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Staff:	P. Foster - SF
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STAFF REPORT: REGULAR CALENDAR

Application: **2-16-0684**

Applicant: **Aimco Esplanade Avenue Apartments LLC**

Location: Along the bluff seaward of 380 Esplanade Avenue in the City of Pacifica, San Mateo County (APNs 009-131-010 and 009-131-060)

Description: Consolidated coastal development permit (CDP) application to authorize development constructed pursuant to two Coastal Commission emergency CDPs (G-2-16-0011 and G-2-16-0043), consisting of import and installation of 840 tons of rock stacked up to 10 feet in height on top of the existing permitted rock revetment and construction of an approximately 50-foot tall soil nail wall against the bluff behind the stacked rock.

Recommendation: Approval with conditions

SUMMARY OF STAFF RECOMMENDATION

The proposed project involves authorization of already-installed shoreline armoring located seaward of the Aimco apartment complex at 380 Esplanade Avenue in the City of Pacifica's Edgemar neighborhood in northern Pacifica. The Executive Director issued two emergency CDP authorizations (G-2-16-0011 and G-2-16-0043) following substantial bluff failures caused by heavy winter storms and high tides in early 2016. This follow up CDP application proposes to retain the same development via a regular CDP, including a soil nail wall and an enlarged rock revetment.

Staff believes the project meets the armoring need tests of the Coastal Act, and that impacts to sand supply, public access and visual character can be appropriately mitigated through

conditions of approval such as an in-lieu sand mitigation fee, monitoring plan, future maintenance authorization, and a shortened reassessment period to match the duration that applies to the rest of the armoring at this location (i.e., through 2031). Commission staff, including the Commission's senior coastal engineer, have visited the site multiple times, evaluated the relevant project materials, and determined that the apartment structures were threatened by erosion. Absent emergency action, another significant storm event could have resulted in loss of residential structures and related infrastructure at the site. The emergency measures have been constructed and the existing apartment complex has remained secure this storm season.

In terms of impact mitigation, staff is recommending a sand supply mitigation fee for impacts through 2031, reassessment of the armoring for issues and additional mitigation at that point, restrictions on future development, indemnification, and other related conditions to address coastal resource impacts and issues.

As conditioned, staff recommends that the Commission approve a CDP for the proposed project. The motion to act on this recommendation is found on page 4.

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I. MOTION AND RESOLUTION

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

Motion: *I move that the Commission* ***approve*** *coastal development permit number 2-16-0684 pursuant to the staff recommendation, and I recommend a* ***yes*** *vote.*

Resolution: *The Commission hereby approves Coastal Development Permit 2-16-0684 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. 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

This permit is granted subject to the following 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. **Permit Expiration and Condition Compliance.** Because all of the proposed development has already commenced, this coastal development permit shall be deemed issued upon the Commission's approval and will not expire. Failure to comply with the special conditions of this permit may result in the institution of an action to enforce those conditions under the provisions of Chapter 9 of the Coastal Act.

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.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Sand Supply Mitigation Fee.** WITHIN 90 DAYS OF CDP APPROVAL (or within such additional time as the Executive Director may grant for good cause), the Permittee shall submit to the Executive Director three valid bids for the cost of delivered beach quality sand for 1,125 cubic yards of sand. Within 90 days of receiving Executive Director approval of these bids (or within such additional time as the Executive Director may grant for good cause), the Permittee shall provide evidence, in a form and content acceptable to the Executive Director, that a fee in an amount equal to the average of the three approved bids has been deposited into an interest bearing account designated by the Executive Director, and held by the Coastal Conservancy, or an Executive Director approved alternate entity, for the purposes of funding beach nourishment projects in the vicinity of the project site. If the funds and any accrued interest aren't all used for beach nourishment projects within five years of the funds being deposited into the account, then any remaining funds and accrued interest may also be used for provision, restoration and enhancement of public access and recreational opportunities along the shoreline in the City of Pacifica, including but not limited to public access improvements, recreational amenities, and/or acquisition of privately-owned beach or beach-fronting property for such uses. All of the funds and any accrued interest shall be used for the above-stated purposes, in consultation with the Executive Director, within ten years of the funds being deposited into the account. The funds shall be released only upon approval of an appropriate project by the Executive Director, and subject to a Memorandum of Agreement (MOA) with the Coastal Conservancy, or an Executive Director-approved alternate entity, setting forth terms and conditions to assure that the funds will be expended in the manner intended by the Commission. If the MOA is terminated, the Executive Director may appoint an alternate entity to administer the funds.

2. **Monitoring and Reporting.** The Permittee shall ensure that the condition and performance of the approved as-built project is regularly monitored and maintained. Such monitoring evaluation shall, at a minimum, address whether any significant weathering or damage has occurred that would adversely impact future performance, and identify any structural or other damage or wear and tear requiring repair to maintain in a structurally sound manner and its approved state, including at a minimum with regards to the following:

    a. **Armoring.** The rock revetment and soil nail wall shall be monitored by a licensed civil engineer with experience in coastal structures and processes to ensure structural and cosmetic integrity, including evaluation of concrete competence, spalling, cracks, movement, and outflanking.

    b. **Landscaping.** The landscaping elements of the project shall be monitored to ensure that invasive and nonnative plants (e.g., iceplant) are kept out of the bluff area inland of the armoring, and that native noninvasive landscaping (using plant species native to the Pacifica bluffs) is maintained in this area in a manner that completely covers the bluffs inland of the armoring, including cascading vegetation capable of screening of the top of the armoring.

c. **Reporting.** Monitoring reports covering the above-described evaluations, shall be submitted to the Executive Director for review and approval at three year intervals by May 1st of each third year (to align with monitoring reports already required for shoreline development in place at 360 and 380 Esplanade under CDP No. 2-08-020, Special Condition 7) for as long as the approved as-built project exists at this location. The reports shall identify the existing configuration and condition of the armoring and landscaping, and shall recommend any actions necessary to maintain these project elements in their approved state, and shall include photographs that clearly show all components of the as-built project. At a minimum, photographs shall be taken from representative viewpoints on the beach directly upcoast, downcoast, and seaward of the approved seawall and revetment, with the date and time of the photographs and the location of each photographic viewpoint noted on a site plan. Any proposed actions necessary to maintain the approved as-built project in a structurally sound manner and its approved state shall be implemented within 30 days of Executive Director approval, unless a different time frame for implementation is identified by the Executive Director. In addition, monitoring reports shall be submitted within 30 days following either (1) an El Niño storm event comparable to a 20-year or larger storm, or (2) an earthquake of magnitude 5.5 or greater with an epicenter in San Mateo County. Thus, monitoring reports may be submitted more frequently than every 3 years depending on the occurrence of the above events in any given year.

3. **Future Maintenance Authorized.** This CDP authorizes future maintenance and repair subject to the following:

   a. **Maintenance.** "Maintenance," as it is understood in this special condition, means development that would otherwise require a CDP whose purpose is to maintain in the approved state of the rock revetment, soil nail wall, and landscaping elements.

   b. **Other Agency Approvals.** The Permittee acknowledges that these maintenance stipulations do not obviate the need to obtain permits from other agencies for any future maintenance or repair.

   c. **Maintenance Notification.** At least two weeks prior to commencing any maintenance activity, the Permittee shall notify, in writing, planning staff of the Coastal Commission's North Central Coast District Office. The notification shall include: (1) a detailed description of the maintenance proposed; (2) any plans, engineering and/or geology reports describing the event; (3) a construction plan that clearly describes construction areas and methods, and complies with all best management practices (BMPs) required by Emergency Permits G-2-16-0011 and G-2-16-0043 (see **Exhibit 3**); (4) other agency authorizations; and (5) any other supporting documentation describing the maintenance event. Maintenance may not commence until the Permittee has been informed by planning staff of the Coastal Commission's North Central Coast District Office that the maintenance proposed complies with this CDP. If the Permittee has not been given a verbal response or sent a written response within 30 days of the notification being received in the North Central Coast District Office, the maintenance shall be authorized as if planning staff affirmatively indicated that the maintenance complies with this CDP. The notification shall clearly indicate that maintenance is proposed pursuant to this CDP,

and that the lack of a response to the notification within 30 days constitutes approval of it as specified in the permit. In the event of an emergency requiring immediate maintenance, the notification of such emergency shall be made as soon as possible, and shall (in addition to the foregoing information) clearly describe the nature of the emergency.

d. Maintenance Coordination. Maintenance activity shall, to the degree feasible, be coordinated with other maintenance activity proposed in the immediate vicinity with the goal being to limit coastal resource impacts, including the length of time that construction occurs in and around the beach and bluff area and beach access points. As such, the Permittee shall make reasonable efforts to coordinate the Permittee's maintenance activity with other adjacent property maintenance activities, including adjusting the Permittee's maintenance activity scheduling as directed by planning staff of the Coastal Commission's North Central Coast District Office.

e. Restoration. The Permittee shall restore all blufftop, bluff, and beach areas impacted by construction activities to their pre-construction condition or better within three days of completion of construction. Any beach sand impacted shall be filtered as necessary to remove all construction debris from the beach. The Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office upon completion of restoration activities to allow for a site visit to verify that all beach-area restoration activities are complete. If planning staff should identify additional reasonable measures necessary to restore blufftop, bluff, or beach areas, such measures shall be implemented as quickly as possible.

f. Noncompliance Provision. If the Permittee is not in compliance with permitting requirements of the Coastal Act, including the terms and conditions of any Coastal Commission CDPs and/or other coastal authorizations that apply to the subject properties, at the time that a maintenance event is proposed, then maintenance that might otherwise be allowed by the terms of this future maintenance condition shall not be allowed until the Permittee is in full compliance with the permitting requirements of the Coastal Act, including all terms and conditions of any outstanding CDPs and/or other coastal authorizations that apply to the subject properties.

g. Emergency. Notwithstanding the emergency notifications set forth in subsection (c) of this Special Condition, nothing in this condition shall affect the emergency authority provided by Coastal Act Section 30611, Coastal Act Section 30624, and Subchapter 4 of Chapter 5 of Title 14, Division 5.5, of the California Code of Regulations (Permits for Approval of Emergency Work).

h. Duration of Covered Maintenance. Future maintenance under this CDP is allowed subject to the above terms until October 7, 2031. The intent of this permit is to allow for maintenance to occur without the need to obtain additional CDPs throughout the period of development authorization (see **Special Condition 4**) unless there are changed circumstances that may affect the consistency of this maintenance authorization with the policies of Chapter 3 of the Coastal Act.

4. Shoreline Armoring Terms.

a. Authorization Terms. This CDP authorizes shoreline armoring pursuant to the following terms:

1. Termination. The authorization for the shoreline armoring approved pursuant to CDPs 2-08-020 and 2-16-0684 terminates when the apartments the armoring fronts: (1) are redeveloped as defined in subsection 3 below; (2) are no longer present; or (3) no longer require shoreline armoring, whichever occurs first. Prior to the anticipated termination of the authorization and/or in conjunction with redevelopment of the property, the Permittee shall apply for a new CDP or amendments to CDPs 2-08-020 and 2-16-0684 to remove the shoreline armoring or to modify the terms of its authorization, including with respect to any necessary mitigation pursuant to subsection 2 below.

2. Extension of Authorization and Mitigation. If the Permittee intends to keep the shoreline armoring in place beyond the end of the October 7, 2031 initial mitigation period, the Permittee shall submit a complete application for a CDP or amendments to CDPs 2-08-020 and 2-16-0684 to reassess mitigation for the on-going impacts of the approved armoring, including an evaluation of actions to reduce or eliminate those impacts. The complete application(s) shall be submitted no later than 6 months prior to the end of the original mitigation period (i.e., no later than April 7, 2031). The application(s) shall include analysis of feasible alternatives to modify the shoreline armoring or the apartments and related development it fronts to reduce or eliminate to the maximum extent feasible the shoreline armoring's impacts on coastal resources, and shall propose mitigation for unavoidable coastal resource impacts associated with the retention of the armoring beyond the initial mitigation period.

3. Redevelopment Definition. Development that meets the criteria in A or B below shall be considered redevelopment:

A. Alterations by Type. Development that consists of alterations including (1) additions to the existing (as of March 8, 2017) apartment structures and/or related development, (2) exterior and/or interior renovations to the existing apartment structures and/or related development, and/or (3) demolition or replacement of the existing apartment structures and/or related development, or portions thereof, which results in:

(1) Alteration (including demolition, renovation or replacement) of 50% or more of major structural components including exterior walls, floor, roof structure or foundation, or a 50% increase in gross floor area. Alterations are not additive between individual major structural components; however, changes to individual major structural components are cumulative over time from the date of this CDP authorization (i.e., from March 8, 2017).

(2) Alteration (including demolition, renovation or replacement) of less than 50% of a major structural component where the proposed alteration would result in

cumulative alterations exceeding 50% or more of a major structural component, taking into consideration previous alterations approved on or after the date of this CDP authorization; or an alteration that constitutes less than 50% increase in floor area where the proposed alteration would result in a cumulative addition of greater than 50% of the floor area, taking into consideration previous additions approved on or after the date of this CDP authorization.

B. Alterations by Cost. Development that consists of any alteration of the existing apartment structures and/or related development, the cost of which equals or exceeds 50 percent of the market value of the structure/related development before the start of construction, based on the documented construction bid costs and either an appraisal by a professional property appraiser or County assessor data, to be submitted by the Permittee consistent with the time frame in subsection 2 above.

For the purposes of this definition:

An **exterior wall** is considered to be altered 50% or more when any of the following occur either above or below grade: (a) exterior cladding and/or framing systems are altered in a manner that requires removal and/or replacement of 50% or more of the elements of those cladding and framing systems, normally considered as linear length of wall; (b) reinforcement is needed for any remaining portions of the wall to provide structural support in excess of 50% of existing support elements (e.g., addition of 50% or more of beams, shear walls, or studs whether alone or alongside the existing/retained elements); (c) a previously exterior wall becomes an interior wall as a result of the development; (d) the extent of alteration to the linear area of the exterior walls on each story shall be determined to determine whether 50% or more of the total exterior walls have been altered.

The **floor or roof structure** is considered to be altered 50% or more when any of the following occur: (a) the roof or floor framing is altered in a manner that requires removal and/or replacement of structural elements (e.g. trusses, joists, rafters) supporting 50% or more of the square footage of the roof or floor; (b) the roof or floor structural framing system requires additional reinforcement to any remaining portions of the roof or floor system to provide structural support (e.g. addition of 50% or more of beams, joists, and/or rafters, etc., whether alone or alongside existing/retained system elements).

The **foundation** is considered to be altered 50% or more when any removal, replacement or reinforcement is done on any of the following: (a) 50% or more of the horizontal surface area of a slab foundation; (b) 50% or more of the floor area of a structure supported by a pier/post and/or caisson/grade beam foundation; (c) 50% or more of a perimeter foundation; (d) 50% or more of other foundation types (e.g., piers), or the total alteration where a structure has multiple foundation types.

Major structural component alterations generally do not include changes to roof coverings; replacement of glass or doors in existing window or door openings; replacement of window or door framing when the size and location of the window/door remains unchanged; repair of roofs or foundations without any change to structural supporting elements; changes to exterior siding; repair, maintenance, and replacement of chimneys; and interior changes to non-structural interior walls and sheetrock, insulation, fixtures, and mechanical, electrical and plumbing elements, except when such interior changes meet the threshold for redevelopment as defined by the market valuation criteria.

C. **Provision of Information.** The Permittee shall submit information regarding the development sufficient to establish the presence or absence of the factors listed in A and B above.

b. **No Future Seaward Encroachment.** By acceptance of this CDP, the Permittee acknowledges and agrees, on behalf of itself and all successors and assigns, that no future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline armoring approved pursuant to CDPs 2-08-020 and 2-16-0684, as described and depicted on approved as-built plans, shall result in any encroachment seaward of the authorized footprint of the shoreline armoring. By acceptance of this CDP, the Permittee waives, on behalf of itself and all successors and assigns, any rights to such activity that may exist under Public Resources Code Section 30235.

5. **Assumption of Risk, Waiver of Liability, and Indemnity Agreement.** By acceptance of this CDP, the Permittee acknowledges and agrees (i) that the site may be subject to hazards, including but not limited to waves, storms, flooding, landslide, bluff retreat, erosion, earth movement, and the interaction of all of these, many of which will worsen with future sea level rise; (ii) to assume the risks to the Permittee and the property that is the subject of this CDP 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 CDP 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.

6. **Other Permits and Permission.** WITHIN 180 DAYS OF CDP APPROVAL (or within such additional time as the Executive Director may grant for good cause), the Permittee shall provide to the Executive Director a copy of a permit issued by the California State Lands Commission and the U.S. Army Corp of Engineers, or letter of permission, or evidence that no permit or permission is required. The Permittee shall inform the Executive Director of any changes to the project required by any other approvals. Such changes shall not be incorporated into the project until the Permittee obtains a Commission amendment to this CDP, unless the Executive Director issues a written determination that no amendment is legally required.

7. **Deed Restriction.** WITHIN 90 DAYS OF CDP APPROVAL (or within such additional time as the Executive Director may grant for good cause), the Permittee shall submit for Executive Director review and approval documentation demonstrating that the landowners have executed and recorded against the subject property governed by this CDP a deed restriction in a form and content acceptable to the Executive Director: (1) indicating that pursuant to this CDP, 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 CDP as covenants, conditions and restrictions on the use and enjoyment of the property. The deed restriction shall include a legal description and graphic depiction of the parcels governed by this CDP. 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 CDP shall continue to restrict the use and enjoyment of the subject property so long as either this CDP or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

IV. FINDINGS AND DECLARATIONS

A. PROJECT LOCATION

The project is located at the bluff-face on the seaward side of Esplanade Avenue fronting apartment buildings at 380 Esplanade Avenue in the City of Pacifica (APNs 009-131-010 and 009-131-060), approximately one mile south of the Mussel Rock landfill site in Daly City. The subject bluff-face has already been significantly altered from episodic erosion events and from previous shoreline protection projects. The subject parcel, along with 360 Esplanade, is developed with an apartment complex originally constructed in the 1960's, now owned by the Applicant. The western edge of the site is fronted by a steep coastal bluff that is approximately 85 feet tall, mainly composed of moderately cemented fine sand subject to extreme wave forces, landsliding, and erosion (see **Exhibit 1: Project Location**).

Neighboring properties to the north (310 – 350 Esplanade Avenue) were developed with five separate multi-family structures. Due to a heavy 2015-2016 El Niño storm season and resulting episodic coastal erosion, three of these structures were red-tagged and have been demolished under emergency CDPs issued by the City of Pacifica in 2015 and 2016, including at 310, 320, and 330 Esplanade Avenue (City Emergency CDPs CDP-379-16, CDP-361-15, and CDP-356-15, respectively).

The northern property boundary of 360 Esplanade extends diagonally northward across a portion of the lower bluff and beach fronting the apartment buildings at 340 and 350 Esplanade Avenue under separate ownership. Further north beyond the 300 block of apartment buildings is the Oceanaire (formerly known as Land's End) multi-family residential development, where the public access stairway was significantly damaged by a sinkhole caused by a broken drain pipe in December 2016. The stairway was closed, and repairs are currently underway to restore the accessway to its original permitted condition, in accordance with CDP 2-10-039.

The adjacent and nearby shoreline is comprised of a mix of open and moderately accessible beaches, partially obstructed by several interspersed rock revetments placed to protect existing blufftop development. In addition to the proposed armoring project (see project description below), bluffs immediately up coast have shoreline protection in place. A rock revetment, installed under emergency permit authorization, extends laterally along the toe of the bluff from 340 to 310 Esplanade to the north. North of 310 Esplanade is the Oceanaire seawall and shoreline protection. To the south of the project site, 390 and 400 Esplanade remain unarmored. Further south, much of the remaining Pacifica coastline is armored. In the 1980's a major shoreline protection project initiated by the City of Pacifica[1] resulted in armoring along the Sharp Park Golf Course (1,000 linear feet of riprap), the Beach Boulevard shoreline (2,500 linear feet of riprap and a reinforced earth seawall), the Pacific Skies RV park located at 1300 Palmetto Avenue (850 linear feet of riprap) and the San Francisco RV park at 700 Palmetto Avenue.

B. PROJECT BACKGROUND

Emergency CDP History and CDP No. 2-08-020

CDP No. 2-08-020, granted by the Commission in 2013 to the current Applicant (Aimco), provided for after-the-fact authorization for work completed under six previously issued emergency permits, including construction of (1) a rock revetment totaling approximately 475 linear feet across 360 and 380 Esplanade Avenue, and (2) an approximately 3,240-square-foot, 50-foot high soil nail wall along an approximately 70-foot-long section of the mid and upper bluff on 360 Esplanade Avenue.

Approximately 245 feet of the previously approved 475-foot-long rock revetment along the bluff at 360 and 380 Esplanade was placed by previous owners under emergency permits issued in 1998 and 1999.[2] In 2009, accelerated bluff erosion forced the City to require evacuation of the apartment building at 330 Esplanade Avenue located to the north of the subject property. To address erosion and bluff retreat at that time, Aimco was issued an emergency permit to construct an approximately 200-foot long revetment extension fronting 340 and 350 Esplanade (the apartment buildings at 340 and 350 Esplanade Avenue are not owned by Aimco, but the bluff area beneath them is, due to the previously described parcel configuration).[3] In late 2009 and early 2010, episodic erosion of a portion of the upper bluff fronting the apartment building at 360 Esplanade Avenue occurred as a result of severe winter storms. The Executive Director

[1] Pursuant to CDP 3-83-172 which has numerous amendments (3-83-172-A1 through 3-83-172-A6).

[2] Emergency CDPs 1-98-083-G/1-98-106-G (DeDominico) for construction of approximately 55 feet of rock revetment along the toe of the bluff fronting the apartment building at 360 Esplanade Avenue; 1-98-109-G (Behling) for construction of approximately 160 feet of rock revetment along the toe of the bluff fronting the apartment building at 380 Esplanade Avenue; and 1-99-005-G (DeDominico) for construction of an additional approximately 30 feet of rock revetment along the toe of the bluff fronting the apartment building at 360 Esplanade Avenue to connect the 55-foot and 160-foot-long revetment segments approved under 1-98-106-G and 1-98-109-G.

[3] Emergency CDP 2-09-022-G for placement of approximately 7,500 tons of 4- to 8-ton rock rip-rap to an elevation of 26 feet along approximately 200 linear feet of shoreline. Work included construction of a keyway excavated four feet into the underlying greenstone bedrock and installation of geotextile fabric.

issued two emergency permits for Aimco to construct a soil nail wall along an eroded portion of the upper bluff.[4]

Ultimately, when submitted by the Applicant and as acted upon by the Commission, CDP No. 2-08-020 provided for after-the-fact authorization for development performed under the six emergency permits described above, with a modified project description that involved alteration of the existing revetment, including removal of rock and construction of two more soil nail walls. Specifically, Aimco was granted authorization to (1) retain a soil nail wall and approximately 60% of the rock revetment already constructed under the six emergency permits; (2) remove approximately 40% of the rock that had been installed through emergency permits; (3) construct two new soil nail walls at two separate sections of the bluff; and (4) construct an engineered, vegetated slope at mid-bluff. Aimco also recorded a lateral beach access dedication along the seaward limit of the 360 Esplanade Avenue property line and paid a mitigation payment, to address impacts to sand supply and public access/recreation caused by the permitted shoreline protective devices.

Post 2008 Emergency CDPs

In March and April of 2010, heavy wave action caused the City of Pacifica's storm drain, which runs underneath the Applicant's property at 380 Esplanade and outlets to the beach, to begin to fail. The Commission's Executive Director issued an Emergency CDP to the City to allow for rock installation and construction of a soil nail wall adjacent to the existing revetment and soil nail wall system at 360 Esplanade Avenue (authorized under CDP No. 2-08-020) to stabilize the storm drain pipe.[5] The City subsequently received a regular CDP authorizing the work the work (CDP No. 2-11-009), and in January 2016, the City completed work performed pursuant to that CDP, which authorized the emergency storm drain slope work, as well as installation of a new soil nail wall and reconstruction of the failed upper bluff.

Throughout January 2016, a series of bluff failures occurred in the area immediately adjacent and north of the recently completed storm drain work, ultimately growing in length and causing the bluff to recede approximately 17 feet in total along a 30-foot plus linear section. Soon after, Aimco was granted another emergency permit (G-2-16-0011) to address these most recent failures and the imminent threat posed to the apartments on top of the bluff. However, multiple failures occurred anew while the emergency permitted work was being performed, posing severe danger to the construction crewmembers. Subsequently, the rock revetment continued to settle and the bluff experienced further active failures due to El Niño and King Tide conditions. This created a further emergency situation that placed the occupied structures at 380 Esplanade in

[4] Emergency CDP 2-10-011-G for installation of an approximately 3,240-square-foot, 50-foot-high soil nail wall along an approximately 40-foot-long section of the upper bluff consisting of (1) approximately 50-foot-long soil nails placed at 5-foot intervals in both the vertical and horizontal direction, (2) a facing shotcrete element with wire mesh reinforcement, and (3) drainage panels behind the wall facing; and Emergency CDP 2-10-017-G for installation of approximately 30 feet of soil-nail wall to the north of the soil-nail wall structure permitted and constructed under ECDP 2-10-011-G, installation of a vertical row of soil nails at the north end of the wall on approx. 2.5-foot vertical spacing with a length of 30 feet behind the wall, at the same depths as those installed under 2-10-011-G and mid-bluff in-kind repair of the existing rock-slope protection.

