhead, at times, will be subject to wave action during storm and/or high tide

events. Therefore, the following discussion is intended to evaluate the impacts of the proposed bulkhead on the beach based on the above information that identifies the specific structure design, the location of the structure, and the shoreline geomorphology.

4. Effects of the Shoreline Protective Device on the Beach

The proposed concrete bulkhead is located seaward of an existing residence and tea house on the sandy beach about 170 feet seaward of the Malibu Road right-of-way (Exhibits 4 and 6). An engineered bulkhead is typically built along straight sand beaches or low coastal bluffs where fill can be placed landward of the bulkhead to support roadways, sewage disposal systems, and patios that are constructed on fill land. In this case, the bulkhead supports fill land where a patio, residence, and tea house is located. Therefore, the bulkhead structure functions as both a retaining structure and as protection from wave attack and wave runup.

The proposed project involves a shoreline structure that, as a result of wave interaction, has the potential to affect the configuration of the shoreline and the beach profile and may have an adverse impact on the shoreline. Even though the precise impact of a shoreline structure on the beach is a persistent subject of debate within the discipline of coastal engineering, 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 whether it is a vertical bulkhead or a rock revetment. The main difference between a vertical bulkhead and rock revetment is their physical encroachment onto the beach. However, it has been well documented by coastal engineers and coastal geologists that shoreline protective devices or shoreline structures in the form of either a rock revetment or vertical bulkhead will adversely impact the shoreline as a result of beach scour (the beach areas at the end of the seawall), retain potential beach material behind the wall, fix the back beach, and interrupt longshore processes. In order to evaluate these potential impacts relative to the proposed structure and its location on Amarillo Beach, each of the identified effects will be evaluated below.

a. Encroachment on the Beach

Shoreline protective devices, such as seawalls, bulkheads, revetments, groins, etc., all are physical structures which occupy space. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used for other beach purposes, such as recreation. If the underlying beach area is public beach, the public will not be able to use the beach area in the way it had prior to the placement of the device. This area will be altered from the time the protective device is constructed and the extent or area occupied by the device will remain the same over time, until the device is removed or is moved from its initial location.

The applicant proposes to reconstruct a shoreline protective device that does not encroach any further seaward than the former bulkhead damaged by storm waves. Therefore, the actual physical displacement of sandy beach that is available for public recreation or access is not an issue in this case. However, as discussed below, the potential adverse effects to the beach

profile resulting from scour effects of the bulkhead may affect public access and recreation on the beach.

b. 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 shoreline protective devices is a frequently observed occurrence. When waves impact on a hard surface such as a coastal bluff, rock revetment or vertical bulkhead, some of the energy from the wave will be absorbed, but much of it will be 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 seawalls have some effect on the supply of sand. The following quotation summarizes a generally accepted opinion within the discipline of coastal engineering that:

Seawalls usually cause accelerated erosion of the beaches fronting them and an increase in the transport rate of sand along them.³

Ninety-four experts in the field of coastal geology, who view beach processes from the perspective of geologic time, signed the following succinct statement of the adverse effects of seawalls:

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.⁴

The above 1981 statement signed by 94 respected coastal geologists indicates that sandy beach areas available for public use can be harmed through the introduction of seawalls. 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. Specifically, to protect the public's access along the ocean and to the water, as discussed in more detail in the subsequent Section IV.C. titled; Public Access.

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

³ Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 4.

While seawalls may protect the upland, they do not hold or protect the beach which is the greatest asset of shoreline 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. ⁴

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

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. ⁵

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 backbeach and the beach itself. He concludes that:

Seawalls inhibit erosion that naturally occurs and sustains the beach. The two 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. ⁶

Dr. Everts further concludes that armoring in the form of a seawall 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.

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 bluff's contribution of sand to the beaches, resulting in narrowing of the beach. Although this may occur slowly, the Commission concludes that it is the inevitable effect of constructing a seawall

⁴ State Department of Boating and Waterways (formerly called Navigation and Ocean Development) Shore Protection in California (1976), page 30.

⁵ Coastal Sediments '87.

⁶ Letter Report dated March 14, 1994 to Coastal Commission staff engineer Lesley Ewing from Dr. Craig Everts, Moffatt and Nichol Engineers

on an eroding shoreline. In such areas, even as erosion proceeds, a beach would be present in the absence of a seawall.

As set forth in the above discussion, Amarillo Beach is a narrow eroding beach with a mean beach width of about 40 feet during the period of time from 1960 to 1988. The applicant's coastal engineering consultant has indicated that the bulkhead will be acted upon by waves during storm conditions. The applicant's consultant, David Weiss and Associates, has stated that wave uprush will extend up to 115 feet of the Malibu Road right-of-way line and 58 feet landward of the location of the proposed bulkhead, if the property were not protected with a bulkhead. This estimate of wave runup does not take into account worst case severe storm events. If an eroded beach condition occurs with great frequency due to the placement of this bulkhead, this site would also accrete at a slower rate. During periods of beach erosion, this site would erode more. Therefore, based on the report prepared by the Army Corp of Engineers, the 1994 Moffatt & Nichols Malibu study, and the analysis of David Weiss and Associates, the Commission finds that over time, the bulkhead would be acted upon more frequently during winter months.

The Commission notes that many studies performed on both oscillating and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device exists. The Coastal Engineering Report, dated December 4, 1998, addresses beach scour created by the proposed bulkhead. The Report states:

There may be some potential for a little additional scour at the base of the wall due to "reflected" wave forces. Maybe a better way to describe the phenomenon is depression in front of the wall due to reflected wave forces. When a wave hits a vertical surface, some of the water is reflected up, some down. It is the downward deflection that causes the "depression". There is no more scour of sand off the beach. The sand that is scoured off the beach is still deposited just seaward of the site to form a sand bar to protect the backshore from storm wave action. This depression is not permanent and is accounted for in the specification of the depth of the sheathing/structure.

Therefore, the Commission notes that the proposed bulkhead, over time, will result in potential adverse effects to the beach sand supply resulting in increased seasonal erosion of the beach and longer recovery periods.

The impacts of potential beach scour is important relative to beach use for two reasons. The first reason involves public access. As explained in the subsequent section relating to public access, Amarillo Beach has historically been used by the public. The subject property is located within about 1,000 feet from an existing vertical public accessway to the west and within about 1,000 feet of an existing vertical public accessway to the east that have been maintained and operated by Los Angeles County. If the beach scours at the base of the bulkhead, even minimal scouring in front of the 71 foot long wall will translate into a loss of beach sand available (i. e. erosion) at a more accelerated rate than would otherwise occur under a normal winter season if the beach were unaltered. The second impact relates to the potential turbulent ocean condition. Scour at the face of the bulkhead will result in greater interaction with the wall, and thus, make the ocean along Amarillo Beach more turbulent than it

would along an unarmored beach area. Therefore, the Commission finds that the proposed bulkhead will cause greater erosion than under natural conditions and less rapid beach recovery through accretion.

As such, the Commission has ordinarily required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts from scour and erosion. In the case of this project, the Commission notes that the applicant has located the proposed bulkhead as far landward as feasible. The proposed bulkhead will be aligned with the similar bulkhead walls on the adjoining properties to the west and to the east. As such, the alignment and connection of the proposed bulkhead with the bulkhead walls on the adjoining properties to the west and east will serve to minimize end effect erosion between the structures. Because the proposed concrete bulkhead is a replacement bulkhead in the same location, the Commission finds that no new adverse impacts on the beach will be created as a result. Therefore, the Commission finds, as conditioned, that the project will minimize the adverse impacts resulting from construction of a replacement bulkhead and is consistent with the applicable Coastal Act sections and with past Commission action.

c. End Effects

End effects involve the changes to the beach profile adjacent to the bulkhead or seawall at either end. One of the more common end effects comes from the reflection of waves off the bulkhead in such a way that they add to the wave energy that 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, wave energy is reflected back and to the ends that can cause erosion at the upcoast and downcoast ends of the revetment. In the case of a vertical bulkhead, return walls are typically constructed, and, thus, wave energy is also directed to the return walls causing end erosion effects.

