CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 767-2370

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Hearing Date:	6/10-12/09

REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Application No.: 6-08-122

Applicant: David Winkler Agent: Walt Crampton

Description: Remove 15 ft.-long section of 4-ton riprap stone seaward of an existing 31 ft.-long seawall, repair facing of the existing seawall, extend existing seawall an additional 4 feet in height and 62 ft. in length and reconstruct bluff face using a geogrid structure.

Site: 521 Pacific Avenue, Solana Beach, San Diego County. APN 263-041-04, 26

STAFF NOTES:

Summary of Staff's Preliminary Recommendation: Staff is recommending approval of the subject development as the applicant has demonstrated that the existing blufftop residential structure is in danger from erosion. Due to ongoing bluff collapse and exposure of the clean sand layer below the residence, the applicant's geotechnical representative has performed a slope stability analysis of the overall site and concluded that the blufftop structure is in danger from erosion. Based on the applicant's geotechnical reports, the seawall improvements, extension of the existing seawall, and geogrid backfill structures are necessary to protect the structure at the top of the bluff. The Commission's staff engineer and geologist have reviewed the applicant's geotechnical assessment and concur with its conclusions.

The proposed development has been conditioned to mitigate its impact on coastal resources such as scenic quality, public access and recreation opportunities, and shoreline sand supply. In addition, the applicant is proposing to pay an in-lieu fee of $15,193.50 for the associated impacts of the development on regional sand supply and is proposing the payment of a separate mitigation fee of $62,000.00 to the City of Solana Beach for the impacts of the development on public access and recreational opportunities. With the proposed sand mitigation and mitigation required by the City, impacts of the proposed shoreline protection on regional sand supply and public access and recreation will be mitigated to the extent feasible. A special condition has been attached which requires the

applicant to acknowledge that should additional stabilization be proposed in the future, the applicant will be required to identify and address the feasibility of all alternative measures which would avoid additional alteration of the natural landform of the public beach or coastal bluffs, and would reduce the risk to the blufftop structures and provide reasonable use of the property. Other conditions involve the timing of construction, the appearance of the seawall and geogrid structures, and approval from other agencies.

Standard of Review: The City of Solana Beach does not have a certified LCP. Thus, the standard of review is Chapter 3 policies of the Coastal Act.

Substantive File Documents: City of Solana Beach General Plan and Zoning Ordinance; City Resolution No. 2008-157 and Conditional Use Permit #17-08-05; "Geotechnical Basis of Design Seawall, Maintenance, Repair and Extension" by TerraCosta Consulting Group dated 1/25/08; Coastal Development Permits Nos. 4-87-161/Pierce Family Trust and Morgan; 6-87-371, Van Buskirk; 5-87-576, Miser and Cooper; 6-00-9/Del Mar Beach Club, 6-99-100/Presnell, et. al, 6-99-103/ Coastal Preservation Association, 6-00-66/Pierce, Monroe, 3-02-024/ Ocean Harbor House, 6-02-02/Gregg, Santina, 6-02-84/Scism, 6-03-33/Surfsong; 6-04-83/Cumming, Johnson, 6-05-72/Las Brisas and 6-07-134/Brehmer, Caccavo.

I. PRELIMINARY STAFF RECOMMENDATION:

The staff recommends the Commission adopt the following resolution:

MOTION: ***I move that the Commission approve Coastal Development Permit No. 6-08-122 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1)

feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions.

See attached page.

III. Special Conditions.

The permit is subject to the following conditions:

The permit is subject to the following conditions:

1. Final Revised Plans. **PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit for review and written approval of the Executive Director, final plans for the improvements to the existing seawall, the extension of the seawall to the north, the construction of the tiedback fillet and reconstructed slope areas that are in substantial conformance with the submitted plans submitted on 12/19/08 by TerraCosta Consulting. Said plans shall first be approved by the City of Solana Beach and be revised to include the following:

a. Sufficient detail regarding the construction method and technology utilized for constructing the seawall so as to gradually blend it into the adjacent natural bluffs. The north end of the seawall/infill structure and the southern tiedback fillet shall be designed and constructed to minimize the erosive effects of the approved structures on the adjacent bluffs.

b. Sufficient detail regarding the construction method and technology utilized for texturing and coloring the seawall, the concrete infill north of and behind the seawall and the tiedback fillet. Said plans shall confirm, and be of sufficient detail to verify, that the seawall(s), concrete backfill, and tieback fillet's color and texture closely matches the adjacent natural bluffs, including provision of a color board indicating the color of the material.

c. Sufficient detail regarding the construction method and technology utilized for constructing the geogrid reconstructed bluff area that appears undulating or more natural in its slope so as to blend with the adjacent natural bluff.

d. Any existing permanent irrigation system located on the bluff top site shall be removed or capped.

e. All runoff from impervious surfaces on the top of the bluff shall be collected and directed away from the bluff edge towards the street.

f. Existing accessory improvements (i.e., decks, patios, walls, windscreens, etc.) located in the geologic setback area on the site(s) shall be detailed and drawn to scale on the final approved site plan and shall include measurements of the distance between the accessory improvements and the bluff edge (as defined by Section 13577 of the California Code of Regulations) taken at 3 or more locations. The locations for these measurements shall be identified through permanent markers, benchmarks, survey position, written description, or other method that enables accurate determination of the location of structures on the site. Any removed accessory structures located within 5 ft. of the bluff edge shall not be replaced in a location closer than 5 feet landward of the natural bluff edge or approved reconstructed bluff edge. Any new Plexiglas or other glass wall shall be non-clear, tinted, frosted or incorporate other elements to inhibit bird strikes.

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 legally required.

2. Landscape Plan. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and written approval of the Executive Director, a plan for landscaping the reconstructed bluff slope that has been approved by the City of Solana Beach. The plan shall be prepared by a licensed landscape architect and shall demonstrate that:

(a) all vegetation planted on the face of the bluff will consist of native, drought-tolerant and non-invasive plants;

(b) all planting will be completed within 60 days after construction of the reconstructed bluff area;

(c) all required plantings will be maintained in good growing condition throughout the life of the project, and, whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the landscape plan.

In addition, the plan shall include, at a minimum, the following components:

(d) the type, size, and location of all plant materials that will be on the reconstructed bluff area and any proposed temporary and limited irrigation for the proposed landscaping.
(e) the temporary and limited irrigation must be removed within 90 days of plantings.

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

3. Mitigation for Impacts to Sand Supply. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall provide evidence, in a form and content acceptable to the Executive Director, that a fee of $15,193.50 has been deposited in an interest bearing account designated by the Executive Director, in-lieu of providing the total amount of sand to replace the sand and beach area that will be lost due to the impacts of the proposed protective structures. All interest earned by the account shall be payable to the account for the purposes stated below.

The developed mitigation plan covers impacts only through the identified 30-year design life of the seawall. No later than 29 years after the issuance of this permit, the permittee or his successor in interest shall apply for and obtain an amendment to this permit that either requires the removal of the seawall within its initial design life or requires mitigation for the effects of the seawall on shoreline sand supply for the expected life of the seawall beyond the initial 30-year design life. If, within the initial design life of the seawall, the permittee or his successor in interest obtain a coastal development permit or an amendment to this permit to enlarge or reconstruct the seawall or perform repair work that extends the expected life of the seawall, the permittee shall provide mitigation for the effects of the seawall on shoreline sand supply for the expected life of the seawall beyond the initial 30-year design life.

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 be used solely 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. If the MOA is terminated, the Commission may appoint an alternative entity to administer the fund.

4. Mitigation for Impacts to Public Access and Recreational Use. **PRIOR TO COMMENCEMENT OF CONSTRUCTION,** the applicant shall provide evidence, in a form and content acceptable to the Executive Director, that the full interim mitigation fee of $62,000.00 required by the City of Solana Beach to address adverse impacts to public access and recreational use, has been satisfied.

WITHIN 6 MONTHS of approval of the City's economic study of the impacts associated with shoreline devices, the applicant shall submit to the Executive Director for review and written approval, documentation of the final mitigation fee amount required

by the City to address impacts of the proposed shoreline protection on public access and recreation. If the amount differs from the interim amount required above, then the applicant shall submit an application for an amendment to this permit to adjust the mitigation fee to be paid to the City to address adverse impacts to public access and recreational use resulting from the proposed development.

5. Monitoring Program. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director for review and written approval, a monitoring program prepared by a licensed civil engineer or geotechnical engineer to monitor the performance of the seawall, return walls and reconstructed slope which requires the following:

a. An annual evaluation of the condition and performance of the seawall, infills, tiedback fillet and geogrid slope addressing whether any significant weathering or damage has occurred that would adversely impact the future performance of the structures. This evaluation shall include an assessment of the color and texture of the seawall, geogrid slope and tiedback fillet comparing the appearance of the structures to the surrounding native bluffs. In addition, the evaluation shall include an assessment of the appearance of the geogrid slope structure.

b. Annual measurements of any differential retreat between the natural bluff face and the seawall face, at the north and south ends of the seawall/infills and at 20-foot intervals (maximum) along the top of the seawall face/bluff face intersection. The program shall describe the method by which such measurements shall be taken.

c. Provisions for submittal of a report to the Executive Director of the Coastal Commission by May 1 of each year (beginning the first year after construction of the project is completed) for a period of three years and then, each third year following the last the annual report, for the life of the approved seawall and upper bluff retention system. 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. An earthquake of magnitude 5.5 or greater with an epicenter in San Diego County.

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

d. Each report shall be prepared by a licensed civil, geotechnical engineer or geologist. The report shall contain the measurements and evaluation required in sections a, and b above. The report shall also summarize all measurements and analyze trends such as erosion of the bluffs or changes in sea level and the

stability of the overall bluff face, including the upper bluff area, and the impact of the seawall on the bluffs to either side of the wall. In addition, each report shall contain recommendations, if any, for necessary maintenance, repair, changes or modifications to the project.

e. An agreement that the permittee shall apply for a coastal development permit within 90 days of submission of the report required in subsection c. above for any necessary maintenance, repair, changes or modifications to the project recommended by the report that require a coastal development permit.

