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W17a

Prepared July 6, 2010 (for July 7, 2010 hearing)

To: Commissioners and Interested Persons

From: Dan Carl, District Manager
Mike Watson, Coastal Planner

Subject: STAFF REPORT ADDENDUM for W17a
CDP Application Number 3-09-052 (Neal Sea Cave)

The purpose of this addendum is to modify the staff recommendation for the above-referenced item. Specifically, in the time since the staff report was distributed, the Applicants' engineer has raised issues with respect to constructability and feasibility of the staff recommended sea cave plug and fill. In particular, the Applicants' engineer contends that it is unnecessary and inappropriate to remove all existing upper bluff armoring materials (cemented sand bags, etc.), the remnant concrete slab and walls seaward of the home, and the rock fronting the sea cave per the staff recommendation.

With respect to the upper bluff materials, the Applicants' engineer concurs that any loose exterior material should be removed to ensure the long-term stability of the sea cave plug/fill, but that competent cemented materials would better be incorporated into the plug/fill than removed. The Applicants indicate that these remaining materials could be faced with the same plug/fill concrete and re-formed in a manner that mimics the surrounding native bluff material in form, color, and texture.

In terms of staff's recommendation that the existing remnant concrete pad and walls seaward of the residence be removed, the Applicants' engineer indicates that such removal could further destabilize the upper bluff area in the vicinity of the residence foundation and potentially cause a structural failure because elements of this concrete feature currently act as a retaining device providing what little support is left in this area of the upper bluff. In addition, the Applicants indicate that removal and disposal of this concrete feature would add a significant economic burden to the Applicants, causing the cost of the proposed repair to more than double. As an alternative to immediate removal, the Applicants propose to monitor these concrete elements, and to remove and dispose of any concrete that fails and/or that extends over the retreating bluff top edge over time.

Lastly, the Applicants propose to leave in place the existing rock seaward of the cave opening that appears to have migrated onto the intertidal zone in order to avoid disturbing any sea life that may be in existence at this location. The Applicants indicate that much of this material has migrated off-site and off-property, that there is no easy access to this location for removal, that the site is under water at all but the lowest tides of the year, and that removal may end up doing more harm than good.

Staff's recommended removal conditions were designed to ensure long-term stability and function of the proposed sea cave plug/fill, including by ensuring that these remnant materials did not harm the proposed fix over the long term, and to ensure that the erodable plug/fill functions as intended (to match the erosion of the surrounding bluff materials). Staff, including the Commission's coastal engineer, has

considered the Applicants' observations and believes that their proposed modifications will not affect the long-term stability of the project, including in terms of ensuring the erodability of the plug/fill project over time. Accordingly, the staff report is modified as shown below (where applicable, text in underline format indicates text to be added, and text in ~~strikethrough~~ format indicates text to be deleted):

1. Revise the following findings on page 13 of the staff report as follows:

- *Erodible Sea Cave Plug and Fill. The sea cave plug must be constructed of erodible concrete designed to match the surrounding bluff landform in slope, integral color and undulation, and compressive strength; must be keyed into competent bedrock at the base and sides of the sea cave so as to avoid any undercutting or scour of the cave entrance; must be constructed on the same vertical plane as the surrounding bluff and must extend from the bottom to the top of the natural bluff feature; and must include drainage to prevent buildup of water behind the plug. The fill behind the sea cave plug must be made up of a concrete sand slurry mix designed to simulate the surrounding bluffs in terms of integral color and compressive strength, and must include a soil cap to ensure long term bluff stability and effectiveness.*

- *Existing Rock and Armoring Materials. ~~The~~ Any existing loose armoring materials (including the existing concrete bags, rock, and cobbles cemented in place near the top of the sea cave entrance) must be removed in order to ensure ~~both construction period and~~ long term project stability and effective~~ness~~ integration into the sea cave plug/fill, including in terms of matching the surrounding bluff's look, color, texture, and erosion pattern. Existing armor rock and remnant armoring materials at the base of the bluff shall be removed as feasible at the time of construction. All ~~such~~ removed materials must be properly disposed of.*

- ~~*Concrete Removal. The old concrete pad and vertical concrete elements seaward of the residence must be removed in order to ensure both construction period and long term project stability and effectiveness, including in terms of matching the surrounding bluff's erosion pattern. All concrete materials shall be properly disposed of.*~~

2. Delete the following finding on page 20 as follows:

~~In this respect the existing concrete elements seaward of the residence present problems with respect to constructability and long term stability of the bluff area with the sea cave plug/fill, including as the site erodes over the 100 year design life of the project. The same applies to the existing armoring present in the bluff area. These concrete remnants and existing armoring would serve to exacerbate bluff stability issues with the approvable plug/fill project and need to be removed as part of this project to ensure long term project stability consistent with Section 30253 (see special condition 1b).~~

3. Revise the following finding on page 23 and 24 as follows:

The proposed sea cave plug would be designed to mimic natural bluff forms in the vicinity. If successful in this respect, the approved project would ~~eliminate~~ integrate the existing combination of rock and sand bag debris and replace it with a more natural looking landform and bluff appearance. The orientation of the sea cave fill relative to the trail views is such that the sea cave fill should be only minimally visible from public vantages. The sea cave fill can be colored to ensure its visible components effectively blend in with the natural bluff color. To further offset the visual impacts of the approvable alternative, Special Condition 1 requires that erodible concrete used to fill the sea cave, as well as any concrete facing on the sea cave plug, be colored to mimic the natural bluff face and its surface roughly undulated to match adjacent natural bluff undulation/texture as much as possible.[1] *In addition, the existing remnant armoring (i.e., rocks, cemented concrete filled sand bags, etc.) need to be ~~removed as opposed to being~~ incorporated into the approved project to ensure that they don't daylight over time and the resultant sea wall monitored to ensure ~~reduce~~ the effectiveness of the erodible concrete at mimicking surrounding bluff forms as much as possible, including over the 100 year design life of the project (see special condition 1(~~be~~). As conditioned, the project will minimize visual impacts along this bluff area and will not significantly alter scenic public views. Thus, the project, as revised, is consistent with Sections 30251 and 30240(b) of the Coastal Act.*

4. Revise Special Condition 1(b) as follows:

Removal of Existing Armoring ~~and Concrete~~. *~~All existing bluff armoring (including but not limited to all imported rock, concrete, and sandbags located generally in the upper bluff area above the entrance to the sea cave and on the shoreline surrounding the cave opening) and all remnant concrete elements in the bluff seaward of the residence shall be removed.~~ Existing loose armoring in the upper bluff area above the entrance to the sea cave and (including but not limited to all any imported rock, concrete, and sandbags) shall be removed. Existing armor rock and remnant armoring materials at the base of the bluff shall be removed as feasible at the time of construction. All such material removed shall be appropriately disposed of, and all disposal locations shall be noted. If any disposal location is located in the coastal zone, a separate coastal development permit may be required.*

5. Add Special Condition 1(e) as follows:

Retention of Upper Bluff Materials. *All structurally unsound or loose upper bluff materials including any imported rock, concrete, and sandbags, shall be removed and disposed at an approved location. Any remaining upper bluff rock and materials shall be incorporated into the sea cave plug/fill to match the surrounding bluff landform in slope, integral color and undulation, and compressive strength.*

6. Add Special Condition 7(i) as follows:

Future Debris Removal. *The Permittee shall immediately remove all concrete materials and/or debris*

[1] [footnote unaltered]

that may fall from the upper bluff and blufftop area inland of the blufftop edge and/or the plug/fill onto the shoreline below, and shall remove any concrete that protrudes seaward of the blufftop edge and re-contour the seaward edge of the remaining concrete in such as way to mimic the surrounding bluff landform and the edge of the plug/fill.

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Staff report prepared:	06/23/2010
Staff report prepared by:	Mike Watson
Staff report approved by:	Dan Carl
Hearing date:	07/07/2010

COASTAL DEVELOPMENT PERMIT AMENDMENT APPLICATION

Application number.....**3-09-052, Neal Sea Cave Plug/Fill**

Applicant.....Jack and Rita Neal

Project location .....At the toe of the bluff and seaward of the residence at 409 Indio Drive in the City of Pismo Beach (APN 010-175-009).

Project description.....Construct a concrete sea cave plug within a void in the coastal bluffs (coloring/texturing the outer face of the plug to mimic the natural bluff face), fill the cave behind the plug with cement slurry, and cap the top 5 feet of the fill area with topsoil, drainage improvements, and landscaping.

File documents.....Coastal Commission CDP files 3-09-052; City of Pismo Beach certified Local Coastal Program (LCP); *Geologic Coastal Bluff Evaluation, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-1,* prepared by GeoSolutions, Inc., dated June 8, 2009; *Geologic Coastal Bluff Evaluation Addendum – Sand Supply and Beach Encroachment, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-2,* prepared by GeoSolutions, Inc., dated September 2, 2009; *Engineering Geology Update: Coastal Bluff Failure, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-2,* prepared by GeoSolutions, Inc., dated February 14, 2010; *Geologic Coastal Bluff Evaluation Addendum 2: Concrete Comprehensive Strength, Revetment Face, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-2,* prepared by GeoSolutions, Inc., dated February 23, 2010; *Cultural Resource Inventory of the Neal Property, 409 Indio (APN 010-175-009) Shell Beach, California,* prepared by Ethan Bertrando, Bertrando & Bertrando Research Consultants, dated September 20, 2009.

Staff recommendation ...**Approval with Conditions**

A.Staff Recommendation

1. Summary of Staff Recommendation

The proposed project site is located at the toe of the bluff in the up-coast portion of the City of Pismo Beach. This section of the coastline is characterized by 40-foot tall bluffs consisting of shale bedrock of the Monterey formation, broken occasionally by moderate fractures. Due to the highly resistant nature of the lower bluffs in this location, there is very little armoring along the shoreline in the vicinity of the project site. The area directly inland of the bluff is developed with a two-story, single-family dwelling about 55 feet inland of the bluff edge, as well as a concrete pad with concrete walls on three sides that appears to be the foundation of a since abandoned structure at the edge of the bluff.

A sea cave has formed in the bedrock materials directly beneath the concrete pad and extending into the bluff to nearly below the foundation of the residence. A sinkhole approximately 10-feet in diameter has formed near the rear of the sea cave approximately 10-feet from the rear of the residence. The Commission's staff geologist has determined that the residence is in danger from erosion as that term is understood in relation to the Coastal Act. To address the danger to the residence, the Applicants propose to install an erodible concrete plug at the entrance to the sea cave with an artificial rock fascia designed to mimic natural bluff forms in color, texture, and compressive strength. A mix of concrete and sand slurry will be placed in the void behind the sea cave along with drainage improvements to prevent the buildup of water behind the plug. Soil will be placed on the top 5 feet of the sink hole and the area will be re-vegetated. The Applicants also propose to place colored shotcrete facing over existing concrete bags, rock, and cobbles in the upper bluff above the entrance to the sea cave, and drainage improvements near the front of the residence to intercept surface and sub-surface water and direct it inland to the City's storm drain infrastructure.

Shoreline armoring has a number of impacts on the coast, including but not limited to impacts from encroachment, fixing the back of the beach, and preventing the natural erosion of coastal bluffs that provide sandy material to the nearby beaches. As a result, the Coastal Act is premised on both hazard and shoreline armoring avoidance, where possible. "Soft" alternatives to protect the existing endangered structure are not feasible at this location, and a hard armoring alternative is appropriate. A sea cave plug/fill made up of erodible concrete, which would be recessed slightly into the opening of the sea cave, and sand slurry fill mix for the void in the bluff, will protect the residence while minimizing coastal resource impacts as compared with other forms of shoreline armoring (i.e., rip-rap, vertical walls, etc.). The Applicants proposal mostly provides for this appropriate response, but it is lacking in certain aspects (including addressing the project's relationship to the former concrete foundation and its relationship to future development on the site).

Therefore, staff recommends that the Commission approve a slightly modified sea cave plug/fill with erodible concrete, along with mitigations for the impacts of the revised project, including but not limited to: 1) removal of the existing unsound armoring and the structurally compromised concrete near the bluff edge; 2) use of appropriate best management practices to protect coastal resources during construction; 3) surface treatment of the sea cave plug/fill to match the appearance of the surrounding

bluffs, including any changes needed over time; 4) requirements for other agency approvals; 5) assumption of risk, waiver of liability and indemnity agreements for coastal hazards; 6) payment of an in-lieu fee of $2,287.50 to mitigate for the project's impacts to sand supply; 7) monitoring and maintenance of the as-built project; 8) limits on future development of the site, and; 9) recordation of a deed restriction against the parcels governed by this permit. As conditioned, the project can be found consistent with the Coastal Act. The motion to act on this recommendation is directly below.