With respect to the subject site, the adjacent properties upcoast to the west and downcoast to the east are developed with residences and have similar concrete bulkheads which also protects their respective residences. These adjoining bulkheads are located in the same alignment as this subject bulkhead. The submitted plans indicate that the proposed concrete bulkhead will be located to conform to and connect to the existing bulkheads on the adjoining properties. The applicant's consultant, David Weiss a registered coastal engineer, has prepared, stamped, and signed the submitted plans.

The applicant's consultant, David Weiss and Associates, submitted information regarding the potential end effects of the proposed bulkhead. The Coastal Engineering Report, dated December 4, 1998 states:

It is my opinion that the bulkhead will have no adverse effects on adjacent properties. The project is the replacement of an existing bulkhead that is just one bulkhead structure in a line of over 1 mile of bulkheads from a few lots just out side of the west end of the Malibu Colony to the east end of the Malibu Colony. All of the bulkheads are on approximately the same line and connect end to end.

The Commission notes that end effect erosion may be minimized by locating a proposed shoreline protection device as landward as possible in order to reduce the frequency that the bulkhead is subject to wave action. In the case of this project, the Commission further notes that the proposed bulkhead is located as landward as feasible and still be able to align and connect with the existing bulkheads located on adjoining property to the west and east. The alignment and connection of the proposed bulkhead wall with the existing adjoining bulkheads to the west and east will also serve to minimize end effect erosion between the bulkhead and adjoining properties. As such, the proposed bulkhead is designed to minimize erosional end effects along both the western and eastern ends of the wall. Therefore, the proposed project, as conditioned, is consistent with the applicable Coastal Act sections and with past Commission action.

d. Retention of Potential Beach Material

A shoreline protective device's retention of potential beach material inherently impacts shoreline processes. One of the main functions of a bulkhead or revetment is upland stabilization; to keep the upland sediments from being carried to the beach by wave action and bluff retreat. In the case of Amarillo Beach, which is located in the Santa Monica Littoral Cell, the back of the beach is fixed along bulkheads located seaward of residences and Malibu Road. When the beach in front of the structure disappears over time, the natural shoreward migration of the beach is blocked by the structure. The National Academy of Sciences found that retention of material behind a shoreline 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 seawall 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 ... ⁷

As explained, the bulkhead will protect a residence, tea house, garage, and Malibu Road from continued loss of sediment. However, the result of this protection, particularly on a narrow, eroding beach, is loss of sediment on the sandy beach area that fronts the bulkhead. 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.

As such, the Commission has ordinarily required that all new development on a beach, including shoreline protection devices, which may have adverse impacts on the beach sand supply to offer public lateral access easements in order to reduce any adverse impacts to

⁷ National Academy of Sciences, Responding to Changes in Sea Level: Engineering Implications, National Academy Press, Washington D.C., 1987, page 74.

public access. In past permit actions, the Commission has also required that all new development on a beach, including shoreline protection devices, provide for public lateral access along the beach in order to reduce any adverse impacts to public access. However, the applicant's proposed bulkhead is a replacement bulkhead located in the same location as the bulkhead destroyed by the winter storms of early 1998. The bulkhead is located no further seaward than the former bulkhead. As such the proposed project does not create any new adverse effects on public access along the beach. Therefore, a new public lateral access easement along the beach is not necessary in this case as discussed further below. Therefore, as conditioned, the project will minimize the adverse effects resulting from construction of the replacement bulkhead and is consistent with the applicable Coastal Act sections and with past Commission action.

5. Alternative Designs and Locations

There are numerous alternatives to consider ranging from alternative designs to alternative locations for a shoreline protective device. As an example, it has been found that the further landward the bulkhead is located, the less beach scour will result. In response to the initial application submittal on June 5, 1998, Staff requested, in a letter dated June 26, 1998, a wave uprush study prepared in accordance with the Commission guidelines, since one was not submitted with the application. Staff requested a discussion and analysis of alternatives in accordance with our guidelines for information needed for shoreline protective devices.

The applicant's engineer, David Weiss and Associates, addressed alternatives in the Coastal Engineering Report dated December 4, 1998 by stating:

The purpose of the proposed bulkhead is to protect the existing house foundation. There are always alternatives. One alternative might be a rock revetment. A rock revetment might be more effective at dissipating ocean wave forces than a vertical wall; however, the footprint of a revetment would extend much further out onto the beach. The alternative of no protective structure at all is not viable since the foundation needs the protection. The third alternative of moving the wall back is not possible since the wall is already against the south side (ocean side) of the teahouse. Additionally, the wall can't be moved back, leaving the flank of the adjacent property unprotected. The best location for this wall is its original location, in line with the bulkheads on the adjacent properties.

The applicant's consultant, David Weiss and Associates, concluded that alternatives such as a rock revetment, relocating the concrete bulkhead landward of the proposed location, and not constructing a bulkhead, are not feasible. In this case, the alternative designs are determined to be infeasible.

Therefore, the Commission finds that constructing a replacement bulkhead at the same location is the preferred and feasible alternative. Therefore, the proposed project, as conditioned, is consistent with Sections 30235, 30250, and 30253 of the Coastal Act.

6. Conclusion

In conclusion, the Commission finds that the proposed replacement bulkhead will potentially have adverse effects on the shoreline. However, the replacement bulkhead will not result in any additional adverse impacts on any of the following over and above the former bulkhead on the site: sand supply and public access as a result of beach scour; retention of potential beach material and interruption of onshore and along shore processes to the beach; or to natural shoreline processes. However, Coastal Act section 30235, which is previously cited, states that shoreline protective devices, such as revetments 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 the case of this project, the applicant's coastal engineering consultant has stated that the proposed replacement bulkhead is necessary to protect an existing single family residence, tea house and garage. Further, as previously discussed in detail, the Commission also finds that the subject site is located on a beach that appears to be an eroding beach and that the proposed replacement bulkhead would serve to protect existing residential development.

In addition, in past permit actions, the Commission has required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts to the sand supply and public access resulting from the development.⁸ The Commission notes that the applicant has located the proposed bulkhead as far landward as feasible in order to align the proposed bulkhead with the existing bulkhead to the west and connect it to the existing bulkhead to the east of the applicant's project site. Alignment and connection of the proposed bulkhead with the existing adjoining bulkheads will also minimize end effect scour and erosion between adjoining properties. Therefore, the Commission finds that the proposed project, as conditioned, meets the first and second tests of Section 30235.

Therefore, as proposed, the project will minimize the adverse effects resulting from the replacement revetment and is consistent with the applicable Coastal Act sections. Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Section 30235 of the Coastal Act. In addition, the Commission finds that the proposed replacement bulkhead is located within an existing developed area able to accommodate it and therefore meets Section 30250 of the Coastal Act. The Commission also finds that the proposed project, as conditioned, will minimize risks to life and property in areas of flood hazard and assure stability and structural integrity that will not require the construction of shoreline protective devices that would substantially alter natural landforms along the coast. Therefore, the Commission finds that, only as conditioned, is the proposed project consistent with Sections 30235, 30250, and 30253 of the Coastal Act.

⁸ Coastal Development Permit No. 4-98-051, (Tuchman)

C. Public Access.

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

Section 30210 of the Coastal Act states:

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

Section 30211 of the Coastal Act states:

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

Section 30212 of the Coastal Act states (in part):

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

...

(2) adequate access exists nearby...

Section 30220 of the Coastal Act states:

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

1. Public Access

Coastal Act sections 30210 and 30211 mandate that maximum public access and recreational opportunities be provided and that development not interfere with the public's right to access the coast. Likewise, section 30212 of the Coastal Act requires that public access to the sea be provided, except where adequate access exists nearby. Section 30211 provides that development not interfere with the public's right of access to the sea including the use of dry sand and rocky coastal beaches. Section 30220 of the Coastal Act requires coastal areas suited for coastal recreational activities, that cannot be provided at inland water areas, be protected.