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

6. Storage and Staging Areas/Access Corridors. **PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director for review and written approval, final plans approved by the City of Solana Beach indicating the location of access corridors to the construction site and staging areas. The final plans shall indicate that:

a. No overnight storage of equipment or materials shall occur on sandy beach or public parking spaces at Fletcher Cove. During the construction stages of the project, 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, except for the minimum necessary to construct the seawall/slope reconstruction. Construction equipment shall not be washed on the beach or in the Fletcher Cove parking lot or access road.

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 on weekends, holidays or 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 legally required.

7. Storm Design/Certified Plans. **PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit certification by a registered civil engineer that the proposed shoreline protective devices are designed to withstand storms comparable to the winter storms of 1982-83.

In addition, **within 60 days following construction**, the permittee shall submit certification by a registered civil engineer, acceptable to the Executive Director, verifying the seawall, return walls and reconstructed slope have been constructed in conformance with the approved plans for the project.

8. Future Response to Erosion. If in the future the permittee seeks a coastal development permit to construct additional bluff or shoreline protective devices, the permittee will be required to include in the permit application information concerning alternatives to the proposed bluff or shoreline protection that will eliminate impacts to scenic visual resources, recreation and shoreline processes. Alternatives shall include, but not be limited to: relocation of all or portions of the principle structure that are threatened, structural underpinning, and other remedial measures capable of protecting the principal structure and providing reasonable use of the property, without constructing bluff or shoreline stabilization devices. The information concerning these alternatives must be sufficiently detailed to enable the Coastal Commission or the applicable certified local government to evaluate the feasibility of each alternative, and whether each alternative is capable of protecting existing structures that are in danger from erosion. No additional bluff or shoreline protective devices shall be constructed on the adjacent public bluff face above the approved seawall or on the beach in front of the proposed seawall unless the alternatives required above are demonstrated to be infeasible. No shoreline protective devices shall be constructed in order to protect ancillary improvements (patios, decks, fences, landscaping, etc.) located between the principal residential structures and the ocean.

9. Future Maintenance. The permittee shall maintain the permitted seawall, infill, tiedback fillet structure and reconstructed slope in its approved state. Maintenance of the seawall and tiedback fillet structure includes maintaining the color, texture and integrity. Maintenance of the reconstructed slope shall include an assessment of the appearance of the geogrid slope structure. Any change in the design of the project or future additions/reinforcement of the seawall, infill, tiedback fillet and/or reconstructed slope beyond exempt maintenance as defined in Section 13252 of the California Code of Regulations to restore the structure to its original condition as approved herein, will require a coastal development permit. **However, in all cases, if after inspection, it is apparent that repair and maintenance is necessary, including maintenance of the color of the structures to ensure a continued match with the surrounding native bluffs, the permittee shall contact the Executive Director to determine whether a coastal development permit or an amendment to this permit is legally required, and, if required, shall subsequently apply for a coastal development permit or permit amendment for the required maintenance.**

10. Other Permits. **PRIOR TO COMMENCEMENT OF CONSTRUCTION,** the permittee shall provide to the Executive Director copies of all other required local, state or federal discretionary permits for the development authorized by CDP #6-08-122. The applicant shall inform the Executive Director of any changes to the project required by other local, state or federal agencies. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this permit, unless the Executive Director determines that no amendment is legally required.

11. State Lands Commission Approval. **PRIOR TO COMMENCEMENT OF CONSTRUCTION**, the applicant shall submit to the Executive Director for review and written approval, a written determination from the State Lands Commission that:

a) No state lands are involved in the development; or

b) State lands are involved in the development, and all permits required by the State Lands Commission have been obtained; or

c) State lands may be involved in the development, but pending a final determination of state lands involvement, an agreement has been made by the applicant with the State Lands Commission for the project to proceed without prejudice to the determination.

12. Public Rights. The Coastal Commission's approval of this permit shall not constitute a waiver of any public rights that exist or may exist on the property. The permittee shall not use this permit as evidence of a waiver of any public rights that exist or may exist on the property.

13. Assumption of Risk, Waiver of Liability and Indemnity Agreement. By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from erosion and coastal bluff collapse; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

14. Best Management Practices. **PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit for review and written approval of the Executive Director, a Best Management Plan approved by the City of Solana Beach that effectively assures no shotcrete or other construction byproduct will be allowed onto the sandy beach and/or allowed to enter into coastal waters. The Plan shall apply to both concrete pouring/pumping activities as well as shotcrete/concrete

application activities. During shotcrete/concrete application specifically, the Plan shall at a minimum provide for all shotcrete/concrete to be contained through the use of tarps or similar barriers that completely enclose the application area and that prevent shotcrete/concrete contact with beach sands and/or coastal waters. All shotcrete and other construction byproduct shall be properly collected and disposed of off-site.

The applicant shall undertake the development 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 legally required.

15. Other Special Conditions of the City of Solana Beach CUP #17-08-05. Except as provided by this coastal development permit, this permit has no effect on conditions imposed by the City of Solana Beach pursuant to an authority other than the Coastal Act.

16. Deed Restriction. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director for review and approval documentation demonstrating that the applicant has executed and recorded against the parcel(s) governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (2) imposing the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

17. Condition Compliance. **WITHIN 60 DAYS OF COMMISSION ACTION ON THIS COASTAL DEVELOPMENT PERMIT APPLICATION,** or within such additional time as the Executive Director may grant for good cause, the applicant shall satisfy all requirements specified in the conditions hereto that the applicant is 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.

WITHIN 90 DAYS OF ISSUANCE OF THE SUBJECT COASTAL DEVELOPMENT PERMIT, the applicant shall remove all unpermitted riprap located seaward of or adjacent to the existing 31 ft.-long seawall. 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 removal of a 15 ft.-long section of 4-ton riprap stone seaward of an existing 31 ft.-long seawall, repairs to the facing of the existing seawall involving approximately 4 inches of additional shotcrete for visual treatment, the extension in height of the existing seawall an additional 4 feet, and the extension of the existing seawall structure an additional 55 feet to the north and 7 feet to the south. In addition, the applicant proposes to repair/reconstruct an existing geogrid structure and add additional geogrid structures to the bluff face on the north side of the existing seawall. The north end of the proposed seawall will involve 15 ft. of tiedback concrete infill that will be designed to blend with the natural bluff face and cover the face of an existing seacave fill. In addition a 7 ft.-long tiedback concrete fillet (curved deflector) will be constructed on the south side of the seawall to deflect waves.

The existing one-story single-family residence was initially constructed in approximately 1958. The existing 3,896 sq. ft. residence is located approximately 15 ft. from the edge of the coastal bluff. The residence is protected by an approximately 31 ft. long, 21 ft. high seawall fronting a collapsed seacave that has been filled with concrete and riprap for approximately 26 ft. landward of the seawall. A manufactured backfilled slope consisting of a "geogrid" vegetated slope is located behind the seawall and above the seacave fill. These shoreline protective measures were approved by the Commission in November of 1993 in order to protect the existing residence which was subject to threat by a partially collapsed seacave (CDP #6-92 -212/Wood). In 1993, prior to completion of construction of the seawall and seacave fills, the Executive Director approved the temporary placement of riprap at the toe of the bluff to protect the site until the seawall and seacave fill could be completed (6-93-24-G/Wood). This riprap was ultimately placed within the seacave as fill material along with concrete.

In December 1997, the Executive Director approved an emergency permit to place 4-ton sized riprap, approximately 8 ft. high and 15 ft. in width on the public beach seaward of the seawall in order to temporarily protect the site and adjacent bluff promontories from a predicted "El Nino" storm season (Emerg. Permit 6-97-166-G/Wood). The emergency permit required the riprap to be removed by April 15, 1998. The riprap, however, has not been removed and the continued maintenance of the unauthorized riprap on the public beach constitutes non-compliance with the terms and conditions of the previously issued emergency permit and is a violation of the Coastal Act. In 2005, the Commission approved a 1,296 sq. ft. one-story addition to the landward side of the existing residence (Ref. 6-04-86/Winkler). In conjunction with the applicant's request to construct the 1,296 sq. ft. addition, the applicant also requested the retention of the riprap. The Commission approved the residential addition, but denied the applicant's request to retain the riprap (Ref. 6-04-86/Winkler). The applicant will remove the unpermitted riprap as part of the subject application request.

The project site is located approximately 6 lots north of the public access stairway to Tide Beach Park in the City of Solana Beach. The City of Solana Beach does not yet have a certified Local Coastal Program (LCP) and, therefore, Chapter 3 of the Coastal Act is the standard of review.

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 do all of the following:
>
> (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
>
> (b) 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...

The proposed project involves the removal of all existing riprap located seaward of the existing seawall, an increase in height of the existing seawall an additional 4 feet, the extension of the existing seawall an additional 55 feet to the north and 7 feet to the south, concrete infill behind the seawall to a level of approximately 5 ft. above the seawall, repair to the existing geogrid structure and new geogrid structures on the bluff face that will be planted with native vegetation.

The applicant's geotechnical report identifies that in 1987 the subject site was subject to a massive bluff failure "when the largest and deepest sea cave in North San Diego County collapsed below the home." (Ref. "Geotechnical Basis of Design Seawall, Maintenance, Repair and Extension" by TerraCosta Consulting Group dated 1/25/08.) The collapse resulted in the creation of a small pocket beach of at least 50 feet in depth with an additional one-foot wide cave that extended 30 ft. into the bluff which threatened the stability of the upper bluff and the residence. In response to the failure and the threat of collapse of the remaining portion of the seacave, the Executive Director authorized an emergency permit for the placement of riprap stone of up to 17 feet in height and up to 26 feet seaward of the bluff face as a temporary measure until a more permanent structure could be designed and permitted (Ref. Emergency Permit 6-93-24-G/Wood). The required follow-up regular coastal development (CDP #6-92-212/Wood) authorized the construction of 31 ft.-long, 23 ft.-high seawall seaward of the riprap structure and the

reconstruction of the bluff face behind the seawall using a geogrid structure that allowed for the planting of vegetation. The riprap was allowed to remain beneath the reconstructed bluff face.