2. Staff Recommendation on Coastal Development Permit

Staff recommends that the Commission, after public hearing, **approve** the proposed project subject to the standard and special conditions below.

Motion: I move that the Commission approve coastal development permit number 3-09-052 pursuant to the staff recommendation.

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

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

Report Contents

B.Findings and Declarations

The Commission finds and declares as follows:

1. Project Location, Background, and Description

A. Project Location

The proposed project site is located at the toe of the bluff and seaward of the residence at 409 Indio Drive in the Sunset Palisades planning area of the City of Pismo Beach. Indio Drive is located in a residential neighborhood of large seaside homes grouped fairly close together. Most residences have small yards and decks adjacent to the edge of the bluff. The shoreline seaward of these Indio Drive residences is comprised of a rocky intertidal area that is generally devoid of sandy beach area.

The Applicant's parcel is located at the northern end of the Sunset Palisades planning neighborhood, approximately three lots north of the Encanto cul-de-sac (see project location map in Exhibit A). This general area consists of a relatively flat coastal marine terrace along the southwestern flank of the Ontario Ridge hills. This specific section of the coastline is characterized by 40-foot tall bluffs consisting of shale bedrock of the Monterey formation, broken occasionally by tectonic deformation.

The upper soil layers that make up the top 10 to 12 feet of the coastal bluff are comprised of a combination of marine terrace deposits and some historic fill. These materials are prone to periods of prolonged saturation, and susceptible to erosion by runoff, rain, and wave attack. Due to the highly resistant nature of the lower bluffs in this location, there is very little armoring along the shoreline in the vicinity of the project site.

The subject parcel is developed with a two-story, single-family dwelling that is setback approximately 55 feet from the blufftop edge. There is a large concreted area with concrete walls on three sides at the rear of the residence that extends out to near the edge of the bluff face. This concrete area is currently used as a patio of sorts but appears to be the remnants of a foundation for a since abandoned structure of some sort. Some armoring (in the form of rip-rap boulders and cemented in place concrete filled sand bags) is currently present in the upper bluff at the foot of the concrete patio.[1] A sea cave has formed in the bedrock materials directly beneath the concrete patio (see photographs in Exhibit C), and has extended into the bluff to nearly below the foundation of the residence. The Applicants' geologic report indicates that the residential structure and rear yard development may have been constructed on a previously backfilled swale/ravine, and that the sea cave has propagated in the direction and depth of this feature. In other words, when the lot was originally created, apparently the ravine was graded and the sea cave is located in the area where the former swale/ravine intersected the bluff. The sea cave has expanded to about 42-feet wide as measured along the bluff face, and recedes approximately 55-feet into the bluff (from the toe of the bluff to just below the residence). A sinkhole approximately 10-feet in diameter has formed near the rear of the sea cave approximately 10-feet from the rear of the residence. Storm runoff, saturated soils, and wave energy directed into the sea cave have accelerated the erosion of the sinkhole in this area, jeopardizing the residence

See Exhibit A for project location maps and Exhibit C for photographs of the project site.

B. Background and CDP History

The Sunset Palisades planning area has a long and storied history. At the turn of the previous century, it was known as Oil Port and was quite different from today's residential Sunset Palisades area. Built with investor funds by California Petroleum Refineries Ltd., the plant was the site of an oil refinery, tank farm, and shipping facility. Plant operations commenced in the fall of 1907 and were set up to produce kerosene, gasoline, lubricating oil, and oil byproducts. Large storms and surf in December 1907 destroyed plant shipping facilities and the operations were shelved shortly thereafter. The refinery existed until just after World War II, when it was finally torn down. The land was sold, subdivided and ultimately replaced with housing.

City records on the original construction of the house at 409 Indio Drive are not available, though it appears from early 1970s aerial photography that the residence and rear yard improvements were constructed prior to commencement of coastal permitting requirements in 1973.[2] The lot size is roughly

[1] The coastal permit status of this existing armoring is unclear.

[2] Pursuant to 1972's Proposition 20, the Coastal Initiative.

100 feet by 140 feet, and the existing residence is setback approximately 55 feet from the edge of the bluff. It appears that the residential structure was constructed on top of a previously filled swale/ravine that may be the landward extension of the sea cave. A few two to four ton boulders, that appear to be the remnants of a previous rock revetment, are located along the base of the bluff and within the roof in the entrance of the sea cave. Cobble and boulders have accumulated within the floor of the sea cave to a depth of approximately 6 feet. There are also concrete sandbags covering the face of the bluff at the entrance to the sea cave. The rock rip-rap can been seen in aerial photographs dating back to the late 1970s. However due to the poor resolution of the photographs, it is not clear whether the concrete sandbags were placed with the original rock placement or were later installed to repair the revetment or for some other purpose. Also at a date unknown (pre-1972) a large concrete masonry structure was constructed over the southerly portion of the swale/ravine. Drainage was installed at the rear of and beneath the concrete patio. Broken PVC pipes can be seen along the back of the patio and under the concrete pad, and can be seen protruding from the bluff face. Steel pipes also can be seen within the sink hole, and these could be abandoned oil pipe lines from the historic oil refinery.

Based on review of materials in this CDP application process, it was determined that an emergency existed at this location that threatened the residence, and thus an emergency permit was issued in February 2010 to allow the Applicants to plug and fill the sea cave/sinkhole. The Applicants have chosen not to pursue the development authorized by the emergency permit, instead choosing to wait on the outcome of this CDP application proceeding

C. Project Description

The Applicants propose to install an erodible concrete plug at the entrance to the sea cave that would mimic the surrounding bluff in color, texture, and compressive strength. The plug would be setback from the face of the bluff and beneath the existing rock armoring to limit its visibility within the surrounding bluff. The Applicants further propose to back-fill the sea cave void behind the plug with a concrete and sand slurry mix. Weep holes and drainage infrastructure would be incorporated into the sea cave plug and backfill material to prevent the buildup of water behind the plug. The sand slurry mix would be filled to approximately 5 feet from the surface grade of the property. The remaining five feet would be backfilled with compacted soil and planted. The proposal also includes placing colored shotcrete facing over the existing rock, concrete bags, and cobbles. Drainage improvements are proposed near the front of the residence to intercept surface and sub-surface water and direct it to the City's storm drain infrastructure.

See Exhibit B for project plans and see Exhibit C for photographs of the project site.

2. Coastal Development Permit Determination

The proposed project falls within the Commission's retained jurisdiction and thus the standard of review is the Coastal Act. As relevant, the City of Pismo Beach certified LCP can provide non-binding guidance.

A. Geologic Conditions and Hazards

1. Applicable Policies

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

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

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

> ***Section 30253.*** *New development shall do all of the following:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

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

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

2. Analysis

A. Existing Structure to be Protected

For the purposes of shoreline protective structures, the Coastal Act distinguishes between development that is allowed shoreline armoring, and development that is not. Under Section 30253, new development is to be designed, sited, and built to allow the natural process of erosion to occur without creating a need for a shoreline protective device. Coastal development permittees for new shorefront development are thus making a commitment to the public (through the approved action of the Commission, and its local government counterparts) that, in return for building their project, the public will not lose public beach access, offshore recreational access, sand supply, visual resources, and natural landforms, and that the public will not be held responsible for any future stability problems.

In addition, the Commission has generally interpreted Coastal Act Section 30235 to apply only to existing principal structures. The Commission must always consider the specifics of each individual project, but has generally found that accessory structures (such as patios, decks, gazebos, stairways, etc.) are not required to be protected, or can be protected from erosion by relocation or other means that do not involve shoreline armoring. The Commission has at times permitted at-grade structures within geologic setback areas recognizing that they are expendable and capable of being removed rather than requiring a protective device that would alter natural landforms and processes along bluffs, cliffs, and beaches.

Coastal Act 30235 allows for shoreline protection in certain circumstances (if warranted and otherwise consistent with Coastal Act policies) for "existing" structures. One class of "existing structures" refers to those structures in place prior to the effective date of the Coastal Act. Coastal zone development approved and constructed prior to the time the Coastal Act went into effect was not subject to Coastal Act and/or LCP requirements. Although some local hazard policies may have been in effect prior to the Coastal Act, these pre-Coastal Act structures have not necessarily been built in such a way as to avoid the future need for shoreline protection (in contrast to those evaluated pursuant to the certified LCP).

A second class of existing structures refers to those structures that have been permitted since the effective date of the Coastal Act. There has long been discussion that these structures should not constitute "existing structures" for purposes of Section 30235 because they were developed pursuant to 30253 (and/or similar LCP) standards so as not to require shoreline armoring in the future. The Commission, though, has, in some cases, interpreted "existing" to mean structures existing at the time the armoring proposal is being considered, whether these structures were originally constructed before or after the Coastal Act, and has not limited consideration of armoring only to those structures constructed prior to the Coastal Act.

And finally in more recent years, the Commission has required applicants for bluff-top structures to waive any right to a seawall that may exist pursuant to Section 30235; in other words to stipulate that they are not existing structures for 30235 purposes because the structures have been sited and designed to not need shoreline armoring in the future (pursuant to Section 30253 and LCP counterpart policies).

In this case, the structure for which protective armoring is being considered pre-dates the coastal

permitting requirements of both 1972's Proposition 20 (the Coastal Initiative) and the 1976 Coastal Act. The residence can be seen in a photograph taken from offshore in 1972 (see page 1 of Exhibit C). As such, the residence qualifies as an existing structure for purposes of Section 30235. On this point it is noted that the concrete elements seaward of the residence also appear in pictures from 1972. However, these concrete elements are not the principle structure for which protection is sought, rather the residence is. These concrete elements are better understood as accessory development at this site, and their protection is not part of the proposed project. In other words, they are not considered existing structures for the purposes of this Section 30235 analysis. Rather, these concrete elements are better understood and addressed in relation to the way they affect potential responses to erosion at this site.

B. Danger from Erosion

The Coastal Act allows shoreline armoring to protect existing structures in danger from erosion, but it does not define the term "in danger." There is a certain amount of risk involved in maintaining development along a California coastline that is actively eroding and can be directly subject to powerful storms, large waves, flooding, earthquakes, and other geologic hazards. These risks can be exacerbated by such factors as sea level rise and localized geography that can focus storm energy at particular stretches of coastline. As a result, some would say that all development along the immediate California coastline is in a certain amount of "danger." It is a matter of the degree of threat that distinguishes between danger that represents an ordinary and acceptable risk, and danger that requires shoreline armoring per 30235. Lacking Coastal Act definition, the Commission's long practice has been to evaluate the immediacy of any threat in order to make determinations as to whether an existing structure is "in danger." While each case is evaluated based upon its own particular set of facts, the Commission has generally interpreted "in danger" to mean that an existing structure would be unsafe to occupy within the next two or three storm season cycles (generally, the next few years) if nothing were to be done (i.e., in the no project alternative).

Reports Submitted

The Applicant has submitted the following geotechnical evidence to support the contention that the existing residence is in danger from erosion, and that the proposed project is appropriate:

- *Exploration of Sink Hole, 409 Indio Drive, Shell Beach, California, File No.: SL-14437-SA,* prepared by Earth Systems Pacific, dated December 29, 2004.

- *Geologic Coastal Bluff Evaluation, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-1,* prepared by GeoSolutions, Inc., dated June 8, 2009.

- *Geologic Coastal Bluff Evaluation Addendum – Sand Supply and Beach Encroachment, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-2,* prepared by GeoSolutions, Inc., dated September 2, 2009.

- *Geologic Coastal Bluff Evaluation Addendum 2: Concrete Comprehensive Strength, Revetment Face, 409 Indio Drive, APN 010-175-009, Shell Beach Area, Pismo Beach, California, Project No. SL07063-2,* prepared by GeoSolutions, Inc., dated February 23, 2010.

Each of these reports has slightly different purposes and information. The December 2004 Earth Systems Pacific report describes the mergence of the sea cave and sink hole at the site. The June 8, 2009 GeoSolutions (GSL) geologic investigation of the property describes the site conditions prior to submittal of the CDP application, and recommends a sea cave plug and sand slurry fill mix within the void beneath the bluff. The September 2, 2009 GSL report estimates sand supply loss due to the proposed sea cave plug construction, as well as a discussion of beach encroachment and loss of beach. The February 14, 2010 GSL report provides an update on the condition of the sea cave and sinkhole and recommends immediate implementation of all identified measures needed to forestall ongoing wave attack and erosion. The February 23, 2010 GSL report includes an estimate on the strength of the surrounding bluff material with recommendations for the minimum concrete compressive strength for the proposed sea cave plug.