All beachfront projects requiring a Coastal Development Permit must be reviewed for compliance with the public access provisions of Chapter 3 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. The major access issue in such permits is the occupation of sand area by a structure, in contradiction of Coastal Act policies 30210, 30211, and 30212.

However, a conclusion that access may be mandated does not end the Commission's inquiry. As noted, Section 30210 imposes a duty on the Commission to administer the public access policies of the Coastal Act in a manner that is "consistent with ... the need to protect ... rights of private property owners..." The need to carefully review the potential impacts of a project when considering imposition of public access conditions was emphasized by the U.S. Supreme Court's decision in the case of Nollan vs. California Coastal Commission. In that case, the court ruled that the Commission may legitimately require a lateral access easement where the proposed development has either individual or cumulative impacts which substantially impede the achievement of the State's legitimate interest in protecting access and where there is a connection, or nexus, between the impacts on access caused by the development and the easement the Commission is requiring to mitigate these impacts.

The Commission's experience in reviewing shoreline residential projects in Malibu indicates that individual and cumulative impacts on access from such projects can include among others: encroachment on lands subject to the public trust, thus, physically excluding the public; interference with natural shoreline processes which are necessary to maintain publicly-owned tidelands and other beach areas; overcrowding or congestion of such tideland or beach areas; and visual or psychological interference with the public's ability to use beach access and cause adverse impacts on public access.

As proposed by the applicants, this project will not extend any further seaward than the former concrete bulkhead that existed prior to winter storms of 1998. The former bulkhead destroyed in February 1998 is located no further seaward than about 170 feet from the landward property line at the Malibu Road right-of-way (Exhibits 4 and 6). The construction of the replacement concrete bulkhead, does constitute new development under the Coastal Act because the foundation is located about two (2) to three (3) feet deeper than the former bulkhead and it is embedded into bedrock. The construction of the replacement windscreen, underpinning of the tea house, and replacement of the patio does not constitute new development.

The proposed project must be judged against the public access and recreation policies of the State Constitution, Sections 30210, 30211, 30212, and 30220 of the Coastal Act. Along the California coast, the line between land and ocean is complex and constantly moving. This dynamic environment has introduced uncertainty into questions about the location of public and private ownership as well as rights of public use. It is generally accepted that the dividing line between public tidelands and private uplands, or the tidal boundary, in California is the mean high tide line (MHTL), essentially the same as the ordinary high water mark or line. What is not well-settled as a legal matter is how that line translates into an on-the ground location.

The courts have not fully resolved the question of the extent to which the location of the tidal boundary in California changes as the profile of the shoreline changes. Where there has not been a judicial declaration of a reasonable definite boundary based upon evidence in a specific case, or where the upland owner has not entered into an agreement with the state fixing the boundary, uncertainty remains.

Nevertheless, despite this legal uncertainty, as a practical matter the actual dividing line between sea and land moves constantly, and this gives rise to issues involving protection of public rights based on use, rather than ownership. These use rights arise 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.

The beaches of Malibu are extensively used by visitors of both local and regional origin and most planning studies indicated that attendance of recreational sites will continue to significantly increase over the coming years. While the Commission cannot determine if prescriptive rights exist on the subject property, it must protect those potential public rights by assuring that any proposed shoreline development does not interfere with or will only minimally interfere with those rights. Presently, this shoreline remains open and can be used by the public for access and general recreational activities.

Regarding vertical public access from Malibu Road to the beach, the project site is located about 1,000 feet east of a vertical public accessway (owned and operated by the County of Los Angeles since the 1960's) that has historically been used by the public to access Amarillo, Puerco and Malibu Beaches. Malibu Beach is located to the east of the subject site. Additionally, there are approximately four other vertical accessways that lead from Malibu Road to Puerco and Amarillo Beaches further to the west of the subject site. In addition, there is a vertical accessway near Malibu Lagoon State Beach (Surfrider Beach) located about 1,000 feet to the east of the subject site. Therefore, vertical access to the beach exists nearby.

Regarding lateral public access and state tidelands ownership, the State Lands Commission, in a letter dated August 28, 1998, reviewed the proposed project. The State Lands Commission staff noted that they do not have sufficient information to determine whether the project intrudes upon state sovereign lands or interferes with other public rights. The applicant's engineer, in the Coastal Engineering Report, has identified the Mean High Tide Line (MHTL) as of 1928 and 1961 to be located about 330 and 300 feet, respectively, seaward of the landward property boundary and the Malibu Road right-of-way (Exhibit 7). The applicant did not submit any evidence of any known and more recent MHTL survey. The proposed bulkhead is located as far seaward as about 170 feet (within the bulkhead stringline) from the Malibu Road right-of-way (Exhibit 6). Assuming these MHTL's are accurate, there is either about 130 to 160 feet of beach until the Mean High Tide Line is reached. It is important to note that although the MHTL is ambulatory there is no evidence that the proposed additions will extend to the MHTL or onto state sovereign lands. According to the Commission's access records, there are no existing offers to dedicate public access easements recorded on the applicant's property.

The analysis cited in the preceding section indicates that the proposed project will not have any new impacts on the shoreline processes. The analysis further indicates that there is a strong possibility that the shoreline is eroding. However, since the bulkhead is located at the farthest landward location along the stringline of adjoining bulkheads protecting residences along Malibu Road, there will be no significant impacts on public access. Further, because the

proposed bulkhead is sited as far back above the beach as feasible, the Commission finds that there will be no new or additional beach scour or end impacts on the beach which would affect lateral access along the beach. Therefore, there is no basis to require a condition to establish a lateral access easement across the applicant's property.

2. Stringline Review and Visual Resources

Section 30251 of the Coastal Act states:

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.

Through Coastal Act Sections 30210, 30211, 30251 and 30253 noted above and in other sections of this report, the Commission has developed the "stringline" policy to control the seaward extent of buildout in past permit actions. As applied to beachfront development, the stringline limits extension of a structure to a line drawn between the nearest corners of adjacent structures, and limits decks and windscreens to a similar line drawn between the nearest corners of adjacent structures and decks.

The Commission has applied this policy to numerous past permits involving infill on sandy beaches and has found it to be an effective policy tool in preventing further encroachment onto sandy beaches. In addition, the Commission has found that restricting new development to buildings and decks is an effective means of controlling seaward encroachment to ensure maximum public access as required by Sections 30210 and 30211 and to protect public views and scenic quality of the shoreline as required by Section 30251 of the Coastal Act.

The applicant has submitted a plan with a stringline connecting the replacement bulkhead with the replacement windscreen on top of it to the existing bulkheads on either side of the project site (Exhibit 3). The plan indicates that the former windscreen is located within the stringline of the adjacent bulkheads. Therefore, the Commission finds that the proposed replacement windscreen does conform to this setback. The existing tea house is located beyond the stringline of adjoining residential structures and is considered existing non-conforming as to stringline of adjoining structures. The seaward portion of the tea house is proposed to be underpinned to adequately support its foundation. As proposed, the replacement windscreen and the underpinning of the existing tea house will not extend new development further seaward than adjacent development, thereby minimizing potential impacts to public access opportunities, public views and the scenic quality along the sandy beach. Further as noted above, the applicant does not propose any new shoreline protective device which could interfere with coastal processes.

And lastly, pursuant to Section 30251 of the Coastal Act, the Commission reviews the publicly accessible locations along adjacent public roads and the sandy beach where the proposed

development is visible to assess visual impacts to the public. The Commission examines the proposed construction site and the size of the proposed project. The existing residence and solid wall along Malibu Road already blocks public views from the highway to the beach and ocean. Although the replacement concrete bulkhead and windscreen will be visible from the public sandy beach, the visibility of the bulkhead is limited particularly when sand covers the beach and the base of the bulkhead during the majority of the year. The bulkhead and the windscreen will be visible from the beach during the winter months when sand level is lower as a result of scour. The tea house underpinning will not be visible as it is located below grade as part of the foundation. The replacement patio is at the grade of residence and landward of the bulkhead, therefore, it is not visible from the beach. However, the more scenic inland views of the Santa Monica Mountains as viewed from the beach and water are well above these proposed replacement developments. Thus, the proposed bulkhead, windscreen, patio replacement, and tea house underpinning will not adversely affect existing public views.

