CALIFORNIA COASTAL COMMISSION
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REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Tu 15d

Application No.: 6-99-9

Applicant: Paul Ash, Richard Bourgault and Robert Mahoney

Agent: Bob Trettin

Description: Follow-up to an emergency permit to construct an approximately 37 foot-high, 83 foot-long tie-back seawall on the beach at the base of a coastal bluff fronting three properties consisting of an approximately 9 foot-high, 8 foot-wide concrete base with 10, approximately 28 foot-high concrete columns on top of the base with horizontal timber laggings between the columns and the bluff. Also proposed is repair to the existing seawall to include removal of exposed steel rebar, insertion of approximately 95 new steel rebar into face of wall and coating of concrete base face with 6-9 inches of shotcrete.

Site: On public beach fronting 656-660 Neptune Avenue, Encinitas, San Diego County. APN(s) 256-051-19, 20-01 and 20-02

STAFF NOTES:

Summary of Staff's Preliminary Recommendation:

This application is the follow-up permit to emergency permit 6-92-86-G issued by the Commission on April 30, 1992. Construction of the seawall was completed in 1992. The staff is recommending approval of the proposed follow-up application with special conditions requiring payment of an in-lieu fee to mitigate impacts of the seawall on the beach sand supply; monitoring of the seawall's condition and performance, recordation of deed restrictions addressing future erosion and assumption of risks; certification that the seawall will be storm resistant, future maintenance and copies of any additional governmental permits that might be required. With these conditions, impacts of the seawall on coastal resources will be minimized or mitigated, consistent with Chapter 3 Policies of the Coastal Act. Due to Permit Streamlining Act timing constraints, the Commission must act on this application at the July meeting.

Substantive File Documents: Certified City of Encinitas Local Coastal Program (LCP); Geotechnical Assessment for Project No. 4861180-01, Leighton & Associates, February 10, 1986, and as updated June 17, 1987; Design Report for Seawall & Bluff Stabilization for 656, 658 & 660 Neptune Avenue by First Phase Engineering dated May 9, 1992; Limited Geotechnical Assessment for 656, 658 & 660 Neptune Avenue by Soil Engineering Construction dated November 2, 1998; CDP Nos.6-87-678, 6-89-297-G, 6-92-86-G, 6-92-167-G, 6-93-131, 6-95-66, 6-96-6-G, 6-96-122-G , 6-98-39 and 6-98-131. "Landslide Hazards in the Encinitas Quadrangle, San Diego County, California", Open File Report, dated 1986 by the California Division of Mines and Geology; U.S. Army Corps of Engineers, Los Angeles District (September 1991) State of the Coast Report, San Diego Region (CCSTWS), and all Technical Support Documents prepared for this study; San Diego Association of Governments (July 1993) Shoreline Preservation Strategy (including technical report appendices, The Planners Handbook, Beachfill Guidelines, and Seacliffs, Setbacks and Seawalls Report); Stone, Katherine E. and Benjamin Kaufman (July 1988) "Sand Rights: A Legal System to Protect the 'Shores of the Sea'", Journal of the American Shore and Beach Preservation Association, Vol. 56, No. 3, pp. 8 - 14; Tait, J.F. and Gary B. Griggs (1990) "Beach Response to the Presence of a Seawall," Journal of the American Shore and Beach Preservation Association, Vol. 58, No. 2, pp. 11 - 28; Group Delta Consultants, Inc. (November 3, 1993) "Shoreline Erosion Evaluation Encinitas Coastline, San Diego County, California" prepared for Mr. and Mrs. Richard Cramer (Project No. 1404-EC01); Everts, Craig (1991) "Seacliff Retreat and Coarse Sediment Yields in Southern California," Proceedings of Coastal Sediments '91, Specialty Conference/WR Div./ASCE, Seattle WA; Sunamura, T. (1983) "Processes of Sea Cliff and Platform Erosion," in CRC Handbook of Coastal Processes and Erosion, P.D. Komar (ed), CRC Press, Boca Raton, FL; Beach Bluff Erosion Technical Report for the City of Encinitas by Zeiser Kling Consultants, Inc. dated January 24, 1994; Sterrett, E.H. and R.E. Flick. "Shoreline Erosion Atlas." Shoreline Erosion Assessment and Atlas of the San Diego Region, vol. II. Sacramento, California: California Department of Boating and Waterways, 1994; "Batiquitos Lagoon Dredging Survey", dated September 1994, State Land Commission; Reconnaissance Report for the Encinitas Shoreline by the U.S. Army Corps of Engineers, dated March 1996; Final Draft Technical Report for the City of Encinitas Comprehensive Coastal Bluff and Shoreline Plan by Moffatt and Nichol Engineers, dated February 1996

II. Standard Conditions.

See attached page.

III. Special Conditions.

The permit is subject to the following conditions:

1. Mitigation for Impacts to Sand Supply. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall provide evidence, in a form and content acceptable to the Executive Director, that a total fee of $10,461.04 has been deposited in an interest bearing account designated by the Executive Director, in-lieu of providing sand to replace the sand and beach area that would be lost due to the impacts of the proposed protective structure. The methodology used to determine the appropriate mitigation fee for the subject site(s) is that described in the staff report dated 6/24/99 prepared for Coastal Development Permit #6-99-9. All interest earned shall be payable to the account for the purposes stated below.

The purpose of the account shall be to establish a beach sand replenishment fund to aid SANDAG, or a Commission-approved alternate entity, in the restoration of the beaches within San Diego County. The funds shall solely be used to implement projects which provide sand to the region's beaches, not to fund operations, maintenance or planning studies. The funds shall be released only upon approval of an appropriate project by the Executive Director of the Coastal Commission. The funds shall be released as provided for in a MOA between SANDAG, or a Commission-approved alternate entity, and the Commission, setting forth terms and conditions to assure that the in-lieu fee will be expended in the manner intended by the Commission. In the event the MOA is terminated, the Commission can appoint an alternative entity to administer the fund.

2. Monitoring Program. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a plan prepared by a licensed engineer for a seawall monitoring program which includes the following:

a. An evaluation of the condition and performance of the seawall and drainage system, addressing whether any significant weathering or damage has occurred that would adversely impact the future performance of the seawall or drains.

b. Within 30 days of completion of the repairs authorized by the subject permit, the applicant shall submit a report to the Executive Director of the Commission of the evaluation described in Subsection a. above.

c. Provisions for conducting the evaluation described in Subsection a. above annually in April of each year for three years beginning with April 2000.

d. Provisions for submittal of a report to the Executive Director of the Coastal Commission on May 1 of each year for three years beginning May 1, 2000. Each report shall be prepared by a licensed engineer. The report shall contain evaluation required in Subsections a. above. Each report shall contain recommendations, if any, for necessary changes or modifications to the project.

e. Provisions for submission of a report containing the information identified in Subsection c. above at 3 year intervals following the last annual report (i.e., the first of these triennial reports to be submitted on May 1, 2005); however, reports shall be submitted in the Spring immediately following either:

1. An "El Niño" storm event – comparable to or greater than a 20-year storm

2. A tectonic event magnitude 5.5 or greater affecting San Diego County

Thus reports may be submitted more frequently depending on the occurrence of the above events in any given year.

The permittee shall undertake monitoring in accordance with the approved plan. Any proposed changes to the approved plan shall be reported to the Executive Director. No changes to the plan shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

3. Assumption of Risk. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, each applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which shall provide: (a) that the applicant understands that the site may be subject to extraordinary hazard from storm waves, erosion and bluff collapse, and the applicant assumes the liability from such hazards; and (b) the applicant unconditionally waives any claim of liability on the part of the Commission or its successors in interest for damage from such hazards and agrees to indemnify and hold harmless the Commission, its officers, agents, and employees relative to the Commission's approval of the project for any damage due to natural hazards. The document shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

4. Future Maintenance/Debris Removal. Within 10 days of completion of construction of or repairs to the protective device the permittees shall remove all debris deposited on the beach or in the water as a result of the subject construction activities. The permittee shall maintain the permitted seawall in its approved state except to the extent necessary to comply with the requirements set forth below. Any change in the

design of the project or future additions/reinforcement of the seawall beyond minor regrouting or other exempt maintenance, as defined by Section 13252 of the California Code of Regulations, will require a coastal development permit. However, in all cases after inspection, if it is apparent that repair and maintenance is necessary, the permittee shall contact the Commission office to determine whether permits are necessary.

5. Staging Areas/Access Corridors/Timing of Construction. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final plans indicating the location of access corridors to the construction site and staging areas. The final plans shall indicate that:

a. No staging of equipment or materials shall occur on sandy beach or public parking areas. The permittee shall not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion. In addition, no machinery shall be placed, stored or otherwise located in the intertidal zone at any time.

b. Access corridors shall be located in a manner that has the least impact on public access to and along the shoreline.

c. No work shall occur on the beach between Memorial Day weekend and Labor Day of any year.

d. The applicant shall submit evidence that the approved plans/notes have been incorporated into construction bid documents. The staging site shall be removed and/or restored immediately following completion of the development.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

6. Other Permits. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit copies of all other required local, state or federal discretionary permits for the development herein approved. Any mitigation measures or other changes to the project required through said permits shall be reported to the Executive Director and shall become part of the project. Such modifications, if any, may require an amendment to this permit or a separate coastal development permit.

7. Final Plans. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final site and building plans, that have been stamped and approved by the City of Encinitas. Said plans shall be in substantial conformance with the submitted building plans dated 5/6/92 and received by the Commission on 1/22/99.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

8. Condition Compliance. WITHIN SIXTY (60) DAYS OF COMMISSION ACTION OF THIS COASTAL DEVELOPMENT PERMIT APPLICATION, or within such additional time as the Executive Director may grant for good cause, the applicants shall satisfy all requirements specified in the conditions hereto that the applicants are required to satisfy prior to issuance of this permit. Failure to comply with this requirement may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act.

