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## STAFF REPORT: REGULAR CALENDAR

**Application No.:** 6-19-1291

**Applicant:** DeSimone, Schragger, & Oene

**Agent:** Bob Trettin

**Location:** 249, 241, & 235 Pacific Avenue, Solana Beach, San Diego County (APNs: 263-312-10, 263-312-12, 263-312-13)

**Project Description:** Construct a 50 ft. long, 35 ft. high, 28 in. thick seawall on the public beach and bluff and construct an approximately 30-50 ft. wide, 10-40 ft. high geogrid structure on the bluff face located between 249 and 241 Pacific Avenue.

**Staff Recommendation:** Approval with conditions.

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## SUMMARY OF STAFF RECOMMENDATION

Staff is recommending that the Commission approve the subject shoreline armoring development. The applicants' geotechnical representative has demonstrated that the blufftop residential structures are in danger from erosion due to ongoing bluff collapse and exposure of the clean sand layer below the residences. The Commission senior engineer and geologist have reviewed the applicants' geotechnical assessment and concur with its conclusions. The current proposal stems from a prior Commission action taken in March 2019, involving the owners of 245, 241, & 235 Pacific Avenue where the Commission approved shoreline armoring to protect the existing residences at 241 and

235 Pacific Avenue but prohibited armoring to protect the residence at 245 Pacific. In its prior action, the Commission determined that the residence at 245 Pacific Avenue was not entitled to shoreline protection in part because the previous property owners of 245 Pacific waived any rights to construct shoreline armoring to protect the portion of the home closer than 40 feet from the bluff edge.

To allow shoreline armoring in the prior action for the residences at 241 and 235 Pacific Avenue while avoiding armoring for residence at 245 Pacific Avenue, the Commission turned to a conceptual alternative examined by the Commission's senior engineer and geologist that involved the construction of two east/west oriented retaining walls that function as return walls for the existing seawalls located below 249 and 241 Pacific (i.e. the "return walls" alternative), leaving the bluff and beach below 245 Pacific in its natural state. The Commission acknowledged that such measures would be a temporary solution to the on-going risk associated with erosion of the unarmored 50-foot long span of bluff below 245 Pacific Avenue, and that continual monitoring and construction of additional walls, geogrids, and eventually additional protection would be necessary in the future to protect adjacent homes. The Commission conditioned CDP #6-18-0288 to require the applicants to submit revised plans removing shoreline protection below 245 Pacific Avenue, and left the decision of how to specifically design the approved shoreline protection to protect the homes at 241 and 235 Pacific Avenue without armoring the bluff below 245 Pacific Avenue for the prior applicants to propose through the submission of final plans.

Since the approval of CDP #6-18-0288, the applicants' project engineer has provided additional information on the viability of the "return walls" alternative, concluding that due to the unstable soil conditions on the bluff face below 245 Pacific, the bluff could fail during construction and cause the piers needed to build the return walls to fail as they are being placed by construction crew members. Construction crew working near the project site, whether on the bluff itself or working above or below, would be at risk of severe injury or death if the bluff failed during the construction of the return walls. The Commission's senior engineer and geologist reviewed the project engineer's analysis, and agree that construction of the lateral walls would present a safety risk with regard to bluff stabilization and worker safety. Nevertheless, in an attempt to find a safe means of constructing the lateral walls consistent with the previous Commission action, staff asked the applicant to re-analyze implementation of this alternative utilizing a temporary 50-ft. long seawall across the gap that would remain in place during construction of the return walls, and then removed upon completion of the walls. While unusual, if erection of a temporary seawall would allow return walls to be constructed, it would potentially allow the homes to either side of 245 Pacific Avenue to be protected while leaving the bluff below 245 Pacific Avenue in a natural state.

However, the applicant's engineer analyzed the temporary seawall alternative and concluded that while construction of a temporary seawall as suggested by the Commission's senior engineer would be theoretically possible to construct, the alternative is not a viable engineering solution. According to the project engineer, the wall would require retention qualities capable of securing the lateral loading of the bluff materials and backfill. The structural components of the temporary wall would have to

be secured into the base of the bluff and bluff face with drilled piers and tiebacks. The project engineer concluded that the removal of the wall in the future would significantly damage the bluff fronting 245 Pacific Avenue, including the potential for bluff collapse in several locations including along the lower coastal bluff, in the re-exposed clean sand lens, and in the over-steepened mid- and upper-bluff materials above the 50 ft. long gap and the adjoining portions of the bluff. According to the updated geotechnical report for the current proposals, the clean sand lens in the bluff below 245 Pacific Avenue is already failing and the placement and then removal of any "temporary" backstopping of the clean sand lens is highly likely to accelerate this failure. Failures of significant sections of the lower coastal bluff would undermine the constructed return walls, requiring significant repairs to both return walls and additional restoration of failed sections of any reconstructed bluff at 241 Pacific Avenue. Future repairs of the return walls would have to occur on the unstable bluff below 245 Pacific, and with the removal of the temporary seawall, there will be nothing to help stabilize the bluff to allow the applicants to safely facilitate the necessary repairs.

The Commission's senior engineer and geologist have reviewed the applicants' analysis and agree that the applicant has raised valid concerns that eliminate a temporary seawall as a viable engineering solution to allow construction of the lateral return wall alternative approved by the Commission. Thus, in the absence of any feasible alternative to protect the existing residences, staff is recommending that the proposed shoreline armoring be approved to fill the 50 ft. long unarmored gap and stabilize the mid- to upper bluff before 245 Pacific. As conditioned, the protection would be authorized only for as long as the existing bluff-top structures (241 and 249 Pacific Avenue) still exist without redevelopment.

Prior to the previous permit application for the subject site, the Commission had been faced with the decision on whether to leave a "gap" of unarmored bluff in Solana Beach for multi-property shoreline armoring requests where some of the homes had either waived their right to shoreline protection or could achieve an adequate level of stability without shoreline armoring. In these past applications, the Commission determined that approval of shoreline armoring fronting the "gap" property was the least environmentally damaging feasible alternative. Although the Commission has imposed waivers of future shoreline protection on new development in Solana Beach on a project-by-project basis, the homeowners' ability to avoid needing shoreline protection, and the Commission's ability to disallow shoreline protection, has been limited due to the compact development pattern on the bluff top in Solana Beach. This type of development pattern creates situations where the Commission is required to allow protection of existing homes that are entitled to protection under 30235 while trying to avoid protection for adjacent properties not entitled to it. Oftentimes, as in the subject case, given the compact development pattern on the blufftop in Solana Beach, there is no way to leave a "gap" in the protection without threatening the stability of the homes that are entitled to protection.

Under these circumstances, while the waiver of shoreline protection is still an important planning tool, rather than try to preserve small, isolated stretches of unprotected bluffs through individual permit actions, the prevention and eventual removal of seawalls in

Solana Beach is more effectively approached through regional planning efforts than on a project-by-project basis. One of the main goals of the certified LUP is to limit bluff retention devices on the public bluffs and beach area through the appropriate siting of new development and by aggressively pursuing implementation of a comprehensive beach sand replenishment and retention program, as the best approach to buffer the shoreline from wave attack and reduce the need for bluff retention devices. The Commission's adopted Sea Level Rise Guidance Policy recognizes that adaptation planning should be conducted at a regional level where feasible, in part because of the difficulty of addressing region wide problems on a lot-by-lot basis. Regional adaptation planning allows local jurisdictions to assess and implement regional adaptation strategies that will cover a larger portion of the coast, and thus, will have a larger impact than when implemented on a case-by-case basis. Coordinating with other stakeholders also allows the leveraging of research and planning funds for large scale and costly projects such as beach nourishment.

Staff is recommending approval with a number of conditions that address the direct impact of the proposed seawall on coastal resources such as scenic quality, water quality, public access and recreation opportunities, and shoreline sand supply. The applicants will be required to submit a payment of \$49,948 into a Shoreline Account established by the City of Solana Beach to mitigate for impacts to public access and recreation for the initial 20-year mitigation period for the proposed seawall. The applicants will also be required to submit a payment of \$10,272 into a Shoreline Account established by the City of Solana Beach to mitigate for impacts to sand supply for the initial 20-year mitigation period for the proposed seawall.

Prior to the completion of the initial 20-year period for mitigation, the applicants are required to submit an amendment application to the Commission to either remove the permitted shoreline armoring or to provide geotechnical reports with evidence that the shoreline armoring must be retained and to provide mitigation for the subsequent 20-year period. Staff is also recommending that the authorization for the proposed shoreline armoring be conditioned to expire when the existing bluff-top structures are redeveloped, no longer present, or no longer require the shoreline armoring, whichever occurs first. To synchronize the submittal of monitoring reports for the current proposal with those required for the seawall to the south of the project site (below 241 and 235 Pacific), the applicants will be required to submit a monitoring report no later than March 7, 2024, the deadline for the submittal of the five-year monitoring report for CDP #6-18-0288, and subsequent reports at five years intervals thereafter, to evaluate whether the seawall is still required to protect the bluff-top structures it was designed to protect.

A new CDP or amendment to this CDP will be required to remove the shoreline armoring or to modify the terms of its authorization. The conditions are intended to tie the life of the shoreline armoring to the structures it is approved to protect, including the waiver of 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.

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With the required public access and recreation mitigation, as well as the limitation on the time for which the seawall 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 of the Coastal Act, this permit requires that any redevelopment of the bluff-top properties cannot rely upon this seawall to determine site suitability for such redevelopment. Other conditions involve an in-depth analysis for future reauthorization of the seawall and the appearance of the seawall.

Commission staff recommends that the Commission **APPROVE** coastal development permit application 6-19-1291, as conditioned. The motion is on page 7. The standard of review is Chapter 3 of the Coastal Act with the City of Solana Beach certified LUP used as guidance.

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## EXHIBITS

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[Exhibit 7 – Rendering of Return Walls Alternative](#)

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[Exhibit 9 – Adjacent Seawalls](#)

[Exhibit 10 – Technical Memorandum from Commission Engineer and Geologist](#)

## I. MOTION AND RESOLUTION

### Motion:

I move that the Commission approve Coastal Development Permit 6-19-1291 pursuant to the staff recommendation.

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

### Resolution:

The Commission hereby approves the Coastal Development Permit for the proposed project and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

## II. STANDARD CONDITIONS

- 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 applicant 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 applicant to bind all future owners and possessors of the subject property to the terms and conditions.

