CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
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F11b

Prepared December 13, 2021 for December 17, 2021 Hearing

To: Commissioners and Interested Persons

From: Kevin Kahn, Central Coast District Manager
Katie Butler, Coastal Planner

Subject: Additional hearing materials for F11b
Appeal Number A-3-PSB-21-0073 (Gentilcore Seawall)

This package includes additional materials related to the above-referenced hearing item as follows:

Additional correspondence received in the time since the staff report was distributed

Beach Cities
PRESERVATION ALLIANCE

December 14, 2021

Mr. Padilla and Commissioners
c/o California Coastal Commission
Central Coast District
725 Front Street, Suite 300
Santa Cruz, CA 95060

Re: 117 Indio Drive, Pismo Beach, California
Appeal No. A-3-PSB-21-0073

Dear Mr. Padilla and Commissioners:

On September 28, 2021, the City of Pismo Beach Planning Commission ("Planning Commission") approved a Coastal Development Permit for the construction of a new sea wall at 117 Indio Drive, Pismo Beach, California ("Property"). The Property is developed with an existing single-family home, which is threatened by the eroding bluff underlying the structure. Though the City found the project to satisfy its certified Local Coastal Plan ("LCP"), the homeowner is unable to move forward with protecting his home because an appeal was filed.

Of concern is the fact that two Commissioners filed the appeal, based on the unfounded claim that the existing home is not an "existing structure" because it was not a principal structure based on an assertion that "such term means a principal structure that was in existence on January 1, 1977 (the effective date of the Coastal Act) and that has not subsequently been redeveloped."

As the Commission is aware, there is no definition of "*existing structure*" in the Coastal Act because it is not a term meant to be defined; it is neither capitalized, bolded, or otherwise differentiated as being a term with a meaning needing to be defined. Rather, "existing structures" are simply two words meant to be understood by the public as written (i.e. an adjective describing a noun).

In fact, the Commission itself has already addressed the meaning of "existing structure" as used in the Coastal Act in its 2006 brief to the California Court of Appeal in the *Surfrider Foundation v. California Coastal Commission et al.* matter. There, the Commission argued that **the term 'existing structures' refers to existing structures at the time of the permit application and is not limited to structures that predated the Coastal Act**" (emphasis added). It is this plain meaning understanding that has been relied on by cities, counties, and other decision-making bodies since the Coastal Act was enacted. But most importantly, **the public has relied on this plain meaning understanding of "existing structures" since the Coastal Act was enacted.**

The Commission has an obligation to the public to uphold the Coastal Act; not to reinvent its purpose. Given such a role, the Commission must consider the appeal in light of the fact that the sea wall is necessary to protect an existing structure.

Sincerely,

Beach Cities Preservation Alliance
a California Nonprofit Corporation

Louis A. Galuppo

LOUIS A. GALUPPO
Executive Director

Project No.
T3110.010.000

December 9, 2021

Stephen Padilla, Chair
Honorable Coastal Commissioners
California Coastal Commission
Central Coast District Office
725 Front Street, Suite 300
Santa Cruz, California 95060

Subject: 117 Indio Drive
Pismo Beach, California

RE: Appeal Number A-3-PSB-21-0073
Item 11b, December 17, 2021, Hearing

Dear Chairman Padilla and Commissioners:

As you are aware, the California Coastal Commission (Coastal) staff recently notified the owner of 117 Indio Drive (Mr. James Gentilcore) of its appeal of the City of Pismo Beach (City) Coastal Development Permit (CDP) P20-000059, unanimously approved during a Planning Commission hearing held September 28, 2021. As you will from the attached photographs, Mr. Gentilcore's existing home is seriously threatened and it is imperative that corrective action take place as soon as possible to ensure the home does not fall into the ocean. As we believe this appeal did not fully consider the key facts and the substantial supporting documentation for which the City ultimately and unanimously approved this project, we want to provide the following for your consideration, and with the expectation that your Commission will find that appeal raises No Substantial Issue:

Please review the attached photographs and our correspondence with the City dated February 26, 2021. In addition to what is discussed in this correspondence, our letter to the City demonstrates that the City did not hesitate to request additional survey data to further verify the imminent need for the project. Recognizing that there exists considerable supporting documentation beyond what can easily be presented here, we strongly encourage your staff to review the City archived files ahead of the December 17, 2021 hearing.

The basis for an appeal is limited to an allegation that the approval does not conform to the approved LCP and/or Coastal Act public access provisions. The Reasons for Appeal state:

> "And although neither the Coastal Act nor the LCP explicitly identifies what qualifies as 'existing principal structure' for such armoring provisions, the Commission's interpretation and application in terms of armoring (including as articulated in the Commission's Sea Level Rise Policy Guidance)[1] is that such term means a principal structure that was in existence on January 1, 1977 (the effective date of the Coastal Act) and that has not subsequently been redeveloped."

This statement is flawed in many respects, and represents a host of long-standing political and legislative battleground issues that do not apply to this project. To be as brief as possible:

- Commissioners are citing a non-codified definition (a desired interpretation) from a more contemporary guidance document, which is not presently a part of the Coastal Act or LCP.

- There exists a well-established 44-year record of interpreting and applying the Coastal Act since becoming codified on January 1, 1977 - this appeal is incongruent with that long-standing record.

The City of Pismo Beach Planning Department and the Planning Commission carefully reviewed the project for conformance with the currently adopted City codes and LCP policies, including ensuring that the proposed repairs represented the minimum necessary, as well as the least environmentally damaging alternative.

The above included consideration of the fact that the Sunset Palisades Planning Area is effectively built-out, and that there is no reasonable place in which to relocate the residence further landward in order to reset the 100-year setback, given the current rates of erosion (18 inches per year). To attempt to do so would be out of character with the surrounding community, and the result would not conform with the applicable City of Pismo Beach site development criteria.

The jurisdictional Mean High Tide Line (MHTL) boundary of 4.54 feet (NAVD 88) for this project was independently surveyed by Cotton, Shires and Associates, Inc. on March 23-24, 2020. Prior to the September 28, 2021, City Planning Commission Hearing, there was careful coordination and review of this survey data with the City Planner Mr. Gruver to ensure that none of the proposed repairs, including a contractor means and methods approach to completing the work, would take place below the MHTL. Consequently, although the appeal bases its recommendation on Section 30235 of the Coastal Act, that provision does not apply. The standard of review here is the City's LCP, which permits the work that the City approved.

The proposed repairs include a carved and colorized treatment over the tied-back wall to ensure that the repairs blend in with the surrounding geology, further minimizing visual impacts to coastal resources.

The site is not located in an Environmentally Sensitive Habitat Area.

The approved project will not alter public access in any way.

This project is neighbored on both sides by existing approved shoreline protection measures that are not only located further seaward, but also are being flanked and need to be supported.

As a final note, Mr. Gentilcore is a retired senior citizen who contacts us on a regular basis to alert us to the additional erosion occurring on his bluff that continues episodically with each passing storm, unabated while he patiently awaits the approvals needed to move forward with stabilizing and protecting his home, which has now been exhaustively demonstrated to be in imminent danger. Several times throughout this process, Mr. Gentilcore has made it a point to let us know that this is his last and forever home, and that he hopes to be able to die there if it doesn't fall into the ocean first.

Given the above discussion and the attached documentation, we respectfully ask that you find No Substantial Issue, and allow Mr. Gentilcore to proceed with protecting his home as already approved by the Planning Commission on September 28, 2021.

Sincerely,

TERRACOSTA CONSULTING GROUP
An ENGEO Company

Gene D. Spineto
Senior Project Manager

Walter F. Crampton, Principal Engineer
R.C.E. 23792, R.G.E. 245

gds/wfc/jg

Attachments

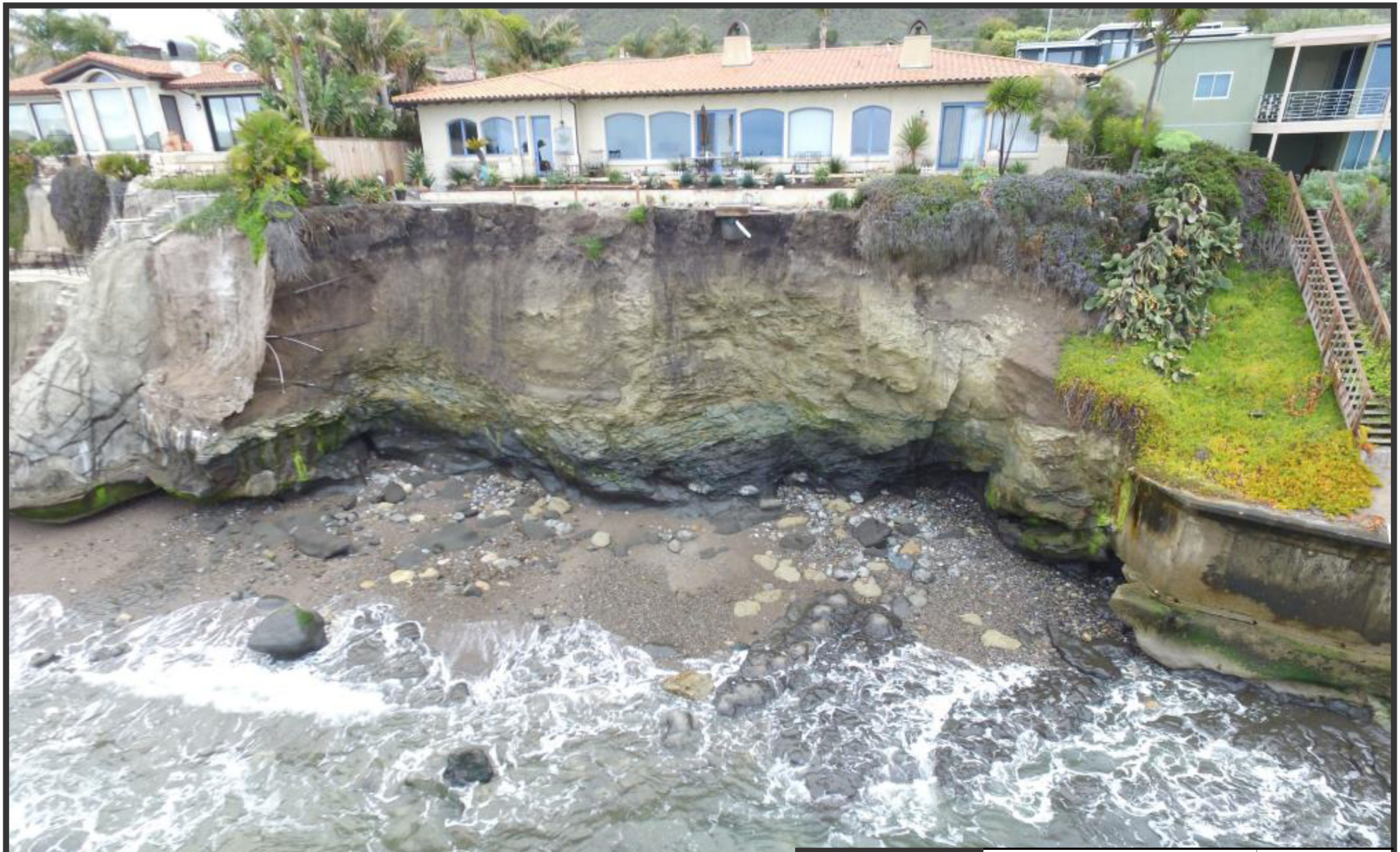

PHOTO DATE: MARCH 14, 2020

TerraCosta

an ENGEO company

TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

PHOTO NUMBER
1

PROJECT NAME
117 INDIO DRIVE
PISMO BEACH, CALIFORNIA

PROJECT NUMBER
3110

EXISTING CONDITION PHOTOGRAPH

PHOTO DATE: FEBRUARY 15, 2021

TerraCosta

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TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