Subsequent to the construction of the 31 ft.-long, 23 ft.-high seawall and upper bluff geogrid structure, the applicant's engineer has identified that the seawall has been subject to damage from wave-driven cobble stones. In addition the upper bluff geogrid structure has been damaged by wave action that has funneled up the face of the seawall at one location so as to erode sections of the geogrid structure. As part of the subject application, the applicant is requesting to increase the height of the existing seawall an additional 4 feet and add a small wave deflector at the top of the seawall. An additional 7 ft.-long wave deflector/return wall is proposed on the southern side of the existing seawall (described by applicant as a "tieback fillet"). In addition, the applicant also proposes to color and texture the existing seawall that has been damaged by cobble stone and/or other weathering. These types of repairs are generally consistent with the conditions of the approval for the 31 ft.-long seawall and geogrid structure which required the applicant to monitor and maintain the structures in their approved state (Ref. CDP #6-92-212).

However, the applicant's engineer has also identified the existing residence is currently threatened by erosion that has occurred on the north side of the existing seawall:

> Additionally, the northern unprotected portion of the lower sea cliff has continued to erode, undermining the overlying sloping terrace deposits, resulting in a series of ongoing mid-bluff blockfalls that will ultimately result in progressive upper-bluff failures, thereby jeopardizing the bluff-top improvements and beach-going public.
>
> [. . .]
>
> As previously mentioned, significant lower bluff erosion has occurred at the site including the loss of the majority of both headlands, which extended seaward 15 feet beyond the existing wall face at the time of the wall construction in 1995. The erosion of these headlands has caused some flanking around the edges of the wall face, especially at the north end which is completely exposed. Additionally, the lower cliffed portion of the bluff to the north of the seawall infill has also greatly receded, as evidenced by the exposure of the clean sand layer above the Torrey sandstone, and by the virtual isolation of the former sea cave plug in front of the existing sea cliff adjacent the northern property line. At the time of construction, the noted sea cave plug was inset into the face of the lower sea cliff. (Ref. "Geotechnical Basis of Design Seawall, Maintenance, Repair and Extension" by TerraCosta Consulting Group dated 1/25/08.)

The applicant's geotechnical report describes the layer of clean sands lens located between the Torrey Sandstone and Marine Terrace deposits at approximately elevation 25-35 ft. Mean Sea Level (MSL). According to the Commission's staff geologist, the clean sands lens consists of a layer of sand with a limited amount of capillary tension and

a very minor amount of cohesion, which causes the material to erode easily, making this clean sand layer, once exposed, susceptible to wind blown erosion and continued sloughing as the sand dries out and loses the capillary tension that initially held the materials together. Geotechnical reports associated with developments near this site have stated that gentle sea breezes and any other perturbations, such as landing birds or vibrations from low-flying helicopters, can be sufficient triggers of small- or large-volume bluff collapses, since the loss of the clean sands eliminates the support for the overlying, slightly more cemented, terrace deposits.

The presence of this clean sands layer within the bluffs along the Solana Beach shoreline has previously been identified in geotechnical reports submitted in conjunction with seawall, seacave and notch infill projects in Solana Beach (ref. CDP 6-00-9/Del Mar Beach Club, CDP #6-99-100/Presnell, et. al, #6-99-103/ Coastal Preservation Association, #6-00-66/Pierce, Monroe, #6-02-02/Gregg, Santina, #6-02-84/Scism and #6-03-33/Surfsong; #6-04-83, Cumming, Johnson; #6-05-72/Las Brisas and 6-07-134/Brehmer, Caccavo). According to the Commission's staff geologist, the typical mechanism of sea cliff retreat along the Solana Beach shoreline involves the slow abrasion and undercutting of the Torrey Sandstone bedrock, which forms the sea cliff at the base of the bluffs, from wave action which becomes more pronounced in periods of storms, high surf and high tides. Other contributing factors to sea cliff retreat include fracturing, jointing, sea cave and overhang collapse and the lack of sand along the shoreline. When the lower sea cliff is undercut sufficiently, it commonly fails in blocks. The weaker terrace deposits are then unsupported, resulting in the collapse of the terrace deposits through circular failures. Such paired, episodic failures eventually result in a reduction in the steepness of the upper bluff, and the landward retreat of the bluff edge. Such retreat may threaten structures at the top of the slope. When failures of the upper bluff have sufficiently reduced the overall gradient of the upper bluff, a period of relative stability ensues, which persists until the lower bluff becomes sufficiently undercut to initiate a block failure once more, triggering a repetition of the entire process.

The mechanism of bluff retreat that occurs in conjunction with the exposure of the clean sands layer is somewhat different than the paired, episodic failure model described above. Because of the cohesionless character of the clean sands, once they are exposed, they continue to slump on an ongoing basis as a result of very small triggers such as traffic vibrations or wind erosion. Continued sloughage results in the further exposure of more clean sand, and ongoing upper bluff collapse. This cycle occurs so quickly (over months or days, rather than years) that the upper bluff may never achieve a stable angle of repose. Unless the base of the bluff is afforded shoreline protection and the clean sands lens is contained, additional bluff failures can further expose the layer of clean sands and result in a potential upper bluff failure and an immediate threat to the structures at the top of the bluff.

To address the exposure of this clean sands layer, the applicant proposes to extend the existing seawall an additional 62 feet (55 ft. to the north and 7 ft. to the south) and reconstruct the bluff face using a geogrid structure that will be planted with native vegetation.

According to the Commission's staff geologist, the best regional estimate of historical long-term bluff retreat for Solana Beach is from a FEMA-funded study summarized in Benumof and Griggs (1999). These authors report an average long-term retreat rate of 0.27 ft/yr for the Solana Beach area over the period 1932 - 1994. Episodic erosion events such as sea cave or notch overhang collapses, and erosion related to severe winter storms, can lead to short-term bluff retreat rates well above the long-term average. These short-term retreat rates are inherently included in the estimation of the long-term retreat rate for Solana Beach and, therefore, are included in the methodology used for the in-lieu fee sand replenishment calculations.

While the existing residence is set back from the bluff approximately 15 feet, the slope stability analysis performed by the applicant's engineer indicates that further collapse of the upper bluff would threaten the residence at the top of the bluff. The factor of safety against sliding along the most likely slide planes is estimated at a range of between 1.10 and 1.24 for the existing non-reinforced sections of the bluff. (The factor of safety is an indicator of slope stability where a value of 1.5 is the industry-standard value for new development. In theory, failure should occur when the factor of safety drops to 1.0, and no slope should have a factor of safety less than 1.0.) Following construction of the proposed 62 ft.-long seawall extension, and reconstructed slope, the applicant's engineer has demonstrated that the factor of safety for the home will be increased at this currently non-reinforced section of the bluff to 1.26.

Thus, given the significant bluff collapses that have occurred over the recent years, the potential collapse of the seacave, the presence of the clean sands layer, the extreme erodibility of these sands once exposed, and the low factor of safety on the subject bluffs, substantial evidence has been provided to document that the existing primary blufftop structures are in danger from erosion. However, there are a variety of ways in which the threat from erosion could be addressed. Under the policies of the Coastal Act, the project must eliminate or mitigate adverse effects on shoreline sand supply and minimize adverse effects on public access, recreation, and the visual quality of the shoreline.

Alternatives

The applicant's geotechnical report includes an alternatives analysis to demonstrate that no other feasible less-environmentally-damaging alternatives exist to address the threats to the residence at the top of the bluff (Ref. "Geotechnical Basis of Design" by TerraCosta Consulting Group, dated 1/25/08). The applicant's engineer has identified that removal or relocation of the residential structure is not feasible or practical because of the expense and/or the lack of available area on the lot to setback the structures so as to not be threatened by the ongoing erosion. Maintenance of the existing seawall structure and/or retention of the existing unpermitted riprap will also not effectively protect the residence since the current threat to the residence is located at the north side of the existing shoreline devices. Control of groundwater and irrigation restrictions while recommended by the applicant's representative as a way of reducing bluff sloughage, will not prevent the bluff collapses that occur at the subject site. Underpinning of the existing

residence has also been examined by the applicant, however without controlling the ongoing failures, the underpinnings would soon be exposed. The applicant's engineer has also examined the potential use of chemical grouting of the bluff face to the north and concluded it will not work and poses a substantial safety risk to construction workers.

In summary, the unrepaired seacave fill and the exposure of the clean sands layer north of the existing seawall presents a threat of rapid erosion and bluff collapses that must be addressed by a solution that effectively contains the seacave and the clean sands and affords protection to the residence at the top of the bluff. Given the substantial amount of documented erosion on the site over the last few years, the presence of the clean sands, the extreme erodibility of these sands, and the low factor of safety on the subject bluff, substantial evidence has been provided to document that the existing primary blufftop structure is in danger from erosion and that the proposed seawall extension, geogrid reconstructed bluff and repairs to the existing seawall and geogrid structure are necessary to protect the structure at the top of the bluff from the danger of erosion. In addition, the above-described alternatives presented by the applicant do not suggest there is a less-environmentally-damaging feasible alternative. The Commission's staff geologist and coastal engineer have reviewed the applicant's geotechnical assessment of the site along with their alternatives analysis and concur with its conclusions and recommendations. Therefore, the Commission finds that the proposed seawall extension, geogrid structure and repairs to the existing seawall are the least environmentally damaging feasible alternative.

Sand Supply/In Lieu Mitigation Fee

Although construction of additions to the existing seawall is required to protect the existing residence 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 protection. The natural shoreline processes referenced in Section 30235, such as the formation and retention of sandy beaches, can be significantly altered by construction of a seawall, since 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 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 or other armouring is constructed on the beach at the toe of the bluff, it directly impedes these natural processes.

Some of the effects of a shoreline protective structure on the beach such as scour, end effects and modification to the beach profile are temporary or difficult to distinguish from all the other actions which modify the shoreline. Seawalls also have non-quantifiable effects to the character of the shoreline and visual quality. However, some of the effects which a structure may have on natural shoreline processes can be quantified. Three of the effects from a shoreline protective device which can be quantified 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.

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 Solana Beach, 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 a 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.