IV. Findings and Declarations.

The Commission finds and declares as follows:

1. Detailed Project Description/History. The proposed project involves the construction of a 37 foot-high, 83 foot-long seawall with tie-backs consisting of an approximately 9 foot-high, 8 foot-thick concrete base with ten, approximately 28 foot-high concrete columns on top of the base and horizontal timber laggings between the columns and the bluff. The project was built in 1992 pursuant to an emergency permit issued by the Commission (ref. CDP No. 6-92-86-G). The seawall was built 2 feet higher and 3 feet longer than the seawall authorized by the emergency permit. The seawall is similar in design to, and connects with, seawall structures on the north and south sides of the subject site. The seawalls to the north and south were built prior to issuance of the emergency permit for the subject seawall. Since construction of the wall in 1992, wave action has eroded approximately 6-12 inches of the concrete base, exposing the internal steel rebar. As such, the applicants also propose to repair the seawall. The applicants propose to remove the exposed rebar, insert approximately 95 new rebar rods and cover the face of the concrete base with 6 to 9 inches of shotcrete. The maximum width of the repaired seawall base would be 7 ft., 9 inches, which is less than the previously approved width of 8 feet.

The subject development is located at the base of an approximately 98 ft. high coastal bluff on the west side of Neptune Avenue in Encinitas fronting two lots. The northern lot contains a single family residence, and the southern lot contains a 2-unit condominium. The western boundary of each lot is a surveyed line, although any portion of the lot that is seaward of the mean high tide line is excluded from the lot. The applicants assert that the surveyed line is at or west of the toe of the bluff, such that the bluff face is in private ownership. The single family residence was constructed in 1956, prior to enactment of the Coastal Act. In 1988 the Commission approved the construction of the condominium with a 30-foot setback from the bluff edge (Ref. CDP No. 6-87-678; the permit was initially for a duplex but was amended to allow conversion to a condominium). In 1992,

the properties experienced significant bluff failures. In response, the then-property owners sought and obtained emergency permits for construction of the lower 35 foot-high seawall with an approximately 37 foot-high slope of backfill material (ref. CDP No. 6-92-86-G) and, above that, a 19 foot-high, 100 foot-long upper bluff retaining wall (ref. CDP No. 6-92-167-G). The upper wall consists of vertical poles, horizontal lagging boards and tiebacks with horizontal wood walers.

The upper bluff retention system lies within an area of the City of Encinitas' coastal permitting authority and within the Commission's appeals jurisdiction. The required follow-up coastal development permit for the upper bluff retention system is being processed at the City concurrent with this application.

The subject seawall development lies seaward of the mean high tide line (MHTL). In September 1994, State Lands Commission surveyed the MHTL in Encinitas and concluded that the MHTL follows the toe of the bluff in the City of Encinitas ("Batiquitos Lagoon Dredging Survey", 1994). The City of Encinitas has a certified LCP and has been issuing coastal development permits since May of 1995. However, because the proposed development lies seaward of the MHTL, it is located within the Commission's area of original jurisdiction, where permit jurisdiction is not delegated to the local government. As such, the standard of review is Chapter 3 policies of the Coastal Act, with the certified LCP used as guidance.

2. Geologic Conditions and Hazards. Section 30235 of the Coastal Act states, in part:

> Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

In addition, Section 30253 of the Coastal Act states, in part:

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

Coastal Act Section 30235 acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" solutions alter natural shoreline processes. Thus, such devices are required to be approved only when necessary to protect existing

structures in danger from erosion. The Coastal Act does not require the Commission to approve shoreline altering devices to protect vacant land or in connection with construction of new development. A shoreline protective device proposed in those situations is likely to be inconsistent with various other Coastal Act policies. For example, Section 30253 addresses new development and requires that it be sited and designed to avoid the need for protective devices that would substantially alter natural landforms along bluffs and cliffs.

In addition, the Commission has generally interpreted Section 30235 to require the Commission to approve shoreline protection only for existing principal structures. The Commission must always consider the specifics of each individual project, but has found in many instances that accessory structures such as patios, decks and stairways are not required to be protected under Section 30235 or can be protected from erosion by relocation or other means that does not involve shoreline protection. The Commission has historically permitted at grade structures within the geologic setback area recognizing they are expendable and capable of being removed rather than requiring a protective device that alters natural landforms along bluffs and cliffs.

The proposed development is located at the base of a coastal bluff in the City of Encinitas. Continual bluff retreat and the formation and collapse of seacaves have been documented in northern San Diego County, including the Cities of Solana Beach and Encinitas. Bluffs in this area are subject to a variety of erosive forces and conditions (e.g., wave action, reduction in beach sand, seacave development). As a result of these erosive forces, the bluffs and blufftop lots in the Encinitas area are considered a hazard area. Furthermore, in 1986 the Division of Mines and Geology mapped the entire Encinitas shoreline as an area susceptible to landslides, i.e, mapped as either "Generally Susceptible" or "Most Susceptible Areas" for landslide susceptibility (ref. Open File Report, "Landslide Hazards in the Encinitas Quadrangle, San Diego County, California", dated 1986). Documentation has been presented in past Commission actions concerning the unstable nature of the bluffs in these communities and nearby communities (ref. CDP Nos. 6-93-181/Steinberg, 6-92-212/Wood, 6-92-82/Victor, 6-89-297-G/Englekirk, 6-89-136-G/Adams, and 6-85-396/Swift). In addition, a number of significant bluff failures have occurred along the northern Solana Beach/Encinitas coastline which have led to emergency permit requests for shoreline protection (ref. CDP Nos. 6-93-181/Steinberg, 6-93-131/Richards et al, 6-93-36-G/Clayton, 6-93-024-G/Wood, 6-92-212/Wood, 6-92-73-G/Robinson, 6-91-312-G/Bradley, 6-98-029/Bennet, 6-98-157-G/Colton and 6-99-41-G/ Bradley).

Pursuant to Section 30253 of the Coastal Act, in approving new development on blufftop lots, structures are required to be setback an appropriate distance (based on a site specific geotechnical report) from the edge of the bluff that will allow for the natural process of erosion without triggering the need for a seawall. This "geologic setback area" is so designated to accommodate the natural erosion of the bluff. In other words, on blufftop lots, residences are set back from the bluff edge to allow the natural process of erosion to occur on the site without causing the residence to be threatened. Thus, at some future point when evidence of some erosion of the setback area is identified (even undercutting

and subsequent block failures), this does not necessarily confirm the need for bluff or shore protection to protect the residence.

The proposed seawall will front two lots containing residential structures consisting of a single family home and two attached condominiums. The Commission approved the construction of the attached condominiums in 1988 with a 30-foot geologic setback from the bluff's edge (ref. CDP No. 6-87-678). The geologic report prepared for that project ("Geotechnical Assessment" by Leighton and Associates, dated February 10, 1986, and as updated on June 17, 1987) identified the bluff as "grossly stable" and estimated the rate of retreat for the bluff as no more than 10 to 15 feet over 45 years. Prior to approval of the condominiums, the Commission in 1985 approved the construction of a 12 foot-high, 70 foot-long seawall on the adjacent property to the north. That applicant subsequently constructed an approximately 37 foot-high, 70 foot-long seawall (which was constructed in phases, beginning with a 20-25 foot high wall that was then extended vertically to 37 feet by January of 1988), inconsistent with the seawall design approved by the Commission. On October 2, 1989, after approval of the condominiums, the Commission issued an emergency permit for the construction of a 35 foot-high, 100 foot-long seawall on the property immediately to the south of the subject sites (ref. CDP No. 6-89-297-G). According to documentation provided in the subsequent regular coastal permit application, this wall was constructed in the spring of 1990.

The geologic report prepared for the subject site ("Design Report" by First Phase Engineering II, dated May 9, 1992) at the time of the emergency permit in April 1992, described the bluff as consisting of "a 25 foot-high near vertical sandstone supporting 70 feet of marine terrace sands". It indicated that as a result of accelerated wave action from the severe winter storms of 1991-92 combined with the wave reflection effects of the two existing "35" foot-high seawalls located on either side of subject site, the lower sandstone had receded 20 to 30 feet. The report further indicated that this erosion of the lower sandstone left the upper terrace sands unsupported. According to the report, this led to a loss of 10-14 feet of upper bluff, leaving the upper terrace sands almost vertical beneath the western edge of the residential structures undermining their foundations. The residences were determined at the time of the emergency permit request in April 1992 to be as close as 7 feet from the bluff edge. In addition, by July 31, 1992 (based on photographic evidence), the upper bluff had continued to retreat such that the northern residence was protruding over the edge of the bluff, with the foundation exposed. The report included a slope stability analysis that indicated that the factor of safety for each of the residences was less than one. The report concluded that the bluff collapse placed the residential structures in danger and recommended construction of a seawall and upper bluff stabilization device to protect them. Based on that report, the Commission issued emergency permits for the construction of a 35 foot-high, 80 foot-long seawall with 37 foot-high backfill material (ref. CDP No. 6-92-86-G) and the construction of a 19 foot-high, 100 foot-long upper bluff retention system on the top face of the bluff (ref. CDP No. 6-92-167-G).