### III.SPECIAL CONDITIONS

#### 1. Revised Final Plans.

- (a) **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 235/241/249 Pacific Avenue, Solana Beach, CA 92075 Emergency Repairs to Coastal Bluff, by Soil Engineering Construction, Inc., received December 03, 2019, except that they shall be modified to reflect all of the following:
- i. The geogrid structure on the bluff face shall be constructed to undulate to closely match the appearance of the nearby natural bluff face. The geogrid structure shall include variable thicknesses to provide visual undulations that mimic the nearby natural bluff conditions. At a minimum, the geogrid structure shall include 2 non-evenly spaced, tapered, undulating drainage features, with non-linear edges, that are approximately 2 feet deep and approximately 5 feet wide.
  - ii. 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.
  - iii. All runoff from impervious surfaces on the top of the bluff shall be collected and directed away from the bluff edge towards the street.
  - iv. 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.
- (b) 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 and proposed minor deviations.

## 2. Final Landscape Plans.

- (a) **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicants shall submit, for review and written approval by the Executive Director, one full-size set of final landscaping plans prepared by a licensed landscape architect or a qualified resource specialist. A landscape architect or other qualified landscape professional shall certify in writing that the final landscape plans are in conformance with the following requirements:
- i. A plan showing the type, size, extent, and location of all proposed vegetation and any necessary irrigation.
  - ii. Only drought-tolerant native or non-invasive plant materials may be planted throughout the project site. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California shall be employed or allowed to naturalize or persist on the site. No plant species listed as 'noxious weed' by the State of California or the U.S. Federal Government shall be planted.
  - iii. Any existing permanent irrigation system located on the subject site that drains anywhere on or over the bluff-top and face shall be removed or capped.
  - iv. Low-flow efficient irrigation systems shall be utilized. All irrigation systems shall be designed with: drip lines, where feasible; check valves at low points to reduce excess drainage; automatic controllers; rainy weather shut off controls; and, if rotor heads are used, minimal head coverage overlap.
- (b) The permittee shall undertake the development in accordance with the approved final landscape plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved 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.

## 3. Shoreline Structure Authorization, Design, Monitoring and Maintenance. By acceptance of this permit, the applicants acknowledge and agrees to the following:

- (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 249 Pacific Avenue or the blufftop residence at 241 Pacific Avenue is (1) redeveloped as defined in **Special Condition #4**; (2) is no longer present; or (3) no longer require 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.
  - 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 maintain stability of the pre-Coastal Act 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 shoreline armoring 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 shoreline armoring in a manner that would eliminate or reduce the 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 all unavoidable impacts; 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.
- ii. 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 natural bluffs, 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 geogrid structure 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, 2022 and then each third year thereafter 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 by March 7, 2024 and then every five years thereafter 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.
4. **Reliance on Permitted Shoreline Armoring.** No future development that is not otherwise exempt from coastal development permit requirements, including

additions, major structural alterations, 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 sites shall be sited and designed to minimize risk from hazards without reliance on the permitted shoreline armoring, or shall not be permitted. 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.

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.

- 5. Assumption of Risk, Waiver or 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.
- 6. State Lands Commission Approval. PRIOR TO ISSUANCE OF THE 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 permit 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.

**7. Future Response to Erosion.** If a permittee intends to keep any portion of the shoreline structure in place beyond the 20 year mitigation period or if in the future a permittee seeks to construct additional bluff or shoreline protective devices, the permittees agree, by acceptance of this permit, that they shall propose in an application for a coastal development permit specific alternatives to the proposed bluff or shoreline protection that will avoid or 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 existing 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.

**8. 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 a fee of \$49,948 has been deposited in a Shoreline Account established by the City of Solana Beach, in-lieu of providing new beach area to replace the beach area that will be lost due to the impacts of the seawall, 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.

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 only if an analysis conducted by the City

determines that there are no near-term, priority public recreation or public access Capital Improvement Projects (CIP) for which 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.

- (b) **WITHIN 30 DAYS OF THE START OF CONSTRUCTION**, the applicants shall submit documentation of the area (i.e., the depth and width between the rear of the notch or seacave and the bluff drip line) of any notch or seacave at the base of the bluff, to the Commission and to the City and shall submit an additional an additional in-lieu Public Access Fee to the City for the area based on the City's Public Access Fee method.
- (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 \$10,272 has been deposited in a Shoreline Account established by the City of Solana Beach, in-lieu of providing the total amount of sand to replace the sand that will be lost due to the impacts of the seawall 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.

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 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.

9. **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;
- (d) The applicants shall submit evidence that the approved plans and plan notes have been incorporated into construction bid documents; and
- (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.

- 10. 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.

- 11. 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 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 shall remove the encroachment within 90 days after the Commission issues the CDP amendment.

- 12. 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 include the depth of any notch in the bluff as documented according to the requirements of Special Condition #8(b). The As-Built Plans shall be substantially consistent with the approved project plans described in Special Condition #1, 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, whose qualifications are acceptable to the Executive Director. The engineer shall verify that the shoreline armoring has been constructed in conformance with the approved final plans.

- 13. 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.
- 14. 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 at 235, 241 and 249 Pacific Avenue 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.
- 15. 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.

**16. Liability for Costs and Attorneys' Fees.** By acceptance of this permit, the Permittees agree to reimburse the Coastal Commission in full for all Coastal Commission costs and attorneys' fees (including those charged by the Office of the Attorney General, and any court costs and attorneys' fees that the Coastal Commission may be required by a court to pay) that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Permittee against the Coastal Commission or its officers, employees, agents, successors and assigns, challenging the approval or issuance of this permit. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

## IV. FINDINGS AND DECLARATIONS

### A. Project Description and Background

The proposed development consists of the construction of a 50 ft. long, 35 ft. high, 28 in. thick structural shotcrete tied-back seawall and a geogrid structure on the majority of the bluff face above the seawall ([Exhibit #3](#)). The proposed seawall would eliminate a 50-foot wide “gap” in the contiguous, approved shoreline protection which extends approximately 1,300 feet to the north and 400 feet south of the site ([Exhibit #2](#)). The geogrid structure at its longest extent will span approximately 40 feet between the top of the proposed seawall and the edge of the bluff, and at its widest extent will span approximately 50 feet across the bluff face. The proposed protection would be located on City-owned public beach and bluff below an existing single-family residence located at 245 Pacific Avenue in the City of Solana Beach. The applicants have stated that the protection is not required for the residence located immediately above the gap at 245 Pacific Avenue, but is needed to protect the two residences on either side; 249 Pacific Avenue to the north, and 241 Pacific Avenue to the south. The project location is approximately 600 ft. north of Fletcher Cove, the City’s primary beach park and accessway ([Exhibit #1](#)).

#### Background

The subject project is essentially a resubmittal of a project that was partially approved by the Commission in March 2019 (CDP #6-18-0288/DeSimone, Schragger, & Jokipii). That project proposed construction of a 150 ft. long seawall fronting three adjacent existing single-family residences located 235, 241, and 245 Pacific Avenue, and construction of a geogrid bluff retention device below all three homes ([Exhibit #4](#)).

In its March 2019 action, the Commission determined that since the homes at 235 and 241 Pacific Avenue were constructed prior to enactment of the Coastal Act, the residences are considered “existing” for purposes of requiring protection under Section 30235 of the Coastal Act. However, the northernmost home (245 Pacific Avenue) was approved by the Commission in 1996 and is not an existing structure for purposes of Section 30235 of the Coastal Act because it was originally permitted and built after January 1, 1977, thereby postdating the enactment of California Coastal Act. Furthermore, at the time of approval, the applicant chose to construct the home seaward of the 40 ft. bluff edge setback and as such, a condition of the CDP approval required that the property owners waive their rights to construct shoreline armoring to protect the portion of the home at 245 Pacific Avenue closer than 40 feet from the bluff edge. While the slope stability analysis showed that the seaward portion of the home at 245 Pacific Avenue was threatened by erosion, the analysis did not indicate that the portion of the home inland of the 40 ft. bluff setback was at risk. Thus, the Commission was not (and is not) required to approve shoreline armoring to protect the bluff-top residence at 245 Pacific Avenue.

Therefore, as an alternative to approving the entire 150 feet seawall, the Commission’s senior engineer and geologist examined the conceptual alternative of not constructing

any devices seaward of 245 Pacific Avenue and concluded that it could be feasible to avoid constructing a wall at the base of the bluff below 245 Pacific Avenue if the approved seawall constructed at 241 Pacific Avenue, and the existing seawall located on the north side of the gap, below 249 Pacific Avenue, included east/west directed retaining walls that functioned as return walls, thus leaving a 50-foot wide section of bluff below 245 Pacific Avenue in its natural state ([Exhibit #7](#)). The Commission acknowledged that such measures would be a temporary solution to the on-going risk associated with erosion of the unarmored 50-foot long span of bluff below 245 Pacific Avenue, and that continual monitoring and construction of additional walls, geogrids, and eventually additional protection would be necessary in the future to protect adjacent homes.

At the time the project was reviewed by the Commission, the engineering viability of this alternative had not been fully analyzed. Therefore, the permit was conditioned to require the applicants to submit revised plans that did not include the construction of any shoreline protection below 245 Pacific Avenue, leaving the decision of how to specifically design the approved shoreline protection to protect 241 and 235 Pacific Avenue without armoring the bluff below 245 Pacific Avenue for the applicants to propose through the submission of final plans.

Since the previous hearing on CDP #6-18-0288, the project engineer has coordinated with the Commission's senior engineer and geologist to analyze how the return walls alternative could be safely and effectively implemented. The current applicants are now asserting that in addition to the home south of 245 Pacific Avenue at 241 Pacific Avenue, the home immediately adjacent to the north (249 Pacific Avenue) is at risk, that the return wall alternative is infeasible, and the only feasible means of protecting these existing homes is construction of shoreline protection on the beach and bluff below 245 Pacific Avenue. The owner of the residence at 245 Pacific Avenue (Jokipii) is not an applicant for the current proposal, while the owner of 249 Pacific Avenue (Oene) has been added as an applicant. According to the applicants, construction of the seawall approved per CDP #6-18-0288/DeSimone, Schragger, & Jokipii has been completed, but without the lateral support of a seawall in front of 245 Pacific Avenue, the approved geogrid bluff retention device below 235 and 241 Pacific Avenue cannot be installed.

