CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
(619) 767-2370

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Th17b

Addendum

February 7, 2017

To: Commissioners and Interested Persons

From: California Coastal Commission
San Diego Staff

Subject: Addendum to **Item Th17b**, Coastal Commission Permit Application **#6-16-0281 (Winkler & Lucker)**, for the Commission Meeting of February 9, 2017

The changes in this addendum are generally proposed for clarification. One letter of support has also been attached to be added as Exhibit No. 11. Staff recommends the following changes be made to the above-referenced staff report. Deletions shall be marked by a ~~strikethrough~~ and additions shall be underlined:

1. On Page 4 of the staff report, the following shall be added:

Exhibit 11 – Public Comment Letter, Surfrider Foundation, Dated 2/6/2017

2. On Pages 26-28 of the staff report, the text beginning with the second bullet point on page 26 shall be revised as follows:

- ~~Reconstruction of New Homes Landward of the Geologic Setback Line~~
- Relocation of the Existing Structures

Relocation of the existing structures is another potential alternative to the proposed seawall that must be considered. In this particular case, ~~V~~various special conditions have been applied by the Commission to permits for ~~on~~ past shoreline armoring and blufftop structure improvements for the two homes which require that the applicants analyze, and implement if feasible, relocation of all or portions of the principle structures that are threatened by bluff erosion, as an alternative to additional bluff or shoreline protection devices (Ref: Special Condition 3 of CDP 6-04-086/Winkler Home Addition; Special Condition 8 of CDP 6-08-122/Winkler Seawall and Geogrid; and Special Condition 3 of CDP 6-91-265-A1/Lucker Home Addition.

The applicants' alternatives analysis for the subject property, dated March 3, 2014, asserts that it would not be feasible to relocate the principal bluff top structures on the subject sites. The applicants contend that this alternative would be prohibitive because

the subject lots are too small to accommodate relocation or reconstruction of the existing structures to a location located landward of the Geologic Setback Lines (GSL) on the subject site, such that the new homes would be safe from bluff erosion over a 75 year period. In addition, the applicants have indicated that the cost of removing or relocating the homes would be infeasible.

While it is true ~~T~~the amount of available land area on the top of the bluff is fairly limited, the purpose of the alternatives analysis is not to determine a safe location for 75 years, but to analyze options for the remainder of the life of the existing structures that might avoid the need for the proposed seawall. The lot at 517 Pacific Avenue is approximately 90 ft. wide and has a depth of approximately 85 ft. between the Pacific Avenue street right-of-way and the bluff edge. The lot at 521 Pacific Avenue is approximately 80 ft. wide and has a depth of approximately 95 ft. between the Pacific Avenue street right-of-way and the bluff edge. Therefore, ~~I~~it is clear that the subject lots do not have sufficient room to relocate the entirety of the existing houses far enough back that they would avoid the need for the proposed seawall. ~~not be threatened by erosion. However, the~~ The applicants did not provide an analysis of whether a portion of the homes could be removed, or whether new homes could be constructed with smaller footprints~~; for example, building two-story homes within five feet of the street right-of-way with western cantilevers~~. However, in this particular case, the subject residences were constructed prior to the Coastal Act and are thus "existing" for purposes of required protection under Section 30235 of the Coastal Act. Detailed analysis and implementation of such alternatives would be required pursuant to the certified Solana Beach LUP to avoid mid and upper bluff protective devices should any additional bluff retention devices be contemplated on these sites in the future.

~~Solana Beach has minimum setback standards with which any new construction on the site would have to comply, but the LUP specifically allows some exceptions to these standards to accommodate homes on constrained lots. Solana Beach Municipal Code section 17.20.030.D.a requires a 10 ft. first story front yard setback, a 15 ft. second story front yard setback, and a 5 ft. garage front yard setback on the west side of Pacific Avenue. Side yard setbacks on bluff top lots are 5 ft. on either side. Where setbacks and other development standards could preclude the construction of a home, Policy 4.22 of the City's certified LUP allows for a reduction of the required two car parking space requirement to one car and construction within five feet of the public right-of-way setback for all stories. In addition, the LUP allows for a first and second story cantilever on the west side of a bluff home (10 ft. in depth), provided that all footings and foundational support is located landward of the Geologic Setback Line.~~

~~Taking into account these parameters, at 517 Pacific Avenue, on the applicant's 90 ft. wide lot, a two story average sized home would require a foundation footprint of only 400 sq. ft. (80 ft. wide by 5 ft. deep) with an additional 800 sq. ft. cantilever footprint (80 ft. wide by 10 ft. deep). Thus, on the subject lot, a new 2,000 sq. ft. two story home with an attached 400 sq. ft. garage could locate all the footings and structural support as far inland as approximately 75 ft. from the bluff edge, with the western wall of the cantilevered portion of the home located approximately 65 ft. from the bluff edge. According to a past analysis done by the City, the average bluff top home size in~~

~~the city is approximately 2,000 sq. ft. with an additional 400 sq. ft. garage. Thus, there clearly is the ability to construct a reasonably-sized new home set further back on the bluff. And while 2,000 sq. ft. is the average sized house in this area, it is not necessarily the minimum size necessary to achieve a reasonable use of the site (ref. 6-15-1717/Barr). However, while the footprint of the new home could be located landward of the minimum 40 ft. bluff setback for new bluff top homes, it would still be located entirely seaward of the Geologic Setback Line (approximately 86 ft. from the bluff edge) (Exhibit 10). Thus, at 517 Pacific Avenue, the Commission finds that there is not sufficient room to relocate/rebuild a home on this site such that the home's foundation can be located landward of the Geologic Setback Line and the proposed seawall not be needed.~~

~~At 521 Pacific Avenue, on the applicant's 80 ft.-wide lot, a two story average sized home would require a foundation footprint of only 840 sq. ft. (70 ft. wide by 12 ft. deep) with an additional 350 sq. ft. cantilever footprint (70 ft. wide by 5 ft. deep). Thus, on the subject lot, a new 2,000 sq. ft. two story home with an attached 400 sq. ft. garage could locate all the footings and structural support as far inland as approximately 78 ft. from the bluff edge, with the western wall of the cantilevered portion of the home located approximately 73 ft. from the bluff edge. The foundational elements of a home with this hypothetical building footprint could be located landward of the minimum 40 ft. bluff setback for new bluff top homes and would also be located landward of the Geologic Setback Line (approximately 78 ft. from the bluff edge) (Exhibit 10). Thus, at 521 Pacific Avenue, in theory, there would be sufficient room to relocate/rebuild a home of an average size in Solana Beach such that the home's foundation can be located landward of the Geologic Setback Line and the proposed seawall not be needed. However, the example explored above assumes maximizing the site using a uniform 'rectangle-shaped' two story home which would likely not fit in with the character or the neighborhood. Furthermore, although not a part of the City certified LUP, the City protects private views for inland properties and would potentially require that a larger view corridor be created at the second story level (Ref: Solana Beach Municipal Code Section 17.63). Thus, required architectural articulation and increased view corridors would result in a significantly larger project footprint, that could not be accommodated landward of the Geologic Setback Line and avoid the need for the proposed seawall.~~

However, ~~if the proposed shoreline protection were to be put in place,~~ there does appear to be enough room to rebuild~~/relocate~~ <u>the</u> homes in the future with caisson foundations such that further mid and upper bluff shoreline armoring would not be required. The City's LUP allows the City to consider ~~as an option for new structures, the~~ use of a caisson foundation with a minimum 40 foot bluff top setback <u>as an alternative to mid and upper bluff protection</u>, if caissons would allow the structure to meet the stability requirement and avoid alteration of the natural landform along the bluffs, i.e., exposure of the caissons in the future. ~~Once the lower bluff and clean sand lens is encapsulated by a seawall, it is likely that the upper bluff will be able to reach a stable angle of repose at approximately 35 degrees (as measured from the top of the seawall). At this point, the bluff may remain relatively stable for years. Therefore, under this scenario, it can~~

~~reasonably be assumed that a caisson foundation located inland of the 35 degree line, will not become exposed.~~

SURFRIDER FOUNDATION | San Diego County Chapter

February 6, 2017

Delivered via email

To: Eric Stevens
California Coastal Commission
7575 Metropolitan Drive Ste 103
San Diego, CA 92108-4402

Re: Item Th17b Application No 6-16-0281, Winkler & Luker seawall CDP for 517 & 521 Pacific Ave, Solana Beach

Dear Mr. Stevens,

We are writing to support the conditions recommended by staff for approval of this Coastal Development Permit (CDP). Specifically, we support the following Special Conditions:

Special Condition 2A: Authorization of the CDP expires when either of the blufftop residences at 517 or 521 Pacific Ave are redeveloped. This is consistent with the Solana Beach LUP Policies 4.17, 4.48, 4.52:

> *"...any significant alteration or improvement to the existing structure shall trigger such review (i.e. the analysis of the seawall) and any unavoidable impacts shall be mitigated."*
>
> *"The permit shall be valid until the currently existing structure requiring protection is redeveloped (per definition of Bluff Top Redevelopment in the LUP), is no longer present, or no longer requires a protective device, whichever occurs first and subject to an encroachment/removal agreement approved by the City."*
>
> *"All permits for bluff retention devices shall expire when the currently existing blufftop structure requiring protection is redeveloped (per definition of Bluff Top Redevelopment in the LUP)..."*

Special Condition 2B: Extension of authorization and mitigation beyond the 20 year mitigation period requires a new CPD or amendment to the CDP to reassess the situation. Analysis at this point will be based on the best available science and update standards, an important point given the changing conditions and threat posed by Sea Level Rise. This is consistent with the Solana Beach Land Use Plan (LUP) policy 4.52:

Phone: 858.622.9661 | Fax: 858.622.9661 | info@surfriderSD.org | sandiego.surfrider.o
9883 Pacific Heights Blvd. Suite D, San Diego, CA 92121

"The CDP shall include a condition requiring reassessment of the impacts of the device in 20-year mitigation periods pursuant to Policies 4.48 and 4.51."

Special Condition 3: Prohibits future development from relying on the sea wall to establish geologic stability or protection from hazards. This is consistent with the Solana Beach Land Use Plan (LUP) policy 4.18:

"A legally permitted bluff retention device shall not be factored into setback calculations."

Special Condition 6: Require permittees to include in any future permit applications information about alternatives including relocation of all or portions of the principal structures that are threatened. This is consistent with the Solana Beach Land Use Plan (LUP) policy 4.52:

- *"Taking into consideration any applicable conditions of previous permit approval for development at the subject site, determination must be made based on a detailed alternatives analysis that none of the following alternatives to the upper bluff system are then currently feasible, including:*
  Removal and relocation of all, or portions, of the affected bluff home…"

Special Condition 10: Recognizes that the seawall is located entirely on public property owned by the city of Solana Beach and is subject to removal by request of the city at any time.

In addition, we want to commend staff for their inclusion of language describing the severe negative impacts that sea walls have on the beach and coastal access, especially in light of predicted future sea level rise:

"'By acceptance of this permit, the applicants acknowledge and agree that the site may be subject to hazards, including but not limited to waves, storms, flooding, landslide, bluff retreat, erosion, and earth movement, many of which will worsen with future sea level rise." (page 11)

"Furthermore, when the back beach is fixed with a shoreline armoring device, passive erosion is halted and additional public beach area can no longer be created." (page 17)

"...the proposed shoreline armoring fronting the subject sites will impede public access to and along the shoreline, impact beaches and related habitats, and visually impair the coastal area. Thus, it is important to limit the life of the shoreline armoring to that of the structures it is required to protect." (p 29)

Despite these important permit Conditions, serious concerns still remain about the severe temporary loss of access to Tide Park Beach during construction. This popular

beach is a heavily utilized area as it is at the base of one of only three public beach access stairways in the city. In addition to temporary loss of access, there will be long term impacts to access and visual impacts at this important beach. Due to the impact, this project should be conditioned to publicly notice construction times and potential closure areas of the beach prior to construction in a way that residents and beach users are aware of the impact.

Additional, this project will entomb a 60 feet deep cave. The erosion rate used for sand and other fees could be grossly underestimated at 0.4ft per year. As we have repeatedly pointed out previously, the erosion rate proposed in the current Public Recreation Fee needs to account for this when a fee is ultimately assessed. For institutional memory the condition of the caves behind all seawalls in the system should be included in the findings and or conditions.