The current applicant has submitted a geologic report ("Limited Geotechnical Assessment", by Soil Engineering Construction, dated November 2, 1998) that is

intended to update the 1992 report and to document the continued need for the seawall and its associated repairs. The report indicates that the upper bluff retaining wall permitted by Emergency Permit No. 6-92-167-G (and currently being reviewed by the City for the follow-up regular coastal development permit) was never properly completed and is currently in distress such that the homes above are in danger. Today the northern residential structure is located as close as 9 feet from the top edge of the manufactured backfill slope behind the upper bluff retaining wall. The southern condominium structures are as close as 16 feet from this top edge. The upper retaining wall itself is located between 23 and 30 feet seaward of the residential structures. The updated report indicates that the lower seawall continues to be required to protect the lower sandstone from erosive wave action and wave reflection and that loss of the lower sandstone would undermine the upper bluff retaining wall and, subsequently, the residential structures. However, the wall's lower 9 foot-high concrete base has been eroded by wave action over the last 7 years such that the structural integrity of the base requires repair. Repairs for the concrete base of the lower wall will involve the removal of exposed rebar, the insertion of approximately 95 new rebar rods and an application of 6 to 9 inches of shotcrete over its face. The Commission finds that the bluff failures in 1992 resulted in an immediate threat to the residences, and that substantial evidence has been presented supporting the continued need for shoreline protection at the toe of the bluff to protect the existing residences.

Section 30235 of the Act also requires that any permitted shoreline altering device be found to be the least environmentally damaging alternative. Relative to alternatives, the applicant's engineer has indicated that reducing the size of the existing seawall or moving the wall further landward would be "unfeasible" and cost prohibitive. The engineer has indicated that the upper 19 foot-high, 100 foot-long retaining wall was constructed utilizing the support provided by the 37 foot-high seawall and that the lowering or moving of the seawall would require the construction of additional bluff retaining walls to protect the upper bluff retention system and residential structures. The location of the wall was chosen to fill-in the gap between and align with the existing walls to the north and south of the subject site in order to reduce the damaging effects of wave reflection or tunneling. As such, the benefit of a lower and/or relocated wall would be offset by the potential for wave reflection damage and the increased number of upper bluff retaining walls. The Commission finds that the applicant's engineer's has demonstrated that there is no less environmentally damaging alternative than the proposed 37 foot height seawall.

The applicant is also proposing to repair the existing seawall. The 9 foot-high concrete base of the seawall has been scoured by wave action, removing approximately one foot of concrete and exposing a substantial number of underlying rebar rods (i.e., steel rods that are added to the concrete to increase the tensile strength of the structure). The applicant's engineer has indicated that this exposure threatens the structural integrity of the wall. The Commission's staff engineer has reviewed the submitted documentation and concurs with that assessment. The applicant proposes to repair the concrete by removing the exposed rebar, inserting approximately 95 new rebar rods and covering the face of the base with approximately 6-9 inches of shotcrete. The applicant's engineer has indicated that the proposed repairs to the seawall will allow the seawall to remain structurally

sound for another 11 years. Since the applicant has documented the need to protect the existing residences and repair the existing seawall, the Commission finds that a shoreline altering device must be approved pursuant to Section 30235 of the Coastal Act. Thus based on the analysis presented by the applicant, the Commission finds that there are no less environmentally feasible alternatives than the proposed repairs to the project.

a). Sand Supply/In Lieu Mitigation Fee

Although construction of a seawall is required to protect the existing principle structures on the site, Section 30235 of the Coastal Act requires that the shoreline protection be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. There are a number of adverse impacts to public resources associated with the construction of shoreline structures. The natural shoreline processes referenced in Section 30235, such as the formation and retention of sandy beaches, are altered by construction of a seawall. Bluff retreat is one of several ways that beach area and beach quality sand is added to the shoreline. This retreat is a natural process resulting from many different factors such as erosion by wave action causing wearing away of the lower bluff material, undercutting and/or cave formation, enlargement and eventual collapse; saturation of the bluff soil from ground water causing the bluff to slough off; and natural bluff deterioration. When a seawall is constructed on the beach at the toe of the bluff, it directly impedes some or all of these natural processes.

Some of the adverse effects of a shoreline protective structure on the beach, such as scour, end effects and, modifications to the beach profile, are temporary or difficult to distinguish from all the other actions which modify the shoreline. Seawalls also have non-quantitative effects to shoreline character and visual quality. However, some of the effects which a structure may have on natural shoreline processes can be quantified. Three adverse effects of a shoreline protective device that can be quantified at this time are: 1) loss of the beach area on which the structure is located; 2) the long-term loss of beach which will result when the back beach location is fixed on an eroding shoreline; and 3) the amount of material which would have been supplied to the beach if the back beach or bluff were to erode naturally.

Based on review of the proposed seawall application, the Commission finds that the following impacts on beach sand supply would result from construction of the proposed seawall. The proposed seawall, which is approximately 83 ft. long by 8 feet thick and includes a backfilled area of the beach of up to 14 feet landward of the wall, will encroach onto and permanently displace an estimated 1,053 sq. ft. of beach area. Because the proposed seawall is located seaward of the MHTL it is land subject to the public trust, and therefore will displace beach that would otherwise be available for public use. In addition, since the seawall will fix the back beach location, approximately 269 cubic yards of sand will not become available in future as a result of the seawall.

Loss of beach material and loss of beach area are two separate concerns. A beach is the result of both sandy material and a physical area between the water and the back beach. Thus, beach area is not simply a factor of the quantity of sandy beach material. In

Encinitas, the shoreline is a shallow bedrock layer covered by a thin veneer of sand. The bedrock layer provides an area for collection of sandy material. The sand material is important to the overall beach experience, but even without the sand, the bedrock layer provides an area for coastal access between the coastal bluff and the ocean. The loss of beach material that will be a direct result of this project can be balanced or mitigated by obtaining similar quality and quantity of sediment from outside the littoral cell and adding this sediment to the littoral cell. There are sources of beach quality sediment that can be drawn upon to obtain new sediment for the littoral cell. Unfortunately there is not source of extra beach land that can be used to add new land area to the littoral cell. Beach nourishment is a method that allows us to shift the shore profile seaward and create a new area of dry beach. This will not create new coastal land, but will provide many of the same benefits that will be lost when the beach area is covered by a seawall or "lost" through passive erosion when the back bluff location is fixed.

It is possible to estimate the volume of sand needed to create a given area of dry beach through beach nourishment. The proposed project will result in the total loss of 1,053 sq. ft. of beach, due to the long-term physical encroachment of the seawall, combined with the beach area that will no longer be formed because the back of the beach will be fixed. This 1,053 sq. ft. of beach can be built or created, through the one-time placement of 947.5 cubic yards of sand seaward of the seawall. This estimate is only a "rough approximation" of the impact of the seawall on beach area because one-time placement of this volume of sand cannot result in creation of beach area over the long term.

The overall impacts from the proposed seawall will be the entrapment of 268.9 cu. yds of sand the would have been added to the littoral cell and the long-term loss of 1,053 sq. ft. of beach area. This 1,053 sq. ft. of beach area cannot be replaced by land, but a comparable area can be build through the addition of 947.5 cu. yds of sand as beach nourishment. This 947.5 cu. yds of sand, added to the 268.9 cu. yds of sand that would have been added to the cell, totals 1,216.4 cu. yds of sand that is needed to balance the quantifiable impacts from the entire project.

Special Condition #1 requires the applicant to deposit an in-lieu fee to fund beach sand replenishment of 1,216.4 cubic yards of sand, as mitigation for impacts of the proposed shoreline protective device on beach sand supply and shoreline processes. The following is a detailed description of the methodology used by the Commission to develop the estimated amount of sand lost as a result of the proposed seawall and the in-lieu fee, which is based upon that estimated amount. The methodology uses site-specific information provided by the applicant as well as estimates, derived from region-specific criteria, of both the loss of beach material and beach area which could occur over the life the structure, and of the cost to purchase an equivalent amount of beach quality material and to deliver this material to beaches in the project vicinity.

The following is a description of the methodology. The actual calculations which utilize values that are applicable to the subject sites, and were used as the basis for calculating the estimated range of the mitigation fee, are attached as Exhibit A to this report.

Fee = (Volume of sand for mitigation) x (unit cost to buy and deliver sand)

$M = V_t \times C$

where

M = Mitigation Fee

$\mathbf{V_t}$ = Total volume of sand required to replace losses due to the structure, through reduction in material from the bluff, reduction in nearshore area and loss of available beach area (cubic yards). Derived from calculations provided below.

C = Cost, per cubic yard of sand, of purchasing and transporting beach quality material to the project vicinity ($ per cubic yard). Derived from the average of three written estimates from sand supply companies within the project vicinity that would be capable of transporting beach quality material to the subject beach, and placing it on the beach or in the near shore area.

$V_t = V_b + V_w + V_e$

where

$\mathbf{V_b}$ = Volume of beach material (cubic yards) that would have been supplied to the beach if natural erosion continued, based on the long-term regional bluff retreat rate, design life of the structure, percent of beach quality material in the bluff, and bluff geometry. This is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the structure.

$\mathbf{V_w}$ = Volume of sand necessary to replace the beach area that would have been created by the natural landward migration of the beach profile without the seawall, based on the long-term regional bluff retreat rate, and beach and nearshore profiles (cubic yards)

$\mathbf{V_e}$ = Volume of sand necessary to replace the area of beach lost due to encroachment by the seawall; based on the seawall design and beach and nearshore profiles (cubic yards)

$$V_b = (S \times W \times L/27) \times [(R\ h_s) + (h_u/2 \times (R + (R_{cu} - R_{cs})))]$$

where

R = Long-term regional bluff retreat rate (ft./yr.), based on historic erosion, erosion trends, aerial photographs, land surveys, or other accepted techniques. For the Encinitas area, this regional retreat has been estimated to be 0.2 ft./year. This value may be used without further documentation. Alternative retreat rates must be documented by the applicant and should be the same as the predicted retreat rate used to estimate the need for shoreline armoring.

