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STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, *Governor*

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
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RECORD PACKET COPY

Hearing Opened:	10/12/99
49th Day:	11/30/99
180th Day:	4/9/00
Staff:	S. Hudson
Staff Report:	12/21/99
Hearing Date:	1/13/00
Commission Action:	

STAFF REPORT: APPEAL
De Novo Hearing

LOCAL GOVERNMENT: City of Carpinteria

LOCAL DECISION: Approved with No Conditions

APPEAL NO.: A-4-CPN-99-119

APPLICANT: Christopher A. Clemens and Lanette K. Loeks Revocable Trust

APPELLANTS: Mary Clark, Vince Mezzio, and Gerald Velasco

PROJECT LOCATION: 4921 Sandyland Road, Carpinteria; Santa Barbara County.

PROJECT DESCRIPTION: The applicant is requesting after-the-fact approval for the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area; a 20 ft. long, 3 ft. high retaining wall/seawall; and two 14 ft. long return walls and the construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement; a 20 ft. long, 7 ft. high concrete block retaining wall/seawall; and two 14 ft. long return walls.

SUBSTANTIVE FILE DOCUMENTS: City of Carpinteria Local Coastal Program; City of Carpinteria General Plan; City of Carpinteria Administrative Record for all approved development at 4921 Sandyland Road; Winter Protection Berm Project Summary Report by City of Carpinteria dated 1996; Coastal Development Permits 4-85-378 (Mezzio) and 4-90-041 (Designworks Development, Inc.).

SUMMARY OF STAFF RECOMMENDATION

Staff recommends **denial** of the proposed project. The applicant is requesting after-the-fact approval for the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area; a 20 ft. long, 3 ft. high retaining wall/seawall and; and two 14 ft. long return walls and the construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement; a 20 ft. long, 7 ft. high concrete block retaining wall/seawall; and two 14 ft. long return walls. All proposed development has already been constructed. Although a coastal development permit is required for the proposed project, the project was originally approved in error by the City pursuant to an administrative building permit on November 16, 1998. Two appeals of the above-described decision were received in the Commission office and at the Commission hearing of October 12, 1999, the Commission found that a substantial issue was raised by the appeal.

summary cont.

The project site is located on a beachfront lot in the City of Carpinteria between Sandyland Road and Carpinteria City Beach, a public beach (Exhibit 1). The area surrounding the subject site is characterized as a built-out portion of Carpinteria consisting primarily of multi-family residential development. Currently, and in previous years, the City of Carpinteria has constructed a giant sand berm (subject to a coastal development permit) along Carpinteria City Beach (approximately 20 ft. seaward of the proposed deck dripline) on an annual basis to protect the private residential development located along Sandyland Road which would otherwise be subject to wave action during storm events. Past coastal permits issued by the Commission and the Winter Protection Berm Project Summary Report by the City dated 1996 indicate that if the berm is not constructed each winter, the private residences along Sandyland Road would be subject to significant wave action and flooding. The project site is designated as a "Zone A" flood hazard area (area with highest potential for flood hazard) by the Carpinteria General Plan, the Federal Emergency Management Agency (FEMA), and the National Flood Insurance Rate Map System (FIRM).

Seaward encroachment by new development, such as the proposed project, results in adverse effects to public access, public views, and shoreline processes. The proposed development will be located further seaward than the previously existing development on site (deck will extend approximately 1.5 ft. further seaward, structure will extend approximately 10 ft. further seaward). In addition, the proposed development will also extend seaward of the appropriate stringline as drawn from the corners of the adjacent neighboring structures (deck will extend approximately 10 ft. seaward of deck stringline, structure will extend approximately 12 ft. seaward of structural stringline) and will result in the seaward encroachment of new development on the sandy beach.

The construction of shoreline protective devices on a sandy beach has a number of adverse effects on both the dynamic shoreline system and public access. The proposed project includes the construction of a 7 ft. high concrete block wall approximately 1.5 ft. landward of the deck dripline. The applicant's consultants have indicated that the proposed wall is not intended to function as a seawall. However, the Commission notes that since the concrete block retaining wall is located within an area of the site subject to potential wave action, the block wall will effectively act a seawall.

Further, in the event of severe beach erosion caused by winter storm activity, the proposed concrete block wall and the at-grade slab foundation for the residence would likely be undermined by stormwaves unless a more substantial seawall is constructed in the future. As such, the stability of the residence, as proposed, is reliant on either: (1) continued annual construction of a sand berm by the City in contradiction with Policy 3-12 of the LCP or (2) the future construction of a more substantial seawall in contradiction to Policy 3-1 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy.

Policies 3-1 and 3-3 of the LCP and Section 30235 of the Coastal Act (included in the certified LCP) allow for the construction of a shoreline protection device only when no feasible alternatives exist. In this case, a feasible alternative to the construction of the proposed retaining wall/seawall would be construction of the proposed residence on a caisson/grade beam foundation which would not require any form of shoreline protection device to ensure geologic and structural stability.

In addition, during the course of processing this application, staff has discovered other development on the subject site which appears to have occurred without the required coastal development permit, including additions to existing structures and the conversion of the subject site from a single lot with two duplex apartment units (4 units) to two single family residence condominiums. This above mentioned additional unpermitted development is not included as part of this application and will require a future follow-up application for a coastal development permit that seeks to resolve the apparently unpermitted subdivision/tentative condominium tract map change and additions to the existing structure on the subject site.

I. STAFF RECOMMENDATION

MOTION: ***I move that the Commission approve Coastal Development Permit No. A-4-CPN-99-119 for the development proposed by the applicant.***

STAFF RECOMMENDATION OF DENIAL:

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

RESOLUTION TO DENY THE PERMIT:

The Commission hereby denies a coastal development permit for the proposed development on the ground that the development is located between the sea and the first public road nearest the shoreline and will not conform with the policies of the certified Local Coastal Program for the City of Carpinteria or the public access and public recreation policies of Chapter 3 of the Coastal Act. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

II. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description and Background

The applicant is requesting after-the-fact approval for the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area; a 20 ft. long, 3 ft. high retaining wall/seawall and; and two 14 ft. long return walls and the construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement; a 20 ft. long, 7 ft. high concrete block retaining wall/seawall; and two 14 ft. long return walls.

The project site is located on a 5,227 sq. ft. beachfront parcel of land in the City of Carpinteria between Sandyland Road and Carpinteria City Beach (Exhibit 1). The area surrounding the subject site is characterized as a built-out portion of Carpinteria consisting primarily of multi-family residential development. The project site is designated as a "Zone A" flood hazard area (area with highest potential for flood hazard) by the Carpinteria General Plan, the Federal Emergency Management Agency (FEMA), and the National Flood Insurance Rate Map System (FIRM). In previous years, the City of Carpinteria has constructed a sand berm (subject to a coastal development permit) along Carpinteria City Beach (approximately 20 ft. seaward of the proposed deck dripline) on an annual basis to protect the private residential development located along Sandyland Road which would otherwise be subject to wave action during storm events. The Winter Protection Berm Project Summary Report by the

City dated 1996 indicates that if the berm is not constructed each winter, the private residences along Sandyland Road would be subject to significant wave action and flooding.

The project site has been previously developed with a 1,620 sq. ft. residence. Although the applicant's consultants have indicated to staff that they believe the proposed development should be characterized as only remodeling of an existing residence, the Commission notes that the demolition of more than 50% of an existing structure and the construction of a new larger structure, such as the proposed residence, represents a substantial amount of new development and effectively constitutes the construction of a new residence on the subject site. As such, the Commission notes that the proposed residence should be designed and sited in a manner consistent with the policies of the LCP and the public access and recreation policies of the Coastal Act.

All proposed development has already been constructed. Although a coastal development permit is required for the proposed project, the proposed project was originally approved in error by the City pursuant to an administrative building permit on November 16, 1998. Although a coastal permit had not been issued, the City issued a Notice of Final Action for a coastal development permit for the project on April 8, 1999, after being informed by Commission Staff that a coastal permit was required. Commission Staff subsequently notified the City on April 12, 1999, that the notice was determined to be insufficient since it contained no written findings for approval. Although a coastal development permit had still not been issued for the project, the City subsequently issued an amended Notice of Final Action on May 3, 1999. Two appeals of the above-described decision were received in the Commission office on May 17 and 18, 1999, and filed on May 18, 1999. In accordance with Section 13112 of the Administrative Regulations, staff requested on May 26, 1999, that the local government forward all relevant documents and materials regarding the subject permit. After several additional requests were made to obtain the administrative record, it was subsequently received on September 14, 1999. At the Commission hearing of October 12, 1999, the Commission found that a substantial issue was raised by the appeal.

In addition, during the course of processing this application, staff has discovered other development on the subject site which appears to have occurred without the required coastal development permit, including additions to existing structures and the seaward extension of development on a sandy beach in 1982 and 1983. Further, the subject parcel has apparently been previously converted from a single lot with two duplex apartment units (4 units) to two single family residence condominiums through the approval of a subdivision/tentative condominium tract map by the City in 1987 (which also occurred without the required coastal development permit). The second condominium residence on the subject site is located directly landward of the structure subject to this application. This application is for the recent demolition/construction of the seawardmost condominium residence on the subject site only. The above mentioned additional unpermitted development is not included as part of this application and will require a future follow-up application for a coastal development permit that seeks to resolve the apparently unpermitted subdivision/tentative condominium tract map change and additions to the existing structures on the subject site.

B. Consistency With Local Coastal Program Policies

Policy 1-1 of the LCP states:

> ***The City shall adopt the policies of the Coastal Act (Public Resources Code Sections 30210 through 30263) as the guiding policies of the land use plan.***

After certification of a Local Coastal Program (LCP), Section 30603 of the Coastal Act provides for appeals to the Coastal Commission of a local government's actions on certain types of coastal development permits (including any new development which occurs between the first public road and the sea, such as the proposed project site). In this case, the proposed development has been previously appealed to the Commission which found, during a public hearing on October 12, 1999, that a substantial issue was raised.

As a "de novo" application, the standard of review for the proposed development is, in part, the policies and provisions of the City of Carpinteria Local Coastal Program (LCP) which was certified by the Commission on January 6, 1982. In addition, pursuant to Section 30604(c) of the Coastal Act, all proposed development located between the first public road and the sea, including those areas where a certified LCP has been prepared, such as the project site, must also be reviewed for consistency with the Chapter 3 policies of the Coastal Act regarding public access and public recreation. Further, the Chapter 3 policies of the Coastal Act have been incorporated in their entirety in the certified City of Carpinteria LCP as guiding policies pursuant to Policy 1-1 of the LCP.

C. Hazards and Geologic Stability

Policy 3-1 of the LCP states:

> ***Seawalls shall not be permitted unless the City has determined that there are no other less environmentally damaging alternatives for protection of existing development. Where permitted, seawall design and construction shall respect to the degree possible natural land forms. Adequate provision for lateral beach access shall be made and the project shall be designed to minimize visual impacts by use of appropriate colors and materials.***

Policy 3-3 of the LCP states:

> ***To avoid the need for future protective devices that could impact sand movement and supply, no permanent above-ground structures shall be permitted on the dry sandy beach except facilities necessary for public health and safety, such as lifeguard towers.***

Policy 3-8 of the LCP states:

> ***Applications for grading and building permits, and applications for subdivision shall be reviewed for adjacency to threats from, and impacts of geologic hazards arising from***

seismic events, tsunami runup, landslides, beach erosion, or other hazards such as expansive soils and subsidence areas. In areas of known geologic hazards, a geologic report may be required. Mitigation measures shall be applied where necessary.

Policy 3-11 of the LCP states in part:

If the proposed development falls within the floodway fringe, development may be permitted provided...finish floor elevations are above the projected 100-year flood elevation, as specified in the City's Flood Plain Management Plan.

Policy 3-12 of the LCP states:

Permitted development shall not cause or contribute to flood hazards or lead to expenditure of public funds for flood control works, i.e., dams, stream channelizations, etc.