The volume of sand that is calculated by the Beach Sand In-lieu Fee Mitigation Program currently utilized by the Commission is the quantification of the direct impacts to the existing recreational beach from the proposed seawall project. The mitigation that has been proposed by the applicant and recommended as a special condition for this project includes quantification of the impacts from wall and infill encroachments, denial of sand to the littoral cell and passive erosion, as discussed herein. The purpose of the Beach Sand In-Lieu Fee Mitigation Program is to mitigate for the small, persistent loss of recreational beach such as will result from the proposed project by placing funds into a program that will be used for placement of sand on the beach in this area. This Beach Sand In-Lieu Fee Mitigation Program is administered by the San Diego Association of Governments (SANDAG) and has been in place in San Diego County for many years.

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 a loss of 158.33 sq. ft. of beach due to the long-term physical encroachment of the new structures (based on the 55-foot long, 2- foot wide seawall to the north, 4 inches of treatment to the existing 31 ft.-long seawall and 7-foot long wave deflector on the south side of the existing seawall). In addition, there will be 306 sq. ft. of beach area that will no longer be formed because the back of the beach will be fixed. This 464.33 sq. ft. of beach area (158.33 + 306) cannot be directly replaced by land, but a comparable area can be built through the one-time placement of 417.9 cubic yards of sand on the beach seaward of the seawall as beach nourishment. Further explanation of this calculation is provided below. Thus, the impact of the seawall on beach area can be quantified as 417.9 cubic yards of sand. In addition to the impact on beach area, there is the amount of sand material in the bluff that would have been added to the beach if natural erosion had been allowed to continue at the site,

which is calculated to be a volume of 595 cubic yards. Therefore, the amount of sand necessary to mitigate for the impacts associated with the seawall construction is estimated to be 1,012.9 cubic yards (417.9 cy. yds. + 595 cu. yds.). This estimate is only a "rough approximation" of the impact of the seawall on beach area because a one-time placement of this volume of sand cannot result in creation of beach area over the long term.

The above-cited calculations do not include impacts associated with the existing 31 ft.-long seawall because those impacts have already been mitigated as part of the approval of the existing seawall (Ref. 6-92-212/Wood). In that case, the applicant paid a sand fee of $5,770.00 to compensate for the seawall's impact on sand supply.

Special Condition #3 reflects the applicant's proposal to deposit an in-lieu fee to fund beach sand replenishment of 1,012.9 cubic yards of sand, as mitigation for impacts of the proposed shoreline protective devices on beach sand supply and shoreline processes. In the case of the proposed project, the fee calculates to be $15,193.50, based on 1,012.9 cubic yards of sand multiplied by the cost of obtaining a cubic yard of sand, as proposed by the applicant's engineer at $15.00 per cu. yd.

The following is the methodology used by the Commission in developing the in-lieu fee 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 of 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:

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

$\mathbf{M} = \mathbf{V_t} \times \mathbf{C}$

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.

$$\mathbf{V_t = V_b + V_w + V_e}$$

where

$\mathbf{V_b}$ = Volume of beach material 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 (cubic yards). 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)

$$\mathbf{V_b} = (S \times W \times L/27) \times [(R\ h_S\mathbf{)} + \mathbf{(h_u}/2 \times (R + (R_{CU} - \mathbf{R_{CS}})))]$$

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 Solana Beach area, this regional retreat has been estimated by the applicant's representative to be 0.27 ft./year. The use of any 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.)

h = Total height of armored bluff (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.

$\mathbf{V_W} = \mathbf{R} \times \mathbf{L} \times \mathbf{v} \times \mathbf{W}$

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 Solana Beach area, this regional retreat has been estimated by the applicant's

representative to be 0.27 ft./year. The use of any 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.)

$$\mathbf{V_e} = \mathbf{E} \times \mathbf{W} \times \mathbf{v}$$

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 Preservation Working Group which is made up of representatives from all the coastal jurisdictions in San Diego County. The Shoreline Preservation Working Group 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 North County. 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 in the City of Encinitas north 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 within San Diego County including an August 1999 approval (ref. CDP No. 6-99-100/Presnell, et. al) for the approximately 352-foot-long seawall project located approximately ¼ mile south of the subject development and a March 2003 approval (ref. CDP No. 6-02-84/Scism) located 2 lots south of the subject site. (Also ref. CDP Nos. 6-92-212/Wood, 6-93-36-G/Clayton, 6-93-131/Richards, et al, 6-93-136/Favero, 6-95-66/Hann, 6-98-39/Denver/Canter and 6-99-41/Bradley; 6-00-138/Kinzel, Greenberg; 6-02-02/Gregg, Santina and 6-03-33/Surfsong, 604-83,Cumming, Johnson, 6-05-72 Las Brisas and 6-07-134/Brehmer, Caccavo).

In addition to the adverse impacts the seawall will have on the beach as detailed above, the Commission finds that the proposed seawall could also have adverse impacts on adjacent unprotected properties caused by wave reflection, which leads to accelerated erosion. Numerous studies have indicated that when continuous protection is not provided, unprotected adjacent properties experience a greater retreat rate than would occur if the protective device were not present. This is due primarily to wave reflection off the protective structure and from increased turbulence at the terminus of the seawall. According to James F. Tait and Gary B. Griggs in Beach Response to the Presence of a Seawall (A Comparison of Field Observations) "[t]he most prominent example of lasting impacts of seawalls on the shore is the creation of end scour via updrift sand impoundment and downdrift wave reflection. Such end scour exposes the back beach, bluff, or dune areas to higher swash energies and wave erosion." As such, as the base of the bluff continues to erode on the unprotected adjacent properties, failure of the bluff is likely. Thus, future failures could "spill over" onto other adjacent unprotected properties, prompting requests for much more substantial and environmentally damaging seawalls to protect the residences. This then starts a "domino" effect of individual requests for protection.

According to information contained in the Planners Handbook (dated March 1993), which is included as Technical Appendix III of the Shoreline Preservation Strategy adopted by the San Diego Association of Governments (SANDAG) on October 10, 1993, "[a] longer return wall will increase the magnitude of the reflected wave energy. On a coast where the shoreline is retreating, there will be strong incentives to extend the length of the return wall landward as adjacent property is eroded, thereby increasing the return wall, and its effects on neighboring property, with time."

The plans for the subject seawall submitted by the applicant do not address the design of the north and south ends of the seawall in terms of how the design will mitigate these known effects. Therefore, Special Condition #1 has been attached which requires the submission of revised final plans that reflect the end design of the proposed seawall. The condition requires that the returns incorporate a design to gradually blend into the

adjacent natural bluffs which will help to reduce the turbulence at the end of the wall that can lead to accelerated erosion of adjacent unprotected bluffs.

However, although the proposed seawall must be designed to reduce impacts of the wall on adjacent properties, at best, the impacts can be reduced, but not eliminated. Regardless of whether accelerated erosion will occur on the adjacent unprotected properties, the adjacent bluffs will continue to erode due to the same forces that are causing them to erode currently. As this occurs, more surface area of the feathered edges will be exposed to wave attack leading to increased turbulence and accelerated erosion of the adjacent unprotected bluff. These impacts are particularly problematic in the case of the proposed project, as the seawall will be an isolated structure in a stretch of largely unprotected shoreline.

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 the 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. In addition, excessive wear of the seawall could result in the loss of or damage to the color or texture of the seawall resulting in adverse visual impacts (discussed in more detail in a subsequent section of this report). 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 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 and can determine whether repairs or other actions are necessary to maintain the seawall in its approved state.

Therefore, Special Condition #5 requires the applicant to submit a monitoring report which evaluates the condition and performance of the seawall, return walls, reconstructed slope and overall site stability, and submit an annual report with recommendations, if any, for necessary maintenance, repair, changes or modifications to the project. In addition, the condition requires the applicant to perform the necessary repairs through the coastal development permit process.

Special Condition #8 requires that feasible alternative measures must be implemented on the applicant's blufftop property in the future, should additional stabilization be required, which would avoid additional alteration of the natural landform of the public beach or coastal bluffs, but would reduce risk to the principle residential structures and provide reasonable use of the property. The condition (along with Special Condition #16) will ensure that future property owners will be aware that any future proposals for additional shoreline protection, such as upper bluff stabilization, will require an alternative analysis similar to one required for the subject project. If there are feasible alternatives to shoreline protection that would have less impact on visual quality, sand supply, or public access, the Commission (or, where applicable, the City of Solana Beach after the effective certification of its Local Coastal Program) will require implementation of those alternatives. The condition also states that no shore or bluff protection shall be permitted

for ancillary improvements located within the blufftop setback area. Through this condition, the property owner is required to acknowledge the risks inherent in the subject property and that there are limits to the structural protective measures that may be permitted on the adjacent public property in order to protect the existing development in its current location.

Special Condition #1 requires the applicant to submit final plans for the project indicating that the seawall conforms to the bluff contours, details the design of the return wall and reconstructed bluff area and that demonstrate that any existing irrigation systems on the blufftop have been removed, as these would impact the ability of the seawall and other shoreline protection devices to adequately stabilize the site. In addition, Special Condition #2 requires the applicant to submit final landscape plans documenting the use of native, drought-tolerant or non-invasive plants in the reconstructed bluff areas. In addition, this condition makes it clear that if needed, only temporary irrigation is permitted to get the plantings established and then must be removed or capped. Submission of final plans will ensure that overall site conditions which could adversely impact the stability of the bluff have been addressed.

Special Condition #9 notifies the applicant that he is responsible for maintenance of the herein approved shore and bluff protection. The condition also indicates that, should it be determined that maintenance of the proposed structures are required in the future, including maintenance of the color and texture, the applicant shall contact the Commission to determine if permits are required.

To assure the proposed shore/bluff protection has been constructed properly, Special Condition #7 has been proposed. This condition requires that, within 60 days of completion of the project, as built-plans and certification by a registered civil engineer be submitted that verifies the proposed seawall has been constructed in accordance with the approved plans.

Special Condition #10 requires the applicant to submit a copy of any required permits from other local, state or federal agencies to ensure that no additional requirements are placed on the applicant that could require an amendment to this permit.