PHOTO NUMBER
2

PROJECT NAME
117 INDIO DRIVE
PISMO BEACH, CALIFORNIA

PROJECT NUMBER
3110

EXISTING CONDITION PHOTOGRAPH

TerraCosta Consulting Group

Geotechnical Engineering
Coastal Engineering
Maritime Engineering

Project No. 3110
February 26, 2021

Mr. Mike Gruver
CITY OF PISMO BEACH
760 Mattie Road
Pismo Beach, California 93449

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
APPLICATION FOR A NEW SEAWALL STRUCTURE
117 INDIO DRIVE
PISMO BEACH, CALIFORNIA

REFERENCE: City Project No. P20-000059

Dear Mr. Gruver:

Per our ongoing correspondence and coordination associated with the 117 Indio Drive project, and as requested by the City, TerraCosta Consulting Group, Inc. (TerraCosta) has obtained and reviewed additional survey data (prepared by a licensed land surveyor, MBS Land Surveys) to determine the contemporary residence setback relative to the top-of-bluff, as depicted on the attached Figure 1. Based on the recent survey data, the residence is now located (set back) between 17.2 and 19.4 feet from the top-of-bluff. Notable is that the top-of-bluff has retreated an additional 3 to 5 feet (also shown on Figure 1) between the time of the site surveys performed by Cotton, Shires and Associates in March 2020, and the more contemporary survey performed by MBS Land Surveys on February 15, 2021. Arguably, this additional bluff loss occurred as a direct result of the three-day winter storms that occurred between January 26 and 29, 2021, resulting in both the Governor of the State of California and the Emergency Services Director of the County of San Luis Obispo declaring a disaster (copies of the proclamations attached).

In conjunction with our initial (80-page) response to comments of December 23, 2020, which provided our detailed understanding of the science and issues associated with forecasting rates of erosion, we believe these recent storm events continue to illustrate our position that the episodic and localized intensity of such storms results in some areas of the coastline experiencing more damage (coastal erosion) than others.

Given the above discussion, and recognizing the City of Pismo Beach is requesting a more contemporary retreat rate and estimated life expectancy of the residence, as indicated in our December 2020 response to comments letter, the erosion rate is a function of both the wave energy and the rock strength, with a threshold of wave energy below which no erosion occurs. This is important for several reasons, including the fact that even a small amount of additional sand will reduce wave energy below the erosion threshold and the presence of more sand in past decades would result in a very different erosion environment, with little if any measurable erosion in past decades.

Couple this historical reduced wave energy with a more scoured wave environment with extreme storms (such as occurred in January 2021) occurring during an extreme high tide, this then pushes the wave energy significantly above its erosion threshold, with upwards of 5 feet of erosion occurring over the course of three days this past January. Given the preceding, it is our opinion that the residence could be imperiled by a series of localized and intense storms over the next two to three years. In the absence of any significant storms, and per our September 10, 2020 report, the 18 inches of estimated annual marine-based erosion that occurred along the base of the bluff will likely continue and could jeopardize the residence within the next decade.

We appreciate the opportunity to be of service and trust this information meets your needs. If you have any questions, please give us a call.

Very truly yours,

TERRACOSTA CONSULTING GROUP, INC.

Gene D. Spineto, Senior Project Manager

Walter F. Crampton, Principal Engineer
R.C.E. 23792, R.G.E. 245

GDS/WFC/jg
Attachments

SCALE: 1"=10'

0 5 10 15

FEET

117 INDIO DRIVE

S53°31'28"W 100.03'

N53°31'28"E 83.25'

112 42.67 SET SPK

111 42.00 SET SPK

113 40.40 SET SPK

17.5'

17.2'

19.4'

3'

4.8'

4.2'

CURRENT TOP OF BLUFF AS SURVEYED BY MBS LAND SURVEYING, 2-15-21

ESTIMATED TOP OF BLUFF, BASED ON COTTON, SHIRES AND ASSOCIATES SURVEY DATA (3-23-20 & 3-24-20)

BACKGROUND IMAGE IS APPROXIMATE AND FOR GENERAL REFERENCE ONLY. IMAGE REPRODUCED FROM GOOGLE EARTH
IMAGE DATE: 9-7-18

HATCH INDICATES APPROXIMATE LIMITS OF RECENT ADDITIONAL BLUFF LOSS ASSOCIATED WITH THE EARLY (3-DAY) WINTER STORMS OF 2021 (JANUARY 26TH TO THE 29TH). SEE STORM DAMAGE PROCLAMATIONS FROM GOVERNOR GAVIN NEWSOM, AND WADE HORTON, EMERGENCY SERVICES DIRECTOR, OF THE COUNTY OF SAN LUIS OBISPO

SITE PLAN

SCALE: 1"=10'

NOTE: TOPOGRAPHY SHOWN IS A POST UPPER-BLUFF FAILURE FIELD SURVEY PERFORMED BY MBS LAND SURVEYS (FEBRUARY 15, 2021)

TerraCosta Consulting Group

TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

FIGURE NUMBER 1

PROJECT NAME
117 INDIO DRIVE
PISMO BEACH, CALIFORNIA

PROJECT NUMBER 3110

BLUFF EROSION SITE PLAN

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

PROCLAMATION OF A STATE OF EMERGENCY

WHEREAS beginning on or about January 26, 2021, winter storms related to an atmospheric river system struck California, bringing damaging winds, substantial precipitation, flooding, and erosion, and this system continues to impact the State; and

WHEREAS the threat of mud and debris flows, particularly on burn scars from recent wildfires, has already prompted the evacuation of thousands of residents, and this threat remains ongoing; and

WHEREAS these winter storms caused significant damage to critical infrastructure, including washing out a portion of Highway 1 in Monterey and San Luis Obispo counties; and

WHEREAS under the provisions of Government Code section 8558(b), I find that conditions of extreme peril to the safety of persons and property exist due to winter storms and their effects in Monterey and San Luis Obispo counties; and

WHEREAS under the provisions of Government Code section 8558(b), I find that the conditions caused by winter storms in Monterey and San Luis Obispo counties, by reason of their magnitude, are or are likely to be beyond the control of the services, personnel, equipment, and facilities of any single local government and require the combined forces of a mutual aid region or regions to appropriately respond; and

WHEREAS under the provisions of Government Code section 8625(c), I find that local authority is inadequate to cope with the recent winter storms, and their effects, in Monterey and San Luis Obispo counties; and

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes, including the California Emergency Services Act, and in particular, Government Code section 8625, **HEREBY PROCLAIM A STATE OF EMERGENCY** to exist in Monterey and San Luis Obispo counties due to the recent winter storms related to an atmospheric river system, and their effects.

IT IS HEREBY ORDERED THAT:

1. All agencies of the state government are to utilize and employ state personnel, equipment, and facilities for the performance of any and all activities consistent with the direction of the Governor's Office of Emergency Services and the State Emergency Plan. Also, to protect their safety, all residents are to obey the direction of emergency officials with regard to this emergency in order to protect their safety.

2. The Governor's Office of Emergency Services shall provide assistance to local governments, if appropriate, under the authority of the California Disaster Assistance Act, Government Code section 8680 et seq., and California Code of Regulations, Title 19, section 2900 et seq.

3. The California Department of Transportation shall formally request immediate assistance through the Federal Highway Administration's Emergency Relief Program, United States Code, Title 23, section 125, in order to obtain federal assistance for highway repairs or reconstruction.

I FURTHER DIRECT that as soon as hereafter possible, this proclamation be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this proclamation.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 29th day of January 2021.

GAVIN NEWSOM
Governor of California

ATTEST:

SHIRLEY WEBER
Secretary of State

PROCLAMATION OF LOCAL EMERGENCY
BY EMERGENCY SERVICES DIRECTOR

2021 WINTER STORMS

I, Wade Horton, Emergency Services Director, of the County of San Luis Obispo, State of California, hereby find and determine that there exists a condition of disaster or of extreme peril to the safety of persons and property within the County of San Luis Obispo because of the existence of winter storms caused by an atmospheric river system that struck California between January 26 through January 29, 2021, causing damaging winds, substantial precipitation, flooding and erosion resulting in damage to infrastructure and property within the county.

And, further, I do hereby find and determine that the conditions set forth herein-above in this Proclamation currently exist within the entire area of the County of San Luis Obispo and are likely to be beyond the control of the services, personnel, equipment, and facilities of the county and require the combined forces of other political subdivisions to combat. These conditions are not a result of labor controversy.

NOW, THEREFORE, pursuant to the California Emergency Services Act (commencing with Gov. Code, § 8550 and Chapter 2.80 of Title 2 of the County Code, I do hereby PROCLAIM A LOCAL EMERGENCY within the entire area of the County.

IN FURTHERANCE OF THIS PROCLAMATION OF LOCAL EMERGENCY, there is hereby invoked within the County of San Luis Obispo, all of the powers and mechanisms set forth in the California Emergency Services Act and in the San Luis Obispo County Code, Chapter 2.80, and said powers and mechanisms may hereafter be used by authorized personnel of the County of San Luis Obispo.

IT IS HEREBY ORDERED that a copy of this Proclamation of Local Emergency shall be posted on all outside public access doors of the County Government Center and in one public place within any area of the County of San Luis Obispo within which this Proclamation applies, and that personnel of said county shall endeavor to make copies of this Proclamation available to news media.

This Proclamation of Local Emergency shall be effective immediately and shall be ratified by the Board of Supervisors within seven days. The Board of Supervisors shall review the need for continuing the local emergency at least every 60 days as required by Government Code section 8630, subdivision (c). This Proclamation of Local Emergency shall remain in effect until the Board of Supervisors proclaims that the local emergency has terminated.

Dated: February 4, 2021

Time: 1341

Wade Horton
Emergency Services Director

760 Mattie Road, Pismo Beach, CA 93449
(805) 773-4658 | PismoBeach.org

December 9, 2021

California Coastal Commission
Central Coast District
725 Front Street, Suite 300
Santa Cruz, CA 95060

Re: Commission Appeal No. A-3-PSB-21-0073

Dear Coastal Commissioners,

The City of Pismo Beach (the "City") is providing this letter in response to Reasons for Appeal made in the Commission Notification of Appeal for Commission Appeal No. A-3-PSB-21-0073 (the "Appeal"), received by the City on November 22, 2021, for the project at 117 Indio Drive. The City's Local Coastal Program (LCP) was certified in 1984, and is considered to implement the Coastal Act when combined with the City's 1983 Zoning Ordinance (the "Code"). On September 28, 2021, the City's Planning Commission (the "Planning Commission") adopted Resolution No. PC-R-2021-018 approving Project P20-000059 for a Coastal Development Permit for construction of a new carved and colored shotcrete tied-back bluff wall with 23 drilled tiebacks, which is appealable to the Coastal Commission. The Appeal was reported to have been made on November 12, 2021.