Policy 3-8 of the LCP requires that all proposed development located in or adjacent to areas subject to geologic hazards or beach erosion shall be reviewed to determine any potential impacts of such development. Policies 3-11 and 3-12 of the LCP require that new development be designed in a manner that minimizes hazards from flooding and does not require the expenditure of public funds for flood control works. In addition, Section 30253 of the Coastal Act, which has been included in the certified LCP as a guiding policy, requires that new development minimize risks to life and property in areas of high geologic or flood hazards and assure structural stability and integrity.

The proposed project includes the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area and construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement. Although the applicant's consultants have indicated to staff that they believe the proposed development should be characterized as only remodeling of an existing residence, the Commission notes that the demolition of more than 50% of an existing structure and the construction of a new larger structure, such as the proposed residence, represents a substantial amount of new development and effectively constitutes the construction of a new residence on the subject site. As such, the Commission notes that the proposed residence should be designed and sited in a manner consistent with the policies of the LCP and the public access and recreation policies of Chapter Three of the Coastal Act.

Although no geologic or engineering reports were previously required by the City for the proposed development, pursuant to Policy 3-8 of the LCP, Commission Staff requested, during a meeting with the applicant on November 22, 1999, that the applicant submit any geologic, geotechnical and/or coastal engineering/wave uprush reports that have been prepared for the proposed project. However, no information regarding the geologic stability of the proposed development or location of the proposed development in relation to wave uprush on the subject site has been submitted.

Although no information regarding the geologic stability of the subject site has been submitted by the applicant, the Commission notes (based on available information including the sections of the City's General Plan regarding hazards and the engineering reports previously submitted by the City for the construction of an annual sand berm to prevent damage to the subject site from wave action) that the proposed development is located in an area that has been historically subject to an unusually high amount of natural hazards including flooding and severe beach erosion from storm waves. In addition, the entire project site is designated as a "Zone A" flood hazard area (area with highest potential for flood hazard) by the City of Carpinteria General Plan, the Federal Emergency Management Agency (FEMA), and the National Flood Insurance Rate Map System (FIRM).

Further, the Commission notes that development located along the shoreline, such as the proposed project, is subject to inherent potential hazard from storm generated wave damage. 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. The severity of the 1982-1983 El Nino storm events are often used to illustrate the extreme storm event potential of the California coast. The Commission notes that the Carpinteria coast has historically been subject to substantial damage as the result of storm and flood occurrences–most recently, and perhaps most dramatically, during the 1996/1997 storm season. Damage from storm generated waves to neighboring residential development located on the seaward side of Sandyland Road in 1996 (near the project site) resulted in more than $100,000 in property damage. In addition, the Winter Protection Berm Project Summary Report by the City of Carpinteria dated 1996 indicates that the construction of a sand berm along the public beach fronting the subject site (approximately 20 ft. seaward of the dripline of the proposed deck) is necessary on an annual basis in order to protect private residential development located along Sandyland Road which would otherwise be damaged by wave action. The Winter Protection Berm Project Summary Report by City of Carpinteria dated 1996 states:

> ***A severe wave event occurred prior to the construction of the winter protection berm this past year. In fact it was under emergency conditions the berm was built. As a consequence, obtaining accurate estimates of the amount of material incorporated into the berm and the amount of material which was scoured away by natural erosion is difficult. The large wave event, in the absence of the berm, caused approximately one hundred thousand dollars in private property damage and an additional ten thousand dollars in public property damage along the Carpinteria City Beach. Furthermore, due to the emergency nature of the berm installation, the surveys were not taken at the preferred intervals, making calculations difficult.***
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> ***The estimated quantity of sand needed for the 1996/1997 berm project equals approximately ten to twelve thousand cubic yards. This large number is anticipated due to the extreme erosion of the beach in 1995 and the need to build the berm to its design height.***

As discussed above, in the current and in previous years, the City of Carpinteria has constructed a giant sand berm, subject to a coastal development permit, along

Carpinteria City Beach (approximately 20 ft. seaward of the dripline of the proposed deck) on an annual basis to protect the private residential development located along Sandyland Road which would otherwise be subject to wave action during storm events. The Commission notes, based on the above information submitted by the City, that if the berm is not constructed each winter, the residences along Sandyland Road would be subject to significant wave action and flooding.

Thus, ample evidence exists that all beachfront development located on the seaward side of Sandyland Road in Carpinteria, including the project site, is subject to an unusually high degree of risk due to storm waves and surges, high surf conditions, erosion, and flooding. As such, the Commission notes that any new development that is permitted on the subject site must be designed and constructed in a manner that ensures geologic and structural stability and minimize hazards consistent with Policy 3-11 and 3-12 of the LCP, and Section 30253 of the Coastal Act which has been included in the certified LCP.

However, in the case of this project, the proposed residence has not been constructed in a manner that will adequately ensure geologic and structural stability or minimize hazards. The proposed beachfront residence has been constructed using the previously existing at-grade slab foundation. The project also includes the construction of an approximately 1,000 sq. ft. partially subterranean basement area which has been constructed at a lower elevation than the area of beach directly seaward of the residence and will be subject to potential flooding. The majority of the basement has been constructed with an 8 ft. high ceiling. Since the beach sand level is at a higher elevation than the floor of the basement, a 7 ft. high retaining wall has been constructed approximately 1.5 ft. landward of the toe of the proposed deck to retain the beach sand. As such, the Commission notes that the proposed project is not consistent with Policy 3-11 of the LCP since the finished floor elevation of the basement level of the residence would be constructed within the flood plain and subject to potential flooding from wave action. However, the Commission notes that, in this case, there are feasible alternatives to the proposed project that would ensure compliance with the applicable policies of the LCP, such as construction of the new residence on a caisson/grade beam foundation which would elevate the proposed development above the flood plain and eliminate the necessity to construct the proposed retaining wall/seawall consistent with Policies 3-1, 3-3, and 3-11 of the LCP and Section 30235 of the Coastal Act, which has been included in the certified LCP as a guiding policy.

In addition, Policy 3-12 of the LCP requires that permitted development shall not cause or contribute to flood hazards or lead to expenditure of public funds for flood control works. The Commission notes that since the proposed concrete block retaining wall is located within an area of the site subject to potential wave action, the block wall will effectively act a seawall under normal tidal conditions in contradiction to Policy 3-1 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy. However, since the proposed concrete block retaining wall has not been properly engineered as a seawall, the Commission further notes that in the event

of severe beach erosion caused by winter storm activity, the proposed retaining wall and the at-grade slab foundation for the residence would likely be undermined by stormwaves unless a more substantial seawall is constructed in the future. As such, the Commission notes that the stability and safety of the proposed residence, as designed, is reliant on either: (1) the continued annual construction of a sand berm by the City of Carpinteria along the beach in contradiction with Policy 3-12 of the LCP or (2) the future construction of a more substantial seawall or other form of shoreline protection device in contradiction to Policy 3-1 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy. As such, the Commission finds that the proposed development is clearly not consistent with the policies of the LCP. However, the Commission notes that, in this case, there are feasible alternatives to the proposed project that would ensure compliance with the applicable policies of the LCP, such as construction of a new residence on a caisson/grade beam foundation which would not require the use of any type of shoreline protection device such as the proposed retaining wall/seawall consistent with Policies 3-1, 3-3, and 3-11 of the LCP and Section 30235 of the Coastal Act which has been included in the certified LCP as a guiding policy. In addition, the Commission further notes that the construction of the residence on a caisson/grade beam foundation, rather than on a conventional at-grade slab foundation as proposed, would not require the continued expenditure of public funds to maintain a sand berm on a public beach to protect private development and ensure structural stability on the subject site consistent with Policy 3-12 of the LCP.

As discussed in detail above, the Commission notes that the structural and geologic stability of the new residence, as proposed, will be dependent upon the continued construction of a sand berm on the public portion of the beach to ensure structural stability. However, the Commission further notes that the construction of an annual berm by the City requires a separate coastal development permit subject to approval by the Commission. Coastal Development Permit (CDP) 4-95-207 was issued by the Commission in 1995 for the annual construction of a winter sand berm along Carpinteria City Beach for a period not to exceed five years. The Commission notes that the City's coastal permit for the construction of an annual sand berm along Carpinteria City Beach will expire after the 1999/2000 storm season and that the construction of a sand berm in the future will require a new coastal development permit. In addition, the Commission approved CDP 4-95-207 with a special condition requiring the City to conduct an extensive analysis regarding alternatives to the continued construction of the beach berm prior to any future application by the City to continue the construction of the berm after 2000. The Commission notes that the City has not yet submitted an alternatives analysis (or a new application) for the continued construction of the berm after the 1999/2000 storm season. However, in the event that the City does submit a new coastal permit application for the continued construction of a berm on public beach, the Commission notes that approval of the development subject to this application (a new residence designed in a manner reliant upon the continued annual construction of a beach berm by the City of Carpinteria to ensure geologic and structural stability) would prejudice any future decision by the Commission regarding

such application. Furthermore, if the Commission does not approve a future application for the berm along Carpinteria City Beach, or an alternative form of shoreline protection, the proposed development will be subject to flooding and wave damage and would not be expected to withstand these geologic hazards.

Therefore, the Commission finds, for the reasons set forth above, that the proposed development is not consistent with Policies 3-1, 3-3, 3-8, 3-11, and 3-12 of the LCP or with Sections 30235 or 30253 of the Coastal Act as included in the LCP as a guiding policies.

D. Shoreline Protective Devices and Seaward Encroachment

Policy 3-1 of the LCP states:

> ***Seawalls shall not be permitted unless the City has determined that there are no other less environmentally damaging alternatives for protection of existing development. Where permitted, seawall design and construction shall respect to the degree possible natural land forms. Adequate provision for lateral beach access shall be made and the project shall be designed to minimize visual impacts by use of appropriate colors and materials.***

Policy 3-3 of the LCP states:

> ***To avoid the need for future protective devices that could impact sand movement and supply, no permanent above-ground structures shall be permitted on the dry sandy beach except facilities necessary for public health and safety, such as lifeguard towers.***

Policy 3-8 of the LCP states:

> ***Applications for grading and building permits, and applications for subdivision shall be reviewed for adjacency to threats from, and impacts of geologic hazards arising from seismic events, tsunami runup, landslides, beach erosion, or other hazards such as expansive soils and subsidence areas. In areas of known geologic hazards, a geologic report may be required. Mitigation measures shall be applied where necessary.***

Policy 3-11 of the LCP states in part:

> ***If the proposed development falls within the floodway fringe, development may be permitted provided...finish floor elevations are above the projected 100-year flood elevation, as specified in the City's Flood Plain Management Plan.***

Policy 3-12 of the LCP states:

> ***Permitted development shall not cause or contribute to flood hazards or lead to expenditure of public funds for flood control works, i.e., dams, stream channelizations, etc.***

Policy 3-1 of the LCP, consistent with Section 30235 of the Coastal Act which has been included in the certified LCP as a guiding policy, provides that the construction of shoreline protection devices for existing development may be allowed only when no feasible less environmentally damaging alternative exists. Policy 3-3 of the LCP prohibits the construction of new development on the dry sandy beach in order to avoid the need for the construction of seawalls for new development. In addition, Policy 3-8 of the LCP requires that all proposed development located in or adjacent to areas subject to geologic hazards or beach erosion shall be reviewed to determine any potential impacts of such development. Further, Policies 3-11 and 3-12 of the LCP require that new development be designed in a manner that minimizes hazards from flooding and does not require the expenditure of public funds for flood control works. In addition, Section 30253 of the Coastal Act, which has been included in the certified LCP as a guiding policy, requires that new development minimize risks to life and property in areas of high geologic or flood hazards and assure stability and structural integrity.

The proposed project includes the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area and construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement. The proposed project also includes the construction of a 7 ft. high concrete block retaining wall/seawall approximately 1.5 ft. landward of the toe of the deck. The subject site is located between Sandyland Road and Carpinteria City Beach in a built-out area of Carpinteria consisting primarily of multi-family residential development. As previously discussed in detail, the Commission notes that Carpinteria City Beach is subject to periodic episodes of beach erosion and flooding from severe storm events and that the proposed development will be subject to potential wave action.