Analysis

The Commission's staff geologist, Dr. Mark Johnsson, has reviewed the relevant geologic evidence provided and has concluded that the residence is immediately threatened by continued erosion of the sea cave, enlargement of the sink hole,[3] and slope instability. If the bluff's stability is not enhanced in the near term, including by forestalling coastal erosion at the entrance to the sea cave and on the surface surrounding the sink hole, and by reestablishing slope stability, then the residence could be undermined by continued erosion and related bluff instability. The foundation for the existing residence is founded within the soil layers that make up the top 10 – 12 feet of the coastal bluff. The upper bluff is comprised of a combination of marine terrace deposits and fill, both of which are prone to periods of prolonged saturation and slumping. Accordingly, without immediate action, there is a very high potential that future expansion of the sea cave will translate up the former swale/ravine feature in the bluff and undermine the terrace deposits at the foot of the residence foundation.

The Commission concludes that the residence qualifies as an existing structure in danger from erosion for purposes of Section 30235.[4]

C. Feasible Protection Alternatives to a Shoreline Structure

The third Section 30235 test that must be met is that the proposed armoring must be "required" to protect the existing threatened structure. In other words, shoreline armoring can be permitted if it is the only feasible alternative capable of protecting the structure.[5] When read in tandem with other applicable

[3] The GSL February 14, 2010 report observed that extreme marine conditions were exacerbating erosion of the sea cave via mechanical weathering of the sea cave walls, which in turn was leading to an enlarging of the sinkhole near the residence.

[4] And that the concrete elements do not so qualify as existing structures in danger from erosion for purposes of Section 30235.

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

Coastal Act policies cited in these findings, this Coastal Act 30235 evaluation is often conceptualized as a search for the least environmentally damaging feasible alternative that can serve to protect existing endangered structures. Other alternatives typically considered include: the "no project" alternative; relocation of the threatened structures; sand replenishment programs; drainage and vegetation measures on the bluff-top itself; and combinations of each. Several of these alternatives and the reasons why they are not feasible alternatives to protect the existing endangered residential structure are discussed briefly below.

Alternatives Evaluation

- No Project Alternative. The consequence of the "no project" alternative would be the near term collapse of the sea cave/sinkhole, which would result in the residence being undermined, and could possibly result in portions of the residence itself falling into the resultant hole Based on the information provided, such a scenario appears likely in the very near future if action is not taken to forestall wave attack and establish slope stability.

- Relocate the Residence Landward. The option of moving the residence landward is constrained by the difficulties in picking up and moving the house, and by a lack of space on the inland side of the property. In fact, the "C"-shaped residence is located 15 feet from the Indio Drive road right-of-way, and thus there is very little room for movement without encroaching on this area. The house could also be redesigned (i.e., demolished and rebuilt) in a way that places more habitable space landward of the existing development in this area. However, neither solution addresses slope instability on the seaward half of the site. In other words, even if the existing residence were moved or reconstructed in this way, it would still be endangered in the fairly near term. And any such option would be extremely difficult and would have impacts on the public roadway.

- Drainage Measures Only. The drainage option involves collecting site runoff from downspouts and impervious surfaces and directing it either to the base of the bluff or the City's storm water infrastructure. While beneficial in reducing surface erosion, it only addresses one aspect of slope instability and would appear to be insufficient in abating the threat and protecting the residence over time. Drainage measures are best understood as important elements in overall project to address the threat at this location, but on their own would be of limited utility in protecting the residence. In order to be successful they must be installed in combination with bluff stabilization measures.

- Gravity Wall. Gravity walls include rock revetments, gabion walls, concrete walls, etc. Rip-rap is a typical type of gravity wall, and is sometimes pursued (particularly as an emergency temporary measure) because it is less expensive than other alternatives and relatively easy to install. In this case, however, a rip-rap revetment might be successful in diminishing/absorbing wave action at the entrance to the sea cave, but would not provide sufficient support to the existing sea cave which is threatening to collapse. It would also not be able to effectively contain and optimize any sink hole slurry. Failure of the sea cave and/or expansion of the sink hole will lead to undermining and slumping of the bluff materials in the vicinity of the residence foundation. Furthermore, rip-rap tends to have a much larger footprint than other forms of gravity armoring, has a greater visual impact, and

the armor stones are prone to moving or migrating away from the structure, requiring ongoing maintenance and retrieval.

- Beach Replenishment. In general, regional programs to promote beach building (through beach nourishment, sand bypass, etc.) can reduce both the rate of erosion and the need for armoring. Such programs are, however, expensive and their record in terms of effectiveness at building and maintaining beaches has been spotty. Moreover, during storm periods, such newly formed beach sands are likely to be moved offshore by wave action and not provide adequate protection against large storms. In this case, there currently is no sandy beach in this location, and the shore area is generally under water at most times of the day/month. There is also no regional beach building program in pace in Pismo Beach. Imported sand, particularly on an individual property basis as opposed to a larger and more regional programmatic basis, would likely be washed away quickly and provide little protection against wave attack and further erosion of the sea cave.

Alternatives Conclusion

In this case, the "no project" alternative is not viable because the existing threatened structure would not be protected without some form of project that fixes the sinkhole, addresses surface and subsurface water in the vicinity of the house foundation, and resolves the bluff stability issues associated with the geology of this site, including the historic swale/ravine feature. In light of the specific geological factors at play in this case, "soft" solutions alone are likewise infeasible. It is clear that there are some non-armoring alternatives that could be pursued at this location, but it is equally clear that they are either infeasible or would not be sufficient to protect existing endangered structures for any length of time. Rather, there are alternatives that could possibly extend the useful life of setbacks at this location. But, given the limited amount of space available, and the degree of threat currently to the structure (and as would continue in the future absent armoring), the useful life of the setback would not be expanded significantly in this case – and certainly not enough to protect the residential structure at this location, including because it is currently insufficient to do so.

Given the geological danger area that applies to about half the site, and thus the infeasibility of moving the house or even major portions of it out of harms way, some form of a hard armoring project is necessary in this case. Based on the evaluations of the site, including an analysis of feasible alternatives, the nature of the bluff materials and the ground water conditions present in the bluff dictate that an approvable alternative needs to address slope stability, subsurface and surface drainage control, and landscaping to help stabilize exposed soils. In designing such a project, the intent is to ensure that it is the least environmentally damaging feasible alternative in that respect (see also findings that follow). It is clear that an erodible sea cave plug would best form the basis for an approvable project. It would have the smallest footprint extending seaward from the bluff and could be colored and contoured to mimic the bluff landform at this location. Such a plug would not be sufficient to protect the stability of the upper bluff alone, and would need to be installed in tandem with a sea cave void fill and drainage improvements to fully protect the residence from catastrophic bluff collapse. The Commission's staff coastal engineer has reviewed the relevant studies and concurs that such a project must include the following components:

- Erodible Sea Cave Plug and Fill. The sea cave plug must be constructed of erodible concrete designed to match the surrounding bluff landform in slope, integral color and undulation, and compressive strength; must be keyed into competent bedrock at the base and sides of the sea cave so as to avoid any undercutting or scour of the cave entrance; must be constructed on the same vertical plane as the surrounding bluff and must extend from the bottom to the top of the natural bluff feature; and must include drainage to prevent buildup of water behind the plug. The fill behind the sea cave plug must be made up of a concrete sand slurry mix designed to simulate the surrounding bluffs in terms of integral color and compressive strength, and must include a soil cap to ensure long term bluff stability and effectiveness.

- Existing Rock and Armoring Materials. The existing armoring materials (including the existing concrete bags, rock, and cobbles cemented in place near the top of the sea cave entrance) must be removed in order to ensure both construction period and long term project stability and effectiveness, including in terms of matching the surrounding bluff's erosion pattern. All such materials must be properly disposed of.

- Concrete Removal. The old concrete pad and vertical concrete elements seaward of the residence must be removed in order to ensure both construction period and long term project stability and effectiveness, including in terms of matching the surrounding bluff's erosion pattern. All concrete materials shall be properly disposed of.

- Drainage Control. The project must include drainage measures near the front of the residence at Indio Drive to intercept subsurface water (e.g., through use of a curtain drain) currently piping through the site toward the sink hole and ocean, and instead to direct it away from the sink hole and bluff edge. There needs to be as many such drainage mechanisms as are necessary to intercept enough of the subsurface drainage so that it doesn't collect to such a degree behind the sea cave plug as to cause structural stability problems. Subsurface drainage features must be supplemented by a surface drainage collection system designed to collect surface drainage before it can pool at or flow over the bluff-top edge. All drainage, with the exception of drainage in the plug itself necessary for its proper function, must be directed inland to the City's storm drain collection areas.

- Landscaping. All restored areas between the rear of the residence and bluff-top edge must be vigorously landscaped with drought-tolerant bluff species native to the Pismo Beach area. All non-native and invasive species must be removed.

Thus, in this case, the Commission finds that a hard structure is required to protect the existing structure in danger, but that the only hard structure that can be found consistent with the LCP in this regard is the above-described plug/fill, drainage, and landscaping project. Because the proposed project does not entirely track these approvable project parameters, Special Condition 1 requires submittal of revised plans that are in substantial conformance with these parameters (see Special Condition 1).

D. Sand Supply Impacts

The fourth test of Section 30235 (previously cited) that must be met in order to allow Commission

approval is that shoreline structures must be designed to eliminate or mitigate adverse impacts to local shoreline sand supply.

Shoreline Processes

Beach sand material comes to the shoreline from inland areas, carried by rivers and streams; from offshore deposits, carried by waves; and from coastal dunes and bluffs, becoming beach material when the bluffs or dunes lose material due to wave attack, landslides, surface erosion, gullying, et cetera. Coastal dunes are almost entirely beach sand, and wind and wave action often provide an on-going mix and exchange of material between beaches and dunes. Many coastal bluffs are marine terraces – ancient beaches which formed when land and sea levels differed from current conditions. Since the marine terraces were once beaches, much of the material in the terraces is often beach quality sand or cobble, and a valuable contribution to the littoral system when it is added to the beach. While beaches can become marine terraces over geologic time, the normal exchange of material between beaches and bluffs is for bluff erosion to provide beach material. Bluff retreat and erosion is a natural process resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration. When the back-beach or bluff is protected by a shoreline protective device, the natural exchange of material either between the beach and dune or from the bluff to the beach will be interrupted, and, if the shoreline is eroding, there will be a measurable loss of material to the beach. Since sand and larger grain material is the most important component of most beaches, only the sand portion of the bluff or dune material is quantified as sandy beach material.

These natural shoreline processes affecting the formation and retention of sandy beaches can be significantly altered by the construction of shoreline armoring structures since bluff retreat is one of several ways that beach quality sand is added to the shoreline, and is one of the critical factors associated with beach creation/retention. Bluff retreat and erosion is a natural process resulting from many different factors (such as erosion by wave action causing cave formation, enlargement and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration); shoreline armoring directly impedes these natural processes.

The subject site is located within a sub-cell of the Santa Maria Littoral Cell between Point Buchon and Point Sal. Because the shoreline is aligned nearly parallel to the prevailing wave direction, net longshore transport carries a relatively small volume of sand in this cell, estimated to be approximately 60,000 cubic yards of beach quality materials annually.[6] The dominant direction of longshore transport in this sand supply system is north north-west to south south-east. Materials in this system have been estimated to come mainly from coastal streams and rivers, bluffs, and from coastal ravines and sand dunes.

Some of the effects of engineered armoring structures on the beach (such as scour, end effects and modification to the beach profile) are temporary or are difficult to distinguish from all the other actions that modify the shoreline. Others are more qualitative (e.g., impacts to the character of the shoreline and visual quality). Some of the effects that a shoreline structure may have on natural shoreline processes

[6] United States Army Corps of Engineers (USACOE), Los Angeles District, 1986.

can be quantified, however, including: (1) the loss of the beach area on which the structure is located; (2) the long-term loss of beach which will result when the back beach location is fixed on an eroding shoreline; and (3) the amount of material which would have been supplied to the beach if the back beach or bluff were to erode naturally.[7]

Fixing the back beach

Experts generally agree that where the shoreline is eroding and armoring is installed, as is the case here, the armoring will eventually define the boundary between the sea and the upland. On an eroding shoreline, a beach will exist between the shoreline/waterline and the bluff as long as a sufficient amount of sand is available to form a beach. As bluff erosion proceeds, the profile of the beach expands both due to the inland expansion of the area upon which a beach can form and due to the contribution of beach quality material from the bluff. If the seaward edge of the beach is moving inland (i.e. there is beach erosion), the newly created inland beach area will replace the lost or eroded seaward area of beach and the beach and bluff will move inland as a connected system. This process stops, however, when the backshore is fronted by a hard protective structure such as a revetment or a seawall. While the shoreline on either side of the armor continues to retreat, shoreline in front of the armor eventually stops at the armoring. The beach area will narrow, being squeezed between the moving shoreline and the fixed backshore. Eventually, there will be no available dry beach area and the shoreline will be fixed at the base of the structure. In the case of an eroding shoreline, this represents the loss of a beach as a direct result of the armor, and is known as passive erosion.