Also, due to the inherent risk of shoreline development, Special Condition #13 requires the applicant to waive liability and indemnify the Commission against damages that might result from the proposed shoreline devices or their construction. The risks of the proposed development include that the proposed shoreline devices will not protect against damage to the residence from bluff failure and erosion. In addition, the structures themselves may cause damage either to the applicant's residence or to neighboring properties by increasing erosion of the bluffs. Such damage may also result from wave action that damages the seawall and the other shoreline protective devices. Although the Commission has sought to minimize these risks, the risks cannot be eliminated entirely. Given that the applicant has chosen to construct the proposed shoreline devices despite these risks, the applicant must assume the risks. Special Condition #16 requires the applicant to record a deed restriction imposing the conditions of this permit as covenants,

conditions and restrictions on the use and enjoyment of the property. Only as conditioned can the proposed project be found consistent with Sections 30235 and 30253 of the Coastal Act.

In summary, the applicant has documented that the existing blufftop primary residential structure is in danger from erosion and subsequent bluff collapse. In addition, even with the construction of the extended seawall, the upper bluff will continue to erode and soon will threaten the blufftop home. Thus, the backfill and reconstructed bluff area using a geogrid/soil structure are also necessary to assure enhanced protection for the existing blufftop residence. As conditioned, there are no other less damaging alternatives available to reduce the risk from bluff erosion. Thus, the Commission is required to approve the proposed protection for the residential structure. Since the proposed seawall and other armouring devices will contribute to erosion and geologic instability over time and also deplete sand supply, occupy public beach and fix the back of the beach, Special Condition #3 requires 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. Public Access/Recreation. In addition to the adverse impacts on local sand supply, shoreline protective devices also have significant adverse impacts to public access and recreation. Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road, on the beach. Coastal Act Sections 30210 through 30213, as well as Sections 30220 and 30221 specifically protect public access and recreation, and state:

> **Section 30210:** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.
>
> **Section 30211:** Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.
>
> **Section 30212(a):** Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects…
>
> **Section 30213:** Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. …
>
> **Section 30220:** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

> **Section 30221:** Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

Coastal Act Section 30240(b) also protects parks and recreation areas such as Fletcher Cove Beach Park. Section 30240(b) states:

> **Section 30240(b).** Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

The project site is located on a public beach utilized by local residents and visitors for a variety of recreational activities such as swimming, surfing, jogging, walking, surf fishing, beachcombing and sunbathing. The site is located 100 ft. north of the Tide Beach Park public access stairway and approximately ½ mile north of Fletcher Cove, the City's main beach access location. The proposed seawall and other improvements will be constructed on sandy beach area that is currently available to the public and will have both immediate and long-term adverse impacts on public access and recreational opportunities.

Although the proposed seawall extension and concrete infill have been designed to be as narrow as feasible, it will project approximately 2 feet seaward of the toe of the bluff. In addition, although the seaward encroachment of the structures appear at first glance to be minimal, 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 could be impassable. As such, an encroachment of any amount, including 2 feet for a length of 62 feet, onto the sandy beach reduces the small beach area available for public use and is therefore a significant adverse impact. This is particularly true given the existing beach profiles and relatively narrow beach where access is sometimes only available at low tides. In addition, however, were it not for the seawall and infill structure, the seaward face of the bluff would naturally recede making additional beach area available for public use. During the 30 year life of the seawall, as the beach area available to the public is reduced, dry sandy beach will become less available seaward of the seawall such that beachgoers will not want to sit or lay a towel in this area. In addition, over time as the surrounding unprotected bluffs recede, the seawall structure along with others constructed to the south will likely impede or completely eliminate public access to the beach south of Tide Beach Park at the subject site.

As explained in Section 2 of this report, the proposed seawall improvements will result in the encroachment and the fixing of the back beach, which will result in the immediate loss of 158.33 square feet of beach and after 30 years with no recession of the bluff will result in the loss of a total approximately 464.33 square feet of public beach. The sand that would have reached the beach were it not for the proposed seawall is generally mitigated by the applicant's proposal to pay an in-lieu fee for the purchase of an equal

amount of sand for future placement. However, the loss of this approximately 464.33 sq. ft. of recreational area is not mitigated by the one-time placement of sand since that area will not be available for public use (or placement of sand) over the estimated 30 year life of the seawall. Since any loss of public beach area will significantly affect public access and recreational opportunities along the beach adjacent to Tide Beach Park, additional mitigation is required.

Development along the shoreline which may burden public access in several respects has been approved by the Commission. However, when impacts can't be avoided and have been reduced to the maximum extent feasible, mitigation for any remaining adverse impacts of the development on access and public resources is always required. The Commission's permit history reflects the experience that development can physically impede public access directly, through construction adjacent to the mean high tide line in areas of narrow beaches, or through the placement or construction of protective devices, seawalls, rip-rap, and revetments. Since physical impediments adversely impact public access and create a private benefit for the property owners, the Commission has found in such cases (in permit findings of CDP #4-87-161,Pierce Family Trust and Morgan; CDP #6-87-371, Van Buskirk; CDP #5-87-576, Miser and Cooper; CDP 3-02-024, Ocean Harbor House; 6-05-72, Las Brisas and 6-07-134/Caccavo) that a public benefit must arise through mitigation conditions in order for the development to be consistent with the access policies of the Coastal Act, as stated in Sections 30210, 30211, and 30212.

Appropriate mitigation for the subject development would be creation of additional public beach area in close proximity to the impacted beach area. However, all of the beach areas in Solana Beach are already in public ownership such that there is not private beach area available for purchase. In addition to the more qualitative social benefits of beaches (recreational, aesthetic, habitat values, etc.), beaches provide significant direct and indirect revenues to local economies, the state, and the nation. There is little doubt that the loss of 464.33 sq. ft. of sandy beach in an urban area such as Solana Beach represents a significant impact to public access and recreation, including a loss of the social and economic value of this recreational opportunity. The question becomes how to adequately mitigate for these qualitative impacts on public recreational beach use and in particular, how to determine a reasonable value of this impact to serve as a basis for mitigation.

In the past ten to fifteen years, the Commission has approved the construction of shoreline devices in San Diego County when they are necessary to protect an existing primary structure and when mitigation is provided according to a formula that the Commission developed to address some of the more easily quantifiable effects on local sand supply, as required by Section 30235 of the Coastal Act. In each of those decisions, the Commission recognized that the mitigation in the form of an in-lieu fee paid for the purchase of sand to offset the sand lost by the shoreline structure, provided some, but not all mitigation, associated with the adverse impacts of shoreline devices.

In recent years, the Commission has sought additional ways to quantify the adverse impacts to public access and recreation that result from shoreline protective devices and,

thereby, develop more appropriate mitigation for those impacts. However, except in a few cases, the Commission has been unable to adequately quantify those impacts and thus has been unable to accurately evaluate the economic loss to public access/recreation associated with necessary shoreline protection projects.

In 2005, the Commission contracted with Dr. Phillip King, Chair of the Economics Department at San Francisco State University, to perform an economic analysis of the loss of recreational values associated with a proposed seawall to be located adjacent to Fletcher Cove Beach Park approximately ½ mile south of the subject site (Ref. CDP #6-04-92/Las Brisas). Since that time, Commission staff have attempted to use Dr. King's study as a basis for evaluating the subject site, but because the character of the beach at Fletcher Cove is different in terms of accessibility, number of users and width of beach, and several other variables, staff has concluded that Dr. King's study cannot be used as a basis for determining impacts to the subject site. For instance, Dr. King estimated the number of beach users at Fletcher Cove on what he described as a "flawed" parking study for the Fletcher Cove parking lot. He also identified that most of the beachgoers place their towels no further than 150 ft. from the Fletcher Cove access ramp. Since these numbers are the only known figures for beach attendance in Solana Beach and are based on a "flawed" parking study and, according to his report, those beach users generally do not go beyond 150 ft. from Fletcher Cove, his report was deemed insufficient for use on the subject seawall project where most users likely use either Tide Beach public access stairway or enter from South Cardiff State Beach at the north. In addition, the City does not have attendance records for beach use at Tide Beach Park or elsewhere along the shoreline.

However, as a filing requirement for seawall applications, applicants have recently been asked to address the adverse impacts of shoreline devices on public access and recreation opportunities and to consider ways those impacts could be mitigated. Mitigation might be in the form of particular public access or recreational improvements to be located in close proximity to the project or might involve an in-lieu fee to be used sometime in the future for a public access/recreation improvement. To address this issue, the subject applicant is proposing to utilize an in-lieu fee program recently adopted by the City of Solana Beach that addresses impacts of shoreline devices on public access/recreation and on sand supply which, in the case of the proposed 62 ft.-long seawall, will result in the initial payment of $62,000.00 ($1,000.00 per lineal foot). In addition, the fee is subject to modification following completion of a City funded study to determine more precisely the economic loss associated with the construction of protective devices along the Solana Beach shoreline. According to the City, the economic study is estimated to be completed in late 2009.

In June of 2007, the City of Solana Beach adopted an interim in-lieu fee program to mitigate the adverse impacts associated with shoreline devices (Ref. Resolution 2007-042, City of Solana Beach). The program has been designed as "interim" in that until the City completes an economic study that more precisely determines the economic costs, the ultimate costs to the property owner are unknown. As such, the City's program requires that a $1,000.00 per lineal foot fee be assessed in the interim and requires an applicant to

agree to modifications to the fee once the economic study is complete and a more site specific fee is assessed. In the case of the proposed development, the City approved a Conditional Use Permit and as a condition of approval of that permit, required the applicant to pay $1,000.00 per lineal foot of the shoreline device (seawall) so as to mitigate the adverse impacts to public access, recreational use and sand supply resulting from the seawall construction. In addition, the City approval required the applicant to agree to a future modification of that fee following the approval of the City's economic study. According to the City's program, the monies collected through the mitigation program will be directed for City use for public access and recreational projects. The applicant has proposed payment into the City's program as mitigation for adverse impacts of the proposed development on public access and recreation.

As previously identified, the proposed seawall, concrete infill, wave deflector that lies on the beach at the southern end of the seawall and reconstructed slope will have adverse impacts to public access and recreational opportunities which must be mitigated. Since the site specific information is not currently available to assess those impacts, but is anticipated to be available following completion of the City's economic study, in this particular case, the Commission is accepting the applicant's proposal to mitigate the identified adverse impacts on public access and recreation associated with the proposed 62- ft. long seawall structure through the initial payment of $62,000.00 to the City of Solana Beach and requiring that the applicant provide the Commission with evidence that this fee has actually been paid.