Therefore, the Commission finds that the proposed project, as conditioned, will have no individual or cumulative impacts on public access on the sandy beach seaward of the residence or public views to and along the coast, and is thus, consistent with Sections 30210, 30211, 30212, 30220, and 30251 of the Coastal Act.

D. Hazards and Geologic Stability

Coastal Act Section 30253 states (in part):

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. In addition to Section 30253 of the Coastal Act, the certified Malibu/Santa Monica Mountains LUP includes several policies and standards regarding hazards and geologic stability. These policies have been certified as consistent with the Coastal Act and used as guidance by the Commission in numerous past permit actions in evaluating a project's consistency with Section 30253 of the Coastal Act. For example, Policy 147 suggests that development be evaluated for impacts on and from geologic hazards.

1. Storm, Wave and Flood Hazard

The Malibu coast has been subject to substantial damage as a result of storm and flood occurrences, geological failures and firestorms. Therefore, it is necessary to review the proposed project and project site against the area's known hazards. The proposed project involves the replacement of a concrete bulkhead, windscreen, patio, and underpinning for an

existing tea house, on a lot developed with a residence and garage located on a developed stretch of Amarillo Beach.

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

The southerly and southwesterly facing beaches in the Malibu area were especially hard hit by waves passing through the open windows between offshore islands during the 1978 and 1980 storms. These waves broke against beaches, seawalls, and other structures, causing damages of between \$2.8 and \$4.75 million to private property alone. The amount of erosion resulting from a storm depends on the overall climatic conditions and varies widely from storm to storm. Protection from this erosion depends largely on the funds available to construct various protective structures that can withstand high-energy waves.⁹

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

In general, the storms greatly affected the character of the Malibu coastline. Once quiet, wide, sandy beaches were stripped of their sand and high surf pounded residential developments The severe scour, between 8 to 12 feet, was greater than past scour as reported by "old timers" in the area. Sewage disposal systems which rely on the sand cover for effluent filtration were damaged or destroyed creating a health hazard along the coast. Flotsam, including pilings and timbers from damaged piers and homes, battered coastal improvements increasing the destruction. Bulkhead failures occurred when sand backfill was lost due to scour exceeding the depth of the bulkhead sheeting, or scour extending beyond the return walls (side walls of the bulkhead which are extended toward the shore from the front wall of the bulkhead).¹⁰

Other observations that were noted included the fact that the storm's damage patterns were often inconsistent. Adjacent properties suffered different degrees of damage sometimes unrelated to the method or age of construction. The degree of damage was often related to

⁹ "Coastal Winter Storm Damage, Malibu, Los Angeles County, Winter 1977-78", part of the National Research Council proceedings, George Armstrong.

¹⁰ "Assessment of 1982-83 Winter Storms Damage Malibu Coastline", by Frank Denison and Hugh Robertson, in California Geology, September 1985.

past damage history and the nature of past emergency repairs. Upcoast (west) of Amarillo Beach, walls at Zuma Beach and the parking lots were damaged by wave uprush and scour. Debris was deposited onto the margin of Pacific Coast Highway.

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

As proposed, the existing residence is a structure located on fill material over the sandy beach with a ground floor elevation of about 14.0 feet above Mean Sea Level. As noted above, the proposed bulkhead and the seaward portion of the existing residence is located within the wave uprush area if the bulkhead were not in place. The top of the proposed replacement bulkhead is 12.0 feet above Mean Sea Level (MSL). The maximum wave height expected as noted in the submitted Coastal Engineering Report by David Weiss and Associates, dated December 4, 1998 is about 12.7 feet MSL at the bulkhead. The report notes that although the maximum height of this design wave is about 0.7 feet higher than the top of the wall, it is adequate to protect the residence. The report states:

Therefore, it is my opinion that although the mathematical model shows that the elevation of the breaking wave is .7' higher than the top of the wall, it will not be overtopped in a storm of design magnitude.

Even if the wave does overtop the wall by .7', it will wash onto the patio which is almost 3' lower than the elevation of the floor of the house. There has been no past history of waves overtopping the original wall. The problem is and always has been undermining of foundations of the house and undermine footings, if there is no protective structure to stop them.

The applicant's submittal includes a Limited Soils Engineering Investigation, Proposed Sea Wall and Remedial Underpinning prepared by GeoConcepts, Inc. dated June 2, 1998. The Report concludes:

1. The proposed remedial repair is feasible provided that recommendations contained herein and within the applicable building codes are followed.
2. Fill was encountered with a thickness up to (3.5) feet. The fill is underlain by beach deposits which consist of sand and clayey sand. Cobbles were reported at a depth of 9 – 11 feet on the adjacent property by Kovacs-Byer & Associates.
3. Based upon field observations, laboratory testing and analysis, the beach deposits found in the explorations should possess sufficient strength to support the proposed sea wall.

...

It is the finding of this corporation, based upon the subsurface data, that the proposed project will be safe from landslide or slippage and will not adversely affect adjacent

property, provided this corporation's recommendations and those of the Los Angeles County Code are followed and maintained.

During the winter season, the proposed replacement bulkhead will continue to extend into an area exposed to waves, storm waves, flooding, and erosion hazards that in the past have caused significant damage to development along the California coast, including the Malibu coastal zone and the beach area nearby the subject property. The Coastal Act recognizes that development, such as the proposed bulkhead, windscreen, patio and underpinning of the tea house, may involve the taking of some risk. Coastal Act policies require the Commission to establish the appropriate degree of risk acceptable for the proposed development and to determine who should assume the risk. When development in areas of identified hazards is proposed, the Commission considers the hazard associated with the project site and the potential cost to the public, as well as the individual's right to use his property.

The Commission finds that due to the unforeseen possibility of waves, storm waves, erosion, and flooding, the applicant shall assume these risks as a condition of approval. Because this risk of harm cannot be completely eliminated, the Commission is requiring the applicant to waive any claim of liability on the part of the Commission for damage to life or property which may occur as a result of the permitted development. The applicant's Assumption of Risk, Waiver of Liability and Indemnity, as required by Special Condition Number one (1), when executed and recorded on the property deed, will show that the applicant is aware of and appreciated the nature of the hazards which exist on the site, and which may adversely affect the stability or safety of the proposed development.

2. Site Geologic Stability

Beachfront development on a sandy beach raise issues relative to a site's geologic stability. As stated previously, Malibu Road, which abuts the subject property, is at the base of a coastal bluff. Malibu Road was the original route of State Highway 1, however, the right-of-way was relocated further inland as a result of historical erosion and bluff sloughing problems.

As stated previously, the applicant submitted a Limited Soils Engineering Investigation prepared by GeoConcepts, Inc. dated June 2, 1998. The report states that the project site will not be affected by hazards as long as the Corporation's (GeoConcepts, Inc.) and Los Angeles County Code are followed and maintained. In addition, the applicant has submitted a Geology Referral Sheet from the City of Malibu, dated 6/1/98, which states that the project is geologically feasible and can proceed through the planning stage.

As set forth in Section 30253 of the Coastal Act, new development shall assure structural integrity neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area. The Commission finds that the development is consistent with Section 30253 of the Coastal Act so long as the engineering consultant's recommendations are incorporated into project plans. The applicant submitted plans that included these recommendations and were stamped and signed by the registered professional engineer indicating that the GeoConcepts, Inc. recommendations were incorporated. Therefore, the

Commission finds that the submitted plans have been certified in writing by the consulting Engineer as conforming to their recommendations.