The Appeal includes several assertions related to the City's processing of the application and the Planning Commission's approval of the project. The intent of this letter is to provide additional information or, where appropriate, to refute misstatements that were made. In general terms, these assertions include what defines an existing structure under the City's LCP, lack of evaluation of less environmentally damaging alternatives, exclusion of a Sand Replenishment Fee Calculation, and location of the improvements in regards to Permit Jurisdiction.

The Appeal states that the single-family residence is not an "existing principal structure" eligible for shoreline protection, while also stating that neither the Coastal Act nor the City's LCP explicitly identifies what qualifies as an existing principal structure. Instead, the Appeal references the Coastal Commission's 2018 Sea Level Rise Policy Guidance document for the Coastal Commission's interpretation that such term means a principal structure that was in existence on January 1, 1977, the effective date of the Coastal Act, and that has not subsequently been redeveloped." The City disagrees that this is not an existing principal structure eligible for a protection structure.

The residence at 117 Indio was approved in 2000 and constructed in 2003 pursuant to the City's Certified LCP, including compliance with a 100-year retreat rate for the new residence plus added factor of safety identified through a geologic investigation as required by Policy S-3a., and is therefore considered a legal conforming use by the City's LCP. This use was established using the best available data at the time permits were granted by the City. Due to unforeseen episodic events, the bluff at 117 Indio Drive has experienced larger than could have been expected erosion rates due to several factors, as identified in the Geotechnical Basis of Design prepared by Terra

Costa (the "Report") and further discussed in the Mitigated Negative Declaration as approved by the Planning Commission.

As the structure was developed consistent with the City's Certified LCP, the City considers the residence at 117 Indio Drive to be a legal conforming principal structure eligible for a protection structure under the Certified LCP, including General Plan Policy S-3 and Code Section 17.078.050. The City considers this to be consistent with the Coastal Commission approved protection devices for adjacent residences at 121 and 125 Indio Drive, under Original Permit Jurisdiction. For reference, the residence at 125 Indio Drive was approved by the City in 1997 and built in 1998 while the residence at 121 Indio Drive involved CDPs issued between 1996 and 2005 for additions to a house originally constructed in 1959.

The Appeal also states that the City did not consider less environmentally damaging alternatives in lieu of a seawall. The City did consider a "no project alternative" as part of the review of the Geotechnical Basis of Design prepared for the project. A copy of this document was provided to the Planning Commission as a part of their September 28, 2021, hearing, which was regarded by the Planning Commission as a very thorough evaluation of the situation at the project site. Other alternatives such as "managed retreat" or living shoreline alternatives were not considered as this is not a current provision of the City's certified LCP and, based on the estimated 18 inch per year retreat rate estimated by the Report, these would not be considered viable options. Such a 150' retreat rate based on an 18" annual retreat rate over 100 years would extend past property boundaries and could therefore constitute a taking of property enjoyed by its' owner for close to 20 years.

The Appeal indicates that the City failed to require a Sand Replenishment Fee calculation for the proposed project. This is simply not the case. Terra Costa provided a Sand Mitigation Fee Calculation to the City on August 9, 2021 (enclosed). Condition of Approval B-7 Sand Replenishment Supply Fee, requires the applicant to pay this supply fee prior to the issuance of a Building Permit for the bluff wall.

The Appeal raises questions regarding the project's location in relation to Coastal Commission Original Permit Jurisdiction Area. Consistent with previous discussions between City and Coastal Commission staff, Coastal Commission staff have stated that only those lands below the Mean High Tide Line and/or considered Public Trust Lands are subject to Original Jurisdiction. Based on Plan Sheet 4-D of the plans prepared by Terra Costa and as surveyed by Cotton, Shires, and Associates, Inc., the Mean High Tide Line (MHTL) at 4.5' NAVD '88, with improvements landward of said MHTL. Under the California Public Trust Doctrine, those lands under the Ocean and under navigable waters are considered public trust lands. As the improvements are landward of MHTL and are not under navigable waters, it is the City's determination that the project is not within the Original Coastal Permit Jurisdiction.

Beyond this project and of larger concern is the continued disregard for certified LCP regulations and continued insistence at the use of January 1, 1977, as the only applicable date to determine a structure is "existing." For the last few years, the City has been working with the Commission's Local Government Sea Level Rise Working Group as part of the League of California Cities' Coastal Cities Group to explore challenges and develop solutions to better address sea level rise planning. At the December 2021 meeting, the Commission will be considering these

documents, including the Framework for a Phased Approach to Updating LCPs for Sea Level Rise, a Joint Statement on Regional Approaches to SLR Adaptation Planning, and Coordination and Elevation Process for LCP Updates. Throughout the process of developing those documents, the issue of date identification for "existing" was continually identified as a point of conflict that is too contentious to address in these documents; Coastal Commission and agency staff acknowledged that it was better to address that topic separately. As the City continues to work on an update to our LCP, to modernize the regulations and address sea level rise, we are concerned at losing great projects that have been implemented consistent with our LCP and, by extension, the Coastal Act. This concern includes, but not limited to, the subject project.

We appreciate the opportunity to provide comments on this matter. Should you have any questions, please do not hesitate to contact me by email at mdowning@pismobeach.org or by phone at (805) 773-4658.

Sincerely,

Matthew J. Downing, AICP
Community Development Director

cc: James R. Lewis, City Manager, City of Pismo Beach
Susan Craig, District Manager, Central Coast District Office
Katie Butler, Coastal Planner, Central Coast District Office

Enc: *Calculation of San Mitigation Fees for Impacts to Sand Supply, Proposed Shoreline Stabilization Project, 117 Indio Drive, Pismo Beach, California*, Terra Costa Consulting Group, August, 2021.

CALCULATION OF SAND MITIGATION FEES
FOR IMPACTS TO SAND SUPPLY
PROPOSED SHORELINE STABILIZATION PROJECT
117 INDIO DRIVE
PISMO BEACH, CALIFORNIA

REFERENCE: CITY PROJECT NO. P20-000059

As indicated on the construction drawings for the proposed project, which were submitted to the City on September 10, 2020, the total wall length is approximately 120 feet along a curvilinear line stabilizing the coastal bluff below 117 Indio Drive, which has a lot width of 117 feet (obtained from the APM for the subject property). The northern approximately 8.5 feet of this project ties into, and is integral with, the Phase 2 stabilization measures for the residence at 121 Indio Drive. TerraCosta Consulting Group and Cotton, Shires and Associates, Inc. (the geotechnical engineer for 121 Indio Drive) have collaborated in the design of the interface between the proposed seawall on 117 Indio Drive and the proposed replacement and new shoreline protective works on the adjacent property at 121 Indio Drive, with the northerly three tiebacks shown on Sheet 4 of TerraCosta's construction drawings being the same as the southerly row of tiebacks on the 121 Indio Drive shoreline protection. As a result, the northerly approximately 8.5 feet of the proposed wall at 117 Indio Drive is the proposed replacement and new shoreline protective works on the adjacent property at 121 Indio Drive.

The curvilinear wall alignment shown on Sheet 4 of TerraCosta's drawings, when straightened out parallel with Indio Drive, results in an equivalent wall length of 117 feet for the sand mitigation fee calculations. The unsupported wall height is 34 feet.

Also shown on Sheet 4 of the drawings, the southerly 43 feet of the wall alignment has been pushed back into the coastal bluff, resulting in approximately 80 square feet of additional useable public beach that previously comprised the southerly sidewall of the cove area that has developed during the past 30± years as ongoing erosion has continued past the original 1990 shoreline, which has since been stabilized at both 113 and 121 Indio Drive; the adjacent properties south and north of the subject property. This realigned section of coastal bluff, in addition to creating approximately 80 square feet of additional useable public beach, also generates approximately 22 cubic yards of excavation seaward of the face of the proposed wall, which results in 1.8 cubic yards of useable beach sand supplied to the public beach.

In collaborating with Cotton, Shires and Associates, we note that they have done considerable work in developing their own sand mitigation fee calculations, including the percent sand fraction available in the sea cliff. Since TerraCosta has not performed any test borings or laboratory testing, we have relied upon Cotton, Shires and Associates' work product specific to their evaluation of the sand fraction within the eroding coastal bluff. A copy of Cotton Shires' February 17, 2021, calculation package is provided in Attachment A.

The certified City of Pismo Beach LCP provides for project mitigation of beach quality sand. According to Coastal Commission staff, the equation for calculating impacts to shoreline sand supply from retention of sand and sand-generating materials is:

$$\mathbf{V_b = (S \times W \times L) \times [(R \times hs) + (1/2hu \times R + (Rcu - Rcs)))] / 27} \quad \text{(Equation 1)}$$

where: V_b is the volume of beach material that would have been supplied to the beach if natural erosion continued (this is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the armoring). If the proposed bluff stabilization extends the full height of the bluff, this equation can be reduced to:

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

where,

- **V_b** = total volume of sand required to replace losses due to the structure
- **R** = long-term regional bluff retreat rate (ft/yr),
- **L** = design life of armoring without maintenance (yr),
- **W** = width of property to be armored (ft),
- **H** = total height of armored bluff (ft),
- **S** = fraction of beach quality material in the bluff material,

Site-specific values for equation variables:

- **R** = 1.5 ft/yr (refer to TerraCosta's February 26, 2021, letter)
- **L** = 20 years
- **W** = 117 feet
- **S** = 0.08 (determined by Cotton Shires; refer to Attachment A)
- **H** = 34 feet

Utilizing equation (2):

$$V_b = \frac{1.5\ x\ 20\ x\ 117\ x\ 34\ x\ 0.08}{27}$$

$$V_b = 353.6\ cy\ minus\ 1.8\ cy\ from\ the\ southerly\ 22\ cy\ excavation$$

$$\therefore V_b = 351.8\ cubic\ yards$$

In keeping with Cotton, Shires and Associates' recommendation to import and place beach quality sand as mitigation for the proposed project, we would also recommend that 20 percent of the 351.8 cubic yards be placed concurrently with the proposed beach quality sand mitigation for the 121 Indio Drive project in Years 1, 5, 10, 15, and 20 with beach quality sand at a rate of 70.4 cubic yards per said year.

ATTACHMENT A

SAND MITIGATION FEE CALCULATIONS

Prepared by
COTTON, SHIRES AND ASSOCIATES
Dated
February 17, 2021

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

February 17, 2021
E0222M

Mr. Gary H. Grossman TRE
121 Indio Drive
Pismo Beach, California 93449

SUBJECT: **Calculation of Projected Volumes of Beach Quality Sand Production During 20 Years at 121 Indio Drive Without Phase I and Phase II Development**

RE: California Coastal Commission Staff Letters, dated September 10, 2020, October 23, 2020 and December 14, 2020, Regarding Pending Applications for Phase I and Phase II Amendments to Coastal Development Permit A-3-PSB-02-016, 121 Indio Drive, Pismo Beach, California (APN 010-205-002)

References: Geotechnical Investigation Potential Seacliff Hazards, 121 and 125 Indio Drive and Florin Street Cul-De-Sac, Pismo Beach, California, report by Cotton, Shires and Associates, Inc., dated January 23, 2003;

"As-Built" Seawall, Shotcrete Cut-Off and Tieback Plan, Bluff Restoration and Shore Protection Project, 121 and 125 Indio Drive and Florin Street Cul-De-Sac, Pismo Beach, California, Drawing No. C-5, Sheet 5 of 11, by Cotton, Shires and Associates, Inc., dated May 10, 2005;

Maintenance/Repair/Restoration – Phase I Geotechnical Investigation Report Update, 121 Indio Drive Coastal Bluff Under-Cutting, Pismo Beach, California (APN 010-205-002), report by Cotton, Shires and Associates, Inc., dated April 6, 2020;

Maintenance/Repair/Restoration Memorandum Phase I As-Built Geotechnical Investigation, RE: 121 Indio Drive Coastal Bluff Erosion and Undercutting, Pismo Beach, California (APN 010-205-002), report by Cotton, Shires and Associates, Inc., dated August 5, 2020; and

Maintenance/Repair/Restoration/Protection – Phase II Supplemental Geotechnical Investigation Report, 121 Indio Drive Coastal Bluff Erosion and Under-Cutting, Pismo Beach, California (APN 010-205-002), report by Cotton, Shires and Associates, Inc., dated October 13, 2020.