The City of Solana Beach has submitted a draft Local Coastal Program (LCP) Land Use Plan (LUP) to the Commission which is anticipated to be reviewed by the Commission sometime later in 2009. The City's mitigation program to address loss of sand and public access/recreation is included as part of the LUP submittal, which the Commission will evaluate when it reviews the City's draft LUP. The Commission's acceptance, in this case, of the applicant's proposed mitigation for the loss of public access and recreational opportunities associated with the subject seawall should not be seen as Commission approval of the City's mitigation plan or of the City's economic study, as that plan is not before the Commission for evaluation at this time. Instead, due to the lack of sufficient information concerning the economic loss to public access/recreation from the proposed seawall, the Commission agrees to accept the applicant's proposal, and requires it to pay the City's interim fee, until such time that the City completes its economic study and a more accurate economic loss evaluation can be determined. In order to ensure that any subsequent modification of this mitigation fee is consistent with the Chapter 3 policies of the Coastal Act, the Commission imposes Special Condition #4, requiring the applicant to submit an application for an amendment to this permit to the Commission if the final mitigation fee imposed by the City is different than the proposed $62,000 interim fee. The appropriateness of any reduction in the fee amount will be addressed by the Commission at that time to assure compliance with the Coastal Act and the City's LCP, if certified.

It is anticipated that the City's economic study will provide information such as number of beach users throughout the year, what the economic value of a "day at the beach" is,

quantification of beach area lost over time and other information which can assist the Commission to more accurately estimate the economic loss associated with seawall devices. However, while the Commission is accepting payment into the City's program with this application, the Commission has not yet had the opportunity to review and address the City's mitigation program as a whole in the context of the LCP and as such, makes it clear that in approving the applicant's proposed mitigation, the Commission is not approving the City's interim ordinance or the findings of the as yet unfinished economic study.

This stretch of beach has historically been used by the public for access and recreation purposes. Special Condition #12 acknowledges that the issuance of this permit does not waive the public rights that may exist on the property. The seawall and infill structures may be located on State Lands property, and as such, Special Condition #11 requires the applicant to obtain any necessary permits or permission from the State Lands Commission to perform the work.

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. While the applicant has not submitted a construction staging and material storage plan for the subject development, it is likely that beach access to the site will occur via Fletcher Cove which is located approximately ½ mile south of the subject site. Because the applicant has not identified the location of the staging and storage area, Special Condition #6 has been attached to mitigate the impact on public parking areas and public access. Special Condition #6 prohibits the applicant from storing vehicles on the beach overnight, using any public parking spaces within Fletcher Cove overnight for staging and storage of equipment, and prohibits washing or cleaning construction equipment on the beach or in the parking lot. The condition also prohibits construction on the beach during weekends and holidays and during the summer months (between Memorial Day to Labor Day) of any year.

With Special Conditions that require mitigation for the adverse impacts to public access and recreation, maximum public access during construction and authorization from the State Lands Commission, impacts to the public will be minimized to the greatest extent feasible. Thus, as conditioned, the Commission finds the project consistent with the public access and recreation policies of the Coastal Act.

4. Visual Resources/Alteration of Natural Landforms. Section 30240 (b) of the Coastal Act is applicable and states:

> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

In addition, 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 . . .

As stated above, the proposed development will occur on the face of a coastal bluff and on the public beach. The bluff face on either side of the proposed shoreline devices remains in its natural state although two seacaves fills have occurred at approximately 40 ft. and 100 ft. south of the existing seawall and several seacaves and seacave fills occur north of the site. These seacave fills have been colored and textured to match the natural bluff. The proposed 62 ft.-long addition to the existing seawall, 4 ft.-high extension of the existing seawall and additional bluff reconstruction using a geogrid structure all have the potential for adverse impacts on visual resources of the existing natural bluffs. Following construction, the natural appearance of the bluffs will be substantially altered. To mitigate the visual impacts of the proposed seawall and geogrid structure, the applicant proposes to color and texture the seawall and vegetate the reconstructed bluff. The visual treatment proposed is similar to the visual treatment approved by the Commission in recent years for shoreline devices along the Solana Beach shoreline. (ref. CDP #6-02-84/Scism; 6-02-02/Gregg, Santina; 6-03-33/Surfsong; 6-04-83/Johnson, Cumming; 6-07-134/Brehmer, Caccavo). The technology in design of seawalls has improved dramatically over the last two decades. Today seawalls typically involve sculpted and colored concrete that upon completion closely mimic that natural surface of the lower bluff face. In the case of the subject seawall request, the specific design methods for coloring and texturing the seawall have not as yet been submitted. It is also not clear whether the concrete backfill just above the seawall is also proposed to be colored and textured to closely match the natural bluff. Therefore, Special Condition #1 requires the submittal of detailed plans, color samples, and information on construction methods and technology for the surface treatment of the seawall and all backfill structures.

In addition, to address other potential adverse visual impacts, Special Conditions Nos. 5 and 9 have been attached which require the applicant to monitor and maintain the proposed repaired seawall, new seawall, wave deflector and upper bluff geogrid structure in their approved state. In this way, the Commission can be assured that the proposed structures will be maintained so as to effectively mitigate their visual prominence.

Therefore, as conditioned, the Commission finds that potential visual impacts associated with the proposed development have been reduced to the maximum extent feasible and the proposed development will include measures to prevent impacts that would significantly degrade the adjacent park and recreation area (beach area). Thus, with the proposed conditions, the project is consistent with Sections 30240 and 30251 of the Coastal Act.

5. Protection of Ocean Waters/BMP's. Section 30230, 30231 and 30232 of the Coastal Act require that new development be designed so that ocean waters and the marine environment be protected from polluted runoff and accidental spill of hazardous substances:

Section 30230

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231

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

Section 30232

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

The construction of the proposed structures will occur on the public beach within a few feet of ocean waters. Construction activities will only occur at low tides when access along the beach is available. However, at high tides, ocean waters will extend up to the face of the seawall such that the seawall at times will be subject to wave action. The method of construction of the seawall and repairs to the existing seawall involves the multiple application of shotcrete that is sprayed (at high pressure) over the face of the seawall structure. This shotcrete material will eventually be sculpted and colored to closely match the appearance of the natural bluffs. According to the engineers for similar seawall projects in Solana Beach, approximately 10 to 15% of this shotcrete (concrete) material rebounds off the structure onto the beach as it is being applied. Because the material is wet, the applicant's representative indicates it cannot be picked up until it hardens. The Commission is aware that in previously constructed seawalls along the Solana Beach shoreline, this shotcrete "rebound" has not been removed before the ocean

waters rise and mix with the wet shotcrete material. After the return of low tides, any remaining hardened shotcrete is then picked up by the construction crews and removed from the beach. According to the Commission's water quality division and staff of the State Regional Water Quality Control Board, San Diego Region, the mixing of this rebound shotcrete with ocean waters is a violation of the State Water Quality Act since it would involve the unauthorized discharge of a pollutant into ocean waters.

Along other sections of the coast, shotcrete is applied without the associated rebound problems. Contractors place tarps on the beach to collect material that drops from the wall. They also use backdrops or drapes along the face of the bluff to contain splatter and rebound and prevent scatter of shotcrete material all around the beach. These and other techniques are possible ways to control shotcrete debris and prevent discharge into the marine environment.

Special Condition #6 is attached which requires that during the construction of the project, "the permittee shall not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion". This is a standard requirement for all seawall projects approved by the Commission. However, based on information supplied by engineers of similar seawall projects in Solana Beach, this special condition has not effectively served to prohibit the contamination of ocean waters by rebounded shotcrete. To assure that the subject development will not result in the pollution of the ocean waters, Special Condition #14 has been attached. Special Condition #14 requires the applicant to submit a Polluted Runoff Control Plan that incorporates structural and nonstructural Best Management Practices (BMPs), for Executive Director approval, for the construction of the proposed seawall. Construction methods must be devised to assure this rebound shotcrete material does not mix with or pollute ocean waters. With appropriate BMPs, the potential for this polluted material from the site making its way into the ocean will be eliminated. Therefore, as conditioned, the Commission finds the proposed development consistent with the marine and water quality protection policies of the Coastal Act.

6. **Unpermitted Development.** Development has occurred on the subject site not in compliance with the terms and conditions of the previously issued coastal development emergency permit (Emerg. Permit 6-97-166-G/Wood). The existing riprap revetment was authorized as a temporary measure and was required to be removed by April 15, 1998. The applicant is requesting authorization to remove the existing riprap as part of the subject application.

In order to ensure that the unpermitted development component of this application is resolved in a timely manner, **Special Condition #17** requires that the applicant satisfy all conditions of this permit, which are prerequisite to the issuance of this permit, within 60 days of Commission action, or within such additional time as the Executive Director may grant for good cause. In addition, because the riprap is unpermitted and is proposed to be removed as part of the subject application request, **Special Condition #17** requires that within 90 days of issuance of the permit, the applicant shall remove all existing riprap seaward of the existing 31 ft.-long seawall.

Commission review and action on this permit does not constitute a waiver of any legal action with regard to the alleged violation nor does it constitute an admission as to the legality of any development undertaken on the subject site without a coastal permit.

7. 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 was previously in the County of San Diego jurisdiction, but is now within the boundaries of the City of Solana Beach. Because of the incorporation of the City, the County of San Diego's LCP never became effectively certified. The City of Solana Beach has prepared a draft LCP Land Use Plan (LUP). In preparation of its LCP, the City of Solana Beach is faced with many of the same issues as the City of Encinitas, located immediately north of Solana Beach, whose LCP was certified by the Commission in March 1995. The City of Encinitas' LCP includes the intent to prepare a comprehensive plan to address the coastal bluff recession and shoreline erosion problems in the City. The plan will include at a minimum, bluff top setback requirements for new development and redevelopment; alternatives to shore/bluff protection such as beach sand replenishment, removal of threatened portions of a residence or the entire residence or underpinning existing structures; addressing bluff stability and the need for protective measures over the entire bluff (lower, mid and upper); impacts of shoreline structures on beach and sand area as well as mitigation for such impacts; impacts for groundwater and irrigation on bluff stability and visual impacts of necessary/required protective structures.