Lastly, as noted above, the project involves some demolition and construction on a beachfront lot subject to tidal influence. The proposed development, with its limited excavation of sandy beach and terrace deposits with beach level construction activity, may result in disturbance of the offshore rocky intertidal and kelp bed habitat through erosion, siltation, and debris deposition. Construction equipment, materials and demolition debris could pose a significant hazard if used or stored where subject to wave contact or situated in a manner that creates a hazard for beach users. Because the applicant has completed this proposed project on an emergency basis as a result of Emergency Coastal Development Permit No. 4-98-108-G, the construction materials and debris have been already removed from the site. The applicant has complied with Condition Number 7 of the Emergency Permit which requires the applicant to ensure that the project contractor; (a) not store any construction/demolition materials or waste where it may be subject to wave erosion and dispersion; (b) not allow any machinery in the intertidal zone at any time; and (c) remove promptly from the beach any and all debris that results from the construction/demolition activities. The Commission finds that the construction of the proposed project has minimized risks to life and property in this public beach area that is subject to wave hazards and the applicant has protected coastal resources during its construction/demolition.

Therefore, the Commission finds that the proposed development, as conditioned, is consistent with section 30253 of the Coastal Act.

E. Local Coastal Program

Section 30604 of the Coastal Act states that:

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

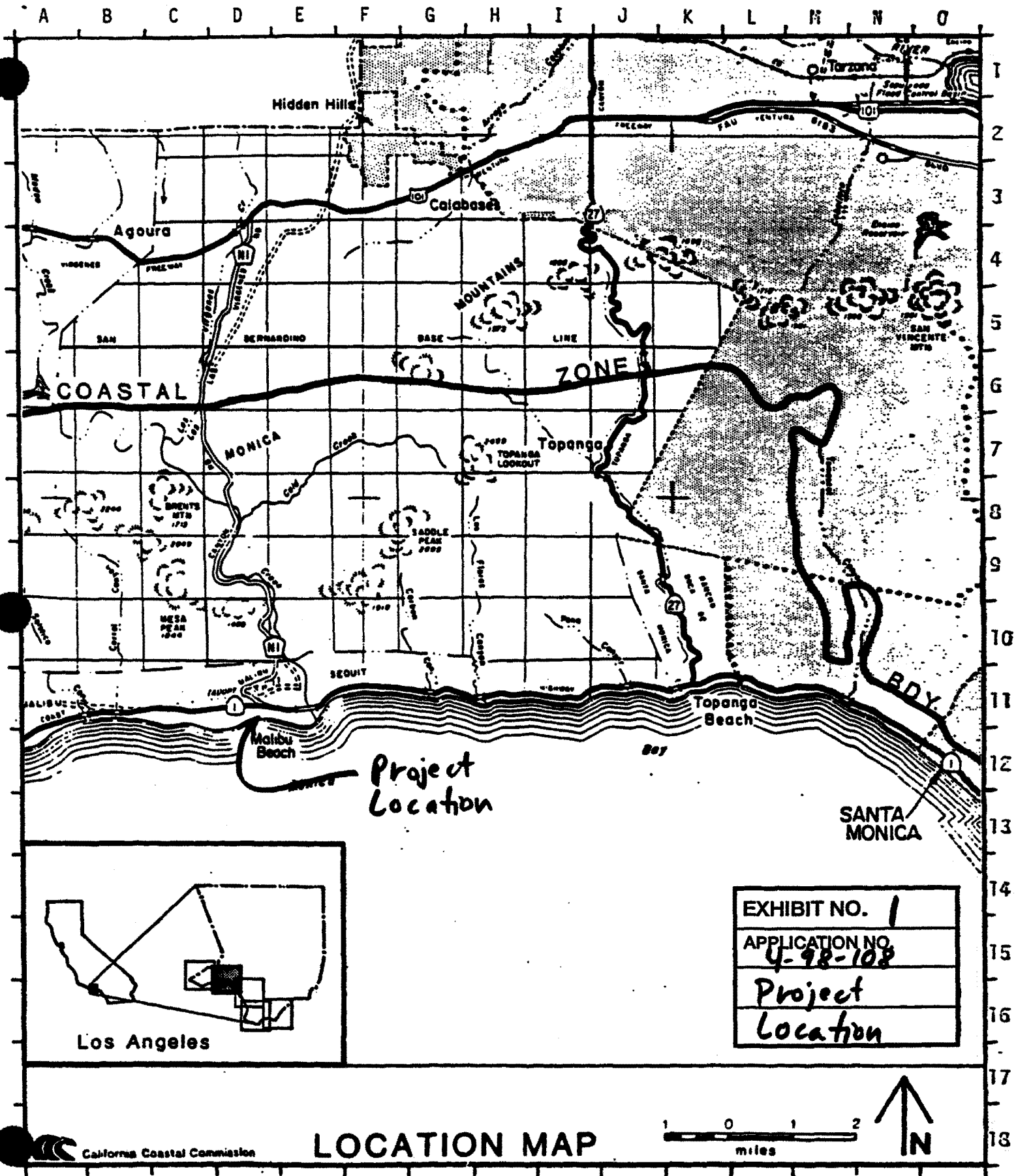
Section 30604(a) of the Coastal Act provides that the Commission shall issue a Coastal Permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program which conforms with Chapter 3 policies of the Coastal Act. The preceding sections provide findings that the proposed project will be in conformity with the provisions of Chapter 3 if certain conditions are incorporated into the project and accepted by the applicant. 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).

F. CEQA

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

The Commission finds that, the proposed project, as conditioned will not have 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 determined to be consistent with CEQA and the policies of the Coastal Act.