Dear Mr. Grossman:

As per your authorization, we are providing you with this analysis of, and recommended mitigation for potential (including projected) beach quality sand supply loss associated with (1) retention in place of the Phase I emergency sea cave infilling in Pismo Formation bedrock (Tmp), completed in April, 2020 pursuant to and consistent with Coastal Commission emergency CDP G-3-20-0025 and our Phase I Geotechnical Report Update (April 6, 2020, the "Phase I Report"), and (2) proposed associated (necessary) Phase II cutoff wall repair and replacement (with minimized downcoast extension), adjacent engineered downcoast (400 sf) bluff stabilization, and ancillary repair, maintenance, and enhancement of bluff shotcrete facing, *in situ* drainage facilities, and screening vegetation on your property at 121 Indio Drive, Pismo Beach (APN 010-205-002). Our Maintenance/Repair/Restoration/Protection - Phase II Supplemental Geotechnical Investigation Report, 121 Indio Drive Coastal Bluff Erosion and Under-Cutting, Pismo Beach, California (dated October 13, 2020, the "Phase II Report") depicts the location of these necessary components to protect your pre-Coastal Act residence, essential pre-Coastal Act bluff shotcrete facing, and authorized, regularly monitored, maintained and repaired shoreline protective works against recent and continuing marine erosion that threaten them with substantial bluff slope failures and near-term (<1 year) catastrophic collapse.

Part 1 – Executive Summary

Based on our further quantified site-specific calculations conducted pursuant to the formula required by Coastal Commission staff, we have projected the worst-case volumetric impacts on beach quality sand loss from the completed Phase I sea cave infill and the proposed associated, necessary Phase II components over their 15-20 year economic life. In our analysis, we also take into consideration the mitigation fee paid in 2004 pursuant to Special Condition 8 of CDP A-3-PSB-02-016 (CDP) for, in relevant part, sand supply loss from the cutoff wall and bluff shotcrete facing authorized by the CDP over the 75-year economic life (to 2078) of the approved development (*see* CDP Exhibit 4).

For Phase I, the projected beach quality sand loss calculated using the Coastal Commission staff formula equates to 36.2 cubic yards. Of that 36.2 cubic yards, 11.8% was not accounted for by the sand loss mitigation fee paid in 2004. Consequently, 11.8% of 36.2 cubic yards or 4.3 cubic yards of beach quality sand should be mitigated for Phase I.

For Phase II, the projected beach quality sand loss calculated using the Coastal Commission staff formula equates to 165.9 cubic yards. Of that 165.9 cubic yards, 23.1% was not accounted for by the sand loss mitigation fee paid in 2004. Consequently, 23.1% of 165.9 cubic yards or 38.3 cubic yards of beach quality sand should be mitigated for Phase II.

Accordingly, the combined total projected beach quality sand loss volume from Phase I and Phase II that requires mitigation pursuant to Coastal Act Section 30235 is 42.6 cubic yards.

We recommend that you mitigate this potential (worst case) beach quality sand deprivation impact through proportionate, sequential (Year 1, 5, 10, 15, and 20) *in situ* deposition of 42.6 cubic yards of beach quality sand on the back beach area of your property with monitoring and reporting as proposed in the CDPA. For effective beach quality sand supply mitigation, we further recommend that its implementation in Years 1, 5, 10, 15, and 20 be combined for both Phase I and Phase II mitigation for a combined rate of 8.6 cubic yards per Year.

Part 2 - Introduction

In this letter, we summarize our further analysis of the (likely worst case) impacts of the completed Phase I sea cave infill and proposed Phase II components, not already mitigated in 2004, on local beach quality sand supply over their 20-year economic life, and recommend Coastal Act- and CDP-consistent proportionate mitigation to reduce those impacts to below the adopted California Environmental Quality Act (CEQA) level of significance.

At the outset, we reiterate that the completed Phase I infilling of the seaward downward-sloping sea cave with unreinforced 5,000 psi shotcrete was neither engineered nor constructed to function as a shoreline protective structure (shoreline "armoring" in contemporary Coastal Commission syntax - see our Phase I Report, Page 2 and Figure 6). Instead, as further discussed below, the Phase I sea cave infilling for its continued viability – and that of your residence against catastrophic collapse - specifically requires the proposed Phase II restoration and replacement, in parts, cutoff wall (with minimized necessary extension by 5 feet to and 6 feet along the 121-117 Indio Drive property line), as well as the proposed adjacent downcoast (400 sf) bluff stabilization, and associated repair, maintenance, and enhancement measures.

We understand that Coastal Act section 30235, in relation to the Phase I and Phase II development, requires in relevant part that "other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when

designed to eliminate or mitigate adverse impacts on local shoreline sand supply". The scientific consensus identifies anthropogenic climate change as an important additional driver of oceanic (e.g., eustatic and regional sea level, storm headings, intensity and duration) conditions, with associated thermodynamic, chemical, and other physical changes to pre-industrial natural shoreline processes. In our analysis, we treat current shoreline processes as quasi-natural conditions and trends. Accordingly, we differentiate between the formulaic beach quality sand volumes identified by solution of Commission staff's "additional information request" Part IV and the substantively applicable current sand mitigation volume for previously unmitigated Phase I sea cave infill construction that is necessary pursuant to the Coastal Act to fully mitigate the quantified direct and cumulative (over the 15-20 year economic life) project impacts on local shoreline sand supply.

As further discussed below, the completed Phase I development was self-mitigating for beach quality sand supply during its construction by the end of April, 2020. As further clarified herein, the regular CDP amendment application for Phase I contains a proposal to perform proportionate (volumetric) nourishment of the back beach plane on your property at 121 Indio Drive with beach quality sand to mitigate the identified Phase I development adverse impacts on local shoreline sand supply. In Part 2 of this letter, we provide relevant background information. In Part 3, we set forth the relevant site-specific data, analysis, and the solved Coastal Commission staff equation to quantify the proposed volume (and schedule) of proposed Phase I *in situ* beach quality sand nourishment mitigation. In Part 4, we set forth the relevant site-specific data, analysis, and the solved Coastal Commission staff equation to quantify the proposed volume (and schedule) of proposed Phase II beach quality sand nourishment mitigation on the beach plane on your property. It is anticipated that, as a practical matter, the proposed sequenced implementation of the Phase I and Phase II beach quality sand mitigation schedules would occur concurrently.

We understand that this letter memorandum will inform, and be included as an attachment to, the response by Dall & Associates, on your behalf, to Coastal Commission staff's request for additional information about the pending applications for regular follow-up approval of the completed Phase I work (and also, in relevant parts) for authorization of the necessary – and time critical – associated Phase II bluff stabilization measures, to avoid catastrophic collapse of the bluff, essential *in situ* infrastructure, and your residence.[1]

[1] In this letter memorandum, we do not address Coastal Commission staff's other post-CDP amendment application information requests and reserve your rights to Coastal Commission staff CDP amendment application filing review consistent with (e.g.) the

Part 2 - Background

CSA previously submitted the three geotechnical reports referenced above regarding your property. The January 23, 2003 report presents the results of our comprehensive site-specific and, as applicable, regional geotechnical investigation of geological conditions and trends at 121 Indio Drive, 125 Indio Drive, and the Florin Street end right-of-way. In relevant part to the beach quality sand composition of the *in situ* Pismo Formation bedrock (Tmp) and the overlying Terrace Deposits (Qt), from our laboratory analyses of representative samples, we determined that about 8% of the Tmp, and about 7.3% of the Qt, would degrade to local beach sand-sized particles if the bluff were allowed to retreat, whereas about 40% of the Tmp and 54% of the Qt would degrade to sand-sized particles that consist of grain sizes not typically found in the local beach sand (CSA, 2003, Section 5.1, Page 32). Subsequent beach monitoring observations of the sand that has episodically accreted to and eroded from the beach plane on and adjacent to 121 Indio Drive support our laboratory findings.[2]

In our 2003 report, we recommended environmentally preferred Alternative 5.9, which included in-lieu fee mitigation for the loss of beach sand that would otherwise become available, in relevant part, from continued bluff retreat at 121 Indio Drive. (CSA, 2003, Section 5.9, Pages 46, 47). The Coastal Commission concurred with our recommendation and adopted CDP Special Condition 8, which required payment, precedent to issuance of the CDP, of an in-lieu fee of $10,000 for (in relevant part) loss of beach sand replenishment due to the authorized shoreline protective works. The in-lieu fee payment was made to the City of Pismo Beach in 2004. The impacts mitigated by this fee included those attributable to the authorized cutoff wall. In Phase II, we recommend repair, maintenance, and locally *in-situ* and repositioned landward replacement of them (CSA, Phase II Supplemental Geotechnical Report, October 13, 2020, Figure 6).

California Permit Streamlining Act, as further addressed in the Dall & Associates response letter.

[2] *See* CSA, Phase II Supplemental Geotechnical Investigation Report, October 13, 2020, Pages 13, 17, 29, 30, and Figures 2, 3, 4, and 5; Dall & Associates, ECDP G-3-20-0025 Work Day 1 – Work Day 7 illustrative photo-documentation of beach plane conditions between April 16-April 29, 2020; and GeoSoils, Inc., Monitoring Reports per CDP A-3-PSB-02-016 of July 21, 2009, June 26, 2013, and May 25, 2018.

The Phase I Report Update, dated April 6, 2020, presents the results of our analysis of the newly discovered (March, 2020) 70-foot long, by up to 27 feet deep, and up to 6-foot high marine wave undercut bluff (Tmp) terrain on your property, together with recommendations for an immediate action plan for placement of unreinforced, 5,000 psi shotcrete infill to buttress the overhanging bluff and thereby avoid the imminent catastrophic collapse of the bluff and your residence on the bluff top. In the Phase I Report Update, we specifically indicated that the sea cave infill did not constitute an engineered shoreline protective structure, but rather required the (at that time, conceptually proposed) high strength Phase II cutoff wall to perform that essential function, with both the sea cave infill and the cutoff wall to be located to landward of the seaward edge (as extended seven feet downcoast to the 121-117 Indio Drive property line) of the previously Coastal Commission-authorized shoreline protection on your property. Implementation of our Phase I recommendations was completed, consistent with the terms and conditions of Commission Emergency CDP G-3-20-0025 (the ECDP), by April 30, 2020 (with construction completed on April 29, 2020).