### **Site History (235 Pacific Avenue)**

- The existing 1,382 sq. ft. single family bluff-top home was constructed prior to the Coastal Act, in 1954.
- The existing home is currently located approximately 11 ft. from the bluff edge.
- In September 1975, the San Diego Coast Regional Commission approved a remodel and a 505 sq. ft. addition to the home, resulting in a total of 1,382 sq. ft. (F2877/Myers).
- Shoreline protection consists of a 150 ft. long, 35 ft. high, 28 in. thick seawall with tiebacks on the public bluff and beach fronting this site; however, the approved geogrid structure could not be completed at this time (CDP #6-18-0288/DeSimone, Schragger, & Jokipii).

- Concrete gunite on the upper bluff has been removed (CDP #6-18-0288/DeSimone, Schrager, & Jokipii).

#### **Site History (241 Pacific Avenue)**

- The existing 3,419 single family bluff-top home was constructed in the mid-1950s.
- The existing home is currently located approximately 3 ft. from the bluff edge.
- In April of 1989, the Commission approved a remodel and a 2,040 sq. ft. second story addition to the residence, resulting in a total of 3,419 sq. ft. (CDP 6-89-029/Haggerty).
- In October of 2008, the Commission approved the construction of nine drilled pier concrete caissons (approximately 30 in. diameter, 45 ft. depth and placed 8-ft. on center) with a grade beam on top supported with 6 tiebacks located approximately 5 ft. seaward of the existing residence (6-07-132/Hawkins). The bluff seaward of the caissons failed soon after installation and the caissons are currently exposed ([Exhibit #8](#)).
- Other shoreline protection consists of a 150 ft. long, 35 ft. high, 28 in. thick seawall with tiebacks on the public bluff and beach fronting this site; however, the approved geogrid structure could not be completed at this time (CDP #6-18-0288/DeSimone, Schrager, & Jokipii).

#### **Site History (249 Pacific Avenue)**

- The existing 1,380 sq. ft. single-family bluff-top home was constructed in 1958.
- The existing home is currently located approximately 22 ft. from the bluff edge on the southwest portion of the site.
- In 1999, the Commission approved the construction of a 352-foot long, 35-foot high, 2 ½ foot thick, colored and textured shotcrete tied-back seawall along the base of a coastal bluff below eight single-family residences (249-311 Pacific Avenue), and construction of an approximately 70-foot wide geogrid reinforced slope along the upper bluff at the site of a bluff collapse below 261 Pacific Avenue. The southern end of this seawall covers approximately 26 linear feet of the total 50 linear feet of the beach and bluff fronting 249 Pacific Avenue (CDP #6-99-100/Presnell et. al.) ([Exhibit #3](#)).
- In 2001, the Commission denied a request to fill an approximately 70-foot long stretch of notch/undercut area at the base of a coastal bluff on public beach below 245 and 249 Pacific Avenue with a colored and textured erodible concrete mixture. Fill was proposed to be a maximum of 17 feet high and a maximum 8 feet deep. The Commission denied the application because the proposed notch infill was proposed as a preemptive protection measure and the fill was not required to protect the existing structures at the top of the bluff and would result in inconsistencies with Chapter 3 policies of the Coastal Act related to alteration of natural landforms along bluffs and cliffs, public access and visual resources (CDP #6-00-035/Presnell & Ratkowski).

- In 2005, the Commission approved maintenance of the existing 352-foot long tied-back seawall at the base of a coastal bluff below the eight single-family residential properties by re-application of sacrificial concrete cover to the lower 11 feet of the wall and infilling a notch behind the southern end of the seawall with erodible concrete, and removal of existing post and board debris and hydroseeding on upper bluff below two residences (below 269 and 301 Pacific Avenue). The infilled notch was located behind the southern end of the seawall on the beach and bluff fronting 249 Pacific Avenue and did not extend beyond the linear extent of the existing seawall, except for a couple of feet tapering the fill from the wall to the bluff. (CDP #6-05-095/Stroben et. al.).
- In 2008, an exemption was approved by Commission staff for an interior remodel of the home, removal of one existing window, in-kind replacement of all of the existing windows and doors, and aesthetic improvements to the home's exterior. The exemption did not include the addition of any new square footage to the home (6-08-022-X/Graves).
- In 2014, the Commission approved the construction of a 24 ft. long, 35 ft. high, colored and textured concrete tieback seawall extension to the seawall approved by CDP #6-99-100/Presnell et. al. The extension was required to stop at the southern property line of 249 Pacific Avenue (CDP #6-13-0437/Presnell/Graves LLC).
- In 2015, approved an amendment request for CDP #6-05-095/Stroben et. Al. to allow maintenance of the existing 352-ft. long tied-back seawall at the base of a coastal bluff below the eight single-family residential properties by re-application of 6-9 inches of sacrificial concrete cover to the lower 14-18 ft. of the wall (CDP #6-05-095-A1/Terry Lingerfelder, et. al.).

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.

### **Other Shoreline Armoring in the Surrounding Area**

There is a significant amount of existing shoreline protection adjacent to the subject site. A similar seawall to that proposed fronts the bluff for the next seven homes to the south of the unarmored bluff gap (Ref: CDP 6-18-0288/DeSimone, Schragger, & Jokipii; CDP 6-09-033/Garber et al.) and a continuous seawall has been constructed fronting 24 properties to the north (Ref: seawalls from south to north - CDP 6-13-0437/ Presnell & Graves LLC.; 6-99-100/ Presnell et al.; 6-03-126/Corn & Hajjar; 6-00-036/ Corn & Scism; 6-00-138/Greenberg & Kinzel; 6-02-002/Gregg & Santina; 6-13-025/Koman et al.; 6-02-084/Scism; 6-08-073/Cummings & DiNoto, et. al.; 6-04-083/Cumming & Johnson; 6-08-68/Hamilton Trust; 6-07-134/Brehmer, Matchinske, & Caccavo) ([Exhibit #9](#)).

### **B. Geologic Conditions and Hazards**

Section 30235 of the Coastal Act states, in part:

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

Section 30253 of the Coastal Act states, in part:

New development shall do all of the following:

(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

[ . . . ]

Section 30210 of the Coastal Act states:

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

Section 30211 of the Coastal Act states:

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

Section 30212 of the Coastal Act states:

(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 accessway 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 30221 of the Coastal Act states:

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.

Page 13 of the Solana Beach certified Land Use Plan's 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 4.16 of the Solana Beach certified Land Use Plan states, in part:

The City will consider participating in studies to fill information gaps on the regional effects of bluff retention devices, on beach and bluff erosion, and methods to protect the shoreline, and counteract erosion.

Policy 4.17 of the Solana Beach certified Land Use Plan states:

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 of the Solana Beach certified Land Use Plan states:

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 4.23 of the Solana Beach certified Land Use Plan states:

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 bluff retention devices which may exist and recording of said waiver on the title of the bluff property.

Policy 4.34 of the Solana Beach certified Land Use Plan states, in part, that the City shall:

Identify, evaluate and pursue all feasible potential sources of revenue for funding the City's shoreline management policies and programs as containing the LUP. . . . Potential sources of funding may include, without limitation:

- Regional Sediment Management and opportunistic sand funding sources.
- Use of monies held by SANDAG from previous CCC sand and recreation mitigation fees collected for bluff retention devices in the City
- City assessed Sand Mitigation Fees, which may be expended for sand replenishment and retention projects.

[ . . . ]

Policy 4.45 of the Solana Beach certified Land Use Plan states, in part:

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 4.47 of the Solana Beach certified Land Use Plan states:

All proposed development on a beach or along the shoreline, including a shoreline protection structure located within the jurisdiction of the State Lands Commission: (1) must be reviewed and evaluated in writing by the State Lands Commission and (2) may not be permitted if the State Lands Commission determines that the proposed development is located on public tidelands or would adversely impact tidelands unless State Lands Commission approval is given in writing.

Policy 4.49 of the Solana Beach certified Land Use Plan states:

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 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 of the Solana Beach certified Land Use Plan states:

An upper bluff system shall be approved only if all the following applicable findings can be made and the stated criteria will be 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 on 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 in danger from erosion.

(2) The bluff home, city facility, city infrastructure, and/or principal structure is more likely than not to be in danger within one year after the date an application is made to the City.

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:

- No upper bluff system;
- Vegetation;
- Controls of surface water and site drainage;
- A revised building footprint and foundation system (e.g. caissons) with a setback that avoids future exposure and alteration of the natural landform;
- A smaller upper bluff system;
- Other remedial measures capable of protecting the bluff home, city facility, non-city-owned utilities, and/or city infrastructure which might include tiebacks, other feasible 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, the public beach, and, contiguous bluff properties; and,

- Removal and relocation of all, or portions, of the affected bluff home, city facilities or city infrastructure.

(3) The bluff property owner did not create the necessity for the upper bluff system 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 upper bluff system 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 upper bluff system and the upper bluff system is the minimize size necessary to protect the existing 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 upper bluff system shall meet City Design Standards applicable to bluff retention devices, including ensuring the natural bluff face is preserved to the greatest extent feasible, by using soft systems such as Geogrid, Geoweb, and planted with native species. The upper bluff system shall be designed to minimize alterations of natural landforms and shall not have a material adverse visual impact. The upper bluff slope shall be designed to have both vertical and horizontal relief.

(c) All upper bluff systems shall be subject to the same permitting time frames as specified for a coastal structure, and may be subject to removal based upon the same time frames and similar criteria set forth for removal of coastal structures, as reasonably determined by the City.

(d) Mitigation for the impacts to shoreline and sand supply, public access and recreation and any other relevant coastal resource impacted by the upper bluff system 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 upper bluff system beyond the preceding 20-year mitigation period and shall include consideration of alternative feasible measures in which the permittee can modify the upper bluff system to lessen the upper bluff system's impacts on coastal resources. Monitoring reports to the City and the Coastal Commission shall be required every five years from the date of the CDP issuance until CDP expiration,

which evaluate whether or not the upper bluff system 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 upper bluff system within six months of a determination that the upper bluff system is no longer required to protect the existing structure it was designed to protect.

Policy 4.53 of the Solana Beach certified Land Use Plan states:

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.

Policy 4.60 of the Solana Beach certified Land Use Plan states:

Existing bluff retention devices which are not considered preferred bluff retention solutions and do not conform to the provisions of the LCP, including the structural or aesthetic requirements may be repaired and maintained to the extent that such repairs and/or maintenance conform to the provisions of the LCP.