[5] Emergency CDP 2-10-034-G for (1) Installation of 40 10-ton stones and placement of small rock retrieved from the beach immediately fronting the storm drain to stabilize the storm drain pipe, (2) placement of slurry/asphalt on cracked lines in the parking lot at the top of the bluff to prevent further subsidence, and (3) installation of an approximately 30 foot wide by 40 foot high soil nail wall to provide lateral support to the storm drain.

imminent danger of continued erosion. The Commission issued a second emergency permit ECDP G-2-16-0043 in April 2016 to address this emergency condition (see **Exhibit 3: Emergency Permits**).

As described in further detail in the Project Description section below, the proposed project involves authorization for temporary work performed under these last two emergency permits, including import and installation of 840 tons of rock stacked vertically up to 10 feet on top of the previously existing rock revetment (not adding to the revetment's beach footprint), and construction of an approximately 50-foot tall soil nail wall behind the rip rap extending from the toe to the top of the bluff.

See **Exhibit 6: Project History** for a timeline and graphic depiction of work completed on site.

C. PROJECT DESCRIPTION

The proposed follow-up project includes components located in both the Commission's and the City's CDP jurisdiction. The City, the Applicant, and the Commission have all agreed to a consolidated CDP review for the proposed project, as allowed by Coastal Act Section 30601.3. As a result, this CDP application constitutes the required regular follow up CDP application for the Commission's two emergency CDPs, which only authorized development on a temporary basis, and expressly stated that the emergency work was temporary and subject to removal unless and until a regular CDP authorizing the development was approved. Therefore, this report evaluates existing emergency development as if it was not there, even though the development is now physically in place.

The proposed project includes import and installation of 840 tons of rock stacked up to 10 feet on top of the previously permitted rock revetment, and construction of an approximately 50-foot tall soil nail wall behind the revetment extending from the toe of the bluff to the top of the bluff in some places, and to within 10 feet of the top of the bluff in others. More specifically, the work performed pursuant to the two emergency permits included the construction of the soil nail wall in front of 380 Esplanade Avenue and placement of the rock up to 10 feet higher at the top of the revetment that had been partially removed under CDP 2-08-020. All of the work was located at the top and behind the existing revetment previously authorized under CDP 2-08-020, preventing any increase in the armoring footprint or further encroachment seaward onto the beach. The height of the soil nail wall relative to the bluff face varies based upon the distance from the existing residential structure at the top of the bluff, and slope stability calculations. The new soil nail wall extends to the top of the bluff at the southern end, in the area of bluff closest to the residences and adjacent to the area where the bluff was re-vegetated. The remainder of the soil nail wall extends up to within approximately 10 feet of the top of the bluff. Rock has been re-stacked on top of the existing revetment and the bluff toe that had failed, adding approximately 10 feet of height to the top of the existing rock revetment between the storm drain slope to the south and the soil nail wall to the north. The constructed soil nail wall is not a tieback wall (i.e., the soil nails only go into the bluff approximately five feet), and, according to the Applicant's geotechnical report (**Exhibit 5**, pg.4), the soil nail wall requires the revetment at the base to ensure its overall stability and proper function. The wall is angled to the natural bluff profile and is designed to mimic the natural bluff face, colored and contoured to approximate natural bluff.

See **Exhibit 1** for site location and **Exhibit 2** for as-built project plans.

This is a consolidated CDP application. Pursuant to Coastal Act Section 30601.3, the standard of review is Chapter 3 of the Coastal Act, with the City's LCP providing non-binding guidance. As such, applicable Coastal Act policies are cited in this report, as well as certain LCP policies for guidance as relevant.

D. GEOLOGIC CONDITIONS AND HAZARDS

Applicable Policies
Coastal Act Section 30235 addresses the use of shoreline protective devices:

> ***Section 30235 Construction altering natural shoreline.*** *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.*

Coastal Act Section 30253 addresses the need to ensure long-term structural integrity, minimize future risk, and to avoid landform altering protective measures. Section 30253 provides, in applicable part:

> ***Section 30253 Minimization of adverse impacts.*** *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 following certified City of Pacifica LCP Land Use Plan (LUP) language and Implementation Plan (IP) standards provide additional guidance regarding geologic hazards and shoreline protection:

> ***(LUP Page C-24 and C-25) – West Edgemar/Pacific Manor Neighborhood – GEOLOGY.*** *As with bluff-top lands to the north of the "Dollar Radio Station" residence, coastal bluffs in this area are subject to a high rate of wave erosion. This average rate is exceeded during winter storm conditions when high wave run up and heavy rains are present. During these periods, sloughage of the face of bluffs occurs typically in the form of vertical slabs.*
>
> *The City's Seismic Safety and Safety Element requires the bluff setback to be adequate to*

accommodate a minimum 100-year event, whether caused by seismic, geotechnical, or storm conditions. The setback should be adequate to protect the structure for its design life. The appropriate setback for each site will be determined on a case-by-case basis, depending on the site specific circumstances and hazards.

A Seismic Safety and Safety Element policy prohibits the approval of projects which require seawalls as a mitigation measure. The policy also states that projects should not be approved which eventually will need seawalls for the safety of the structures and residents.

***(LUP Page C-26) - COASTAL ISSUES – West Edgemar/Pacific Manor Neighborhood** – The major coastal planning issues in this neighborhood are: 1. The effect of geologic conditions on the use of undeveloped property along the bluffs…*

***(LUP Pages C-29 and C-30) – SEAWALLS**…In the future, property owners may want to construct protective structures which are more resistant to wave action. Should property owners desire a more substantive seawall, the cumulative effect on beach sand replenishment should be determined. Because beaches in this area are extremely narrow and exist only during low tide, seawall structures should be designed to minimize beach scour in the area as much as possible. Preferred structures would be those which provide the minimum amount of effective protection with a minimum reduction in beach sand. The preferred structure to achieve this result will likely be rock rip-rap rather than a concrete wall. Seawalls shall not extend beyond the mean high tide line.*

***(LUP Page C-68) – 3. Points West Apartments…Topography -** Natural Environment: High bluffs of unconsolidated deposits. The area between the street and the stairs is open; grass maintained by the apartment complex.*

***(LUP Page C-105) SHORELINE PROTECTION AND DRAINAGE STRUCTURES.** Erosion is a primary problem along the Pacifica coast. Studies by the U. S. Army Corps of Engineers indicate that in many cases shoreline structures are not economically justified. (See LCP Background Report, Geology; General Plan Background Report, Geology). There are, however, a few areas in the City where shoreline protection may be necessary to protect major beach access or highly sensitive habitat. (See LCP Access Component Report, Local Beach Resources and Management). For these areas, and other areas where protection from hazards may be needed in the future, the following conclusions are suggested: Dumping and other un-engineered erosion protection shall be prohibited. Existing unauthorized rubble or protective devices shall be removed prior to any additional development in such areas. A qualified expert shall be engaged to analyze the impacts of proposed structures and prescribe appropriate mitigation, if necessary, prior to issuance of a permit. Impact evaluation shall include methods to minimize alteration of natural migration and deposition of sand on shorelines within the littoral cell, sufficient engineering to protect threatened area, lateral and if appropriate) vertical beach access, and structures as well as other impacts.*

***IP Section 9-4.4308(d)(5): Permanent Environmental Protection.** (d) Development Standards. The following standards shall apply to new development in areas identified in*

Section 9-4.4404(b)… (5) Consistent with the City's Seismic Safety and Safety Element, new development shall be set back from the coastal bluffs an adequate distance to accommodate a 100-year event, whether caused by seismic, geotechnical, or storm condition, unless such a setback renders the site undevelopable. In such case, the setback may be reduced to the minimum extent necessary to permit economically viable development of the site, provided a qualified geologist determines that there would be no threat to public safety and health.

IP Section 9-4.4405(c): Grading and Drainage*… (c) Development Standards. (1) The following standards shall apply to new development. (i) Alteration of natural topography and removal of existing trees shall be minimized to the maximum extent feasible so as to maintain the natural surface drainage system; … (iii) Cut-and Fill surfaces shall be stabilized by planting low maintenance, native ground cover and shrubs; … (viii) Removal of sands characteristic of the Pacifica shoreline shall be minimized; (2) The following standards shall apply to ensure long term grading and drainage management of the project site: (i) Grading of environmentally sensitive habitat areas shall occur only when necessary to protect, maintain enhance, or restore the habitat; (ii) Areas of soil or landform disturbance shall be identified, and shall be revegetated with low maintenance, native ground cover and shrubs to reduce erosion potential; (iii) Subgrade drainage of all wet soils shall be discharged into natural surface drainage, where feasible; (iv) Adequate drainage facilities, including grease and silt traps where necessary to minimize pollutants entering runoff water, shall be provided; (v) Potential impacts as identified in the grading and drainage plan shall be mitigated to a level of insignificance; and (vi) Mitigation measures identified in the grading and drainage plan shall be considered and made conditions of project approval.*

IP Section 9-4.4406: Shoreline Protection. *(a) Intent. The provisions of this Section shall apply to all new development requiring a coastal development permit in the CZ District and shall be subject to the regulations found in Article 43, Coastal Zone Combining District. The intent of these provisions is to minimize erosion and to stabilize the shoreline in areas along the coastal bluff where ocean wave and tidal action create potentially hazardous or damaging conditions. (b) Required Survey. A site stability survey, prepared by a qualified soils engineer or engineering geologist, shall be required for new development proposed on coastal bluffs. (c) Development Standards. The following standards apply to all new development along the shoreline and on coastal bluffs. (1) Alteration of the shoreline, including diking dredging, filling, and placement or erection of a shoreline protection device, shall not be permitted unless the device has been designed to eliminate or mitigate adverse impacts on local shoreline sand supply and it is necessary to protect existing development or to serve coastal-dependent uses or public beaches in danger from erosion or unless, without such measures, the property it issue will be rendered undevelopable for any economically viable use; (2) Consistent with the City's Seismic Safety and Safety Element, new development which requires seawalls as a mitigation measure or projects which would eventually require seawalls for the safety of the structures shall be prohibited, unless without such seawall the property will be rendered undevelopable for any economically viable use; (3) Required shoreline protection devices shall be designed and sited to consider and reflect: (i) Maximum expected wave height; (ii) Estimated frequency of overtopping; (iii) Normal and*

maximum tidal ranges; (iv) Projected erosion rates with and without a shoreline protection device; (v) Impact on adjoining properties; (vi) Design life of the device; (vii) Maintenance provisions, including methods and materials; and (viii) Alternative methods of shoreline protection, including "no project." (4) The impact on beach scouring and sand replenishment shall be minimized; (5) Water runoff from beneath existing seawalls shall be minimized; (6) Existing unauthorized rubble or protective devices shall be removed prior to the approval of additional development in such areas; and (7) A geotechnical engineer shall certify that the shoreline protection device will withstand storms comparable to the major winter storms of 1982 and 1983 along the California coast. (8) The seawall shall be designed to minimize impacts upon existing lateral and vertical access and in any case shall not result in the blocking of an access way. In cases where it is possible to engineer a wall without blocking access, then appropriate mitigation measures shall be incorporated into the design. These measures can include a stairway over the seawall to provide continuous vertical access or a platform over the seawall to provide continuous later access.

Coastal Act Sections 30235 and 30253 acknowledge that seawalls, revetments, retaining walls, groins and other such structural or "hard" methods designed to forestall erosion also alter natural landforms and natural shoreline processes. Accordingly, with the exception of new coastal dependent uses, Section 30235 limits the construction of shoreline protective works to those required to protect existing permitted structures or public beaches in danger from erosion. The Coastal Act provides these limitations because shoreline structures can have a variety of negative impacts on coastal resources including adverse effects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, including ultimately resulting in the loss of sandy beach.

In addition, the Commission has interpreted Section 30235 to allow shoreline protective works only to protect existing primary structures. The Commission has at times historically permitted at-grade structures proposed to be located within required geologic setback areas, if such structures are expendable and capable of being removed or moved rather than requiring a protective device that would alter natural landforms and processes along bluffs, cliffs, and beaches.

These Coastal Act policies are reflected in the City's LCP policies in similar ways, including the City's LCP requirement that landform alteration be minimized, and that development be setback an adequate distance so as to provide stability over the project lifetime, and no less than 100 years. The LCP likewise reflects Coastal Act tests for consideration of armoring, including required mitigation for sand supply and public access impacts.

Under Coastal Act Section 30235, shoreline protective structures may be permitted if: (1) there is an existing structure; (2) the existing structure is in danger from erosion; (3) shoreline altering construction is required to protect the existing threatened structure; and (4) the required protection is designed to eliminate or mitigate the adverse impacts on shoreline sand supply. The first three questions relate to whether the proposed armoring is necessary. The fourth question applies to mitigation for the impacts of armoring.

Even where a shoreline protective device is determined to be necessary and is designed in a manner to be protective of shoreline sand supply, the structure will often result in significant adverse impacts to beach access and recreation. The mitigation required to address such impacts are addressed in this section and further below in findings related to Public Access and Recreation.

Analysis

Existing Structures to be Protected

For the purposes of shoreline protective structures, the Coastal Act outlines requirements for allowable shoreline armoring. Under Section 30253, new development is to be designed, sited, and built to allow the natural process of erosion to occur without creating a need for a shoreline protective device that could alter that natural process. Coastal Act 30235 authorizes shoreline protection in limited circumstances (if warranted and otherwise consistent with Coastal Act policies) for "existing" structures, such as structures that were in place prior to the effective date of the Coastal Act. Coastal zone development approved and constructed prior to the Coastal Act going into effect was not subject to Section 30253 requirements. Although some local hazard policies may have been in effect prior to the Coastal Act, these pre-Coastal Act structures have not necessarily been built in such a way as to avoid the future need for shoreline protection.

In this case, the Aimco Apartments located at 380 Esplanade Avenue in Pacifica were originally permitted and built in the 1960s, predating the passage of 1972's Proposition 20 (The Coastal Initiative)[6] and the enactment of the 1976 Coastal Act. Although remodeled several times since then, the Commission has determined these apartments to be existing structures for purposes of Coastal Act Section 30235 in several emergency and regular CDPs (see, for example, 1-98-109-G and CDP 2-08-020), and thus they are eligible for consideration of shoreline armoring. Thus the project meets the first test of Section 30235 of the Coastal Act.

Redevelopment of the site is limited by **Special Condition 4**, which recognizes that the proposed seawall is being approved under Section 30235 to protect these existing structures in danger from erosion. The intent of **Special Condition 4** is to limit future impacts to public resources by restricting expansion of new development on site, and to allow for potential removal of the approved soil nail wall and rock revetment when they are no longer necessary to protect the now existing development requiring shoreline protection. In other words, if the site is redeveloped, then it must be redeveloped without armoring, including that the existing armoring needs to be removed. The condition also puts the property owner on notice that redevelopment of the parcel cannot rely on existing or new bluff or shoreline protective works for stability and alternatives should be considered in order to avoid the need for bluff or shoreline protective devices in this hazardous area, including removing seaward portion(s) of any proposed redeveloped structure, relocation inland, and/or reduction in size. Such options are all feasible for new construction or redevelopment and would prevent development from being sited in hazardous locations that would eventually lead to complete armoring of the bluffs and long-term adverse impacts to the adjacent public beach and State tidelands. Any future redevelopment of the affected property will require re-evaluation of current conditions and must position development safely on site, independent of any shoreline protection.

[6] Proposition 20 introduced coastal permitting requirements in February 1973.

Under **Special Condition 4,** redevelopment is defined to include additions and expansions, or any demolition, renovation or replacement which would result in alteration or reconstruction of 50 percent or more of an existing structure. The condition indicates that the preferred alternative to shoreline or bluff protective devices includes such options as relocating all or portions of the structures inland. The applicant has chosen to pursue a soil nail wall and increases to its existing rock revetment at this time, rather than revise the blufftop development to decrease the risks over the remaining life of these structures. However, redevelopment of this property that would rely on the existing approved armoring for protection is not consistent with Section 30253. The condition acknowledges that future development on the site beyond repair and maintenance to the existing structures must meet the requirements of Section 30253 and not require bluff or shoreline protective devices that alter the natural landform of the bluffs. The condition also defines redevelopment to include additions and expansions, or any demolition, renovation or replacement which would result, cumulatively, in alteration or reconstruction of 50 percent or more of an existing structure. Thus, this condition requires that if an applicant submits an application to remodel 30% of the existing structure, then, for example, 5 years later seeks approval of an application to remodel an additional 30% of the structure, this would constitute redevelopment, triggering the requirement to ensure that the redeveloped structure is sited safely, independent of any shoreline protection.

Danger from Erosion

The Coastal Act allows shoreline armoring to be installed to protect existing structures that are in danger from erosion, but it does not define the term "in danger". There is a certain amount of risk involved in maintaining any development along the California coastline that is actively eroding and can be directly subject to violent storms, wave attack, flooding, earthquakes, and other hazards. These risks can be exacerbated by such factors as sea level rise and localized geography that can focus storm energy at particular stretches of coastline. The Commission evaluates the immediacy of any threat in order to make a determination as to whether an existing structure is "in danger". While each case is evaluated based upon its own particular set of facts, the Commission has previously interpreted "in danger" to mean that an existing structure would be unsafe to occupy within the next two or three storm season cycles (generally, the next few years) if nothing were to be done (i.e., in the "no project" alternative).

In this case, the Aimco Esplanade Avenue apartment complex is located about 85 feet above the beach on the coastal blufftop. The property extends north and south along the blufftop, and covers a relatively flat area moving inland from the edge of the blufftop. The City's LCP (certified in 1984) estimates an average annual bluff retreat rate of 1-3 feet per year. However, erosion does not typically occur in this area as small incremental amounts, but more often as several feet to tens of feet of episodic retreat that can occur during a significant winter storm and perhaps smaller amounts of retreat during other years. Coastal bluffs in this area are subject to a high rate of erosion, particularly during winter storm conditions when high wave runup and heavy rains are present. During these periods, erosion of the bluff typically occurs in the form of vertical slabs eroding away from the bluff face.

Significant erosion events and damage to existing residences have occurred in the Pacifica area in the past such as during the El Niño storm seasons of 1982-1983 and 1997-1998. During the winter storms of 1998, flow from a City-owned drain outlet located immediately south of the apartment building at 380 Esplanade caused rapid erosion of about 80 linear feet of bluff, which

triggered the need for the rock revetment placed in 1998-1999 under emergency authorization. Prior to last winter, severe winter storms in 2009 and 2010 caused exacerbated erosion of the unarmored section of bluff north of the apartment building at 360 Esplanade. The undercutting of the bluff caused by severe wave attack also resulted in erosion of the upper bluff in front of 360 Esplanade, approaching 15-25 feet of erosion in less than two months.[7]

Due to a heavy 2015-2016 El Niño storm season, three separate multi-family residential structures north of the subject site were condemned and demolished under emergency CDPs issued by the City of Pacifica. Today at 380 Esplanade, the nearest building's foundations are located approximately 39 feet from the blufftop edge (see **Exhibit 2: Project Plans**). Analyzed cross sections contained in the as-built plans show that bluff erosion was significant at this parcel between December 2012 and June 2016, leading to a loss of between 10 to 20 feet of bluff during this relatively short time period.

Given the low degree of cohesion in the bluff materials, and as indicated by the multiple recent erosion events, it is clear that the current apartment building setbacks are insufficient to protect these structures from erosion. The Applicant's geotechnical report indicates that the existing apartment building at 380 Esplanade is in immediate danger from erosion and wave attack, and the Commission's senior coastal engineer, Dr. Lesley Ewing, reached the same conclusion. Therefore, the existing structures are "in danger from erosion" as that term is understood in a Coastal Act context, and thus the project meets the second test of Section 30235 of the Coastal Act.

Feasible Protection Alternatives

The third test of Section 30235 that must be met is that the proposed armoring must be "required" to protect the existing threatened structures. In other words, shoreline armoring shall only be permitted if it is the only feasible alternative capable of protecting the existing endangered structures.[8] Other, less environmentally damaging alternatives typically considered include: the "no project" alternative; planned retreat (including abandonment and demolition of threatened structures); relocation of threatened structures; beach and sand replenishment programs; foundation underpinning; drainage and vegetation measures on the blufftop; and combinations of each.

Non-armoring Alternatives

Given that this application proposes to retain the existing, but only temporarily authorized (on an emergency basis), rock and soil nail wall, the "no project" alternative in this case would be to remove all armoring development previously temporarily authorized. As indicated above, there are existing structures in danger from erosion (per Coastal Act Section 30235) at this location.

[7] As documented by the Applicant's engineer (TRC) in correspondence to the Commission dated January 27, 2010, "*sand from the overlying bluff continues to erode and the top of the bluff is advancing back towards the buildings. This active advancement continues to place the building at 360 in imminent danger…portions of the top of the bluff have sloughed off over the course of several weeks to as close as 45 feet from the north of 360*." The upper bluff erosion was also documented in a report prepared by Cotton Shires dated January 29, 2010 and states, "*The nearby bluff top has retreated eastward on the order of 15 to 25 feet within the past six weeks due to erosion and bluff failure associated with winter storms.*"

[8] Coastal Act Section 30108 defines feasibility as follows: "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Therefore, the "no-project, remove the armoring" alternative would remove protection and cause the existing structures to be in danger again. It is not by itself a feasible alternative in this case.

Relocation is another alternative that is typically a reasonable alternative to consider, particularly when envisioned relocation is relatively minor in relation to the structure and the site. In this case however, the site is already fully developed with apartment buildings, parking, and infrastructure such as drainage, sewer and water lines, thus there is nowhere to relocate the existing residential structures. The Applicant previously indicated that relocation of these multi-unit structures is plainly infeasible, as there is no alternative location and moving the structures would likely result in their destruction. Given the unstable nature of the bluffs at this location, any attempt to relocate a portion of the residential development would only serve to abate the danger for a short period of time and would not eliminate the danger to remaining units over the longer term. Therefore, based on site constraints due to existing development present on site, the relocation alternative is not a feasible alternative.

The installation of improved drainage and additional landscaping atop the bluffs is another option that is typically considered. Appropriate drainage measures coupled with planting long-rooted native bluff species can help to stabilize some bluffs and extend the useful life of existing bluff setbacks. This option can be applied as a stand-alone alternative, but it is most often applied in tandem with other protective measures. In this case, the relatively unconsolidated nature of the bluff materials and the level of erosion that has already occurred multiple times indicate that the installation of improved drainage and landscaping alone is unlikely to be able to protect existing structures in danger at this site.

Another option often considered is planned or managed retreat, which refers to the intentional abandonment and demolition of the threatened apartment structures. This concept suggests that the shoreline should be allowed to retreat absent the installation of armoring, once the existing structures have been removed. Beach formation is partly assisted by the sand-generating material in the bluffs as they erode, but more importantly natural erosion provides space for the natural equilibrium between the shoreline and the ocean to establish itself and for beaches to form naturally. Over the longer run, a more comprehensive strategy to address shoreline erosion and the impacts of armoring may be developed (e.g. planned or managed retreat, relocation of structures inland, abandonment of structures, etc.), however, such options are not currently feasible at this location, given the inability to relocate the threatened structures.

Thus, there do not appear to be feasible non-armoring alternatives that could be applied in this case to protect the existing structures currently in danger.

Armoring Alternatives

In terms of armoring alternatives, there are a variety of different armoring measures that could be used. One common option often considered is a riprap revetment, such as was installed at the subject bluff under the first emergency CDP in 1998 (1-98-109-G). These structures can be installed relatively quickly and can protect the base of the bluff. However, the previously permitted riprap revetment at this location has required significant maintenance and ultimately has failed to provide adequate safety for the structures on top of the bluff. The existing revetment was not adequate to address normal high tides in addition to winter and El Niño tides. It also occupies a large area of beach space, and a revetment-only alternative would likely need to occupy even more such space. Attempting to repair or replace the existing revetment, without the

addition of further armoring, will inevitably leave the residential structures on top of the bluff vulnerable to further erosion, which will result in the existing revetment requiring extensive maintenance, and is therefore not a less environmentally damaging alternative in this case.

The proposed project includes a near-vertical soil nail wall, with a rock revetment as toe protection close to beach level, extending across most exposed parts of the bluff. The soil nail wall and existing rock revetment function together as a system to protect the bluff from erosion. During storms, waves have overtopped the revetment, exposing the lower bluff to wave attack. The soil nail wall is needed to reduce bluff retreat from wave overtopping. The lower part of the proposed soil nail wall will be below the top of the revetment and placed only approximately 5 feet inland of the rock revetment. The Applicant examined the option of a vertical seawall that could be tied into natural indentations in the bluff; however the Applicant's geotechnical reports (see **Exhibits 4 and 5**) determined that such a wall would not be feasible at this location. The proposed soil nail wall will supplement, but not replace the existing revetment. The lower revetment will reduce beach scour and dissipate wave energy during routine and storm conditions. The soil nail wall will provide protection of the back bluff during periods of high tide and high storm wave conditions. Commission staff, including Dr. Ewing, evaluated whether a vertical wall structure without rip rap toe protection was feasible, including so as to limit rip rap incursion onto the beach. However, in this case, and has been the case with many of the armoring projects that the Commission has considered in the Pacifica area, there is limited cohesion in the materials at the lower bluff level, limiting the effectiveness, for example, of tying a vertical wall into such materials as is often done in other places to avoid rip rap (i.e., where a seawall is essentially embedded in bedrock at the toe of the bluff). As such, the revetment portion of the project is necessary in this case, and the soil nail wall and rock revetment system is the least impactful armoring alternative for the bluff in this location, provided its impacts over time can be mitigated.