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

1. Seaward Encroachment by New Development

As a means of controlling seaward encroachment of residential structures on a beach to ensure maximum public access and minimize wave hazards, as well as minimize adverse effects to coastal processes, shoreline sand supply, and public views, the Commission has, in past permit actions, developed the "stringline" policy. As applied to beachfront development, the stringline limits the seaward extension of a structure to a line drawn between the nearest corners of adjacent structures and limits decks to a similar line drawn between the nearest corners of the adjacent decks. The Commission has applied the use of a stringline to numerous past permits, including development in Carpinteria [CDP 4-85-378 (Mezzio)], involving infill on sandy beaches and has found it to be an effective policy tool in preventing further encroachments onto sandy beaches.

In the case of this project, the applicant is proposing the demolition of more than 50% of an existing residence and the construction of a significantly larger new residence on the beach. The proposed development will be located further seaward than the previously existing development on the subject site. Specifically, the Commission notes that the proposed deck for the new residence extends approximately 1.5 ft. further seaward than the previously existing deck and that the proposed residence extends approximately 10 ft. or more further seaward than the previously existing structure. Further, the proposed development will be located seaward of the appropriate deck and structural stringlines. The Commission notes that the proposed residence will extend approximately 12 ft. or more seaward of the appropriate structural stringline and that the proposed deck will extend approximately 10 ft. or more seaward of the appropriate deck stringline (Exhibit 3). As such, the Commission notes that the proposed project will result in the seaward encroachment by new development on the sandy beach.

The applicant's consultants have indicated to Staff that the applicant is not in agreement with the use of a stringline measurement to define the appropriate seaward limit for development on the subject site. Specifically, the applicant's consultants have asserted that new development on the subject site should be allowed to extend seaward to a "judgement line" determined as part of a previous stipulation agreement between the State Lands Commission, the City of Carpinteria, and the previous property owner in 1978 which occurred as a result of a Superior Court action (Glenn Roberts, et al. v. City of Carpinteria, et al.). The agreement defines the boundary line referred to as a "judgement line" between private property and public beach (Carpinteria City Beach). In addition, the agreement between the above three parties also delineated a second "judgement line" (drawn approximately 20 ft. landward of the property boundary judgement line) seaward of which, no development would be allowed to occur. The approximate location of this most landward "judgement line" is shown on Exhibit 3. Staff notes that use of the above described "judgement line" would allow development on the subject site to extend further seaward than the use of a stringline method.

However, the Commission notes that the above agreement between the State Lands Commission, the City, and the previous property owner is not included in the certified LCP as a policy or development standard and that the City has not submitted any amendment application to the certified LCP to do so. As such, the Commission notes that the above described "judgement line" is not a certified alternative to the use of the stringline method typically used by the Commission to limit the seaward encroachment by new development on the sandy beach. In addition, the Commission notes that the judgement line, unlike the stringline method, makes no distinction between the allowable seaward limit of decks vs. structures. Further, the Commission also notes that the above agreement does not require the approval of new development landward of the judgement line and that the agreement in no way limits the ability of the Commission, or the City, to regulate the appropriate location, or the seaward extent, of new development on the subject site. As such, the Commission notes that the use of a stringline, as typically used by the Commission to limit seaward encroachment of new development on sandy beach, is the appropriate method to determine the seaward limit for new development on the subject site.

As previously noted, in past permit actions regarding new beachfront development along Sandyland Road in Carpinteria, the Commission has required that new development be consistent with a stringline in order to minimize seaward encroachment. Coastal Development Permit 4-85-378 (Mezzio) was approved by the Commission for the construction of a condominium complex on the neighboring parcel located immediately east and adjacent to the subject site in 1985 with a special condition requiring the submittal of revised plans to relocate all development landward of the appropriate structural and deck stringlines. However, although the stringline method has typically been used by the Commission to limit the seaward extension of new development on the beach in Carpinteria, the Commission notes that, in one case, a stringline was not applied. Coastal Development Permit (CDP) 4-90-041 (Designworks Development) was approved in 1990 for the construction of a condominium complex two lots to the west of the subject site. The staff report for CDP 4-90-041 stated that a stringline was not required for the subject development because of the unique irregular design of the structure (seaward encroachment by portions of the structure would be compensated by other portions of the structure that would be setback further from the beach) and because the LCP does not contain a specific policy regarding the use of a stringline. However, the Commission notes that the development approved by CDP 4-90-041 was constructed in substantial conformance with a stringline drawn from the nearest corners of the adjacent structures and deck (the deck was located entirely landward of the stringline and only a small portion of the structure extended seaward of the structural stringline). Notwithstanding the Commission's decision on CDP 4-90-041, and although the LCP does not contain a specific policy or ordinance regarding the use of any method to delineate the allowable seaward limit of new development, the use of a stringline policy to limit seaward encroachment by new development is consistent with the intent of the policies of the LCP and the sections of the Coastal Act regarding public access and recreation. As such, the Commission notes that a stringline method has been used in other past

permit actions and should continue to be used in future permit actions regarding shoreline development in Carpinteria in order to limit the encroachment by new development on the sandy beach and ensure compliance with the applicable LCP polices and the public access and recreation policies of the Coastal Act.

In addition, as previously discussed in detail, the City of Carpinteria has constructed a giant sand berm along Carpinteria City Beach (approximately 20 ft. seaward of the deck dripline) on an annual basis (subject to a coastal development permit) to protect the private residential development located along Sandyland Road, including the subject site, which would otherwise be subject to wave action and flooding during storm events. Thus, ample evidence exists that all beachfront development located on the seaward side of Sandyland Road in Carpinteria, including the project site, is subject to an unusually high degree of risk due to storm waves and surges, high surf conditions, erosion, and flooding. The Commission notes, however, that although all shoreline development is subject to inherent hazard, in general, the further landward development is located, the less it will impacted by wave action and, conversely, the further seaward the development is located, the greater the frequency that that the development will be subject to wave action. As such, the Commission notes that the seaward encroachment by new development on the subject site would result in greater potential for damage to occur to from wave hazard and would not serve to ensure the structural stability of new development. In this case, the proposed development will be located further seaward than the currently existing development on site. Further, the proposed development will be located seaward of the appropriate stringline and will result in the seaward encroachment of residential development on the sandy beach.

Therefore, for the above reasons, the Commission finds that the proposed project will result in the seaward encroachment of development on a sandy beach and will not serve to minimize either geologic hazards or adverse effects to coastal processes from new development.

2. Sea Level Rise

Sea level has been rising slightly for many years. Sea level rise is expected to increase by 8 to 12 inches in the 21st century.[1] There is a growing body of evidence that there has been a slight increase in global temperature and that an acceleration in the rate of sea level can be expected to accompany this increase in temperature. Mean water level affects shoreline erosion several ways and an increase in the average sea level will exacerbate all these conditions.

On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore. On a relatively flat beach, with a slope of

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

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

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

A second concern with global warming and sea level rise is that the climatic changes could cause changes to the storm patterns and wave climate for the entire coast. As water elevations change, the transformation of waves from deep water will be altered and points of energy convergence and divergence could shift. The new locations of energy convergence would become the new erosion "hot spots" while the divergence points may experience accretion or stability. It is highly likely that portions of the coast will experience more frequent storms and the historic "100-year storm" may occur every 10 to 25 years. For most of California the 1982/83 El Niño event has been considered the "100-year storm." Certain areas may be exposed to storms comparable to the 1982/83 El Niño storms every few decades. In an attempt to ensure stability under such conditions, the Commission has required that all new shoreline structures be designed to withstand either a 100-year storm event, or a storm event comparable to the 1982/83 El Niño. Also, since it is possible that storm conditions may worsen in the future, the Commission has required that structures be inspected and maintained on a regular basis. The coast can be altered significantly during a major storm and coastal structures need to be inspected on a regular basis to make sure they continue to function as designed. If storm conditions worsen in future years, the structures may require changes or modifications to remain effective. In some rare situations, storm conditions may change so dramatically that existing protective structures may no longer be able to provide any significant protection, even with routine maintenance.

Therefore, if new development along the shoreline is to be found consistent with the Coastal Act, the most landward location must be explored to minimize wave attack with higher wave forces as the level of the sea rises over time. Shoreline protective devices must also be located as far landward as feasible to protect public access along the beach as discussed further below. Limiting the footprint of development on the landscape particularly in vulnerable habitats such as wetlands, areas subject to floods,

and beaches, is probably the most important action Californians can take to minimize adverse impacts from sea level rise.[8]

In the case of this project, as previously discussed in detail, the proposed residence will extend further seaward than the previously existing development on the subject site and the appropriate stringline. As such, the Commission notes that the proposed development will, therefore, result in the seaward encroachment by new development on the sandy beach. In addition, the proposed project includes the construction of a residence on an conventional at-grade slab foundation that will require the construction of a shoreline protection device to ensure structural stability. As the sea level continues to rise, the proposed development, including the seawall, will be subject to wave action at greater frequency resulting any increased erosion of the public beach area located seaward of the residence. The Commission notes that a feasible alternative to the proposed construction of a seawall would be the construction of a new residence on a caisson/grade beam foundation that would not require the use of any type of shoreline protection device as consistent with Policy 3-1 of the LCP and Section 30235 of the Coastal Act, which has been included in the certified LCP as a guiding policy, rather than on a conventional slab foundation, as proposed, which would require some form of additional shoreline protection. In addition, in order to minimize adverse effects to public access and shoreline processes, any new development on the subject site should not extend seaward of the appropriate stringline or result in seaward encroachment of new development.

3. Shoreline Protective Devices

In past permit actions, the Commission has found that the construction of a shoreline protection device, such as a seawall, results in significant adverse effects to shoreline sand supply and public access. The certified LCP, in recognition of the adverse effects to beach areas that results from the use of shoreline protection devices to protect development, includes several policies which limit the use of such devices. Policy 3-1 of the LCP, consistent with Section 30235 of the Coastal Act which has been included in the certified LCP as a guiding policy, provides that the construction of shoreline protection devices for existing development may be allowed only when no feasible less environmentally damaging alternative exists. Further, Policy 3-3 of the LCP prohibits the construction of new development on the dry sandy beach in order to avoid the need for the construction of seawalls for new development.

In the case of the proposed project, however, in contradiction to Policies 3-1 and 3-3 of the LCP and Section 30235 of the Coastal Act, which has been included in the certified LCP as a guiding policy, the proposed project includes the construction of a 7 ft. high concrete block retaining wall/seawall approximately 1.5 ft. landward of the toe of the

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

proposed deck. The applicant's consultants have indicated to staff that the proposed retaining wall is not intended to function as a seawall. However, although the applicant has not submitted any information regarding the location of the proposed development in relation to wave uprush on the subject site, the Commission notes that the subject site is located within a hazardous flood area (as designated by the City's General Plan) and that the proposed retaining wall will be subject to potential wave uprush. As previously discussed in detail, in previous years, the City of Carpinteria has constructed a giant sand berm on an annual basis (subject to a coastal development permit) along Carpinteria City Beach to protect private residential development located along Sandyland Drive (including the subject site). The Commission notes, based on information submitted by the City, that if the berm is not constructed each winter, the residences along Sandyland Road would be subject to significant wave action and flooding. As such, the Commission notes that the proposed 7 ft. high concrete block retaining wall, although not properly engineered as such, is located seaward of the potential wave uprush limit on the subject site and will effectively act as a seawall.

Further, the Commission notes that if severe seasonal erosion of the beach occurs in the future, it is likely that the proposed concrete block retaining wall, which has not been properly engineered as a seawall, would eventually become undermined by stormwaves and that a new properly engineered seawall would be required to protect the residence. As such, the Commission notes that the stability and safety of the proposed residence, as designed, is reliant on either: (1) the continued annual construction of a sand berm by the City of Carpinteria along the beach in contradiction with Policy 3-12 of the LCP or (2) the future construction of a more substantial seawall or other form of shoreline protection device in contradiction to Policy 3-1 of the LCP and with Sections 30235 and 30253 of the Coastal Act which are included in the LCP as guiding policies. Thus, the proposed development is clearly not consistent with the policies of the LCP.