The Solana Beach certified Land Use Plan 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 and alter natural landforms and natural shoreline processes result 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. Coastal Act Section 30235 provides that shoreline protection devices “shall” be permitted when all of the following four criteria are met: (1) there is an existing structure, public beach area, or coastal dependent use; (2) the existing structure, public beach area, or coastal dependent use is in danger from erosion; (3) shoreline-altering construction is “required” to protect the existing threatened structure or public beach area, or to serve the coastal dependent use; and (4) the required protection is designed to eliminate or mitigate its adverse impacts on shoreline sand supply. The first three criteria relate to whether the proposed shoreline protection device is necessary and are addressed in this section, while the fourth question applies to avoiding or mitigating any unavoidable impacts from it and is addressed in Section C. Public Access and Recreation. In addition, even where all four criteria are satisfied, and thus, shoreline protection devices must be permitted; a shoreline protective device must be located, designed, and maintained in a manner that is consistent with all other Chapter 3 policies to the extent possible.

As discussed in detail above in Section A. Project Description and Background, the current proposal stems from a prior Commission action taken in March 2019, involving the owners of 245, 241, & 235 Pacific Avenue where the Commission approved shoreline armoring to protect the existing residences at 241 and 235 Pacific Avenue but prohibited armoring to protect the residence at 245 Pacific (CDP #6-18-0288/DeSimone, Schragger, & Jokipii). In its prior action, the Commission determined that the residence at 245 Pacific Avenue was not entitled to shoreline protection because construction of the residence at 245 Pacific Avenue postdated the effective date of the Coastal Act (January 1, 1977). Additionally, previous property owners of 245 Pacific waived any

rights to construct shoreline armoring to protect the portion of the home closer than 40 feet from the bluff edge (CDP #6-96-021/Ratkowski), and no evidence was provided in the prior action to show that the portion of the home within 40 ft. of the bluff edge was at risk. Thus, the Commission was not (and is not) required to approve shoreline armoring to protect the bluff-top residence at 245 Pacific Avenue.

To allow shoreline armoring in the prior action for the residences at 241 and 235 Pacific Avenue while avoiding armoring for residence at 245 Pacific Avenue, the Commission turned to a conceptual alternative examined by the Commission's senior engineer and geologist that involved the construction of two east/west oriented retaining walls that function as return walls for the existing seawalls located below 249 and 241 Pacific (i.e. the return walls alternative), leaving the bluff and beach below 245 Pacific in its natural state. The Commission acknowledged that such measures would be a temporary solution to the on-going risk associated with erosion of the unarmored 50-foot long span of bluff below 245 Pacific Avenue, and that continual monitoring and construction of additional walls, geogrids, and eventually additional protection would be necessary in the future to protect adjacent homes.

When CDP #6-18-0288 was reviewed by the Commission in 2019, the engineering viability of this alternative had not been fully analyzed. Therefore, the permit was conditioned to require the applicants to submit revised plans that did not include the construction of any shoreline protection below 245 Pacific Avenue, leaving the decision of how to specifically design the approved shoreline protection to protect the homes at 241 and 235 Pacific Avenue without armoring the bluff below 245 Pacific Avenue for the prior applicants to propose through the submission of final plans, following consultation with the Commission senior engineer and geologist.

While the current proposal is very similar to the project proposed in CDP #6-18-0288, it differs in several key aspects from the project previously heard by the Commission. In CDP #6-18-0288 the Commission acknowledged that the 50-ft. long unarmored gap below 245 Pacific Avenue could potentially allow flanking of the existing seawall protecting 249 Pacific Avenue. Evidence was provided by the project engineer in the prior proposal that the residences at 249, 241, and 235 Pacific Avenue were in danger and the proposal in CDP #6-18-0288 sought protection only for these three residences.

In the current proposal, the project engineer has provided additional evidence reinforcing the Commission understanding of the danger to the home at 249 Pacific Avenue from erosion because of the failing 50-ft. long span of public bluff located below 245 Pacific Avenue. As a result, the owner of 249 Pacific (Oene) has been added as an applicant to the current proposal and, because the Commission had determined in its previous action that 245 Pacific was not entitled to protection, the owner of 245 Pacific Avenue (Jokipii) was not included as an applicant in the current proposal.

In addition, since the previous project was approved, the applicants have provided additional information on the viability of the "return walls" alternative approved by the Commission. This conceptual alternative was examined by the Commission's senior engineer and geologist as a potential way to avoid armoring protecting 245 Pacific Avenue while still protecting the existing homes at 241 and 249 Pacific Avenue. As

discussed in detail below, the project engineer, in coordination with the Commission's senior engineer and geologist, has prepared a new analysis to analyze whether and how the return walls alternative could be safely and effectively implemented. As a result, the project engineer concluded that return walls are not a feasible alternative to protect the existing homes in danger.

### **Existing Development**

In addition to requiring that principal structures be in danger from erosion, Section 30235 of the Coastal Act only allows shoreline protection to protect principal structures or public beaches. As described in the Commission's 2018 Updated Sea Level Rise Policy Guidance<sup>1</sup>, the Coastal Act does not explicitly define what qualifies as an "existing structure" for the purpose of Section 30235. Ideally, a certified LCP would include a definition for "existing structure"; however, when a LCP does not include a definition, the guidance provides that the Commission should interpret the term as meaning principal structures that were in existence on January 1, 1977—the effective date of the Coastal Act—and that were not subsequently redeveloped. The City of Solana Beach has a certified LUP without an Implementation Plan, and the LUP does not contain a definition for what constitutes an "existing structure" for the purpose of shoreline protection entitlement, thus the Commission relies on its adopted guidance to interpret Section 30235.

The home at 235 Pacific Avenue was constructed prior to the enactment of the Coastal Act, and aside from a small addition in 1975, no other major improvements to the property have been undertaken. Thus, the structure is considered "existing" for the purposes of requiring protection under Section 30235 of the Coastal Act.

The home at 241 Pacific Avenue was constructed prior to the enactment of the Coastal Act, although an addition constructed in 1989 resulted in a greater than 50% increase in the size of the home (1,379 sq. ft. to 3,419 sq. ft.). The Commission's draft Residential Adaption Policy Guidance Interpretive Guidelines<sup>2</sup> further suggest that pre-Coastal Act structures that have been altered in such a way that greater than 50% of the structure is replaced or structures that have been increased in size by greater than 50% should be considered new development or redevelopment and not an existing structure pursuant to Section 30235. However, the City of Solana Beach certified LUP defines blufftop redevelopment as cumulative alterations or additions greater than 50% approved on or after the date of certification of the LUP (2012), not the enactment of the California Coastal Act of 1976. Thus, the residence at 241 Pacific Avenue is considered "existing" for purposes of requiring protection under the LUP.

The home at 249 Pacific Avenue was constructed prior to the enactment of the Coastal Act and the only other work to the home involved development that was exempt from

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<sup>1</sup> Available at <https://coastal.ca.gov/climate/slr/>.

<sup>2</sup> *Ibid.*

coastal development permit requirements (e.g. interior remodel and in-kind replacement of existing windows and doors). The exempt work did not include the addition of any new square footage to the existing home. Thus, the residence at 249 Pacific Avenue is considered “existing” for purposes of requiring protection under Section 30235 of the Coastal Act.

### **In Danger from Erosion**

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, an approximately 10 ft. thick clean sand layer is exposed across the 50 ft. long section of the unarmored bluff located below 245 Pacific Avenue. The Commission previously found that the homes at 235 and 241 Pacific Avenue are in danger from erosion with a slope static/pseudostatic stability analysis for the bluff below 235 and 241 Pacific Avenue demonstrating a factor of safety of 1.22/0.95 and 1,12/0.90, respectively. As a result, the Commission approved the construction of a seawall and geogrid bluff retention device below 235 and 241 Pacific Avenue to protect the existing homes located there. According to the applicants, the construction of the seawall below this site has been completed, but installation of the geogrid structure, which is needed to stabilize the mid- to upper-bluff, cannot be completed without having support along the north perimeter of the approved geogrid structure below 241 Pacific, adjacent to the portion of the bluff below 245 Pacific Avenue.

The slope stability analysis performed by the applicants' project engineer indicates that further collapse of the upper bluff below could threaten the residence at 249 Pacific Avenue. A slope static/pseudostatic stability analysis for the bluff at 249 Pacific Avenue demonstrate a factor of safety of  $1.15 < 1.0$ . These factors of safety alone may not necessitate shoreline protection. However, when taken in combination with the exposure of the clean sand layer, the Commission senior engineer and geologist agree that the existing residence at 249 Pacific Avenue is also at risk, and that the shoreline protection is warranted.

### **“Required” to Protect Existing Structures**

The Commission has generally construed whether a shoreline protection device is “required” to mean that a shoreline protection device must be permitted if there are no other ways of protecting the endangered development besides approval of a shoreline protective device. Further, the Commission has approved a particular protective device only if it is found to be the only feasible means of providing protection or, if there are multiple possible means, if it is the alternative with the fewest impacts on coastal resources. Thus, when read in tandem with other applicable Coastal Act policies protecting coastal resources as cited in these findings, the analysis under Section 30235 is often conceptualized as identifying the least environmentally damaging feasible alternative that can serve to achieve the stated project goal of protecting the threatened structure, coastal-dependent use, or public beach.

The current proposal for the shotcrete tied-back seawall and geogrid below 245 Pacific Avenue would be in place of the return wall alternative approved by the Commission to temporarily prevent lateral erosion onto 249 and 241 Pacific Avenue while avoiding armoring that would protect the residence at 245 Pacific Avenue, which does not qualify as an “existing structure” under Section 30235. While this alternative appeared to be feasible based on the information available at the time the Commission approved the project, since then, the project engineer has worked with the Commission's senior engineer and geologist to analyze and provide additional information on how the return walls alternative could be safely and effectively implemented.

Through this analysis, the project engineer determined that the return wall alternative is not a viable engineering solution because the bluff is too unstable to attempt the placement of the return walls. According to the project engineer, the current factors of safety against sliding for the mid-bluff areas extending from below 245 Pacific Avenue is approximately 1.0 to 1.1, indicating that significant failure of the existing bluff could occur at any time. Because of the instability of the bluff, the project engineer has been unable to establish a safe construction method for placing permanent return walls with supportive piers and tiebacks on the bluff. According to the alternative analysis prepared by the project engineer, the unstable soil conditions of the bluff face could fail during construction, causing the return wall piers to fail as they are being placed by construction crew members. Construction crew working near the project site, whether on the bluff itself or working above or below, would be at risk of severe injury or death if the bluff failed during construction.