The soil nail wall has been designed to reduce impacts on coastal resources by contouring and surfacing the face of the seawall to mimic the natural bluffs in appearance and shape, limiting height as much as possible (while still addressing expected wave/storm run-up and future sea level rise), and by limiting the footprint. All of the proposed work has been located at the top and behind the previously approved revetment, and thus there is no increase of the revetment footprint on the beach or encroachment seaward. Dr. Ewing has reviewed the submitted reports from GeoSoils Inc. and agrees that the soil nail wall and revetment system is the least impactful, feasible armoring alternative.

Due to the potential for the bluff to continue to be vulnerable to strong wave action, especially during future winter storm events, and, as a result of multiple documented previous emergencies that have required the installation of protection on site, it is necessary to continue to monitor this project for early detection of revetment and wall failures in order to address future potential hazards. In addition, boulders migrating from the rock revetment can create isolated impacts, expand the loss of beach area and cumulatively lead to larger impacts over time. **Special Condition 2: Monitoring and Reporting** requires the monitoring of the soil nail wall and rock revetment for early detection of bluff exposure and damage, as well as rock migration.

Given all the above, the proposed project which includes a near-vertical soil nail wall with rock revetment, as conditioned, is the least environmentally damaging alternative "required" to protect the existing endangered apartment complex, and thus meets the third test of Section

30235 of the Coastal Act.

Designed to Eliminate or Mitigate Sand Supply Impacts
The fourth test of Section 30235 (previously cited) that must be met in order to allow Commission approval of a shoreline protection project is that shoreline structures must be designed to eliminate or mitigate adverse impacts to local shoreline sand supply.

Shoreline Processes
The project site is located in Pacifica where average annualized bluff erosion rates are estimated by the City's LCP (certified in 1984) at 1 to 3 feet per year. While this is an average annualized rate, actual erosion has been demonstrated to be more episodic. There can be periods of wave quiescence during which the bluffs will be fairly stable and retreat will be slight. These quiet periods will be interrupted by more stormy years, during which time several years of "annual average" erosion can occur during a single storm event and sections of the bluff can slough off in tens of feet at a time. This sandy beach material is carried off and redistributed through wave action along the shoreline and serves to nourish the beaches.

The project location is a coastal bluff, with relatively unconsolidated sandstone bedrock overlain by marine terrace deposits. The marine terrace is an ancient beach that formed when land and sea levels differed from current conditions. Since the marine terrace was once beach, much of the material in the terrace is often beach-quality sand or cobble, and is a valuable contribution to the littoral system when it is added to the beach. While beaches can become marine terraces over geologic time, the normal exchange of material between beaches and bluffs is for bluff erosion to provide beach material.

Bluff retreat is one of several ways that beach-quality sand is added to the shoreline. Bluff retreat and erosion is a natural process resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse of caves, saturation of the bluff soil from groundwater causing the bluff to slough off, and natural bluff deterioration. When the back-beach or bluff is protected by a shoreline protective device, the natural exchange of material from the bluff to the beach will be interrupted and, if the shoreline is eroding, there will be a measurable loss of material going back to the beach as sand supply.

Some of the effects of engineered armoring structures on the beach (such as scour, end effects and modification to the beach profile) are temporary or are difficult to distinguish from all the other actions that modify the shoreline. Others are more qualitative (e.g. impacts to the character of the shoreline and visual quality). Some of the effects that a shoreline structure may have on natural shoreline processes can be quantified, however, including: (1) the loss of the beach area on which the structure is located; (2) the long-term loss of beach that will result when the back-beach location is fixed on an eroding shoreline; and (3) the amount of material that would have been supplied to the beach if the back-beach or bluff were to erode naturally.[9]

[9] The sand supply impact refers to the way in which the project impacts creation and maintenance of beach sand. Although this ultimately translates into beach impacts, the discussion here is focused on the first part of the equation and the way in which the proposed project would impact sand supply processes.

Encroachment on the Beach

Shoreline protective devices are all physical structures that occupy space. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used as beach. This generally results in a loss of public access. The area where the structure is placed will be altered from the time the protective device is constructed until the structure is removed or moved from its initial location. The beach area located beneath a shoreline protective device, referred to as the encroachment area, becomes the area of the structure's footprint.

Per the as-built plans (see **Exhibit 2**), in order to address the failed revetment and bluff toe immediately above, rock was imported and re-stacked in failed areas, adding an additional 10 feet vertically on top of the existing rock revetment located between the storm drain slope to the south and the soil nail wall to the north. The as-built soil nail wall was installed behind the stacked rock, extending from the toe of the bluff to within 10 feet of the top of the bluff. Thus, all of the work was located at the top and behind the existing revetment previously authorized under CDP 2-08-020. As a result there was no increase in the beach footprint, and no further encroachment seaward onto the beach.

Fixing the Back Beach

On an eroding shoreline, a sandy beach will continue to exist between the waterline and the bluff as long as sand is available to form a beach and space between the bluff and the ocean is available for the beach to form. As bluff erosion proceeds, the profile of the beach also retreats and the beach area migrates inland with the bluff. This process stops, however, when the backshore is fronted by a hard protective structure such as a revetment or a seawall. Experts generally agree that where the shoreline is eroding and armoring is installed, the armoring will eventually define the boundary between the sea and the upland.[10] While the shoreline on either side of the armoring continues to retreat, shoreline in front of the armoring eventually stops at the armoring. This effect is also known as passive erosion, or coastal squeeze. The beach area will narrow, being squeezed between the moving shoreline and the fixed backshore and this represents the loss of a beach as a direct result of the armoring.

The passive erosion impact, or the long-term loss of beach due to fixing the backshore, is equivalent to the footprint of the bluff area that would have become beach due to erosion and is equal to the long-term average annual erosion rate multiplied by the width of property that has been fixed by a resistant shoreline protective device.[11] In this case, the existing permitted shoreline protection already extends along the length of the site at the base of the bluff upon which the apartment complex sits for a width of approximately 150 feet. Such armoring has already been permitted and the passive erosion impacts of it mitigated through such permitting actions, including the requirement for periodic reassessment and additional mitigation for impacts moving forward. The proposed project does not change the way in which the back beach

[10] Kraus, Nicholas (1988) "Effects of Seawalls on the Beach: An Extended Literature Review", Journal of Coastal Research, Special Issue No. 4: 1 – 28; Kraus, Nicholas (1996) "Effects of Seawalls on the Beach: Part I An Updated Literature Review", Journal of Coastal Research, Vol.12: 691 – 701., pg. 1 – 28; Tait and Griggs (1990) "Beach Response to the Presence of a Seawall", Shore and Beach, 58, 11-28

[11] The area of beach lost due to long-term erosion (Aw) is equal to the long-term average annual erosion rate (R) times the number of years that the back-beach or bluff will be fixed (L) times the width of the property that will be protected (W). This can be expressed by the following equation: Aw = R x L x W. The annual loss of beach area can be expressed as Aw' = R x W.

is fixed, and thus the currently proposed project does not include a passive erosion component of itself.

Retention of Potential Beach Material

If natural erosion were allowed to continue (absent the proposed project), bluff sediment would be added to the beach at this location, as well as to the larger littoral cell sand supply system fronting the bluffs. The volume of total material that would have gone into the sand supply system over the lifetime of the shoreline structure would be the volume of material between (a) the likely future bluff-face location with shoreline protection; and (b) the likely future bluff-face location without shoreline protection. Since the main concern pertains to the sand component of this bluff material, the total material lost must be multiplied by the percentage of bluff material composed of beach sand, giving the total amount of sand that would have been supplied to the littoral system for beach deposition if the proposed device were not installed.[12]

In-Lieu Mitigation of Shoreline Sand Supply Impacts

Mitigation for shoreline sand supply impacts resulting from sand being kept out of the littoral cell often includes beach nourishment. A formal sand replenishment strategy can introduce an equivalent amount of sandy material back into the system over time to mitigate the loss of sand that would be caused by a protective device over its lifetime. Such an introduction of sand, if properly planned, can feed into the offshore system to mitigate the impact of the project. However, as opposed to other areas with established programs (e.g., SANDAG in San Diego) there are not currently any existing beach nourishment programs directed at this beach area. Absent a comprehensive program that provides a means to coordinate and maximize the benefits of mitigation efforts in the area now and in the future, a piecemeal mitigation effort, such as an applicant-only project to drop equivalent amounts of sand over time at this location, is ineffective.

As an alternative mitigation mechanism, the Commission oftentimes uses an in-lieu fee[13] when in-kind mitigation of impacts is not available to fully offset a project's impacts.[14] In situations

[12] The equation is Vb = (S x W x L) x [(R x hs) + (1/2hu x (R + (Rcu - Rcs)))]/27, where Vb is the volume of beach material that would have been supplied to the beach if natural erosion continued (this is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the structure); S is the fraction of beach quality material in the bluff material; W is the width of property to be armored; L is the design life of structure, if assumed a value of 1, an annual amount is calculated; R is the long term average annual erosion rate; hs is the height of the shoreline structure; hu is the height of the unprotected upper bluff; Rcu is the predicted rate of retreat of the crest of the bluff during the period that the shoreline structure would be in place, assuming no armoring were installed (this value can be assumed to be the same as R unless the Applicant provides site-specific geotechnical information supporting a different value); Rcs is the predicted rate of retreat of the crest of the bluff, during the period that the armoring would be in place, assuming the armoring has been installed (this value will be assumed to be zero unless the Applicant provides site-specific geotechnical information supporting a different value); and divide by 27 (since the dimensions and retreat rates are given in feet and volume of sand is usually given in cubic yards, the total volume of sand must be divided by 27 to provide this volume in cubic yards, rather than cubic feet).

[13] The Commission's approach to mitigation for the loss of beach area has evolved over the years and has been undertaken on a case-by-case basis to address conditions specific to the project site. While in-kind mitigation would be most appropriate and provide the greatest benefit, as noted above, this is not often possible. In the mid-1990's the Commission developed an In-Lieu Beach Sand Mitigation Fee which uses the cost of beach nourishment as mitigation of lost sand beach. This approach was first applied in San Diego where the San Diego Association of Governments (SANDAG) was actively undertaking regional beach nourishment, and where the Commission and SANDAG have a Memorandum of Agreement for the use of In-Lieu Beach Sand Fees for beach nourishment. The Commission has used this approach for many shoreline protection projects and there is an In-Lieu Mitigation Fee report that describes this basic approach in detail.

where ongoing sand replenishment or other appropriate mitigation programs are not yet in place, the in-lieu mitigation fee is deposited into an account until such time as an appropriate program is developed, and the fees can then be used to offset the designated impacts. Cumulative impacts are also be better addressed when mitigation funds are pooled in this way for multiple projects in a certain area, as the pooled resources can provide a greater mitigation effect than a series of smaller mitigations based on individual impacts and fees.

In this case, as discussed further below, the Commission finds it is appropriate to mitigate for the project's sand supply impacts by addressing the sand retention loss through the provision of an in-lieu fee based on the cost to replace the retained sand. The in-lieu beach sand mitigation calculations applied in the analysis below address the value of the sand that will no longer be contributed by the bluffs to the littoral cell due to the construction of the proposed shoreline protection.

Here, the Applicant's geotechnical consultant estimates the average annual bluff recession for this site at 1 foot per year, and a lifespan for the shoreline protection of 20 years. It has been the Commission's experience that shoreline armoring projects often need major maintenance or modifications, or entire redevelopment of an armoring structure after about two decades. Because of this, the Commission has generally evaluated mitigation in twenty year increments, to allow for the possibility that changes may be necessary that might alter the mitigation after that time. In this case, due to the extensive permitting associated with various parts of the armoring present at the site (as described above), past CDP mitigation evaluation periods have been 'synced', with the current evaluation period ending on October 7, 2031 (see, for example, CDP No. 2-08-020). As a result, it is appropriate to sync this approval to that same time frame as well, partially to help ease and streamline future evaluations. Thus, mitigation here is evaluated from the time the project was constructed until October 7, 2031, and the Applicant will be required to evaluate and mitigate for project impacts past that point per the conditions (see **Special Condition 4**).

As constructed, the new proposed soil nail wall covers approximately 6,329 square feet of bluff face. Given the estimated 1-foot per year erosion rate, the project will thus retain 6,329 cubic feet of bluff material per year. Given the sand content of the bluffs has been calculated to be 32%, the project will thus retain 2,025 cubic feet of sand per year (32% of 6,329 is 2,025), which is 75 cubic yards of sand per year. The soil nail wall was installed in April 2016. Accordingly, from the time of installation through October 7, 2031 (i.e., 15 years) the armoring will retain approximately 1,125 cubic yards of sand (i.e., 15 years times 75 cubic yards per year is a total of 1,125 cubic yards of sand during that time frame) that will be prevented from reaching the littoral cell.

The Applicant has proposed to mitigate this impact based on the cost of delivered sand associated with CDP No. 2-08-020 ($10.40 per cubic yard), which authorized armoring work at 360 and 380 Esplanade in 2013. This may be appropriate, but it is also possible that the cost of delivered beach quality sand is now different. As a result, **Special Condition 1** will require the Applicant to submit to the Executive Director three valid bids for the cost of 1,125 cubic yards of

[14] See, for example, CDP A-3-SCO-06-006 (Willmott), CDP A-3-SLO-01-040 (Brett), CDP 3-98-102 (Panattoni) and CDP 3-97-065 (Motroni-Bardwell).

delivered, beach quality sand, followed by deposit of a fee in an amount equal to the average of the three approved bids into an interest bearing account designated by the Executive Director, for the purposes of beach nourishment projects in the vicinity. If the bids again average $10.40 per cubic yard delivered, the fee for the first mitigation period payment would total $11,700. If the Applicant intends to keep the armoring past October 7, 2031, then the Applicant will need to assess and mitigate for ongoing impacts at that time (see **Special Condition 4**).

Given that the project will retain sand from the shoreline sand supply system, leading to a loss of sand supply at this location, a mitigation payment that can be used to provide beach nourishment in the vicinity can be used to offset such impacts and is related in nature and extent to the impact. Thus, as conditioned, the project satisfies Coastal Act Section 30235 requirements regarding mitigation for sand supply impacts, and thus also meets all Section 30235 tests for allowing such armoring. The Commission therefore finds the project as conditioned to be consistent with Section 30235 of the Coastal Act.

Long-Term Stability, Maintenance, and Risk

Coastal Act Section 30253 requires the project to assure long-term stability and structural integrity, minimize future risk, and avoid additional, more substantial protective measures in the future. Despite the Applicant's hope that the armoring will last, without additional modifications, for many decades, it has been the Commission's experience that armoring, particularly in such a significantly high-hazard area as this project, will need to be augmented, replaced, and/or substantially changed within only a few decades. In this case, the proposed soil nail wall and revetment can be expected to be subject to heavy wave action on a fairly regular basis. Rising sea levels and its associated consequences will tend to further limit the project life. In addition, there is a growing body of evidence demonstrating that acceleration in the rate of sea level rise can be expected to accompany increases in global temperatures (some shoreline experts have indicated that sea level could rise by as much as 4.5 feet to over 6 feet by the year 2100[15]). On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore, leading to a faster loss of the beach as the beach is squeezed between the landward migrating ocean and the fixed backshore. This will expose the back bluff or seawall to more frequent wave attack, increasing the rate of erosion of unarmored bluffs.

Like most proposed development, shoreline protective devices do not last indefinitely and have a general design life when constructed. The reason that the Applicant has applied for this permit to authorize a new soil nail wall and additional stacked rocks is the continual erosion of the bluff and the bluff's episodic failure (see site-specific history of emergency permits at this location in Project Background section above). Typically, a 20-year period of reassessment ensures that the installed shoreline protection is reassessed in this unstable situation ideally before it becomes a

[15] Sea Level Rise, Adopted Policy Guidance, https://www.coastal.ca.gov/climate/slrguidance.html. In 2010, the California Climate Action Team evaluated possible sea level rise for the California coast and, based on several of the Intergovernmental Panel on Climate Change (IPCC) scenarios, projected sea level rise up to 1.4 meters (4.5 feet) by 2100. In 2011, the Ocean Protection Council adopted interim guidance on sea level rise that recommends state agencies consider similar amounts of sea level rise for deliberations on coastal projects (http://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20110311/12. SLR_Resolution/SLR-Guidance-Document.pdf, last consulted April 15, 2012). A 2012 analysis by a National Research Council committee (http://www.nap.edu/catalog.php?record_id=13389) projects sea level for the central California could rise up to 5.5 feet from 2000 to 2100. A 2012 NOAA Technical Report (NOAA Tech Memo OAR CPO-1) projects, with high confidence, that global sea level will rise at least 0.6 feet (0.2 meters) and no more than 6.6 feet (2.0 meters) from 1992 to 2100.

danger to the Applicant and the public. A 20-year reassessment period also allows the Commission and the landowner to evaluate new technology and thinking in coastline development and protection, changed blufftop or shoreline conditions, and the impacts of continued sea level rise, while facilitating reassessment and application of mitigation for continuing impacts past that point. In this case, given the frequent and severe documented episodic erosion events at the site, and to sync the reassessment with the required reassessments that apply to the rest of the armoring at this location pursuant to CDP 2-08-020, the duration of the reassessment is until October 7, 2031, or roughly 15 years (see **Special Condition 4**).

Special Condition 4 also puts the property owners on notice that redevelopment of the parcels may not rely on the installed existing bluff or shoreline protective devices for stability, and such alternatives as relocation inland, and/or reduction in size should be considered in any proposed redevelopment project in order to avoid the need for bluff or shoreline protective devices in this hazardous area. Such options are all feasible for new development and would stop the perpetuation of development in non-conforming locations that would eventually lead to complete armoring of the bluffs and long-term adverse impacts to the adjacent public beach and State tidelands. **Special Condition 4** recognizes that the shoreline protection is being approved under Section 30235 to protect the *existing* blufftop residential structures in danger from erosion. Any future redevelopment of the affected property will re-evaluate current conditions and ensure that new development is sited safely, independent of any shoreline protection, and should the existing development no longer be present or no longer require armoring, then the armoring is required to be removed (see **Special Condition 4**).

Assuring long-term stability of development, consistent with Section 30253, is particularly important given the dynamic shoreline environment within which the proposed project would be placed. Critical to this task is a formal long-term monitoring and maintenance program. Such monitoring will ensure that the Applicant and the Commission are aware of any damage to, or weathering of, the armoring and can determine whether repairs or other actions are necessary to maintain the project in its approved state before such repairs or actions are undertaken. To assist in such an effort, monitoring plans provide vertical and horizontal reference distances from armoring structures to surveyed benchmarks for use in future monitoring efforts.

To provide long-term structural stability and ensure that the proposed project is properly maintained, **Special Condition 2: Monitoring and Reporting**, requires the submittal of monitoring and reporting plans. Such plans shall provide for evaluation of the condition and performance of the proposed project and overall bluff stability, and shall provide for any necessary maintenance, repair, changes or modifications. **Special Condition 3: Future Maintenance Authorized** requires the Applicant to maintain the project in its approved state, subject to the terms and conditions identified by the special conditions. Future monitoring and maintenance activities must be understood in relation to clear as-built plans (see **Exhibit 2**).

In terms of recognizing and assuming the hazard risks for shoreline development, the Commission's experience in evaluating proposed developments in areas subject to hazards has been that development has continued to occur despite periodic episodes of heavy storm damage and other such occurrences. Development in such dynamic environments is susceptible to damage due to both long-term and episodic processes. Past occurrences statewide have resulted in public costs (through low interest loans, grants, subsidies, direct assistance, etc.) amounting to

millions of dollars. As a means of allowing continued private development in areas subject to these hazards while also avoiding placing the economic burden for possible future damages onto the people of the State of California, applicants are regularly required to acknowledge site hazards and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed. Accordingly, this approval is conditioned for the applicant to assume all risks for developing at this location (see **Special Condition 5: Assumption of Risk, Waiver of Liability, and Indemnity Agreement**).

To ensure that future property owners are properly informed regarding the terms and conditions of this CDP approval, this approval is also conditioned to require a deed restriction to be recorded against the property involved in the application (see **Special Condition 7**: **Deed Restriction**). This deed restriction will record the conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the property. Recordation will provide notice to potential future landowners of the requirements of this CDP approval and the length of its authorization.

Conclusion
With regard to this specific site and fact set, the Commission finds that the proposed project, as conditioned, can be found consistent with Coastal Act Sections 30235 and 30253 because it is required to protect an existing structure, is the least damaging alternative viable for protection, will be reevaluated in 15 years, and is designed to mitigate impacts on shoreline sand supply by payment of an in lieu fee.

E. PUBLIC ACCESS AND RECREATION

Applicable Policies
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 (Esplanade Avenue). Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

> ***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.*
>
> ***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.*
>
> ***30212.*** *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects*

> ***30213.*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. …*
>
> ***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.*
>
> ***30223.*** *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Coastal Act Section 30240(b) also protects parks and recreation areas, such as the adjacent beach area. Section 30240(b) states:

> ***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.*

These overlapping policies clearly protect the sandy beach (and access to and along it) and offshore waters for public access and recreation purposes, particularly free and low cost forms.

In addition, the following certified Pacifica LCP provisions, although not the standard of review for this project, provide pertinent information and guidance for the Commission:

> ***(LUP Page C-26) COASTAL ISSUES – West Edgemar/Pacific Manor Neighborhood:*** *The major coastal planning issues in this neighborhood are: … 4. The extent and nature of public access improvements and the City's role in developing new and maintaining existing public access and parking facilities.*
>
> ***(LUP Pages C-30 and C-31) COASTAL ACCESS -*** *Three beach access points are existing or proposed to be developed and maintained in this area. The first is an existing wooden stairway down the face of the bluffs near the Points West Apartments. This structure is located within an easement for public access. However, the stairway itself is currently privately maintained. The approach to the stairs from Esplanade is connected to a private bluff-top trail behind that portion of Point West Apartments along Palmetto Avenue. Conditions of approval for the condominium conversion required dedication and maintenance of the stairway and the bluff-top path by Homeowner's Association, in addition to dedication of the beach. Documents have been recorded irrevocably offering to dedicate the easements to a public agency. The bluff-top trail connects to a trail located behind the adjacent condominium project…*
>
> *The City also has the opportunity to develop a system of bluff-top trails in the neighborhood extending from the Daly City boundary to the Points West stairway. The trail would begin at the view point at the north City boundary, traverse portions of the bluff tops to a point north of the "Dollar Radio Station" residence, proceed around this property along Palmetto Avenue a short distance, loop behind condominium units*

adjacent and south of the residence and continue west of the Points West Apartments to Esplanade Avenue and the stairway. Except for the coastal neighborhood north of this area, easements have been offered for dedication to the City to complete the trail connections. Most of the improvements are, or will, soon be in place. This will perhaps be the only area in the City where this type of coastal bluff trail is desirable or possible. Improved trails in this neighborhood will form a promenade connected to beach access and unimproved trails within the bluff area to the north. This will provide a variety of access facilities unique in Pacifica and capable of serving diverse coastal recreation needs.

(LUP Page C-68) – 3. Points West Apartments…Existing Access: *A wooden stairway to the beach about 100 feet below is owned and maintained by the apartment complex, but available to the public. There is a problem with vandalism to the stairway.*

IP Section 9-4.4407 - Public Shoreline Access. (a) Intent. *The provisions of this Section shall apply to all new development requiring a coastal development permit in the CZ district and where public shoreline access is required in the Access Component of the LCP Land Use Plan, and shall be subject to the regulations found in Article 43, Coastal Zone Combining District. The intent of these provisions is to maximize public access to and along the shoreline, while protecting the established rights of private property owners.* ***(b) Development Standards.*** *The following development standards shall apply to all required access provisions. (1) To provide separation between shoreline access and residential uses and to protect the privacy and security of residents and homes, any required access easements shall comply with the following setbacks, where feasible: (i) The inland edge of lateral shoreline trails shall be at least twenty-five (25) feet from any occupied or proposed residence. However, in the event a 25' access buffer will not provide adequate lateral public access in compliance with the access provisions of the Coastal Act or with the Access Component of the LCP Land Use Plan, a narrower access buffer may be required. In no event shall the lateral access way extend any closer than 10' from the residence in question; and (ii) The edge of vertical shoreline trails shall be at least ten (10) feet from any existing or proposed residence. (2) Public shoreline access through environmentally sensitive habitat areas shall comply with the provisions established in Section 9-4.4403, Habitat Preservation and the California Coastal Act, Section 30212; (3) Public shoreline access improvements such as trails, ramps, railings, viewing areas, restrooms, and parking facilities shall be sited and designed to be accessible to people of limited mobility to the maximum extent feasible; (4) Public shoreline access improvements such as trails, stairs, ramps, railings, viewing areas, restrooms, and parking facilities shall be sited and designed to be compatible with the natural character of the shoreline; (5) Public shoreline access signage identify access location, destination areas, environmentally sensitive habitat, and hazardous conditions, and be compatible with the natural appearance and character of the shoreline by using appropriate color, size, form, and material; and (6) Any required vertical trail easement shall be at least ten (10') feet wide. Any required lateral access easement shall be at least twenty five (25') feet wide. However, in the event such an easement width would prohibit private use of the real property or render use or development of the site economically infeasible, a narrower access width may be required. In no event shall the lateral access width be less than ten (10') feet. (7) With respect to lateral bluff top access, the easement*

shall be adjusted inland from the current bluff edge if it recedes inland, but in no event shall the trail be closer than ten (10') feet to an occupied or proposed residence. Such an inland adjustment shall not occur in the event it would prohibit private use of a site or would render use or development of the site economically infeasible.