498108alagemreport



Project Location

EXHIBIT NO. 1
APPLICATION NO. 4-98-108
Project Location

California Coastal Commission

LOCATION MAP

County of Los Angeles

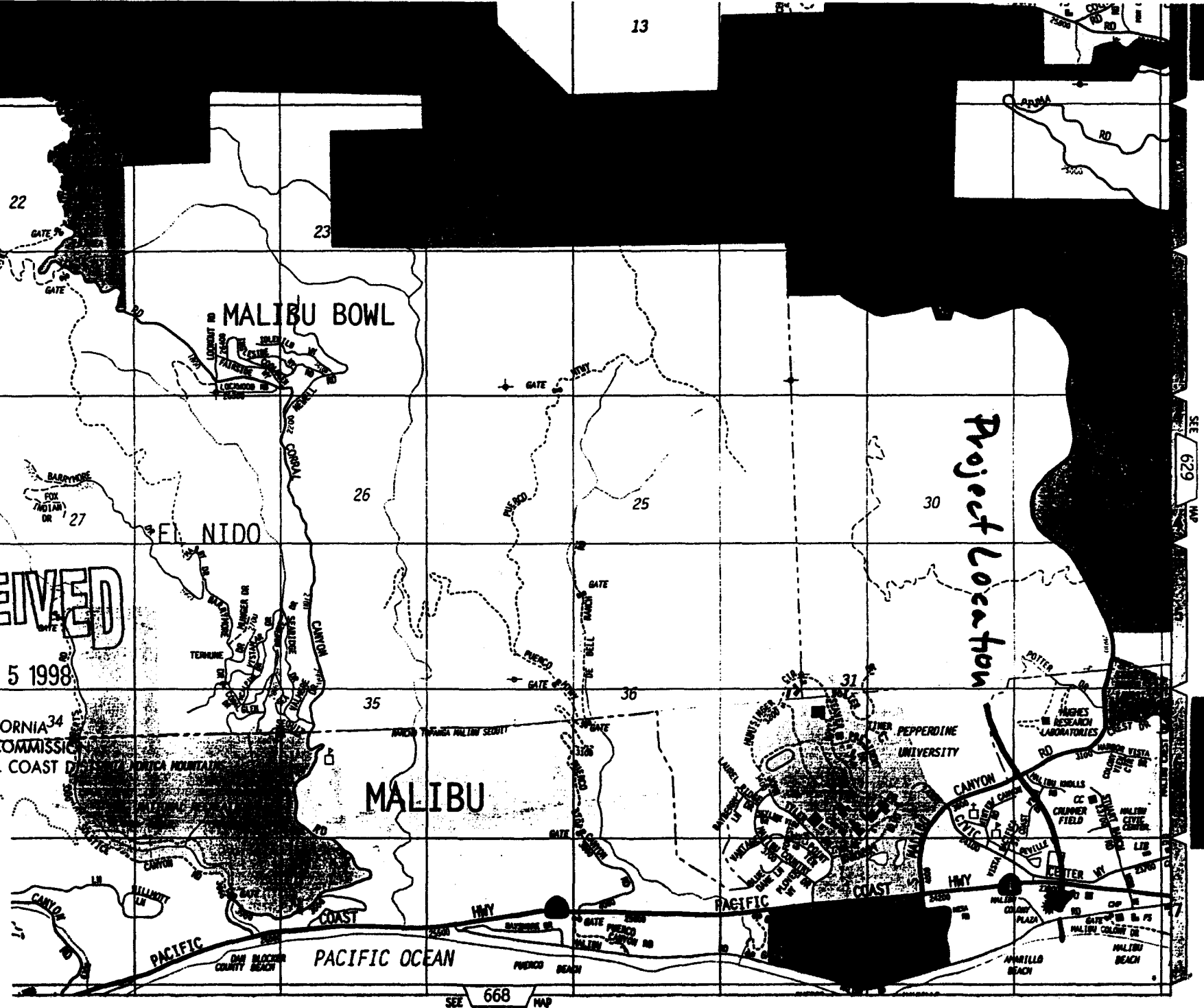
Sheet 2 of 5

MAP SEE 027

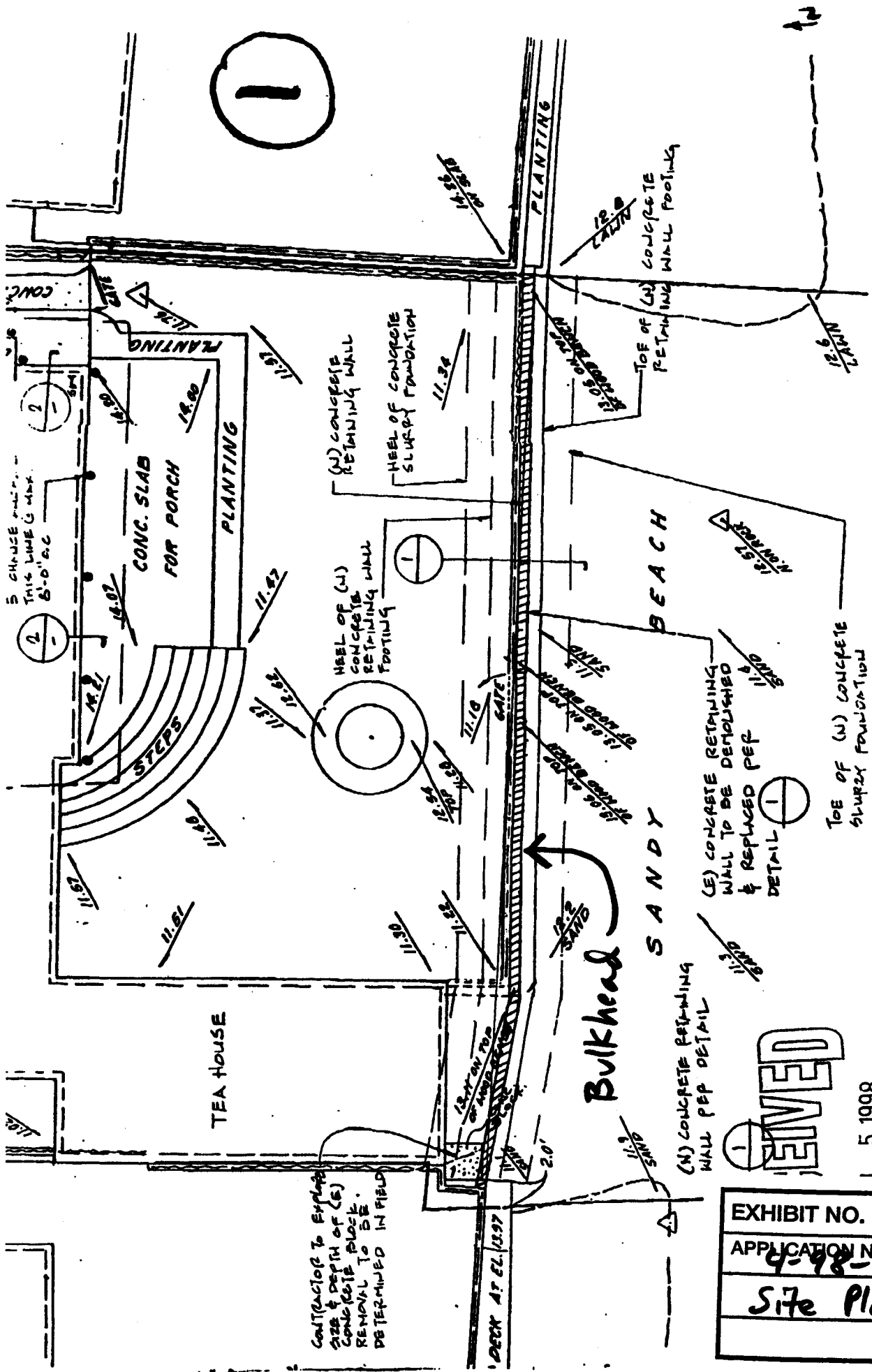
MAP SEE 629

RECEIVED
JUN 5 1998

EXHIBIT NO. 2
APPLICATION NO. 4-48-198
Project Location



SEE 668 MAP



1

3 CHAIRS MAX. THIS LINE 6 MAX. 8'-0" O.C.

2

2

CONTRACTOR TO EXPLORE SIZE & DEPTH OF (E) CONCRETE BLOCK REMOVAL TO BE DETERMINED IN FIELD

(N) CONCRETE RETAINING WALL PER DETAIL

(E) CONCRETE RETAINING WALL TO BE DEMOLISHED & REPLACED PER DETAIL

TOE OF (N) CONCRETE SLURRY FOUNDATION

Bulkhead SANDY

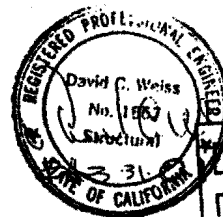
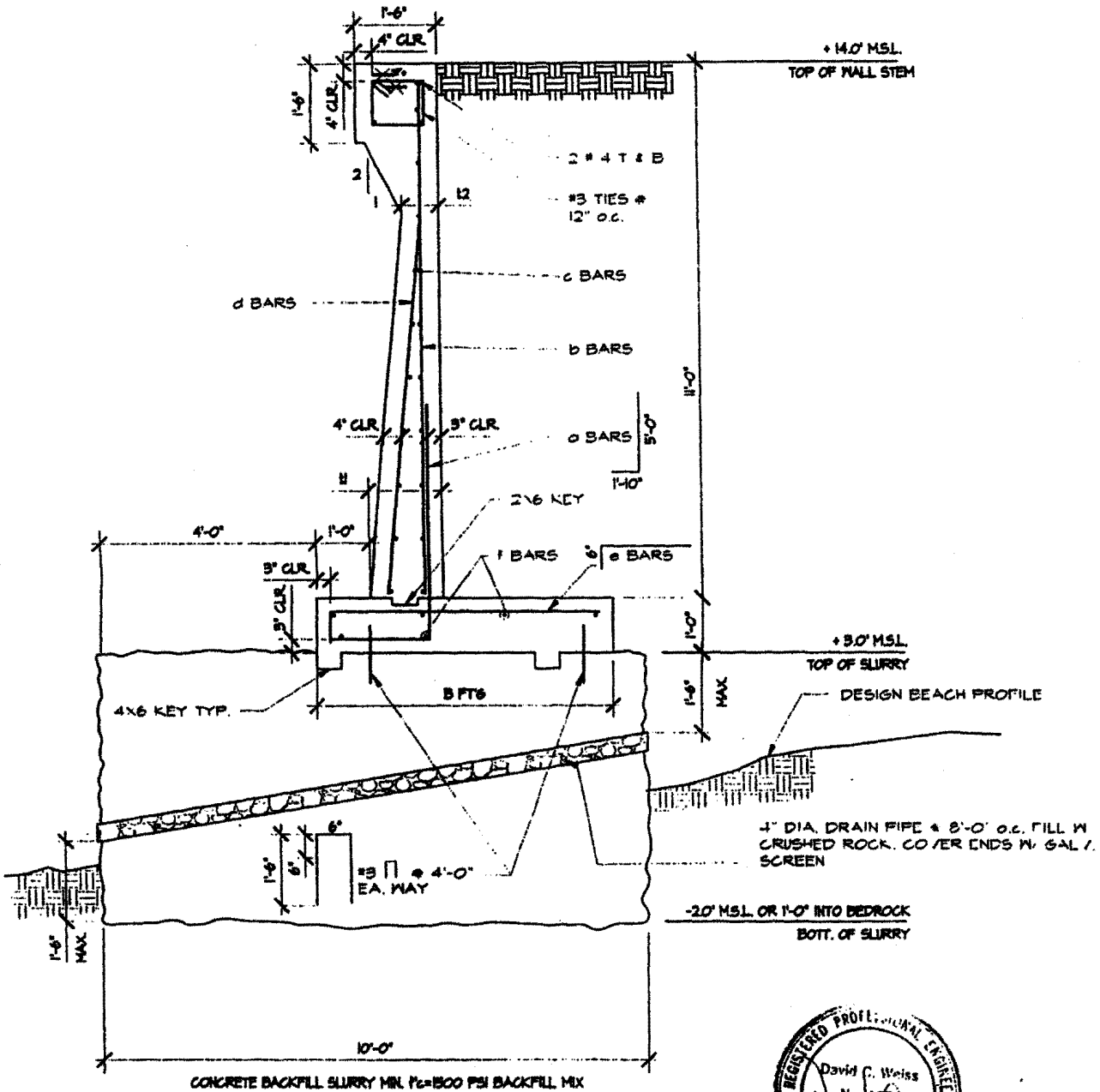
REMOVED

1 5 1998

CALIFORNIA
COMMISSION
RAL COAST DISTRICT

EXHIBIT NO. 3
APPLICATION NO. 4-98-708
Site Plan

DAVID C. WEISS
STRUCTURAL ENGINEER & ASSOCIATES, INC.
 22440 CLARENDON STREET, SUITE 203
 WOODLAND HILLS, CA 91367
 PHONE: (818) 224-3973 FAX: (818) 224-3922



RECEIVED

SCALE: 1/2" = 1'-0"



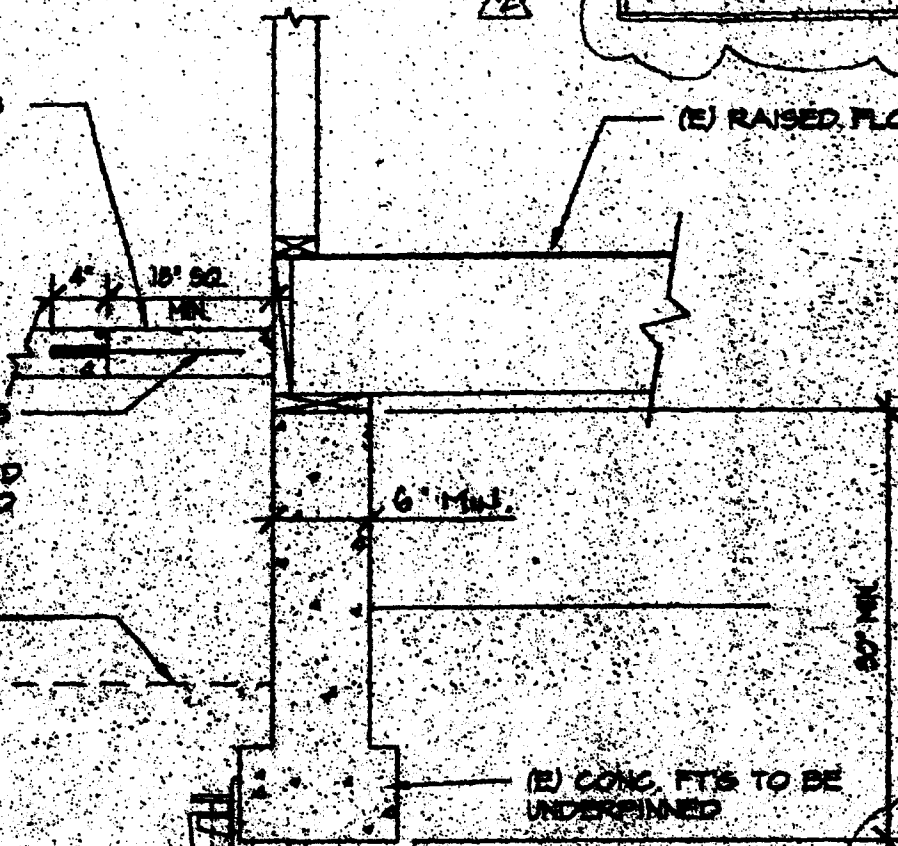