The Commission senior engineer and geologist reviewed the applicants' analysis, and agree that construction of the lateral walls would present a safety risk with regard to bluff stabilization and worker safety. In an attempt to find a safe means of constructing the lateral walls consistent with the previous Commission action, staff asked the applicants to analyze construction of a temporary 50-ft. long seawall across the gap that would remain in place during construction of the return walls, and then removed upon completion of the walls. The seawall would have to be designed to provide enough stability for the construction of the return walls and would have to be designed to be removed upon completion of the construction of the return walls.

According to the applicants, the construction of a temporary seawall would require a wall with a minimum height of 35 ft. and backfill to a height of +/- 40-45 ft. to contain the clean sand lens and terrace deposits immediately above the clean sand lens. The applicants contend that the wall would require retention qualities capable of securing the lateral loading of the bluff materials and backfill. The applicants conclude that construction of a temporary seawall is not a viable engineering solution for the following reasons:

- Structural components of the temporary wall would have to be secured into the base of the bluff and bluff face with drilled piers and tiebacks and the removal of the wall in the future would significantly damage the bluff fronting 245 Pacific Avenue, including the risk of bluff collapse in several locations including along the lower coastal bluff, in the re-exposed clean sand lens, and in the over-steepened mid- and upper-bluff materials above the 50 ft. long gap and the adjoining portions of the bluff.
- Failure of significant sections of the lower coastal bluff associated with removal of the wall would undermine the return walls, necessitating significant repairs to the return wall system and additional restoration of failed sections of any reconstructed bluff at 241 Pacific. At that point, the 50 ft. long gap would again likely have an estimated factor of safety close to 1, threatening the existing structures.
- According to the updated geotechnical report for the current proposal, the clean sand lens in the bluff below 245 Pacific Avenue is already failing and the placement and then removal of any "temporary" backstopping of the clean sand lens is highly likely to accelerate this failure, undermining caissons in any return wall and resulting in significant damage or failure to the returns walls and any reconstructed bluff areas to the south of the unarmored gap.
- The removal or disturbance of the lateral and subjacent support below 245 Pacific Avenue could result in legal liability on the part of the applicants, their engineers and contractors.

The Commission senior geologist and engineer have reviewed the project engineer's analysis and agree that the project engineer has raised valid concerns that eliminate a temporary seawall as a viable engineering solution to allow construction of the lateral return wall alternative approved by the Commission.

### Alternatives

In addition to reviewing the feasibility of the previously approved return wall alternative, it is important to again examine if there is any other feasible alternative to protect the existing structures that minimizes the construction of shoreline protective devices.

The project engineer prepared 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 (Ref. Soil Engineering Construction, Inc. Project Alternative Analysis 241 and 249 Pacific Avenue, received 12/10/19).

Upon reviewing the alternative analysis provided by the project engineer, Commission staff requested that the project engineer provide a more detailed alternative analysis that provides the general construction steps for each alternative, leading up to the step at which the alternative becomes infeasible (Ref. Soil Engineering Construction, Inc. RE: DeSimone et.al. Seawall Gap Fill (CDP #6-19-1291); Response to Coastal Staff e-mail dated 4/6/2020, dated 5/5/20). While the level of detail requested for this alternatives analysis is uncommon for this type of project, the Commission senior engineer and geologist felt the request to allow shoreline protection below a home that is not entitled to protection warranted an especially vigorous analysis of whether or not there are feasible, less environmentally damaging options for protecting the existing structures. Alternatives considered included the following:

- Upper bluff retention systems in lieu of constructing a lower coastal bluff seawall and reconstructing failed areas of the coastal bluff between 241 and 249 Pacific Avenue:

The property at 241 Pacific Avenue has an existing rear-yard, below-grade caisson, grade beam and tie-back system that was approved by the Commission in 2008. The system has been exposed to an extent that it no longer serves as viable protection from the ongoing failure of the 50-ft. unarmored public bluff below 245 Pacific Avenue. 249 Pacific Avenue does not contain below-grade, upper bluff caisson system.

According to the applicants, to continue providing support for the residence at 241 Pacific Avenue the northern caissons in the system would first need to be extended in depth with an additional row of tiebacks placed laterally down the side-yard. To carry out the work of deepening the existing northernmost caissons below 241 Pacific Avenue, a working bench would need to be graded on the bluff face so that drilling equipment could be sited for the necessary work. However, because of the instability of the bluff, which was found to have an estimated factor of safety of 1, attempting to grade the bluff would be dangerous for construction crew members and the work bench would be subject to failure during the work. While caissons and a grade beam could be placed down the side-yard, between 241 and 245 Pacific Avenue, tiebacks could not be placed without trespassing onto 245 Pacific Avenue, the owner of which is not a party to this application. Similarly, the construction of a rear-yard, below-grade caisson,

grade beam and tie-back system along the western side of 249 Pacific Avenue would run into the same issues stated above. Thus, this alternative would fail in the initial step, other than the placement of caissons in the side-yards of 241 and 249 Pacific Avenue, which alone would not be capable of protecting either residence.

Additionally, the applicants contend that even if the upper bluff caisson system could be safely constructed, this alternative would not address the 50 ft. long unarmored public bluff below 245 Pacific Avenue that is already undercut by approximately 2 ft. and has an exposed clean sands lens below. The continued failure of the unarmored bluff would extend behind and undermine the existing permitted seawalls protecting 241 and 249 Pacific Avenue, and would result in continued, accelerated failure of the mid-to-upper bluff at these properties, ultimately impacting the existing bluff-top residences. Thus, even if the upper bluff caisson systems could safely be constructed, this alternative would not address the lower bluff erosion that would ultimately result in the accelerated failure of the mid-to-upper bluff below 241 and 249 Pacific Avenue.

- Construction of lateral caisson walls (return walls), extending from the top of seawall to the top of bluff, along the southern property line of 249 Pacific Avenue and northern property line at 241 Pacific Avenue:

In lieu of constructing a temporary seawall, the applicants propose, as a first step, to construct a deepened lateral extension into the unarmored bluff below 245 Pacific Avenue that would extend approximately 3 ft. at the base of the extension from the both the south seawall terminus at 249 Pacific Avenue and the north seawall terminus at 241 Pacific Avenue. However, this alternative fails after the initial step because it would not address the exposed clean sand lens and would not improve the factor of safety for the existing residences at 241 or 249 Pacific Avenue.

As stated in the analysis above for the temporary seawall alternative, the applicants contend that the bluff is unstable and attempting the placement of a caisson-supported return wall aligned east/west and extending up the bluff face would not be safe to construct, with or without a temporary seawall across the unarmored 50 ft. long gap on the public bluff below 245 Pacific Avenue. Furthermore, any attempt to construct such a system would result in impacts to the public bluff that could accelerate upper bluff failures that would result in damage to the property located on 245 Pacific, raising potential liability issues for the owners of 241 and 249 Pacific Avenue, and any engineer or contractor who would attempt such a project. Thus, for the above reasons, the return walls alternative is not a viable engineering solution.

- Construction of very short-term, temporary measures to protect 241 and 249 Pacific Avenue from failure originating on the unprotected 50-foot gap of City-owned bluff between those two properties:

The applicants considered two temporary measures that while feasible, were determined to not be viable for the long term.

The first temporary measure includes the following steps (1) surfacing the exposed northerly upper-bluff caissons at 241 Pacific Avenue; (2) constructing a temporary interlocking lateral block wall that would connect approximately 20 ft. south of the northern end of the approved seawall at 241 Pacific Avenue and run east to the top of bluff; (3) reconstructing and landscaping the remaining 30 feet of the bluff below 241 Pacific Avenue and below 235 Pacific Avenue (covered by the Commission's approval of CDP #6-18-0288/DeSimone, Schragger, & Jokipii); (4) constructing a corresponding temporary interlocking lateral block wall that connects approximately 20 feet north of the southern end of the existing seawall at 249 Pacific Avenue and runs east to the top of the bluff. The project engineer estimates that this project would last no more than two years but could fail at any time before then due to the ongoing failure of the mid-to-upper bluff above the 50 ft. long gap below 245 Pacific Avenue. Additionally, bluff failure is expected in the remaining 10- to 20-foot unprotected frontage that would be located north of the temporary interlocking lateral block wall and bluff reconstruction area. Implementation of this temporary alternative would not prevent upper bluff failure extending from the unarmored 50 ft. long gap below 245 Pacific Avenue from impacting the existing residences at 241 and 249 Pacific Avenue because this solution does not include a deepening of the existing upper bluff caissons or additional tiebacks near the north end of 241 Pacific Avenue (see analysis above for the upper bluff retention system alternative explaining why this is not feasible).

The second temporary measure includes placing sheeting over the entire failed portions of the bluff face. The project engineer contends that this alternative would reduce, but not eliminate, the amount of water infiltrating the bluff face materials and weakening the bluff. Due to the low factor of safety against sliding within the mid-bluff materials, plastic sheeting would be quickly destroyed during bluff sloughages or more significant bluff failure, distributing the plastic onto the beach and into the ocean. Bluff failures aside, ocean winds and sun would also damage the installed plastic, causing it to deteriorate and fall onto the beach and into the ocean. The plastic sheeting would also require regular maintenance, requiring workers to access the bluff face regularly. The applicants contend that regular maintenance of the plastic sheet could put construction crew at risk or cause localized bluff failures that could accelerate larger projected failures. Thus, the placement of plastic on the bluff is not recommended as a viable option.

- Provide a landscape treatment to failing areas of the City-owned coastal bluff:

There is no "first step" that the applicants could take to address this alternative, as any form of landscape treatment would not halt or even slow the progression of failure extending upslope from the failing clean sand lens. The estimated factor of safety against sliding in the mid-bluff area is approximately 1. Landscaping alone would not improve the existing factors of safety on the mid-bluff and at the residential structures, making this alternative infeasible.

241 Pacific Avenue has an approved CDP that includes reconstruction of the bluff below the subject site; however, bluff reconstruction and landscaping below the site cannot be initiated until a means of securing the reconstructed bluff along the northern end of the site, from the top of the seawall to the top of bluff, is successfully implemented. Thus, as a stand-alone solution, landscaping is not a feasible engineering solution.

- Removal and relocation of threatened portions of the residential structures at 241 and 249 Pacific Avenue:

According to the applicants, there are no progressive steps that could be taken to implement this alternative, as there are no additional areas to remove or relocate the threatened portions of the existing homes on either 241 or 249 Pacific Avenue. The eastern walls of both residences are located near the street and the geologic setback line, which no new construction is permitted seaward of, is also located within 10 to 15 feet of Pacific Avenue.