L = Design life of armoring without maintenance (yr.) If maintenance is proposed and extends the life of the seawall beyond the initial estimated design life, a revised fee shall be determined through the coastal development permit process.

W = Width of property to be armored (ft.)

S = Fraction of beach quality material in the bluff material, based on analysis of bluff material to be provided by the applicant

h_s = Height of the seawall from the base to the top (ft)

h_u = Height of the unprotected upper bluff, from the top of the seawall to the crest of the bluff (ft)

R_{cu} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming no seawall were installed (ft/yr). This value can be assumed to be the same as R unless the applicant provides site-specific geotechnical information supporting a different value.

R_{cs} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming the seawall has been installed (ft/yr). This value will be assumed to be zero unless the applicant provides site-specific geotechnical information supporting a different value.

NOTE: For conditions where the upper bluff retreat will closely follow the lower bluff, this volume will approach a volume of material equal to the height of the total bluff, the width of the property and a thickness equal to the total bluff retreat that would have occurred if the seawall had not been constructed. For conditions where the upper bluff has retreated significantly and would not be expected to retreat further during the time that the seawall is in place, this volume would approach the volume of material immediately behind the seawall, with a thickness equal to the total bluff retreat that would have occurred if the seawall had not been constructed.

$V_W = R \times L \times v \times W$

where

R = Long-term regional bluff retreat rate (ft./yr.), based on historic erosion, erosion trends, aerial photographs, land surveys, or other accepted techniques. For the Encinitas area, this regional retreat has been estimated to be 0.2 ft./year. This value may be used without further documentation. Alternative retreat rates must be documented by the applicant and should be the same as the predicted retreat rate used to estimate the need for shoreline armoring.

L = Design life of armoring without maintenance (yr.) If maintenance is proposed and extends the life of the seawall beyond the initial estimated design life, a revised fee shall be determined through the coastal development permit process.

v = Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall; based on the vertical distance from the top of the beach berm to the seaward limit of reversible sediment movement (cubic yards/ft of width and ft. of retreat). The value of v is often taken to be 1 cubic yard per square foot of beach. In the report, Oceanside Littoral Cell Preliminary Sediment Budget Report" (December 1987, part of the Coast of California Storm and Tide Wave Study, Document #87-4), a value for v of 0.9 cubic yards/square foot was suggested. If a vertical distance of 40 feet is used for the range of reversible sediment movement, v would have a value of 1.5 cubic yards/square foot (40 feet x 1 foot x 1 foot / 27 cubic feet per cubic yard). These different

approaches yield a range of values for v from 0.9 to 1.5 cubic yards per square foot. The value for v would be valid for a region, and would not vary from one property to the adjoining one. Until further technical information is available for a more exact value of v, any value within the range of 0.9 to 1.5 cubic yards per square foot could be used by the applicant without additional documentation. Values below or above this range would require additional technical support.

W = Width of property to be armored (ft.)

$V_e = E \times W \times v$

where

E = Encroachment by seawall, measured from the toe of the bluff or back beach (ft.)

W = Width of property to be armored (ft.)

v = Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall, as described above;

The San Diego Association of Governments (SANDAG) has adopted the Shoreline Preservation Strategy for the San Diego region and is currently working on techniques toward its implementation. The Strategy considers a full range of shoreline management tactics, but emphasizes beach replenishment to preserve and enhance the environmental quality, recreational capacity, and property protection benefits of the region's shoreline. Funding from a variety of sources will be required to implement the beach replenishment and maintenance programs identified in the SANDAG Strategy. In this particular case, SANDAG has agreed to administer a program which would identify projects which may be appropriate for support from the beach sand replenishment fund, through input from the Shoreline Erosion Committee which is made up of representatives from all the coastal jurisdictions in San Diego County. The Shoreline Erosion Committee is currently monitoring several large scale projects, both in and out of the coastal zone, they term "opportunistic sand projects", that will generate large quantities of beach quality material suitable for replenishing the region's beaches. The purpose of the account is to aid in the restoration of the beaches within San Diego County. One means to do this would be to provide funds necessary to get such "opportunistic" sources of sand to the shoreline.

The applicant is being required to pay a fee in-lieu of directly depositing the sand on the beach, because the benefit/cost ratio of such an approach would be too low. Many of the adverse effects of the seawall on sand supply will occur gradually. In addition, the adverse effects impact the entire littoral cell but to different degrees in different locations throughout the cell (based upon wave action, submarine canyons, etc.) Therefore,

mitigation of the adverse effects on sand supply is most effective if it is part of a larger project that can take advantage of the economies of scale and result in quantities of sand at appropriate locations in the affected littoral cell in which it is located. The funds will be used only to implement projects which benefit the area where the fee was derived, and provide sand to the region's beaches, not to fund operations, maintenance or planning studies. Such a fund will aid in the long-term goal of increasing the sand supply and thereby reduce the need for additional armoring of the shoreline in the future. The fund also will insure available sandy beach for recreational uses. The methodology, as proposed, ensures that the fee is roughly proportional to the impacts to sand supply attributable to the proposed seawall. The methodology provides a means to quantify the sand and beach area that would be available for public use, were it not for the presence of the seawall.

The above-described impacts on the beach and sand supply have previously been found to result from seawalls in other areas of Encinitas. In March of 1993, the Commission approved CDP #6-93-85/Auerbach, et al. for the construction of a seawall fronting six non-continuous properties located approximately 900 ft. south of the subject site. In its finding for approval, the Commission found the proposed shoreline protection would have specific adverse impacts on the beach and sand supply and required mitigation for such impacts as a condition of approval. The Commission made a similar finding for several other seawall developments along Neptune Avenue (ref. CDP Nos. 6-93-36-G/Clayton, 6-93-131/Richards, et al, 6-93-136/Favero, 6-95-66/Hann, 6-98-39/ Denver/Canter, 6-98-131/ Gozzo, Sawtelle and Fischer and 6-99-41/Bradley).

b) Geologic Hazards

If the proposed wall were damaged in the future (e.g. as a result of wave action, storms, etc.) it could threaten the stability of the site, which could lead to need for more bluff alteration. In addition, damage to the seawall could adversely affect the beach by resulting in debris on the beach and/or creating a hazard to the public using the beach. Therefore, in order to find the proposed seawall consistent with the Coastal Act, the Commission finds that the condition of the seawall in its approved state must be maintained for the estimated life of the seawall. Further, in order to ensure that the permittee and the Commission know when repairs or maintenance are required, the permittee must monitor the condition of the seawall annually, for three years and at three year intervals after that, unless a major storm event occurs. The monitoring will ensure that the permittee and the Commission are aware of any damage to or weathering of the seawall wall and can determine whether repairs or other actions are necessary to maintain the seawall in its approved state.

Accordingly, Special Condition #4 requires the permittee to maintain the seawall in its approved state. In addition, Special Condition #4 advises the applicants that ongoing maintenance and repair activities which may be necessary in the future could require permits. Section 30610(d) exempts repair and maintenance activities from coastal development permit requirements unless such activities enlarge or expand a structure or the method of repair and maintenance presents a risk of substantial adverse

environmental impact. The Commission's regulations identify those methods of repair and maintenance of seawalls that are not exempt (see California Code of Regulations Section 13252). Special Condition #4 requires the permittee to consult with the Commission to determine whether proposed repair and maintenance requires a permit. In addition, Special Condition #2 requires that the applicants monitor the wall annually for the first three years, and every three years after that unless there is a significant storm event.

The applicants are proposing to construct the development in an area subject to wave and storm hazards. Although the applicants' geotechnical report asserts that the proposed development can withstand such hazards and protect existing development from such hazards, the risk of damage to the structure and the existing development cannot be eliminated entirely. The Commission finds that in order for the proposed development to be consistent with the Coastal Act, the applicants must assume the risks of damage from flooding and wave action. As such, Special Condition #3 requires the applicants to execute assumption of risk documents, waiving any liability on the part of the Commission for approving the proposed development. In addition, these conditions require the applicants to indemnify the Commission in the event that third parties bring an action against the Commission as a result of failure of the proposed development to withstand and protect against the hazards.

The Commission typically requires that any proposed shore/bluff protection be constructed to withstand serious episodic storms. In this case, the applicant has submitted certification by a registered civil engineer that verifies the proposed seawall, after repairs are completed as proposed herein, has been designed to withstand storms comparable to the winter storms of 1982-83.

There may also be other local, state or federal agencies having jurisdiction over this project. Conditions of approval and/or mitigation measures may be required from these agencies. As such, Special Condition #6 has been imposed. This condition requires the applicant to submit copies of any discretionary permits obtained from other local, state or federal entities before the coastal development permit is issued. Should any project modifications be required as a result of any of these permits, the applicant is further advised that an amendment to this permit may be necessary to incorporate such mitigation measures into the project. This condition ensures that if other required permits are not obtained, the project will not be initiated until necessary amendments, if any, to this permit are obtained. In addition, to ensure consistency with local approvals, Special Condition #7 requires the applicant to submit to the Executive Director for review and written approval final site and building plans that have been approved by the City of Encinitas.

In summary, the applicants have documented that the existing residences on the blufftop are in danger from erosion and bluff failure. Thus, the Commission is required to approve protection for the homes pursuant to Section 30235 of the Act. The applicant has presented information which documents that there are no other less damaging feasible alternatives available to reduce the risk from bluff erosion and provide the

necessary protection. Since the proposed seawall, will have adverse impacts on beach sand supply, Special Conditions require the applicant to pay an in-lieu mitigation fee to offset this impact. Therefore, as conditioned, the Commission finds that the proposed seawall is consistent with Sections 30235 and 30253 of the Coastal Act.