The Phase II Supplemental Geotechnical Investigation Report, dated October 13, 2020, presents our additional site-specific (and regional, as applicable) analyses and recommendations for replacement, and augmentation as shown, of the concrete/shotcrete cut-off wall permitted in 2004, repair and maintenance of pre-Coastal Act/CDP-authorized bluff shotcrete facing, bluff drainage improvements, 400 sq ft of new engineered downcoast bluff stabilization and related bluff-overhanging vegetation restoration to protect the Phase I shotcrete infilling, the pre-Coastal Act/CDP-authorized shoreline protective works, and your residence against bluff instability associated with direct, undercutting (down-wearing), and flanking marine erosion. The design life of the Phase II project is 15 to 20 years.

Coastal Commission staff in respective correspondence regarding the CDP amendment applications for Phase I (September 10, 2020, October 23, 2020) and for Phase II (December 14, 2020) indicates that the proposed development (sea cave infilling, cutoff wall restoration/replacement, downcoast 400 sf bluff stabilization, and associated repairs, maintenance, and enhancements) will impede the production of beach quality sand from decomposition of the bluff Tmp and Qt that, absent those structures, would become available to the beach plane and littoral system over the economic life of the structures. Parts 3 and 4 of this letter respectively contain the relevant quantitative analyses of the impacted beach quality sand production from Phase I and Phase II development at 121 Indio Drive, using the Coastal Commission staff's formula. Part 5 contains our analysis of the beach quality sand production from a catastrophic bluff failure based on sea cave undercutting of the bluff in a series of anticipated major slope failure events during the 20-year economic life of the Phase II components.

According to Coastal Commission staff, the equation for calculating impacts to shoreline sand supply from retention of sand and sand generating materials for the "least environmentally damaging feasible solution based on the alternatives analysis … is Vb = (S x W x L) x [(R x hs) + (1/2hu x (R + (Rcu - Rcs)))]/27, where: Vb is the volume of beach material that would have been supplied to the beach if natural erosion continued (this is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the armoring); S is the fraction of beach quality material in the bluff material; W is the width of property to be armored; L is the design life of structure (if assumed a value of 1, an annual amount is calculated); R is the long term average annual erosion rate; hs is the height of the armoring structure; hu is the height of the unprotected upper bluff; Rcu is the predicted rate of retreat of the crest of the bluff during the period that the armoring structure would be in place, assuming no armoring were installed (this value can be assumed to be the same as R unless site-specific geotechnical information is provided that supports a different value); Rcs is the predicted rate of retreat of the crest of the bluff, during the period that the armoring would be in place, assuming the armoring has been installed (this value will be assumed to be zero unless site-specific geotechnical information is provided that supports a different value); and divide by 27 to convert to cubic yards." ("Additional Information Required by the Executive Director for Proposed Shoreline Armoring Projects", Part IV. Coastal Resource Impact and Mitigation Assessment", in electronic letter from Coastal Commission coastal planner Katie Butler to Norbert Dall, December 14, 2020, Page 6). In our Phase I Geotechnical Investigation Report Update (April 6, 2020), Phase I As-Built Geotechnical Investigation Memorandum (August 5, 2020), and Phase II Supplemental Geotechnical Investigation Report (October 13, 2020), we analyzed potential respective project alternatives and identified/ recommended the environmentally preferred feasible alternative. The analyses of beach quality sand supply mitigation herein in turn address those recommended environmentally least damaging Phase I and Phase II alternatives.

Part 3 - Phase I Impact on Sand Supply Volume

3.1 Pre-April 16, 2020 *In Situ* Beach Quality Sand Supply Mitigation

CDP A-3-PSB-02-016 Special Condition 8, "Public Access/Sand Supply Mitigation", required payment of a $10,000 in-lieu fee to either the City of Pismo Beach or the State Coastal Conservancy to mitigate impacts on public access and sand supply from the 121 Indio Drive upcoast seawall segment and mid- to down-coast cutoff wall, bluff shotcrete facing repair and enhancements, bluff drainage enhancements, and associated development, as well as from the 125 Indio Drive seawall segment and associated development, and the Florin Street End right-of-way seawall, regional drainage, and associated development. Because that in-lieu fee payment mitigated

previously calculated impacts on beach sand supply from development approved in CDP A-3-PSB-02-016, and no additional sand loss is associated with their *in situ* maintenance, *in situ* repair, or *in situ* replacement, those components of these recommendations should require no further mitigation.

Marine erosion of the sea cave on 121 Indio Drive between 2013/2018 and March, 2020 mobilized ±70 cubic yards of Tmp bedrock to the back beach and nearshore environment/littoral sub-cell. From that deposition, 8% (± 5.6 cubic yards) likely has decomposed, or will decompose, into beach quality sand based on our laboratory analysis. During our inspection of the interior of the sea cave in March, 2020, and of the exterior (variously seaward facing) sides of the Tmp first in March-April, 2020 and again in December, 2020, we determined that it contained no free sand lenses or pockets. The sea cave erosion on 121 Indio Drive has not extended into the overlying Qt (as of December 15, 2020), and thus has produced no additional beach quality sand from it. (Our Phase I Report Update, April 6, 2020; Phase II Supplemental Geotechnical Investigation Report, October 13, 2020, Figures 3, 4, and 5; and site monitoring observations on December 15, 2020). Because the contribution to beach sand supply from the sea cave formation occurred prior to the protective infill, the infill did not block any beach sand contribution from within the caving infill footprint that would trigger sand supply-based mitigation.

3.2 *In Situ* Beach Quality Sand Supply Mitigation During Phase I Construction, April 16-29, 2020

Consistent with the Phase I project description in the application for the ECDP, construction of the Phase I sea cave infilling placed all (± 4 cubic yards) of the accreted (identified clean) beach quality sand found on the 121 Indio Drive sea cave floor on-site along the property's adjacent back beach plane for beach nourishment. In addition, good construction housekeeping, minimization of the construction area during each work day, end-of-work day removal and offsite disposal of any construction debris and work day monitoring/reporting functioned to avoid any Phase I project-associated deterioration of beach sand quality. These impact avoidance and housekeeping measures thus fully avoided any (all) potential Phase I project impacts on *in situ* beach sand quantity and quality during Phase I construction of the sea cave infilling that might otherwise have required mitigation.

3.3 Coastal Commission Staff Sand Supply Impact Formula Analysis (Post-April 29, 2020) for Phase I

Calculations based on the Coastal Commission staff beach sand supply formula using our site-specific dimensional, laboratory, project economic life, shoreline retreat and survey data (as itemized below) indicate that over the proposed maximum 20-year

economic life of the Phase I sea cave infill (as a function of the engineered economic life of the Phase II cutoff wall that is proposed to protect the sea cave infill against marine erosion and destabilization) will likely prevent a projected 36.2 cubic yards of beach quality sand from becoming mobilized through direct, flanking, and undercutting erosion. Thus, Vb = 36.2 cubic yards, where:

1. S = 7.54%;
2. W = 61 feet;
3. L = 20 years;
4. R = 0.54 feet/average annualized year (1955-2002);
5. hs = 0 (the sea cave infill is not designed as armoring; the Phase II cutoff wall and 400 sf bluff shotcrete facing constitute the project shoreline protective structures against marine erosion);
6. hu = 39.3 feet (the average height of the bluff in March, 2020);
7. Rcu = 0.54 feet per year; and
8. Rcs = 0.54 feet per year.

The following discussion further elucidates our determination of the above parameters.

Fraction of Beach Quality Material in the Bluff (S)

We analyzed Engineering Geologic Cross Sections 1-1', 2-2', 3-3', and 4-4' of our April 6, 2020 report and determined that the average bluff height from the back beach elevation to the bluff edge on the Phase I project area is 39.3 feet, the average portion of that bluff height comprised of Pismo Formation (Tmp) bedrock is 13.2 feet and the average portion of bluff height comprised of Terrace Deposits (Qt) is 26.1 feet. Consequently, the average fraction of combined Pismo Formation bedrock and Terrace Deposits bluff material that could degrade into beach quality sand is 7.54%, or S = 7.54%.

Width of the Property to be Armored (W)

The width of the seaward edge of the sea cave mouth on 121 Indio Drive in which the Phase I shotcrete infill was placed in the bluff Tpm is 61 feet, or W = 61 feet. However, as discussed in this letter, by design and construction the unreinforced sea cave infill does not constitute a shoreline protective structure against marine erosion, but rather relies on the necessary Phase II reinforced cutoff wall, downcoast (400 sf) bluff stabilization, and associated specified measures to protect the sea cave infill against direct, flanking, and undercutting marine erosion.

Design Life of Structure (L)

The design life of the Phase I project, as a result of the 15 to 20 year economic life of the Phase II cutoff wall and downcoast (400 sf) bluff stabilization, is 15 to 20 years, or maximum L = 20 years.

Long Term Average Annual Erosion Rate (R)

As part of our geotechnical investigation conducted in 2003, we evaluated the long term average annual erosion rate of the bluff in front of 121 Indio Drive by taking measurements of several aerial photographs over a 47-year period from 1955 through 2002 and prepared a map showing toe and top of bluff for 1955 through 2002 (Figure 9, Historic Seacliff Retreat Map, of our 2003 report). We have in addition reviewed aerial images flown in and after 2002, as well as our drone images flown in 2020, and have determined that the top of bluff (bluff edge) in the area of the recently formed and infilled Phase I sea cave has remained essentially constant along it. We plotted the location of the Phase I sea cave infill on our Historic Seacliff Retreat Map (2003 Report Figure 9) and measured the retreat distance at 10-foot intervals along the Phase I sea cave infill and averaged the retreat distance for the entire Phase I area (see Exhibit 1). The average bluff edge retreat distance was 35.4 feet over 65 years (1955 through 2020), resulting in an average annualized long-term rate, R = 0.54 feet per year. Physical bluff retreat is, of course, volumetrically both episodic (in major failure events) as well as subareal and cumulative by small individual increments associated with higher high tides, superelevated (storm) water and exfiltrating groundwater.

Height of the Armoring Structure (hs) and Height of the Unprotected Upper Bluff (hu)

As noted above, the completed Phase I unreinforced shotcrete sea cave infill by design and construction does not constitute a shoreline protective structure ("armoring"), but rather requires the proposed Phase II replacement cutoff wall and its downcoast 7-foot extension, along with a 4-foot long return wall along the 121-117 Indio Drive property line) and the downcoast (400 sf) bluff stabilization for protection against marine erosion. However, if one applies the Coastal Commission staff parameter definitions[3] to solving staff's "shoreline sand supply" formula, the height of the Phase I sea cave infill for Phase I (which contains no "armoring" structure), calculated by averaging the bluff heights measured at Engineering Geologic Cross Sections 1-1', 2-2', 3-3' and 4-4' is: hs = 0 feet. While the bluff above the Phase I sea cave infill is already

[3] *See* Exhibit 2 for the Part IV Beach Quality Sand Supply Impact Coastal Resource Impact and Mitigation Assessment Checklist.

protected by pre-Coastal Act and CDP-authorized shotcrete facing, the recently formed sea cave prior to completion of Phase I flanked and undercut this shotcrete facing and rendered it, and the bluff it covers, functionally "unprotected" against continued direct, flanking, and undercutting marine erosion and consequent near-term catastrophic failure of the bluff (and the residence on the adjacent bluff top). Therefore, hu = 39.3 feet, the full height of the bluff averaged from Engineering Geologic Cross Sections 1-1', 2-2', 3-3' and 4-4'.