Sincerely,

Kristin Brinner
Resident of Solana Beach
Co-chair, Beach Preservation Committee
San Diego Chapter of the Surfrider Foundation

Jim Jaffee
Resident of Solana Beach
Co-chair, Beach Preservation Committee
San Diego Chapter of the Surfrider Foundation

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

Th17b

Filed:	9/19/2016
180th Day:	3/18/2017
Staff:	E.Stevens-SD
Staff Report:	1/26/2017
Hearing Date:	2/9/2016

STAFF REPORT: REGULAR CALENDAR

Application No.:	**6-16-0281**
Applicant:	**David Winkler & Ron Lucker**
Agent:	Walter Crampton
Location:	517 & 521 Pacific Avenue, Solana Beach, San Diego County (APN Nos. 263-041-14, 263-041-04, 263-041-26)
Project Description:	Construct a 140 ft. long, 32 ft. high, 30 in. thick seawall on the beach and bluff, remove a portion of the existing adjacent seawall to the north of the subject site, remove an approximately 40 ft. long by 6 ft. thick natural bluff headland fronting the northern property, and install hydroseed and container plantings on the existing geogrid slope
Staff Recommendation:	Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

Staff recommends that the Commission **approve** the applicants' request for shoreline armoring to protect two detached single family residences on the blufftop. The proposed project includes several related elements. There is an existing 40-foot long natural bluff headland formation in front of the southern property, which the applicants assert deflects wave action onto the bluff face, causing erosion. The project would remove this headland, and construct a 140 ft. long seawall on the beach against the existing and modified bluff face (Exhibit 3). The seawall would be located entirely on publicly-owned beach and bluffs. The northern property currently has an existing seawall with geogrid infill covering the bluff face from the top of the seawall to the bluff edge. The southern terminus of this seawall is angled to deflect waves. As proposed, this seawall 'fillet'

would be removed to connect the existing seawall with the proposed new wall. In addition, the landscaping previously required on the geogrid was not successful, so the applicant is proposing the addition of new landscaping to improve the visual quality of the geogrid.

The applicants' engineer has conducted a geotechnical assessment and determined that due to given the low factor of safety on the subject bluff, the exposed clean sand lens, and the close proximity of the existing structures to the bluff edge, the existing blufftop structures, both of which were constructed prior to passage of the Coastal Act, are in danger from erosion. The Commission's staff engineer and geologist have reviewed the project and concur that a seawall along the entirety of the 140 ft. long beach and lower bluff fronting the two sites is necessary at this time. However, rather than remove the natural bluff headland, a less environmentally damaging feasible alternative is building the seawall in front and around the natural formation. Because the headland is only approximately 20 feet high, and the seawall needs to be 32 feet high in order to cover the clean sands, this would require essentially encasing the headland in concrete, including backfilling behind the wall (Exhibit 7). Nevertheless, this is a preferred alternative, because removal of this large natural bluff feature has the potential to further destabilize the bluff, which could result in the need for even greater amounts of shoreline armoring at the site. Furthermore, the seaward undulation of the headland currently breaks up edge waves and protects areas downcoast from potential increased scour and erosive force associated with that type of wave. Since Tide Beach Park is located immediately downcoast of the subject site, removal of the headland could result in accelerated erosion of this important public resource. Special Condition 1 requires the applicants to submit revised plans showing that the natural bluff headland will be retained and that the seaward portion of the headland will be encased by the proposed seawall. This will avoid the need to make significant revisions to the existing seawall (i.e., the removal of the angled "fillet").

Staff is recommending approval with a number of additional conditions that address the direct impact of the proposed shoreline armoring on coastal resources, including scenic quality, public access and recreation opportunities, and shoreline sand supply, as well as the direct, indirect and long-term effects on the adjacent public beach and State tidelands that results from armoring the bluffs. In addition, Special Conditions address potential impacts to ocean quality that may result from the proposed project.

Staff is also recommending that the proposed shoreline armoring be approved only for as long as the existing bluff top structures that the armoring is authorized to protect still exist. Special Conditions require the applicants to submit a complete coastal development permit application to remove or modify the terms of authorization of the armoring when the existing structures warranting armoring are redeveloped, are no longer present, or no longer require armoring. One purpose of these conditions is to tie the life of the shoreline armoring to the structures it is approved to protect, and to waive any potential rights to augment or reconstruct the armoring to protect new development. This helps to preserve future adaptation options that may be necessary to mitigate adverse beach and public access conditions triggered by ongoing erosion and sea level rise.

The applicants have proposed to make a contribution to the mitigation program that would address the sand volume impacts from denial of sand to the littoral cell. Over the course of the 20 year sand supply mitigation period, the proposed seawall extension results in the retention of about 2,489 cubic yards of beach quality sand. At estimated sand cost of $16.29 per cubic yard (provided by the applicant, and based on three estimates from local contractors); this sand would have a value of $40,546 (Exhibit 9). The beach area itself and degradation of public access to and along the beach that would be impacted due to encroachment (350 sq. ft.) and the area impacted by estimated passive erosion over the 20 year mitigation period (1,120 sq. ft.) will be mitigated through the City's interim in-lieu deposit fee, which requires the applicant to pay an interim deposit fee of $140,000 pursuant to Special Condition 7.

The initial sand supply mitigation period for the proposed seawall addition is 20 years, and the applicant has agreed to make a deposit in the interim public access and recreation account until a public access and recreation fee program can be approved by the Commission. However, if the approved seawall extension remains in place after 20 years because it continues to be necessary to protect the existing endangered structures, additional mitigation will be required. Therefore, Special Condition 7 requires that prior to the completion of the initial 20-year mitigation period, the applicants must obtain a new CDP or a CDP amendment to assess the continued impacts on public access and sand supply as a result of the shoreline armoring built on the publicly-owned beach and bluff.

With the required public access and recreation mitigation, as well as the limitation on the time for which the shoreline armoring is approved, the impacts of the proposed shoreline protection on regional sand supply and public access and recreation will be mitigated to the extent feasible. To ensure that any future redevelopment of these properties is consistent with Chapter 3 policies of the Coastal Act, this permit requires that any redevelopment of the bluff-top properties may not rely upon this shoreline armoring to determine site suitability for such redevelopment. Other conditions involve an in-depth alternatives analysis for future reauthorization of the seawall, ensuring that the appearance of the seawall matches the bluffs, and demonstrating approval from other agencies for the subject project.

Commission staff recommends **approval** of coastal development permit application 6-16-0281, as conditioned.

Standard of Review: Chapter 3 policies of the Coastal Act, with the certified LUP used as guidance.

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APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit Application No. 6-16-0281 subject to the conditions set forth in the staff recommendation.*

Staff recommends a **YES** vote on the foregoing 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.

Resolution:

The Commission hereby approves coastal development permit 6-16-0281 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

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

3. **Interpretation.** Any questions of intent of 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. **Revised Final Plans.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit, for review and written approval of the Executive Director, one full-size set of the revised final plans, that substantially conform with the plans submitted to the Commission, titled 517 & 521 Pacific Avenue Shoreline Stabilization Project, by TerraCosta Consulting Group, received March 29, 2016 and the plans titled, Seawall Maintenance Repair and Extension 517-521 Pacific Avenue Slope Re-Vegetation Landscape Plans, by David Reed Landscape Architects, received March 29, 2016, except that they shall be modified to reflect all of the following:

   (a) The natural bluff headland and the existing seawall "fillet" (as shown in Exhibits 4, 5, & 6) shall be retained and the seaward face of the headland shall be encased by the proposed seawall.

   (b) Any existing permanent irrigation system located on the subject sites that drains anywhere on or over the bluff top and face shall be removed or capped.

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

   (d) A final site plan shall be submitted that includes the bluff top structures and square footage of all bluff top structures and property lines for the subject sites. In addition, all existing accessory improvements (e.g. decks, patios, walls, windscreens, etc.) located in the geologic setback area on the residential sites shall be detailed and drawn to scale on the final approved site plan and shall include measurements of the distance between the accessory improvements and the bluff edge (as defined by Section 13577 of Title 14, California Code of Regulations) taken at three or more locations. The locations for these measurements shall be identified through permanent markers, benchmarks, survey position, written description, or other method that enables accurate determination of the location of structures on the site. No modifications or removal or replacement of any existing accessory structures is authorized by this permit and any such actions shall require a separate coastal development permit or permit amendment.

The permittees shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director determines that no amendment is legally required for any proposed minor deviations.

2. **Shoreline Structure Authorization, Design, Monitoring and Maintenance.**

(a) **Shoreline Structure Terms.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit, for the review and written approval of the Executive Director, a final revised plan for the authorized shoreline structure. The revised plans shall, prior to submittal to the Executive Director, be reviewed and certified by a licensed civil or geotechnical engineer to ensure they are consistent with the Commission's approval and the following specific requirements:

i. **Authorization Terms.** This CDP authorizes the shoreline structure pursuant to all of the following terms:

A. **Expiration**. This authorization expires when the blufftop residence at 517 Pacific Avenue or the blufftop residence at 521 Pacific Avenue is (1) redeveloped as defined in Special Condition 3; (2) is no longer present; or (3) no longer requires shoreline armoring, whichever occurs first. No later than 180 days prior to the anticipated expiration of the permit or in conjunction with redevelopment of either of the properties, the permittees shall apply for a new CDP or amendment to this CDP to remove the shoreline armoring or to modify the terms of its authorization, including with respect to any necessary mitigation pursuant to subsection (a)i.B.1 of this condition.

B. Extension of Authorization and Mitigation. If either permittee intends to keep any portion of the shoreline structure in place beyond the 20 year mitigation period (beginning on the building permit completion certification date) the permittees shall submit a complete application for a CDP or amendment to this CDP to reassess mitigation for the on-going impacts of the structure, including an evaluation of actions to reduce or eliminate those impacts. The complete application shall be submitted no later than 6 months prior to the end of the mitigation period. Any amendment application shall conform to the Commission's permit filing regulations at the time and shall also include the following at a minimum:

1. An analysis, based on the best available science and updated standards, of beach erosion, wave run-up, sea level rise, inundation, and flood hazards prepared by a licensed civil engineer with expertise in coastal engineering, and a slope stability analysis prepared by a licensed Certified Engineering Geologist, Geotechnical Engineer, or Registered Civil Engineer with expertise in soils;

2. An evaluation of alternatives that would increase stability of the existing principal structures for their remaining life or site any new development to an inland location, such that further alteration of natural landforms or impact to adjacent City-owned bluffs and beach, tidelands, or public trust lands is avoided;

3. An analysis of the condition of the existing seawall and all impacts it is having or is likely to have on public access and recreation, scenic views, sand supply, and other coastal resources;

4. An evaluation of the opportunities to remove or modify the existing seawall in a manner that would eliminate or reduce the identified impacts, taking into consideration the requirements of the Solana Beach certified LCP and all applicable Chapter 3 policies of the Coastal Act;

5. For amendment applications to extend the authorization period, a proposed mitigation program to address unavoidable impacts identified by the analysis required in subsection (a)i.B.3 of this condition; and

6. A legal description and graphic depiction of all subject property lines and the mean high tide line surveyed by a licensed surveyor within the previous two years, along with written evidence of consent to the amendment application by all landowners, including the City of Solana Beach, the State Lands Commission, and any other entity.

The permittees shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director determines that no amendment is legally required for any proposed minor deviations.

(b) **Structure Color and Texture.** The color and texture of the structure shall be compatible with the nearby unarmored natural bluff***s*****,** including, at a minimum, that:

i. the structure will be designed, including shaped, contoured and textured, as necessary to match the adjacent landforms; and

ii. the color, contours, and texture will be maintained throughout the life of the structure.

(c) **Monitoring and Maintenance.**

i. **Monitoring Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit a monitoring plan, prepared by a licensed geologist, civil engineer, or geotechnical engineer for the review and written approval of the Executive Director. The plan shall be sufficient to assess the condition of the seawall and shall include at a minimum:

A. A description of the approved shoreline protection device;

B. A discussion of the goals and objectives of the plan, which shall include observations of whether the seawall remains in its approved state;

C. Provisions for taking measurements of the distance between the bluff top structures protected by the seawall and the top of the bluff, including identification of exactly where such measurements will be taken in accordance with Section 13577 of Title 14 of the California Code of Regulations, e.g. by reference to benchmarks, survey positions, points shown on an exhibit, etc., and the frequency with which such measurements will be taken;

D. Mean High Tide Line Monitoring. Monitoring pegs or markers flush with the seawall and suitable to withstand a marine environment shall be installed at ten foot intervals along the face of the entire seawall at the same elevation of the MHTL and at an elevation of five feet above the MHTL. The placement of the monitoring pegs or markers shall be certified by a licensed surveyor. The monitoring pegs or markers shall be inspected regularly and any missing pegs or markers shall be replaced within a month from the time that the missing peg or marker is noticed; and

E. Provisions for submission of "as-built" plans, showing the permitted structure in relation to the existing topography and showing the measurements described in subsection (c)i.C. of this condition, within 30 days after completion of construction.

ii. **Monitoring Requirement**. By May 1 of each third year from the date of approval and for the life of the structure, the permittees shall submit a monitoring report that has been prepared by a licensed geologist, civil engineer, or geotechnical engineer. Each monitoring report shall contain the following, at a minimum:

A. An evaluation of the condition and performance of the approved shoreline protection device, including an assessment of whether any weathering or damage has occurred that could adversely impact future performance of the device;

B. All measurements taken in conformance with the approved monitoring plan;

C. An analysis of erosion trends, annual retreat, or rate of retreat of the bluff based upon the measurements and in conformance with the approved monitoring plan; and

D. Recommendations for repair, maintenance, modifications or other work to the device.

If the monitoring report contains recommendations for repair, maintenance or other work, including maintenance of the color of the structure to ensure a continued match with the surrounding native bluffs, the permittees shall contact the Executive Director to determine whether a coastal development permit or an amendment to this permit is legally required, and, if required, shall subsequently apply for a coastal development permit or permit amendment for the required maintenance within 90 days of the report submittal.

iii. Additional monitoring reports to the City and Coastal Commission shall be required every five years from the date of CDP issuance until CDP expiration, which evaluate whether or not the shoreline protection device is still required to protect the existing structure it was designed to protect. Within six months of a determination that the shoreline protection device authorized by this permit is no longer required to protect the existing structures it was designed to protect, the permittees shall submit a CDP application to remove the shoreline protection device.