PRELIMINARY CONCRETE BULKHEAD WALL CO SOUTH
REPAIR DETAIL FOR 23864 MALIBU ROAD

EXHIBIT NO.	4
APPLICATION NO.	4-98-108
Bulkhead	
Elevation	

SPECIAL INSPECTION IS REQUIRED FOR INSTALLATION OF ALL HELICAL PIPERS AND FOUNDATION BRACKETS.

(E) CONC. PORCH SLAB (ELEV. ~14.2 M.S.L.) TO BE SAW CUT AS REQ'D. REPAIR SLAB W/ FC-2500 PSI CONCRETE, THICKNESS TO MATCH EXISTING.

(E) RAISED FLOOR



(N) #4 X 18" LONG DOVELS (MINIMUM 5 PER HOLE) BACKFILL HOLES W/ RAPID SET GROUT OR APPROVED EQUAL CENTER DOVEL IN SLAB

(E) YARD ELEVATION (115' M.S.L.) BEYOND

(E) CONC. FT'S TO BE UNDERPINNED

90" MIN. VERIFY IN FIELD

IN CHANCE ANCHOR FOUNDATION REPAIR BRACKET ATTACH BRACKET PER MFR SPECIFICATIONS (SEE FOUNDATION NOTES FOR ADD'L CHANCE ANCHOR INFORMATION)

NOTE:

1. FOR CHANCE ANCHOR INSTALLATION & CONNECTION TO (E) FOUNDATION SEE ATTACHED ICBO REPORT SER-D10
2. CONTRACTOR TO VERIFY DEPTH AND WIDTH OF (B) FOUNDATION IN FIELD.

0.0 M.S.L. (PATT. OF CONC. BACKFILL)

2"-10" DBL HELIX

3'-0" MIN

ALL DIMS. AS SHOWN TO BE VERIFIED BY THE CONTRACTOR AND BY PRESENT SOIL ENGINEER. ALL DIMS. AND VERIFICATION TO BE MADE BY CONTRACTOR AND SOIL ENGINEER.