Predicted Bluff "Crest" Retreat Rate Unarmored (Rcu) and Armored (Rcs)

Using the Coastal Commission staff's parameter definitions, the bluff edge ("bluff crest") unarmored retreat rate and armored rate are the same, since the bluff on 121 Indio Drive above the sea cave without its Phase I infilling is subject to catastrophic failure within a year. Consequently, both Rcu and Rcs would be equal to R, or Rcu = 0.54 feet per year and Rcs = 0.54 feet per year.

Volume of Beach Material that Would Have Been Supplied to the Beach If Natural Erosion Continued (Vb)

Application of the Coastal Commission staff formula indicates that the volume of beach quality sand that would have been supplied to the beach if "natural" marine erosion, absent the necessary associated Phase II replacement cutoff wall and downcoast (400 sf) bluff stabilization ("quasi-natural erosion"), over their economic life of 15 to 20 years, is: Vb = 36.2 cubic yards.

Phase I Beach Quality Sand Supply Mitigation Schedule

We recommend that projected (potential worst case) reduction in beach quality sand supply from project impacts be mitigated on site through a sequenced and proportionate volumetric *in situ* beach quality sand replenishment on the back beach plane at 121 Indio Drive. As part of this mitigation, sand deposition should occur during years 1, 5, 10, 15 and 20 after the Coastal Commission approval date of the Phase I regular CDP amendment application. We further recommend that the beach quality sand replenishment for Phase I construction be coordinated with implementation of the Phase II beach quality sand mitigation proposed in Part 4, below, for the separate additional beach quality sand impacts from new cutoff wall locations and downcoast (400 sf) bluff stabilization (to avoid double counting), with monitoring/reporting as provided in Part 5.4, "Phase II Monitoring, Reporting, and Adaptive Management", of our Supplemental Geotechnical Investigation Report (October 13, 2020).

Part 4 – Phase II Impact on Sand Supply Volume

Proposed Phase II consists of two parts.[4] Phase IIA consists of a cutoff wall *in situ* replacement along 55 lineal feet of coastal width, the beach quality sand supply impacts from which were mitigated in 2004. In addition, Phase IIA proposes 15 lineal feet of coastal width cutoff wall in a new (recontoured landward) location, with a 7-foot downcoast extension to the 121-117 Indio Drive property line, a new 6-foot long landward-trending return wall along the property line to resist flanking erosion, and downcoast residual sea cave infilling (± 5 cy), as a result of further marine erosion. The Phase IIB stabilization of 400 sf of downcoast bluff consists of slope restoration grading and three tiebacks (with *in situ* beach nourishment of all encountered clean beach quality sand), engineered new shotcrete facing, associated drainage enhancements, and native vegetation restoration. We recommend that the clarified Phase II CDPA contain a proposal to mitigate the resultant (not otherwise mitigated) beach quality sand impacts with proportionate, sequenced beach quality sand mitigation during the to 20-year economic life of these components.

4.1 Phase IIA

Calculations based on the Coastal Commission staff beach sand supply formula using our site-specific dimensional, laboratory, project economic life, shoreline retreat, and survey data (as itemized below) indicate that over the proposed maximum 20-year economic life of the specified Phase IIA cutoff wall replacement along the proposed new partial alignment, downcoast (7-foot) extension of the (reinforced, 7,500 psi) cutoff wall to the 121-117 Indio Drive property line, construction of the 6-long return wall along the property line, and the residual downcoast sea cave infill will prevent projected (potential worst-case) 165.9 cubic yards of beach quality sand from becoming mobilized through direct, flanking, and undercutting erosion of the bluff that would otherwise likely occur absent the cutoff wall, downcoast (400 sf) bluff stabilization, and the sea cave infilling. Thus, Vb = 165.9 cubic yards, where:

1. S = 7.54%;
2. W = 70 feet;
3. L = 20 years;

[4] *See* our Maintenance/Repair/Restoration/ Protection - Phase II Supplemental Geotechnical Investigation Report, 121 Indio Drive Coastal Bluff Erosion and Under-Cutting Pismo Beach, California, dated October 13, 2020).

4. R = 0.54 feet per average annualized year (1955-2020);
5. hs = 39.3 feet;
6. hu = 0 feet;
7. Rcu = 0.54 feet per year; and
8. Rcs = 0 feet per year.

The following discussion further elucidates the above parameters.

Fraction of Beach Quality Material in the Bluff (S)

We analyzed Engineering Geologic Cross Sections 1-1', 2-2', 3-3', 4-4' and 5-5' of our April 6, 2020 report and determined that the average bluff height from the back beach elevation to the bluff edge on the Phase I project area is 39.3 feet, the average portion of that bluff height comprised of Pismo Formation (Tmp) bedrock is 13.2 feet and the average portion of bluff height comprised of Terrace Deposits (Qt) is 26.1 feet. Consequently, the average fraction of combined bedrock and Terrace bluff material that could degrade into beach quality sand is 7.54%, or S = 7.54%.

Width of the Property to be Armored (W)

The coastal width of the seaward edge of the sea cave mouth on 121 Indio Drive in which the proposed Phase IIA cutoff wall will be placed (and the bluff above it) is 70 feet, or W = 70 feet.

Design Life of Structure (L)

The design life of the Phase IIA project is 15 to 20 years, or maximum L = 20 years.

Long Term Average Annual Erosion Rate (R)

As part of our geotechnical investigation conducted in 2003, we evaluated the long term average annual erosion rate of the bluff in front of 121 Indio Drive by taking measurements of several aerial photographs over a 47-year period from 1955 through 2002 and prepared a map showing toe and top of bluff for 1955 through 2002 (Figure 9, Historic Seacliff Retreat Map, of our 2003 report). We have in addition reviewed aerial images flown since 2002, as well as our drone images flown in 2020. The top of bluff (bluff edge) has remained essentially constant where it has been protected by pre-Coastal Act and CDP-authorized bluff shotcrete facing, in contrast to the recent (March, 2020) and subsequent bluff failures in the area of the downcoast property line. We plotted the location of the Phase IIA cutoff wall on our Historic Seacliff Retreat Map (see

Exhibit 1 – CSA 2003 Report Figure 9) and measured the retreat distance at 10-foot intervals along the Phase IIA cutoff wall and averaged the retreat distance for the entire Phase IIA area. The average bluff retreat distance for 1955 through 2020 (Figure 9) was 35.3 feet over 65 years, resulting in an average rate, R = 0.54 feet per year.

Height of the Armoring Structure (hs) and Height of the Unprotected Upper Bluff (hu)

Using the Coastal Commission staff parameter definitions, the height of the armoring structure for the Phase IIA cutoff wall will extend a few (2 to 4) feet above the shotcrete infill, and will also tie into repaired existing or engineered new (400 sf) shotcrete bluff-face covering. Consequently, for purposes of calculating loss of sand supply, the height of the proposed Phase IIA shoreline protective reinforced cutoff wall ("armoring") is essentially the height of the bluff, or maximum hs = 39.3 feet and, since that covers the whole height of the bluff, the unprotected portion during the Lmax = 20 years, hu = 0 feet.

Predicted Bluff Crest Retreat Rate Unarmored (Rcu) and Armored (Rcs)

Using the Coastal Commission staff parameter definitions, the bluff edge ("bluff crest") retreat rate unarmored, Rcu, would be the same as the long term average annual erosion rate, R, and the armored rate would be zero. Consequently, Rcu = 0.54 feet per year and Rcs = 0 feet per year.

Volume of Beach Material that Would Have Been Supplied to the Beach If Natural Erosion Continued (Vb)

If the Coastal Commission staff formula were strictly applied, the projected volume of beach quality sand that would have been supplied to the beach if "quasi-natural erosion" continued, Vb, calculates to be Vb = 165.9 cubic yards over Lmax = 20 years.

4.2 Phase IIB

Calculations based on the Coastal Commission staff beach sand supply formula using our site-specific dimensional, laboratory, project economic life, shoreline retreat, and survey data (as itemized below) indicate that over the proposed maximum 20-year economic life of the Phase IIB downcoast (400 sf) bluff stabilization, with an engineered bluff shotcrete facing, will likely prevent projected 12.6 cubic yards of beach quality sand from becoming mobilized through direct, flanking, and undercutting erosion. Thus, projected Vb = 12.6 cubic yards, where:

1. S = 7.35%;
2. W = 20 feet;
3. L = 20 years;
4. R = 0.40 feet/average annualized year (1955-2020);
5. hs = 29 feet;
6. hu = 0 feet;
7. Rcu = 0.40 feet per year; and
8. Rcs = 0 feet per year.

The following discussion further elucidates the above parameters.

Fraction of Beach Quality Material in the Bluff (S)

We analyzed Engineering Geologic Cross Section 5-5' of our Phase II Supplemental Geotechnical Investigation Report (Figure 9) and determined that the bluff height in the Phase IIB project area (downcoast 400 sf, above the Phase II cutoff wall) is 29 feet, with that bluff height comprised primarily of Terrace Deposits (Qt) with about 2 feet of that bluff height composed of Tmp bedrock. Consequently, the fraction of Terrace bluff material that could degrade into beach quality sand is 7.35%, or S = 7.35%.

Width of the Property to be Armored (W)

The width of the Phase IIB tied-back shotcrete on 121 Indio Drive is 20 feet, or W = 20 feet.

Design Life of Structure (L)

The design life of the Phase IIB project is 15 to 20 years, or maximum L = 20 years.

Long Term Average Annual Erosion Rate (R)

As part of our geotechnical investigation conducted in 2003, we evaluated the long term average annual erosion rate of the bluff in front of 121 Indio Drive by taking measurements of several aerial photographs over a 47-year period from 1955 through 2002 and prepared a map showing toe and top of bluff for 1955 through 2002 (Figure 9, Historic Seacliff Retreat Map, of our 2003 report). We have also reviewed aerial images flown since 2002, as well as our drone images flown in 2020 and the top of bluff has remained relatively constant along the entire 121 Indio Drive property with the

exception of the recent (March, 2020) failure at the downcoast property line. We plotted the location of the Phase IIB upper bluff tied-back shotcrete on our Historic Seacliff Retreat Map (2003 Report Figure 9) and measured the retreat distance at 10-foot intervals along the Phase IIB tied-back shotcrete and averaged the retreat distance for the Phase IIB area. The average bluff long-term retreat distance was 25.7 feet over 65 years (1955 through 2020), resulting in an average rate, R = 0.40 feet per year. The Phase IIB 400 sf of bluff stabilization is designed to protect against episodic large scale failures such as those that recently occurred (March, 2020 and since) on the adjacent downcoast property at 117 Indio Drive.

Height of the Armoring Structure (hs) and Height of the Unprotected Upper Bluff (hu)

Using the Coastal Commission staff parameter definitions, the height of the armoring structure for Phase IIB tied-back shotcrete will extend from the top of the Phase IIA cutoff wall to the bluff edge (top of bluff line). Consequently, for purposes of calculating loss of sand supply, the height of the proposed new engineered bluff face shotcrete ("armoring") is essentially the height of the bluff above the Phase I cutoff wall, or hs = 29 feet, and, since the upper bluff will be protected, hu = 0 feet.