3. **Reliance on Permitted Shoreline Armoring.** No future development that is not otherwise exempt from coastal development permit requirements, including additions to or redevelopment of the structures on the subject blufftop properties, may rely on the permitted shoreline armoring to establish geologic stability or protection from hazards. Such future development and redevelopment on the site shall be sited and designed to be safe without reliance on shoreline armoring. As used in this condition, "redeveloped" or "redevelopment" means:

(a) Development that consists of alterations including (1) additions to an existing structure, (2) exterior and/or interior renovations, or (3) demolition or replacement of an existing home or other principal structure, or portions thereof, which results in:

i. Alteration (including demolition, renovation or replacement) of 50% or more of major structural components including exterior walls, floor structure, roof structure or foundation, or a 50% increase in gross floor area. Alterations under this definition are not additive between individual major structural components; however, changes to individual major structural components are

cumulative over time from the date of certification of the LUP, and as further defined in the Solana Beach LUP as approved by the Commission;

OR

ii. 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 certification of the LUP; 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 certification of the LUP.

4. **Assumption of Risk, Waiver of Liability and Indemnity.** By acceptance of this permit, the applicants acknowledge and agree (i) that the site may be subject to hazards, including but not limited to waves, storms, flooding, landslide, bluff retreat, erosion, and earth movement, many of which will worsen with future sea level rise; (ii) to assume the risks to the permittees and the properties that are the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

5. **State Lands Commission Approval**. PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT PERMIT, the applicants shall submit to the Executive Director for review and written approval, a written determination from the State Lands Commission that:

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

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

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

6. **Future Response to Erosion.** If in the future the permittees seek a coastal development permit to construct additional bluff or shoreline protective devices, the

permittees agree, by acceptance of this permit, to include in the permit application information concerning specific alternatives to the proposed bluff or shoreline protection that will eliminate impacts to scenic visual resources, public access and recreation, and shoreline processes. Alternatives shall include, but not be limited to: relocation of all or portions of the principal structures that are threatened; structural underpinning; and other known remedial measures capable of protecting the principal residential structures and allowing reasonable use of the properties without constructing additional bluff or shoreline stabilization devices. The information concerning these alternatives must be sufficiently detailed to enable the Coastal Commission or the applicable local government implementing a certified Local Coastal Plan to evaluate the feasibility of each alternative and whether each alternative is capable of protecting the relevant existing principal structures for the remainder of their economic lives. No additional bluff or shoreline protective devices may be constructed unless and until the alternatives required above are demonstrated to be infeasible. Any additional shoreline protective devices may be constructed only to protect principal structures. Any future redevelopment on the lots may not rely on the subject shoreline protective devices to establish geological stability or protection from hazards.

7. **Mitigation for Impacts to Public Access and Recreational Opportunities/Sand Supply**.

   (a) PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT PERMIT, the applicants shall provide evidence, in a form and content acceptable to the Executive Director, that the full interim mitigation fee deposit of $140,000, required to address adverse impacts to public access and recreational use, has been deposited in a Shoreline Account established by the City of Solana Beach.

   (b) Within 180 days of the Commission's certification of a final Public Access and Recreation Mitigation Fee Program as part of the City's LUP, the applicants shall submit to the Executive Director for review and written approval, documentation of the final mitigation fee amount required by the City to address impacts of the proposed shoreline protection on public access and recreation. If the amount differs from the interim amount required above, then the applicants shall submit an application for an amendment to this permit to adjust the mitigation fee to be paid to the City to address adverse impacts to public access and recreational use resulting from the proposed development.

   (c) PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT PERMIT, the applicants shall provide evidence, in a form and content acceptable to the Executive Director, that a fee of $40,546 has been deposited in an interest bearing account designated by the Executive Director, in-lieu of providing the total amount of sand to replace the sand that will be lost due to the impacts of the seawall extension for the an initial 20 year period beginning on the building permit completion certification date. All interest earned by the account shall be payable to the account for the purposes stated below.

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

8. **Storage and Staging Areas/Access Corridors.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit to the Executive Director for review and written approval, final plans indicating the location of access corridors to the construction site and staging areas. The final plans shall indicate that, at a minimum:

   (a) No overnight storage of equipment or materials may occur on sandy beach or at the Fletcher Cove Parking Lot, and the use of other public parking spaces shall be minimized. The permittee may not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion. In addition, no machinery may be placed, stored or otherwise located in the intertidal zone at any time, except for the minimum necessary to construct the seawall. Construction equipment may not be washed on the beach or public parking lots or access roads;

   (b) Construction access corridors shall be located in a manner that has the least impact on public access to and along the shoreline;

   (c) No work may occur on the beach on weekends or holidays or between Memorial Day weekend and Labor Day of any year; and

   (d) The applicants shall submit evidence that the approved plans and plan notes have been incorporated into construction bid documents.

   (e) The permittees shall remove all construction materials and equipment from the staging site and restore the staging site to its prior-to-construction condition within 72 hours following completion of the development.

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

9. **Water Quality--Best Management Practices.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit for review and written approval of the Executive Director a Best Management Practices Plan that ensures no shotcrete or other construction byproduct will be allowed onto the sandy beach or allowed to enter into coastal waters. The Plan shall apply to both concrete pouring/pumping activities as well as shotcrete/concrete application activities. During shotcrete/concrete application specifically, the Plan shall at a minimum provide for all shotcrete/concrete to be contained through the use of tarps or similar barriers that completely enclose the construction area and that prevent shotcrete/concrete contact with beach sands and coastal waters. All shotcrete and other construction byproduct shall be properly collected and disposed of off-site.

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

10. **Encroachment Agreement.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the applicants shall submit to the Executive Director for review and approval documentation demonstrating that the applicants have executed an Encroachment Agreement with the City, recognizing that the seawall extension is located on property owned by the City and is subject to removal by request of the City at any time, or evidence that an Encroachment Agreement is not required by the City. Within 90 days of the City's request for removal, the applicants shall submit an amendment to this CDP proposing removal of the encroachment in its entirety. Permittees may remove the encroachment only after the Commission issues the CDP amendment.

11. **As-Built Plans.** WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION, the Permittee shall submit two copies of As-Built Plans showing all development completed pursuant to this coastal development permit; all property lines; and all residential development inland of the seawall structure. The As-Built Plans shall be substantially consistent with the approved project plans described in Special Condition 1 above, including providing for all of the same requirements specified in those plans. The As-Built Plans shall include a graphic scale and all elevation(s) shall be described in relation to National Geodetic Vertical Datum (NGVD) 88. The As-Built Plans shall include color photographs that clearly show all components of the as-built project, with a site plan that notes the location of each photographic viewpoint and the date and time of each photograph. At a minimum, the photographs shall be taken from representative viewpoints of beaches located upcoast, downcoast, and seaward of the project site. The As-Built Plans shall be submitted with certification by a licensed civil engineer with experience in coastal structures and processes, who is acceptable to the Executive Director. The engineer shall verify that the shoreline armoring has been constructed in conformance with the approved final plans.

12. **Public Rights.** The Coastal Commission's approval of this permit shall not constitute a waiver of any public rights that exist or may exist on the property. By acceptance of this permit, the applicants acknowledge, on behalf of him/herself/itself and his/her/its successors in interest, that issuance of the permit and construction of the permitted development shall not constitute a waiver of any public rights that may exist on the property.

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

14. **Construction Site Documents & Construction Coordinator.** DURING ALL CONSTRUCTION:

    (a) **Construction Site Documents.** Copies of the signed coastal development permit and the approved Construction Plan 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 the coastal development permit and the approved Construction Plan, and the public review requirements applicable to them, prior to commencement of construction.

    (b) **Construction Coordinator**. 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 the coordinator's contact information (office address, office and mobile phone numbers, e-mail address) 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 an 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 name, phone number, and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 72 hours of

receipt of the complaint or inquiry.

(c) **Notification.** The permittee shall notify planning staff of the Coastal Commission's San Diego Coast District Office at least three working days in advance of commencement of construction or maintenance activities, and immediately upon completion of construction or maintenance activities.

IV. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

The proposed development involves the construction of a 140-foot long, 32-foot high, 30-inch thick lower coastal bluff tiedback shotcrete seawall on the beach and bluff fronting 517 and 521 Pacific Avenue in the City of Solana Beach (Exhibit 1). The proposed seawall will connect to an existing tiedback shotcrete seawall to the north (Ref: CDP 6-08-122/Winkler) and an existing concrete bag seawall to the south (Ref: CDP 6-99-095/City of Solana Beach). In addition, the applicants are proposing to remove an existing seawall wave deflection 'fillet' located at the southern terminus of the seawall to the north and to remove an approximately 40 ft. long, 6 ft. thick natural bluff headland fronting the northern property. Also proposed, is the installation hydroseed and container plantings on the existing geogrid slope below the northern property (Exhibit 8). The subject development would be located on city-owned beach open to the public and the city-owned bluff face of an 80 ft.-high coastal bluff fronting two existing single family residences. Tide Beach Park, one the City's primary beach parks and accessways, is located directly adjacent to the south of the subject site (Exhibit 2).

The existing one-story single-family residence at 521 Pacific Avenue was initially constructed in approximately 1958. The existing 3,896 sq. ft. residence is located approximately 15 ft. from the edge of the coastal bluff. The residence is protected by an approximately 93 ft. long, 25 ft. high seawall fronting a collapsed seacave that has been filled with concrete and riprap for approximately 26 ft. landward of the seawall. A manufactured backfilled slope consisting of a "geogrid" slope is located behind the seawall and above the seacave fill (Ref: CDP Nos. 6-92-212/Wood; 6-97-165/Lucker & Wood; and 6-08-122/Winkler). In 2005, the Commission approved a 1,296 sq. ft. one-story addition to the landward side of the existing 2,600 sq. ft. residence (Ref. CDP No. 6-04-086/Winkler).

The existing two-story single family residence at 517 Pacific Avenue was initially constructed in 1950. The existing 2,932 sq. ft. residence is located approximately 20 ft. from the edge of the coastal bluff. There is currently no seawall on the beach or shoreline armoring structure on the bluff face fronting this home. However, an existing approximately 30 ft. deep seacave and an existing 10 ft. deep seacave have been filled at the base of the bluff (Ref: CDP No. 6-97-165/Lucker & Wood). In 1975 and 1991, the Commission approved a 443 sq. ft. addition and a 1,392 sq. ft. addition, respectively, to the existing 1,107 sq. ft. residence (Ref: CDP Nos. F2595/Lucker and 6-91-265/Lucker).

The Commission has certified the City's Land Use Plan (LUP). However, the City does not yet have a certified Implementation Plan. Therefore, the Chapter 3 policies of the Coastal Act are the standard of review, with the certified LUP used as guidance.

B. GEOLOGIC CONDITIONS AND HAZARDS

As described above, the standard of review is Chapter 3 of the Coastal Act, with the City's LUP providing non-binding guidance. As such, applicable Coastal Act policies are cited in this report, as well as certain LUP policies for guidance as relevant.

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

> *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.*

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:

> *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...*

Coastal Act Sections 30210, 30211, 30212, 30212.5, and 30221 require that public access and use of the coast shall be maximized, that development shall not interfere with the public's right to access the coast and use of dry sand beaches, and that oceanfront land suitable for recreational activities shall be protected. As stated elsewhere in this report, the physical encroachment of a protective structure on the beach reduces the beach area available for public use and is therefore a significant adverse impact. Furthermore, when the back beach is fixed with a shoreline armoring device, passive erosion is halted and additional public beach area can no longer be created.