One cause of beach erosion is sea level that has been rising slightly for many years. The rise in sea level moves the wet/dry beach position farther inland and allows high waves to impact the back shore on a more frequent basis. Also, there is a growing body of evidence that there has been an increase in global temperature and that acceleration in the rate of sea level rise can be expected to accompany this increase in temperature. Climate experts have indicated that sea levels along the California coast could rise as much as 23 to 55 inches (60 to 140 centimeters)[8] by the year 2100; other experts project situations where the sea level rise could exceed 6 feet (1.9 to 2 meters) by 2100.[9] Mean water level affects shoreline erosion several ways, and an increase in the average sea level will exacerbate all these conditions. On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore. On an armored shoreline, this will lead to a more rapid loss of the beach since normal inland migration is no longer possible.

In this case, the base of the bluff is not sandy beach per se, but rather is made up of a rocky intertidal

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

[8] Climate Action Team (2010) Biennial Report, http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

[9] Pfeffer, W.T., J. T. Harper, and S. O'Neel (2008) Kinematic Constraints on Glacier Contributions to 21st-Century Sea-Level Rise *Science* Vol. 321. no. 5894, pp. 1340 – 1343; DOI: 10.1126/science.1159099; Vermeer, Martin, and Stefan Rahmstorf (2009) Global sea level linked to global temperature, PNAS, www.pnas.org_cgi_doi_10.1073_pnas.0907765106.

area that has historically been inundated with water at all but the lowest tides. The bluffs are estimated to have an average annual long-term erosion retreat rate of between 2 to 4 inches per year. The Commission has established a methodology for calculating passive erosion, or the long-term loss of beach due to fixing the back beach. This impact is equivalent to the footprint of the bluff area that would have become beach due to erosion and is equal to the long-term erosion rate multiplied by the width of property, which has been fixed by a resistant shoreline protective device and the time period over which the armor will be in place.[10] In this case, the passive erosion question is applicable to the intertidal area as opposed to sandy beach, but the impact calculation methodology is the same.

Provided the erodable concrete works as proposed (to match erosion of the surrounding bluffs), the proposed project would not have a passive erosion impact. The sea cave opening is roughly parallel to the general shoreline orientation, and the fill of this area would erode at the same rate as the upcoast unarmored bluff-toe and surrounding bluff. In other words, the bluff would be expected to continue to erode at its demonstrated long-term rate along with the erodable plug/fill area.[11] In order to ensure that this is they case (and avoid a passive erosion impact), the plug/fill would need to be monitored and maintained in such a way as to ensure that it actually did erode consistent with the natural bluffs (see special condition 6).

Thus, because there would be no "fixing" of the back beach with the approvable project, no mitigation would be required for passive erosion associated with it.

Encroachment

Shoreline protective devices are all physical structures that occupy space. When a shoreline protective device is constructed, the underlying area cannot be used for recreational access, and the area in question also ceases to provide contribution to shoreline sand supply. This generally results in a loss of public access as well as a loss of sand and/or areas from which sand generating materials can be derived. The area where the structure is placed will be altered from the time the protective device is constructed, and the extent or area occupied by the device will remain the same over time, until the structure is removed or moved from its initial location, or in the case of a revetment, as it spreads seaward over time. The area located beneath a shoreline protective device, referred to as the encroachment area, is the area of the structure's footprint.

It can be difficult to determine the degree to which the area on which protective devices are placed might contribute materials to the shoreline sand supply system, including in terms of appropriately determining an downward erosion rate. As a result, the Commission has historically evaluated this impact in terms of the encroachment leading to a loss of recreational use and recreational value due to the loss of available shoreline area. In this case, the sea cave plug/fill is proposed to be recessed into the

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

[11] If, however, the concrete fill were not erodable, there would be a passive erosion impact. The erodable fill allows this impact to be avoided.

entrance of the sea cave a minimum of 5 feet and though it is designed at approximately 4-feet in width at its base, it would be located entirely within the natural drip line of the bluff. The concrete fill will be designed to erode at a rate similar to that of the adjacent unarmored bluff. The intertidal area lost due to encroachment will initially be within the unstable cave area and as the bluff retreats, the intertidal area within the cave will become available for use just as much as the shoreline area is now adjacent to the cave. Most importantly, this area is not accessible for access, and the encroachment area will not have an impact in this respect.

Retention of Potential Beach Material

If natural erosion were allowed to continue (absent the proposed sea cave plug/fill), some amount of beach material would be added to the beach/intertidal area at this location, as well as to the larger littoral cell sand supply system fronting the bluffs. Because littoral drift at this location is from up to downcoast (north to south) the impact would be relatively more towards the Sunset Palisades than upcoast along Pirates Cove. The volume of total material that would have gone into the littoral system over the lifetime of the shoreline structure would be the volume of material between (a) the likely future bluff face location with shoreline protection; and (b) the likely future bluff location without shoreline protection. Since the main concern is with the sand component of this bluff material, the total material lost must be multiplied by the percentage of bluff material which is beach sand, giving the total amount of sand which would have been supplied to the littoral system for beach deposition if the proposed device were not installed. The Commission has established a methodology for identifying this impact.[12]

In this case, the Applicants indicate that this impact would be roughly 0.915 cubic yards of sand per year that would be retained based on a retreat rate of 2 inches per year. The Commission's geologist and coastal engineer concur that this figure is consistent with the amount that would be determined using the Commission's methodology.

Therefore, applying that 0.915 cubic yard per year figure, the sea cave plug/fill would retain a total of 91.5 cubic yards of sand material over its design lifetime (100 years).

Sand Supply Impacts Conclusion

The proposed project would be expected to result in quantifiable sand supply impacts. There would be a direct sand material loss impact due to retention of bluff material of approximately 0.915 cubic yards of

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

sand each year for a total of 91.5 cubic yards over the 100 year design life. The Applicants have not proposed any mitigation for this impact. Without compensating mitigation, the proposed project is inconsistent with the fourth test of Section 30235.

It has proven difficult over the years to identify appropriate mitigation for such impacts. Partly this is because creating an offsetting beach area is not an easy task, and finding appropriate properties that could be set aside to become beach area over time (through natural processes, including erosion) is difficult both due to a lack of such readily available properties and the cost of such coastal real estate more broadly. As a proxy, other types of mitigation typically required by the Commission for such direct sand supply impacts have been in-lieu fees and/or beach nourishment, and in some cases compensatory beach access improvements. With regards to beach nourishment, a formal sand replenishment strategy can introduce an equivalent amount of sandy material back into the system over time to mitigate the loss of sand that would be caused by a protective device over its lifetime. Obviously, such an introduction of sand, if properly planned, can feed into the Santa Maria Littoral Cell sand system to mitigate the impact of the project. However, as opposed to other areas with established programs (e.g., SANDAG in San Diego) there are not currently any existing beach nourishment programs directed at this location. Absent a comprehensive program that provides a means to coordinate and maximize the benefits of mitigation efforts in the area now and in the future, the success of piecemeal mitigation efforts, such as an Applicant-only project to drop equivalent amounts of sand over time at this location, is questionable.

With respect to using beach access improvements to offset impacts, such mitigation is typically applied by the Commission to public agencies that are in the beach management business when they have applied for armoring projects.[13] It is more difficult to put the burden for a public project on a private applicant and thus such mitigation is atypical.[14] In addition, the Commission is currently unaware of any specific projects in the Pismo State Beach area that could benefit from such mitigation at this time.

As an alternative mitigation mechanism, the Commission oftentimes uses an in-lieu fee when in-kind mitigation of impacts is not available.[15] In situations where ongoing sand replenishment or other appropriate mitigation programs are not yet in place, the in-lieu mitigation fee is deposited into an account until such time as an appropriate program is developed and the fees can then be used to offset the designated impacts. When mitigation funds are pooled in this way for multiple projects in a certain area, the cumulative impacts can also be better addressed inasmuch as the pooled resources can sometimes provide for a greater mitigation impact than a series of smaller mitigations based on individual impacts and fees. In this case, the Commission finds that an in-lieu fee is the most appropriate and reasonable mitigation method given the above described factors.

Thus, in order to mitigate for the project's identified sand supply impact, this approval is conditioned for

[13] For example, recreational access improvements offsetting sand supply impacts along the Pleasure Point shoreline area of Santa Cruz County as part of the Commission's approval of a seawall fronting East Cliff Drive (CDPs A-3-SCO-07-015 and 3-07-019).

[14] Although the Commission has applied such a requirement for this type of impact before (see, for example, CDP 3-02-107, Podesto).

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

an in-lieu fee (see Special Condition 9). The fee is based on the volume of sand equivalent to the quantified impacts and the cost to replace this volume of sand.[16] The cost to supply beach quality sand varies widely, and averages about $25 per cubic yard in the Pismo Beach area.[17] Based on the cost estimates to supply sand to this location of $25 per cubic yard, the 91.5 cubic yards of sand translates into a fee of $2,287.50 to be paid into a fund for beach access improvements. In this case the $2,287.50 fee amount is premised on a 100-year presumed life of the structure. Consistent with current Commission practice regarding shoreline protective devices, at the end of the anticipated life of the structure the structure would need to be removed or replaced, and the need for a new fee (or similar mitigation) evaluated. Under Special Condition 9 the fee must be deposited into an interest-bearing account to be established and managed by State Parks or another appropriate entity. The sole purpose of the fee/account shall be for public beach recreational access improvements at Pismo State Beach.

By conditioning the project to for the in lieu fee, the sand supply impacts associated with the project can be appropriately offset. As such, the project thus satisfies the fourth test of Section 30235, and it can be found consistent with the provisions of Section 30235 of the Coastal Act.

E. Long Term Structural Stability

Pursuant to Coastal Act Section 30253 (previously sited), development is to be designed, sited, and built to allow for natural shoreline processes to occur without creating a need for additional more substantive armoring. Coastal development permittees for new shorefront development thus are essentially making a commitment to the public (through the approved action of the Commission, and its local government counterparts) that, in return for building their project, the public will not lose public beach access, sand supply, ESHA, visual resources, and natural landforms, and that the public will not be held responsible for any future stability problems. Coastal Act Section 30253 requires that the proposed project assure structural stability without the need for additional armoring.

In this respect the existing concrete elements seaward of the residence present problems with respect to constructability and long term stability of the bluff area with the sea cave plug/fill, including as the site erodes over the 100 year design life of the project. The same applies to the existing armoring present in the bluff area. These concrete remnants and existing armoring would serve to exacerbate bluff stability issues with the approvable plug/fill project and need to be removed as part of this project to ensure long

[16] As previously noted, the Applicant has not identified any impact to beach sand resources or any proposed mitigation. The sand supply method has been used in many cases by the Commission, although other methods have also been used, such as recent cases where beach surveys have been used to establish recreational values of beaches. In this case, shoreline use data and survey information is not readily available for this area, and it would be both costly and difficult to develop such information now. As a result, and as has been done in the past by the Commission, the replacement cost method is applied to this case.

[17] This figure is based on estimates from four commercial sand suppliers in the vicinity of the project (Cambria Rock; Winsor Construction; Santa Barbara Stone; and Air-Vol Block), as well as from other experiences the Commission has had calculating sand supply costs statewide. The four commercial quotes range in price from $20 per cubic yard to $44 per cubic yard. Other factors to consider include the cost of delivery, availability of materials, as well as possible economies of scale that could be achieved from larger-scale regional sand nourishment programs. For example, the City of Encinitas gets about 5,000 cubic yards of sand each year for a public volleyball beach area and they pay roughly $30 per cubic yard for sorted and washed sand. The general fee for sand for larger beach nourishment projects is closer to $12 per cubic yard. Based on the specific characteristics of this project, as well as comparisons to other similar type projects, a cost of $25 per cubic foot of beach sand delivered to the project site is reasonable.

term project stability consistent with Section 30253 (see special condition 1b).

Finally, the Applicant indicates that the project should last for 100 years or more. Provided the project is appropriately monitored and maintained over time, it should be able to be maintained in its design state and additional armoring can be avoided, consistent with Section 30253. Conditions are included to ensure that this monitoring and maintenance takes place (see special condition 7).