Predicted Bluff "Crest" Retreat Rate Unarmored (Rcu) and Armored (Rcs)

Using the Coastal Commission staff parameter definitions, the unarmored bluff edge ("bluff crest") retreat rate, Rcu, for the Phase II area would be the same as the long term average annual erosion rate, R, and the armored rate for Lmax=20 years would be zero. Consequently, Rcu = 0.40 feet per year and Rcs = 0 feet per year.

Volume of Beach Material that Would Have Been Supplied to the Beach If Natural Erosion Continued (Vb)

Application of the Coastal Commission staff formula identifies the volume of beach quality sand that would be supplied to the beach if "natural erosion" continued during Lmax = 20 years to be Vb = 12.6 cubic yards. We note that our calculations for Phase IIA included that area calculated for Phase IIB. Consequently, in order to avoid duplication of sand loss volumes, Vb for Phase IIB should be considered to be zero, or Vb = 0 cubic yards.

Phase II Beach Quality Sand Supply Mitigation Schedule

We recommend that projected (potential worst case) reduction in beach quality sand supply from project impacts be mitigated on site through a sequenced and

proportionate volumetric *in situ* beach quality sand replenishment on the back beach plane at 121 Indio Drive. As part of this mitigation, sand deposition should occur during years 1, 5, 10, and 15 after the Coastal Commission approval date of the Phase II regular CDP amendment application. We further recommend that it be coordinated with implementation of the Phase I beach quality sand mitigation proposed in Part 3, above, with monitoring/reporting as provided in Part 5.4, "Phase II Monitoring, Reporting, and Adaptive Management", of our Supplemental Geotechnical Investigation Report (October 13, 2020).

Part 5 - Catastrophic Bluff Failure Scenario

Had the Phase I shotcrete infill not been constructed pursuant to emergency CDP G-3-20-0025, it is likely that the bluff above the sea cave (and Tmp and Qt to landward of it) would have failed within one year from March, 2020, endangering your 1950's era home; and additional generations or continuations of observed (December 15, 2020) sea cave propagation would have resulted in additional episodic failures that would extend over the next 20 years. In order to estimate the volume of beach sand production from such a series of failures, we plotted our best estimate of the maximum failure envelopes over a 20-year period on our Engineering Geologic Cross Sections 1-1', 3-3' and 5-5' (by extending a 45-degree failure envelope angle up from the back of the sea cave) and calculated the volume of bluff material that would have been involved in the series of failures required to evacuate the Tmp bedrock and Terrace Deposits above this failure envelope. Using this methodology (separate from the Coastal Commission staff formula), we calculated a total bluff volume of 472.6 cubic yards of Tmp bedrock and 1,130.2 cubic yards of Terrace Deposits likely to fail over a 20-year period. Based on our 2003 analyses indicating that 8.0% of Tmp bedrock and 7.3% of Terrace Deposits degrade into beach quality sand, we further calculated that these combined failure deposits would produce (projected) 154.8 cubic yards of beach quality sand over a 70-foot wide area. It is our opinion that this scenario would be applied to the implementation of Phases I, IIA and IIB combined.

SAND REPLENISHMENT DUPLICATION OF VOLUMES

CDP A-3-PSB-02-016 authorized the cutoff wall downcoast from the seawall return wall on 121 Indio Drive, to extend along 48.4 feet to the downcoast restored/enhanced bluff shotcrete facing return wall, and vertically from within the cutoff wall keyway to the base of that restored/enhanced bluff shotcrete facing, with a 14-foot width downcoast sea cave grout wall to prevent direct and flanking erosion of the fractured Tmp, and unconsolidated Qt above it, from a then-newly propagated sea cave in the Tmp (CDP, 2003; CDP-conformed/authorized as-built plans, referenced Drawing No. C-5, Sheet 5 of 11, 2005). The total coastal width of that authorized

combined shoreline protective structure, including the return wall and the grouted sea cave, is 59 feet. Pursuant to CDP Special Condition 8, the sand supply mitigation fee (in relevant part) for that authorized structure was paid as a condition precedent to CDP issuance, and no additional sand supply mitigation fee was required for the sea cave grout wall. In relevant parts, the installed Phase I shotcrete infill contributes to bluff stability and the proposed Phase II cutoff wall restores and replaces the wave-damaged cutoff wall (permitted by CDP A-3-PSB-02-016) along portions of the 59 feet of 2003-authorized and 2004-mitigated alignment. Neither the Phase I infill nor the proposed Phase II cutoff wall along that 59-foot long alignment therefore generate additional sand loss impacts beyond those already mitigated by payment of the in-lieu fee in 2004 through 2078, and no further sand supply mitigation should now be required for already mitigated portions of the shotcrete infill and 59-foot cutoff wall restoration and replacement.

Beach quality sand supply mitigation should be required pursuant to the Coastal Act for the 7.2-foot seaward length of the Phase I sea cave infill and for the 16.2-foot seaward width of the proposed Phase II downcoast cutoff wall (including the Phase IIA residual downcoast sea cave infill [± 5 cubic yards] to landward of it, and the Phase IIB downcoast bluff stabilization [400 square feet] above it) not previously mitigated under CDP A-3-PSB-02-016. The Phase I unmitigated sand loss component constitutes 11.8% of the beach quality sand supply volume that we calculated in Part 3 above and the Phase II unmitigated sand loss component constitutes 23.1% of the beach quality sand supply volume that we calculated in Part 4 above. Volumetrically, 11.8% of 36.2 cubic yards is 4.3 cubic yards of beach quality sand for Phase I and 23.1% of 165.9 cubic yards is 38.3 cubic yards of beach quality sand for Phase II. Pursuant to our worst-case catastrophic bluff collapse projection of beach quality sand loss over the 20-year economic life of the proposed Phase I and Phase II components, 23.1% of the Phase I and Phase II projected 154.8 cubic yards of beach quality sand loss is 35.8 cubic yards. Therefore, the Phase I CDPA should propose 4.3 cubic yards of beach quality sand, and, using the higher of the two beach quality sand loss projected volumes calculated, the Phase II CDPA should propose 38.3 cubic yards, both sequenced, proportionate (Years 1, 5, 10, 15 and 20) sand-supply mitigations on the back beach, landward of the 4.62 foot MHTL of your property at 121 Indio Drive, Pismo Beach.

RECOMMENDATIONS

Based on our detailed, site-specific calculations conducted following the formula required by Coastal Commission staff, we recommend that (1) the Phase I CDPA project description be clarified to specify beach quality sand mitigation in Years 1, 5, 10, 15, and 20 of 4.3 cubic yards of beach quality sand, at a rate of 0.9 cubic yards per said Year, and (2) the Phase II CDPA project description be clarified to specify beach quality sand

mitigation in Years 1, 5, 10, 15, and 20 of 38.3 cubic yards of beach quality sand, at a rate of 7.7 cubic yards per said Year. We further recommend - for optimized and efficient band quality sand nourishment - that implementation of the Phase I and Phase II beach quality sand mitigation occur concurrently at the rate of 8.6 cubic yards during said Years.

LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted engineering geology and geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work, by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. Our services are limited to our 2002-2005 geotechnical investigation and construction services and 2020-2021 review of documents and photographs, site reconnaissance, topographic surveying, construction observation, geologic and engineering analyses and preparation of this letter-report.

We appreciate the opportunity to provide our professional services to you. If you have any questions regarding this report, or need additional information, please contact us.

Very truly yours,

COTTON, SHIRES AND ASSOCIATES, INC.

REGISTERED PROFESSIONAL ENGINEER
PATRICK O. SHIRES
No. 770
GEOTECHNICAL
STATE OF CALIFORNIA

Patrick O. Shires
Senior Principal Geotechnical Engineer
GE 770

PROFESSIONAL GEOLOGIST
JOHN MICHAEL WALLACE
No. 1923
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

John M. Wallace
Principal Engineering Geologist
CEG 1923

POS:st
Attachments:
Exhibit 1 - Figure 9, Historic Seacliff Retreat Map, from CSA January 2003 Report
Exhibit 2 - Detailed Part IV Sand Supply Impact Coastal Resource Impact and Mitigation Assessment Checklist

Exhibit 1 – Figure 9, Historic Seacliff Retreat Map from CSA January 2003 Report (Annotated to Show Phase I, Phase IIA and Phase IIB Bluff Retreat Rates from 1955 Through 2020)

FLORIN STREET

125

121

Top of Bluff

2020 Top of Bluff

Toe of Bluff

GROUND OBSCURED

MHTL

Phase IIB Width

Phase IIB Average = 25.7'/65 years = 0.40 ft/yr

26' 26' 25'

Phase I Width

Phase I Average = 35.4'/65 years = 0.54 ft/yr

45' 41.5' 40' 41' 29' 26.5' 24.5'

Phase IIA Width

Phase IIA Average = 34.9'/65 years = 0.54 ft/yr

45' 41' 40' 43' 33.5' 26' 26' 25'

REFERENCE: Golden State Aerial Surveys

ANNOTATED TO SHOW PHASE I, PHASE IIA AND PHASE IIB BLUFF RETREAT RATES FROM 1955 THROUGH 2020

0' 20' 40'

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

HISTORIC SEACLIFF RETREAT MAP

121 AND 125 INDIO DRIVE
PISMO BEACH, CALIFORNIA

GEO/ENG. BY	SCALE	PROJECT NO.
TPS	1" = 20'	E0222
APPROVED BY	DATE	FIGURE NO.
POS	JANUARY, 2003	9

FEBRUARY, 2021

Exhibit 2 - Detailed Part IV Sand Supply Impact Coastal Resource Impact and Mitigation Assessment Checklist

1. The least the least environmentally damaging feasible solution based on the alternatives analysis.
2. The detailed analysis of mitigation measures designed to avoid impacts if possible.
3. Mitigation of any unavoidable coastal resource impacts resulting from the project.
4. Impacts to shoreline sand supply from retention of sand and sand generating materials: The equation to be used is Vb = (S x W x L) x [(R x hs) + (1/2hu x (R + (Rcu - Rcs)))]/27, where: Vb is the volume of beach material that would have been supplied to the beach if natural erosion continued (this is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the armoring); S is the fraction of beach quality material in the bluff material; W is the width of property to be armored; L is the design life of structure (if assumed a value of 1, an annual amount is calculated); R is the long term average annual erosion rate; hs is the height of the armoring structure; hu is the height of the unprotected upper bluff; Rcu is the predicted rate of retreat of the crest of the bluff during the period that the armoring structure would be in place, assuming no armoring were installed (this value can be assumed to be the same as R unless site-specific geotechnical information is provided that supports a different value); Rcs is the predicted rate of retreat of the crest of the bluff, during the period that the armoring would be in place, assuming the armoring has been installed (this value will be assumed to be zero unless site-specific geotechnical information is provided that supports a different value); and divide by 27 to convert to cubic yards." (Additional Information Required by the Executive Director for Proposed Shoreline Armoring Projects, "IV. Coastal Resource Impact and Mitigation Assessment", bullet 1, sub-bullet 1, at unmarked page 3 of 4.) Notably, Commission staff in its additional information request does not define its core term,"shoreline", in relation to NAVD88 or any other any datum.
5. Options for in-kind improvements to address identified impacts.
6. All compensatory mitigation shall be evaluated over 20-year increments.
7. Identification of all site (and adjacent) property lines and the mean high tide Elevation.
8. Geologic conditions of the site and surrounding area.
9. Waves, tide and current information and trends over time.
10. Seasonal beach profiles and trends over time.
11. Erosion trends over time.
12. Historic episodic erosion events at the site and nearby.
13. The date of construction of the subject structure(s) seeking shoreline protection.
14. How the structure is currently used (as a primary residence, as a rented guest house consistent with its historic use, etc.).