3. Visual Resources/Alteration of Natural Landforms. Section 30251 of the Coastal Act states, in part:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

The proposed development will occur on public beach at the base of an approximately 98 ft. high coastal bluff fronting the ocean. Similarly designed seawalls lie immediately south and north of the subject site although the northern wall was constructed without benefit of a coastal development permit. These structures consist of a concrete base with a series of large concrete columns imbedded into the base rising to an elevation of about 37 feet. Horizontal timber laggings separate the columns from the face of the bluff. In addition, the property to the north has a combination of both timber laggings and concrete facing on the upper portions of the seawall.

While the design for the adjacent southern wall was accepted by the Commission at the time of its approval (Ref. CDP No. 6-89-297), the design of these structures is not typical of structures that have more recently been approved by the Commission. In recent permit approvals, the Commission has required that any permitted shoreline protective device be designed to reduce the potential adverse visual impacts through minimizing of height or coloring/texturing to be compatible with the surrounding natural bluffs. In recent Commission action, similar protection has been provided on other sites in this area with far less impacts both from a mass and a visual standpoint. However, at the time of issuance of the emergency permit for the subject seawall, the proposed structure was determined to be required to address the emergency. In addition, at the time of issuance of the emergency permit, the technology currently used to design less visually intrusive seawalls was not being applied along the coast. Thus, the approved design is similar to the approved design of the adjacent wall to the south. The design is also similar to the adjacent wall to the north, although that wall was built with a design that was inconsistent with the approved permit. A redesign of the proposed seawall to incorporate the latest design technology would not add to the visual appearance of the area given the adjacent seawalls. Furthermore, as discussed in the previous section, the Commission finds that the height of the seawall, and the significant amount of backfill (which increases the encroachment of the seawall on the beach) are necessary to address the significant bluff failure on this site. Therefore, the Commission finds that the proposed seawall structure will be compatible with the surrounding area.

The applicant has considered alternatives to reduce the visual imacts of the seawall including colorization of the existing structure, however, no method of colorizing or texturing both the wood and concrete were determined to be feasible. The application of similar colored paint would wear and fade at different rates on wood than concrete and would require continual maintenance. An application of shotcrete or similar material covering the 37 foot-high wall would add substantial weight to the wall, potentially weakening the structural integrity of the wall and be prone to cracking and chipping. Finally, any colorizing or texturing would be incompatible with the appearance of the adjacent seawalls. The proposed repairs to the lower concrete base, however, will include new texturing that will appear more natural. Therefore, the Commission finds that potential visual impacts associated with the proposed development have been reduced to the maximum extent feasible, consistent with Section 30251 of the Coastal Act.

4. Public Access/Recreation. Pursuant to Section 30604 (c), the Coastal Act emphasizes the need to protect public recreational opportunities and to provide public access to and along the coast. Section 30210 of the Coastal Act is applicable to the proposed development and states:

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

In addition, Section 30212 of the Act is applicable and states, in part:

> (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:
>
> (l) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,
>
> (2) adequate access exists nearby....

Additionally, Section 30220 of the Coastal Act provides:

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

The beach seaward of the proposed seawall is public trust lands because it is seaward of the MHTL. The State Lands Commission retains ownership of the public trust lands within the City of Encinitas until it amends its tidelands grant to include such lands. In this case, the City has not yet amended its grant to include the land upon which the proposed project is located. The site is located approximately two blocks north of the City of Encinitas' "Stone Steps" public access stairway. The beach at the project site is used by local residents and visitors for a variety of recreational activities. Thus, the

proposed seawall is located on sandy beach area that would otherwise be available to the public. The project will have several adverse impacts on public access.

The proposed 7.75 foot-wide seawall along with its associated backfill will encroach approximately eight to fourteen feet seaward of the toe of the bluff. Although the seaward encroachment of the wall will not extend further than the existing walls on either side, the beach along this area of the coast is narrow and at high tides and winter beach profiles, the public may be forced to walk virtually at the toe of the bluff or the area may be impassable. As such, any encroachment of structures, no matter how small, onto the sandy beach in this area, reduces the beach area available for public use. This is particularly true given the existing beach profiles and relatively narrow beach.

In addition to the above described direct interference with public access by the proposed seawall, there are a number of indirect effects as well. The adverse impacts of the proposed seawall on shoreline processes, sand supply and beach erosion rates, as described previously in section 2 of this report, alter public access and recreational opportunities. The loss of sandy beach area, and the loss of sand contribution to the beach reduce the beach area available for public access and recreation.

Although the proposed seawall is in essentially the same alignment as the adjacent walls, the seawall will reduce lateral beach access by encroaching onto the beach and will have adverse impacts on the natural shoreline processes. The Commission finds that the probable negative impacts of the seawall must be weighed against the property owner's need to protect the structure behind it.

The Commission further recognizes that any type of shoreline protective devices have been shown to have adverse impacts upon the beach. As stated elsewhere in these findings, Section 30235 of the Act allows for the use of such a device where it is required to protect existing development and where it has been designed to mitigate adverse impacts upon shoreline sand supply. In order to mitigate the known adverse impacts, the Commission typically requires an offer of dedication of lateral public access in order to balance the burden placed on the public with a public benefit. However, in this case, the City and the State Lands Commission have both agreed that the MHTL currently is at the toe of the existing bluff. As such, public access is assured through the public ownership of the beach. In addition, impacts of the seawall on the beach will be mitigated by Special Condition #1, discussed in a previous section of the staff report, which requires the applicant to pay an in-lieu fee for sand replenishment.

As debris dislodged from the seawall either during construction or after completion also has the potential to affect public access, Special Condition #4 has also been proposed. This condition notifies the applicant that they are responsible for maintenance and repair of the seawall and that should any work be necessary, they should contact the Commission office to determine permit requirements. In addition, the condition requires the applicants to be responsible for removal of debris deposited on the beach during and after construction of the project.

In addition, the use of the beach or public parking areas for staging of construction materials and equipment can also impact the public's ability to gain access to the beach. As noted, while the

proposed seawall currently exists, maintenance is proposed. As such, Special Condition #5 has been proposed to require that a staging area plan be submitted that indicates the beach will not be used for storage of materials and equipment and that construction be prohibited on the sandy beach during the summer months of Memorial Day to Labor Day of any year. Thus, as conditioned, the Commission finds the proposed development to be consistent with the public access policies of the Coastal Act.

5. No Waiver of Violation. The subject permit application is the follow-up permit to emergency permit #6-92-86-G which was issued by the Executive Director on April 30, 1992. Condition #3 of the emergency permit required the applicant to submit a regular coastal permit application within 60 days of issuance of the emergency permit and, if not approved as a regular coastal permit, remove the wall within 150 days. The wall was constructed in May, 1992, however, the follow-up coastal permit application was not submitted until January 22, 1999. In addition, the constructed wall is two feet higher and three feet longer than that authorized by the emergency permit. In order to ensure timely compliance for the subject application, Special Condition #8 requires that the applicant satisfy all the condition requirements set forth in the permit within 60 days of Commission action or within such time that Executive Director may grant for good cause. Although development has taken place prior to submission of this permit application, consideration of the application by the Commission has been based solely upon the Chapter 3 policies of the Coastal Act. Approval of the permit does not constitute a waiver of any legal action with regard to this violation of the Coastal Act that may have occurred, nor does it constitute admission as to the legality of any development undertaken on the subject site without a coastal development permit.

6. Local Coastal Planning. Section 30604 (a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made.

The subject site is located on the beach within the City of Encinitas. In November of 1994, the Commission approved, with suggested modifications, the City of Encinitas Local Coastal Program (LCP). Subsequently, on May 15, 1995, coastal development permit authority was transferred to the City. Although the site is within the City of Encinitas, it is within the Commission's area of original jurisdiction. As such, the standard of review is Chapter 3 policies of the Coastal Act, with the City's LCP used as guidance.

As shoreline erosion along the coast rarely affects just one individual property, it is imperative that a regional wide solution to the shoreline erosion problem be addressed and solutions developed to protect the beaches. Combined with the decrease of sandy supply from coastal rivers and creeks and armoring of the coast, beaches will continue to erode without being replenished. This will, in turn, decrease the public's ability to access and recreate on the shoreline.

Based on specific policy and ordinance language requirements placed in the LCP by the Commission, the City of Encinitas is in the process of developing a comprehensive program addressing the shoreline erosion problem in the City. The intent of the plan is to look at the shoreline issues facing the City and to establish goals, policies, standards and strategies to comprehensively address the identified issues. To date, the City has conducted several public workshops and meetings on the comprehensive plan to identify issues and present draft plans for comment. However, at this time it is uncertain when the plan will come before the Commission as an LCP amendment or when it will be scheduled for local review by the Encinitas City Council.

In the case of the proposed project, site specific geotechnical evidence has been submitted indicating that the existing structures on the project site are in danger. This project emphasizes the critical need for a comprehensive planning effort such that seawalls are not constructed in an emergency situation, with a design that may not be the least environmentally damaging alternative in the future.

Based on the above findings, the proposed seawall development has been found to be consistent with the Chapter 3 policies of the Coastal Act in that the need for the seawall has been documented, its adverse impacts on public access, beach sand supply, visual resources and potential impacts to adjacent unprotected properties will each be mitigated. Therefore, the Commission finds that approval of the proposed seawall development, as conditioned, will not prejudice the ability of the City of Encinitas to prepare a comprehensive plan addressing the City's coastline as required in the certified LCP and consistent with Chapter 3 policies of the Coastal Act.