F. Geologic Conditions and Hazards Conclusion

Even if limited to the minimum amount necessary to protect the residence, the approvable project has a number of unavoidable impacts on the coast, including but not limited to impacts to sand supply. Special Condition 1 of this approval requires submission of revised project plans that clearly illustrate the installation of an erodible plug at the sea cave and on the same vertical plane as the surrounding bluffs. The plug shall be designed to mimic the surrounding natural bluffs in color and undulation. The project is also conditioned to require an in-lieu fee of $2,287.50 payable to the City of Pismo Beach or another appropriate entity to mitigate for the project's impacts to sand supply (Special Condition 9), and is also conditioned to require review and approval from the State Lands Commission[18] (see Special Condition 8).

Given that the project consists of an erodible sea cave fill, this approval is also conditioned to require monitoring (Special Condition 6) of the sea cave fill to ensure that it is eroding at a rate similar to the surrounding unarmored bluff, with maintenance requirements to modify the face of the fill if it is eroding at a slower rate than the surrounding unarmored bluff (Special Condition 7). Such future monitoring and maintenance activities must be understood in relation to clear as-built plans. Therefore, Special Condition 5 of this approval requires the submittal of as-built plans to define the footprint and profile of the permitted development.

In terms of recognizing and assuming the hazard risks for shoreline development, the Commission's experience in evaluating proposed developments in areas subject to hazards has been that development has continued to occur despite periodic episodes of heavy storm damage and other such occurrences. Development in such dynamic environments is susceptible to damage due to such long-term and episodic processes. Past occurrences statewide have resulted in public costs (through low interest loans, grants, subsidies, direct assistance, etc.) in the millions of dollars. As a means of allowing continued development in areas subject to these hazards while avoiding placing the economic burden for damages onto the people of the State of California, applicants are regularly required to acknowledge site hazards and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed.

There are inherent risks associated with development on and around seawalls and eroding bluffs in a dynamic coastal bluff environment; this applies to the project proposed as well as for the development landward of the bluff edges themselves. The approved project, and all development inland of it, is likely

[18] The State Lands Commission indicates that the proposed plug is located on State Lands' property and that the sea cave fill area may be located on State Lands' property as well.

to be affected by shoreline erosion in the future. Although the Commission has sought to minimize the risks associated with the development proposed in this application, the risks cannot be eliminated entirely. Given that the Applicants have chosen to pursue development despite these risks, the Applicants must again assume these risks. Accordingly, this approval is conditioned for the Applicants to assume all risks for developing at this location (see Special Condition 10). Additionally, all future development must be adequately setback from the unstable bluff areas including the outer bluff edge and sea cave fill. To address current and future bluff instability issues, Special Condition 4 prohibits any new development seaward of the existing residence and requires all setbacks be based on the slope stability necessary to provide long-term stability (i.e., a factor of safety greater than 1.5 for static conditions and 1.1 for pseudo-static conditions), combined with long-term erosion that takes into account the effects of sea level rise.

To ensure future property owners are properly informed regarding the terms and conditions of this approval, this approval is also conditioned for a deed restriction to be recorded against the property involved in the application that imposes the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the subject property (see Special Condition 12).

As conditioned, the project can be found consistent with the hazard polices of the Coastal Act as cited in this finding.

B. Public Access and Recreation

1. Applicable Policies

Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road (Indio Drive). Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

> ***30210.*** *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*
>
> ***30211.*** *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*
>
> ***30213.*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. …*
>
> ***30221.*** *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial*

recreational activities that could be accommodated on the property is already adequately provided for in the area.

30223. *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

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

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

These overlapping policies clearly protect shoreline access and offshore waters for public access and recreation purposes, particularly free and low cost access.

2. Analysis

As previously described, the shoreline at this location is generally a rocky intertidal area that is generally devoid of sandy beach area (see photos in exhibit C). There is currently no public recreational access to this shoreline area. As a result, the project will not directly affect public access resources at this location. That said, the project will have an effect on public recreational access resources in terms of its impact on sand supply, including the way in which that sand supply impact affects nearby sandy beach recreational areas, but that impact is appropriately addressed through the in lieu fee mitigation described in the coastal hazard finding above, and no additional mitigation is necessary to address public recreational access in that respect. Thus, the Commission finds that the project is consistent with the public access and recreation policies of the Coastal Act.

C. Visual Resources

1. Applicable Policies

Coastal Act Section 30251 states:

Section 30251. *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline*

Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Coastal Act Section 30240(b), previously cited, also protects the aesthetics of beach recreation areas such as those seaward of the bluffs here. Section 30240(b) states:

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

2. Analysis

The proposed sea cave plug would cover and alter a natural coastal landform in the bluffs along the Sunset Palisades neighborhood. As a result, the proposed project could negatively impact the public viewshed as seen from the water and nearby Cave Landing shoreline trails. Given the 100-year design life, such impact would continue for a significant length of time. However, because there is no beach here, and the shoreline trails are about 2,500 feet away from the subject site, this impact would be relatively small. Nonetheless, there would be an impact, including potentially over time as the bluff and the concrete erode.

The proposed sea cave plug would be designed to mimic natural bluff forms in the vicinity. If successful in this respect, the approved project would eliminate the existing combination of rock and sand bag debris and replace it with a more natural looking landform and bluff appearance. The orientation of the sea cave fill relative to the trail views is such that the sea cave fill should be only minimally visible from public vantages. The sea cave fill can be colored to ensure its visible components effectively blend in with the natural bluff color. To further offset the visual impacts of the approvable alternative, Special Condition 1 requires that erodible concrete used to fill the sea cave, as well as any concrete facing on the sea cave plug, be colored to mimic the natural bluff face and its surface roughly undulated to match adjacent natural bluff undulation/texture as much as possible.[19] In addition, the existing remnant armoring (i.e., rocks, cemented concrete filled sand bags, etc.) need to be removed as opposed to being incorporated into the approved project to ensure that they don't daylight over time and reduce the effectiveness of the erodable concrete at mimicking surrounding bluff forms as much as possible, including over the 100 year design life of the project (see special condition 1b). As conditioned, the project will minimize visual impacts along this bluff area and will not significantly alter scenic public views. Thus, the project, as revised, is consistent with Sections 30251 and 30240(b) of the Coastal Act.

[19] The Commission usually requires that seawalls, including sea cave fills, be textured and contoured to match the natural undulations and texture of the surrounding natural bluff face, and that this final surface product be maintained in that manner. In this case, the approvable project consists of a sea cave fill with erodable concrete. Any final surface texturing or contouring of the sea cave fill would be expected to erode away quickly, perhaps with each storm season. Thus, to avoid the need for frequent (e.g., yearly, or even more frequent) surface maintenance of the sea cave fill camouflaging, this approval is conditioned to require only that the initial application (and any necessary maintenance required to keep the plug eroding at the bluff's erosion rate) roughly mimic bluff forms and that the concrete used be colored to mimic the surrounding natural bluff face. Such a performance standard makes sense in this case given that the primary public view is distant, and close-up views are much more limited.

D. Marine Resources

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

> ***Section 30230.*** *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*
>
> ***Section 30231.*** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The sea cave does not harbor any significant habitats or species. A large deposit of rock and cobble approximately 6-feet deep, has accumulated on the floor of the sea cave. Thus, there are not expected to be any biologic issues due to the proposed project with respect to the cave itself.

The proposed project would require the movement of equipment, workers, and supplies during periods of low tides to gain access to the site; include mechanical equipment operations on the shoreline area fronting the site; include substantial concrete and other work in the sea cave; and potentially encroach on State waters (depending on tides).

To protect marine resources and offshore habitat, Special Conditions 2 and 3 require that these impacts be contained through construction parameters that limit the area of construction, clearly fence off the minimum construction area necessary, keep equipment out of the ocean, require off-beach equipment and material storage during non-construction times, require construction documents to be kept at the site for inspection, require a construction coordinator to be available to respond to inquires, and clearly delineate and avoid to the maximum extent feasible beach use areas. As conditioned, the project is consistent with Coastal Act Sections 30230 and 30231 regarding protection of marine resources and offshore habitat.

3. Conditions of Approval

A. Standard Conditions

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging

receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

B. Special Conditions

1. **Revised Project Plans.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittees shall submit two full-size sets of Revised Project Plans for Executive Director review and approval. The Revised Project Plans shall be prepared by a licensed engineer with experience in coastal structures and processes, and shall be substantially in conformance with the plans submitted with the application (i.e., the plans titled *Seawall Plans and Details* prepared by Garing Taylor & Associates and dated June 26, 2009) except that they shall be revised and supplemented to comply with the following requirements:

   (a) Erodible Concrete Parameters. The plug/fill shall be constructed of erodible concrete designed to erode at a rate similar to the surrounding unarmored bluff face (i.e., two-inches per year); shall be constructed along a varied plane generally approximating the surrounding bluff slope; shall be surfaced in such a way as to mimic the natural bluff landform in slope, integral mottled color, and undulation; shall be the minimum width and height necessary to provide the required slope buttress; shall be constructed along the same vertical plane with the adjoining upcoast and downcoast bluff edges; shall be embedded at the toe of the slope (including any embedded scour apron or equivalent) so as to avoid any undercutting or scouring of the toe of the plug/fill; and shall include sufficient structural tiebacks into the bluff to ensure its long-term stability and effectiveness.

   (b) Removal of Existing Armoring and Concrete. All existing bluff armoring (including but not limited to all imported rock, concrete, and sandbags located generally in the upper bluff area above the entrance to the sea cave and on the shoreline surrounding the cave opening) and all remnant concrete elements in the bluff seaward of the residence shall be removed. All such material removed shall be appropriately disposed of, and all disposal locations shall be noted. If

any disposal location is located in the coastal zone, a separate coastal development permit may be required.

(c) Drainage Detail. The Plans shall provide for an engineered drainage system. The drainage system (which may include, but not be limited to curtain drains, vertical drainage wells, sump pumps (or equivalent), swales, ditches, drainage in the plug/fill, or some combination of these devices) shall be sufficient to intercept and control groundwater, subsurface drainage and surface runoff (comparable to a 100-year storm event), such that water will not flow over the blufftop edge, or collect or pool near the plug/fill to such a degree that it would cause structural stability problems. All drainage, with the exception of weep holes in the wall itself necessary for its proper function, shall not be directed seaward of the blufftop edge, but rather shall be directed inland to appropriate collection areas (i.e., City's storm drain infrastructure) for conveyance off-site. All drainage within the plug/fill shall be camouflaged (e.g., randomly spaced, hidden with overhanging or otherwise protruding sculpted concrete, etc.) so as to be hidden from view and/or inconspicuous as seen from public viewing areas.

(d) Landscape Screening. The Plans shall provide for the removal of all non-native invasive plants (e.g., iceplant) currently present in the blufftop area seaward of the residence, and shall provide for the planting of native (to the Pismo Beach bluff area) species in the areas located: (a) between the top edge of the coastal bluff and a line roughly 5 feet inland of the blufftop edge in a manner designed to provide for a cascading screen of native vegetation to screen the upper portion of the plug/fill from public view; and (b) above the plug/fill and in the area of the removed concrete. The Plans shall clearly identify in site plan view the type, size, extent and location of all native plant materials to be used. The Plans shall also provide for any irrigation necessary to ensure that the landscape screening is successful. All initial plant removal and planting shall be completed within one month of completion of seawall construction. The Plans shall require regular monitoring and remedial action (such as replanting as necessary) to ensure success of the vegetative screen. The landscape screening component of the Plans shall be prepared by a landscape professional with experience in coastal bluff vegetation.

All requirements above and all requirements of the approved Revised Project Plans shall be enforceable components of this coastal development permit. The Permittees shall undertake development in accordance with the approved Revised Project Plans.

2. Construction Plan. PRIOR TO COMMENCEMENT OF CONSTRUCTION the Permittees shall submit two sets of a Construction Plan to the Executive Director for review and approval. The Construction Plan shall, at a minimum, include the following:

(a) Construction Areas. The Construction Plan shall identify the specific location of all construction areas, all staging areas, all storage areas, and all construction access corridors (to the construction site and staging areas). All such areas within which construction activities and/or staging are to take place shall be minimized to the maximum extent feasible in order to minimize construction encroachment on the shoreline and bluff

(b) Construction Methods and Timing. The Construction Plan shall specify the construction methods to be used, including all methods to be used to keep the construction areas separated from the shoreline and bluff (including using the space available on the bluff-top portions of the Permittees' properties for staging, storage, and construction activities to the maximum extent feasible, and including using unobtrusive fencing (or equivalent measures) to delineate construction areas). All erosion control/water quality best management practices to be implemented during construction and their location shall be included in this plan.