Further, the Commission notes, pursuant to the above referenced policies of the LCP, that the construction of a shoreline protection device for development, may only be allowed when no feasible alternatives to the construction of the proposed seawall exist. However, in this case, the Commission further notes that feasible alternatives to the proposed seawall do exist. Although the residence, as proposed to be constructed on a conventional at-grade slab foundation, will require the construction of a shoreline protection device to ensure structural stability, the Commission notes that the construction of the residence on a caisson/grade beam foundation would ensure structural stability and ensure that no form of private or public shoreline protection device would be required to ensure structural stability.

In past permit actions regarding new residential development along the shoreline, the Commission has required that all residences, if feasible, be designed in a manner that ensures structural stability without the construction of a shoreline protective device (such as construction on a caisson/grade beam foundation) [CDPs 4-99-185 (Broad), 4-99-154 (Montanaro), and 4-99-146 (Saban)]. In addition, the Commission has

previously found that the use of a shoreline protective device for new residential development is appropriate (as consistent with Policy 3-1 of the LCP) only when no feasible alternatives exist, such as when a shoreline protection device is necessary to protect a septic system which can not be relocated outside the wave uprush limit. In this case, no septic system is proposed since the proposed residence will utilize the City sewer system and the Commission notes that a feasible alternative to the construction of the proposed retaining wall/seawall would be the construction of the proposed residence on a caisson/grade beam foundation which would not require the construction of any form of shoreline protection to ensure geologic and structural stability.

The construction of shoreline protective devices on a sandy beach has a number of adverse effects on both the dynamic shoreline system and public access along the sandy beach. Dr. Douglas Inman, renowned authority on Southern California beaches has found that, "the likely detrimental effect of the seawall on the beach can usually be determined in advance by competent analysis." Dr. Inman further explains the importance of the seawall's design and location as it relates to predicting the degree of erosion that will be caused by the shoreline protection device. He states:

> ***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.***[2]

In past permit actions, the Commission has found that one of the most critical factors controlling the impact of a shoreline protection 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 wall is, the more often and more vigorously waves interact with it. The best place for a seawall, if one is necessary, is at the back of the beach where it provides protection against the largest of storms. By contrast, a seawall constructed too near to the mean high tide line may constantly create problems related to frontal and end scour, as well as upcoast sand impoundment.

Even though 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 whether it is a vertical bulkhead or a rock revetment. The main difference between a vertical bulkhead and rock revetment seawall is their physical encroachment onto the beach. However, it has been well documented by coastal engineers and coastal geologists that shoreline

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2 Letter dated 25 February 1991 to Coastal Commission staff member and engineer Lesley Ewing from Dr. Douglas Inman.

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, end scour (the beach areas at the end of the seawall), the retention of potential beach material behind the wall, the fixing of the back beach and the interruption of alongshore processes. In order to evaluate these potential impacts relative to the proposed structure and its location in relation to the Carpinteria City 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 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 do affect the supply of beach sand.

In past permit actions, the Commission has found that shoreline protective devices which 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, "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 shoreline protective devices:

> ***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]

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

4 Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 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 and to protect the public's access along the ocean and to the water.

The impact of seawalls 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.***[5]

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.***[6]

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.***[7]

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

6 Coastal Sediments '87.

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

Dr. Everts further concludes that armoring in the form of a shoreline protection device 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 shoreline protection device 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, Carpinteria City Beach has experienced periodic episodes of beach erosion resulting in significant damage to the residential development located along the shoreline. In addition, if a seasonal eroded beach condition occurs with greater frequency due to the placement of a shoreline protective device on the subject site, then the subject beach would also accrete at a slower rate. 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. 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. The subject property is located immediately landward and adjacent to the Carpinteria City Beach (a public beach area) and approximately 400 ft. west (upcoast) of Carpinteria State beach. In addition, the subject site is located approximately 40 ft to the east (downcoast) from an existing public vertical accessway and public beach parking lot located at the terminus of Elm Avenue. If the beach scours at the base of the bulkhead, even minimal scouring in front of the proposed retaining wall/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 potential turbulent ocean condition. Scour at the face of a seawall will result in greater interaction with the wall and thus, make the ocean along Carpinteria City Beach more turbulent than it would along an unarmored beach area. Thus, the Commission has ordinarily required that shoreline protection devices be located as landward as possible in order to reduce adverse effects from scour and erosion. In the case of this project, the Commission notes that alternatives to the construction of the proposed retaining wall/seawall exist, including the construction of the proposed residence on a raised caisson/grade beam foundation.

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 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. 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 verified this concern. Although it is difficult to quantify the exact loss of material due to end effects, in a paper written by Gerald G. Kuhn of the Scripps Institution of Oceanography, it is concluded that erosion on properties adjacent to a rock seawall is intensified when wave runup is high.[8]

An extensive literature search on the interaction of seawalls and beaches was performed by Nicholas Kraus in which he found that seawalls will have effects on narrow beaches or beaches eroded by storm activity. His 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.[9] Dr. Kraus' key conclusions were that seawalls could be accountable for retention of sediment, increased local erosion and increased end erosion. 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 could 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 mechanism is flanking i.e. increased local erosion at the ends of walls.***

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

> ***Results to date indicate 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***

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8 Paper by Gerald G. Kuhn of the Scripps Institution of Oceanography entitled "Coastal Erosion along
Oceanside Littoral Cell, San Diego County, California" (1981).

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

> ***Walton and Sensabaugh (1978) that the depth of excess erosion is approximately 10% of the 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.***[10]

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.[11] 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 width directly attributable to seawall construction. These end effects would be expected only when the bulkhead was exposed to wave attack and, under equilibrium or accreting beach conditions, this scour will likely disappear eventually during post-storm recovery. 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 seawall is subject to wave action. In the case of this project, the Commission notes that feasible alternatives exist to the construction of the proposed retaining wall/sea wall, such as construction of the proposed residence on caisson/grade beam foundation, and that the seawall, therefore, is not required and will result in adverse effects to shoreline sand supply from end effects.

4. Conclusion

The proposed project includes the demolition of more than 50% of an existing residence and the construction of a significantly larger new residence with a 7 ft. high concrete block retaining wall/seawall in contradiction to Policies 3-1 and 3-3 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy. The subject site is located between Sandyland Road and Carpinteria City Beach in a built-out area of Carpinteria consisting primarily of multi-family residential development. As previously discussed in detail, the Commission notes that Carpinteria City Beach is subject to periodic episodes of beach erosion and flooding from severe storm events and that the proposed development will be subject to potential wave action. In past years, the City of Carpinteria has constructed a giant sand berm along Carpinteria City Beach (approximately 20 ft. seaward of the proposed deck dripline) on an annual basis (subject to a coastal development permit) to protect the private residential development located along Sandyland Road, including the subject site, which would otherwise be subject to wave action during storm events.

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

11 "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 proposed development will be located further seaward than the previously existing development on the subject site and will result in the seaward encroachment of new development on Carpinteria City Beach. The proposed deck for the new residence extends approximately 1.5 ft. further seaward than the previously existing deck and the proposed residence extends approximately 10 ft. or more further seaward than the previously existing structure. In addition, the proposed development will not be consistent with either the appropriate deck or structural stringlines as drawn between the corners of the neighboring adjacent structures. The Commission notes that the proposed residence will extend approximately 12 ft. or more seaward of the appropriate structural stringline and that the proposed deck will extend approximately 10 ft. or more seaward of the appropriate deck stringline. As such, the Commission notes that the proposed development is located seaward of the appropriate stringline and will result in the seaward encroachment of residential development on Carpinteria City Beach.

In addition, the Commission notes that although all development along the beach is subject to inherent hazard, in general, the further landward development is located, the less it will be impacted by wave action and that the further seaward the development is located, the greater the frequency that the development will be subject to wave action. As such, the Commission notes that the proposed project will result in the seaward encroachment by new development on the subject site and will not serve to minimize either hazards from wave action and flooding or adverse effects to shoreline processes and sand supply.

Further, the Commission notes that the proposed concrete block retaining wall is located within an area of the site subject to potential wave action and that the block wall will effectively act a seawall under normal tidal conditions. The construction of shoreline protective devices on a sandy beach has a number of adverse effects on both the dynamic shoreline system and public access along the sandy beach. In addition, since the proposed concrete block retaining wall has not been properly engineered as a seawall, the Commission further notes that in the event of severe beach erosion caused by winter storm activity, the proposed retaining wall and the at-grade slab foundation for the residence would likely be undermined by stormwaves unless a more substantial seawall was constructed in the future.

The Commission notes, pursuant to Policies 3-1 and 3-3 of the LCP and Section 30235 of the Coastal Act, which has been included in the certified LCP as guiding policy, that the construction of a shoreline protection device for development may only be allowed when no feasible alternatives to the construction of the proposed seawall exist. In past permit actions regarding new residential development along the shoreline, the Commission has required that all residences, if feasible, be designed in a manner that ensures structural stability without the construction of a shoreline protective device (such as construction on a caisson/grade beam foundation) [CDPs 4-99-185 (Broad), 4-99-154 (Montanaro), and 4-99-146 (Saban)]. In this case, the Commission notes that a feasible alternative to the construction of the proposed seawall would be construction of the proposed residence on a caisson/grade beam foundation which would not require

any form of shoreline protection device to ensure geologic and structural stability. Therefore, the Commission notes that the proposed project is not consistent with either Policy 3-1, 3-3, and 3-11 of the LCP or Section 30235 of the Coastal Act which has been included in the LCP.

Further, the Commission notes that if severe seasonal erosion of the beach occurs in the future, it is likely that the proposed concrete block retaining wall, which has not been properly engineered as a seawall, would eventually become undermined by stormwaves and that a new properly engineered seawall would be required to protect the residence. As such, the Commission notes that the stability and safety of the proposed residence, as designed, is reliant on either: (1) the continued annual construction of a sand berm by the City of Carpinteria along the beach in contradiction with Policy 3-12 of the LCP or (2) the future construction of a more substantial seawall or other form of shoreline protection device in contradiction to Policy 3-1 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy. Thus, the proposed development is clearly not consistent with the policies of the LCP.

Therefore, for the reasons discussed above, the Commission finds that the proposed project is not consistent with Policies 3-1, 3-3, 3-8, 3-11, and 3-12 of the certified LCP or with Sections 30235, 30251, or 30253 of the Coastal Act which have been included in the certified LCP as guiding policies.

E. Public Access

The City of Carpinteria Local Coastal Program, consistent with the Chapter 3 policies of the Coastal Act, mandates the provision of maximum public access and recreational opportunities along the coast. The LCP contains several policies which address the issues of public access and recreation along the coast.

Policy 7-1 of the LCP states:

> ***For new developments between Sandyland Road and City Beach, the City shall determine the extent to which the land proposed for development has historically been used by the public for informal parking and beach access and shall require adequate provision for continuation of such use.***

Policy 7-2 of the LCP states:

> ***No above-ground structure or other development, except for public health and safety purposes, and recreational facilities of a temporary nature (e.g., volleyball nets) shall be sited on any dry sandy beach within the City's jurisdiction.***

Policy 7-13 of the LCP states, in part:

> ***For all developments between the first public road and the ocean, granting of lateral easements to allow for public access along the shoreline shall be mandatory...At a minimum, the dedicated easement shall be adequate to allow for lateral access during periods of high tide.***

In addition to the above referenced policies of the LCP, all projects located between the first public road and the sea requiring a coastal development permit must be reviewed for compliance with the public access and recreation provisions of Chapter 3 of the Coastal Act.

Coastal Act Section **30210** 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.***

Coastal Act Section **30211** 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.***

Coastal Act Section **30212(a)** 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.***

As previously noted, in addition to any applicable policies of the LCP, all projects located between the first public road and the sea requiring a coastal development permit, such as the proposed project, must be reviewed for compliance with the public access and recreation provisions of Chapter 3 of the Coastal Act. 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. Based on the access and recreation 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.

The major access issue in this permit application is the occupation of sandy beach area by a structure and potential adverse effects on shoreline sand supply and public access in contradiction of Coastal Act policies 30211 and 30221. The subject site is located immediately landward and adjacent to the Carpinteria City Beach (a public beach area) and approximately 400 ft. west (upcoast) of Carpinteria State beach. In addition, the subject site is located approximately 40 ft to the east (downcoast) from an existing public vertical accessway and public beach parking lot located at the terminus of Elm Avenue. The proposed project includes the demolition of more than 50% of an existing structure and, the construction of a new larger structure with a retaining wall/seawall.