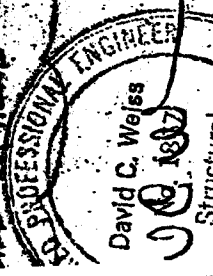
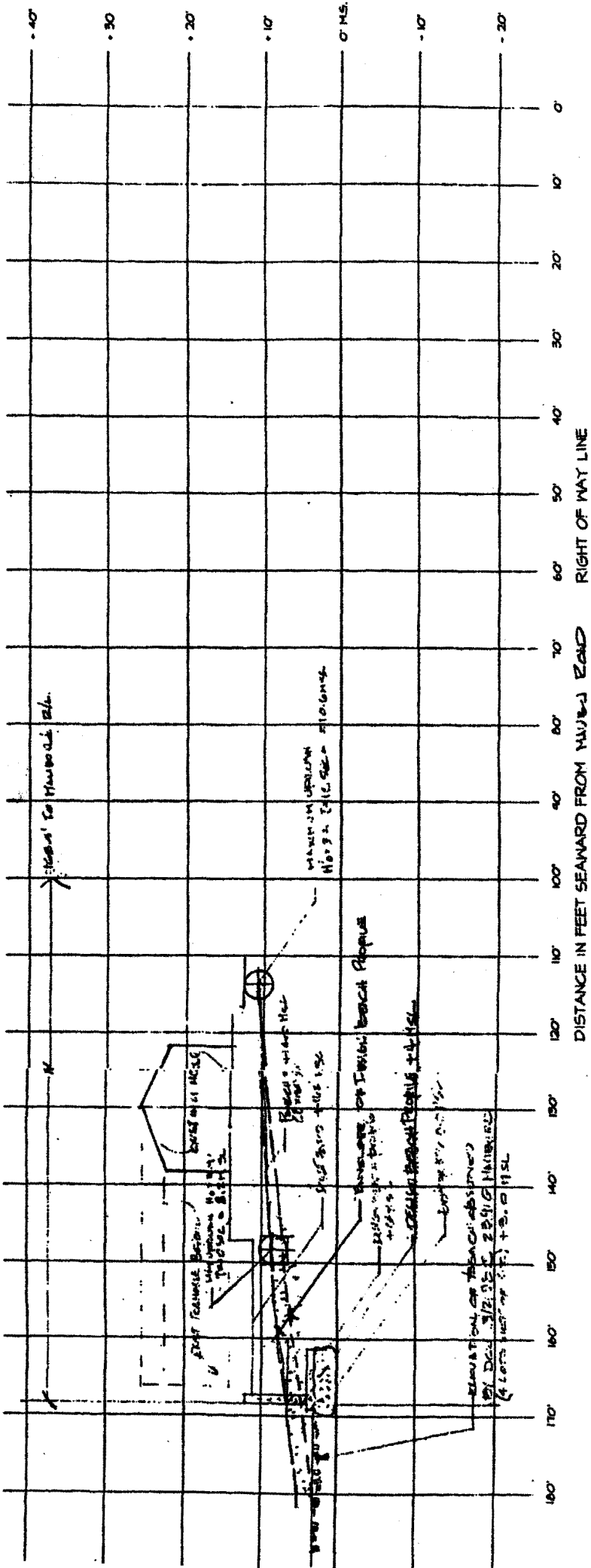


EXHIBIT NO.	5
APPLICATION NO.	4-98-108
Underpinning Detail	

2 TYP. UNDERPINNING DETAIL



EXPANDED BEACH PROFILE

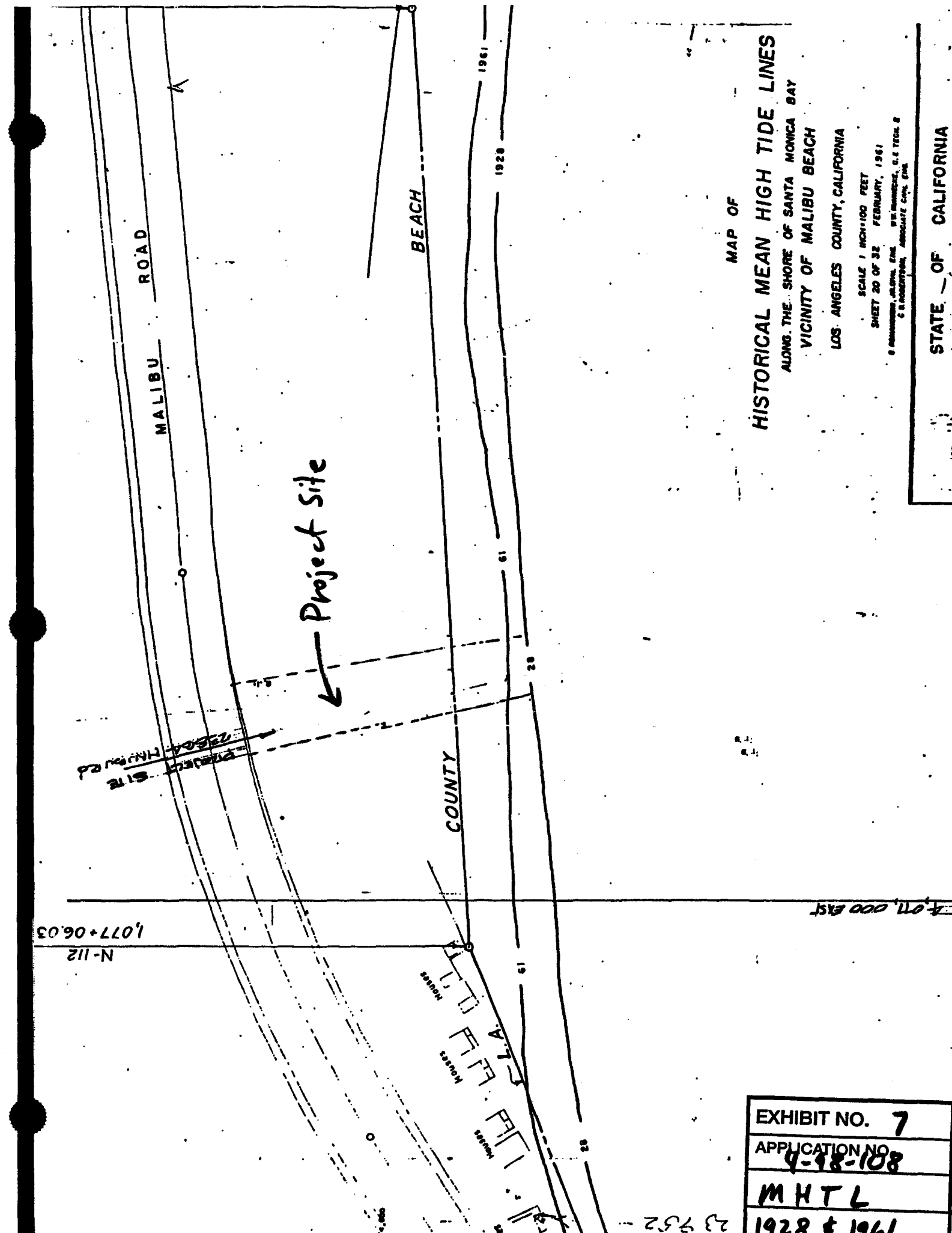
SCALE: 1" = 10'-0"

GENERAL NOTES

DATUM PLANE: MEAN LOWER LOW WATER (M.L.L.W.) = 0'
 MEAN SEA LEVEL (M.S.L.) = + 2.0' M.L.L.W.
 MEAN HIGH TIDE (M.H.T.) = + 4.7' M.L.L.W.
 STILL WATER LINE (S.W.L.) = 8.0' M.L.L.W.

COMPOSITE SLOPE USED IN DETERMINING WAVE UPRUSH.

EXHIBIT NO. 6
APPLICATION NO. 4-48-108
Beach Profile



MAP OF

HISTORICAL MEAN HIGH TIDE LINES

ALONG THE SHORE OF SANTA MONICA BAY
VICINITY OF MALIBU BEACH

LOS ANGELES COUNTY, CALIFORNIA

SCALE 1 INCH=100 FEET

SHEET 20 OF 32 FEBRUARY, 1961

BY: MERRILL, JAMES, CIVIL ENGINEER, U.S. TECH. 2
C. S. ROBERTSON, ASSOCIATE CIVIL ENGINEER

STATE OF CALIFORNIA

EXHIBIT NO. 7
APPLICATION NO. 4-48-108
MHTL
1961 & 1961

23 952