The applicants further contend that even if the threatened portions of the existing residences at 241 and 249 Pacific Avenue could be removed or relocated, both residences would still require some form of upper bluff protection for 249 Pacific Avenue and additional upper bluff protection for 241 Pacific Avenue, which, as discussed above under the upper bluff retention alternative, would not be sufficient to protect the two existing homes without lower coastal bluff protection to cover the exposed clean sands layer.

- No project alternative:

There are no construction steps that could be taken under this alternative. This alternative is not feasible because erosion of the bluff would continue to threaten the subject blufftop structures at 241 and 249 Pacific Avenue and would likely flank the existing permitted shoreline armoring to the north and south of the subject site that supports existing residential structures.

In summary, 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 existing blufftop structures, and that there are no feasible alternatives to the proposed project ([Exhibit #10](#)). Following construction of the proposed seawall and geogrid structure, the applicants' project engineer has demonstrated that the factor of safety for the structures will be increased to an adequate level.

### Regional Planning Context

Prior to the Commission action on the previous permit for the subject site, the Commission had previously been faced with the decision on whether to leave a "gap" of unarmored bluff in Solana Beach for three previous multi-property shoreline armoring requests where one of the homes had either waived their right to shoreline protection or could achieve an adequate level of stability without shoreline armoring. In each of these previous applications, the Commission determined that approval of shoreline armoring

fronting the “gap” property was the least environmentally damaging feasible alternative (Ref: 6-99-100/ Presnell et al., 6-08-073/Cummings & DiNoto, and 6-09-033/ Garber, et al.).

In the absence of a comprehensive plan addressing blufftop development in Solana Beach, over the years the Commission has placed waivers of future shoreline protection on houses on a project-by-project basis whenever new development is proposed. However, given the amount of closely spaced, existing development on the blufftop, the homeowners’ ability to avoid shoreline protection has been limited. The City’s LUP documents that more than 50% of the Solana Beach coastline is protected by some type of bluff retention device. The compact development pattern on the blufftop in Solana Beach, particularly north of Fletcher Cove, creates scenarios where shoreline protection is approved to the north and south of a stretch of unarmored bluff where the above residence is not entitled to protection, but the residences adjacent to the north and south of the “gap” property potentially could be threatened by the erosion of the unarmored gap. When these scenarios arise, it creates a difficult situation where the Commission is required to allow protection of existing homes entitled to protection under 30235 while trying to avoid protection for properties not entitled to it. Thus, while waivers of shoreline protection can be an effective tool to limit the construction of shoreline protection, they are not always effective in Solana Beach given that homes that are and are not entitled to protection are intermingled along the blufftop lots.

Thus, rather than try to preserve small, isolated stretches of unprotected bluffs through individual permit actions, the prevention and eventual removal of seawalls in Solana Beach is better approached through regional planning efforts. Recognizing that seawalls and other hard armoring structures can halt or slow the retreat of an entire bluff face, significantly reducing the construction of sandy bluff material to the beach below, one of the main goals of the certified LUP is to limit bluff retention devices on the public bluffs and beach area through the appropriate siting of new development and by aggressively pursuing implementation of a comprehensive beach sand replenishment and retention program, as the best approach to buffer the shoreline from wave attack and reduce the need for bluff retention devices.

The Commission’s adopted Sea Level Rise Guidance Policy<sup>3</sup> recognizes that adaptation planning should be conducted at a regional level where feasible, in part because of the difficulty of addressing region wide problems on a lot-by-lot basis. Regional adaptation planning allows local jurisdictions to assess and implement regional adaptation strategies that will cover a larger portion of the coast, and thus, will have a larger impact than when implemented on a case-by-case basis. Coordinating with other stakeholders also allows the leveraging of research and planning funds for large scale and costly projects such as beach nourishment. For these reasons, regional coordination will often enhance the effectiveness of local adaptation decisions.

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<sup>3</sup> Available at <https://coastal.ca.gov/climate/slr/>.

The City of Solana Beach currently coordinates with regional partners including SANDAG to develop regional adaptation plans, specifically tailored to address the patterns of development and unique challenges facing the region. Many of these regional adaptation plans focus on sand-replenishment projects; however, if these plans do not come to fruition, other adaptation strategies, such as managed retreat, could be considered as an option. While there are strategies that allow managed retreat on an incremental basis, the closely spaced existing blufftop development in Solana Beach makes it difficult to implement the incremental retreat strategy in Solana Beach without adversely impacting an adjacent structure that may be entitled to protection under Section 30235 of the Coastal Act. Implementing a regional approach to preserving the public beach in Solana Beach will be more feasible when a long and contiguous stretch of bluff-top properties lose their entitlements to shoreline protection and are required per their permits to remove any armoring protecting their properties. The City can then turn to retreat strategies such as using land use designations and zoning ordinances that encourage building in more resilient areas or using acquisition and buy-out programs to acquire bluff-top properties that are no longer safe for residential use. Acquisition and buy-out programs require significant funding which is more likely to be obtained from regional efforts by leveraging planning funds.

The Commission acknowledges that the landowners at 245 Pacific Avenue, who are not an applicant for the current proposal, will receive an unintended benefit from the proposed project; however, the proposed seawall is needed to protect the two existing homes at 241 and 249 Pacific Avenue, both which are entitled to shoreline protection. The shoreline protection that exists, as well as proposed in this project, is part of a much larger system of protection along the coast in Solana Beach and, it will be less visually intrusive and require less landform alteration than the construction of large, unsightly and potentially bluff-damaging structures such as massive return walls (see detailed discuss of visual impacts below, under Section E. Visual Resources/Alteration of Natural Landforms). Thus, in the case of the proposed project, the current proposal that will fill the 50-ft. wide gap below 245 Pacific Avenue is the least environmentally damaging feasible alternative.

#### Duration of Armoring Approval

While the Commission is required to approve shoreline armoring to provide protection for the subject bluff-top structures, 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 and additions to existing structures in an unsafe location while continuing to adversely affect resources, including sand supply and recreation. Therefore, **Special Condition #3** limits the duration of the

subject CDP approval to when the bluff-top structures requiring protection (241 and 249 Pacific Avenue) are redeveloped (as defined in **Special Condition #4**), 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 all of the 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 #4** requires that redevelopment of the blufftop properties on the site shall either be sited and designed to be safe without reliance on shoreline armoring to establish geologic stability or protection from hazards or shall not be permitted.

**Special Condition #4** defines redevelopment according to 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.

Even when a residence is not being entirely demolished and rebuilt, improvements that increase the economic life of the structure in a hazardous location are inconsistent with the Coastal Act and the certified LUP and can reduce the incentive to move the structure landward to reduce risk and the need for shoreline protection. Significant improvements that extend the life of a non-conforming structure in its current location must be limited to those that would not result in the need for future shoreline protection to be consistent with Chapter 3 policies, particularly improvements to portions of blufftop structures located seaward of the Geologic Setback Line (GSL).

Neither the City nor the Commission is required to approve bluff-top development projects even when the proposed alterations remain below the 50% bluff-top redevelopment threshold. This is especially critical when proposed improvements to non-conforming structures would increase the degree of non-conformity. If bluff-top properties are allowed to increase the degree of non-conformity of bluff-top structures by undertaking substantial improvements seaward of the GLS and thus extending the life of the structures indefinitely, eventually the structures will require shoreline protection. As the coastline of Solana Beach continues to become more fortified and sea levels continue to rise, it will be even more likely that the public beach fronting the bluffs will become inaccessible at all but the lowest tides. Therefore, consistent with

certified LUP Polices 4.17 and 4.18, **Special Condition #4** also requires that additions and major structural alterations to the blufftop properties on the site shall be sited and designed to be safe without reliance on shoreline armoring to establish geologic stability or protection from hazards, or shall not be permitted.

If the permittees intends to keep any portion of the shoreline structure in place beyond the 20-year mitigation period or in the future the permittees seek a coastal development permit to construct additional bluff or shoreline protective devices, **Special Condition #7** 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. In an effort to sync up the submittal of monitoring reports for the current proposal and the approved seawall located south of the project site below 241 and 235 Pacific Avenue (Ref. CDP #6-18-0288/DeSimone, Schragger, & Jokipii), the first monitoring report shall be submitted no later than May 1, 2022, the deadline for submitting the first monitoring report for Special Condition #2 of CDP #6-18-0288, and subsequent monitoring reports shall be submitted at three-year intervals for the life of the structure. Additionally, the applicants shall submit a monitoring report no later than March 7, 2024, the deadline for the submittal of the five-year monitoring report for CDP #6-18-0288, and subsequent reports at five years intervals thereafter to evaluate whether the seawall is still required to protect the bluff-top structures it was designed to protect. 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 #3** 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 #3** 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 #3** also requires that the applicants provide monitoring reports 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 applicants 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 #2** requires submittal of final landscape plans that demonstrate that any existing irrigation systems on the bluff-top have been removed, as these would impact the ability of the seawall and other shoreline protection devices to adequately stabilize the site. **Special Condition #6** 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 #12** 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 #15** 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 #13** 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 #5** 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 249, and 241, and 235 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, 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 and geogrid structure is necessary to protect the existing bluff-top structures (which were originally constructed prior to the Coastal Act's enactment, 241 and 249 Pacific Avenue). Since the proposed seawall will deplete sand supply, occupy public beach and bluff and fix the back of the beach, **Special Condition #8** requires the applicants to make a payment to offset this impact. The proposed project 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. 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**

Section 30210 of the Coastal Act states:

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

Section 30211 of the Coastal Act states:

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

Section 30212 of the Coastal Act states:

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

Section 30221 of the Coastal Act states:

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.

Section 30223 of the Coastal Act states:

Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Section 30235 of the Coastal Act states:

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.

Section 30240 of the Coastal Act 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.

Policy 4.50 of the Solana Beach certified Land Use Plan states:

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 on upon written approval of an appropriate project by the City Council and the Executive Director of the Coastal Commission.

Public Recreation Fee – The City and the CCC have developed a method for calculating a Public Recreation Fee for the City of Solana Beach. To mitigate for impacts to public access and recreation resulting from loss of beach area, for all development involving construction of a bluff retention device, a Public Access and Recreation Fee shall be collected by the City which shall be deposited in an interest-bearing account designated by the City Manager of Solana Beach in lieu of providing beach area to replace the public access and coastal recreation benefits that would be lost due to the impacts of any proposed protective structure. The method used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix C. The funds shall solely be used to implement projects which augment and enhance public access and coastal

recreation along the shoreline, not to fund other public operations, maintenance or planning studies.