In the case of this project, the proposed development will be located further seaward than the previously existing development on the subject site. Specifically, the Commission notes that the proposed deck for the new residence extends approximately 1.5 ft. further seaward than the previously existing deck and that the proposed residence extends approximately 10 ft. or more further seaward than the previously existing structure. In addition, the proposed development will not be consistent with either the appropriate deck or structural stringline as drawn between the corners of the neighboring adjacent structures. The Commission notes that the proposed residence will extend approximately 12 ft. or more seaward of the appropriate structural stringline and that the proposed deck will extend approximately 10 ft. or more seaward of the appropriate deck stringline (Exhibit 3). As such, the Commission notes that the proposed project will result in the seaward encroachment by new development on the sandy beach.

The Commission must consider a project's direct and indirect effect on public areas of the beach. To protect public beach areas when beachfront development is proposed, the Commission must consider (1) whether the development or some portion of it will encroach on public beach (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 public beach land, whether the development will indirectly affect public areas of the beach by causing physical impacts to tidelands and shoreline processes.

The Commission further notes that interference by a shoreline protective device has a number of adverse 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 of public property available for public use. 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.

Although the applicant has not submitted adequate information regarding the location of the mean high tide line, the Commission notes, based on the width of the subject beach, that the proposed development is likely located landward of the mean high tide line. However, the Commission also notes that even structures located above the mean high tide line, may have an adverse effect 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. Specifically, the Commission notes that if a shoreline protection device results in increased beach erosion, the effect would be a reduction in the amount of beach available for public use. That is why the Commission also must consider whether a project will have indirect effects on public ownership and public use of shorelands. The applicant seeks Commission approval of a new beachfront residence constructed on a conventional at-grade slab foundation with a 7 ft. high concrete block retaining wall. As previously discussed in detail, although the proposed retaining wall has not been properly engineered as a shoreline protection device, the proposed retaining wall will be subject to potential wave action and will, therefore, effectively function as a non-engineered seawall resulting in potential adverse effects to shoreline sand supply and public access. In addition, the direct occupation of sandy area by the proposed residence and deck will result in potential adverse effects to public access along the sandy beach.

In addition to a new development's effects 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.

The beaches of Carpinteria are extensively used by visitors of both local and regional origin and the Commission notes 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. Policy 7-2 of the LCP states that no above-ground structure or other development, except for public health and safety purposes, and recreational facilities of a temporary nature shall be sited on any dry sandy beach within the City's jurisdiction. However, the Commission notes that the proposed project, in contradiction with Policy 7-2 of the LCP, will result in the seaward encroachment of new development on the sandy beach and the direct loss of beach available for public use. In addition, Policy 7-1 of the LCP states that for new developments between Sandyland Road and City Beach, the City shall determine the extent to which the land proposed for development has historically been used by the public for informal parking and beach access and shall require adequate provision for continuation of such use.

In past years, the City of Carpinteria has constructed a giant sand berm (subject to a coastal development permit) along Carpinteria City Beach on an annual basis to protect the private residential development located along Sandyland Road, including the subject site, which would otherwise be subject to wave action during storm events. The Commission notes, based on information submitted by the City and discussed in detail above, that if the berm is not constructed each winter, the residences along Sandyland Road, including the project site, would be subject to significant wave action and flooding. The Commission further notes that, although the primary purpose of the annual sand berm is to protect private residential development, the berm itself is constructed on public land (Carpinteria City Beach) resulting in adverse effects to the public's ability to use and access the sandy beach.

As previously discussed in detail, although the proposed 7 ft. high concrete block retaining wall/seawall will effectively function as a seawall, the Commission notes that since the proposed concrete block retaining wall is not properly engineered as a seawall, in the event of severe beach erosion caused by winter storm activity, the concrete block retaining wall and the slab foundation for the residence would likely be undermined by stormwaves unless a more substantial seawall is constructed in the future. As such, the Commission notes that the stability and safety of the proposed residence, as designed, is reliant on either: (1) the continued annual construction of a sand berm by the City of Carpinteria on a public beach in contradiction with Policy 3-1 of the LCP and Sections 30210 and 30211 of the Coastal Act or (2) the future construction of a more substantial seawall or other form of shoreline protection device

in contradiction to Policy 3-1 of the LCP and with Section 30235 of the Coastal Act which has been included in the LCP as a guiding policy.

Thus, the proposed development is clearly not consistent with the policies of the LCP. The Commission notes that a feasible alternative to the proposed development that would ensure compliance with the applicable policies of the LCP would be the construction of a new residence consistent with the applicable stringline and constructed on a caisson/grade beam foundation, which would not require the use of any type of shoreline protection device, rather than on a conventional slab foundation, as proposed, which would require some form of additional shoreline protection.

For all of these reasons, the Commission finds that the proposed project is not consistent with public access and recreation policies of either the certified Carpinteria Local Coastal Program or the Coastal Act.

F. Visual Resources

Policy 4-1 of the LCP states, in part, that:

> ***Broad unobstructed views from the nearest public street to the ocean...shall be preserved to the extent feasible. In addition, new development located on or adjacent to bluffs, beaches, or streams , or adjacent to Carpinteria Marsh shall be designed and sited prevent adverse impacts on the visual quality of these resources.***

Policy 4-1 of the LCP requires that new development be designed and sited in order to prevent any adverse impacts to public views to and along the Carpinteria shoreline. In addition, Coastal Act Section 30251, which is included in the certified LCP as a guiding policy, requires that visual qualities of coastal areas shall be considered and protected and, where feasible, degraded areas shall be enhanced and restored.

The subject site is located immediately landward and adjacent to the Carpinteria City Beach (a public beach area) and approximately 400 ft. west (upcoast) of Carpinteria State beach. In addition, the subject site is located approximately 40 ft to the east (downcoast) from an existing public vertical accessway and public beach parking lot located at the terminus of Elm Avenue. The proposed project includes the demolition of more than 50% of an existing structure and, the construction of a new larger structure with a retaining wall/seawall located further seaward.

As previously discussed in detail, the proposed development will be located further seaward than the previously existing development on the subject site. Specifically, the Commission notes that the proposed deck for the new residence extends approximately 1.5 ft. further seaward than the previously existing deck and that the proposed residence extends approximately 10 ft. or more further seaward than the previously existing structure. In addition, the proposed development will not be consistent with

either the appropriate deck or structural stringline as drawn between the corners of the neighboring adjacent structures. The Commission notes that the proposed residence will extend approximately 12 ft. seaward of the appropriate structural stringline and that the proposed deck will extend approximately 10 ft. or more seaward of the appropriate deck stringline (Exhibit 3). As such, the Commission notes that the proposed project will result in the seaward encroachment by new development on the sandy beach. Although seaward encroachment by only a single residence on Carpinteria Beach may not appear to result in significant adverse effects to public views along the beach, the Commission notes that such development, when viewed on a regional basis, will result in potential cumulative adverse effects to public views and to the visual quality of coastal areas. Thus, it is critical that an adverse precedent is not established by the subject proposal and that adverse effects to coastal views from public viewing areas, such as Carpinteria City Beach, are minimized.

Therefore, the Commission finds that the proposed project is not consistent with Policy 4-1 of the LCP or with Section 30251 of the Coastal Act which has been included in the certified LCP as a guiding policy.

G. Violations

Development has occurred on the subject site without the required coastal development permit consisting of the partial demolition (820 sq. ft.) of an existing 1,620 sq. ft. single family residence with 500 sq. ft. of non-habitable underfloor area; a 20 ft. long, 3 ft. high retaining wall/seawall and; and two 14 ft. long return walls and the construction of a new 2,130 sq. ft. single family residence with a 1,000 sq. ft. basement; a 20 ft. long, 7 ft. high concrete block retaining wall/seawall; and two 14 ft. long return walls. Although a coastal development permit is required for the proposed project, the proposed project was approved, in error, by the City pursuant to an administrative building permit on November 16, 1998. All proposed development has already been constructed.

Although construction has taken place prior to the issuance of a coastal development permit, consideration of the application by the Commission has been based solely upon the policies of the certified Carpinteria Local Coastal Program and the Chapter 3 public access and recreation policies of the Coastal Act. Approval of this permit does not constitute a waiver of any legal action with regard to potential violations nor does it constitute an admission as to the legality of any development undertaken on the subject site without a coastal permit.

In addition, during the course of processing this application, staff has discovered other development on the subject site which appears to have occurred without the required coastal development permit including additions to existing structures and the seaward extension of development on a sandy beach in 1982 and 1983, as well as a subdivision/tentative condominium tract map for the conversion of the parcel from a

single lot with two duplex apartment units to two single family residence condominiums in 1987. This additional unpermitted development is not included as part of this application and will require a future follow-up application for a coastal development permit that seeks to resolve the apparently unpermitted subdivision/tentative condominium tract map change or additions to an existing structure.

H. 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, proposed project would result in significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. Therefore, the proposed project is determined to be inconsistent with CEQA and the policies of the Coastal Act.

SMH-VNT
File smh/permits/regular/a-4-cpn-99-119 clemens report

APPENDIX

STUDIES AND PUBLICATIONS

Chrisiansen, Herman. "Economic Profiling of Beach Fills" in Coastal Sediments '77. 1977.

Dean, Robert G., "Coastal Sediment Processes: Toward Engineering Solutions". Coastal Sediments '87.1987.

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

Field et. al. Union of Concerned Scientists and The Ecological Society of America, Confronting Climate Change in California, Ecological Impacts on the Golden State, November 1999.

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

Hale. "Modeling the Ocean Shoreline". Shore and Beach (Vol. 43, No. 2). October 1975).

Johnson. "The Significance of Seasonal Beach Changes in Tidal Boundaries". Shore and Beach. (Vol. 39, No. 1). April 1971.

Kraus, Nicholas. "Effects of Seawalls on the Beach". Journal of Coastal Research. Special Issue # 4, 1988.

Kuhn, Gerald G. Coastal Erosion along Oceanside Littoral Cell, San Diego, California. 1981.

Maloney & Ausness. "The Use and Legal Significance of the Mean High Water Line Coastal Boundary Mapping". 53 No. Carolina L. Rev. 185 (1974).

McDougal, W.G., M.A. Sturtevant, and P.D. Komar. "Laboratory and Field Investigations of the Impact of Shoreline Stabilization Structures on Adjacent Properties". Coastal Sediments '87. 1987.

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

Shalowitz, Shore and Sea Boundaries, Vols. I and II (1962, 1964).

Shepard, Beach Cycles in Southern California, Beach Erosion Board Technical Memorandum No. 20 (U.S. Army Corps of Engineers, 1950).

State of California. State Department of Boating and Waterways (formerly Navigation and Ocean Development). Shore Protection in California. 1976.

Tait, J.F and G.B. Griggs. "Beach Response to the Presence of a Seawall: A Comparison of Field Observations". Shore and Beach. Vol. 58, No. 2, pp 11-28. 1990.

Thompson, "Seasonal Orientation of California Beaches". Shore and Beach (Vol. 55, Nos. 3-4). July 1987.