7. Consistency with the California Environmental Quality Act (CEQA).

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

The proposed project has been conditioned in order to be found consistent with the geologic stability, public access and visual resource policies of the Coastal Act. Mitigation measures will minimize all adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned, is the least environmentally-damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Compliance. All development must occur in strict compliance with the proposal as set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.

4. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

5. Inspections. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.

6. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

7. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

EXHIBIT A

Beach Sand Replenishment
In-lieu Fee Worksheet
656, 658 and 660 Neptune Avenue
CDP #6-99-9

V_e = Volume of sand to rebuild the area of beach lost due to encroachment by the seawall; based on the seawall design and beach and nearshore profiles (cubic yards)

$V_e = A_e \times v$

A_e = The encroachment area which is equal to the width of the properties which are being protected (W) times the seaward e encroachment of the protection (E)

$A_e = W \times E$

W = Width of property to be armored (ft.)

E = Encroachment by seawall, measured from the toe of the bluff or back beach to the seaward limit of the protection (ft.)

Note: In this case, the shoreline protection consists of a seawall and a significant amount of backfill. Thus, the seaward encroachment of the protection includes both the width of the wall and the area of beach space taken up by the backfill. Although the seawall is in a fairly straight alignment, the area of the backfill, between the bluff and the seawall, varies because the toe of the bluff is not in a straight alignment. Therefore, as is noted below, the encroachment area has been calculated using three different figures for E, the seaward encroachment.

v = Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall; based on the vertical distance from the top of the beach berm to the seaward limit of reversible sediment movement (cubic yards/ft. of width and ft. of retreat). The value of v is often taken to be 1 cubic yard per square ft. of beach. If a vertical distance of 40 feet is used for the range of reversible sediment movement, v would have a value of 1.5 cubic yards/square ft. (40 feet x 1 foot x 1 foot/27 cubic feet per cubic yard). If the vertical distance for a reversible sand movement is less than 40 feet, the value of v would be less than 1.5 cubic yards per square foot. The value of v would be less that 1.5 cubic yards per square foot. The value of v will vary from one coastal region to

an another. A value of 0.9 cubic yards per square foot has been suggested for the Oceanside Littoral Cell (Oceanside Littoral Cell Preliminary Sediment Budget Report, December 1997, prepared as part of the Coast of California Storm and Tide Wave Study)

V_w = Volume of sand to rebuild the area of beach lost due to long-term erosion (V_w) of the beach and near-shore, resulting from stabilization of the bluff face and prevention of landward migration of the beach profile; based on the long-term regional bluff retreat rate, and beach and nearshore profiles (cubic yards)

$V_w = A_w \times v$

A_w = The area of beach lost due to long-term erosion is equal to the long-term average annual erosion rate (R) times the number of years that the back beach or bluff will be fixed (L) times the width of the property that will be protected (W) (ft./yr.)

$A_w = R \times L \times W$

R = The retreat rate which must be based on historic erosion, erosion trends, aerial photographs, land surveys, or other acceptable techniques and documented by the applicant. The retreat rate should be the same as the predicted retreat rate used to estimate the need for shoreline armoring

L = The length of time the back beach or bluff will be fixed or the design life of the armoring without maintenance (yr.). For repair and maintenance projects, the design life should be an estimate of the additional length of time the proposed maintenance will allow the seawall to remain without further repair or replacement

Note: The proposed project includes both construction of a seawall and repairs to the seawall. Thus, the length of time the bluff will be fixed is the entire life of the seawall from its construction in 1992 to the end of its estimated life, which is eleven years from construction of the approved repairs. Accordingly, the total length of time that the proposed seawall will fix the location of the bluff is 18 years.

V_b = Amount of beach material that would have been supplied to the beach if natural erosion continued, or the long-term reduction in the supply of bluff material to the beach, over the life of the structure; based on the long-term

average retreat rate, design life of the structure, percent of beach quality material in the bluff, and bluff geometry (cubic yards)

$V_b = (S \times W \times L) \times [(R \times h_s) + (1/2h_u \times (R + (R_{cu} - R_{cs})))]/27$

S = Fraction of beach quality material in the bluff material, based on analysis of bluff material to be provided by the applicant

h_s = Height of the seawall from the base of the bluff to the top (ft.)

h_u = Height of the unprotected upper bluff, from the top of the seawall to the crest of the bluff (ft.)

R_{cu} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming no seawall were installed (ft./yr.). This value can be assumed to be the same as R unless the applicant provides site specific geotechnical information supporting a different value

R_{cs} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming the seawall has been installed (ft./yr.). This value will be assumed to be zero unless the applicant provides site specific geotechnical information supporting a different value

V_t = Total volume of sand required to replace losses due to the structure, through reduction in material from the bluff, reduction in nearshore area and loss of available beach area (cubic yards). Derived from calculations provided above

$V_t = V_b + V_w + V_e$

$M = V_t \times C$

C = Cost, per cubic yard of sand, of purchasing and transporting beach quality material to the project vicinity ($ per cubic yard). Derived from the average of three written estimates from sand supply companies within the project vicinity that would be capable of transporting beach quality material to the subject beach, and placing it on the beach or in the near shore area

656, 658 and 660 Neptune Avenue
(Ash, Bourgault and Mahoney)

The following values and wall dimensions were supplied by the applicant. The applicant has indicated that the values and dimensions accurately represent the as-built conditions of the seawall. The Commission has reviewed the values and dimensions and finds that they are appropriate to use in the calculation of the in-lieu fee.

W_1 = 13 ft.
W_2 = 28 ft.
W_3 = 42 ft.
E_1 = 7.75 ft.
E_2 = 13 ft.
E_3 = 14 ft.
v = .9 cubic yards per square ft.
R = .2 ft./yr.
L = 18 years (11 years plus the 7 previous years that the wall has existed)
S = .64
h_s = 37 ft.
h_u = 60 ft.
R_{cu} = .2 ft./yr.
R_{cs} = 0
C = $8.60

$V_e = A_e \times v$ (Because the existing wall is located at varying distances from the toe of the bluff, the applicant has divided the wall into three sections [V_{e1}, V_{e2} and V_{e3}] for the purpose of estimating the volume of sand necessary to rebuild those areas.)

$V_{e1} = 13 \times 7.75 \times .9 = 90.7$ cubic yards

$V_{e1} = 28 \times 13 \times .9 = 327.6$ cubic yards

$V_{e1} = 42 \times 14 \times .9 = 529.2$ cubic yards

$V_e = 90.7 + 327.6 + 529.2 = 947.5$ cubic yards

$V_w = A_w \times v$

$V_w = .2 \times 18 \times .9 \times 83 = 268.9$ cubic yards

$V_b = (S \times W \times L) \times [(R \times h_s) + (1/2h_u \times (R + (R_{cu} - R_{cs})))]/27$

$V_b = (.64 \times 83 \times .66) \times [(7.4) + 30 \times (.2 + (.2 - 0)))] = 679.1$ cubic yards

Special Note: Prior to the construction of the seawall, there was a significant bluff collapse along these properties and several thousand cubic yards of bluff sediments were added to the littoral cell as a result of the collapse. Based on this bluff slope and a projection of future bluff profiles for the site that would develop only through erosion of the lower bluff, the applicants' engineer has demonstrated that over the 18 year period following this bluff collapse, there would have been no more material added to the littoral cell due to projected bluff erosion absent the shoreline protection. While future landslides might add more material to the littoral cell and continued bluff erosion might contribute to future landslides, erosion of the lower bluff over the next 18 years, without future landslides, would not contribute additional martial to the littoral cell. For this reason, the value for Vb should be 0, rather than the value calculated above for the steeper bluff profile that is more typical of this coastal reach.