Analysis
Shoreline protective devices have significant adverse impacts to public access and recreation. Section 30210 of the Coastal Act requires the Commission to provide the general public maximum access and recreational opportunities, while respecting the rights of private property owners. Section 30211 prohibits development from interfering with the public's right of access to the sea. In approving new development, Section 30212 requires the Commission to provide access from the nearest public roadway to the shoreline and along the coast, save certain limited exceptions, including existing adequate nearby access. The mean high tide line will move landward over time depending on the beach profile, seasonal tidal activity and continued sea level rise. Therefore, it is also critically important that the Commission assess whether the project, which stands to be authorized until October 7, 2031, would impact public access and recreation over this period.

CDP Number 2-08-020, issued to the Applicant in 2013, provided for authorization for development performed under six emergency permits, along with alteration of the existing revetment, including partial removal of rock and construction of two more soil nail walls. Specifically, the Commission granted Aimco authorization to: (1) retain a soil nail wall and approximately 60% of the rock revetment (or approximately 7,125 tons of revetment) already constructed under the six emergency permits; (2) remove approximately 40% of the rock that had been installed through emergency permits (estimated to be 4,555 tons of rip rap rock removed from the beach area and 531 tons removed from the mid-bluff); (3) construct two new soil-nail walls at two separate sections of the bluff; and (4) construct an engineered, vegetated slope at mid-bluff. CDP Number 2-08-020 also included a lateral beach access dedication along the seaward limit of the 360 Esplanade Avenue property line and a mitigation payment, to address impacts to sand supply and public access and recreational opportunity caused by the installation of the permitted shoreline protective devices.

The Commission has approved the construction of shoreline devices 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 quantifiable effects on local sand supply, as required by Section 30235 of the Coastal Act. Consistent with past decisions by the Commission, it is recognized in this case that an in-lieu payment for the purchase of sand to offset the amount sand lost due to armoring, as described above, will provide an adequate form of sand supply mitigation (see Section D, Geologic Hazards, In-Lieu Mitigation of Shoreline Sand Supply Impacts). This payment will be used to fund beach nourishment projects in the vicinity of 380 Esplanade, or for the provision, restoration and enhancement of access and recreational opportunities along the shoreline in the City of Pacifica, including public access improvements, recreational amenities, and/or acquisition of privately-owned beach or beach-fronting property for such uses (see **Special Condition 1: Sand Supply Mitigation Fee**).

In accordance with the as-built plans (see **Exhibit 2**) for the current proposal, when the Executive Director issued the two most recent emergency permits to the Applicant, rock was

imported and re-stacked in failed areas in order to address the failed revetment and bluff toe immediately above, adding an additional vertical 10 feet of rock revetment on top of the existing revetment located between the storm drain slope to the south and the soil nail wall to the north. A new soil nail wall was installed behind the stacked rock, extending from the toe of the bluff to the top of the bluff in places, and to within 10 feet of the top of the bluff otherwise. Thus, all of the proposed work has been located at the top of and behind the previously installed rock revetment authorized under CDP 2-08-020. As a result, there has been no increase in the footprint of the revetment, and no further encroachment seaward onto the beach. The project has also not created new passive erosion impacts as these were already identified and assessed through CDP Number 2-08-020. Although there is an obvious connection between the amount of sand that would be retained by the proposed project and the way in which such sand contributes to beaches and thus to public access, those impacts in this case are appropriately confined to the sand supply mitigation previously identified above given the bulk of the other impacts were already accounted for and mitigated. Therefore, the Commission finds that it is not necessary to require further mitigation for impacts to beach access or recreation as a result of this project. Of course, when the *entire* armoring structure is subject to reassessment in 2031, all impacts will need to be identified, and appropriate mitigation provided if the armoring is to continue to remain in place.

With respect to construction impacts, this project requires the movement of large equipment, workers, materials, and supplies on the adjacent undeveloped public access property, as well as in and around Esplanade and the beach area, resulting in the temporary loss of recreational beach and other public access use areas to the construction zone. These public recreational use impacts have been minimized through the Applicant's application of extensive best management practices (BMPs), as required by special conditions of the emergency permits (see **Exhibit 3**) issued by the Executive Director, which included construction parameters that limit the area of construction and for work to take place in a time and manner to minimize any potential damages to resources, including intertidal species; to minimize beach disturbance and limit construction to lowest possible tides; to prohibit construction activities that result in discharge of materials, polluted runoff, or wastes to the beach and marine environment; to keep beach area, and areas used for construction staging and access, free of debris and trash; to limit the times when work can take place (to avoid both weekends and peak summer use months when recreational use is highest); to prohibit construction equipment or materials from being stored on the beach; to immediately stop work in the event of marine mammals being located on or seaward of the project site; to display copies of the signed emergency permits; to clearly fence off the minimum construction area necessary; to keep equipment out of coastal waters and require off-beach equipment and material storage during non-construction times; to minimize impacts to public access and clearly delineate and avoid to the maximum extent feasible public use areas; and to restore all affected public access areas at the conclusion of construction, as well as being responsible for removing or re-depositing any rock or other material dislodged after completion of the temporary construction authorized by emergency permit as soon as possible after such displacement occurs.

In addition, prior to commencement of any future additional construction activities on site, the applicant will be required to submit for review and approval by the Executive Director, a Construction Plan incorporating all best management practices (BMPs) required by Emergency Permits G-2-16-0011 and G-2-16-0043 (see **Exhibit 3**) to protect public access during

construction.

Conclusion
The project will cause adverse impacts to public access and recreation, including impacts to local sand supply. However, project conditions avoid and minimize these impacts, including a required payment of an in-lieu mitigation fee to offset unavoidable sand supply impacts, and recorded notice to future landowners regarding required reassessment in 2031 and potential proposed redevelopment of the property. As conditioned, the project can be found consistent with the Coastal Act access and recreation policies sited above.

F. PUBLIC VIEWS

Applicable Policies
Coastal Act Section 30251 states:

> ***Section 30251: Scenic and Visual Qualities.*** *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

Coastal Act Section 30240(b), previously cited, also protects the aesthetics of beach recreation areas such as those located directly adjacent to and at the project site.

> ***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.*

In addition, the following certified City of Pacifica LCP language and standards, although not the standard of review, provide pertinent information and guidance regarding the protection of coastal zone visual resources:

> ***LUP Page C-104 – Preservation of Coastal Views, Viewsheds and Vegetation:*** *New development within the viewshed shall not destruct the views to the sea from public roads, trails, and vista points. Methods of achieving this could include: …maximizing vies of the sea in aligning new roadways, bicycle and pedestrian paths… Locations which offer open views of the coast shall be developed for public coastal viewing if this can be accomplished without excessive damage to the moderately sensitive vegetation. Trails and beach accesses across native coastal vegetation shall be designed to protect the vegetation from trampling and scarring.*

IP section 9-4.4408 - Coastal View Corridors: *(a) Intent. The provisions of this Section shall apply to all new development subject to a coastal development permit in the CZ District and within a coastal view corridor as designated in the LCP Land Use Plan. The intent of these provisions is to: (1) Protect public views toward and along the ocean and scenic areas; (2) Provide visual compatibility with the surrounding character; and (3) Restore and enhance visual quality in visually degraded areas. (b) Development Standards. The following standards shall apply to new development within coastal view corridors. (1) Structures shall be sited in order to minimize alteration of natural topography and landforms, tree removal, and grading only to the extent necessary to construct buildings and access roads; (2) Structures shall be sited on the least visible area of the property and screened from public view using native vegetation, as feasible; (3) Structures shall incorporate natural materials and otherwise shall incorporate natural materials and otherwise shall blend into the natural setting; (4) New development shall be consolidated or clustered within the slopes of the natural topography, as feasible; (5) Landscape screening and restoration shall be required to minimize the visual impact of new development; and (6) New utility and transmission lines shall be placed underground. Development of overhead lines will be considered only if such undergrounding is determined to be infeasible and is approved by the Planning Commission.*

Analysis
The Coastal Act requires that development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, and to be visually compatible with the character of surrounding areas. Much of the bluff along the Pacifica coastline has been armored at its base, primarily by rock riprap and several soil nail walls, many of which have not been camouflaged to replicate the look of a natural bluff face. Although the proposed revetment and soil nail wall introduces new massing into the viewshed as compared to the natural bluff face, the proposed project is the preferred alternative to any design that would incorporate a larger rock riprap revetment, which would inevitably have a greater impact on visual resources. The wall is sculpted and designed to attempt to approximate the look of natural bluffs in the vicinity. With this camouflaging, the project has done what it can to minimize its visual impact.

As a means of offsetting the remaining visual impacts, the Commission typically requires native noninvasive landscaping designed to cascade over the top of armoring projects to partially screen the top of such projects from public view and to provide a more natural edge to the top of the wall as seen from above and below. **Special Condition 2(b)** requires that landscaping elements of the project be monitored to ensure that invasive and non-native plants are kept out and that native landscaping continues to cover the bluffs inland of the approved armoring. Such requirements are applied in this case to help soften the appearance of the approved armoring, as well as to aid bluff stability. Provided such landscaping consists only of native, noninvasive blufftop plant species that are adapted to Pacifica area seaside locations and salt air, and provided all such landscaping is maintained in good growing conditions in such a way as to not block views from Esplanade Avenue, landscape maintenance should help offset visual impacts and improve views of the project site as seen from the beach below and from the Esplanade corridor and project site above.

As conditioned, the project can be found consistent with the above-cited Coastal Act visual resource policies.

G. MARINE RESOURCES

Applicable Policies

The Coastal Act protects the marine resources and habitat offshore of this site. Coastal Act Sections 30230 and 30231 provide:

> ***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.*

In addition, the following certified City of Pacifica IP section, although not the standard of review, provides pertinent information and guidance:

> ***IP Section 9-4.4405(c): Grading and Drainage****… (c) Development Standards. (1) The following standards shall apply to new development. (i) Alteration of natural topography and removal of existing trees shall be minimized to the maximum extent feasible so as to maintain the natural surface drainage system; (iii) Cut-and Fill surfaces shall be stabilized by planting low maintenance, native ground cover and shrubs; (viii) Removal of sands characteristic of the Pacifica shoreline shall be minimized; (2) The following standards shall apply to ensure long term grading and drainage management of the project site: (i) Grading of environmentally sensitive habitat areas shall occur only when necessary to protect, maintain enhance, or restore the habitat; (ii) Areas of soil or landform disturbance shall be identified, and shall be revegetated with low maintenance, native ground cover and shrubs to reduce erosion potential; (iii) Subgrade drainage of all wet soils shall be discharged into natural surface drainage, where feasible; (iv) Adequate drainage facilities, including grease and silt traps where necessary to minimize pollutants entering runoff water, shall be provided; (v) Potential impacts as identified in the grading and drainage plan shall be mitigated to a level of insignificance; and (vi) Mitigation measures identified in the grading and drainage plan shall be considered and made conditions of project approval.*

Section 30230 and 30231 of the Coastal Act require that marine resources "be maintained, enhanced, and where feasible, restored." Further, uses of the marine environment must 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. The adverse impacts that shoreline armoring has on habitat is well documented. Coastal armoring, including seawalls and rock revetments, have been shown to reduce intertidal beach widths through the processes of placement loss, passive erosion, and increased erosion directly seaward of structures. In turn, this reduces the diversity and abundance of intertidal species, and negatively impacts the value of the beach as a habitat and prey resource for shorebirds. Additionally, the lack of dry sand fronting the revetment is likely to reduce accumulation of natural ocean debris (beach wrack), thereby hampering habitat for beach and bluff species reliant on these unique resources.

In this case, CDP No. 2-08-020 already approved these types of beach impacts, and the currently proposed augmentation will not appreciably change these. Since the shoreline has already been armored, additional impacts to marine resources will be minimal. Additionally, in accordance with emergency permit conditions, construction of the soil nail wall and revetment addition took place on the beach at low tides to ensure that equipment and construction activities did not enter the ocean. The project utilized construction methods typically required by the Commission to protect water quality and marine resources during armoring construction, including construction site housekeeping controls and procedures, the use of appropriate erosion and sediment controls, and a prohibition on equipment washing, refueling, or servicing on the beach, etc. (see **Exhibit 3: Emergency Permits**).

As conditioned, the project can be found consistent with Coastal Act Sections 30230 and 30231 regarding protection of marine resources and offshore habitat.

H. OTHER AGENCY APPROVALS

California State Lands Commission
The California State Lands Commission (CSLC) may require a lease or some other type of approval for the underlying armoring, and thus this permit is conditioned to require written evidence either of CSLC approval of the project or evidence that such approval is not required (see **Special Condition 6**).

Army Corps of Engineers
The U.S. Army Corps of Engineers (ACOE) has regulatory authority over the proposed project under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 1344) and Section 404 of the Clean Water Act. Section 10 of the Rivers and Harbors Act regulates the diking, filling and placement of structures in navigable waterways. Section 404 of the Clean Water Act regulates fill or discharge of materials into waters and ocean waters. Portions of the project appear to be located within ACOE jurisdiction and the use of equipment and machinery on the beach up to the high tide line also has the potential to impact these areas. Accordingly, this approval is conditioned to ensure that the project (as conditioned and approved by this CDP) has received all necessary authorizations (or evidence that none are necessary) from ACOE (see **Special Condition 6**).

I. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of 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 that the activity may have on the environment.

The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. The preceding findings in this report have discussed the relevant coastal resource issues with the proposal, and the permit conditions identify appropriate mitigations to avoid and/or lessen any potential for adverse impacts to said resources. The Commission incorporates these findings as set forth here in full. Further, all public comments received to date have been addressed in the findings, which are incorporated herein in their entirety by reference.

As such, there are no additional feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse environmental effects which approval of the proposed project, as conditioned, would have on the environment within the meaning of CEQA. Thus, if so conditioned, the proposed project will not result in any significant environmental effects for which feasible mitigation measures have not been employed consistent with CEQA Section 21080.5(d)(2)(A).

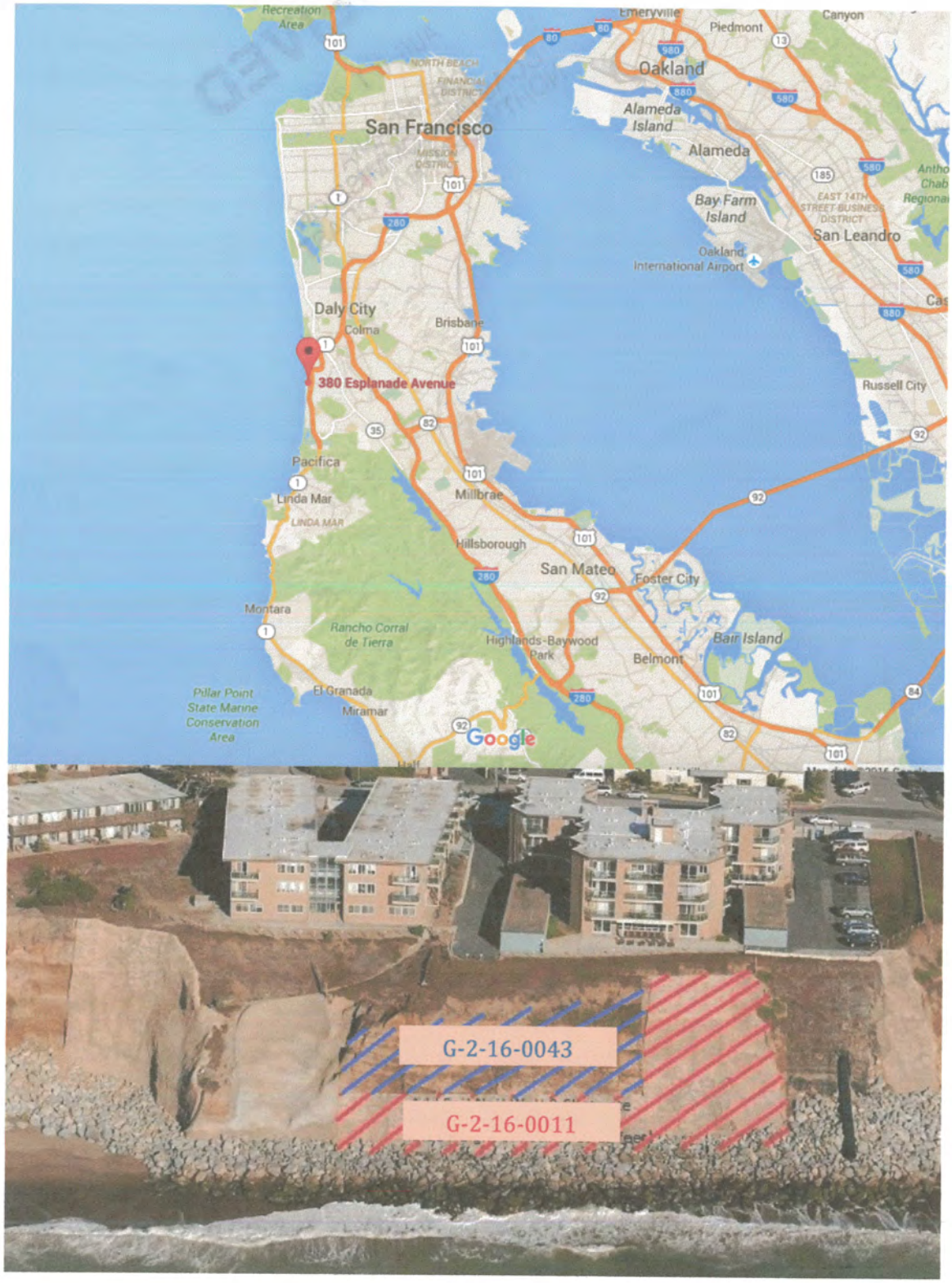
APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

1. CDP 2-08-020

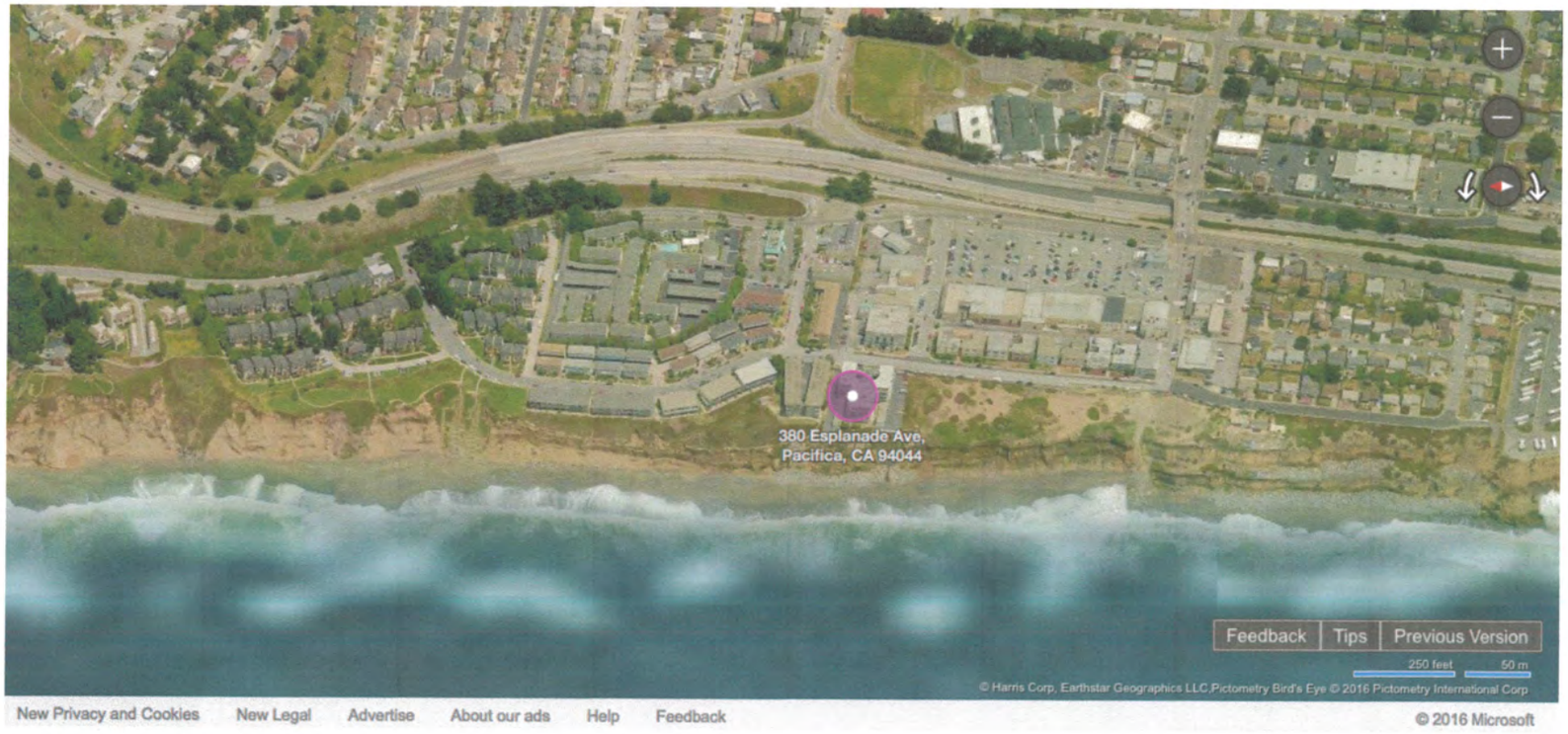
APPENDIX B – STAFF CONTACT WITH AGENCIES AND GROUPS

1. Applicant: Aimco Esplanade Avenue Apartments, LLC
2. Applicant's Agent: Anne Blemker, McCabe & Company
3. City of Pacifica

VICINITY MAP

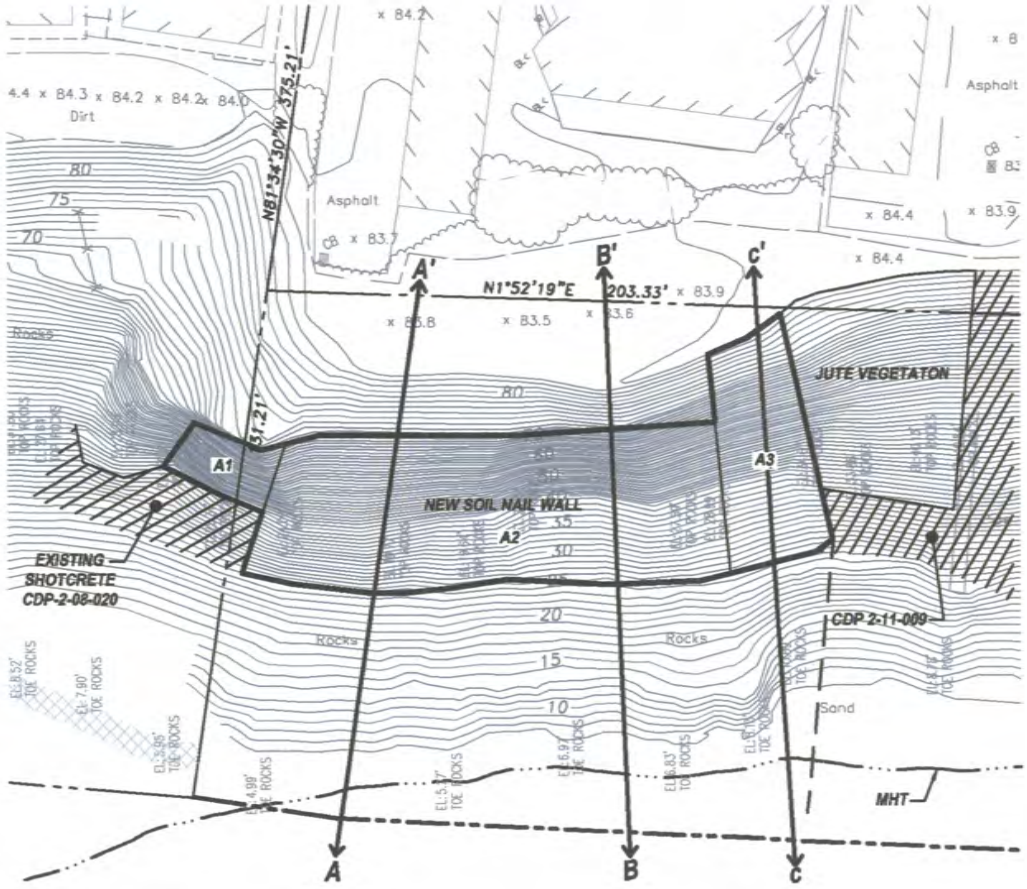


Aerial Photograph of Structures in Area of Revetment – 380 Esplanade Avenue, City of Pacifica



Bluff Repairs
380 Esplanade Ave., Pacifica, CA

AS-BUILT PLANS



VICINITY MAP
NO SCALE

NEW SOIL NAIL AREA

A1 = 380 sq.ft.
A2 = 4,578 sq.ft.
A3 = 1,371 sq.ft.

AS-BUILT CERTIFICATE

I, David W. Skelly hereby declare that the preparation of these As-built drawings and that the information shown is based on actual site investigations and as-builts of the improvements completed in June 2016. To the best of my knowledge and experience the information shown on these plans provide an accurate and correct representation of the As-built conditions.