15. Complete permitting history including any coastal development permits, building permits, etc.
16. The dates and scope of any modifications to the structure(s), including identifying exactly what has been replaced/reconstructed over the years.
17. Location on the site of the structures/development requiring protection.
18. Distance from the blufftop edge (if applicable).
19. Elevation (ideally using NAVD88 as the vertical datum).
20. Size and configuration.
21. Structural support mechanisms (e.g., spread foundation or slab).
22. Age.
23. Development/permitting history (including reference to all coastal permits).
24. All development in the area seaward and inland of the at-risk structures/development should also be so described (e.g., decks, fencing, etc.
25. All such structures/development identified should be shown on the project plans.
26. Physical description of the erosion and/or site stability problem at this location that is affecting the structures/development in question.
27. Identification of the site's underlying geology.
28. Unique characteristics of the property, bluff/site anomalies and/or other relevant site and surrounding area characteristics.
29. Forms of erosion taking place.
30. Long-term average annual erosion rate for the site (based on photogrammetric analysis, LiDAR data, peer-reviewed studies and reports, etc.) quantified in terms of distance per year (e.g., 6 inches per year). The long-term average annual erosion rate should be broken down separately for any differing geologic units to the extent that these long-term rates differ (e.g., erosion for the upper bluff terrace deposits may differ from erosion for a harder lower bluff substrate).
31. Past episodic and/or rapid erosion events, based on recent observations from the project site or nearby areas of comparable geology.
32. Expectations for near-term (three to five years) changes to the site, considering current erosion and related conditions (including wave and storm conditions).
33. Expectations for longer-term changes, including with the effects of sea level rise.
34. For blufftop parcels only, quantitative slope stability analyses (including a description of the factors of safety for the site and structures on it, and a breakdowns, as appropriate, for the factors of safety applying to the full bluff profile (e.g., Purisma and overlying terrace deposits)).
35. Risks to the structures/development must be clearly demonstrated in terms of the length of time until the structure or development would be unsafe (e.g., because its foundation would be undermined) based upon identified and expected erosion/site instability in a "no project" scenario.
36. A detailed analysis of alternative options to address the identified erosion/site stability problem (i.e., identification of the range of "solutions" to the "problem").

This analysis should examine a range of options, including non-armoring alternatives.

37. At a minimum, and in addition to the no project alternative and the proposed project alternative, such analyses must include evaluation of: (a) relocation of any threatened structures, including an analysis of any technical feasibility questions and an estimate of expected costs to relocate; (b) partial removal of threatened elements, again with a clear analysis and estimate of how this would be accomplished; and (c) site drainage controls and native plant revegetation.
38. Expectations on the degree of protection for each alternative must be provided, including an estimate of the number of years of stability provided to the structures/development being protected (absent additional armoring or other measures) associated with each option.
39. A combination of different alternatives should be considered when appropriate (e.g., vegetation, surface water controls and periodic nourishment together; the use of incremental responses tied to identified triggers; etc.).
40. Identification of potential mitigation measures to address identified coastal resource impacts for each alternative.
41. Design conditions against which each alternative must be analyzed include (a) A seasonally eroded beach or extreme scour platform elevation seaward of the site.; (b) Design waves, based on a 100-year recurrence storm, and expected maximum site-specific wave uprush or overtopping elevation and rate, as appropriate; (c) Changes to beach and wave conditions with sea level rise, in increments of about 20 years, for the expected life of the structures/development being protected.
42. All alternatives should be analyzed to a similar level of detail across the same set of feasibility factors (i.e., it is not adequate to focus on the proposed project while only minimally analyzing other alternatives).
43. Identification of the least environmentally damaging feasible solution based on the alternatives analysis.

December 8, 2021

California Coastal Commission
North Coast District Office
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

To: Steve Padilla, Chair, California Coastal Commission

CC: Dan Carl, Central Coast District Director
Katie Butler, Coastal Program Analyst
Jack Ainsworth, Executive Director

Re: Item F11b Coastal Development Appeal No, A-3-PSB-21-0073 – Gentilcore

Dear Chair Padilla and Commissioners,

The Surfrider Foundation San Luis Obispo County Chapter (Surfrider) is dedicated to protecting all 80 miles of the County's beautiful coastline. The Surfrider Foundation is a non-profit, environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people. Surfrider offers the following comments regarding the Genticore seawall project as we strongly believe substantial issues exist with Pismo Beach's (the City's) approved Coastal Development Permit (CDP).

Our primary concern is that, in approving the CDP, the City has incorrectly interpreted the definition of the term 'existing,' as included in the City's Local Coastal Program and the Coastal Act to define entitlements to shoreline protective structures. The home at 117 Indio Drive was constructed in 2003, and the City's LCP and the Coastal Act are clear in that only 'existing' structures are entitled to shoreline protections:

Coastal Act Section 30235, Construction altering natural shoreline

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

The City's Land Use Plan, in addition to numerous supporting policies in its Implementation Plan, states:

> ***LUP Policy S-6 Shoreline Protective Devices.*** *Shoreline protective devices, such as seawalls, revetments, groins, breakwaters, and riprap shall be permitted only when necessary to protect existing principal structures, coastal dependent uses, and public beaches in danger of erosion.*

Staff is correct in citing the Commission's Sea Level Rise Policy Guidance to clarify that the definition of 'existing' has been well-established to refer to the date of enactment of the Coastal Act in 1976[1]. The City's failure to adhere to this policy is a factual misinterpretation of the Coastal Act and the City's LUP, and is also of serious consequence to future interpretation of the LCP and to the statewide understanding of Section 30235.

In a "Protecting Public Trust Shoreline Resources in the Face of Sea Level Rise" report to the California Coastal Commission last month, Dr. Charles Lester emphasizes the need for the Commission to carefully evaluate its approach to clarifying Section 30253 to avoid the aggregate effects of authorizing shoreline armoring at great public cost[2]. The report reasons that:

> "*In the last decade, the CCC has embraced what for many is the more logical and resource-protective position that "existing structures" refers only to those in existence at the time the Coastal Act came into effect (January, 1977). The alternative interpretation that "existing" means existing at the time of consideration does not make nearly as much sense when read in conjunction with the section 30253 requirement that new development be sited and designed to not require shoreline protection in the future.*[130] *It also arguably does not comport with the Coastal Act's direction to "liberally construe[]" its provisions to accomplish its purposes and objectives.*" (page 58, Protecting Public Trust Shoreline Resources)

The application before the Commission today is particularly clear-cut in the context of decisions involving interpretation of the term 'existing development': The structure seeking protection was built in a Hazard Overlay Zone as identified in the City's LUP and was specifically designed not to require shoreline armoring.

In short, Surfrider agrees with staff's report in its finding that "The City's approval of the CDP for this project raises fundamental issues with the way in which the LCP and the

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[1] https://documents.coastal.ca.gov/reports/2021/12/F11b/F11b-12-2021-report.pdf

[2] https://documents.coastal.ca.gov/assets/slr/Lester%20Prot%20Public%20Trust%20Res%20Face%20of%20SLR.pdf

Coastal Act are to be understood on such critical issues as safety hazards and shoreline armoring, including the ways in which armoring decisions affect the shoreline and the beach" (page 3, Staff Report.)

Surfrider urges commissioners to find substantial issue with this new 120-foot-long and 40-foot-high seawall project due to its detrimental impacts on local bluffs and beaches, and the negative precedent that such a decision will set for future decisions made by the City as well as future decisions made by this Commission. The ongoing privatization of public lands through armoring authorizations has confirmed the statewide importance of the Commission's work to clarify its reading of Coastal Act Section 30235.

Thank you for your consideration of Surfrider's comments.

Sincerely,

Melanie MacDowell
Chair
Surfrider Foundation San Luis Obispo
chair@slo.surfrider.org

Brad Snook
Vice Chair
Surfrider Foundation San Luis Obispo
vicechair@slo.surfrider.org

December 10, 2021

Reference: California Coastal Commission
Appeal Number: A-3-PSB-21-0073
Local Govt
Permit Number: P20-000059
Applicant: James Gentilcore
Agenda item # 11b on Friday December 17, 2021

In reference to the Appeal and the "Staff Report Substantial Issue Determination"

Commissioners,

Vote **YES**, that the motion shown in Appeal number A-3-PSB-21-0073 raises no substantial issue.

My wife and I are the property owners of 113 Indio Drive. We are retired school teachers and have lived full time at this location for over 35 years. Our property is immediately next-door and to the downcoast side of Jim Gentilcore.

Finding a "substantial issue" with this appeal will have a direct impact on our property as well as the obvious impact to Jim's property. A Coastal Permit was issued on August 13, 1997, for the construction of a seawall along our ocean frontage (A-3-PSB-97-015). The property on the upcoast side of Jim Gentilcore's property also has a permitted shoreline protection device. We are experiencing the known serious "flanking" of our seawall. Without the construction of a seawall on Jim's property our approved wall will soon fail to prevent erosion of our property. The upcoast protected property will also suffer erosion. The staff points out that seven out of the eight properties along this small beach area have some type of shoreline protection. Jim's property is the only one lacking protection.

I have read the 20-page Staff Report and reviewed the Exhibits. Although this report brings up questions regarding the process and approval of this project, I feel the points made are insignificant when considering the scope and complexity of this project and should not be considered to raise a "substantial issue" by the Staff's definition. Much of the Staff report deals with the definition of words and their intended meaning. Several places in the report, the Staff concedes that their interpretation and subsequent finding for a "substantial issue" could be argued and not found to be correct. In other words, the Staff might be wrong in their interpretation.

They are certainly wrong in their stated Second and Third Factors (page 18) suggesting that the "existing hard armoring at this pocket beach has contributed over time to lost beach----" The Staff uses Exhibit 3 to make their point. The photos shown in Exhibit 3 were taken without respect to the tide condition. Some taken at high tide and some at low. Over my 35+ years at this location I have not noticed any change whatsoever in the condition of the beach or beach access. On some days there is nothing but sand, some days it is all rock and some days at a high tide there is nothing but water.

The Staff's fourth and fifth factor (page 19) deal exclusively with how the City of Pismo Beach and other entities might interpret the Coastal Act and the LCPs. This should not be considered a part of this appeal. When City and State governments agencies cannot agree on processes and procedures for individuals to follow, the individual should not suffer in forced delays and additional financial expense. Put your staff to work solving the issues with local government and less time on 20-page appeals.

Do the right thing and dismiss this appeal. Pass this Staff motion with a YES vote that will result in a finding of No Substantial Issue and the local action will become final and effective.

Respectfully submitted,

Robert B. Conroy

Robert B. Conroy

113 Indio Drive

Pismo Beach, CA 93449

gen1rbc@gmail.com

805 440 5851

C: Mr. Jim Gentilcore (by email)