> *Section 30210*

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

Section 30211

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

Section 30212

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessways shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway. […]

Section 30212.5

Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30221

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

In addition, the following City of Solana Beach Land Use Plan (LUP) language provides additional guidance regarding geologic hazards and shoreline protection:

Page 13 of the Hazards and Shoreline/Bluff Development chapter states the following, in part:

The following describes the types of preferred bluff retention systems to protect the lower bluff only:

[…]

Higher Seawall/Clean Sand Lens Encapsulation (See Appendix B Figure 2) *– If the clean sand lens has been exposed, it may be necessary to build a seawall high enough* [sic] *cover this segment of the bluff face. This method consists of a structurally engineered seawall (with tiebacks into the sandstone) approximately 35' high to protect and encapsulate the clean sand lens at the base of the terrace deposits. The wall is required to have a textured face mimicking the existing material. If treated at this stage, the bluff retention system will minimize or prevent the need for future mid or upper bluff stabilization.*

Policy 4.17: *New development shall be set back a safe distance from the bluff edge, with a reasonable margin of safety, to eliminate the need for bluff retention devices to protect the new improvements. All new development, including additions to existing structures, on bluff property shall be landward of the Geologic Setback Line (GSL) as set forth in Policy 4.25. This requirement shall apply to the principal structure and accessory or ancillary structures such as guesthouses, pools, tennis courts, cabanas, and septic systems, etc. Accessory structures such as decks, patios, and walkways, which are at-grade and do not require structural foundations may extend into the setback area no closer than five feet from the bluff edge. On lots with a legally established bluff retention device, the required geologic analysis shall describe the condition of the existing seawall; identify any impacts it may be having on public access and recreation, scenic views, sand supply and other coastal resources; and evaluate options to mitigate any previously unmitigated impacts of the structure or modify, replace, or remove the existing protective device in a manner that would eliminate or reduce those impacts. In addition, any significant alteration or improvement to the existing structure shall trigger such review (i.e. the analysis of the seawall) and any unavoidable impacts shall be mitigated.*

Policy 4.18: *A legally permitted bluff retention device shall not be factored into setback calculations. Expansion and/or alteration of a legally permitted bluff retention device shall include a reassessment of the need for the shoreline protective device and any modifications warranted to the protective device to eliminate or reduce any adverse impacts it has on coastal resources or public access, including but not limited to, a condition for a reassessment and reauthorization of the modified device pursuant to Policy 4.52.*

Policy 4.22: *Where setbacks and other development standards could preclude the construction of a home the City may consider options including but not limited to reduction of the two car onsite parking space requirement to a one car onsite parking requirement or construction within five feet of the public right of way front yard setback for all stories as long as adequate architectural relief (e.g., recessed windows or doorways or building articulation) is maintained as determined by the City. The City may also consider options including a caisson foundation with a minimum 40 foot bluff top setback to meet the stability requirement and avoid*

alteration of the natural landform along the bluffs. A condition of the permit for any such home shall expressly require waiver of any rights to new or additional buff retention devices which may exist and recording of said waiver on the title of the bluff property.

***Policy 4.44**: The City has adopted preferred bluff retention solutions (see Appendix B) to streamline and expedite the City permit process for bluff retention devices. The preferred bluff retention solutions are designed to meet the following goals and objectives:*

(1) Locate bluff retention devices as far landward as feasible;

(2) Minimize alteration of the bluff face;

(3) Minimize visual impacts from public viewing areas;

(4) Minimize impacts to adjacent properties including public bluffs and beach area; and,

(5) Conduct annual visual inspection and maintenance as needed. […]

***Policy 4.48:** Coastal structures shall be approved by the City only if all the following applicable findings can be made and the stated criteria satisfied. The permit shall be valid until the currently existing structure requiring protection is redeveloped (per definition of Bluff Top Redevelopment in the LUP), is no longer present, or no longer requires a protective device, whichever occurs first and subject to an encroachment/removal agreement approved by the City.*

(A) Based upon the advice and recommendation of a licensed Geotechnical or Civil Engineer, the City makes the findings set forth below.

(1) A bluff failure is imminent that would threaten a bluff home, city facility, city infrastructure, and/or other principal structure.

(2) The coastal structure is more likely than not to preclude the need for a larger coastal structure or upper bluff retention structure. Taking into consideration any applicable conditions of previous permit approvals for development at the subject site, a determination must be made based on a detailed alternatives analysis that none of the following alternatives to the coastal structure are currently feasible, including:

- *A Seacave/Notch Infill;*
- *A smaller coastal structure; or*
- *Other remedial measures capable of protecting the bluff home, city facility, non-city-owned utilities, and/or city infrastructure, which might include or*

other non-beach and bluff face stabilizing measures, taking into account impacts on the near and long term integrity and appearance of the natural bluff face, and contiguous bluff properties;

(3) The bluff property owner did not create the necessity for the coastal structure by unreasonably failing to implement generally accepted erosion and drainage control measures, such as reasonable management of surface drainage, plantings and irrigation, or by otherwise unreasonably acting or failing to act with respect to the bluff property. In determining whether or not the bluff property owner's actions were reasonable, the City shall take into account whether or not the bluff property owner acted intentionally, with or without knowledge, and shall consider all other relevant credible scientific evidence, as well as, relevant facts and circumstances.

(4) The location, size, design and operational characteristics of the proposed coastal structure will not create a significant adverse effect on adjacent public or private property, natural resources, or public use of, or access to, the beach, beyond the environmental impact typically associated with a similar coastal structure and the coastal structure is the minimum size necessary to protect the principal structure, has been designed to minimize all environmental impacts, and provides mitigation for all coastal and environmental impacts, as provided for in this LCP.

(B) The coastal structure shall meet City Design Standards, which shall include the following criteria to ensure the coastal structure will be:

(1) Constructed to resemble as closely as possible the natural color, texture and form of the adjacent bluffs;

(2) Landscaped, contoured, maintained and repaired to blend in with the existing environment;

(3) Designed so that it will serve its primary purpose of protecting the bluff home or other principal structure, provided all other requirements under the implementing ordinances are satisfied, with minimal adverse impacts to the bluff face;

(4) Reduced in size and scope, to the extent feasible, without adversely impacting the applicants' bluff property and other properties; and

(5) Placed at the most feasible landward location considering the importance of preserving the maximum amount of natural bluff and ensuring adequate bluff stability to protect the bluff home, City facility, or City infrastructure.

(C) Mitigation for the impacts to shoreline sand supply, public access and recreation and any other relevant coastal resource impacted by the coastal structure is required and shall be assessed in 20-year increments, starting

with the building permit completion certification date. Property owners shall apply for a CDP amendment prior to expiration of each 20-year mitigation period, proposing mitigation for coastal resource impacts associated with retention of the coastal structure beyond the preceding 20-year mitigation period and shall include consideration of alternative feasible measures in which the permittee can modify the coastal structure to lessen the coastal structure's impacts on coastal resources. Monitoring reports to the City and the Coastal Commission shall be required every five years from the date of CDP issuance until CDP expiration, which evaluate whether or not the coastal structure is still required to protect the existing structure it was designed to protect. The permittee is required to submit a CDP application to remove the authorized coastal structure within six months of a determination that the coastal structure is no longer required to protect the existing structure it was designed to protect.

Policy 4.52: *All permits for bluff retention devices shall expire when the currently existing blufftop structure requiring protection is redeveloped (per definition of Bluff Top Redevelopment in the LUP), is no longer present, or no longer requires a protective device, whichever occurs first and a new CDP must be obtained. Prior to expiration of the permit, the bluff top property owner shall apply for a coastal development permit to remove, modify or retain the protective device. In addition, expansion and/or alteration of a legally permitted existing bluff retention device shall require a new CDP and be subject to the requirements of this policy.*

The CDP application shall include a re-assessment of need for the device, the need for any repair or maintenance of the device, and the potential for removal based on changed conditions. The CDP application shall include an evaluation of:

- *The age, condition and economic life of the existing principal structure;*
- *changed geologic site conditions including but not limited to, changes relative to sea level rise, implementation of a long-term, large scale sand replenishment or shoreline restoration program; and*
- *any impact to coastal resources, including but not limited to public access and recreation.*

The CDP shall include a condition requiring reassessment of the impacts of the device in 20-year mitigation periods pursuant to Policies 4.48 and 4.51.

No permit shall be issued for retention of a bluff retention device unless the City finds that the bluff retention device is still required to protect an existing principal structure in danger from erosion, that it will minimize further alteration of the natural landform of the bluff, and that adequate mitigation for coastal resource impacts, including but not limited to impacts to the public beach has been provided.

The LUP defines Bluff Top Redevelopment as follows:

> ***Bluff Top Redevelopment:*** *Shall apply to proposed development located between the sea and the first public road paralleling the sea (or lagoon) that consists of alterations including (1) additions to an existing structure, (2) exterior and/or interior renovations, (3) and/or demolition of an existing bluff home or other principal structure, or portions thereof, which results in:*
>
> *(a) Alteration of 50% or more of major structural components including exterior walls, floor and roof structure, and foundation, or a 50% increase in 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 certification of the LUP.*
>
> *(b) 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 certification of the LUP; 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 certification of the LUP.*

The Coastal Act and certified LUP acknowledge that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" methods designed to forestall erosion alter natural landforms and natural shoreline processes resulting in a variety of negative impacts on coastal resources, including adverse effects on sand supply, public access and recreation, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, including ultimately resulting in the loss of beach. Thus, such devices may be constructed only to protect principal structures or public beaches in danger from erosion, and only when designed to eliminate or mitigate adverse impacts on local sand supply.

In the majority of the City of Solana Beach there is a "clean sand" lens located between the Torrey Sandstone and Marine Terrace deposits at approximately elevation +25 to 35 feet Mean Sea Level (MSL). This clean sand lens consists of a layer of sand with a limited amount of capillary tension and a very minor amount of cohesion, which causes the material to erode easily, making this clean sand lens, once exposed, susceptible to windblown erosion and continued sloughing as the sand dries out and loses the capillary tension that initially held the materials together. Geotechnical reports associated with developments near this site have stated that minor disturbances such as gentle sea breezes, landing birds or vibrations from low-flying helicopters, can be sufficient triggers of small- or large-volume bluff collapses, since the loss of the clean sand eliminates the support for the overlying, slightly more cemented, terrace deposits. Because of the cohesionless character of the clean sand, once deposits are exposed, they continue to slump on an ongoing basis as a result of very small triggers such as traffic vibrations or

wind erosion. Continued sloughage results in the further exposure of more clean sand, and ongoing upper bluff collapse. This cycle occurs so quickly (over months or days, rather than years) that the upper bluff may never achieve a stable angle of repose. Unless the base of the bluff is afforded shoreline protection and the clean sand lens is contained, additional bluff failures can further expose the layer of clean sand and result in a potential upper bluff failure and an immediate threat to the structures at the top of the bluff.

The factor of safety is an indicator of slope stability where a value of 1.5 is the industry-standard value for geologic stability of new development placed on a slope. In theory, failure should occur when the factor of safety drops to 1.0, and no slope area with a proposed new-development footprint should have a factor of safety less than 1.5.

At the subject site, a 10 ft. thick clean sand layer is exposed across a 74 ft. long section of the bluff. The slope stability analysis performed by the applicants' engineer indicates that further collapse of the upper bluff would threaten the structures at the top of the bluff. Slope stability analyses for the bluff at 517 Pacific Avenue and 521 Pacific Avenue demonstrate a factor of safety of 1.10 and 1.17, respectively. These factors of safety alone may not necessitate shoreline protection. However, when taken in combination with the exposure of the clean sand layer, the geotechnical analysis concludes that shoreline protection is warranted.

To encapsulate the exposure of this clean sand lens and protect the two existing single-family residences, the applicants propose to construct a 140 ft.-long, 32 ft.-high seawall. In addition to the construction of the seawall, the applicants propose to remove an approximately 40 ft. long by 6 ft. thick natural bluff headland (Exhibits 5 and 6). The applicants argue that the angle created between the existing seawall adjacent to the north and natural headland increases wave intensity, which results in waves splashing up and eroding the lower bluff materials. The Commission previously approved a 7 ft. long tiedback "concrete fillet" (curved deflector) along the northern edge of the natural headland to deflect waves (Exhibit 4) (Ref: CDP 6-08-122/Winkler). As currently proposed, the applicants would remove the fillet at the same time as the natural bluff headland. The applicants assert that removal of the fillet and the natural bluff headland would decrease the focused wave intensity and result in reduced erosion of the unprotect natural bluff located above the proposed seawall.

The Commission's geologist and engineer have reviewed the geotechnical information provided by the applicants and concur that the proposed shoreline armoring is necessary to protect the blufftop structures. Following construction of the proposed approximately 140 ft. long seawall, the applicants' engineer has demonstrated that the factor of safety for the structures will be increased to an adequate level. Thus, substantial evidence has been provided to document that the existing primary blufftop structures are in danger from erosion. However, there are a variety of ways in which the threat from erosion could be addressed. Under the policies of the Coastal Act, the project must eliminate or mitigate adverse effects on shoreline sand supply and minimize adverse effects on public access, recreation, and the visual quality of the shoreline.

Alternatives

The applicants' geotechnical report and subsequent correspondence include an alternatives analysis to demonstrate that no other feasible less-environmentally-damaging structural alternatives exist to address the threats to the residential structures at the top of the bluff. Alternatives considered were to:

- Construct of seawall with a reduced height

The applicants have documented that the upper bluff is actively eroding and that the approximately 10 ft. high clean sand lens begins at elevation 21 ft. MSL. Thus, construction of a seawall that does not encompass the clean sand lens would not provide adequate protection for the threatened blufftop structures.

- Place rock rip-rap alone with no seawall

These structures can be relatively quickly installed and can protect the base of the bluff. However, they also require significant maintenance to ensure they continue to function in the approved state, leading to significant adverse resource impacts each time. Because their foundations are wide, revetments normally occupy a large area of beach. Migrating boulders can also lead to isolated impacts over time, expand the loss of beach area and cumulatively can lead to larger impacts. In addition, a revetment would only protect the lower bluff from wave action and would do nothing to encapsulate the clean sand lens or address the potential for a landslide. In addition, a revetment would not provide adequate support for the lower portion of the bluff and the homes would still be threatened. Thus, a rip rap revetment would not reduce impacts to coastal resources or resolve the threat to the subject homes.