Signed _____ Date 06/13/16

R.C.E. No. 47857 Exp. 12/31/17

DRAFTING BY: SCHMAHL DRAFTING
DAVE SCHMAHL (760)414-3978

PROFESSIONAL ENGINEER SKELLY No. C 47857 EXP. 12/31/17 CIVIL STATE OF CALIFORNIA

GSI Soils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE: Bluff Repairs
380 Esplanade Ave., Pacifica, CA
W.O. 5804

CLIENT: AMCO
26 Executive Park Suite 125
Irvine, CA 92614

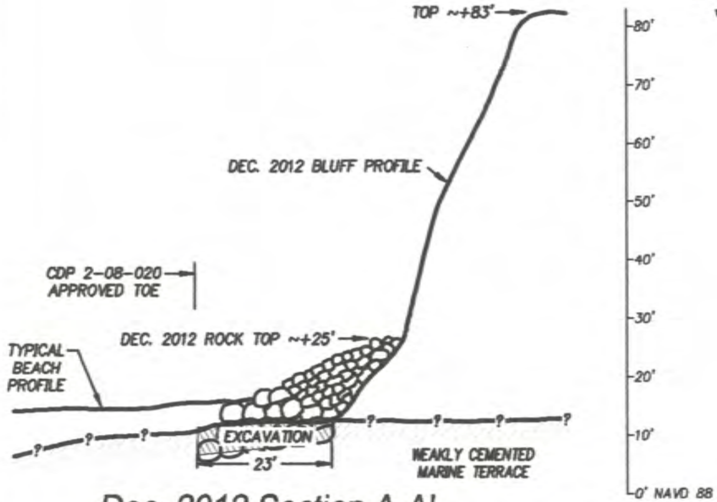
DRAWN
CHECKED
DATE 07/11/16
JOB NO.
SHEET S1
OF 5

Bluff Repairs

380 Esplanade Ave., Pacifica, CA

Repair Section A-A'

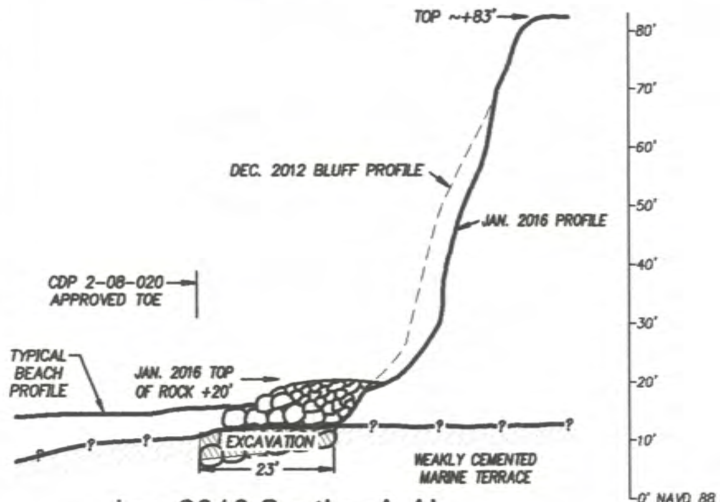
AS-BUILT PLANS



Dec. 2012 Section A-A'

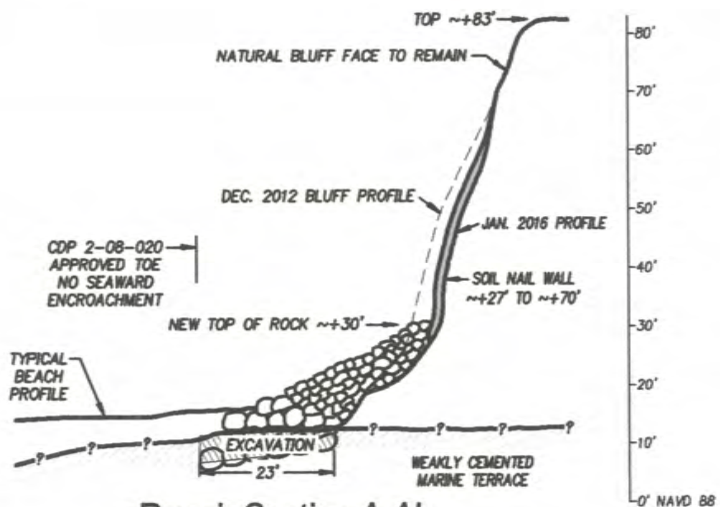
SCALE: AS SHOWN

JUNE 2016 AS-BUILT SECTION A-A'



Jan. 2016 Section A-A'

SCALE: AS SHOWN



Repair Section A-A'

SCALE: AS SHOWN

DRAFTING BY: SCHMAHL DRAFTING
DAVE SCHMAHL (760)414-3978

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE: ECDP Bluff Repairs
380 Esplanade Ave., Pacifica, CA

W.O. 56014

07/11/16

S2

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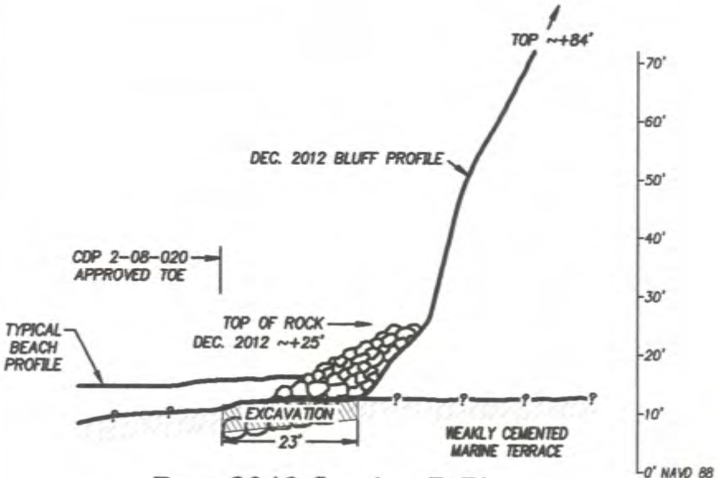
2-16-0684
EXHIBIT 2
Page 2 of 5

Bluff Repairs

380 Esplanade Ave., Pacifica, CA

Repair Section B-B'

AS-BUILT PLANS



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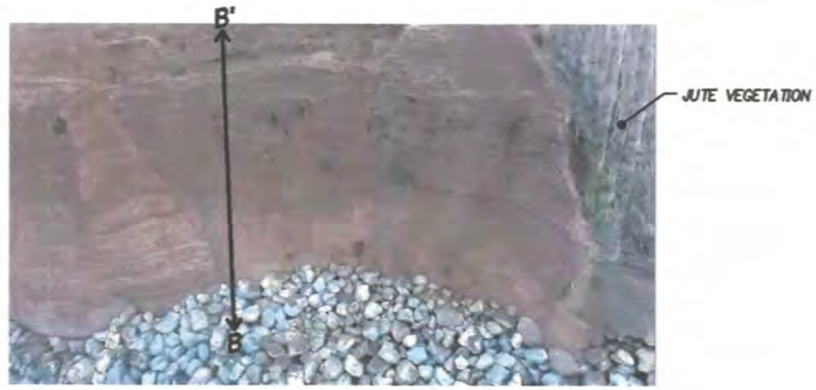
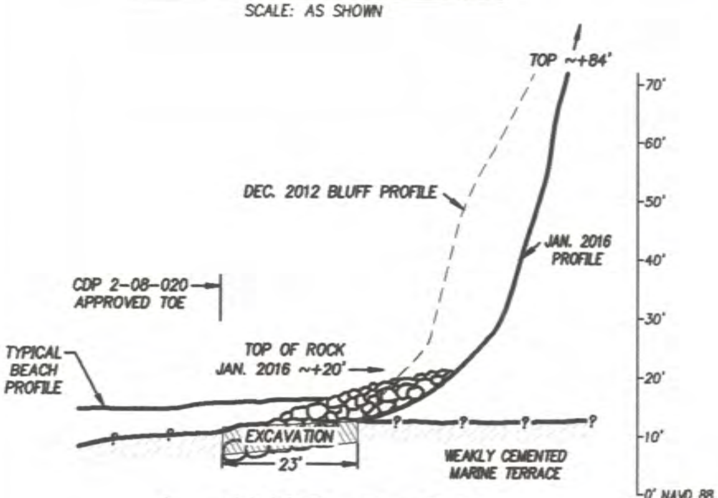


JUNE 2016 AS-BUILT SECTION B-B'



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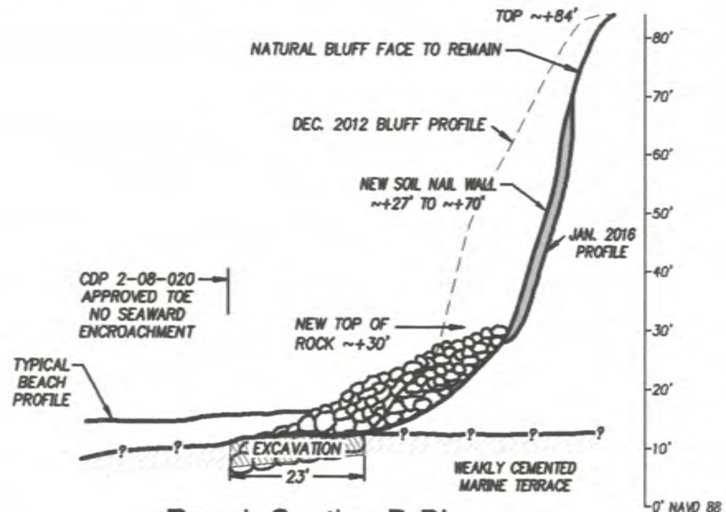

Repair Section B-B'

SCALE: AS SHOWN

DRAFTING BY: SCHMAHL DRAFTING DAVE SCHMAHL (760)414-3978

GeoSoils, Inc. Geotechnical • Geologic • Coastal • Environmental 5741 Palmer Way, Carlsbad, CA 92010 760-438-3155

TITLE: ECDP Bluff Repairs 380 Esplanade Ave., Pacifica, CA

W.O. 56014

07/11/16

S3

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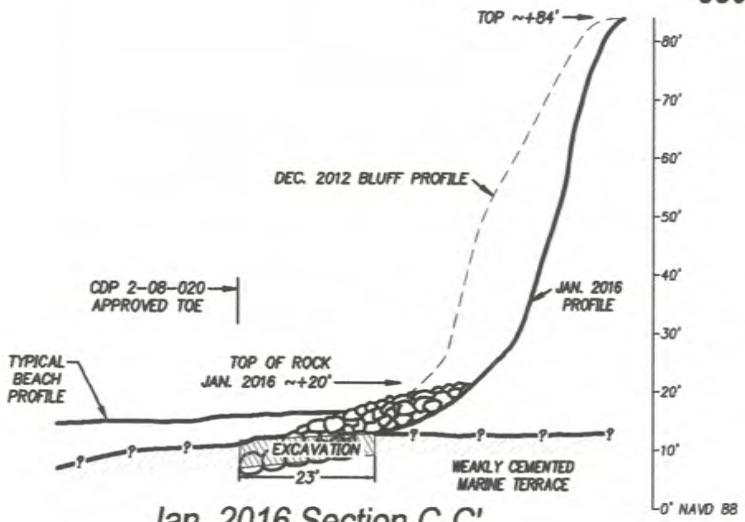
2-16-0684
EXHIBIT 2
Page 3 of 5

Bluff Repairs

380 Esplanade Ave., Pacifica, CA

Repair Section C-C'

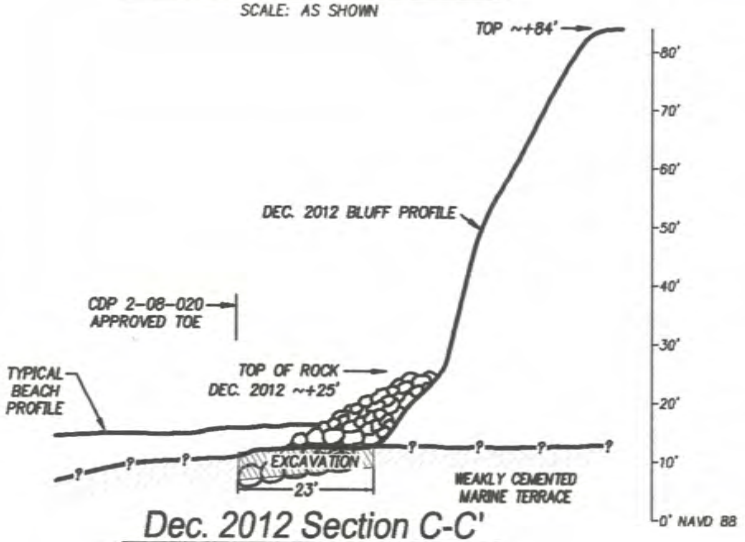
AS-BUILT PLANS



Jan. 2016 Section C-C'

SCALE: AS SHOWN

JUNE 2016 AS-BUILT SECTION C-C'



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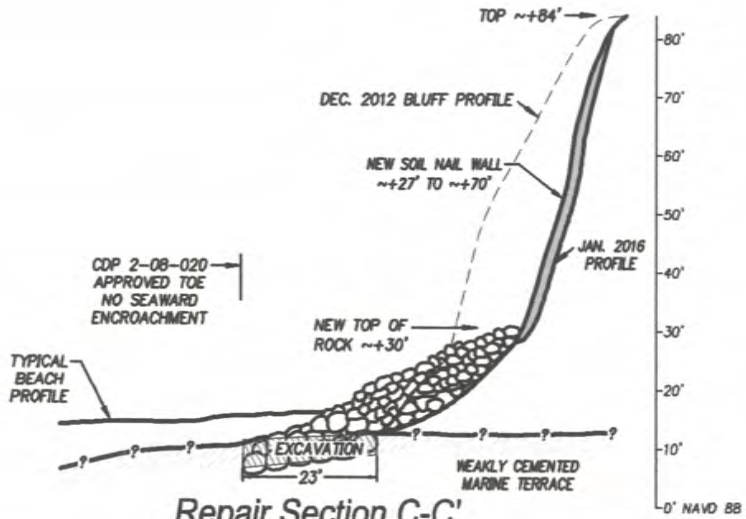


Repair Section C-C'

SCALE: AS SHOWN

DRAFTING BY: SCHMAHL DRAFTING — DAVE SCHMAHL (760)414-3978

PROFESSIONAL ENGINEER — No. C 47857 — EXP: 12/31/17 — CIVIL — STATE OF CALIFORNIA

geoSoils inc. — Geotechnical • Geologic • Coastal • Environmental — 5741 Palmer Way, Carlsbad, CA 92010 — 760-438-3155

TITLE: ECDP Bluff Repairs — 380 Esplanade Ave., Pacifica, CA — W.O. 5801-A

CLIENT: AMCO — 20 Executive Park, Suite 125 — Irvine, CA 92614

07/11/16

S4

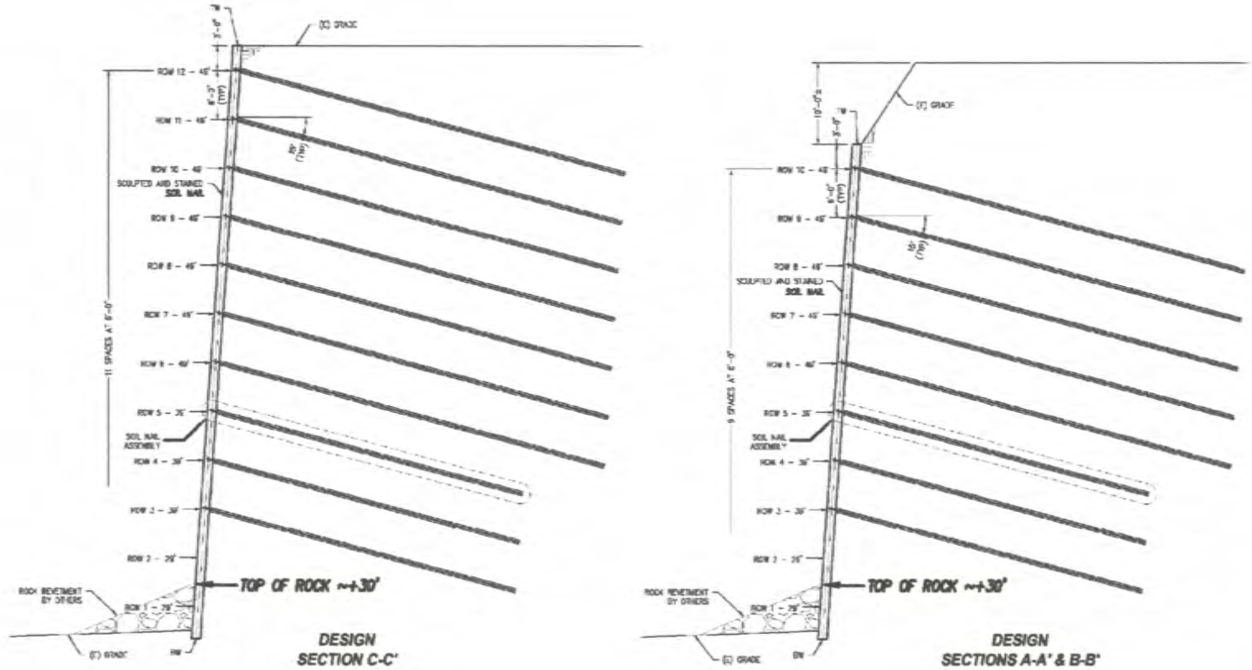
5

Bluff Repairs

380 Esplanade Ave., Pacifica, CA

Soil Nail Layout

AS-BUILT PLANS



DRILL TECH DRILLING & SHORING, INC.

2200 Wymore Way - Antioch, CA 94509-8518
Phone: 925/978-2060 - Fax: 925/978-2063

380 ESPLANADE AVENUE
SOIL NAIL AND SHOTCRETE EROSION MITIGATION
PACIFICA, CA

SECTIONS

SHEET: DT2

DATE: JANUARY 26, 2016

DRAFTING BY: SCHMAHL DRAFTING
DAVE SCHMAHL (760)414-3978

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

Bluff Repairs
380 Esplanade Ave., Pacifica, CA

07/11/16

S5

2-16-0684
EXHIBIT 2
Page 5 of 5

CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST DISTRICT OFFICE
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CALIFORNIA 94105-2219
PH (415) 904-5260 OR (415) 904-5200 FAX (415) 904-5400
WWW.COASTAL.CA.GOV

EMERGENCY PERMIT

Issue Date: January 21, 2016
Emergency Permit No. G-2-16-0011

APPLICANT:

AIMCO Esplanade Ave Apartments, LLC Sean Finnegan, Agent for Applicant
26 Executive Park , Irvine, CA 92614

LOCATION OF EMERGENCY:

380 ESPLANADE AVENUE, PACIFICA, SAN MATEO COUNTY (APN): 009131010)

EMERGENCY WORK:

Import and install approximately 840 tons of rock and stack up to an additional 10 feet on top of the existing rock revetment between the storm drain slope to the south and the soil nail wall to the north; install an approximate 12-foot high soil nail wall above the rock revetment behind the top of the rock revetment. The soil nail wall will be sculpted and colored to blend with the adjacent bluff. The height of the soil nail wall will be extended up to the top of the failed bluff areas that extends to cover all exposed areas

This letter constitutes approval of the emergency work you or your representative has requested to be done at the location listed above. I understand from your information that an unexpected occurrence in the form of the previously installed revetment settling and rotating landward, coupled with El Nino and King Tide conditions, which has caused a failure and emergency situation, posing a threat to structures at 380 ESPLANADE AVENUE, PACIFICA, SAN MATEO COUNTY which requires immediate action to prevent or mitigate loss or damage to life, health, property or essential public services pursuant to 14 Cal. Admin. Code Section 13009. The Executive Director of the California Coastal Commission hereby finds that:

(a) An emergency exists that requires action more quickly than permitted by the procedures for administrative or ordinary coastal development permits (CDPs), and that the development can and will be completed within 30 days unless otherwise specified by the terms of this Emergency Permit; and

(b) Public comment on the proposed emergency development has been reviewed if time allows.

The emergency work is hereby approved, subject to the conditions listed on the attached pages.

Sincerely,

Charles Lester
Executive Director

By: Nancy Cave, District Manager

cc: Local Planning Department

Enclosures: 1) Acceptance Form;
2) Regular Permit Application Form

CONDITIONS OF APPROVAL:

1. The enclosed Emergency Permit Acceptance form must be signed by the PROPERTY OWNER and returned to our office within 15 days (by February 5, 2016).

2. Copies of this ECDP shall be maintained in a conspicuous location at the construction job site at all times, and such copies shall be available for public review on request. All persons involved with the construction shall be briefed on the content and meaning of this ECDP, and the public review requirements applicable to it, prior to commencement of construction.

3. A construction coordinator shall be designated to be contacted during construction should questions arise regarding the construction (in case of both regular inquiries and emergencies), and their contact information (i.e., address, email, phone numbers, etc.) including, at a minimum, a telephone number and email address that will be made available 24 hours a day for the duration of construction, shall be conspicuously posted at the job site where such contact information is readily visible from public viewing areas, along with indication that the construction coordinator should be contacted in the case of questions regarding the construction (in case of both regular inquiries and emergencies). The construction coordinator shall record the contact information (e.g., name, address, email, phone number, etc.) and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry. Within 30 days of completion of construction authorized by this ECDP, the Permittee shall submit the record (of complaints/inquiries and actions taken in response) to the Executive Director.

4. Only that work specifically described in this permit and as more specifically described in the Commission's file for the Emergency CDP for the specific property listed above is authorized. The work permitted under this permit is the minimum necessary to address the emergency situation at hand and therefore, minimizing the extent of rock placed is strongly encouraged. Any additional work or maintenance to the structures installed pursuant to this permit requires separate authorization from the Executive Director. All emergency development shall be limited in scale and scope to that specifically identified in the Emergency Permit Application Form dated received in the Coastal Commission's North Central Coast District Office on January 21, 2012, except as revised in the following manner:

a. All wood, concrete, steel, and other debris shall be removed entirely from the site and disposed of at a suitable off-site location outside the coastal zone.
b. Mitigation measures shall be implemented to ensure that all wood, concrete, steel, and other debris are appropriately contained and not allowed to be released into coastal waters.

5. All work shall take place in a time and manner to minimize any potential damages to any resources, including intertidal species, and to minimize impacts to public access. Construction materials, equipment or debris shall not be stored where it will or could potentially be subject to wave erosion and dispersion. Construction shall be conducted pursuant to typical best management practices such as:

   a. All construction areas shall be minimized and allow public recreational access along the beach and shall protect public safety to the maximum extent feasible. Construction (including but not limited to construction activities, and materials and/or equipment storage) is prohibited outside of the defined construction, staging, and storage areas.
   b. Construction work and equipment operations shall not be conducted seaward of the mean high water line unless tidal waters have receded from the authorized work areas.
   c. Grading of intertidal areas is prohibited.
   d. Any construction materials and equipment delivered to the beach area shall be delivered by rubber-tired construction vehicles. When transiting on the beach, all such vehicles shall remain as high on the upper beach as possible and avoid contact with ocean waters and intertidal areas.
   e. Any construction materials and equipment placed on the beach during daylight construction hours shall be stored beyond the reach of tidal waters. All construction materials and equipment shall be removed in their entirety from the beach area by sunset each day that work occurs.
   f. All construction activities that result in discharge of materials, polluted runoff, or wastes to the beach or the adjacent marine environment are prohibited. Equipment washing, refueling, and/or servicing shall not take place on the beach. Any erosion and sediment controls used shall be in place prior to the commencement of construction as well as at the end of each work day.
   g. The construction site shall maintain good construction site housekeeping controls and procedure (e.g., clean up all leaks, drips, and other spills immediately; keep equipment covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the beach; etc.).

h. All accessways impacted by construction activities shall be restored to their pre-construction condition or better within three days of completion of construction. Any beach sand in the area that is impacted by construction shall be filtered as necessary to remove any construction debris.
i. Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office immediately upon completion of construction and required restoration activities. If planning staff should identify additional reasonable restoration measures, such measures shall be implemented immediately.

6. The work authorized by this permit must be completed within 60 days of the date of this permit, which shall become null and void unless extended by the Executive Director for good cause.

7. The applicant recognizes that the emergency work is considered temporary and subject to removal unless and until a regular coastal development permit permanently authorizing the work is approved. A regular permit would be subject to all of the provisions of the California Coastal Act, would be conditioned accordingly, and may not allow for any further armoring or a different configuration of the revetment. These conditions may include provisions for public access (such as offers to dedicate, easements, in-lieu fees, etc.), camouflaging the soil nail wall installed, and/or a requirement that a deed restriction be placed on the property assuming liability for damages incurred from storm waves. In addition, any follow-up permit would account for and analyze the impacts of long-term sea level rise.

8. In exercising this permit, the applicant agrees to hold the California Coastal Commission harmless from any liabilities for damage to public or private properties or personal injury that may result from the project.

9. Within 30 days of completion of construction authorized by this ECDP, the Permittee shall submit site plans and cross sections clearly identifying all development completed under this emergency authorization (comparing any previously permitted condition to both the emergency condition and to the post-work condition), and a narrative description of all emergency development activities undertaken pursuant to this emergency authorization. Photos showing the project site before the emergency (if available), during emergency project construction activities, and after the work authorized by this ECDP is complete, shall be provided with the site plans and cross sections.

10. This ECDP shall not constitute a waiver of any public rights which may exist on the property. The permittee shall not use this ECDP as evidence of a waiver of any public rights which may exist on the property

11. This permit does not obviate the need to obtain necessary authorizations and/or permits from other agencies, including but not limited to the City of Pacifica, the California Department of Fish & Wildlife, U.S. Fish & Wildlife, U.S. Army Corps of Engineers, and the California State Lands Commission.