(c) Property Owner Consent. The Construction Plan shall be submitted with written evidence indicating that the owners of any properties on which construction activities are to take place, including properties to be crossed in accessing the site, consent to such use of their properties.

(d) Construction Requirements. The Construction Plan applies to initial installation of the plug/fill, as well as maintenance of the plug/fill to ensure that it is eroding at the same rate as the surrounding unarmored bluff face. The Construction Plan shall include the following construction requirements specified by written notes on the Construction Plan. Minor adjustments to the following construction requirements may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources.

- All work shall take place during daylight hours and lighting of the beach area is prohibited.
- Construction work or equipment operations shall not be conducted below the mean high tide line unless tidal waters have receded from the authorized work areas.
- Only rubber-tired construction vehicles are allowed on the shoreline, except track vehicles may be used if the Executive Director agrees that they are required to safely carry out construction.
- All construction materials and equipment placed on the shoreline during daylight construction hours shall be stored beyond the reach of tidal waters. All construction materials and equipment shall be removed in their entirety from the shoreline area by sunset each day that work occurs. The only other exceptions shall be for erosion and sediment controls and/or construction area boundary fencing where such controls and/or fencing are placed as close to the toe of the bluff as possible, and are minimized in their extent.
- Construction (including but not limited to construction activities, and materials and/or equipment storage) is prohibited outside of the defined construction, staging, and storage areas.
- Equipment washing, servicing, and refueling shall not take place on the shoreline, and shall only be allowed at a designated inland location as noted on the Plan. Appropriate best management practices shall be used to ensure that no spills of petroleum products or other chemicals take place during these activities.

- The construction site shall maintain good construction site housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain, including covering exposed piles of soil and wastes; dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the shoreline; etc.).

- All erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each workday. At a minimum, silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction site to prevent construction-related runoff and/or sediment from entering into the Pacific Ocean.

- All public access areas impacted by construction activities shall be restored to their pre-construction condition or better within three days of completion of construction.

- All construction debris shall be removed from the shoreline and bluff area immediately following construction.

- The Permittees shall notify planning staff of the Coastal Commission's Central Coast District Office at least three working days in advance of commencement of construction or maintenance activities, and immediately upon completion of construction or maintenance activities.

All requirements above and all requirements of the approved Construction Plan shall be enforceable components of this coastal development permit. The Permittees shall undertake development in accordance with the approved Construction Plan.

3. Construction Site Documents & Construction Coordinator. DURING ALL CONSTRUCTION:

(a) Construction Site Documents. Copies of the signed coastal development permit and the approved Construction Plan shall be maintained in a conspicuous location at the construction job site at all times, and such copies shall be available for public review on request. All persons involved with the construction shall be briefed on the content and meaning of the coastal development permit and the approved Construction Plan, and the public review requirements applicable to them, prior to commencement of construction.

(b) Construction Coordinator. A construction coordinator shall be designated to be contacted during construction should questions arise regarding the construction (in case of both regular inquiries and emergencies), and their contact information (i.e., address, phone numbers, etc.) including, at a minimum, a telephone number that will be made available 24 hours a day for the duration of construction, shall be conspicuously posted at the job site where such contact information is readily visible from public viewing areas, along with indication that the construction coordinator should be contacted in the case of questions regarding the construction (in case of both regular inquiries and emergencies). The construction coordinator shall record the name, phone number, and nature of all complaints received regarding the construction, and shall

investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry.

4. **Future Development and Bluff Setbacks.** Development, other than minor development approved by the Executive Director (such as patios, decks, gazebos, etc.) that the Permittees stipulate will not be considered existing structures for purposes of any future shoreline armoring evaluation, shall be prohibited seaward of a setback line along the rear of the existing residence and extending to the side property lines. All future development on the site shall be sited and designed to avoid the need for additional shoreline armoring, including through ensuring adequate setbacks from the bluff edge based on expected erosion and slope stability necessary to provide long-term stability (i.e., a factor of safety greater than 1.5 for static conditions and 1.1 for pseudo-static conditions) combined with the effects of sea level rise. All setbacks for such future development shall be accompanied by clear evidence showing such development is so sited and designed, and such evidence shall be prepared by a licensed civil or geotechnical engineer with experience in coastal structures and processes.

5. **As-Built Plans.** WITHIN TWO (2) MONTHS OF COMPLETION OF CONSTRUCTION, the Permittees shall submit two copies of As-Built Plans for Executive Director review and approval. The As-Built Plans shall clearly identify all development completed pursuant to this coastal development permit; all property lines; and all residential development inland of the sea cave fill/plug. The As-Built Plans shall be substantially consistent with the approved revised project plans (see Special Condition 1), including providing for all of the same requirements specified there, and shall account for all of the parameters of Special Condition 6 (Monitoring) and Special Condition 7 (Future Maintenance). The As-Built Plans shall include a graphic scale and all elevation(s) shall be described in relation to National Geodetic Vertical Datum (NGVD). The As-Built Plans shall include color photographs (in hard copy and jpg format) that clearly show the as-built project from a variety of representative viewpoints, including at a minimum from directly seaward of the plug/fill location, from up and downcoast, and from the public trail at Pirate's Cove. The As-Built Plans shall be submitted with certification by a licensed civil engineer with experience in coastal structures and processes, acceptable to the Executive Director, verifying that the seawall has been constructed in conformance with the approved revised project plans described by Special Condition 1 above.

6. **Monitoring.** The Permittees shall ensure that the condition and performance of the as-built project is regularly monitored by a licensed engineer with experience in coastal structures and processes. Such monitoring evaluation shall at a minimum address whether the sea cave plug/fill is eroding at a rate similar to the surrounding unarmored bluff face. Monitoring reports prepared by a licensed engineer with experience in coastal structures and processes, and covering the above-described evaluations, shall be submitted to the Executive Director for review and approval at three-year intervals by May 1st of each third year (with the first report due May 1, 2013, and subsequent reports due May 1, 2016, May 1, 2019, and so on) for as long as the approved project exists at this location. The reports shall identify any recommended actions necessary to maintain the approved project in a structurally sound manner and its approved state, including providing for modifications to the sea cave plug/fill as necessary to match surrounding erosion should the sea cave plug/fill erode slower than surrounding unarmored bluff materials, and providing for removal from the beach of any sizeable

chunks (greater in size than gravel) of sea cave plug/fill erodible concrete, and shall include photographs taken from each of the same vantage points as required in the as-built plans (see Special Condition 5) with the date and time of the photographs and the location of each photographic viewpoint noted on a site plan. Actions necessary to maintain the approved project in a structurally sound manner and its approved state shall be implemented within 30 days of Executive Director approval, unless a different time frame for implementation is identified by the Executive Director.

7. **Future Maintenance.** Coastal development permit amendment 3-09-052 authorizes future maintenance as described in this special condition. The Permittees acknowledge and agree on behalf of themselves and all successors and assigns that it is the Permittees responsibility to maintain the sea cave fill on or seaward of APN 010-175-009 in a structurally sound manner and in its approved state. Any such development, or any other maintenance development associated with the as-built sea cave plug/fill shall be subject to the following:

   a. **Maintenance.** "Maintenance," as it is understood in this condition, means development that would otherwise require a coastal development permit whose purpose is to repair, reface, and/or otherwise maintain the approved sea cave plug/fill in its approved state, including to ensure that the sea cave plug/fill is eroding at a rate similar to the adjacent unarmored bluff face.

   b. **Maintenance Parameters.** Maintenance shall only be allowed subject to the parameters of the approved Construction Plan required by Special Condition 2. Any proposed modifications to the approved construction plan and/or restoration requirements associated with any maintenance event shall be reported to planning staff of the Coastal Commission's Central Coast District Office with the maintenance notification (described below), and such changes shall require a coastal development permit amendment unless the Executive Director deems the proposed modifications to be minor in nature (i.e., the modifications would not result in additional coastal resource impacts).

   c. **Other Agency Approvals.** The Permittees acknowledge that these maintenance stipulations do not obviate the need to obtain permits from other agencies for any future maintenance and/or repair episodes.

   d. **Maintenance Notification.** At least two weeks prior to commencing any maintenance event, the Permittees shall notify, in writing, planning staff of the Coastal Commission's Central Coast District Office. The notification shall include a detailed description of the maintenance event proposed, and shall include any plans, engineering and/or geology reports, proposed changes to the maintenance parameters, other agency authorizations, and other supporting documentation describing the maintenance event. The maintenance event shall not commence until the Permittees have been informed by planning staff of the Coastal Commission's Central Coast District Office that the maintenance event complies with this coastal development permit amendment. If the Permittees have not received a response within 30 days of receipt of the notification by the Coastal Commission's Central Coast District Office, the maintenance event shall be authorized as if planning staff affirmatively indicated that the event complies with this

coastal development permit amendment. The notification shall clearly indicate that the maintenance event is proposed pursuant to this coastal development permit amendment, and that the lack of a response to the notification within 30 days of its receipt constitutes approval of it as specified in the permit.

e. Non-compliance Proviso. If the Permittees are not in compliance with the conditions of this permit at the time that a maintenance event is proposed, then the maintenance event that might otherwise be allowed by the terms of this future maintenance condition shall not be allowed by this condition.

f. Emergency. Nothing in this condition shall serve to waive any Permittee rights that may exist in cases of emergency pursuant to Coastal Act Section 30611, Coastal Act Section 30624, and Subchapter 4 of Chapter 5 of Title 14, Division 5.5, of the California Code of Regulations (Permits for Approval of Emergency Work).

g. Duration of Covered Maintenance. Future maintenance under this coastal development permit is allowed subject to the above terms for ten (10) years from the date of approval (i.e., until July 7, 2020). Maintenance can be carried out beyond the 10-year period if the Executive Director extends the maintenance term in writing.

h. Sea Cave Plug/Fill Rate of Erosion. If the sea cave plug/fill is eroding at a slower rate than the surrounding unarmored bluff face, the exterior portion of the sea cave fill shall be modified during any maintenance event by "shaving" or otherwise removing portions of the sea cave fill to match the landward configuration of the surrounding natural bluff face. Any sizeable chunks (greater in size than gravel) of sea cave fill erodable concrete that are the end result of such shaving shall be removed from the beach, and the resultant face of the plug/fill shall be contoured to mimic surrounding natural bluff materials.

8. **State Lands Commission Authorization.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittees shall submit to the Executive Director for review a copy of the State Lands Commission authorization to allow the approved project, or evidence that no State Lands Commission authorization is necessary. Any changes to the approved project required by the State Lands Commission shall be reported to the Executive Director. No changes to the approved project shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is necessary.

9. **Sand Supply Fee.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittees shall submit to the Executive Director evidence that a mitigation fee of $2,287.50 has been deposited into an interest-bearing account to be established and managed by the City of Pismo Beach or another appropriate entity as approved by the Executive Director. The sole purpose of the fee/account shall be for public beach recreational access improvements (such as benches, picnic tables, trail improvements, interpretive signage, sand replenishment, etc.) in the City of Pismo Beach. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT 3-09-052, if the Applicants submit three bids for the cost of delivered beach quality sand that average to an amount

less or more than $25 per cubic yard and the bids have been reviewed and approved by the Executive director, this fee may be adjusted through applying the average for these three bids to supply 91.5 cubic yards of sand. The entire fee and any accrued interest shall be used for the above-stated purpose, in consultation with the Executive Director, within ten years of the fee being deposited into the account. Any portion of the fee that remains after ten years shall be donated to one or more of the State Parks units located in the vicinity of Pismo State Beach, or other organization acceptable to the Executive Director. PRIOR TO EXPENDITURE OF ANY FUNDS CONTAINED IN THIS ACCOUNT, the Executive Director must review and approve the proposed use of the funds as being consistent with the intent and purpose of this condition.

10. **Assumption of Risk, Waiver of Liability, and Indemnity Agreement.** By acceptance of this permit, the Permittees acknowledge and agree on behalf of themselves and all successors and assigns:

    a. That the site is subject to extreme coastal hazards including but not limited to episodic and long-term shoreline retreat and coastal erosion, high seas, ocean waves, storms, tsunami, coastal flooding, landslides, bluff and geologic instability, and the interaction of same;

    b. To assume the risks to the Permittees and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development;

    c. To unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards;

    d. To indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; and,

    e. That any adverse effects to property caused by the permitted project shall be fully the responsibility of the Permittees.

11. **Public Rights.** The issuance of this coastal development permit shall not constitute a waiver of any public rights which may exist on the subject property. The Permittees shall not use such permit as evidence of a waiver of any public rights that may exist on the property.