LETTERS and MEMOS

Letter to Lesley Ewing from Douglas Inman, Ph.D., February 25, 1991

Letter to Lesley Ewing from Dr. Craig Everts of Moffatt and Nichols Engineers, March 14, 1994

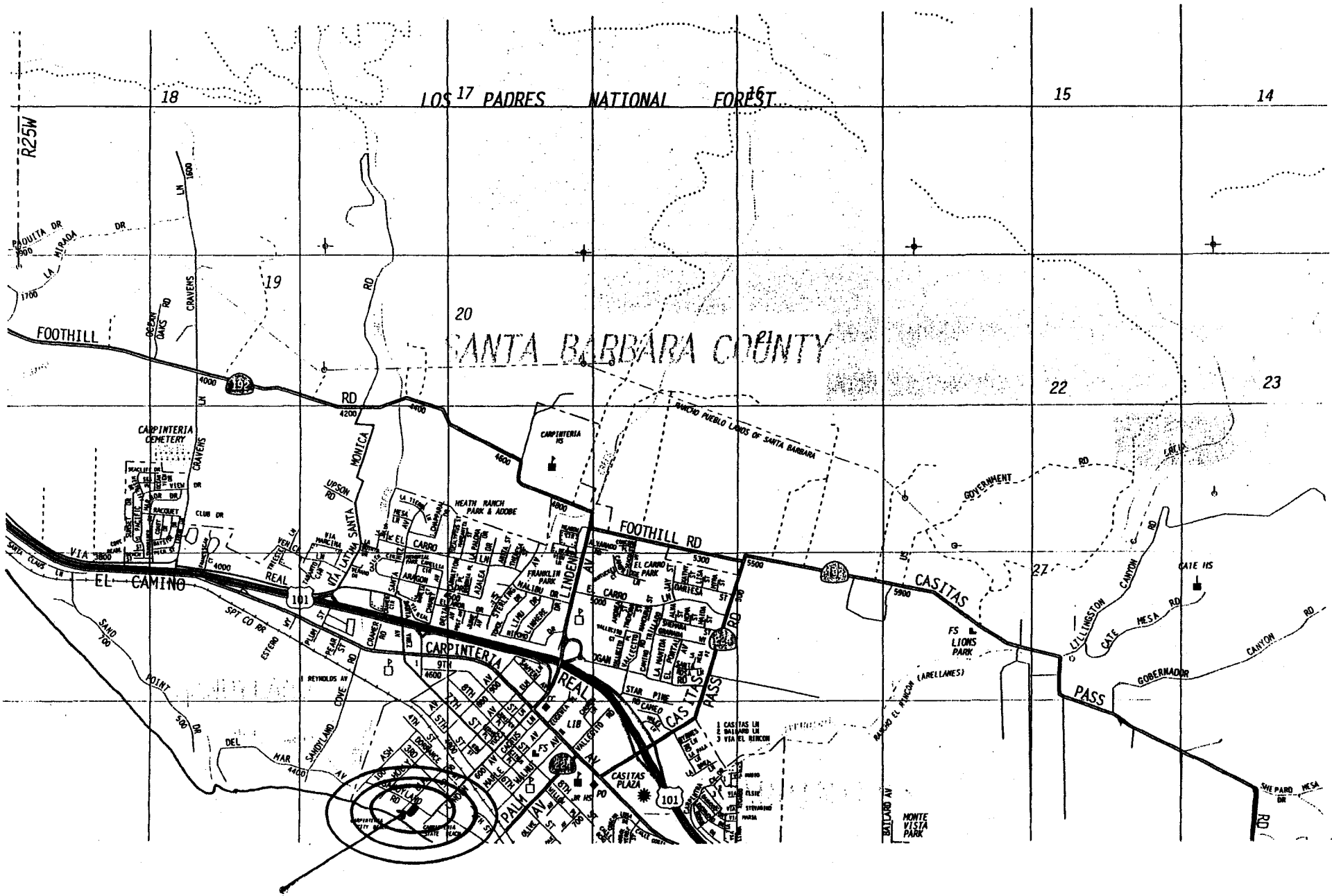
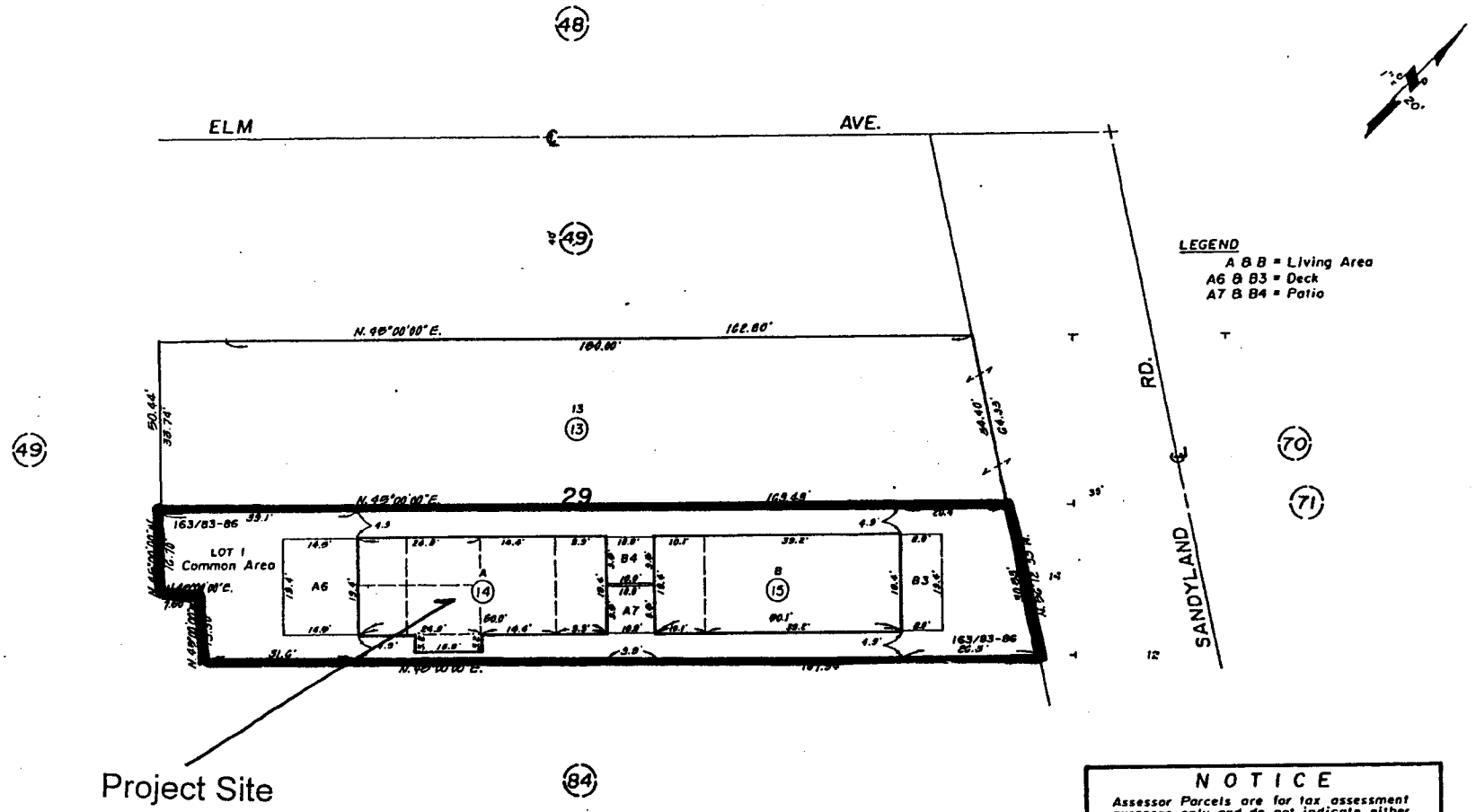


EXHIBIT 1
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Location Map

POR. PUEBLO LANDS



NOTICE

Assessor Parcels are for tax assessment purposes only and do not indicate either parcel legality or a valid building site.

- Town of Carpinteria

09/20/89 R.M. Bk. 163, Pg. 83-86 - Condominium Plan for Lot 1 of P.M. 25,132

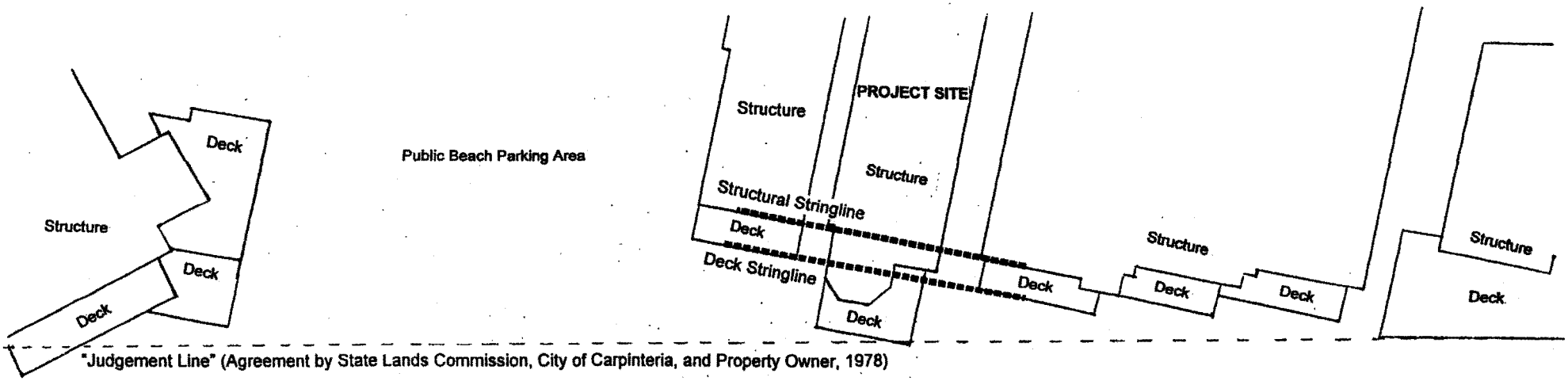
Assessor's Map Bk. 3 - Pg. 85

County of Santa Barbara, Calif.

EXHIBIT 2

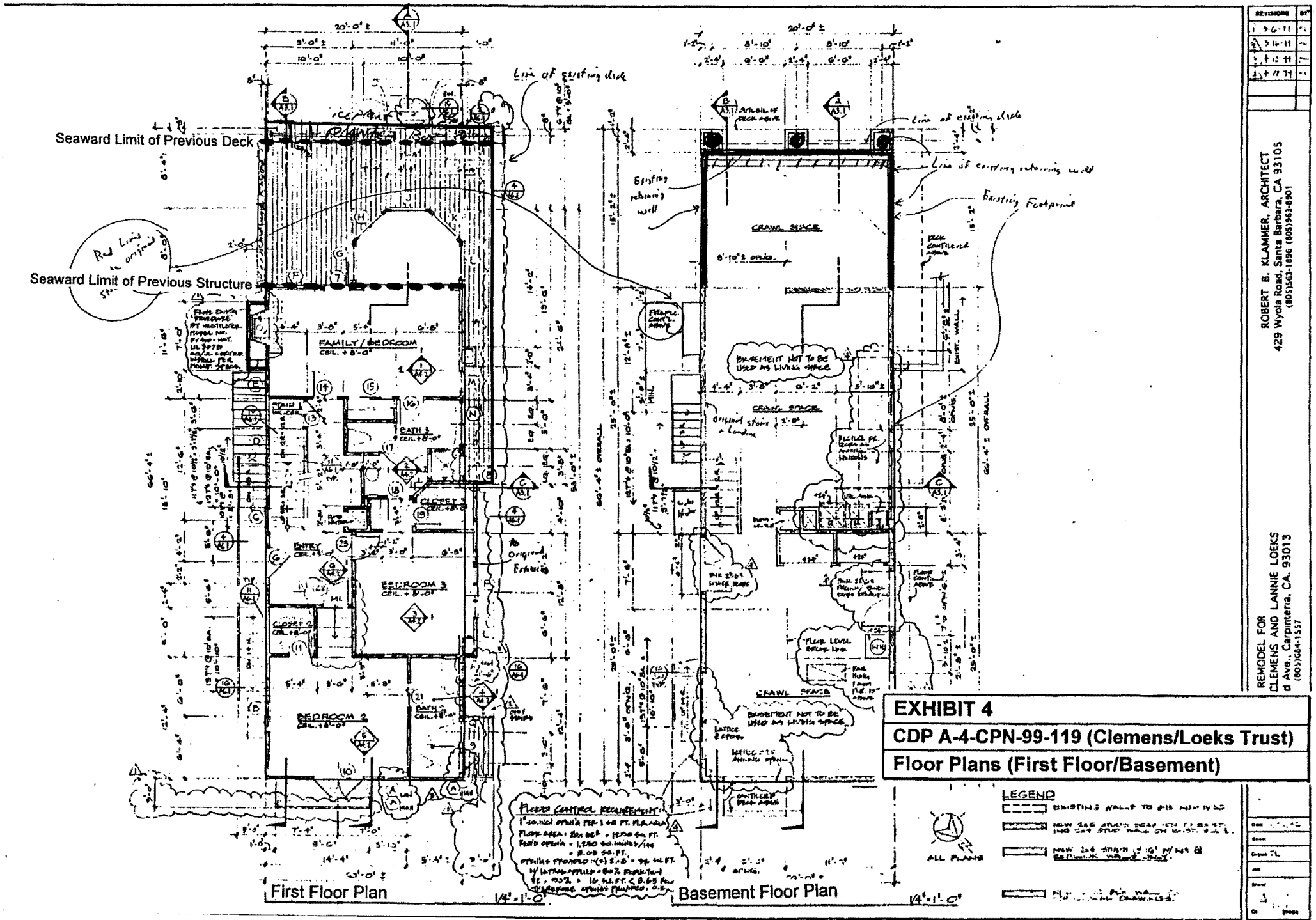
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)