$V_t = V_b + V_w + V_e$

$V_t = 0 + 268.9 + 947.5 = 1{,}216.4$ cubic yards

$M = V_t \times C$

$M = 1{,}216.4 \times \$8.60 = \$10{,}461.04$

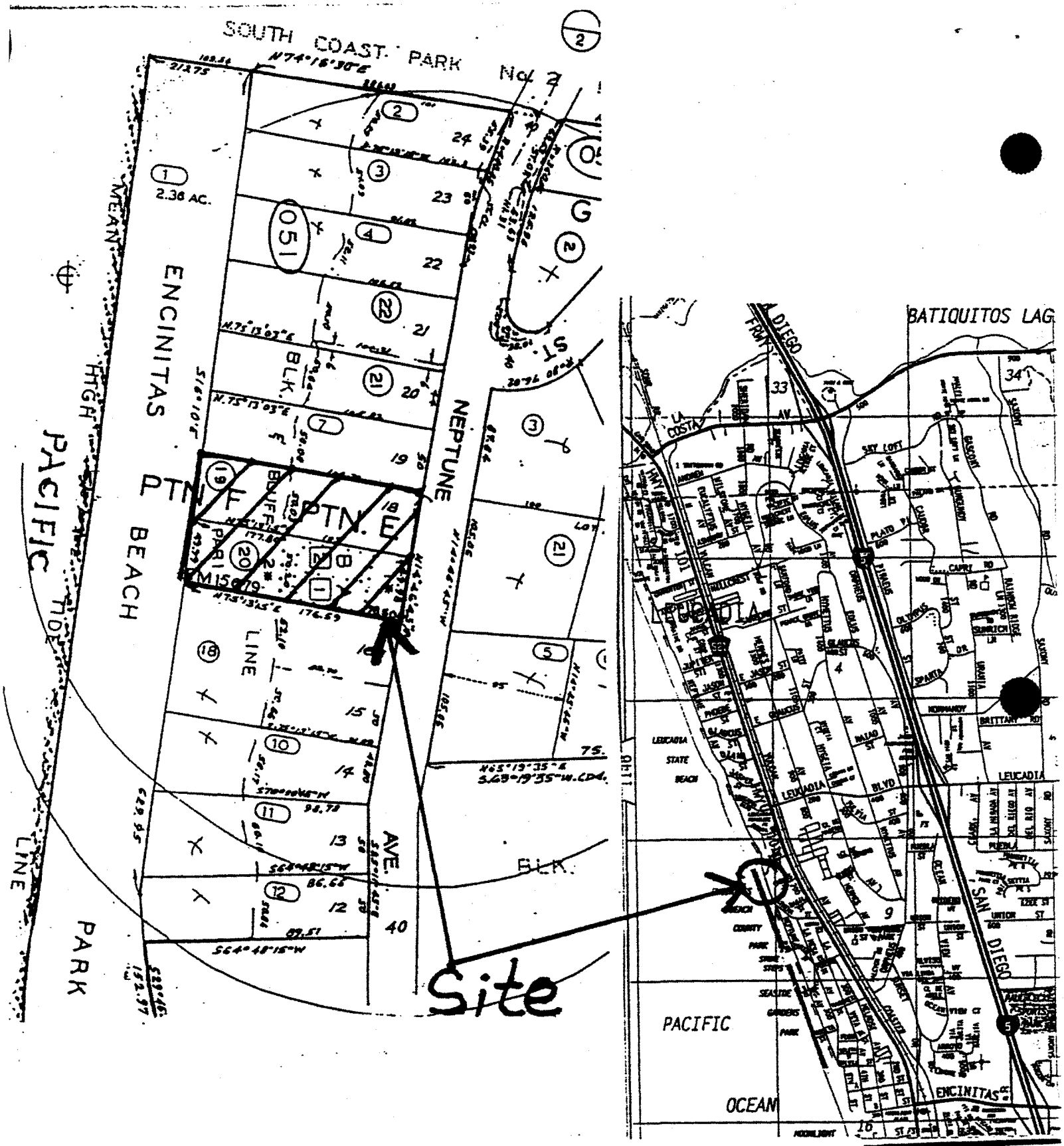


EXHIBIT NO. 1
APPLICATION NO
6-99-9
Location Map

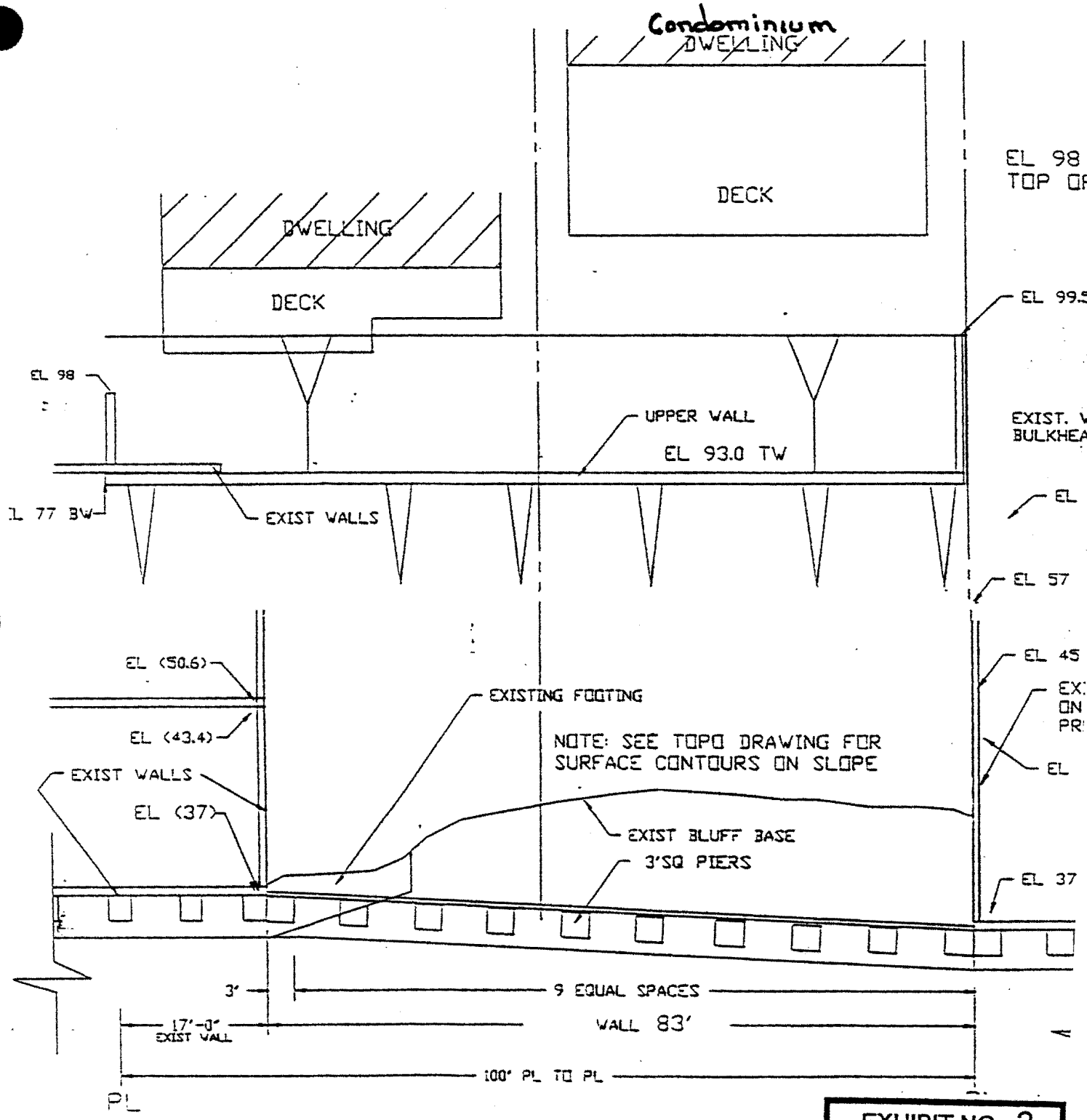
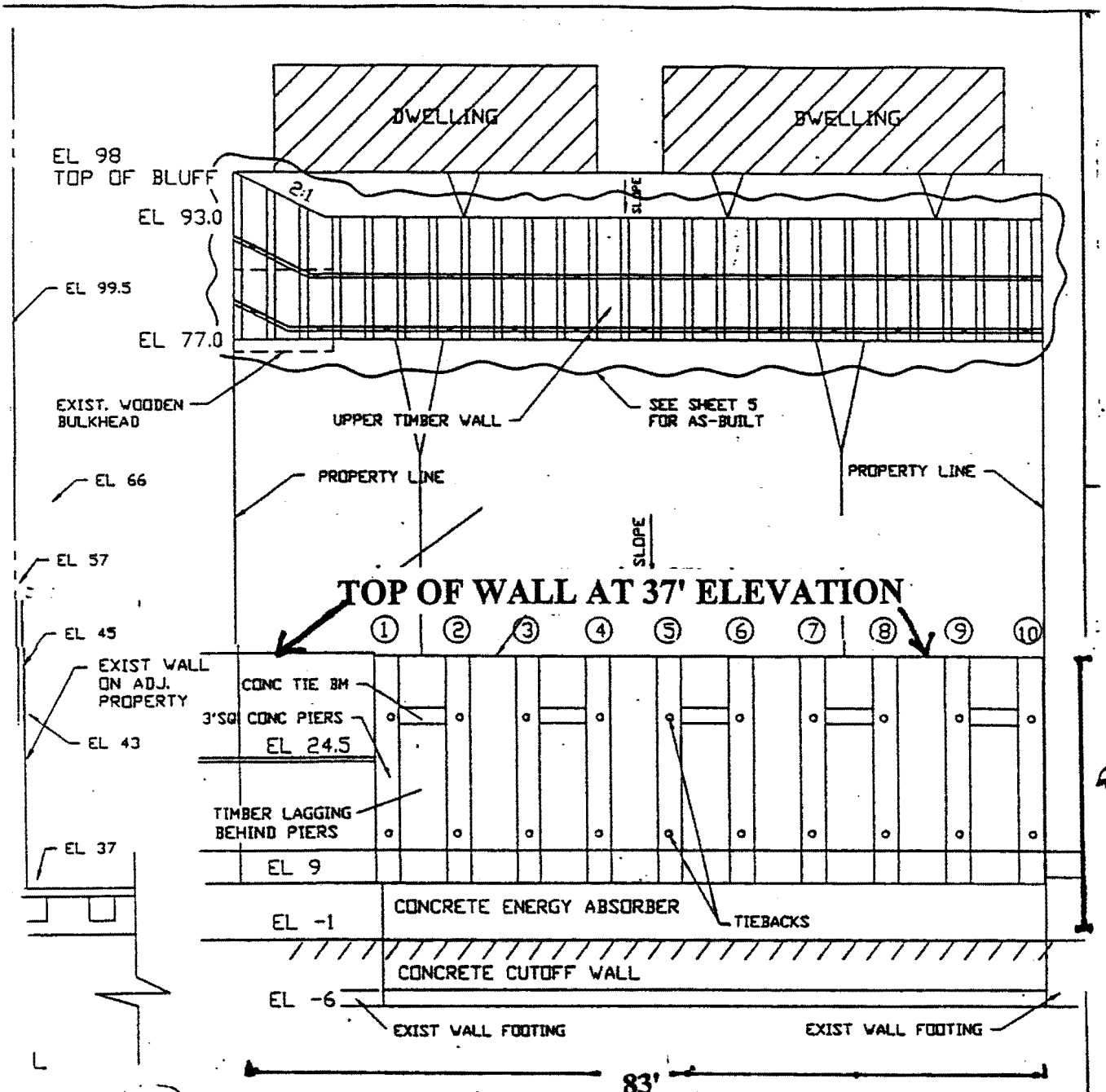


EXHIBIT NO. 2
APPLICATION NO.
6-99-9
Site Plan as Documented on 1992 "As Built" Plans
California Coastal Commission



Approx. 3

I CERTIFY THAT THESE PLANS REFLECT ALL AS-BUILT CONDITIONS IN ACCORDANCE WITH RECOMMENDATIONS AND SPECIFICATIONS SET FORTH. EXCEPT AS NOTED RELATIVE TO GEOTECHNICAL (SOIL ENGINEERING AND CERTIFIED ENGINEERING GEOLOGIST ENGINEERING) THE PROJECT IS "NOT" COMPLETE. THESE PLANS ONLY REFLECTS AREAS INSPECTED BY THIS OFFICE.