Project applicants have the option of proposing a public recreation/access project in lieu of payment of Public Recreation Fees 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, shoreline armoring, 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 709.85 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 \$14.47 per cubic yard (provided by the applicants, and based on three estimates from local contractors); this sand would have a value of \$10,272 ([Exhibit #5](#)).

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 Fletcher Cove Beach Park. 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.

### Public Trust

In addition to the Coastal Act policies that support public access and equal opportunities for recreation, the Commission has the responsibility to protect the public trust and public trust uses.<sup>4</sup> Coastal Act regulations<sup>5</sup> define public trust lands as “all lands subject” to the common law public trust and associated with trust purposes, including recreation. In the common law, the doctrine traditionally protects in-water uses such as fishing and navigation, but has been extended to protect the environment (*Marks v. Whitney* (1971) 6 Cal.3d 251, 259-260), and associated resources that affect trust lands, such as non-navigable tributaries supplying water to a lake (*Nat'l Audubon Soc. v. Super. Ct.* (1983) 33 Cal. 419, 436-437). In some jurisdictions, the doctrine explicitly protects “dry sand” recreation adjacent to public trust lands (*Matthews v. Bay Head Improvement Assn.* (1984) 95 N.J. 306, 331-332), on the rationale that “reasonable enjoyment” of the shore and sea cannot be realized without some use of the dry sand area (*id.* at p. 325).<sup>6</sup> California recognizes access as a component of public trust resources. A July 2017 report by the Stanford Center for Ocean Solutions explains that

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<sup>4</sup> The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds and manages these lands for the benefit of all people of the State for statewide purposes consistent with the common law Public Trust Doctrine (“public trust”). In coastal areas, the landward location and extent of the State’s sovereign fee ownership of these public trust lands are generally defined by reference to the ordinary high water mark (Civil Code, §670), as measured by the mean high tide line (*Borax Consol. v. City of Los Angeles* (1935) 296 U.S. 10); these boundaries remain ambulatory, except where there has been fill or artificial accretion.

<sup>5</sup> Cal. Code of Regs., title 14, §13577(f).

<sup>6</sup> In a 2005, the same court affirmed *Matthews* and described access over uplands as “integral to the public trust doctrine.” (*Raleigh Ave. Beach Assn. v. Atlantis Beach Club, Inc.* (2005) 185 N.J. 40, 53.)

agencies “may not undertake or authorize uses of uplands without appropriate safeguards for nearby public trust resources and uses.”<sup>7</sup> The State Lands Commission, which administers leases on public trust lands, analyzes the entire area of public trust impacts, including impacts on upland recreation.<sup>8</sup> Thus, use of dry land adjacent to the public trust may not interfere with recreation and other public trust uses.

The concern is complicated by the effects of sea level rise. As sea levels rise, and beaches and bluffs migrate inland, maintaining residential development adjacent to the shoreline will in many cases cause the narrowing and eventual loss of beaches, dunes and other shoreline habitats as well as the loss of offshore recreational areas. This narrowing, often referred to as the “coastal squeeze,” can occur when shoreline protection or other fixed development prevents the landward migration of the beach that would have otherwise occurred.

As discussed above, the proposed seawall will take up the public beach, and as a result will impact the ability of the public to recreate on the beach, interfering with public trust uses. A tourist website<sup>9</sup> describes nearby Fletcher Cove Beach as Solana Beach’s “main” central beach, nicknamed Pillbox for the historic gunnery installations on the bluff. Activities include surfing, bodyboarding, fishing, swimming, kayaking, and whale watching. The beach has stayed wide enough so far that when the tide is up, passive recreation is still available, including the ability to walk to Tide Beach Park to the north and North Seascape Surf Park to the south. Tide Beach Park<sup>10</sup> similarly offers swimming, surfing, and bodyboarding, along with scuba diving, tide pooling, and fishing. At high tide during various points in the year, however, the beach is confined to a cove below the bluffs.

In addition to the loss of recreation and cramping of access, hard armoring can also result in nuisance conditions for neighbors who suffer increased flooding or erosion as a result of nearby seawalls. Other detrimental impacts may include negative visual impacts and interference with ecosystem functions. The effectiveness of hard armoring to protect development will also be reduced as sea level rises and storm intensity and frequencies increase. Relatedly, shoreline armoring costs will increase over time as coastal hazards and storms cause elevated levels of damage and increasing need for repair and maintenance.

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. Therefore, on November 28, 2018, the Commission

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<sup>7</sup> Center for Ocean Solutions, Stanford Woods Institute for the Environment, *The Public Trust Doctrine: A Guiding Principle for Governing California’s Coast Under Climate Change* (2017), p.5.

<sup>8</sup> See e.g., Section 3.2.4, Public Trust Impact Analysis, Broad Beach Restoration Project Revised Analysis of Impacts to Public Trust Resources and Values, July 2014, including discussion of long-term impacts on recreational use at pp. 3.2-23 to 26. Available at [https://www.slc.ca.gov/wp-content/uploads/2016/08/3.2\\_Recreation.pdf](https://www.slc.ca.gov/wp-content/uploads/2016/08/3.2_Recreation.pdf).

<sup>9</sup> See <https://www.californiabeaches.com/beach/fletcher-cove-beach/>.

<sup>10</sup> See <https://www.californiabeaches.com/beach/tide-beach-park/>.

certified an in-lieu fee 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 in the city of Solana Beach (Ref: LCP-6-SOL-16-0020-1). The City previously had an interim program in place that required applicants proposing shoreline armoring to make a \$1,000/linear ft. deposit for shoreline armoring until such time that the aforementioned Public Recreation Fee method was finalized. 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/Brehmer, Matchinske, & Caccavo, 6-03-33-A5/Surfsong, 6-08-73/Cummings & DiNoto, et. al., 6-08-122/Winkler, 6-09-033/Garber et. al., 6-13-025/Koman et al., 6-13-0437/Presnell & Graves, 6-13-0948/Bannasch, and 6-16-0281/Winkler & Lucker). 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 six months of the Commission's certification of the City's economic study in order to reassess the in-lieu mitigation fee.

The Public Recreation Fee method is included in the City's certified Land Use Plan (LUP). LUP Policy 4.50 requires applicants to pay a mitigation fee for public access and recreation impacts caused by bluff retention devices, consistent with the mitigation method detailed in Appendix C of the LUP ([Exhibit #6](#)). Appendix C summarizes the proposed public recreation mitigation method, and includes a fee schedule to determine the required Public Recreation Fee to mitigate for impacts to public beach access and recreation that are expected to result from the construction of a coastal structure or non-erodible seacave/notch infill over a 20-year mitigation period.

The City's public recreation mitigation method was derived using certain economic concepts that primarily depend on 1) choice of a proxy, or 'stand-in', for recreational value of the beach per visitor per day (also called the beach day use value), 2) estimated numbers of beach visitors annually, and 3) the area of beach impacted by shoreline armoring. The day use value was estimated using surveys that assessed the amount of time visitors spent traveling to get to and from the beach and the estimated cost of travel (including time value based on income). The seasonal beach day use value per person per day for Solana Beach is \$35.56 (2016 dollars) in the summer and \$21.00 (2016 dollars) in the winter. This number was then multiplied by the estimated total number of adult visitors to the beach per year to derive the annual recreational value of the entire beach. The value of the City's Junior Lifeguard Program was then added to obtain the total estimated beach recreation value. Thus, the key variables that are used to calculate the Solana Beach annual recreational value are day use value and attendance:

$$\text{Annual Recreational Value (\$/yr.)} = \text{Day Use Value (\$/person)} \times \text{attendance (people/yr.)} + \text{Jr. Lifeguard Program (\$)}$$

Because the Public Recreation Fee method uses annual recreation value to determine the loss in recreational value associated with loss of beach area, another key variable for the Public Recreation Fee calculations is the size of the beach. Thus, the method divides its proxy for the annual recreational value by the size of the beach to get a dollar

value per square foot of beach area. This metric allows valuation per square foot of beach lost due to a coastal structure or non-erodible seacave/notch infill.

$$\text{Annual Recreational Value per sq. ft. (\$/yr. per sq. ft.)} = \frac{\text{Annual Recreational Value (\$/yr.)}}{\text{Area of Solana Beach (sq. ft.)}}$$

The Public Recreation Fee is then applied in roughly the same manner as the Commission has done in the past, in that the mitigation calculation is based on the direct encroachment by the bluff retention device (Encroachment loss) and beach area that would have formed due to passive erosion over a 20 year mitigation period (Passive erosion loss). The City’s Public Recreation Fee method also requires that the area of existing notches or seacaves located landward of a proposed seawall be included as a part of the encroachment area.

$$\text{Public Recreation Fee (\$/20 years)} = \text{Encroachment loss (\$)} + \text{Passive erosion loss (\$)}$$

Appendix C of the LUP includes the following public recreation impact mitigation fee schedule:

<b>Table 1 - Public Recreation Impact Mitigation Fee Schedule</b>		
<b>Permit Year</b>	<b>Initial Area Rate (Per SF)</b>	<b>Bluff Retreat Rate (Per LF)</b>
2016	\$121	\$600
2017	\$124	\$630
2018	\$126	\$662
2019	\$129	\$698
2020	\$131	\$737
2021	\$134	\$780
2022	\$136	\$825
2023	\$139	\$874
2024	\$142	\$926
2025	\$145	\$982
2026	\$148	\$1,044

The Initial Area Rate in Table 1 represents the use value of one sq. ft. of beach area over a 20-year period and this use value is multiplied by the total area of encroachment of a Bluff Retention Device (Initial Area) to determine the fee. The use value is increased each year to reflect an estimated 2% Consumer Price Index (CPI). The use value is also subject to a 2% Present Value (PV), which offsets the CPI over the 20-year mitigation period.

The Bluff Retreat Rate (Per Linear Ft.) in Table 1 is equal to one linear ft. (Bluff Retreat Length) multiplied by 20 years of estimated erosion multiplied by the use value of one

sq. ft. of beach. It represents the use value of the expected beach area that would otherwise be available for public use through passive erosion if the Bluff Retention Device was not constructed. An erosion rate of 0.4 ft. per year is assumed between 2016 and 2025 and an erosion rate of 0.673 is assumed between the years 2026 and 2046. The use value increases each year to reflect an estimated 2% CPI.