12. Within 90 days of issuance of this Emergency Permit, or as extended by the Executive Director through correspondence, for good cause, the applicant shall either: (a) remove all of the materials placed or installed in connection with the emergency development authorized in this Permit and restore all affected areas to their prior condition after consultation with California Coastal Commission staff, and consistent with the Coastal Act. In some instances, a permit may be needed for removal; or (b) submit a complete follow-up Coastal Development Permit (CDP) that satisfies the requirements of Section13056 of Title 14 of the California Code of Regulations. If the Executive Director determines that the follow-up CDP application is incomplete and requests additional information, the applicant shall submit this additional information by a certain date, as established by the Executive Director. If such a follow-up CDP application is withdrawn by the applicant or is denied by the Commission, or if the follow-up CDP application remains incomplete for a period of 120 days after the Executive Director informs the applicant that the application is incomplete, the emergency-permitted development shall be removed and all affected areas restored to their prior condition, after consultation with CCC staff and consistent with the Coastal Act, within 30 days, subject to any regulatory approvals necessary for such removal. In some instances, a permit may be needed for removal.

13. Failure to a) submit a complete follow-up CDP Application that complies with Condition 8 above, or b) remove the emergency development and restore all affected areas to their prior condition after consultation with CCC staff, and consistent with the Coastal Act (if required by this Emergency Permit) by the date specified in this Emergency Permit[1], or c) comply with all terms and conditions of the required follow-up CDP, including any deadlines identified therein, or d) remove the emergency-permitted development and restore all affected areas to their prior condition after consultation with CCC staff and consistent with the Coastal Act immediately upon denial of the required follow-up CDP[2] will constitute a knowing and intentional violation of the Coastal Act[3] and may result in formal enforcement action by the Commission or the Executive Director. This formal action could include a recordation of a Notice of Violation on the applicant's property; the issuance of a Cease and Desist Order and/or a Restoration Order; imposition of administrative penalties for violations

[1] In some instances, a permit may also be required for removal.

[2] As noted above, in some instances, a permit may also be required for removal.

[3] The Coastal Act is codified in sections 30000 to 30900 of the California Public Resources Code. All further section references are to that code, and thus, to the Coastal Act, unless otherwise indicated.

involving public access; and/or a civil lawsuit, which may result in the imposition of monetary penalties, including daily penalties of up to $15,000 per violation per day, and other applicable penalties and other relief pursuant to Chapter 9 of the Coastal Act. Further, failure to follow all the terms and conditions of this Emergency Permit will constitute a knowing and intentional Coastal Act violation.

As noted in Condition 5 above, the emergency development carried out under this ECDP is at the Permittee's risk and is considered to be temporary work done in an emergency situation to abate an emergency. If the Permittee wishes to have the emergency development become permanent development, a regular CDP must be obtained. A regular CDP is subject to all of the provisions of the California Coastal Act and may be conditioned or denied accordingly.

If you have any questions about the provisions of this ECDP, please contact the Commission's North Central Coast District Office at 45 Fremont Street, Suite 2000, San Francisco, CA 94105, (415) 904-5260.

CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST DISTRICT OFFICE
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CALIFORNIA 94105-2219
PH (415) 904-5260 OR (415) 904-5200 FAX (415) 904-5400
WWW.COASTAL.CA.GOV

EMERGENCY PERMIT

Issue Date: April 18, 2016
Emergency Permit No. G-2-16-0043

APPLICANT:
AIMCO Esplanade Ave Apartments, LLC
26 Executive Park, Ste 125, Irvine, CA 92614

LOCATION OF EMERGENCY:
380 ESPLANADE AVE., PACIFICA, SAN MATEO COUNTY (APN(s): 009131010, 009131060)

EMERGENCY WORK:

1. For the failed revetment and bluff toe immediately above, continue to re-stack rock in the areas that have failed by stacking an additional 10 feet on top of the existing rock revetment between the storm drain slope to the south and the soil nail wall to the north. All of the work is located at the top and behind the approved revetment. There will be no increase of the revetment footprint on the beach.
2. Install an approximate 50-foot tall soil-nailed wall that extends from 10-feet behind the stacked rock at the toe of the bluff to within 10 feet of the top of the bluff covering all areas that have failed.

This letter constitutes approval of the emergency work you or your representative has requested to be done at the location listed above. I understand from your information that an unexpected occurrence, in the form of the previously installed revetment settling and rotating landward, coupled with El Nino and King Tide conditions, has caused a failure and emergency situation, posing a threat to structures at 380 ESPLANADE AVE., PACIFICA, SAN MATEO COUNTY requires immediate action to prevent or mitigate loss or damage to life, health, property or essential public services pursuant to 14 Cal. Admin. Code Section 13009. The Executive Director of the California Coastal Commission hereby finds that:

(a) An emergency exists that requires action more quickly than permitted by the procedures for administrative or ordinary coastal development permits (CDPs), and that the development can and will be completed within 30 days unless otherwise specified by the terms of this Emergency Permit; and

(b) Public comment on the proposed emergency development has been reviewed if time allows.

The emergency work is hereby approved, subject to the conditions listed on the attached pages.

Sincerely,

John Ainsworth
Acting Executive Director

By: Nancy Cave, District Manager

cc: Local Planning Department

Enclosures: 1) Acceptance Form;
2) Regular Permit Application Form

CONDITIONS OF APPROVAL:

1. The enclosed Emergency Permit Acceptance form must be signed by the PROPERTY OWNER and returned to our office within 15 days (by May 3, 2016).

2. Copies of this ECDP shall be maintained in a conspicuous location at the construction job site at all times, and such copies shall be available for public review on request. All persons involved with the construction shall be briefed on the content and meaning of this ECDP, and the public review requirements applicable to it, prior to commencement of construction.

3. A construction coordinator shall be designated to be contacted during construction should questions arise regarding the construction (in case of both regular inquiries and emergencies), and their contact information (i.e., address, email, phone numbers, etc.) including, at a minimum, a telephone number and email address that will be made available 24 hours a day for the duration of construction, shall be conspicuously posted at the job site where such contact information is readily visible from public viewing areas, along with indication that the construction coordinator should be contacted in the case of questions regarding the construction (in case of both regular inquiries and emergencies). The construction coordinator shall record the contact information (e.g., name, address, email, phone number, etc.) and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry. Within 30 days of completion of construction authorized by this ECDP, the Permittee shall submit the record (of complaints/inquiries and actions taken in response) to the Executive Director.

4. Only that work specifically described in this permit and as more specifically described in the Commission's file for the Emergency CDP for the specific property listed above is authorized. The work permitted under this permit is the minimum necessary to address the emergency situation at hand and therefore, minimizing the extent of rock placed is strongly encouraged. Any additional work or maintenance to the structures installed pursuant to this permit requires separate authorization from the Executive Director. All emergency development shall be limited in scale and scope to that specifically identified in the Emergency Permit Application Form dated received in the Coastal Commission's North Central Coast District Office on April 8, 2016, except as revised in the following manner:

    a. All wood, concrete, steel, and other debris shall be removed entirely from the site and disposed of at a suitable off-site location outside the coastal zone.
    b. Mitigation measures shall be implemented to ensure that all wood, concrete, steel, and other debris are appropriately contained and not allowed to be released into coastal waters.

5. All work shall take place in a time and manner to minimize any potential damages to any resources, including intertidal species, and to minimize impacts to public access. Construction materials, equipment or debris shall not be stored where it will or could potentially be subject to wave erosion and dispersion. Construction shall be conducted pursuant to typical best management practices such as:

a. All construction areas shall be minimized and allow public recreational access along the beach and shall protect public safety to the maximum extent feasible. Construction (including but not limited to construction activities, and materials and/or equipment storage) is prohibited outside of the defined construction, staging, and storage areas.
b. Construction work and equipment operations shall not be conducted seaward of the mean high water line unless tidal waters have receded from the authorized work areas.
c. Grading of intertidal areas is prohibited.
d. Any construction materials and equipment delivered to the beach area shall be delivered by rubber-tired construction vehicles. When transiting on the beach, all such vehicles shall remain as high on the upper beach as possible and avoid contact with ocean waters and intertidal areas.
e. Any construction materials and equipment placed on the beach during daylight construction hours shall be stored beyond the reach of tidal waters. All construction materials and equipment shall be removed in their entirety from the beach area by sunset each day that work occurs.
f. All construction activities that result in discharge of materials, polluted runoff, or wastes to the beach or the adjacent marine environment are prohibited. Equipment washing, refueling, and/or servicing shall not take place on the beach. Any erosion and sediment controls used shall be in place prior to the commencement of construction as well as at the end of each work day.
g. The construction site shall maintain good construction site housekeeping controls and procedure (e.g., clean up all leaks, drips, and other spills immediately; keep equipment covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the beach; etc.).
h. All accessways impacted by construction activities shall be restored to their pre-construction condition or better within three days of completion of construction. Any beach sand in the area that is impacted by construction shall be filtered as necessary to remove any construction debris.
i. Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office immediately upon completion of construction and required restoration activities. If planning staff should identify additional reasonable restoration measures, such measures shall be implemented immediately.

6. The work authorized by this permit must be completed within 60 days of the date of this permit, which shall become null and void unless extended by the Executive Director for good cause.

7. The applicant recognizes that the emergency work is considered temporary and subject to removal unless and until a regular coastal development permit permanently authorizing the work is approved. A regular permit would be subject to all of the provisions of the California Coastal Act, would be conditioned accordingly, and may not allow for any further armoring or a different configuration of the revetment. These conditions may include provisions for public access (such as offers to dedicate, easements, in-lieu fees, etc.), camouflaging the soil

nail wall installed, and/or a requirement that a deed restriction be placed on the property assuming liability for damages incurred from storm waves. In addition, any follow-up permit would account for and analyze the impacts of long-term sea level rise.

8. In exercising this permit, the applicant agrees to hold the California Coastal Commission harmless from any liabilities for damage to public or private properties or personal injury that may result from the project.

9. Within 30 days of completion of construction authorized by this ECDP, the Permittee shall submit site plans and cross sections clearly identifying all development completed under this emergency authorization (comparing any previously permitted condition to both the emergency condition and to the post-work condition), and a narrative description of all emergency development activities undertaken pursuant to this emergency authorization. Photos showing the project site before the emergency (if available), during emergency project construction activities, and after the work authorized by this ECDP is complete, shall be provided with the site plans and cross sections.

10. This ECDP shall not constitute a waiver of any public rights which may exist on the property. The permittee shall not use this ECDP as evidence of a waiver of any public rights which may exist on the property

11. This permit does not obviate the need to obtain necessary authorizations and/or permits from other agencies, including but not limited to the California Department of Fish & Wildlife, U.S. Fish & Wildlife, U.S. Army Corps of Engineers, and the California State Lands Commission.

12. Within 90 days of issuance of this Emergency Permit, or as extended by the Executive Director through correspondence, for good cause, the applicant shall either: (a) remove all of the materials placed or installed in connection with the emergency development authorized in this Permit and restore all affected areas to their prior condition after consultation with California Coastal Commission staff, and consistent with the Coastal Act. In some instances, a permit may be needed for removal; or (b) submit a complete follow-up Coastal Development Permit (CDP) that satisfies the requirements of Section13056 of Title 14 of the California Code of Regulations. If the Executive Director determines that the follow-up CDP application is incomplete and requests additional information, the applicant shall submit this additional information by a certain date, as established by the Executive Director. If such a follow-up CDP application is withdrawn by the applicant or is denied by the Commission, or if the follow-up CDP application remains incomplete for a period of 120 days after the Executive Director informs the applicant that the application is incomplete, the emergency-permitted development shall be removed and all affected areas restored to their prior condition, after consultation with CCC staff and consistent with the Coastal Act, within 30 days, subject to any regulatory approvals necessary for such removal. In some instances, a permit may be needed for removal.

13. Failure to a) submit a complete follow-up CDP Application that complies with Condition 12 above, or b) remove the emergency development and restore all affected areas to their prior condition after consultation with CCC staff, and consistent with the Coastal Act (if required

by this Emergency Permit) by the date specified in this Emergency Permit[1], or c) comply with all terms and conditions of the required follow-up CDP, including any deadlines identified therein, or d) remove the emergency-permitted development and restore all affected areas to their prior condition after consultation with CCC staff and consistent with the Coastal Act immediately upon denial of the required follow-up CDP[2] will constitute a knowing and intentional violation of the Coastal Act[3] and may result in formal enforcement action by the Commission or the Executive Director. This formal action could include a recordation of a Notice of Violation on the applicant's property; the issuance of a Cease and Desist Order and/or a Restoration Order; imposition of administrative penalties for violations involving public access; and/or a civil lawsuit, which may result in the imposition of monetary penalties, including daily penalties of up to $15,000 per violation per day, and other applicable penalties and other relief pursuant to Chapter 9 of the Coastal Act. Further, failure to follow all the terms and conditions of this Emergency Permit will constitute a knowing and intentional Coastal Act violation.

As noted in Condition 7 above, the emergency development carried out under this ECDP is at the Permittee's risk and is considered to be temporary work done in an emergency situation to abate an emergency. If the Permittee wishes to have the emergency development become permanent development, a regular CDP must be obtained. A regular CDP is subject to all of the provisions of the California Coastal Act and may be conditioned or denied accordingly.

If you have any questions about the provisions of this ECDP, please contact the Commission's North Central Coast District Office at 45 Fremont Street, Suite 2000, San Francisco, CA 94105, (415) 904-5260.

[1] In some instances, a permit may also be required for removal.

[2] As noted above, in some instances, a permit may also be required for removal.

[3] The Coastal Act is codified in sections 30000 to 30900 of the California Public Resources Code. All further section references are to that code, and thus, to the Coastal Act, unless otherwise indicated.

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

January 19, 2016 WO S6014-SC

Mr. Sean Finnegan
AIMCO
26 Executive Park, Suite 125
Irvine, California 92614

Subject: Emergency Repairs to the Revetment and Bluff, 380 Esplanade Avenue, Pacifica, San Mateo County, California

Dear Mr. Finnegan:

In this letter we summarize the emergency repairs that are required to address the eminent danger present on the bluff slope below 380 Esplanade. The area to be addressed is Area 8 in Exhibit 1 below referenced in CDP 2-08-020.

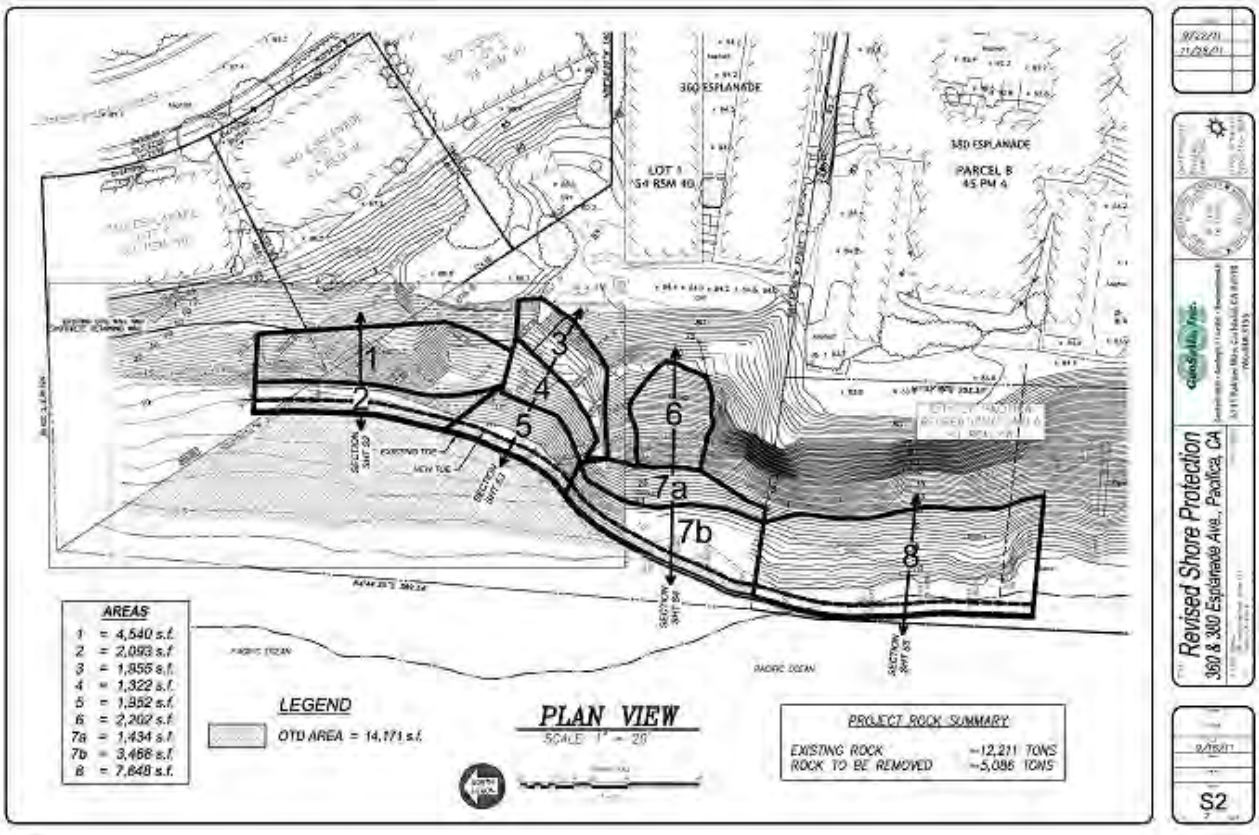


Exhibit 1

Area 8 can be seen in the oblique aerial photograph taken in September 2013 (Exhibit 2), down loaded with permission from the California Coastal Records Project website.

Exhibit 2

I visited the site January 8, 2016 and observed the “sloughed” or lowered rock revetment and failures along the toe of the bluff just above the revetment. Subsequent to my visit, on January 10, 2016 a larger 30-foot linear by 12-foot deep inland portion of the bluff adjacent to the Storm Drain CDP 2-11-009 failed. In addition, on January 15, 2016 the failure on 1-10-16 grew in length along a larger portion of Area 8 and receded an additional 5 feet inland. By way of reference, the Commission’s definition of Emergency:

> “A sudden unexpected occurrence demanding immediate action to prevent or mitigate loss or damage to life, health, property or essential public services.”

Based on my observations, extensive knowledge of this immediate area, and recent photos, the recent events meet the definition of Emergency as it relates to the occupied structure at 380 Esplanade.

BACKGROUND

The municipal storm runoff drain, immediately to the south of the subject area, failed in about 1996, damaging the bluff and requiring emergency repairs/replacement. The repair, carried out by the City of Pacifica, included a complete rebuild of the storm drain pipe and the adjacent bluff that was lost as a result of the failure. The owner of 380 Esplanade also took the opportunity at that time to pull an emergency permit and placed a rock revetment along the bluff fronting 380 Esplanade (our subject area). A recent repair to the storm drain slope (CDP 2-11-009) was completed January 6, 2016. In 2009/2010 bluff failures occurred to the north at 360 Esplanade and emergency permits were pulled to address repairs for areas 1-7 in Exhibit 1. Completed CDP 2-08-020 conditioned the emergency work in areas 1-7 and the emergency work in area 8 to lower the height of the rock revetments and reduce the footprint on the beach. This was completed in 2012 and has performed since.

However, based on my observations back January 8, 2016, the rock revetment that was lowered in Area 8 has settled and rotated landward as a result of overtopping. This coupled with the El Niño and King Tide conditions this winter, has caused recent failures in Area 8 resulting in an emergency situation and placing the occupied structures at 380 Esplanade in imminent danger. See Exhibits 3 and 4 below.

Exhibit 3. January 10, 2016

Exhibit 4. January 15, 2016

Proposed Minimum Repairs

1. For the damaged revetment and bluff toe immediately above, import approximately 840 tons of rock and stack up to an additional 10 feet on top of the existing rock revetment between the storm drain slope to the south and the soil nail wall to the north (see attached S2 and Exhibit 5 Aerial below). Per Section A-A on attached drawing S3 there will not be a need to increase the footprint of the revetment on the beach due to the landward movement of the bluff face.

2. Install an approximate 12-foot high soil nail wall above the rock revetment which will also found itself behind the top of the rock revetment (Section A-A on attached S3). Soil nail wall will be sculpted and colored to blend with the adjacent bluff. This technique has been successful to the north and south on the same property and can be seen on Exhibit 2.

3. Leave the remaining bluff above the soil nail wall in its natural condition

4. For the failed bluff that extends to the top, increase the height of the soil nail wall to cover all exposed areas (See Exhibit 4 and Section B-B on attached S3).

Exhibit 5. Emergency Repair Areas

CONCLUSION & RECOMMENDATIONS

We understand we are obligated under an Emergency Permit to do the minimum required to address the imminent danger. What we are proposing as the minimum repairs to address the eminent dangers is in fact the minimum; however, the repairs are also the correct fix to address this situation into the future. This is evident in the similar repairs permitted on the same property to the north and to the south. It should also be noted that this entire section of coastline is experiencing increased erosion due to El Niño conditions.

The current revetment is not adequate to address normal high tides in addition to winter and El Nino tides. The revetment has dropped in the past two years since it was lowered in the previous CDP. As a result the revetment partial failure and the associated bluff

failure behind it is a result of wave overtopping at high tides exacerbated by extreme wave heights and current El Niño conditions. The rock revetment and the unprotected bluff behind it will continue to fail if repairs are not addressed immediately. If left untreated, it is very likely that a catastrophic failure will occur this winter similar to what has occurred in the past on nearby properties. The conditions described above have created an imminent danger to the occupied structure at 380 Esplanade.

To address this imminent danger the rock revetment for Area 8 shown on Exhibit 1, needs to be raised and a soil nail wall needs to be constructed above that. In addition, the exposed failure areas throughout Area 8 as seen in the photos above need to be covered with a soil nail wall to avoid further repose which will undermine the foundation of the structure above at 380 Esplanade. The repairs need to be performed under an emergency permit to prevent additional damage with an associated risk to life and property.

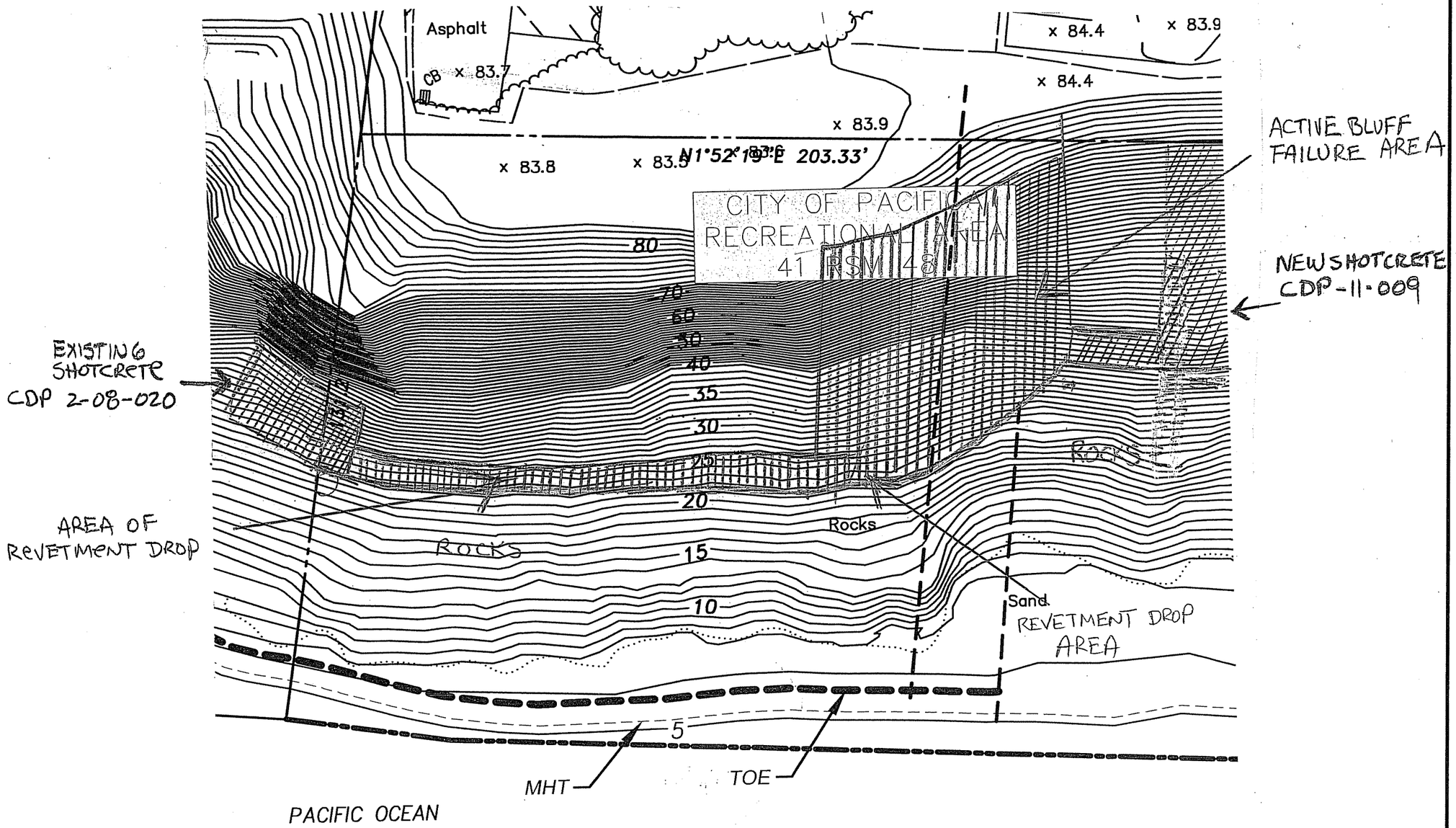
CLOSING

The rock revetment and exposed bluff face below 380 Esplanade is in urgent need of repair. Emergency action is warranted particularly in light of the active El Niño winter. Lack of immediate repairs will result in increased damage to and failure of the rock revetment, sudden and additional widespread failure of the bluff, and damage to improvements above. The scope of the repairs and the associated cost of these repairs are increasing essentially on a daily basis. The attached plans and calculations support the conditions and proposed repairs described in this report.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to contact our office.