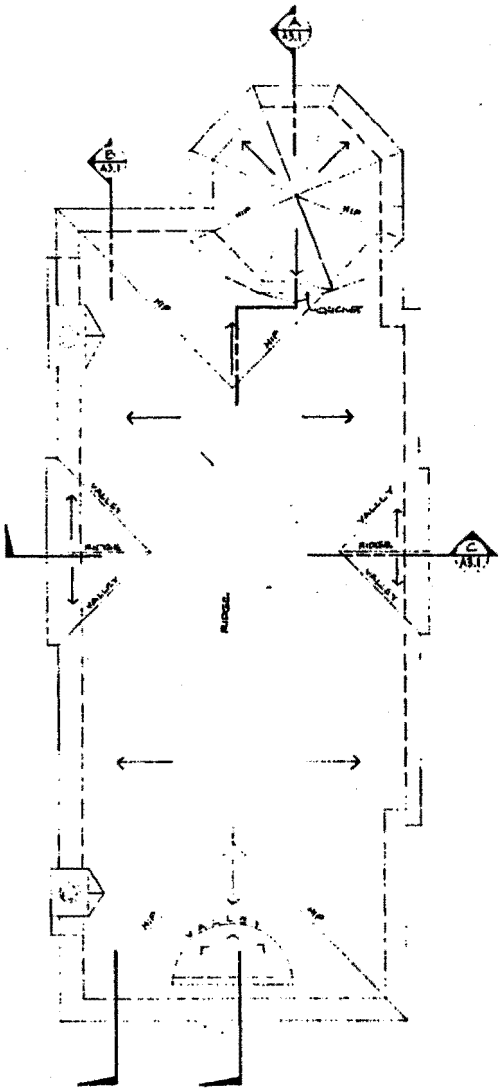
Parcel Map



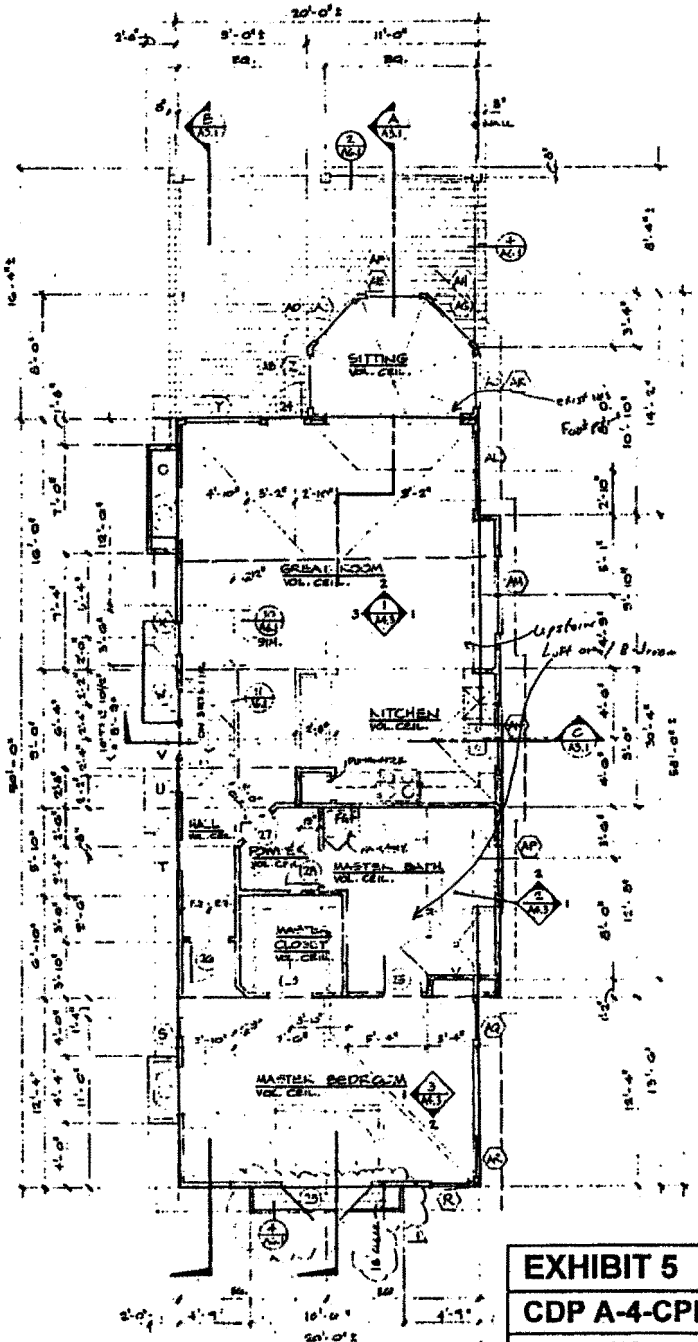
Carpinteria City Beach

EXHIBIT 3
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Site Plan/Seaward Limit of Development


Seaward Limit of Previous Deck
Seaward Limit of Previous Structure
Red Lines original
Line of existing deck
Existing retaining wall
Existing Footprint
Line of existing retaining wall
CRAWL SPACE
BASEMENT NOT TO BE USED AS LIVING SPACE
FAMILY / BEDROOM
BEDROOM 3
BEDROOM 2
BATH 3
CLOSET 3
ENTRY
Original Entrance
First Floor Plan
1/4"=1'-0"
Basement Floor Plan
1/4"=1'-0"
FLOOR CONTROL REQUIREMENT
LEGEND
EXISTING WALLS TO BE REMOVED
NEW 2x6 STUD WALL
ALL PLANS
REMODEL FOR
CLEMENS AND LANNIE LOEKS
d Ave., Carpinteria, CA. 93013
(805)684-1557
ROBERT B. KLAMMER, ARCHITECT
429 Wyola Road, Santa Barbara, CA 93105
(805)563-1896 (805)963-8901
REVISIONS
EXHIBIT 4
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Floor Plans (First Floor/Basement)



Roof Plan

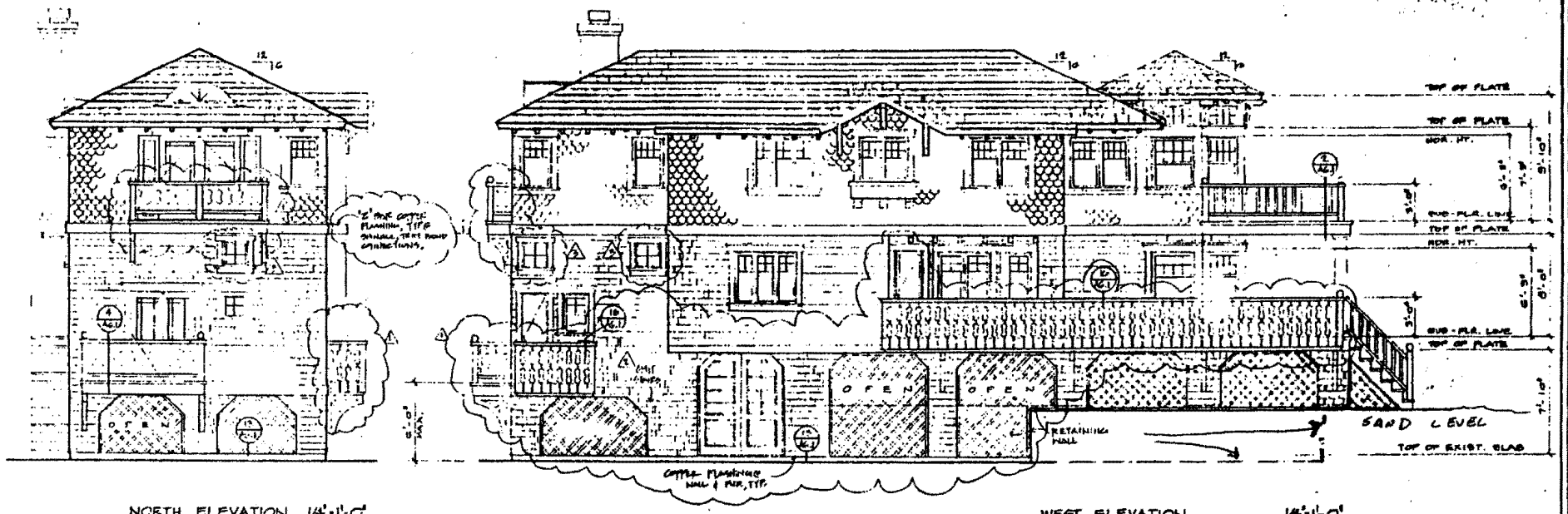


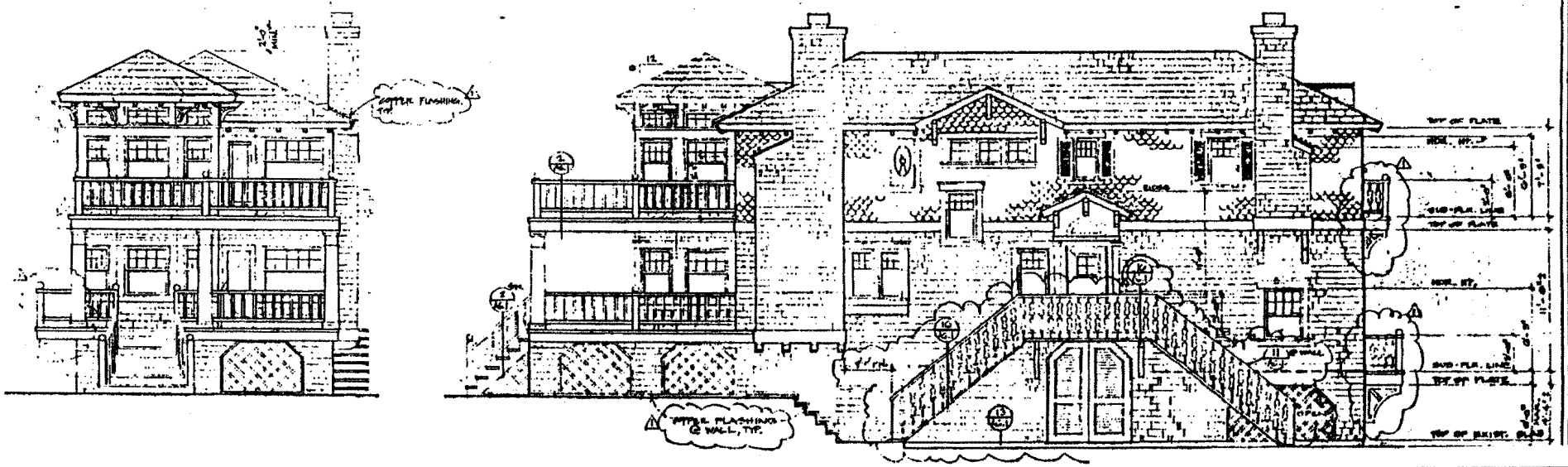
Second Floor Plan

REVISIONS	BY
1 5-4-11	

REMODEL FOR
CHRISTOPHER CLEMENS AND LANNIE LOEKS
4921 Sandyland Ave., Carpinteria, CA. 93013
(805)684-1557

EXHIBIT 5
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Floor Plans (Second Floor)