- Underpinning the western edge of the blufftop homes

Another alternative involves underpinning of the existing homes. This alternative would consist of installing drilled piers below or just seaward of the western walls of the structures. Underpinning would not stop the upper or lower bluff from continuing to erode and would result in significant adverse visual impacts as the piers became exposed. Additionally, the applicants contend that if piers were installed, the collapse on the site triggered by the erosion of the clean sand would continue to grow laterally, undermining the upper bluffs and eventually destabilizing adjacent bluff-top structures.

- Chemical Grouting

The applicants' analysis states that in order to for chemical grouting to effectively "glue" the bluff sands in a stable formation, the outer 5 to 10 feet of the bluff face would have to be permeated. Chemical grouts are injected under pressure, and the applicants' engineer has stated that it would be essentially impossible to effectively contain a bluff face during pressure injection, and even controlled grouting could blow out portions of the slope face if any excess pressure buildup occurred. In addition, the process of injecting a chemical

into sand under pressure 25 feet above the base of the bluff, presents a significant construction challenge and safety issue, particularly with the threat of additional collapses triggered by the process. Finally, if the chemical grouting were not effective in solidifying the entire clean sand lens, the undermining/collapse cycle would continue. Thus, it does not appear that the technology exists at this time to stabilize a coastal bluff with chemicals in place of a seawall.

- Improved drainage and landscaping

Improved drainage and 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 setbacks. Thus, Special Condition 1 requires that all runoff from impervious surfaces on the bluff be collected and drain towards the street, so that any drainage over the bluff face will be minimized and not adversely impact bluff stability. In particular, this should help reduce the risk of the creation of additional gullies on the bluff face such as the one proposed to be filled through this application. However, these measures alone will not address the entire identified threat to the existing bluff top structures.

- Reconstruction of New Homes Landward of the Geologic Setback Line

Relocation is another alternative that must be considered. Various special conditions applied by the Commission on past shoreline armoring and blufftop structure improvements for the two homes require that the applicants analyze, and implement if feasible, relocation of all or portions of the principle structures that are threatened by bluff erosion, as an alternative to additional bluff or shoreline protection devices (Ref: Special Condition 3 of CDP 6-04-086/Winkler Home Addition; Special Condition 8 of CDP 6-08-122/Winkler Seawall and Geogrid; and Special Condition 3 of CDP 6-91-265-A1/Lucker Home Addition.

The applicants' alternatives analysis for the subject property, dated March 3, 2014, asserts that it would not be feasible to relocate the principal bluff top structures on the subject sites. The applicants contend that this alternative would be prohibitive because the subject lots are too small to accommodate relocation or reconstruction of the existing structures to a location located landward of the Geologic Setback Lines (GSL) on the subject site, such that the new homes would be safe from bluff erosion over a 75 year period. In addition, the applicants have indicated that the cost of removing or relocating the homes would be infeasible.

The amount of available land area on the top of the bluff is fairly limited. The lot at 517 Pacific Avenue is approximately 90 ft. wide and has a depth of approximately 85 ft. between the Pacific Avenue street right-of-way and the bluff edge. The lot at 521 Pacific Avenue is approximately 80 ft. wide and has a depth of approximately 95 ft. between the Pacific Avenue street right-of-way and the bluff edge. It is clear that the subject lots do not have sufficient room to relocate the existing houses far enough back that they would not be threatened by erosion. However, the applicants did not provide an analysis of

whether a portion of the homes could be removed, or whether new homes could be constructed with smaller footprints; for example, building two-story homes within five feet of the street right-of-way with western cantilevers.

Solana Beach has minimum setback standards with which any new construction on the site would have to comply, but the LUP specifically allows some exceptions to these standards to accommodate homes on constrained lots. Solana Beach Municipal Code section 17.20.030.D.a requires a 10 ft. first story front yard setback, a 15 ft. second story front yard setback, and a 5 ft. garage front yard setback on the west side of Pacific Avenue. Side yard setbacks on bluff top lots are 5 ft. on either side. Where setbacks and other development standards could preclude the construction of a home, Policy 4.22 of the City's certified LUP allows for a reduction of the required two car parking space requirement to one car and construction within five feet of the public right-of-way setback for all stories. In addition, the LUP allows for a first and second story cantilever on the west side of a bluff home (10 ft. in depth), provided that all footings and foundational support is located landward of the Geologic Setback Line.

Taking into account these parameters, at 517 Pacific Avenue, on the applicant's 90 ft.-wide lot, a two story average sized home would require a foundation footprint of only 400 sq. ft. (80 ft. wide by 5 ft. deep) with an additional 800 sq. ft. cantilever footprint (80 ft. wide by 10 ft. deep). Thus, on the subject lot, a new 2,000 sq. ft. two story home with an attached 400 sq. ft. garage could locate all the footings and structural support as far inland as approximately 75 ft. from the bluff edge, with the western wall of the cantilevered portion of the home located approximately 65 ft. from the bluff edge. According to a past analysis done by the City, the average bluff top home size in the city is approximately 2,000 sq. ft. with an additional 400 sq. ft. garage. Thus, there clearly is the ability to construct a reasonably-sized new home set further back on the bluff. And while 2,000 sq. ft. is the average sized house in this area, it is not necessarily the minimum size necessary to achieve a reasonable use of the site (ref. 6-15-1717/Barr). However, while the footprint of the new home could be located landward of the minimum 40 ft. bluff setback for new bluff top homes, it would still be located entirely seaward of the Geologic Setback Line (approximately 86 ft. from the bluff edge) (Exhibit 10). Thus, at 517 Pacific Avenue, the Commission finds that there is not sufficient room to relocate/rebuild a home on this site such that the home's foundation can be located landward of the Geologic Setback Line and the proposed seawall not be needed.

At 521 Pacific Avenue, on the applicant's 80 ft.-wide lot, a two story average sized home would require a foundation footprint of only 840 sq. ft. (70 ft. wide by 12 ft. deep) with an additional 350 sq. ft. cantilever footprint (70 ft. wide by 5 ft. deep). Thus, on the subject lot, a new 2,000 sq. ft. two story home with an attached 400 sq. ft. garage could locate all the footings and structural support as far inland as approximately 78 ft. from the bluff edge, with the western wall of the cantilevered portion of the home located approximately 73 ft. from the bluff edge. The foundational elements of a home with this hypothetical building footprint could be located landward of the minimum 40 ft. bluff setback for new bluff top homes and would also be located landward of the Geologic Setback Line (approximately 78 ft. from the bluff edge) (Exhibit 10). Thus, at 521 Pacific Avenue, in theory, there would be sufficient room to relocate/rebuild a home of an

average size in Solana Beach such that the home's foundation can be located landward of the Geologic Setback Line and the proposed seawall not be needed. However, the example explored above assumes maximizing the site using a uniform 'rectangle-shaped' two story home which would likely not fit in with the character or the neighborhood. Furthermore, although not a part of the City certified LUP, the City protects private views for inland properties and would potentially require that a larger view corridor be created at the second story level (Ref: Solana Beach Municipal Code Section 17.63). Thus, required architectural articulation and increased view corridors would result in a significantly larger project footprint, that could not be accommodated landward of the Geologic Setback Line and avoid the need for the proposed seawall.

However, if the proposed shoreline protection were to be put in place, there does appear to be enough room to rebuild/relocate homes in the future with caisson foundations such that further mid and upper bluff shoreline armoring would not be required. The City's LUP allows the City to consider as an option for new structures, the use of a caisson foundation with a minimum 40 foot bluff top setback, if caissons would allow the structure to meet the stability requirement and avoid alteration of the natural landform along the bluffs, i.e., exposure of the caissons in the future. Once the lower bluff and clean sand lens is encapsulated by a seawall, it is likely that the upper bluff will be able to reach a stable angle of repose at approximately 35 degrees (as measured from the top of the seawall). At this point, the bluff may remain relatively stable for years. Therefore, under this scenario, it can reasonably be assumed that a caisson foundation located inland of the 35 degree line, will not become exposed.

- Removal of the Seaward Threatened Portions of the Blufftop Homes

Another alternative would be to remove only the portions of the existing homes that are currently at risk. This alternative would delay the need for the construction of the proposed seawall at this time. However, as explained previously, the exposed clean sand lens along the Solana Beach coastline is subject to sudden episodic failures. Due to the unpredictability of the clean sand lens, it is not possible to predict if the remaining portions of the homes would be threatened again in the near future or if the homes would be stable for a number of years. Thus, removal of a portion of the homes on the subject site may represent a viable short-term solution, but would not adequately protect the homes for the remainder of the their economic lives and therefore would not prevent the need for the proposed seawall.

- No project alternative

This alternative is not feasible because erosion of the bluff would continue to threaten the subject blufftop structures and would likely flank the existing permitted shoreline armoring to the south and to the north of the subject site which supports existing residential structures.

- Encasing the headland

The applicants' analysis concluded that the proposed seawall represents the minimum necessary effort to prevent upper bluff collapse along this section of coastline and to adequately protect the existing blufftop structures subject to this permit. The Commission's staff engineer and geologist have reviewed the project and concur that a seawall along the entirety of the 140 ft. long beach and lower bluff fronting the two sites is necessary at this time. However, Commission technical staff has determined that encasing the western portion of the natural bluff headland with a seawall is preferable to its removal. Removal of this large natural bluff feature has the potential to further destabilize the bluff, which could result in the need for even greater amounts of shoreline armoring at the site. Furthermore, the seaward undulation of the headland currently breaks up edge waves and protects areas downcoast from potential increased scour and erosive force associated with that type of wave. Since Tide Beach Park is located immediately downcoast of the subject site, removal of the headland may result in accelerated erosion of this important public resource. After reviewing the information submitted by the applicant, Commission technical staff concluded that the applicants have not demonstrated that the focused wave energy at the headland has destabilized the bluff or that retention of the headland would result in destabilization of the bluff in the future. Thus, the benefits of retention of the natural bluff headland do not outweigh the risks of its removal at this time. Special Condition 1 requires the applicants to submit revised plans showing that the natural bluff headland will be retained and that the seaward portion of the headland will be encased by the proposed seawall. Thus, with the Special Condition requiring retention of the natural bluff headland, the Commission's engineer and geologist agree that there are no feasible less environmentally damaging alternatives that could be applied in this case to protect the subject bluff top structures that are in danger from erosion.

Duration of Armoring Approval

While the Commission is required to approve shoreline armoring to provide protection for the subject bluff top structures, as discussed in greater detail below under Section C. Public Access and Recreation, D. Environmentally Sensitive Habitats, and E. Visual Resources/Alteration of Natural Landforms, the proposed shoreline armoring fronting the subject sites will impede public access to and along the shoreline, impact beaches and related habitats, and visually impair the coastal area. Thus, it is important to limit the life of the shoreline armoring to that of the structures it is required to protect.

Sections 30235 and 30253 require new development on a bluff top lot to be sited and designed so that it does not require the construction of new shoreline armoring or reliance on existing shoreline armoring. However, when the approval of shoreline armoring is not expressly linked to a particular bluff top structure, shoreline armoring can remain long after the structure it was required to protect has been removed, and therefore may encourage the construction of new structures in an unsafe location while continuing to adversely affect resources, including sand supply and recreation. Therefore, Special Condition 2 limits the duration of the subject CDP approval to when the bluff top structures requiring protection are redeveloped (as defined in Special Condition 3), are no longer

present (i.e. demolished), or no longer require the shoreline armoring approved under this CDP, whichever occurs first. Approval of this permit requires both applicants to apply for a new CDP or amendment to this CDP to remove the shoreline armoring or to modify the terms of its authorization, if either blufftop structure no longer qualifies for protection.

Special Condition 3 defines redevelopment according the requirements of the LUP, as alterations, including additions, exterior or interior renovations, or demolition that results in a 50 percent or greater alteration of a major structural component (including exterior walls, floor and roof structures) or a 50 percent increase in floor area, cumulatively over time on or after certification of the City's LUP. Furthermore, changes to major structural elements are not additive between individual elements, while alterations to individual major structural elements are cumulative. Thus, if in the future, the applicants proposed to modify 40% of the exterior walls and 30% of the roof structure; this would not be considered redevelopment because it relates to two different major structural components. However, if the applicants were to come back for a subsequent CDP to modify an additional 10% of the exterior walls or an additional 20% of the roof structure, the project would be considered redevelopment because it would result in a cumulative alteration to 50% of a major structural component. Additions are also cumulative over time, such that an initial 25% addition would not be considered redevelopment; but a subsequent 25% addition would result in a cumulative 50% increase in floor area, and would thus constitute redevelopment.

If in the future the permittees seek a coastal development permit to construct additional bluff or shoreline protective devices, Special Condition 6 requires the applicants to include the submittal of sufficient information for the Commission to consider the need and potential alternatives.