Respectfully submitted,

GeoSoils, Inc.
David W. Skelly MS, PE
RCE#47857



EXISTING CONDITIONS PLAN VIEW

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

1" = 20'

REVISIONS	BY

DRAFTING BY: SCHMAHL DRAFTING

DAVE SCHMAHL (760)484-8366

REGISTERED PROFESSIONAL ENGINEER DAVID W. SKELLY No. C 47857 EXP. 12/31/16 CIVIL STATE OF CALIFORNIA

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way, Carlsbad, CA 92010 760-438-3155

TITLE: 380 ESPLANADE ECDP BLUFF REPAIRS

CLIENT: AIMCO

DRAWN 1/14/16

CHECKED DWS

DATE

SCALE

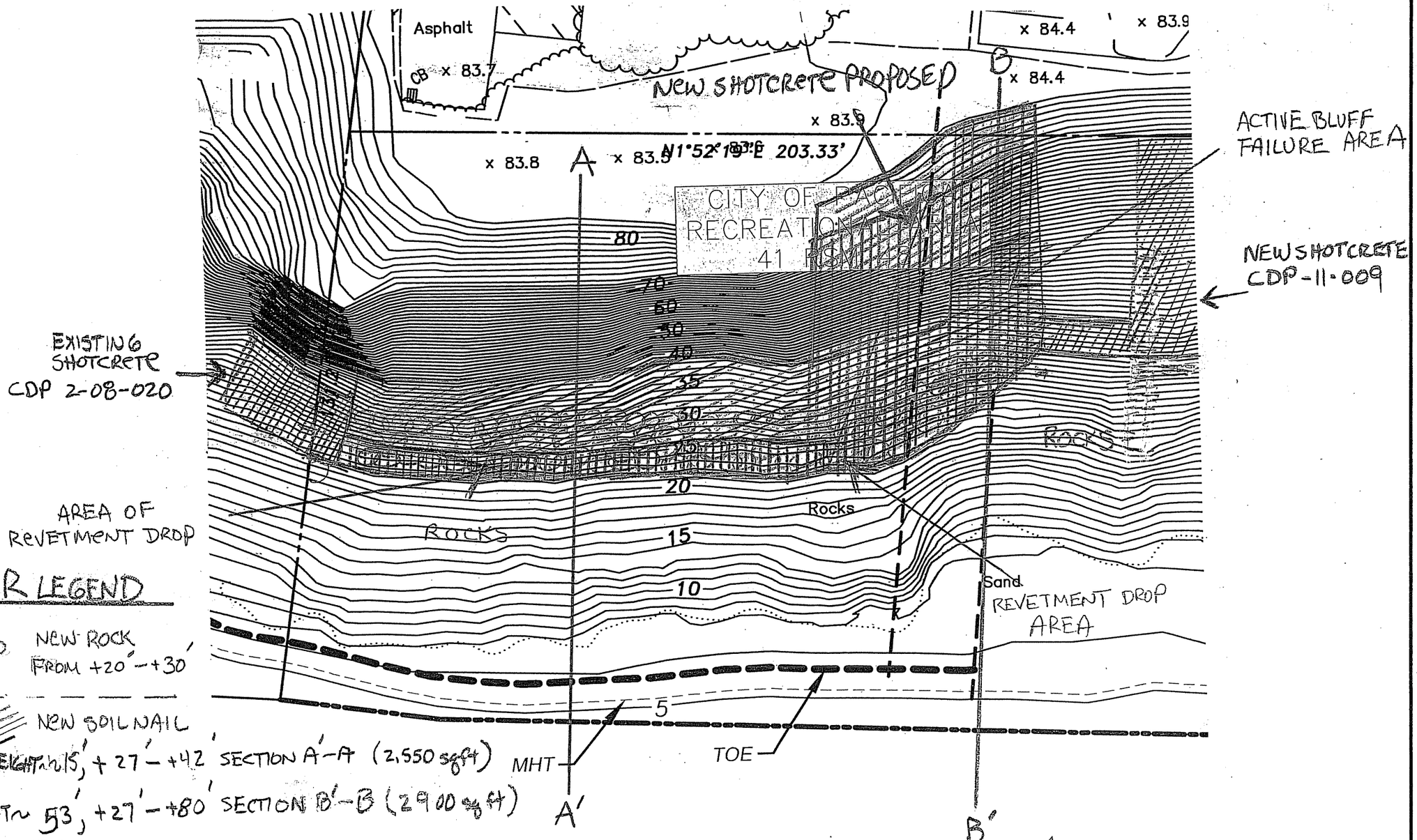
JOB NO.

SHEET S1 SHEETS

2-16-0684

EXHIBIT 4

Page 7 of 9



REPAIR LEGEND

NEW ROCK FROM +20' – +30'

NEW SOIL NAIL

HEIGHT ~ 15', +27' – +42' SECTION A'–A' (2,550 sqft)

HEIGHT ~ 53', +27' – +80' SECTION B'–B' (2900 sqft)

QUANTITIES

ROCK ~ 170' ~ 375 yd³ ~ 840 TONS

SOIL NAIL WALL ~ 5450 sqft.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

1" = 20'

PROPOSED REPAIR PLAN VIEW

REVISIONS	BY

DRAFTING BY: SCHMAHL DRAFTING — DAVE SCHMAHL (760) 484-8966

PROFESSIONAL ENGINEER — REGISTERED — W. SKELLY OAVID — No. C 47857 EXP. 12/31/16 — CIVIL — STATE OF CALIFORNIA

GeoSoils Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way, Carlsbad, CA 92010 — 760-438-3155

TITLE: 380 ESPLANADE ECDP BLUFF REPAIRS

CLIENT: AIMCO

DRAWN 1/15/16

CHECKED DWS

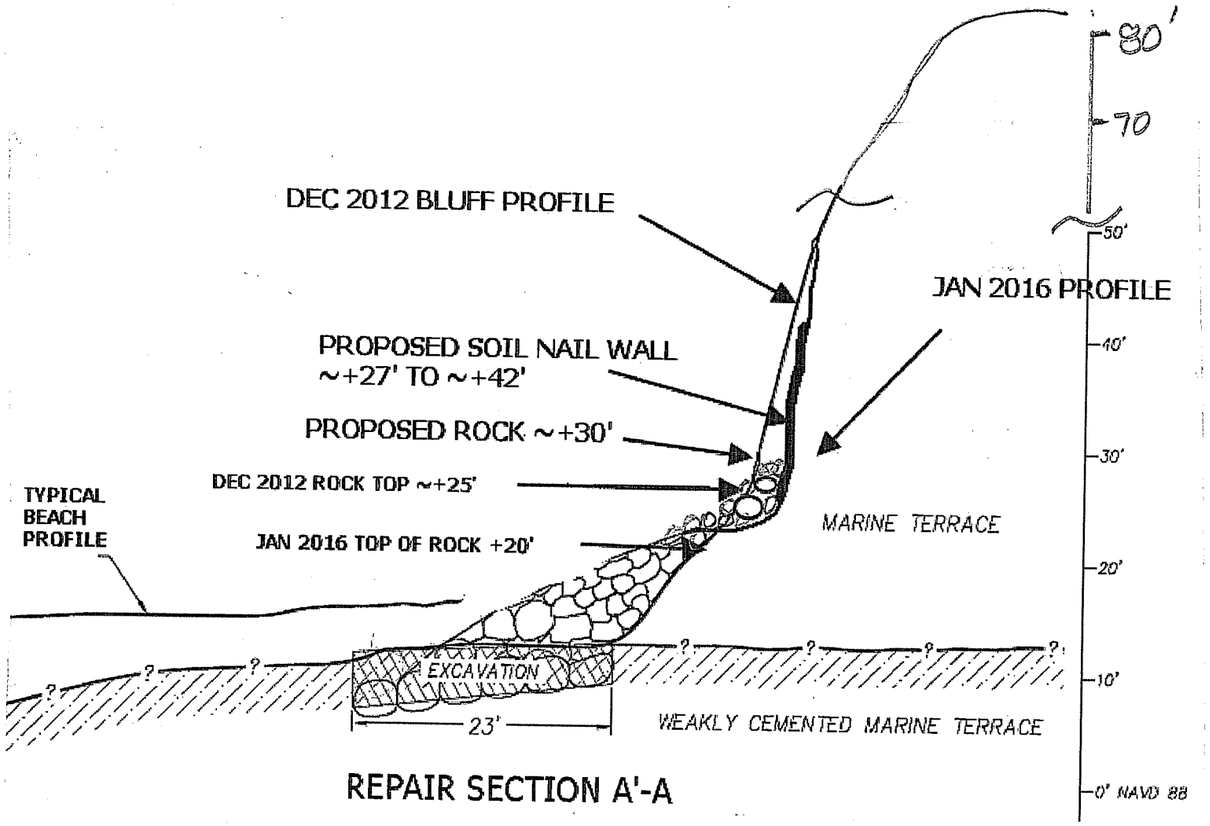
DATE

SCALE

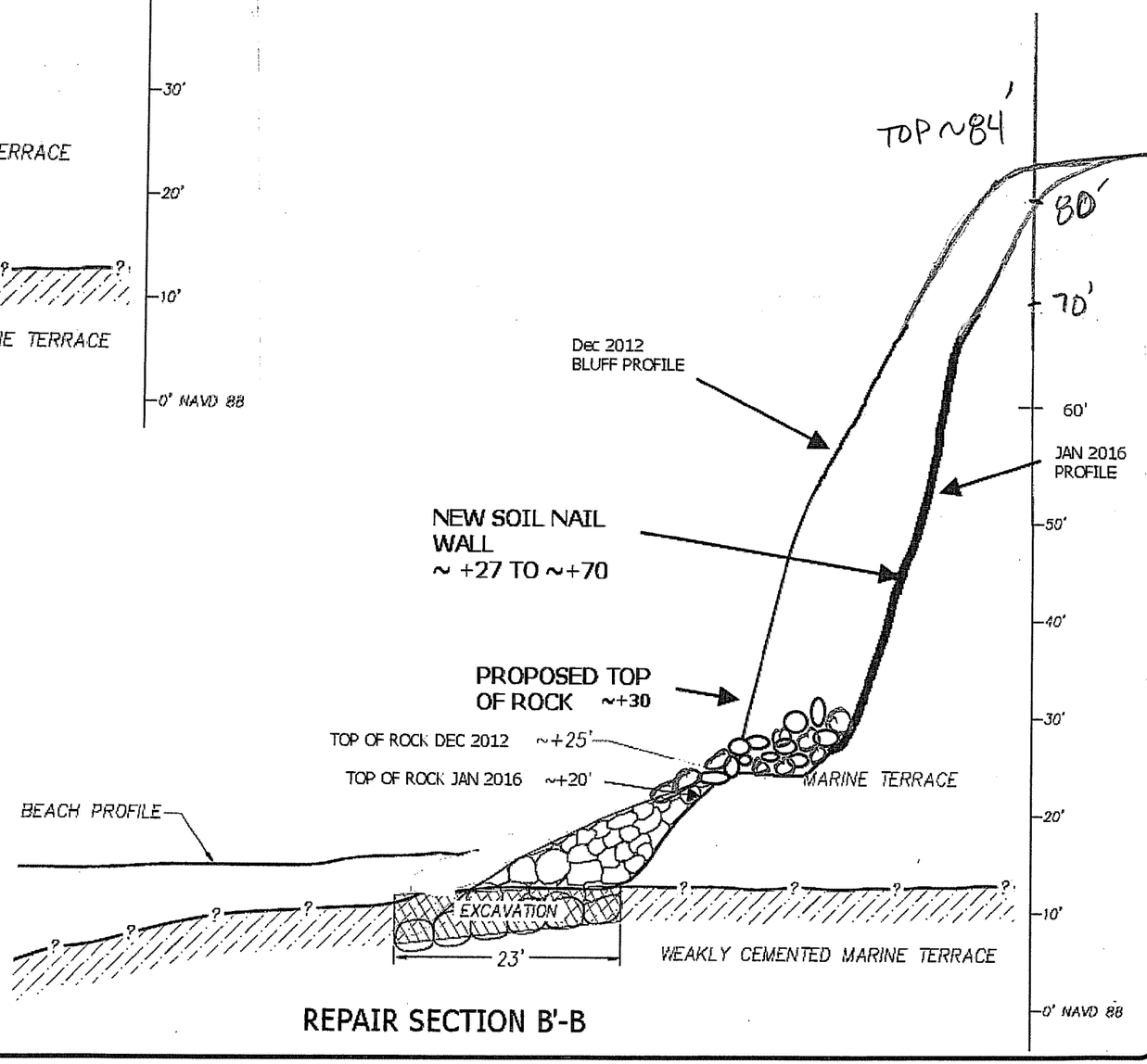
JOB NO.

SHEET 52

2-16-0664
EXHIBIT 4
Page 8 of 9



REPAIR SECTION A'-A



REPAIR SECTION B'-B

REVISIONS	BY

DRAFTING BY: SCHMAHL DRAFTING

DAVE SCHMAHL (760)484-8966

REGISTERED PROFESSIONAL ENGINEER DAVID W. SKELLY No. C 47857 EXP. 12/31/16 CIVIL STATE OF CALIFORNIA

GeoSoils, Inc.

Geotechnical · Geologic · Coastal · Environmental

5741 Palmer Way, Carlsbad, CA 92010 760-438-3155

TITLE: 380 ESPLANADE ECDP BLUFF REPAIRS

CLIENT: APMCD

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DATE	
SCALE	
JOB NO.	
SHEET	53

2-16-0684
EXHIBIT 4
Page 9 of 9

FOLLOW-UP COASTAL DEVELOPMENT PERMIT INFORMATION TO ADDRESS EMERGENCY REPAIRS TO THE REVETMENT AND BLUFF 380 ESPLANADE AVENUE, PACIFICA, SAN MATEO COUNTY, CALIFORNIA CALIFORNIA COASTAL COMMISSION EMERGENCY COASTAL DEVELOPMENT PERMIT, G-2-16-0011& G-2-16-0043

FOR

AIMCO
26 EXECUTIVE PARK, SUITE 125
IRVINE, CALIFORNIA 92614

W.O. S6014-SC JULY 13, 2016

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

July 13, 2016

W.O. S6014-SC

AIMCO
26 Executive Park, Suite 125
Irvine, California 92614

Attention: Mr. Sean Finnegan

Subject: Follow-up Coastal Development Permit Information to Address Emergency Repairs to the Revetment and Bluff, 380 Esplanade Avenue, Pacifica, San Mateo County, California, California Coastal Commission Emergency Coastal Development Permit, G-2-16-0011& G-2-16-0043.

Dear Mr. Finnegan:

At your request, GeoSoils Inc. (GSI) is pleased to provide the following information in support of a California Coastal Commission (CC) Coastal Development Permit (CDP) for the above referenced Emergency Coastal Development Permits (ECDP). The work was completed in June of 2016 and attached to this letter is a set of "as built" plans that reflect the work authorized under the ECDPs. This represents the minimum required repairs requested in the follow-up CDP application (summarized later in this report).

BACKGROUND

The City of Pacifica storm runoff drain immediately to the south of the subject property failed in about 1996, damaging the bluff and requiring emergency repairs/replacement. The repair, carried out by the City of Pacifica in 1998/1998, included a complete rebuild of the storm drain pipe and the associated bluff that housed it. The owner of 380 Esplanade (our subject area) also took the opportunity at the same time in 1998 to pull an emergency permit and placed a rock revetment along the bluff fronting 380 Esplanade to address erosion that was threatening the existing structures above. In 2009/2010 bluff failures occurred to the north at 360 Esplanade and emergency permits were pulled to address previous repairs. A new CDP 2-08-020 was approved on October 7, 2011, which authorized both the emergency work done at 380 Esplanade back in 1998 and the emergency work done at 360 Esplanade in 2009/2010. CDP 2-08-020 was conditioned to require the applicant to lower the height of the rock revetment and reduce the footprint on the beach. This work was completed in 2012 and has performed satisfactorily since.

Also in 2010, failures occurred at the City storm drain slope just below 380 Esplanade. An ECDP was granted in 2010 and repairs were made. In 2014, the follow-up CDP 2-11-009 for the City storm drain slope was granted and work was completed in January 2016.

On January 6, 2016, a failure occurred immediately adjacent to the recently completed City storm drain slope. GSI personnel visited the site January 8, 2016 and observed the "rotated landward" or lowered rock revetment and bluff failures along the toe of the bluff just above the revetment. Subsequent to the visit, on January 10, 2016, a larger 30-foot linear, by 12-foot deep, inland portion of the bluff failed, adjacent to (north of) the City storm drain repair authorized by CDP 2-11-009. In addition, on January 15, 2016 the prior failure grew in length along a larger portion of the area and receded an additional 5 feet inland. ECDP G-2-16-011 was granted January 21, 2016 to address these imminent dangers. Multiple failures occurred while the Emergency Work was being performed. Fortunately, many of these failures have occurred on the weekends and early morning hours so as to not endanger personnel. However, on two different occasions, failures occurred during work hours and nearly killed crew members. The construction team stated that the conditions were too dangerous to continue working; thus, they were not able to complete the work authorized under ECDP G-2-16-0011. Based on our observations on January 8, 2016 and April 5, 2016, the rock revetment that was lowered in front of 380 Esplanade had rotated landward or settled and the bluff actively continued to fail. This coupled with the El Niño and King Tide conditions, caused more failures in the subject area. The ongoing failure created an emergency situation that placed the occupied structures at 380 Esplanade in imminent danger. To address this emergency condition the CCC issued a second ECDP G-2-16-0043 on April 18, 2016. The current application requests permanent authorization for all work completed under CEDPs G-2-16-011 and G-2-16-043, as described below.

WORK COMPLETED

Attached to this report are the "as built" plans that reflect the work authorized under the ECDPs. The work performed included the construction of a soil nail wall in front of 380 Esplanade Avenue and placement of the rock at the top of the revetment that was removed at the request of the CCC under CDP 2-08-020. The soil nail wall varies in height, based upon the distance from the residential structure to the top of the bluff, and the slope stability analysis. At the southern end adjacent to the area where the bluff was re-vegetated, the new soil nail wall extends to the top of the bluff. This is the area of the bluff that is closest to the structure. The remainder of the soil nail wall extends up to within ±10 feet of the top of the bluff. For the failed revetment and bluff toe immediately above the revetment, rock was re-stacked in the areas that had failed, adding an additional ~ 10 feet on top of the existing rock revetment between the storm drain slope to the south and the soil nail wall to the north. All of the work was located at the top and behind the approved revetment. There was NO increase of the revetment footprint on the beach. There was NO rock added to the seaward face of the revetment; thus, there is no further encroachment seaward.

As part of the emergency work justification, a slope stability analysis was performed at two representative sections in the repair area. This analysis was reviewed by CCC staff and served to support the ECDP issued in April 2016. Slope stability analyses for the follow-up CDP as built conditions were performed utilizing the computer program GSTABL7 v.2. The program performs a two-dimensional analysis to compute the factor of safety (FOS) for a slope using the Modified Bishop (Circular) Method. The results of the analyses are included in Appendix I. A representative geologic cross-section was prepared for the analyses, utilizing cross-sections from the ECDP Bluff Repair Plan (GSI, 2016a), as well as referenced soil strength parameters from previous GeoSoils work (GSI, 2010), depicting the existing natural slope without mitigation, as indicated on Cross-Section A-A' and Cross-Section C-C' (Figures 1 and 3). Our analysis used a uniform formational contact above the toe of approximately 55- to 60-foot slopes (for A-A' and C-C'). The analysis shows that without the proposed soil nail wall in place, the structure has a FOS of less than 1.2. With the soil nail wall installed the FOS is at ~1.5 (Figures 2 and 4).

SAND REPLENISHMENT FEE INFORMATION

For consistency, the beach sand replenishment fee variables provided below are taken from the approved sand fee calculation for CDP No. 2-08-020. The area of the soils nail wall(s) was taken from direct measurement of the wall (s).

R	= 1.0 ft/yr
L	= 20 years
S	= 32%
Soil Nail Area	= 380 + 4,578 + 1,371 = 6329 sqft
C	=$10.40/yds^3

The beach sand replenishment fee is (.32)(20)(1)(6329)(10.4) = $421,258.24

CONCLUSION & RECOMMENDATIONS

GSI understands that under an Emergency Permit, it is required to do the minimum required to address the imminent danger. The work authorized under ECDPs G-2-16-011 and G-2-16-0043 was the minimum required to address the imminent danger in each instance. The existing lowered revetment was not adequate to address normal high tides in addition to winter and El Niño tides. The revetment had rotated landward and settled in the past two years, since it was required to be lowered as a condition of the previous CDP. As a result, the revetment rotation and the associated bluff failure behind it was a result of overtopping high tides coupled with above average wave heights and current El Niño conditions. The rock revetment and the unprotected bluff behind it had failed. The ECDP work addressed this emergency. The bluff prior to completion of the most recent work was very active and continuing to fail, which not only created dangerous and life-threatening conditions, but began to flank the existing soil-nailed wall authorized under

ECDP 2-16-0011. The constructed soil nail wall is NOT a tieback wall and needs the revetment at the base. This is not like the Lands End bluff repairs to the north (100 Esplanade) where the tieback wall is at the back of the beach. This bluff is much closer to the wave zone and the soil-nail walls only go behind the rock ~5 feet. The rock is still required for the constant wave action and high tides. The work performed as detailed in the as built plans addressed these emergency conditions. The analysis herein demonstrates that the emergency work, as completed, is adequate to serve as the final work necessary to protect the structure for the next few decades, provided the revetment is maintained. Thus, the attached "as built" plans and work described herein, with the calculated sand replenishment fee, represent the final work and no further work or modification to the soil nail walls or rock revetment is warranted or advised.

We appreciate this opportunity to be of service. Should you have any questions, please do not hesitate to contact the undersigned at (760) 438-3155.

Respectfully submitted,

GeoSoils, Inc.

David W. Skelly
Civil Engineer, RCE47857

John P. Franklin
Engineering Geologist, CEG 1340

Attachments: References
Appendix I - Slope Stability Analysis

Distribution: (2) Addressee

REFERENCES

GeoSoils, Inc., 2016a, ECDP Bluff Repairs, 380 Esplanade Avenue, Pacifica, California, As-built plans, prepared for AIMCO, project no. S6014-SC, dated June 12.

_____, 2016b, Emergency Repairs to the Revetment and Bluff, 380 Esplanade Avenue, Pacifica, San Mateo County, California, prepared for AIMCO, project no. S6014-SC, dated April 6.

_____, 2010, Earth Retention Calculations for Soil Nail Retaining Wall, Ocean Bluff Located West of 380 Esplanade Avenue, Pacifica, California, prepared for AIMCO, project no. S6014-SC, dated September 13.

APPENDIX I

SLOPE STABILITY ANALYSIS

APPENDIX I

SLOPE STABILITY ANALYSIS

INTRODUCTION OF GSTABL7 v.2 COMPUTER PROGRAM

Introduction

GSTABL7 v.2 is a fully integrated slope stability analysis program. It permits the engineer to develop the slope geometry interactively and perform slope analysis from within a single program. The slope analysis portion of GSTABL7 v.2 uses a modified version of the popular STABL program, originally developed at Purdue University.

GSTABL7 v.2 performs a two dimensional limit equilibrium analysis to compute the factor of safety (FOS) for a layered slope using the Modified Bishop or Simplified Janbu methods. This program can be used to search for the most critical surface or the FOS may be determined for specific surfaces. GSTABL7, Version 2, is programmed to handle:

1. Heterogenous soil systems
2. Anisotropic soil strength properties
3. Reinforced slopes
4. Nonlinear Mohr-Coulomb strength envelope
5. Pore water pressures for effective stress analysis using:
   a. Phreatic and piezometric surfaces
   b. Pore pressure grid
   c. R factor
   d. Constant pore water pressure
6. Pseudo-static earthquake loading
7. Surcharge boundary loads
8. Automatic generation and analysis of an unlimited number of circular, noncircular and block-shaped failure surfaces
9. Analysis of right-facing slopes
10. Both SI and Imperial units

General Information

If the reviewer wishes to obtain more information concerning slope stability analysis, the following publications may be consulted initially:

1. The Stability of Slopes, by E.N. Bromhead, Surrey University Press, Chapman and Hall, N.Y., 411 pages, ISBN 412 01061 5, 1992.

2. Rock Slope Engineering, by E. Hoek and J.W. Bray, Inst. of Mining and Metallurgy, London, England, Third Edition, 358 pages, ISNB 0 900488 573, 1981.

3. Landslides: Analysis and Control, by R.L. Schuster and R.J. Krizek (editors), Special Report 176, Transportation Research Board, National Academy of Sciences, 234 pages, ISBN 0 309 02804 3, 1978.

GSTABL7 v.2 Features

The present version of GSTABL7 v.2 contains the following features:

1. Allows user to calculate FOS for static stability and seismic stability evaluations.
2. Allows user to analyze stability situations with different failure modes.
3. Allows user to edit input for slope geometry and calculate corresponding FOS.
4. Allows user to readily review on-screen the input slope geometry.
5. Allows user to automatically generate and analyze defined numbers of circular, non-circular and block-shaped failure surfaces (i.e., bedding plane, slide plane, etc.).