The City of Solana Beach LCP should also address these items in the context of a comprehensive approach to management of shoreline resources. As shoreline erosion along the coast rarely affects just one individual property, it is imperative that a regional solution to the shoreline erosion problem be addressed and solutions developed to protect the beaches. Combined with the decrease of sand supply from coastal rivers and creeks, armoring of the coast will continue to erode beaches without their being replenished. This will, in turn, decrease the public's ability to access and recreate on the shoreline.

As previously described, the draft LUP prepared by the City includes provisions for mitigating the adverse impacts of seawalls on public access, recreational use and sand supply. The Commission has not yet approved the City's draft LUP. Therefore, the Commission's acceptance of the applicant's proposed mitigation for the loss of public access and recreational opportunities associated with the subject seawall should not be seen as Commission approval of the City's mitigation plan or of the City's economic study.

In the case of the proposed project, site-specific geotechnical evidence has been submitted indicating that the existing structures at the top of the bluff are in danger. The Commission feels strongly that approval of the proposed project should not send a signal that there is no need to address a range of alternatives to armoring for existing

development. Planning for comprehensive protective measures should include a combination of approaches including limits on future bluff development, ground and surface water controls, and beach replenishment. Although the erosion potential on the subject site is such that action must be taken promptly, decisions regarding future shoreline protection should be done through a comprehensive planning effort that analyzes the impact of such a decision on the entire City shoreline.

The location of the proposed seawall repairs, new extended seawall, wave deflector and geogrid structure is designated for Open Space Recreation in the City of Solana Beach Zoning Ordinance and General Plan, and was also designated for open space uses under the County LCP. As conditioned, the subject development is consistent with these requirements. Based on the above findings, the proposed development is consistent with the Chapter 3 policies of the Coastal Act in that the need for the shoreline protective devices has been documented and its adverse impacts on beach sand supply and on adjacent unprotected properties will be mitigated.

Therefore, the Commission finds the proposed development, as conditioned, is consistent with the Chapter 3 policies of the Coastal Act, and will not prejudice the ability of the City of Solana Beach to complete a certifiable local coastal program. However, these issues of shoreline planning will need to be addressed in a comprehensive manner in the future through the City's LCP certification process

8. 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 water quality, geologic stability, visual quality, and public access and recreation policies of the Coastal Act. Mitigation measures, including conditions addressing payment of an in-lieu fee for impacts to sand supply, requirements for minimizing impacts to public access and recreation, monitoring and maintenance of the structures over the lifetime of the project, color of construction materials, timing of construction and the use of BMP's 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 is the least environmentally-damaging feasible alternative and is 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. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. 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.

5. 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.

(G:\San Diego\Reports\2008\6-08-122 Winkler Stf Rpt.doc)

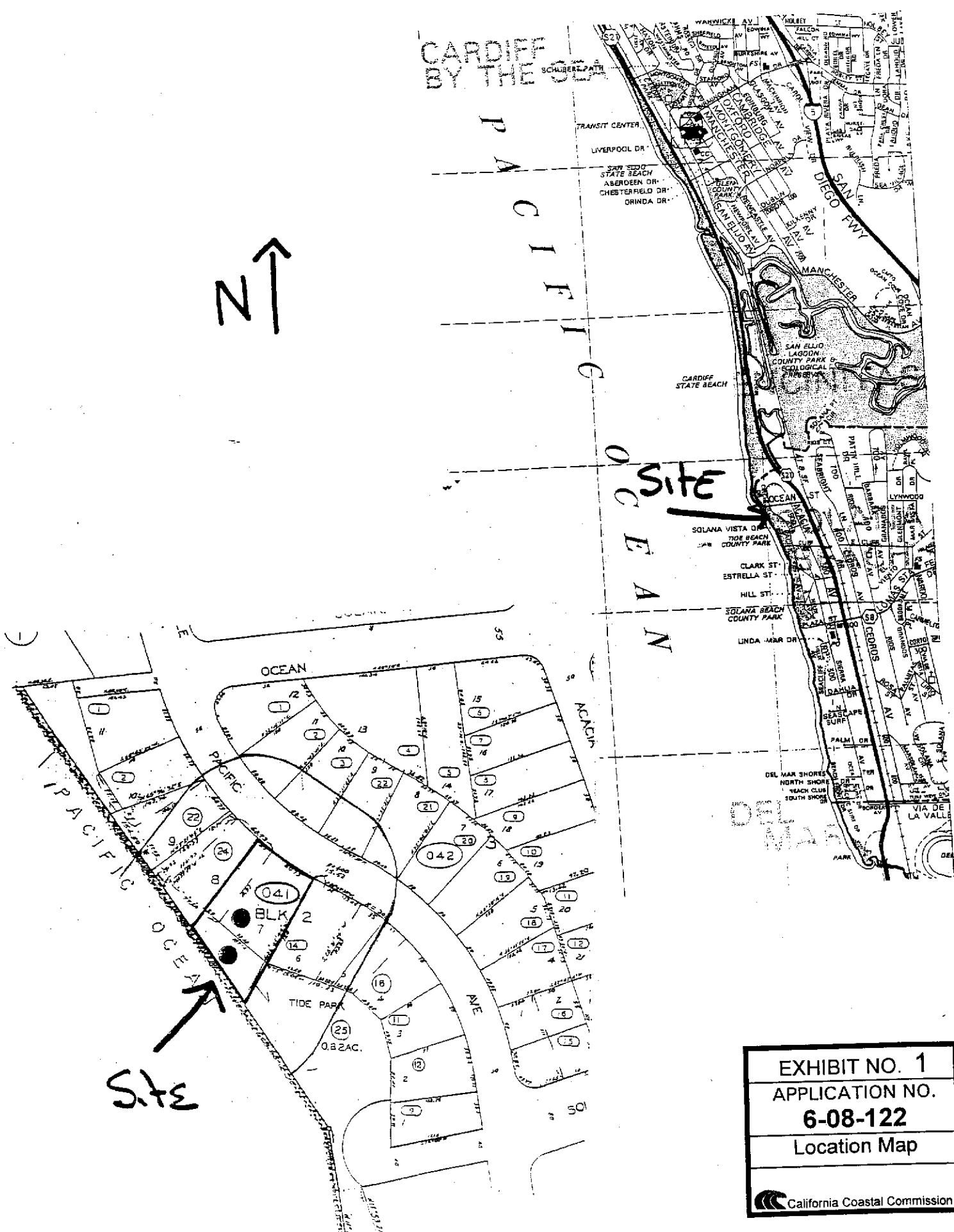
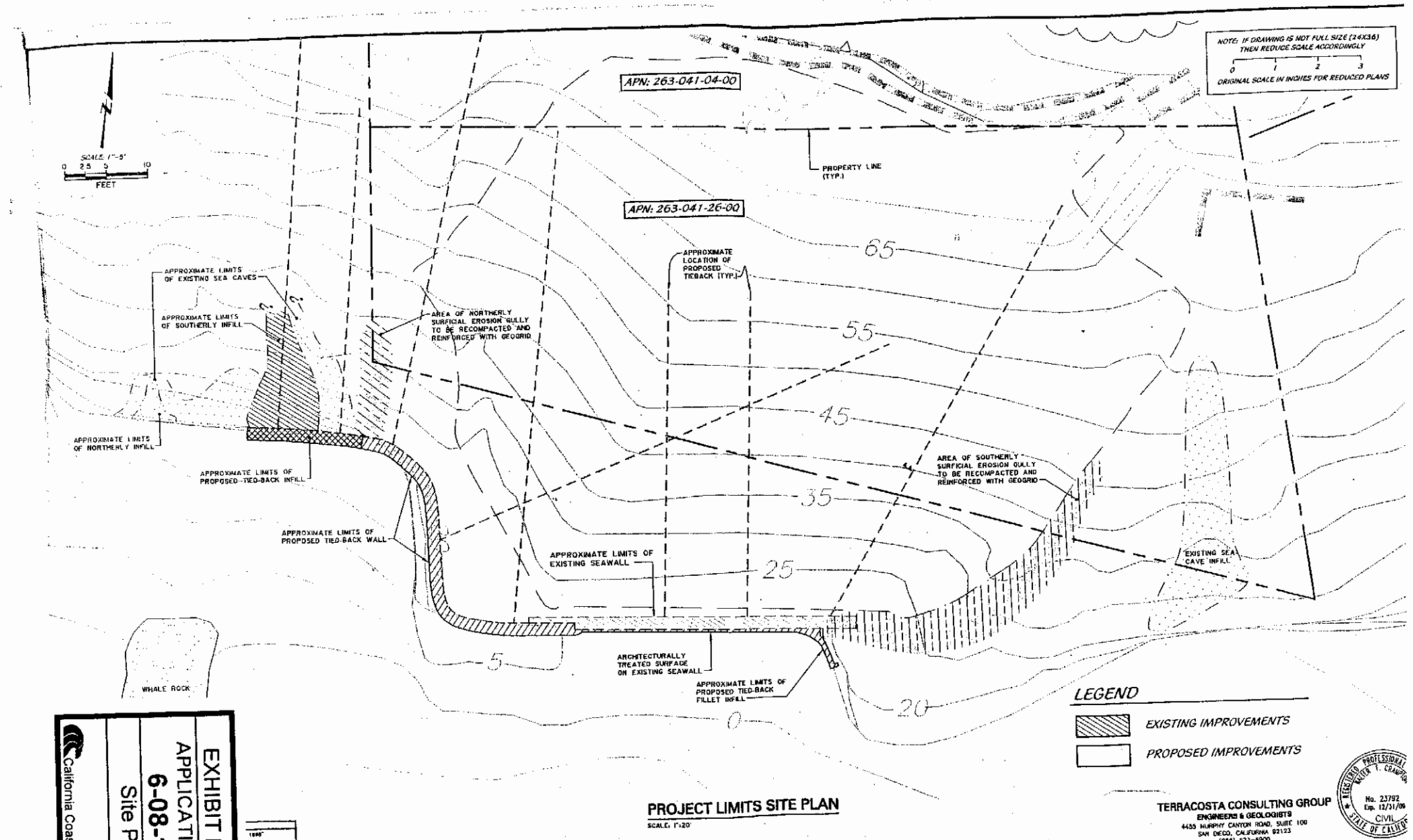