Monitoring and Maintenance

Additional conditions of approval ensure that the applicants and the Commission know when repairs or maintenance are required, by requiring the applicants to monitor the condition of the seawall at three-year intervals. The monitoring will ensure that the applicants and the Commission are aware of any damage to or weathering of the seawall and can determine whether repairs or other actions are necessary to maintain the seawall in its approved state. Special Condition 2 requires the applicants to submit a monitoring report that evaluates the condition and performance of the seawall and overall site stability, and to submit recommendations, if any, for necessary maintenance, repair, changes or modifications to the project. Special Condition 2 also requires that the applicants install monitoring pegs or markers at ten foot intervals along the face of the entire seawall at the same elevation of the Mean High Tide Line (MHTL) and at an elevation of five feet above the MHTL to be used to monitor sand levels and to identify times when the MHTL intersects the face of the seawall. The placement of the monitoring pegs shall be certified by a licensed surveyor. Special Condition 2 also requires that the applicant provide monitoring reports every five years from the date of CDP issuance that evaluate whether the seawall is still required to protect the bluff top structures it was designed to protect. If it is determined that the seawall is no longer needed to protect the blufftop structures, the applicant must submit a CDP application within six months to

remove the seawall. In addition, the condition requires the applicants to perform necessary repairs through the coastal development permit process, when required.

Special Condition 1 requires the applicants to submit a final approved site plan that includes the bluff top structures and square footage of all bluff top structures and property lines for the subject sites. In addition, final plans for the project must indicate that the seawall conforms to the bluff contours. The final plans shall also detail the location of any existing accessory improvements on the site. In addition, all runoff from the subject site shall be directed towards the street. Special Condition 5 requires that, prior to issuance of this CDP, the applicants must submit a copy of any required permits from the California State Lands Commission to ensure that no additional requirements are placed on the applicants that could require an amendment to this permit.

To assure the proposed shoreline armoring has been constructed properly, Special Condition 11 requires that, within 30 days of completion of the project, as built-plans and certification by a registered civil engineer be submitted that verifies the proposed seawall has been constructed in accordance with the approved plans. Special Condition 14 requires that during all construction, copies of the signed coastal development permit and approved construction plan shall be maintained on-site and that a construction coordinator be designated. Special Condition 12 acknowledges that the issuance of this permit does not waive any public rights that may exist on the property.

Deed Restriction and Waiver of Liability

Due to the inherent risk of shoreline development, Special Condition 4 requires the applicants to waive liability and indemnify the Commission against damages that might result from the proposed shoreline devices or their construction. The risks of the proposed development include that the proposed shoreline devices will not protect against damage to the blufftop structures from bluff collapse and erosion. In addition, the structure itself may cause damage either to the blufftop structures or to neighboring properties by increasing erosion of the bluffs. Such damage may also result from wave action that damages the seawall. Although as conditioned, the project minimizes these risks, the risks cannot be eliminated entirely. Given that the applicants have chosen to construct the proposed shoreline device despite these risks, the applicants must assume the risks.

To ensure that future buyers of the subject properties receive notice of the CDP and its various restrictions, Special Condition 14 requires the property owners of 517 and 521 Pacific Avenue to record deed restrictions that incorporate a legal description of each affected parcel and all standard and special conditions required by this CDP.

In summary, the applicants have documented that the existing bluff top structures (which were originally constructed prior to the Coastal Act's enactment) are in danger from erosion and subsequent bluff collapse. As conditioned, there are no other less damaging structural alternatives available to reduce the risk from bluff erosion. Since the proposed seawall will deplete sand supply, occupy public beach and bluff and fix the back of the beach, Special Condition 7 requires the applicants to make a payment to offset this impact. Given the low factor of safety on the subject bluff, the exposed clean sand lens,

and the close proximity of the existing structures to the bluff edge, the Commission finds that the existing primary blufftop structures are in danger from erosion and that the proposed seawall is necessary to protect the structures. In addition, the structural alternative to encase the headland is the least-environmentally-damaging feasible alternative, with no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment. The Commission's staff geologist and coastal engineer have reviewed the applicants' geotechnical assessment of the site along with the alternatives analysis and concur that the proposed shoreline armoring is necessary to protect the primary structures at the subject site. Therefore, the Commission finds that the proposed shoreline armoring, as conditioned, is consistent with Sections 30235 and 30253 of the Coastal Act.

C. PUBLIC ACCESS AND RECREATION

Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road (Pacific 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*
>
> ***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:

> *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.*

Section 30235 of the Coastal Act states, in part:

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

The City's LUP policies related to public access state:

> ***Policy 4.49:*** *The bluff property owner shall pay for the cost of the coastal structure or Infill and pay a Sand Mitigation Fee and a Public Recreation Fee per LUP Policy 4.38. These mitigation fees are not intended to be duplicative with fees assessed by other agencies. It is anticipated the fees assessed as required by this LCP will be in conjunction with, and not duplicative of, the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal resources from shoreline protective devices.*
>
> *Sand Mitigation Fee - to mitigate for actual loss of beach quality sand which would otherwise have been deposited on the beach. For all development involving the construction of a bluff retention device, a Sand Mitigation Fee shall be collected by the City which shall be used for beach sand replenishment and/or retention purposes. The mitigation fee shall be deposited in an interest-bearing account designated by the City Manager of Solana Beach in lieu of providing sand to replace the sand that would be lost due to the impacts of any proposed protective structure. The methodology used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix A. The funds shall solely be used to implement projects which provide sand to the City's beaches, not to fund other public operations, maintenance, or planning studies.*
>
> *Sand Mitigation Fees must be expended for sand replenishment and potentially for retention projects as a first priority and may be expended for public access and public recreation improvements as secondary priorities where an analysis done by the City determines that there are no near-term, priority sand replenishment Capital Improvement Projects (CIP) identified by the City where the money could be allocated. The Sand Mitigation funds shall be released for secondary priorities only upon written approval of an appropriate project by the City Council and the Executive Director of the Coastal Commission.*

Public Recreation Fee – Similar to the methodology established by the CCC for the sand mitigation fee, the City and the CCC are jointly developing a methodology for calculating a statewide public recreation fee. To assist in the effort, the City has shared the results of their draft study with the CCC to support their development of a uniform statewide Public Recreation / Land Lease Fee. Until such time as an approved methodology for determining this fee has been established, and the methodology and payment program has been incorporated into the LCP through an LCP amendment, the City will collect a $1,000 per linear foot interim fee deposit. In the interim period, CCC will evaluate each project on a site-specific basis to determine impacts to public access and recreation, and additional mitigation may be required. The City shall complete its public recreation/land lease fee study within 18 months of effective certification of the LUP.

Project applicants have the option of proposing a public recreation/access project in lieu of payment of Public Recreation Fees (or interim deposits) to the City. At the City's discretion, these projects may be accepted if it can be demonstrated that they would provide a directly-related recreation and/or access benefit to the general public.

Public Recreation Fees must be expended for public access and public recreation improvements as a first priority and for sand replenishment and retention as secondary priorities where an analysis done by the City determines that there are no near-term, priority public recreation or public access CIP identified by the City where the money could be allocated. The Public Recreation funds shall be released for secondary priorities only upon written approval of an appropriate project by the City Council and the Executive Director of the Coastal Commission.

Section 30235 of the Coastal Act requires that shoreline protection be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. An issue of major concern facing California today is the fast pace of disappearing beaches due to natural processes (i.e. erosion, subsidence and storm events) and anthropogenic factors (coastal development and sand supply interruptions). Seawalls, revetments, and other types of hard armoring have long been used to protect backshore development from erosion and flooding, but future accelerated sea level rise and extreme storm events will heighten the rate of beach loss and potential exposure of the backshore to hazards. Hard armoring already results in unintended ecological and public access consequences, such as loss of biodiversity and ecosystem services and displacement of recreational beach area with protective structures.

Some of the effects of a shoreline protective structure on the beach, such as scour, end effects and modification to the beach profile are temporary or difficult to distinguish from all the other actions that modify the shoreline. Seawalls also have non-quantifiable effects on the character of the shoreline and visual quality. However, some of the effects which a structure may have on natural shoreline processes can be quantified. Three of the effects from a shoreline protective device which can be quantified are: 1) loss of the beach/bluff area on which the structure is located; 2) the long-term loss of beach/bluff which will

result when the back beach/bluff 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.

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

In recent years the Commission has calculated and required separate mitigation for both the direct losses of beach area and the losses of beach sand. The Commission's mitigation approach for sand loss has been relatively straightforward. The sand mitigation fee quantifies lost sand volume and the cost of the replacement sand. The proposed seawall will halt or slow the retreat of the entire bluff face. The bluff consists of a significant amount of compacted sand. As the bluff retreated historically, this sand was contributed to the littoral sand supply to nourish beaches throughout the region. The proposed seawall will halt this contribution to the littoral cell. Based on bluff geometry and the composition of the bluff materials, the applicants estimated that the seawall will prevent approximately 2,489 cubic yards of sand from reaching the littoral cell (based on a bluff erosion rate of 0.4 ft. /yr. and an initial 20 year mitigation period). At estimated sand cost of $16.29 per cubic yard (provided by the applicant, and based on three estimates from local contractors); this sand would have a value of $40,546 (Exhibit 9).

The Commission has not established a single method to quantify and then mitigate for recreational losses due to encroachment by a seawall and then long-term beach loss due to fixing the back of the beach. The total length of the proposed seawall is 140 ft. The proposed seawall will encroach a maximum of 2.5 feet (30 inches) onto the public beach. The total encroachment that will occur from the proposed seawall will be 350 square feet (2.5 ft. x 140 ft.) of area, which will no longer be available for public use. In addition, if the natural shoreline were allowed to erode, the beach would migrate inland. However, when the back shoreline location is fixed, the inland migration of the beach is halted. This will result in a long-term loss of recreational opportunity as the development of new inland beach land fails to keep pace with the loss of or inundation of the seaward portion of the beach.

Over a 20 year period, with a long-term average annual retreat rate of 0.4 ft./yr. (retreat rate provided by the applicants' engineer and confirmed by the Commission's geologist), approximately 1,120 square feet of beach will be inundated and will not be replaced by new inland beach area (.4 ft./yr. [erosion rate] x 140 ft. [length of seawall] x 20 years). These two impacts from the seawall, the encroachment and the fixing of the back beach, will result in the immediate loss of approximately 350 square feet of public beach and the on-going loss of beach area (1,120 sq. ft.), for a total of 1,470 sq. ft. after 20 years.

This loss of beach area has impacts on public access and recreation. The project site is located on a public beach that is utilized by local residents and visitors for a variety of recreational activities, such as swimming, jogging, walking, surf fishing, beachcombing and sunbathing. The site is located just north of the Tide Beach Park public beach access stairway. The beach fronting the subject site is narrow, and at high tides throughout the

year it is inundated with water and inaccessible. The proposed seawall will be constructed on the public beach that would otherwise be available for public use and, therefore, will have both immediate and long-term adverse impacts on public access and recreational opportunities.

Appropriate mitigation for the subject development would be creation of additional public beach area in close proximity to the impacted beach area. However, all of the beach areas in Solana Beach are already in public ownership, such that there is not private beach area available for purchase. In this case, because an established mitigation program is not in place, the applicant is proposing that the Commission make use of the methodology utilized for an in-lieu fee program adopted by the City of Solana Beach that addresses impacts of shoreline devices on public access and recreation.

In June of 2007, the City of Solana Beach adopted an interim in-lieu fee program to mitigate the adverse impacts associated with shoreline devices (Ref. Resolution 2007-042, City of Solana Beach). The program has been designed as "interim" until the City completes, and the Commission certifies as part of an LUP, an economic study that develops a more precise way to determine impacts to public access and recreation from shoreline armoring. As such, the City's program requires the $1,000.00 per linear foot fee be assessed in the interim and requires an applicant to agree to modifications to the fee once the economic study is complete and certified and a more site specific fee is assessed. The monies collected through the mitigation program will be directed for City use for public access and recreational projects. The applicant has proposed payment into the City's program as mitigation for adverse impacts of the proposed development on public access and recreation. The City recently completed a draft mitigation fee program, which has been submitted to the Commission as an LUP Amendment for incorporation into the certified LUP. The draft mitigation fee program will likely be heard by the Commission in 2017.

The Commission has accepted the City of Solana Beach's interim mitigation program for numerous seawall projects (Ref. CDP Nos. 6-02-039-A1/Seascape Chateau, 6-07-134/Caccavo, 6-03-33-A5/Surfsong, 6-08-73/DiNoto, et. al., 6-08-122/Winkler, 6-09-033/Garber et. al., and 6-13-025/Koman, 6-13-0437/Presnell & Graves, and 6-13-0948/Bannasch). Each of these recent coastal development permits for seawalls were also conditioned to require the applicants to apply for an amendment to their coastal development permit within 6 months of the Commission's certification of the City's economic study in order to reassess the in-lieu mitigation fee.

In the absence of a comprehensive program or method of assessing the full range of impacts to public access, recreational opportunities, and the economic loss to public access/recreation from the proposed shoreline armoring, the Commission can accept participation in the City's interim mitigation fee program as adequate mitigation until such time that the City completes a program and the Commission has certified the City's mitigation program through an LUP amendment. Special Condition 7 requires the applicant to pay the City's interim fee deposit of $140,000. In order to ensure that any subsequent modification of this mitigation fee is consistent with the Chapter 3 policies of the Coastal Act, Special Condition 7 also requires the applicant to submit an application

for an amendment to this permit to the Commission if the final mitigation fee certified as part of the LUP is different than the proposed $140,000 interim fee The $140,000 interim deposit fee was determined based on a $1,000 per linear ft. deposit for the 140 ft.-long seawall. The Commission's acceptance, in this case, of the applicant's proposed mitigation for the loss of public access and recreational opportunities associated with the subject seawall should not be seen as Commission approval of a final mitigation plan. The appropriateness of any reduction or increase in the fee amount will be addressed by the Commission at that time to assure compliance with the Coastal Act and the City's LUP.