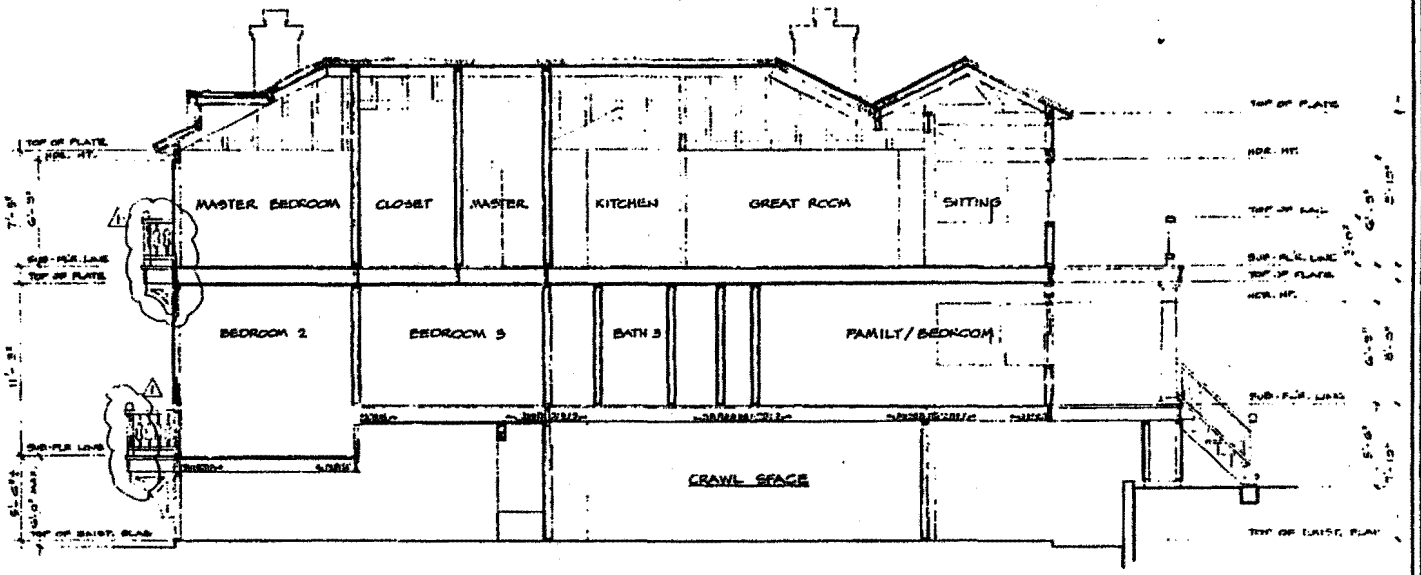




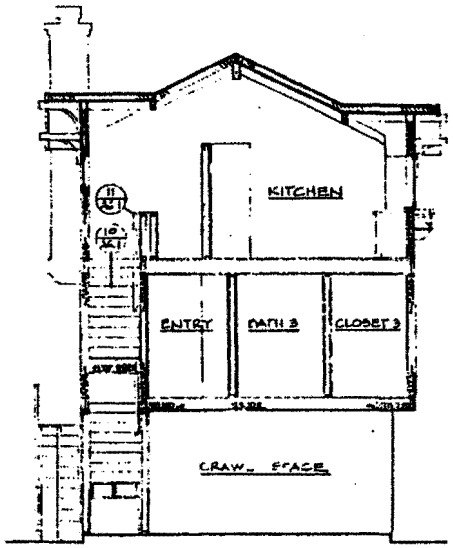
REMODEL FOR
CHRISTOPHER CLEMENS AND LANNIE LOEKS
4921 Sandyland Ave., Carpinteria, CA. 93013
(805)684-1557

ROBERT B. KLAMMER, ARCHITECT
429 Wyola Road, Santa Barbara, CA 93105
(805)563-1896 (805)963-8901

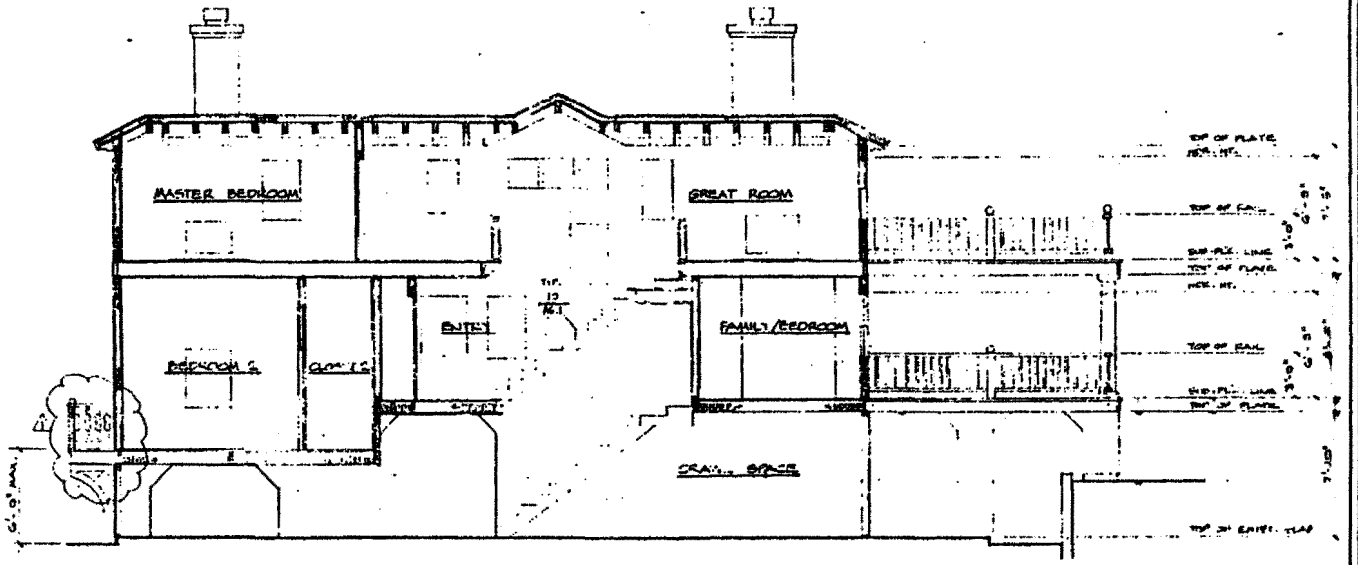
EXHIBIT 6
CDP 4-99-185 (Broad)
Structural Elevations



SECTION 1/4"=1'-0" (A)



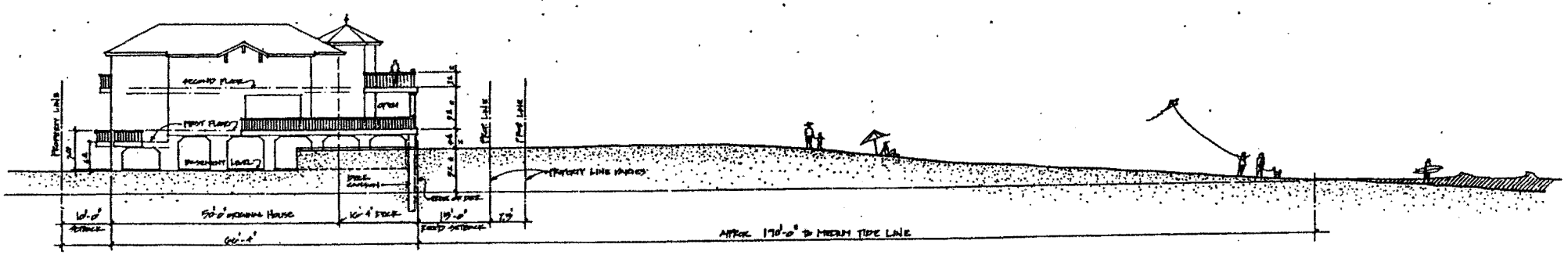
SECTION 1/4"=1'-0" (C)



SECTION 1/4"=1'-0" (B)

REMODEL FOR
CHRISTOPHER CLEMENS AND LANNIE LOEKS
4921 Carpinteria Ave., Carpinteria, CA. 93013
(805)684-1557

EXHIBIT 7
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Structural Cross Sections



CLEMENS & LOEKS RESIDENCE / BEACH SECTION

1/8"-1'-0" 10-9-99 ROBERT KLAUSER, ARCHITECT

EXHIBIT 8
CDP A-4-CPN-99-119 (Clemens/Loeks Trust)
Cross Section of Subject Site

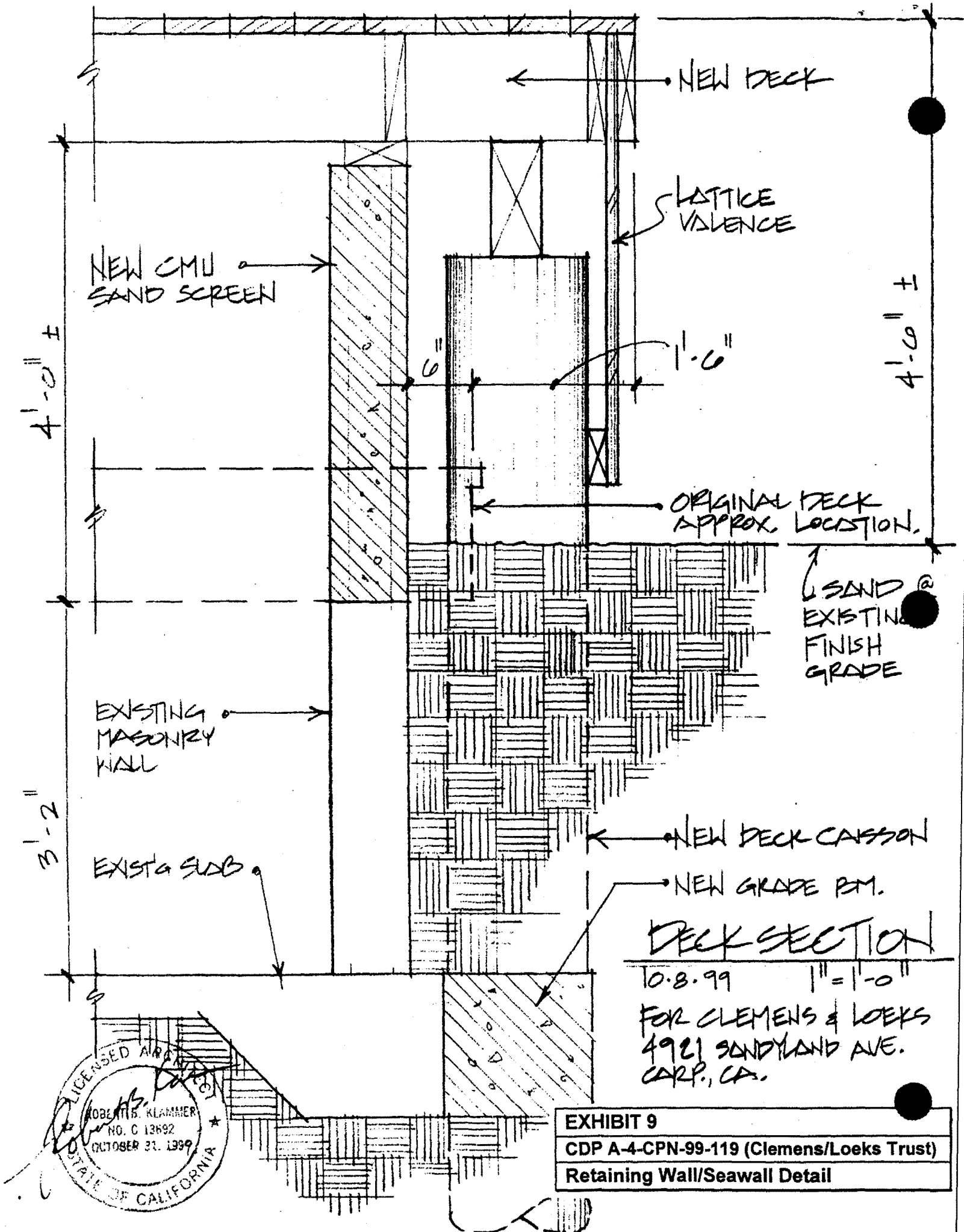


EXHIBIT 9

CDP A-4-CPN-99-119 (Clemens/Loeks Trust)

Retaining Wall/Seawall Detail