12. **Deed Restriction.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittees shall submit for Executive Director review and approval documentation demonstrating that the Permittees have executed and recorded a deed restrictions, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject properties, subject to terms and conditions that restrict the use and enjoyment of that properties; and (2) imposing the special conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the properties. The deed restrictions shall include a legal description and site plan of the parcels governed by this

permit. The deed restrictions shall also indicate that, in the event of an extinguishment or termination of the deed restrictions for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject properties so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject properties.

4. California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect that the activity may have on the environment.

The City of Pismo Beach, acting as the lead CEQA agency, concluded that the project was categorically exempt from CEQA. The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. The preceding coastal development permit findings discuss the relevant coastal resource issues with the proposal, and the permit conditions identify appropriate modifications to avoid and/or lessen any potential for adverse impacts to said resources. All public comments received to date have been addressed in the findings above, which are incorporated herein in their entirety by reference.

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

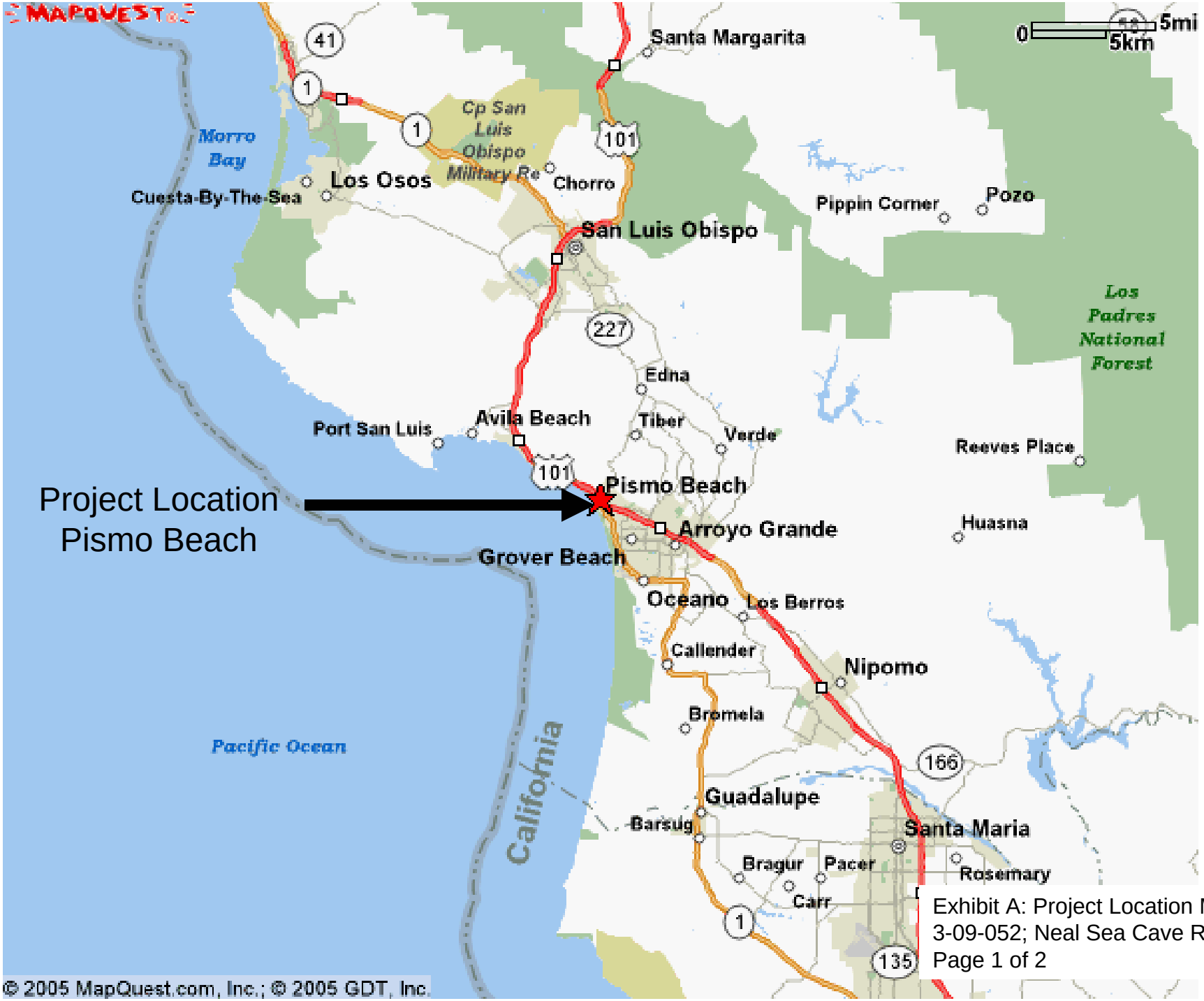


Exhibit A: Project Location Maps
3-09-052; Neal Sea Cave Repair
Page 1 of 2

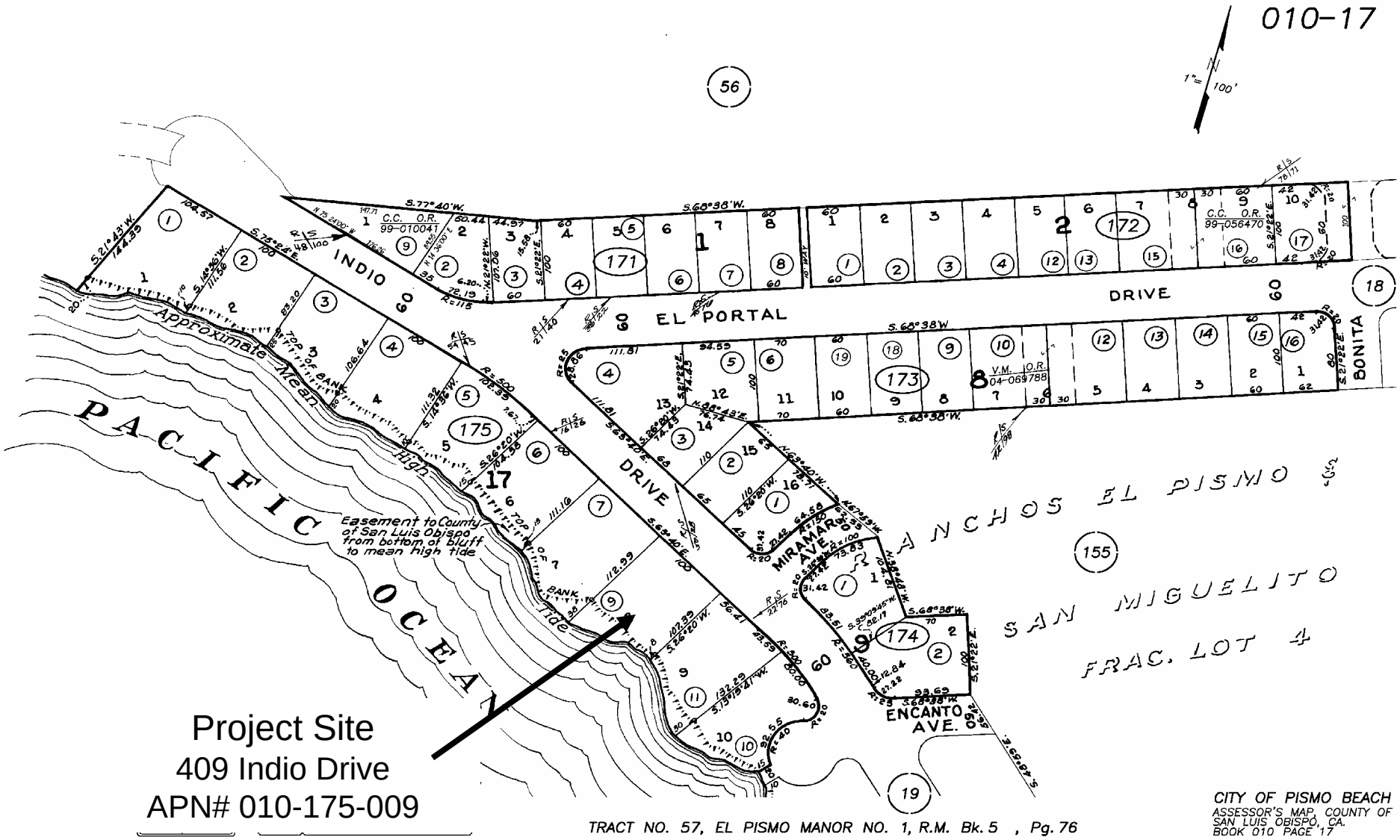
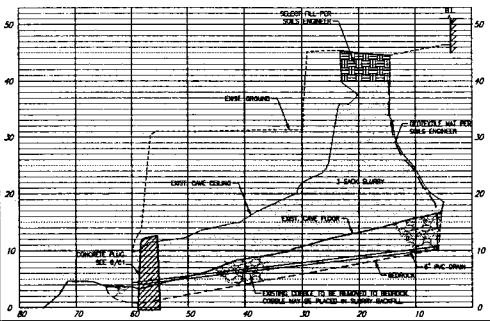
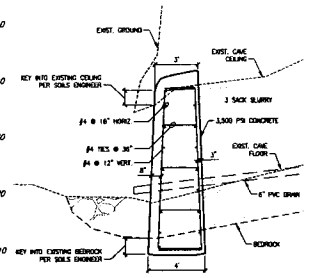


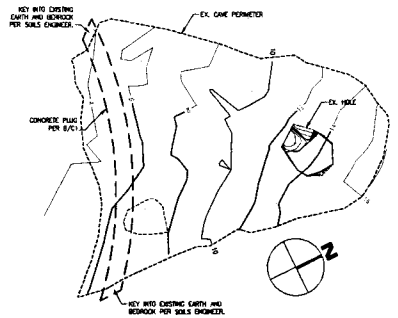
Exhibit A: Project Location Maps
3-09-052; Neal Sea Cave Repair
Page 2 of 2



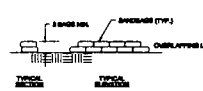
A WALL SECTION
SCALE: 1" = 10'



B CONCRETE PLUG DETAIL
SCALE: 1/4" = 1'-0"



C CAVE FLOOR CONTOURS
SCALE: 1" = 10'



D SAND BAG BARRIER
SCALE: NTS

BENCHMARK

FLO7.36 W. 530 RESET NAVD 88
ELEVATION 40.963 METERS=134.39 FEET

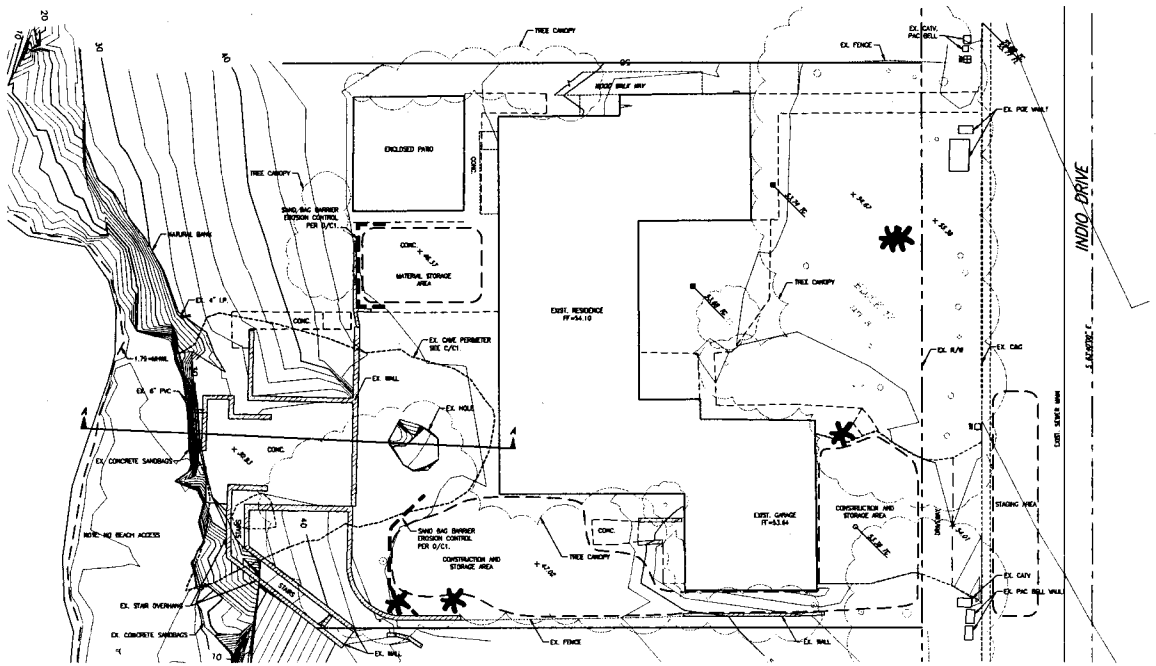
1.25 MI. NORTHWESTERLY ALONG U.S. HIGHWAY 101 FROM THE JUNCTION OF SPYGLASS DRIVE IN SHELL BEACH, IN THE SOUTHEAST END OF THE NORTHEAST CONCRETE BRIDGE GUARDRAIL OF THE NORTHBOUND HIGHWAY OVERPASS OF AVILA ROAD, 21.7 FEET NORTHEAST OF THE CENTERLINE OF THE NORTHBOUND LANES OF THE HIGHWAY, AND 3.3 FEET ABOVE THE LEVEL OF THE HIGHWAY.