Additionally, the proposed project directly encroaches on public property. Special Condition 10 requires that, prior to commencement of construction; the applicants must execute an Encroachment Agreement approved by the City (consistent with Policy 4.48 of the City's approved LUP). Pursuant to the encroachment agreement, the applicant shall recognize that the proposed seawall is located on City property and that the City may require that the seawall be removed at any time. If the City requires removal, the permittees shall submit an amendment to this CDP within 90 days proposing removal of the encroachment in its entirety, and may only remove the encroachment after the Commission issues the CDP amendment.

The use of the beach or public parking areas for staging of construction materials and equipment can also impact the public's ability to gain access to the beach. Special Condition 8 requires that the applicants submit a construction staging and material storage plan for the subject development. Special Condition 8 prohibits the applicants from storing vehicles on the beach overnight, using any public parking spaces at the Fletcher Cove Parking Lot overnight for staging and storage of equipment, and prohibits washing or cleaning construction equipment on the beach or in the parking lot. The special condition also prohibits construction on the sandy beach during weekends and holidays and between Memorial Day to Labor Day of any year.

In summary, while the proposed shoreline construction will reduce available public beach area and sand supply, the project has been designed and conditioned to minimize these impacts to the public beach. Therefore, as conditioned, the proposed development can be found to be consistent with the public access and recreation policies and Section 30235 of the Coastal Act and the City's certified LUP.

D. ENVIRONMENTALLY SENSITIVE HABITAT/WATER QUALITY

The following Chapter 3 policies of the Coastal Act are most applicable to this development:

Section 30230 of the Coastal Act states:

> *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 30240 of the Coastal Act states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

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

The following policies of the City of Solana Beach certified Land Use Plan protect environmentally sensitive habitats:

Policy 3.8: *ESHA shall be protected against significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.*

Policy 3.22: *Development adjacent to ESHAs shall minimize impacts to habitat values or sensitive species to the maximum extent feasible...*

The following policies of the City of Solana Beach certified Land Use Plan protect coastal water quality:

Policy 3.84: *New development shall not result in the degradation of the water quality of groundwater basins or coastal surface waters including the ocean, coastal streams, or wetlands. Urban runoff pollutants shall not be discharged or deposited such that they adversely impact groundwater, the ocean, coastal streams, or wetlands, consistent with the requirements of the RWQCB's municipal stormwater permit and the California Ocean Plan.*

Policy 3.85: *Development must be designed to avoid or minimize to the maximum extent feasible, the introduction of pollutants of concern into coastal waters. To meet the requirement to minimize "pollutants of concern," new development shall incorporate a BMP or a combination of BMPs best suited to reduce pollutant loading to the maximum extent feasible.*

No native flora currently exists on the face of the bluff where the seawall is proposed to be installed. However, the wall will be located on the sandy beach. Sandy beach ecosystems are unique--their intrinsic biota and ecological functions are not provided by any other coastal ecosystem. Sandy beaches are comprised of three different biological zones: the supra-littoral zone, the mid-littoral zone, and the surf zone, each of which

provides critical habitat, food and/or breeding grounds for many species. These zones provide functions that include buffering and absorption of wave energy by stored sand, filtration of large volumes of seawater, extensive detrital and wrack processing and nutrient recycling, and the provision of critical habitat and resources for declining and endangered wildlife, such as shorebirds and pinnipeds.

The effects of shoreline armoring on sandy beach ecosystems are increasingly recognized, though difficult to quantify. Armoring directly encroaches upon the beach and fixes shoreline position, constraining the possible responses and evolution of beach ecosystems to adjust to changes in sea level and other dynamic coastal processes. This loss of the scope and ability of beaches to respond to coastal processes results in the reduction of overall width and the elimination of habitat zones and the space needed by biota to adjust to changing swell, tide and beach conditions. As pressure to develop the coast continues, and sea level rise and coastal erosion accelerates, the need to understand the ecological consequences of armoring on coastal ecosystems is increasingly urgent.

Quantitatively assessing effects of armoring on ecological components and functions potentially altered or lost on a given stretch of sandy beach is complex. One option for mitigating ecological impacts of coastal armoring is to use the cost of restoring suitable natural habitat, either at that site or nearby as a proxy for ecological value. A fundamental assumption to the replacement cost method is that the restored ecosystem function is equivalent to the natural function lost and is the least costly way to regain that natural function.[1,2] The replacement cost approach relies on determining proportional and appropriate ecological restoration for identifying equitable mitigation and thus requires a robust set of suitable restoration projects to draw upon for valuation.

However, a replacement cost approach is only one alternative to delving into the array of methods for identifying, replicating, and monitoring lost ecological components of a specific stretch of beach and still requires further study before a mitigation methodology can be devised and implicated. Thus, the Commission finds that the full ecological impacts of shoreline armoring on beach habitat may not be fully identified, or mitigated at this time. Research continues and staff anticipates this issue will be resolved in the future. The Commission finds that it is not feasible at this time mitigate for the loss of the biological productivity of a given stretch of beach.

Special Condition 9 requires that during the construction of the project, the permittee may not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion. Additionally, to further assure that the subject development will not result in the pollution of the ocean waters, Special Condition 9 requires the applicants to submit a Best Management Practices Plan that incorporates

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[1] US National Research Council. 2005. *Valuing Ecosystem Services: Toward Better Environmental Decision- Making.* The National Academies Press. Washington, DC. http://www.nap.edu/catalog/11139.html

[2] Bockstael, N.E., A.M. Freeman, R.J. Kopp, *et al*. 2000. On measuring economic values for nature. *Environ. Sci.Technol.* 34: 1384–1389.

structural and nonstructural Best Management Practices (BMPs), for Executive Director approval, for the construction of the proposed seawall. Construction methods must be devised to assure that shotcrete material does not mix with or pollute ocean waters. With appropriate BMPs, the potential for this polluted material from the site making its way into the ocean will be eliminated. Therefore, as conditioned, the Commission finds the proposed development consistent with the marine and water quality protection policies of the Coastal Act.

As conditioned, the Commission finds that the proposed project will ensure that all environmental impacts will be minimized to the maximum extent feasible. Therefore, the proposed project can be found consistent with resource protection policies of the Coastal Act and the City's certified LUP.

E. VISUAL RESOURCES/ALTERATION OF NATURAL LANDFORMS

Sections 30240, 30250 and 30251 of the Coastal Act require that the scenic and visual qualities of coastal areas be protected, that new development adjacent to park and recreation areas be sited so as to not degrade or impact the areas and that new development not significantly adversely affect coastal resources:

> ***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.*
>
> ***Section 30251***
>
> *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.*

In addition, the following certified City of Solana Beach LUP language, although not the standard of review, provides pertinent information and guidance regarding the protection of coastal zone visual resources:

> ***Policy 4.29****: Limit buildings and structures on the sloped face and toe of the bluff to lifeguard towers, subsurface public utility drainage pipes or lines, bluff retention devices, public stairs and related public infrastructure which satisfy*

the criteria established in the LCP. No other permanent structures shall be permitted on a bluff face. Such structures shall be maintained so that they do not contribute to further erosion of the bluff face and are to be visually compatible with the surrounding area to the maximum extent feasible.

Policy 4.37*: Maximize the natural, aesthetic appeal and scenic beauty of the beaches and bluffs by avoiding and minimizing the size of bluff retention devices, preserving the maximum amount of unaltered or natural bluff face, and minimizing encroachment of the bluff retention device on the beach, to the extent feasible, while ensuring that any such bluff retention device accomplishes its intended purpose of protecting existing principal structures in danger from erosion.*

Policy 4.55*: To achieve a well maintained, aesthetically pleasing, and safer shoreline, coordination among property owners regarding maintenance and repair of all bluff retention devices is strongly encouraged. This may also result in cost savings through the realization of economies of scale to achieve these goals by coordination through an assessing entity. All bluff retention devices existing as of the date of certification of the LCP, to the extent they do not conform to the requirements of the LCP, shall be deemed non-conforming. A bluff property owner may elect to conform his/her/its bluff property or bluff retention device to the LCP at any time if the City finds that an existing bluff retention device that is required to protect existing principal structures in danger from erosion is structurally unsound, is unsafe, or is materially jeopardizing contiguous private or public principal structures for which there is no other adequate and feasible solution, then the City may require reconstruction of the bluff retention device.*

Much of the bluff along the Solana Beach coastline has been armored at its base, primarily by seawalls, all of which substantially alter the appearance of the bluffs, particularly those that have not been camouflaged to replicate the of a natural bluff face. However, the technology in design of seawalls has improved dramatically over the last two decades. Seawalls now typically involve sculpted and colored concrete that upon completion closely mimic the natural surface of the lower bluff face.

The existing seawall on the subject site was designed to conform as closely as possible to the natural contours of the bluff using color and textured concrete. As proposed, the seawall extension will match the appearance of the adjacent wall to the north and the surrounding bluffs. The visual treatment proposed is similar to the visual treatment approved by the Commission in recent years for shoreline devices along the Solana Beach shoreline (ref. CDP 6-13-0437/Presnell). The applicant has also proposed to install hydroseed and container plantings on the existing geogrid slope on the bluff fronting 521 Pacific Avenue. The hydroseed that was previously applied to the geogrid slope has primarily failed to grow and therefore the geogrid slope does not adequately blend in with the adjacent natural bluffs (Exhibit 8). The Commission geologist has reviewed the applicant's landscaping proposal and concurs that the proposed new landscaping is unlikely to destabilize the bluff. Special Condition 1 requires that the applicant submit

final bluff landscaping plans. Thus, the proposed landscaping will likely result in a more natural bluff appearance at the site.

Special Condition 1 requires the applicants to submit revised plans showing that the natural bluff headland at the site will be retained and that the seaward portion of the headland will be encased by the proposed seawall. The retention of the headland will preserve, in part, the natural irregularity of the coastal bluff in place of a more homogenous linear wall. In addition, Special Condition 2 requires the applicant to monitor and maintain the proposed shoreline armoring in its approved state. Thus, the proposed seawall will be maintained so as to effectively mitigate its visual prominence.

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

F. LOCAL COASTAL PLANNING

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

The City's Local Coastal Program Land Use Plan was effectively certified in June 2013. However, the City has not yet developed implementing ordinances; thus, a complete LCP has not yet been certified.

The location of the proposed shoreline armoring is designated for Open Space Recreation in the City of Solana Beach LUP and General Plan. As conditioned, the subject development is consistent with these requirements. Site-specific geotechnical evidence has been submitted indicating that the existing principal structures at the top of the bluff are in danger. Based on the above findings, the proposed development is consistent with the Chapter 3 policies of the Coastal Act in that the need for the shoreline protective devices has been documented and its adverse impacts on coastal resources will be mitigated.

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

G. CALIFORNIA ENVIRONMENTAL QUALITY ACT

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 City of Solana Beach found that the proposed development was exempt pursuant to CEQA Guidelines sections 15269 [prevention of emergencies] and 15304 [minor alterations to land].

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 coastal development permit findings in this staff 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 if set forth here in full.