Input Data

Input data includes the following items:

1. Unit weight, cohesion, and friction angle of earth materials.
2. Slope geometry and surcharge boundary loads.
3. For Cross Section A-A' and C-C', GSI used similar soil strength values for the Qt (Quaternary-Age Terrace Deposits) based off of GSI (2010) referenced laboratory values for terrace earth materials.
4. Soil parameters used in the slope stability analyses are provided in the following table:

TABLE I-1 - SOIL STRENGTH PARAMETERS

SOIL MATERIALS	SOIL UNIT WEIGHT (pcf)		STATIC SHEAR STRENGTH PARAMETERS			
			C (psf)		Φ (degrees)	
	Moist	Saturated	Bedding			
			Cross	Parallel	Cross	Parallel
Quaternary-Age Terrace Deposits (Terrace)	115	125	200		32	
Sandstone (SS)	120	125	500		45	
Rocks	140	145	750		40	

Output Information

Output information includes:

1. All input data.

2. FOS for the 10 most critical surfaces for static stability situation.

3. High quality plots can be generated. The plots include the slope geometry, the critical surfaces and the FOS.

4. Note, that in the analysis, 100 trial surfaces were analyzed for each section for either static analyses.

Results of Slope Stability Calculations without Soil Nails

The following table provides a summary of the results of our stability analyses. Computer printouts from the GSTABL7 program are also included herein.

TABLE I-2 - SUMMARY OF SLOPE STABILITY ANALYSES

LOCATION	FACTOR-OF-SAFETY (FOS) EXISTING SLOPE CONDITION	METHOD	COMMENTS
	STATIC		
Section A-A'	1.176 (See Figure 1)	Modified Bishop (Circle)	In-Adequate Static FOS
Section C-C'	0.952 (See Figure 3)	Modified Bishop (Circle)	In-Adequate Static FOS

Results of Slope Stability Calculations with Soil Nails

The following table provides a summary of the results of our stability analyses. Computer printouts from the GSTABL7 program are also included herein.

TABLE I-3 - SUMMARY OF SLOPE STABILITY ANALYSES

LOCATION	FACTOR-OF-SAFETY (FOS) EXISTING SLOPE CONDITION	METHOD	COMMENTS
	STATIC		
Section A-A'	1.497 (See Figure 2)	Modified Bishop (Circle)	Adequate Static FOS
Section C-C'	1.570 (See Figure 4)	Modified Bishop (Circle)	Adequate Static FOS

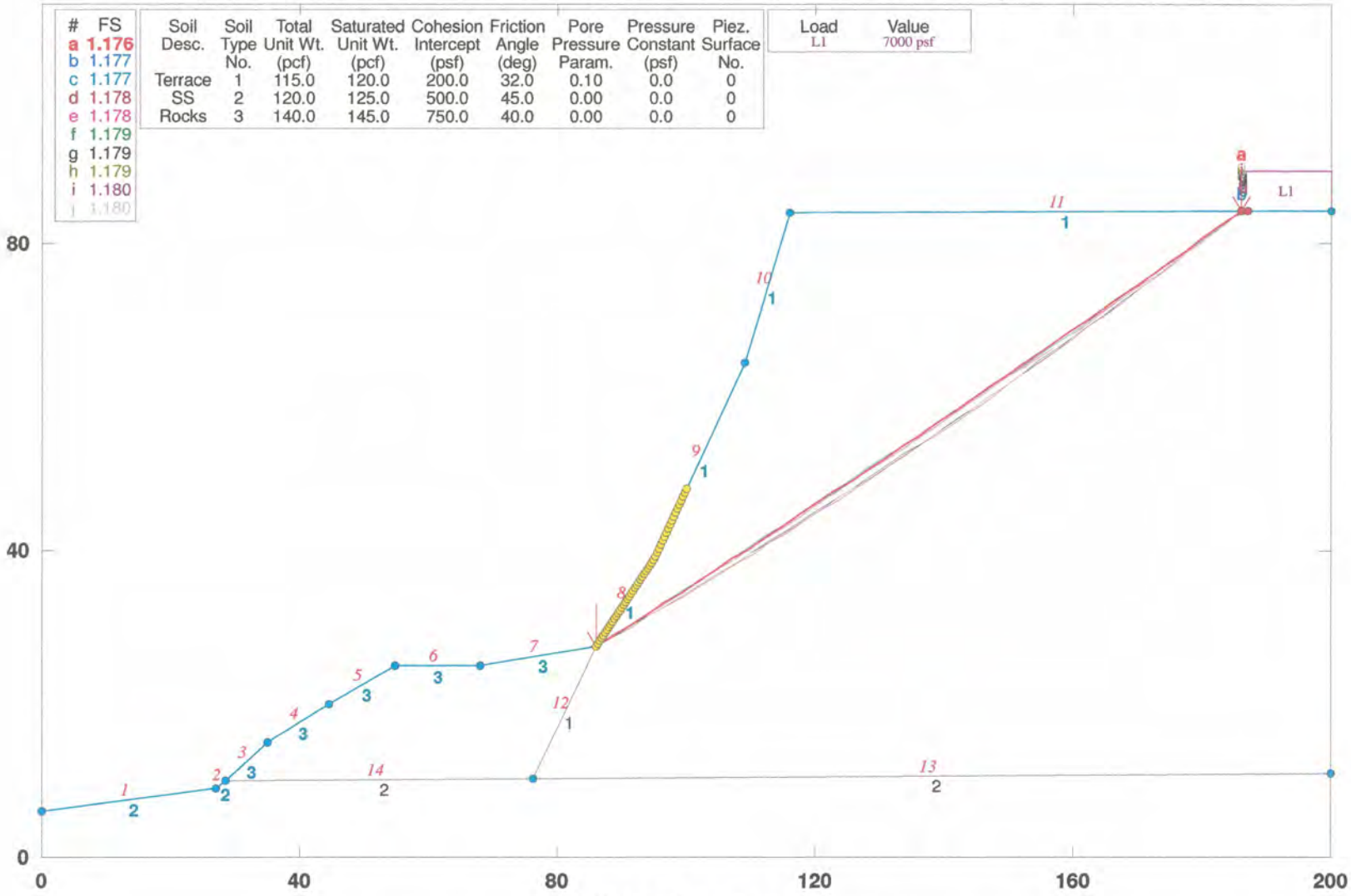
S6014-A-SC Cross-Section A-A', Static - No Nail

x:\shared\word perfect data\carlsbad\6000\s6014 aimco\s6014\static\7-6-16\s6014-a-sc, static - nail - a-a'.pl2 Run By: Username 7/7/2016 10:06AM

#	FS
a	1.176
b	1.177
c	1.177
d	1.178
e	1.178
f	1.179
g	1.179
h	1.179
i	1.180
j	1.180

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Terrace	1	115.0	120.0	200.0	32.0	0.10	0.0	0
SS	2	120.0	125.0	500.0	45.0	0.00	0.0	0
Rocks	3	140.0	145.0	750.0	40.0	0.00	0.0	0

Load	Value
L1	7000 psf



GSTABL7 v.2 FSmin=1.176

Safety Factors Are Calculated By The Modified Bishop Method

W.O. S6014-SC
FIGURE 1

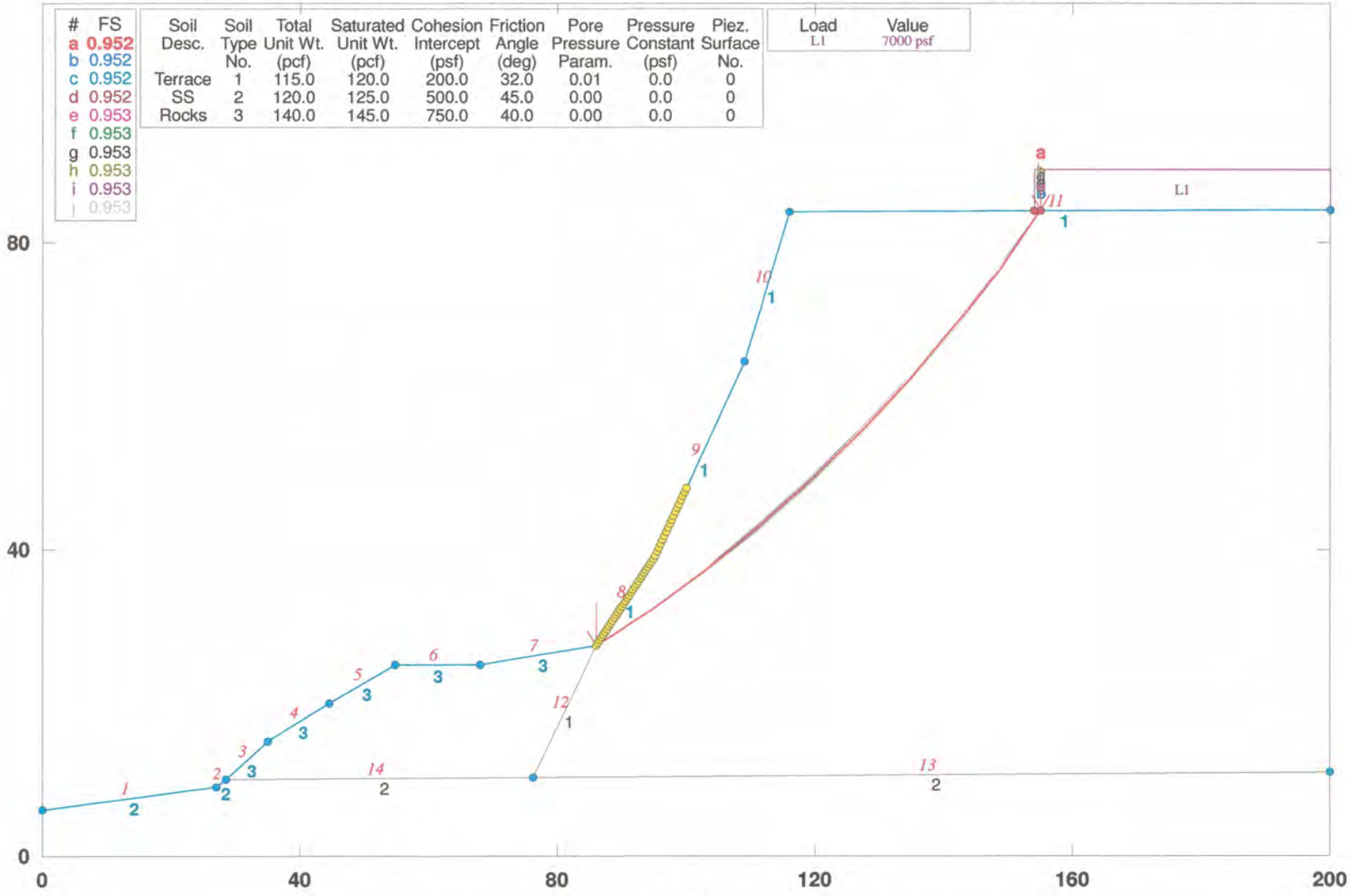
S6014-A-SC Cross-Section C-C', Static - No Nail

x:\shared\word perfect data\carlsbad\6000\s6014 aimco\s6014\static\2-29-16\s6014-a-sc, static - nail - c-c.pl2 Run By: Username 7/7/2016 10:01AM

#	FS
a	0.952
b	0.952
c	0.952
d	0.952
e	0.953
f	0.953
g	0.953
h	0.953
i	0.953
j	0.953

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Terrace	1	115.0	120.0	200.0	32.0	0.01	0.0	0
SS	2	120.0	125.0	500.0	45.0	0.00	0.0	0
Rocks	3	140.0	145.0	750.0	40.0	0.00	0.0	0

Load	Value
L1	7000 psf



GSTABL7 v.2 FSmin=0.952

Safety Factors Are Calculated By The Modified Bishop Method

W.O. S6014-SC
FIGURE 2

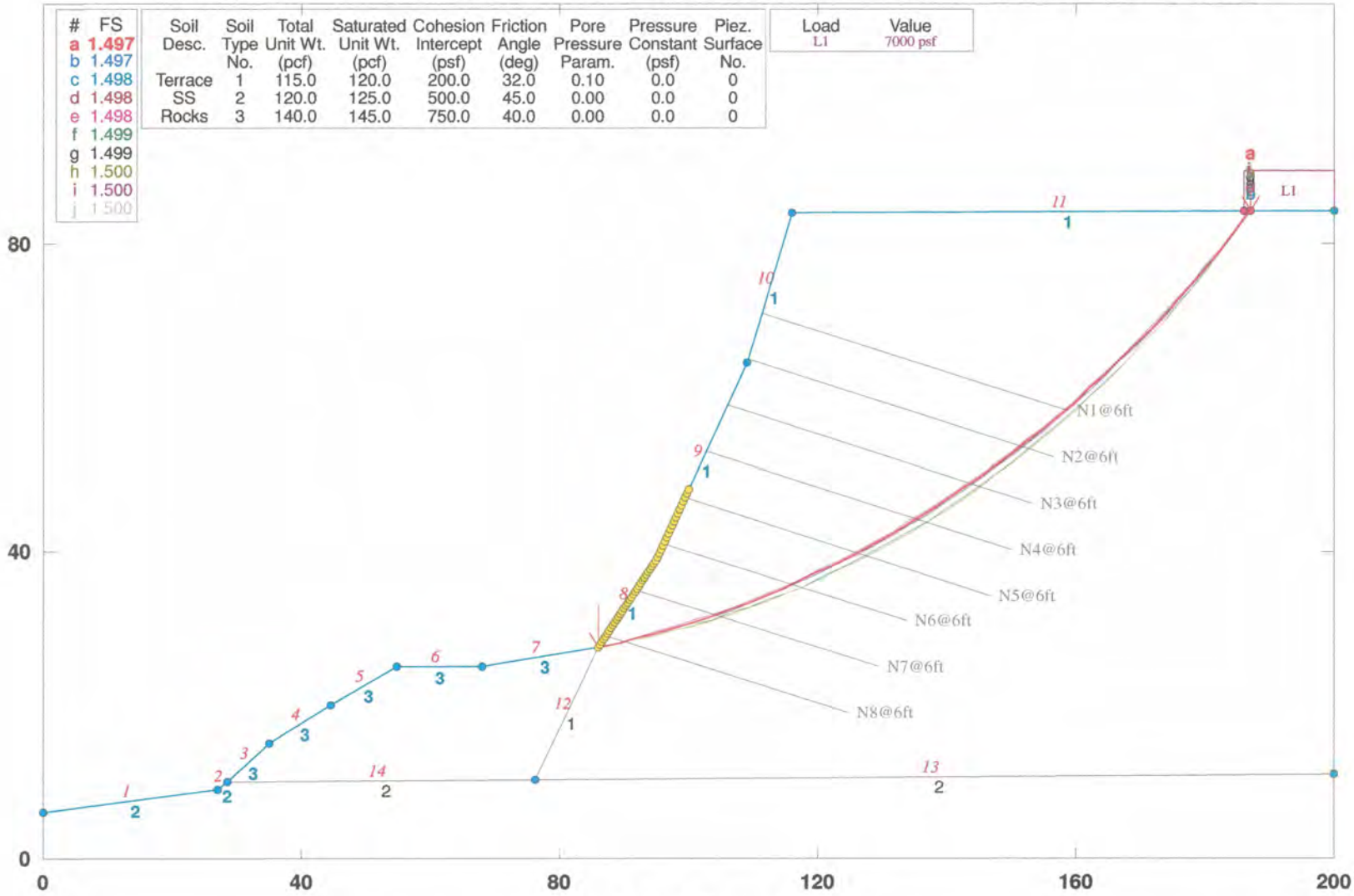
S6014-A-SC Cross-Section A-A', Static - Nail

x:\shared\word perfect data\carlsbad\6000\s6014 aimco\s6014\static\7-6-16\s6014-a-sc, static - nail - a-a'.pl2 Run By: Username 7/7/2016 10:05AM

#	FS
a	1.497
b	1.497
c	1.498
d	1.498
e	1.498
f	1.499
g	1.499
h	1.500
i	1.500
j	1.500

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Terrace	1	115.0	120.0	200.0	32.0	0.10	0.0	0
SS	2	120.0	125.0	500.0	45.0	0.00	0.0	0
Rocks	3	140.0	145.0	750.0	40.0	0.00	0.0	0

Load	Value
L1	7000 psf



GSTABL7 v.2 FSmin=1.497

Safety Factors Are Calculated By The Modified Bishop Method

W.O. S6014-SC
FIGURE 3

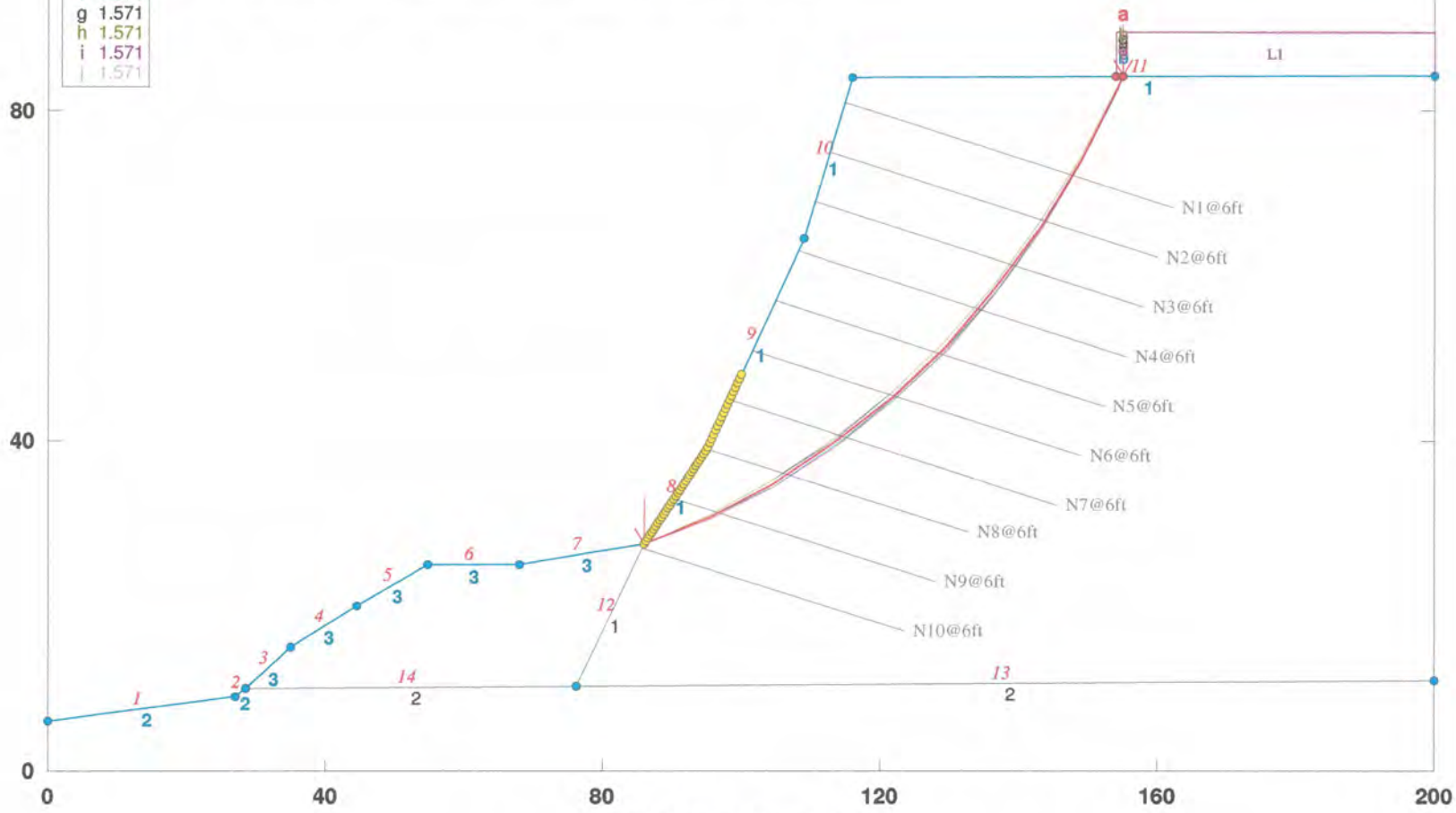
S6014-A-SC Cross-Section C-C', Static - Nail

x:\shared\word perfect data\carlsbad\6000\s6014 aimco\s6014\static\2-29-16\s6014-a-sc, static - nail - c-c.pl2 Run By: Username 7/7/2016 10:03AM

#	FS
a	1.570
b	1.571
c	1.571
d	1.571
e	1.571
f	1.571
g	1.571
h	1.571
i	1.571
j	1.571

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Terrace	1	115.0	120.0	200.0	32.0	0.01	0.0	0
SS	2	120.0	125.0	500.0	45.0	0.00	0.0	0
Rocks	3	140.0	145.0	750.0	40.0	0.00	0.0	0

Load	Value
L1	7000 psf



GSTABL7 v.2 FSmin=1.570

Safety Factors Are Calculated By The Modified Bishop Method

W.O. S6014-SC
FIGURE 4

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

February 22, 2017 W.O. S6014-SC

Mr. Sean Finnegan
AIMCO
26 Executive Park, Suite 125
Irvine, California 92614

Subject: Amendment to Permit Information for Emergency Repairs to the Revetment and Bluff, 380 Esplanade Avenue, ECDPs, G-2-16-0011& G-2-16-0043.

Dear Mr. Finnegan:

At your request, and based upon our review of the proposed California Coastal Commission (CC) Coastal Development Permit (CDP) permit conditions for the subject project, GeoSoils Inc. (GSI) is please to provide this amendment to the permit information provided in our July 13, 2016 report. In our review of the proposed conditions we noted that the staff calculated 1125 cubic yards for the mitigation fee. In reviewing this for consistency with our previous calculations we noted that in our July 13, 2016 calculations we failed to convert cubic feet to cubic yards. Below is the recalculation of the quantity and the fee.

SAND REPLENISHMENT FEE INFORMATION

For consistency, the beach sand replenishment fee variables provided below are taken from the approved sand fee calculation for CDP No. 2-08-020. The area of the soils nail wall(s) was taken from direct measurement of the wall (s).

R	= 1.0 ft/yr
L	= 20 years
S	= 32%
Soil Nail Area	= 380 + 4,578 + 1,371 = 6329 sqft
C	=$10.40/yds3

The sand volume is (.32)(20)(1)(6329)/(27) = 1500.21 cubic yards
The beach sand replenishment fee is (1500.21)(10.4) = $15,602.

We appreciate the CCC staff correcting the calculation and the opportunity to be of service. Should you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

GeoSoils, Inc.
David W. Skelly MS, PE

McCabe & COMPANY
COASTAL LAND USE
CONSULTING AND ADVOCACY

10520 Oakbend Drive
San Diego, CA 92131

1017 L Street, #646
Sacramento, CA 95814

Patrick Foster
California Coastal Commission
North Central Coast District
45 Fremont Street, Suite 2000
San Francisco, CA 94105

December 28, 2016

SUBJECT: 2-16-0684 (AIMCO) Project Chronology
360-380 Esplanade Avenue, Pacifica

Dear Mr. Foster:

Thank you for the recent opportunity to discuss our pending application with you and Stephanie Rexing. At your request, the following is a chronological description to go along with the cross-section graphic prepared by the geotechnical engineer (see attached):

1. 1996 – City of Pacifica storm drain failure occurred, affecting storm drain slope and upcoast bluff below 380 Esplanade.
2. 1998/1999 – Complete storm drain rebuild by City of Pacifica.
3. 1998 – During City storm drain rebuild, owner of 360/380 Esplanade received Emergency Permit 1-98-109-G and placed rock revetment along bluff fronting both 380 Esplanade (our subject area) and a portion of 360 Esplanade. No follow-up permit processed by the owner at the time.
4. 2009/2010 – Bluff failures occurred upcoast of subject site, seaward of 360 Esplanade.
5. October 7, 2011 - CDP 2-08-020 approved to consolidate all Emergency Permits executed to date and authorize emergency work done at 360/380 Esplanade in 1998 and emergency work done at 360 Esplanade in 2009/2010. CDP 2-08-020 conditioned to require Aimco to lower height of the rock revetment and reduce the footprint on the beach.
6. March/April 2010 – Failures occurred at the City Storm Drain. Emergency Permit 2-10-034-G executed.
7. July 2014 – CDP 2-11-009 approved for the City Storm Drain slope work.
8. January 2016 – Storm Drain slope work under CDP 2-11-009 completed.
9. January 6, 2016 – Bluff failure occurred below 380 Esplanade immediately adjacent to the north of the recently completed Storm Drain work.

10. January 10, 2016 – Larger bluff failure occurred in the same location, seaward of 380 Esplanade.
11. January 15, 2016 – Bluff failure grew in length and receded an additional 5 feet.
12. January 21, 2016 – ECDP G-2-16-0011 granted to address bluff failures.
13. April 5, 2016 – Bluff failures and movement made current ECDP work unsafe.
14. April 18, 2016 – Additional ECDP G-2-16-0043 granted for additional work needed to address unsafe work conditions due to continuing bluff movement.
15. May 2016 – Work completed under ECDPs G-2-16-0011 & G-2-16-0043.

With this submittal, you should have everything you need to finalize the staff report. If you have any questions or need any additional information, please do not hesitate to call me at (310) 463-9888. Thank you for your consideration of this matter.

Sincerely,

Anne Blemker

Enclosure

cc: Sean Finnegan, AIMCO, applicant


Coastal Photo 9-27-13
Remaining un-armored portion of 360 Esplanade
CDP 2-08-020
CDP 2-16-0684
CDP 2-11-009