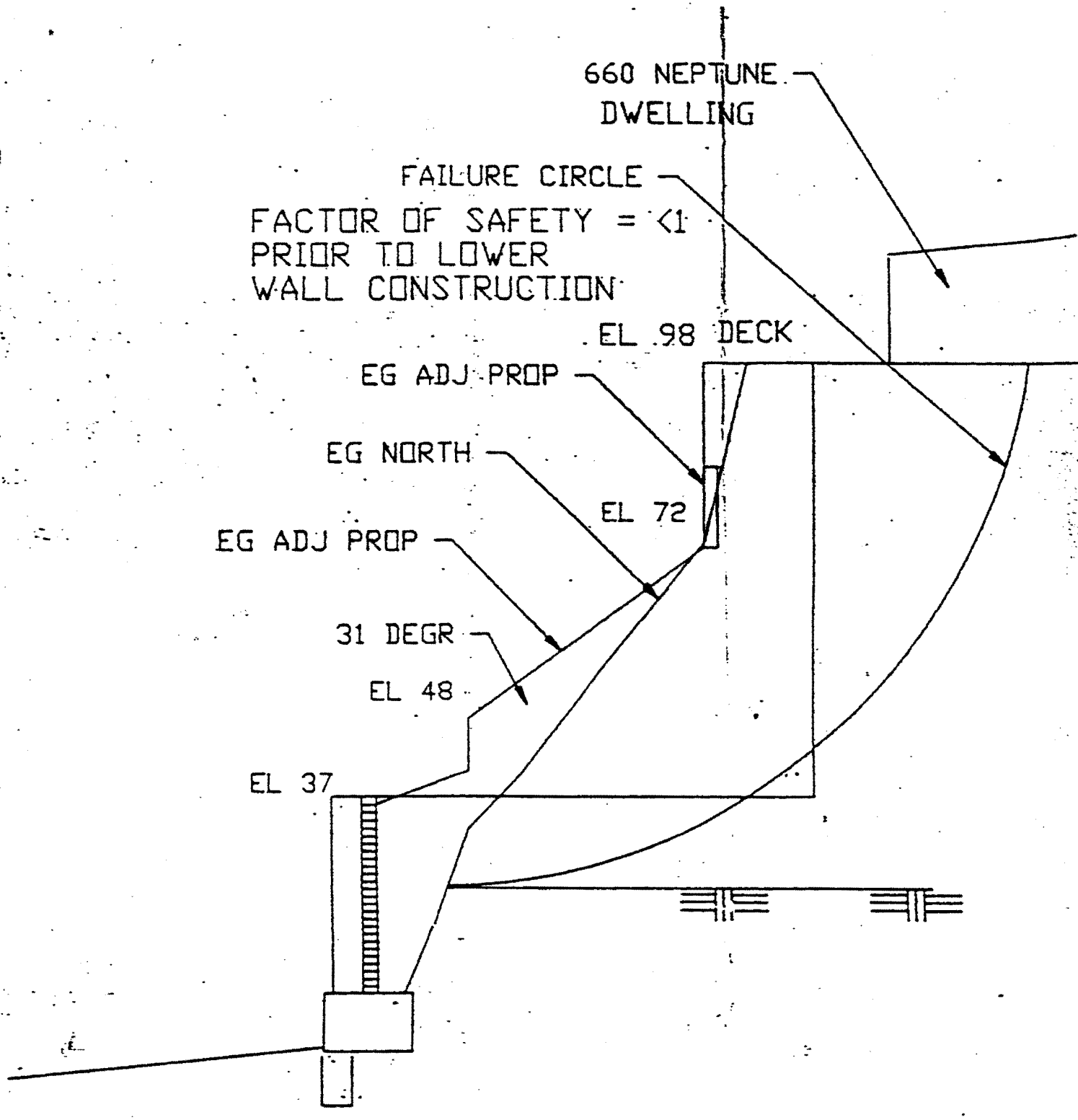
ENGINEERING OF RECORD
CHARLES J. KANDLE

ELEVATION
SCALE 1"=8'-0"

5/6/92
3/10/92

EXHIBIT NO. 3
APPLICATION NO.
6-99-9
Elevations as Documented on 199 "As Built" Plans

California Coastal Commission



NORTH PROP LINE

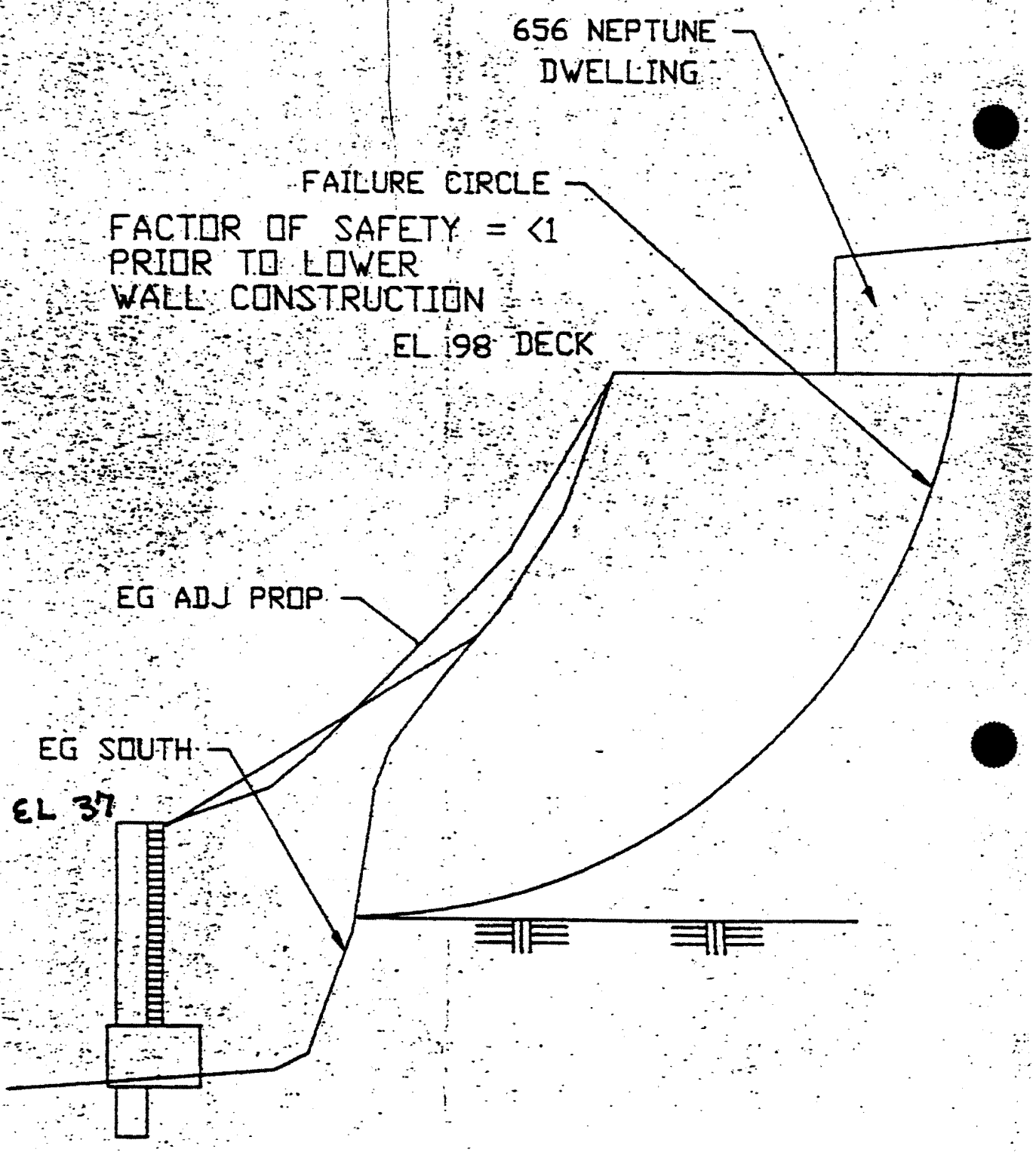
SCALE: 1"=20'

EXHIBIT NO. 4

APPLICATION NO. 6-99-9

Cross-Sections for for North Property as Documented on 1992 "As Built" Plans

California Coastal Commission



SOUTH PROP LIN

SCALE: 1"=20'

EXHIBIT NO. 5

APPLICATION NO.
6-99-9

Cross-Sectio for
South Prope as
Documented on 19
"As Built" Plans