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

- City of Solana Beach Certified LUP
- Site Plans titled "517 & 521 Pacific Avenue Shoreline Stabilization Project" by TerraCosta Consulting Group, received March 29, 2016
- Landscaping Plans titled "Seawall Maintenance Repair and Extension 517-521 Pacific Avenue Slope Re-Vegetation Landscape Plans" by David Reed Landscape Architects, received March 29, 2016
- Geotechnical Investigation and Bluff Stability Study, 517 & 521 Pacific Avenue, Solana Beach, California, by TerraCosta Consulting Group, received March 29, 2016
- Response to Request for Additional Information 517 & 521 Pacific Avenue, Solana Beach, California, by TerraCosta Consulting Group, dated June 7, 2016
- Cost and Feasibility to Relocate All or Part of 521 Pacific Avenue Solana Beach by Dana Construction and Development, Inc., dated June 20, 2016
- Geotechnical Letter to City of Solana Beach from TerraCosta Consulting Group, titled "Alternatives Analysis Condition Use Permit Bluff Retention Device 517 & 521 Pacific Avenue Solana Beach, California," dated February 29, 2016
- Resolution 2016-010, City of Solana Beach
- Resolution 2007-042, City of Solana Beach
- CDP Nos:
    - F2595/Lucker
    - 6-91-265/Lucker
    - 6-92-212/Wood
    - 6-92-212-A1
    - 6-97-165-G/Lucker & Wood
    - 6-97-165/Lucker & Wood
    - 6-97-165-A2
    - 6-97-165-A2
    - 6-97-166-G
    - 6-99-095/City of Solana Beach
    - 6-03-084
    - 6-04-086/Winkler
    - 6-06-076
    - 6-08-122/Winkler
    - 6-11-081-W

PROJECT LOCATION

Google Maps

EXHIBIT NO. 1

APPLICATION NO.
6-16-0281

Project Location

California Coastal Commission

AERIAL PHOTOGRAPH

Google Maps

EXHIBIT NO. 2

APPLICATION NO.
6-16-0281

Aerial Photo

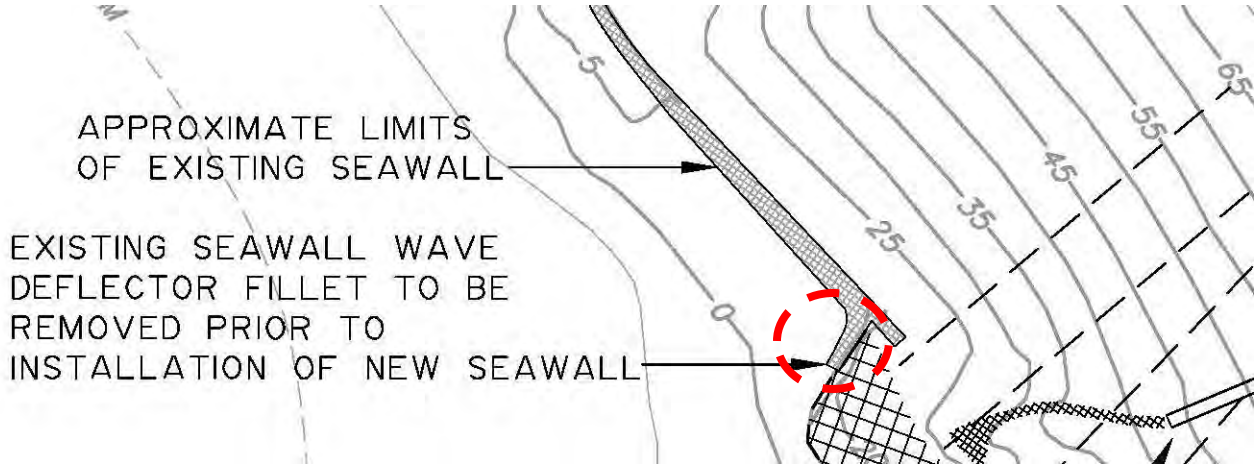
California Coastal Commission

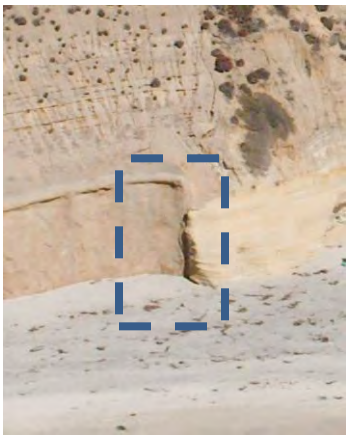
PROPOSED SEAWALL LOCATION PHOTOGRAPH

- Proposed construction of a 140 ft. long, 32 ft. high, 30 in. thick seawall on the beach and bluff

EXHIBIT NO. 1
APPLICATION NO. **6-16-0281**
Proposed Seawall
California Coastal Commission

PROPOSED WAVE DEFLECTOR "FILLET" REMOVAL

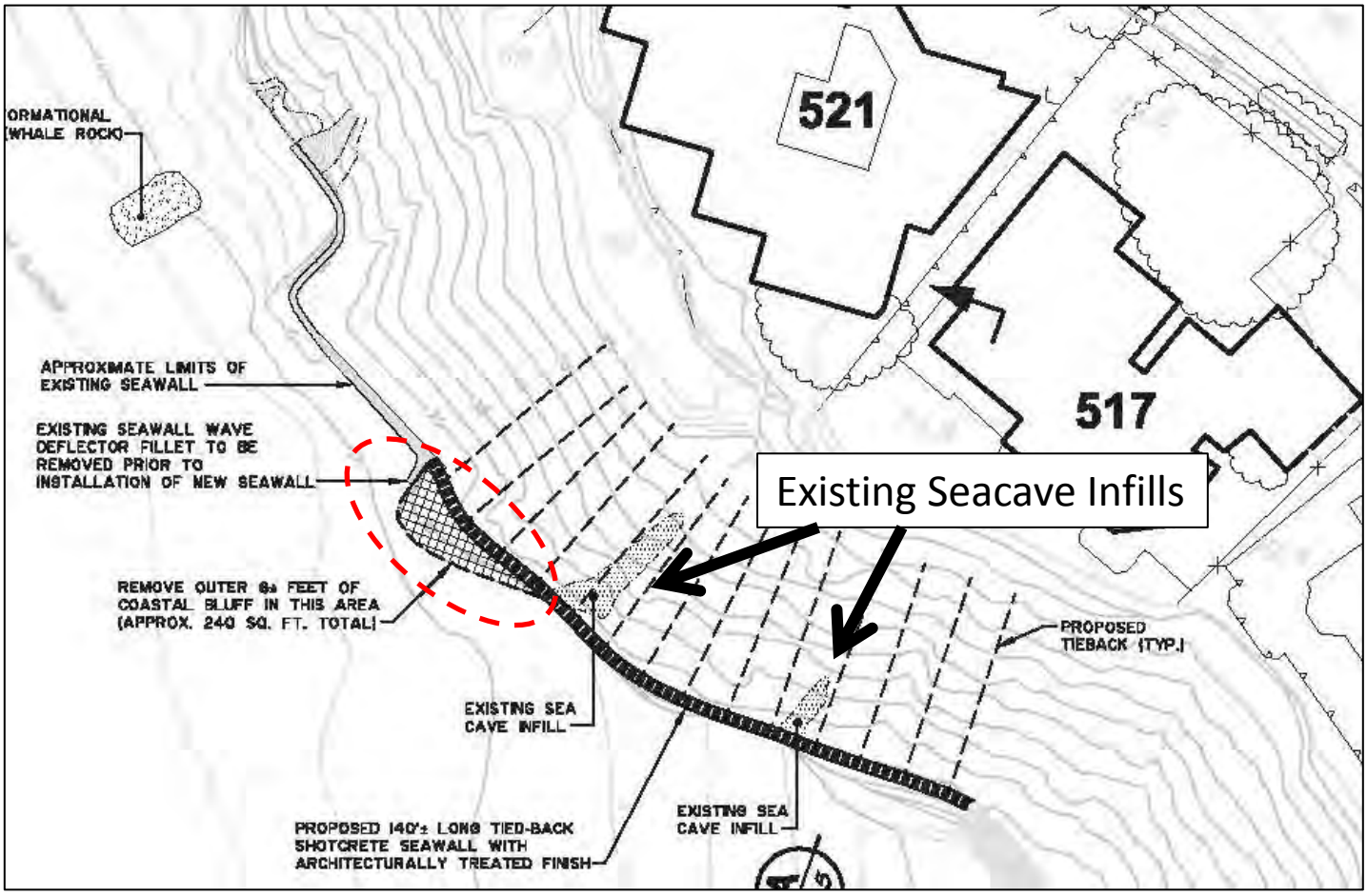




- Proposed removal of an existing permitted seawall wave deflection 'fillet' located at the southern terminus of the seawall to the north

EXHIBIT NO. 4
APPLICATION NO. **6-16-0281**
Wave Deflector
California Coastal Commission

PROPOSED HEADLAND REMOVAL PLAN



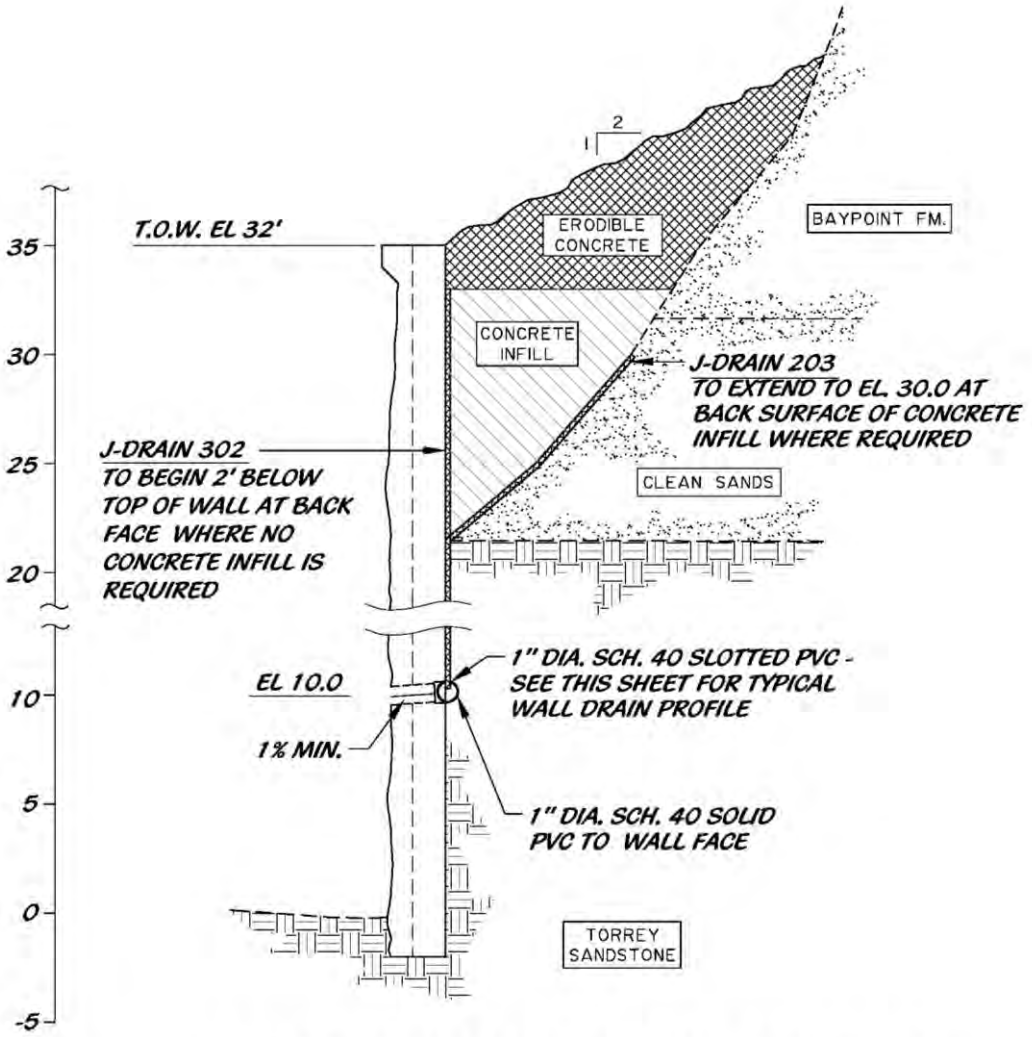
- Proposed Removal of an approximately 40 ft. long by 6 ft. thick natural bluff headland fronting the northern property.

EXHIBIT NO. 5
APPLICATION NO. **6-16-0281**
Headland Removal
California Coastal Commission

NATURAL BLUFF HEADLAND PHOTOGRAPH

EXHIBIT NO. 6
APPLICATION NO. **6-16-0281**
Headland Photo
California Coastal Commission

TYPICAL WALL SECTION PLAN



TYPICAL WALL DRAIN SECTION

NOT TO SCALE

EXHIBIT NO. 7
APPLICATION NO. **6-16-0281**
Wall Section
California Coastal Commission

PROPOSED LANDSCAPING ON EXISTING GEOGRID PHOTOGRAPH

- Proposed installation of hydroseed and container plantings on the existing geogrid slope

EXHIBIT NO. 8
APPLICATION NO. **6-16-0281**
Landscaping
California Coastal Commission

SAND MITIGATION CALCULATIONS

Basic Equations:

$$\mathbf{M = V_b \times C} \quad (1)$$

where,

M = mitigation fee,

$\mathbf{V_b}$ = total volume of sand required to replace losses due to the structure, and

C = cost per cubic yard of sand

$$\mathbf{V_b = (R \times L \times W \times H \times S) / 27} \quad (2)$$

where,

R = long-term regional bluff retreat rate (ft/yr),

L = design life of armoring without maintenance (yr),

W = width of property to be armored (ft),

H = total height of armored bluff (ft),

S = fraction of beach quality material in the bluff material,

Site-specific values for equation variables:

C = $16.29/cy to purchase and deliver sand

In 2009, bids were obtained from three contractors to provide approximately 3,000 cy of sand for a nearby project. Copies of those bids are attached. The average sand cost of the three bids is $16.29/cy, which we have used for this project.

R = 0.4 ft/yr

L = 20 years

W = 140 feet

S = 0.75

H = 80 feet

Vb = 2,489 cubic yards of sand

C = $16.29 per cubic yard of sand

M = Vb * C

M = 2,489 cy * $16.29 = $40,546

**Calculations in this box by CCC Staff

EXHIBIT NO. 9
APPLICATION NO.
6-16-0281
Sand Calculations
California Coastal Commission

TerraCosta Consulting Group

ROUGH APPROXIMATION OF GEOLOGIC SETBACK LINE (GSL)

GSL AT 517 PACIFIC AVENUE = 86 FT. FROM BLUFF EDGE
GSL AT 521 PACIFIC AVENUE = 78 FT. FROM BLUFF EDGE

EXHIBIT NO. 10
APPLICATION NO.
6-16-0281
GSL
California Coastal Commission