EXHIBIT NO. 1
APPLICATION NO.
6-08-122
Location Map

California Coastal Commission



PROJECT LIMITS SITE PLAN

SCALE: 1"=20'

TERRACOSTA CONSULTING GROUP
ENGINEERS & GEOLOGISTS
4455 MURPHY CANYON ROAD, SUITE 100
SAN DIEGO, CALIFORNIA 92123
(858) 573-8900

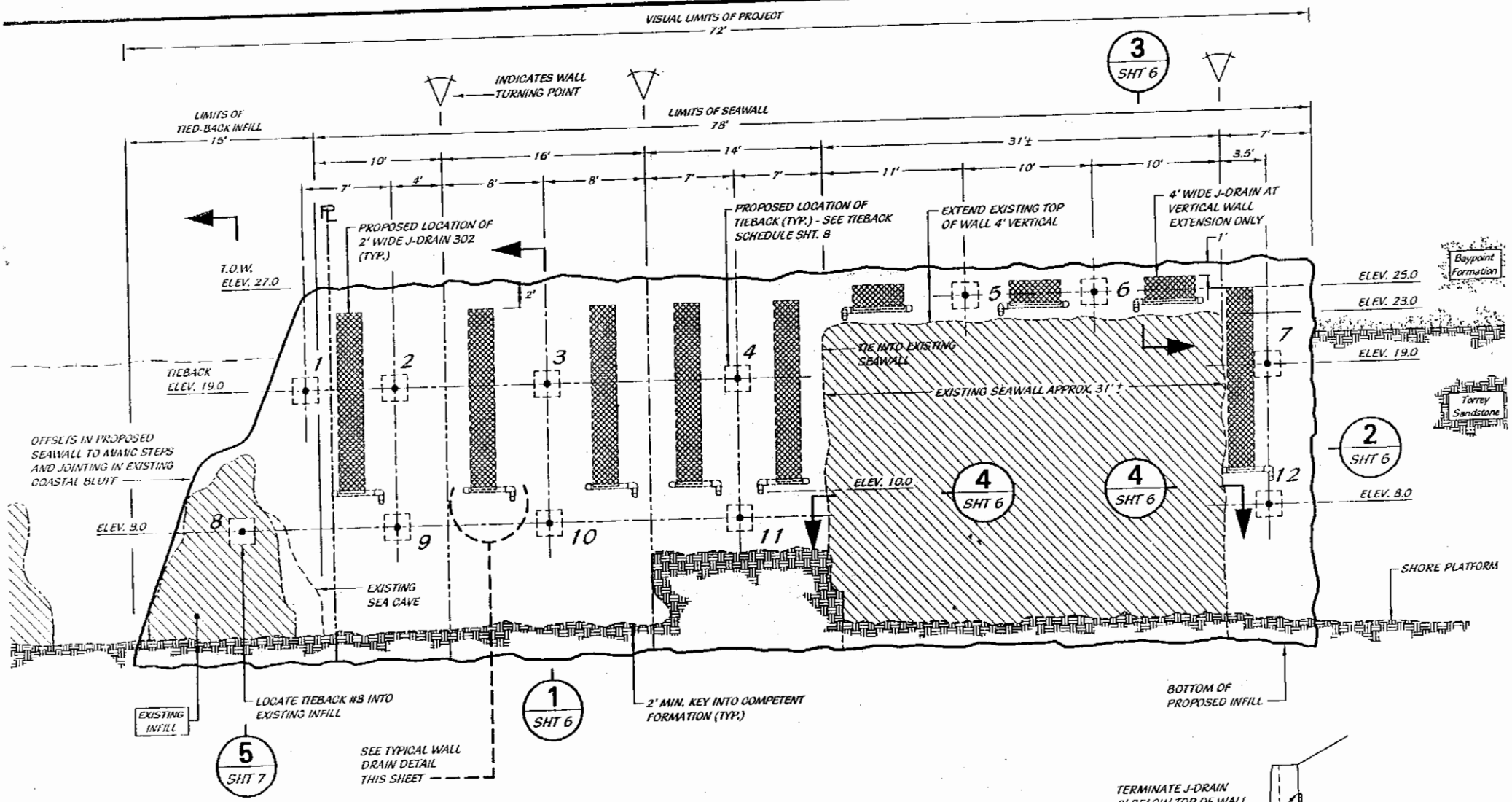
REGISTERED PROFESSIONAL ENGINEER WALTER F. CRAMPTON No. 23792 Exp. 12/31/09 CIVIL STATE OF CALIFORNIA

EXHIBIT NO. 2
APPLICATION NO.
6-08-122
Site Plan

California Coastal Commission

COASTAL COMMISSION PERMIT NO. _____

DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING
	GDS Drawn By	By: WALTER F. CRAMPTON Date: 10-27-08 R.C.E.: 23792 Exp. 12/31/09			By: _____ Date: _____ By: _____ Date: _____	By: _____ Date: _____ Mohammad Sammak, City Engineer R.C.E.: 37148 Exp: 06-30-10	SEE DETAILED BLOCK ABOVE LEFT	PROJECT LIMITS SITE PLAN FOR: 521 PACIFIC AVENUE SEAWALL MAINTENANCE, REPAIR & EXTENSION	SBGR- SHEET 4A



TIED-BACK SHOTCRETE WALL - PROFILE

SCALE: 1"=5' (HORIZ. & VERT.)

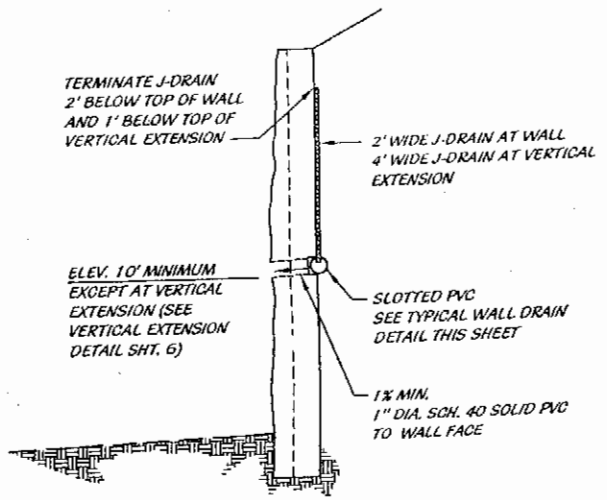
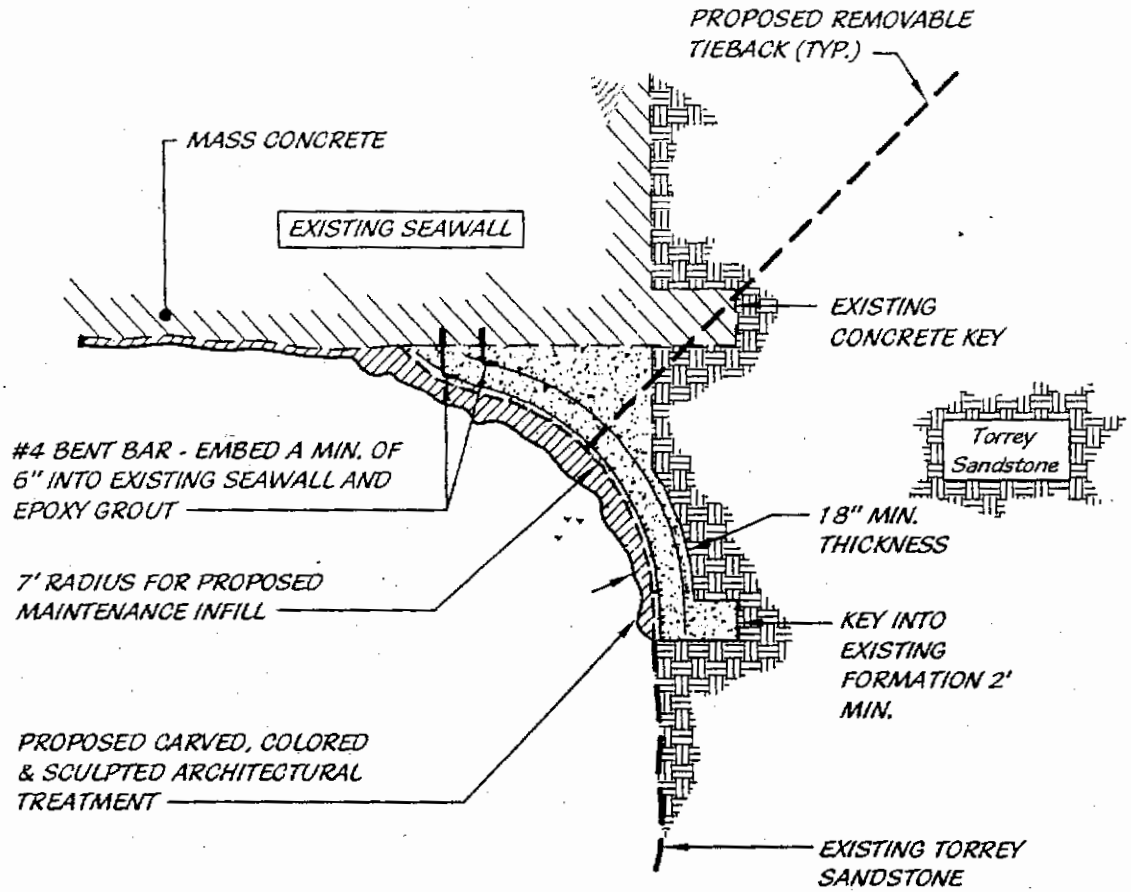


EXHIBIT NO. 3
APPLICATION NO. 6-08-122
Wall Profile

California Coastal Commission



SOUTH END CORNER INFILL - SECTION 2

Tiedback Fillet
(Wave deflector
at south side of seawall)

EXHIBIT NO. 4
APPLICATION NO.
6-08-122
Tiedback Fillet Details (Wave Deflector)
California Coastal Commission