The length of the portion of the proposed seawall between 249 and 241 Pacific Avenue is 50 feet and the width of the proposed seawall is 2.33 feet. As identified in the table above, for permit year 2020, the Initial Area Rate is \$131/sq. ft. and the Bluff Retreat Rate is \$737/sq. ft. The following calculations are used to determine the Public Recreation Fee for the proposed seawall:

$$\begin{aligned}\text{Initial Area (Seawall)} &= 50 \text{ ft.} \times 2.3 \text{ ft.} = 116.65 \text{ sq. ft.} \\ \text{Initial Area Rate} &= 116.65 \text{ sq. ft.} \times \$129 = \$15,048 \\ \text{Bluff Retreat Rate} &= 50 \text{ ft.} \times \$698 = \$34,900 \\ \text{Public Recreation Fee} &= \$15,048 + \$34,900 = \$49,948\end{aligned}$$

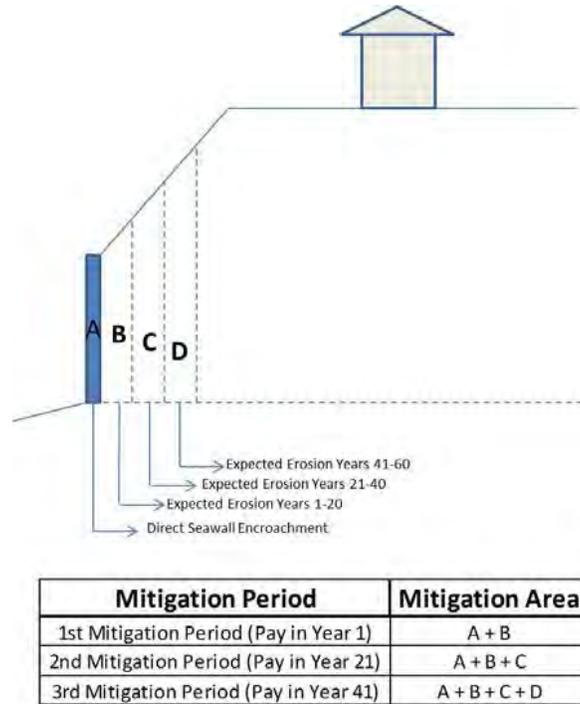
**Special Condition #8** requires the applicants to provide evidence, in a form and content acceptable to the Executive Director, that a fee of \$49,948 has been deposited in a Shoreline Account established by the City of Solana Beach, in-lieu of providing new beach area to replace the beach area that will be lost due to the impacts of the seawall 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 City's Public Recreation Fee program would typically require that the fee for any seacave or notch at the base of the bluff also be paid prior to issuance of the Coastal Development Permit. However, in this case, the sand level is too high to safely investigate the extent of any seacave or notch at the site, without the use of mechanized digging equipment. Therefore, **Special Condition #8** also requires that within 30 days of the start of construction, the applicants submit documentation of the area of any notch or seacave at the base of the bluff (i.e., the depth and width between the rear of the notch or seacave and the bluff drip line) to the Commission and to the City and submit an additional in-lieu Public Access Fee to the City for the area based on the City's Public Access Fee method.

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 Capital Improvement Projects (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.

Prior to the completion of the initial 20-year period, the applicants are required to submit an amendment application to the Commission to either remove or modify the permitted shoreline armoring or to provide a geotechnical report with evidence that the shoreline armoring must be retained and to provide mitigation for the subsequent 20-year period.

As shown in Figure 1 (which is part included in Appendix C of the LUP), in subsequent mitigation periods, mitigation shall include the direct shoreline protection device encroachment and all beach area that would have otherwise been available to the public through passive erosion had the shoreline armoring not been constructed.



**Figure 1**

Additionally, the proposed project directly encroaches on public property. **Special Condition #11** 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 applicants 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 shall remove the encroachment within 90 days 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 #9** requires that the applicants submit a construction staging and material storage plan for the subject development. **Special Condition #9** 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**

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.

Policy 3.8 of the Solana Beach certified Land Use Plan states:

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 of the Solana Beach certified Land Use Plan states:

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

Policy 3.84 of the Solana Beach certified Land Use Plan states:

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 of the Solana Beach certified Land Use Plan states:

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.

A negligible amount of native flora currently exists on the face of the bluff where the seawall and geogrid structure are 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.<sup>11,12</sup> 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

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<sup>11</sup> 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>

<sup>12</sup> Bockstael, N.E., A.M. Freeman, R.J. Kopp, *et al.* 2000. On measuring economic values for nature. *Environ. Sci. Technol.* 34:1384-1389.

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 #2** requires submission of a final landscape plan to ensure that only non-invasive (or native), drought-tolerant plants are planted onsite and to demonstrate that any existing irrigation systems on the bluff-top have been removed, as these would impact the ability of the seawall and other shoreline protection devices to adequately stabilize the site. **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 #10** requires the applicants to submit a Best Management Practices Plan that incorporates structural and nonstructural Best Management Practices (BMPs), for Executive Director approval, for the construction of the proposed seawall. Construction methods must be devised to assure 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.

The Commission finds that the proposed project, as conditioned, 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

Section 30240 of the Coastal Act states, in part:

[ . . . ]

(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 of the Coastal Act states:

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.

Policy 4.29 of the Solana Beach certified Land Use Plan states:

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 of the Solana Beach certified Land Use Plan states:

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 of the Solana Beach certified Land Use Plan states:

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. As proposed, the seawall will match the appearance of the adjacent walls to the north and south, which were designed to conform as closely as possible to the natural contours of the bluff using color and textured concrete. 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.

Although much of the Solana Beach shoreline does contain seawalls at the base of the bluff, the natural, largely unaltered, face of the bluff that extends along the approximately 1 ½ mile long shoreline in Solana Beach provides an important visual amenity to residents and coastal visitors alike. The previously approved project would have involved two large return walls ascending the bluff that are both composed of a row of caissons covered in a layer of shotcrete and buried into the bluff ([Exhibit #7](#)). The walls would have extended from the top of two existing seawalls protecting 249 and 241 Pacific Avenue to the top of bluff, along the southern property line of 249 Pacific Avenue and northern property line at 241 Pacific Avenue and resulted in impacts to the natural landform and visual quality of the bluff that are greater than the impacts associated with the current proposal. Additionally, both walls would have only served as a temporary solution to the on-going risk associated with erosion of the unarmored 50-foot long span of bluff below 245 Pacific Avenue, and would have required continual monitoring and construction of additional walls, geogrids, and eventually additional protection in the future to protect the adjacent homes, which would be even more impactful to the bluff. Based on the Commission senior engineer's understanding of safety issues involved with the construction the return walls on the unstable bluff, a temporary seawall capable of stabilizing the bluff would be needed just to facilitate the safe construction of the two return walls. However, removal of the temporary seawall is expected to future damage the bluff and cause bluff failures that will undermine the return walls. As detailed above under Section B. Geologic Conditions and Hazards, both the return wall alternative, even when factoring in the construction of a temporary seawall, was determined to not be a viable engineering solution.

The Commission has previously approved several geogrid structures along the Solana Beach shoreline and the most recent ones have been required to mimic the natural undulating bluff landforms in the vicinity to the maximum extent feasible. Although, a reconstructed slope still alters a natural landform, it can result in a more natural appearance that blends in better with any adjacent unaltered bluff landforms. Therefore, **Special Condition #1** requires that revised plans be submitted such that the geogrid structure will be constructed to include variable thicknesses to provide visual undulations that mimic the nearby natural bluff conditions. At a minimum, the geogrid structure shall include 2 non-evenly spaced, tapered, undulating drainage features, with non-linear edges, that are approximately 2 feet deep and approximately 5 feet wide. The applicants have also proposed to install hydroseed and container plantings on the proposed geogrid structure. In addition, **Special Condition #3** requires the applicants to monitor and maintain the proposed shoreline armoring in its approved state. Thus, the proposed seawall and geogrid structure 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 Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The City of Solana Beach found that the proposed development was exempt pursuant to CEQA Guidelines sections 15269(c) [prevention of emergencies]. 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).

## **H. Attorneys' Fees and Costs**

Coastal Act section 30620(c)(1) authorizes the Commission to require applicants to reimburse the Commission for expenses incurred in processing CDP applications. See also Cal. Code Regs. tit. 14, § 13055(g). Thus, the Commission is authorized to require reimbursement for expenses incurred in defending its action on the pending CDP application. Therefore, consistent with Section 30620(c), the Commission imposes **Special Condition #16**, requiring reimbursement of any costs and attorneys' fees the Commission incurs "in connection with the defense of any action brought by a party other than the Applicant/Permittee . . . challenging the approval or issuance of this permit."

## APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

- City of Solana Beach Certified LUP
- California Coastal Commission Sea Level Rise Policy Guidance Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits, adopted 11/7/18
- DRAFT California Coastal Commission Residential Adaption Policy Guidance Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs, Revised March 2018
- Coastal Regional Sediment Management Plan, adopted by SANDAG in March 2009
- Shoreline Preservation Strategy for the San Diego Region, adopted by SANDAG in July 1993
- Soil Engineering Construction, Inc. Project Alternative Analysis 241 and 249 Pacific Avenue, received 12/10/19
- Soil Engineering Construction, Inc. RE: DeSimone et.al. Seawall Gap Fill (CDP #6-19-1291); Response to Coastal Staff e-mail dated 4/6/2020, dated 5/5/20
- CDP #:
  - 6-96-021/Ratkowski
  - 6-89-029/Haggerty
  - 6-99-100/ Presnell et al.
  - 6-00-036/ Corn & Scism
  - 6-00-138/Greenberg & Kinzel
  - 6-02-002/Gregg & Santina
  - 6-02-039/Seascape Chateau
  - 6-02-039-A1/Seascape Chateau
  - 6-02-084/Scism
  - 6-03-126/Corn& Hajjar
  - 6-07-132/Hawkins
  - 6-07-134/Brehmer, Matchinske, & Caccavo
  - 6-03-33-A5/Surfsong
  - 6-04-083/Cumming & Johnson
  - 6-08-68/Hamilton Trust
  - 6-08-73/Cummings & DiNoto, et. al.
  - 6-08-122/Winkler
  - 6-09-033/Garber et. al.
  - 6-13-025/Koman et al.
  - 6-13-0437/Presnell & Graves
  - 6-13-0948/Bannasch
  - 6-16-0281/Winkler & Lucker
  - 6-18-0288/DeSimone, Schragger, & Jokipii
- LCP-6-SOL-16-0020-1