BASIS OF BEARINGS

THE BASIS OF BEARING WAS TAKEN FROM THE CENTER LINE OF INDIO DRIVE BETWEEN CENTERLINE MONUMENTS AS SHOWN ON TRACT NO. 97 MAP FILED IN BOOK 5 AT PAGE 78 OF MAPS, COUNTY RECORDERS OFFICE, COUNTY OF SAN LUIS OBISPO, CALIFORNIA, THE BEARING BEING NOTED AS S 63°40' E.

COASTAL COMMISSION SPECIAL NOTES

1. ALL WORK SHALL TAKE PLACE DURING DAYLIGHT HOURS. LIGHTING OF THE BEACH AND WATER AREAS IS PROHIBITED.
2. CONSTRUCTION WORK OR EQUIPMENT OPERATIONS BELOW THE MEAN HIGH WATER LINE (MHWL) SHALL BE MINIMIZED TO THE ABSOLUTE EXTENT FEASIBLE, AND, WHERE POSSIBLE, LIMITED TO TIMES WHEN TIDAL WATERS HAVE RECEDED FROM THE AUTHORIZED WORK AREAS.
3. ALL CONSTRUCTION MATERIALS AND EQUIPMENT PLACED ON THE BEACH DURING DAYLIGHT CONSTRUCTION HOURS SHALL BE STORED BEYOND THE REACH OF TIDAL WATERS. ALL CONSTRUCTION MATERIALS AND EQUIPMENT SHALL BE REMOVED IN THEIR ENTIRETY FROM THE BEACH AREA BY SUNSET EACH DAY THAT WORK OCCURS, WITH THE EXCEPTION OF EROSION AND SEDIMENT CONTROLS AS NECESSARY TO CONTAIN RUNOFF AND/OR SEDIMENTS AT THE CONSTRUCTION SITE, WHERE SUCH CONTROLS ARE PLACED AS CLOSE TO THE WORK AREA AS POSSIBLE, AND MINIMIZED IN THEIR EXTENT.
4. CONSTRUCTION (INCLUDING BUT NOT LIMITED TO CONSTRUCTION ACTIVITIES, AND MATERIALS AND/OR EQUIPMENT STORAGE) IS PROHIBITED OUTSIDE OF THE DEFINED CONSTRUCTION, STAGING, AND STORAGE AREAS.
5. EQUIPMENT WASHING, REFUELING, AND/OR SERVICING SHALL NOT TAKE PLACE ON THE BEACH.
6. THE CONSTRUCTION SITE SHALL MAINTAIN GOOD CONSTRUCTION SITE HOUSEKEEPING CONTROLS AND PROCEDURES (E.G., CLEAN UP ALL LEAKS, DRIPS AND OTHER SPILLS IMMEDIATELY; KEEP MATERIALS COVERED AND OUT OF THE RAIN (INCLUDING COVERED EXPOSED PILES OF SOIL AND WASTES); DISPOSE OF ALL WASTES PROPERLY; PLACE TRASH RECEPTICLES ON SITE FOR THAT PURPOSE; AND COVER OPEN TRASH RECEPTICLES DURING WET WEATHER; REMOVE ALL CONSTRUCTION DEBRIS FROM BEACH).
7. ALL EROSION AND SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AS WELL AS AT THE END OF EACH WORK DAY.
8. PARTICULAR CARE SHALL BE EXERCISED TO PREVENT FOREIGN MATERIALS FROM ENTERING COASTAL WATERS. A CONTAINMENT BOOM/DEVICE SHALL BE PLACED AROUND ALL ACTIVE PORTIONS OF THE CONSTRUCTION SITE WHERE WOOD SCRAPS OR OTHER FLOATABLE DEBRIS COULD ENTER THE WATER. ALSO, HEAVY-DUTY MESH CONTAINMENT NETTING SHALL BE MAINTAINED BELOW ALL WORK AREAS WHERE CONSTRUCTION DISCARDS OR OTHER MATERIAL COULD FALL INTO THE WATER. THE CONTAINMENT AREA AND NET SHALL BE CLEANED DAILY OR AS OFTEN AS NECESSARY TO PREVENT ACCUMULATION OF DEBRIS.
9. CONTRACTOR SHALL INSURE THAT WORK CREWS ARE CAREFULLY BRIEFED ON THE IMPORTANCE OF OBSERVING THE APPROPRIATE PRECAUTIONS AND REPORTING ANY ACCIDENTAL SPILLS.
10. CONSTRUCTION CONTRACTS SHALL CONTAIN APPROPRIATE PENALTY PROVISIONS, SUFFICIENT TO OFFSET THE COST OF RETRIEVING OR CLEAN UP OF FOREIGN MATERIALS NOT PREPERLY CONTAINED.
11. SIGNIFICANT DEVELOPMENT SHALL BE UNDERTAKEN AND COMPLETED WITHIN TWO YEARS OF THE DATE OF THE COASTAL DEVELOPMENT PERMIT (CDP) WAIVER AUTHORIZATION. IF, IN THE OPINION OF THE EXECUTIVE DIRECTOR OF THE COASTAL COMMISSION, SIGNIFICANT DEVELOPMENT HAS NOT BEEN COMPLETED, THEN (A) THE CDP WAIVER AUTHORIZATION SHALL EXPIRE; (B) THE DEVELOPMENT PROPOSED SHALL NOT BE UNDERTAKEN; (C) ANY DEVELOPMENT COMPLETED TO DATE PURSUANT TO THE CDP WAIVER AUTHORIZATION SHALL BE REMOVED AND THE SITE RETURNED TO ITS PRE-CDP AUTHORIZATION CONDITION, AND (D) ANY FUTURE DEVELOPMENT SHALL REQUIRE AND BE SUBJECT TO A NEW AND SEPERATE CDP APPLICATION.



NORTH

SEAWALL PLAN

SCALE: 1" = 10'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS SHOWN ON THE PLANS.
2. NO CONSTRUCTION SHALL BE STARTED WITHOUT PLANS APPROVED BY THE CITY. THE CITY SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO STARTING CONSTRUCTION. ANY CONSTRUCTION DONE WITHOUT APPROVED PLANS OR PRIOR NOTIFICATION TO THE CITY WILL BE REJECTED AND WILL BE DONE AT THE CONTRACTOR'S AND/OR OWNER'S RISK AND EXPENSE.
3. THE CITY INSPECTOR, ACTING ON BEHALF OF THE CITY MAY REQUIRE REVISIONS IN THE PLANS TO SOLVE UNFORESEEN PROBLEMS THAT MAY ARISE IN THE FIELD. ALL REVISIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER'S ENGINEER.
4. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PLACEMENT OF SAFETY DEVICES SUCH AS FENCING, BARRICADES, SAFETY TAPE, ETC., AND SHALL FOLLOW ALL APPLICABLE INDUSTRIAL SAFETY REGULATIONS. THE CITY AND ITS OFFICIALS, THE ENGINEER, AND THE OWNER SHALL NOT BE RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OR PROPER RESETTING OF ALL EXISTING MONUMENTS AND OTHER SURVEY MARKERS. ANY SURVEY MONUMENTS DESTROYED BY THE CONTRACTOR SHALL BE REPLACED IN ACCORDANCE WITH THE STATE LAND SURVEYOR'S ACT AT THE CONTRACTOR'S OWN EXPENSE.
6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "UNDERGROUND SERVICE ALERT" AT 1-800-642-2444 FOR LOCATION OF POWER, GAS, OIL, AND TELEPHONE UNDERGROUND FACILITIES. CONTRACTOR WILL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE AGENCY FOR THE LOCATION OF ALL UNDERGROUND FACILITIES.
7. THESE PLANS DO NOT AUTHORIZE SITE DISTURBANCE BEYOND THE LIMITS OF WORK SHOWN. OBTAIN NECESSARY PERMITS TO GRADE ELSEWHERE.
8. OBTAIN PERMISSION TO ENTER UPON ADJOINING PROPERTY IF NECCESSARY TO GRADE PRIOR TO CONSTRUCTION. THE CITY ENGINEER DOES NOT AUTHORIZE ENTRY PER THESE APPROVED PLANS.
9. ANY DEVIATION FROM THESE PLANS WITHOUT PRIOR APPROVAL FROM THE DESIGN ENGINEER SHALL BE AT THE CONTRACTOR'S OWN RISK AND EXPENSE.
10. A REGISTERED CIVIL ENGINEER MUST CERTIFY THAT THE IMPROVEMENTS, WHEN COMPLETED, ARE IN ACCORDANCE WITH THE APPROVED PLANS. PRIOR TO THE REQUEST FOR FINAL INSPECTION, AS-BUILT PLANS ARE TO BE PREPARED AFTER CONSTRUCTION IS COMPLETE. THE CIVIL ENGINEER CERTIFYING THE IMPROVEMENTS AND PREPARING AS-BUILT PLANS SHALL BE PRESENT WHEN THE FINAL INSPECTION IS MADE.
11. PROVIDE EROSION CONTROL PLANTING FOR ALL FRESH CUT AND FILL SLOPES AND ON ALL DISTURBED SURFACES OTHER THAN PAVED OR GRAVEL SURFACES. PERMANENT VEGETATION SHALL BE ESTABLISHED PRIOR TO FINAL INSPECTION.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT AND MAINTENANCE OF ALL EROSION CONTROL DEVICES AS SPECIFIED BY THE CITY ENGINEER. THESE DEVICES SHALL BE IN PLACE OR BE READY TO PLACE FROM NOVEMBER 15 TO APRIL 15. IN THE EVENT THAT THE DEVICES ARE NOT PERMANENTLY IN PLACE, THEY SHALL BE PLACED IN THE EVENT A FORECAST FOR RAIN EXCEEDS 30%. AN EMERGENCY CREW SHALL BE AVAILABLE 24 HRS A DAY IN THE EVENT AN EROSION PROBLEM SHOULD OCCUR. A RESPONSIBLE PERSON AND HIS PHONE NUMBER SHALL BE NAMED HERE UPON.

NAME

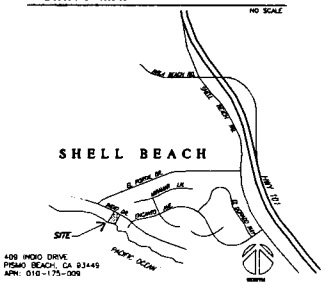
PHONE NUMBER

LEGEND:

- PROPERTY LINE
- EXISTING CONTOUR
- EXISTING SPOT ELEVATION (120.20)
- NEW SPOT ELEVATION 120.00
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- STREET CENTERLINE
- EXIST CURB FACE
- PROPOSED SWALE
- NEW EDGE OF PAVEMENT
- EXIST. STORM DRAIN

VICINITY MAP

NO SCALE



409 INDIO DRIVE
PISMO BEACH, CA 93449
APN: 010-175-009

Civil Engineering
Land Development
Project Management

Jeffrey J. Emrick, R.C.E. 40657 Date

141 South Elm Street
Arroyo Grande, CA 93420
805 / 489-1321

PROFESSIONAL ENGINEER * JEFFREY J. EMRICK * No. 40657 * CIVIL * STATE OF CALIFORNIA

Garing Taylor & Associates

Sheet Title: SEAWALL PLANS AND DETAILS

Project: 409 Indio Drive, Pismo Beach, CA 93449

Client: Jack Neal, 409 Indio Drive, Pismo Beach, CA 93449

Revisions

Drawn By: JJE
Checked By: JG
Date: June 2009
Job No. 05.234.002
File Name: 1B.DWG
Scale: AS NOTED
Plot date: 6/26/09
Sheet: C1

Exhibit B: Proposed Project Plans
3-09-052; Neal Sea Cave Repair
Page 1 of 1

Exhibit C: Site Photographs
3-09-052; Neal Sea Cave Repair

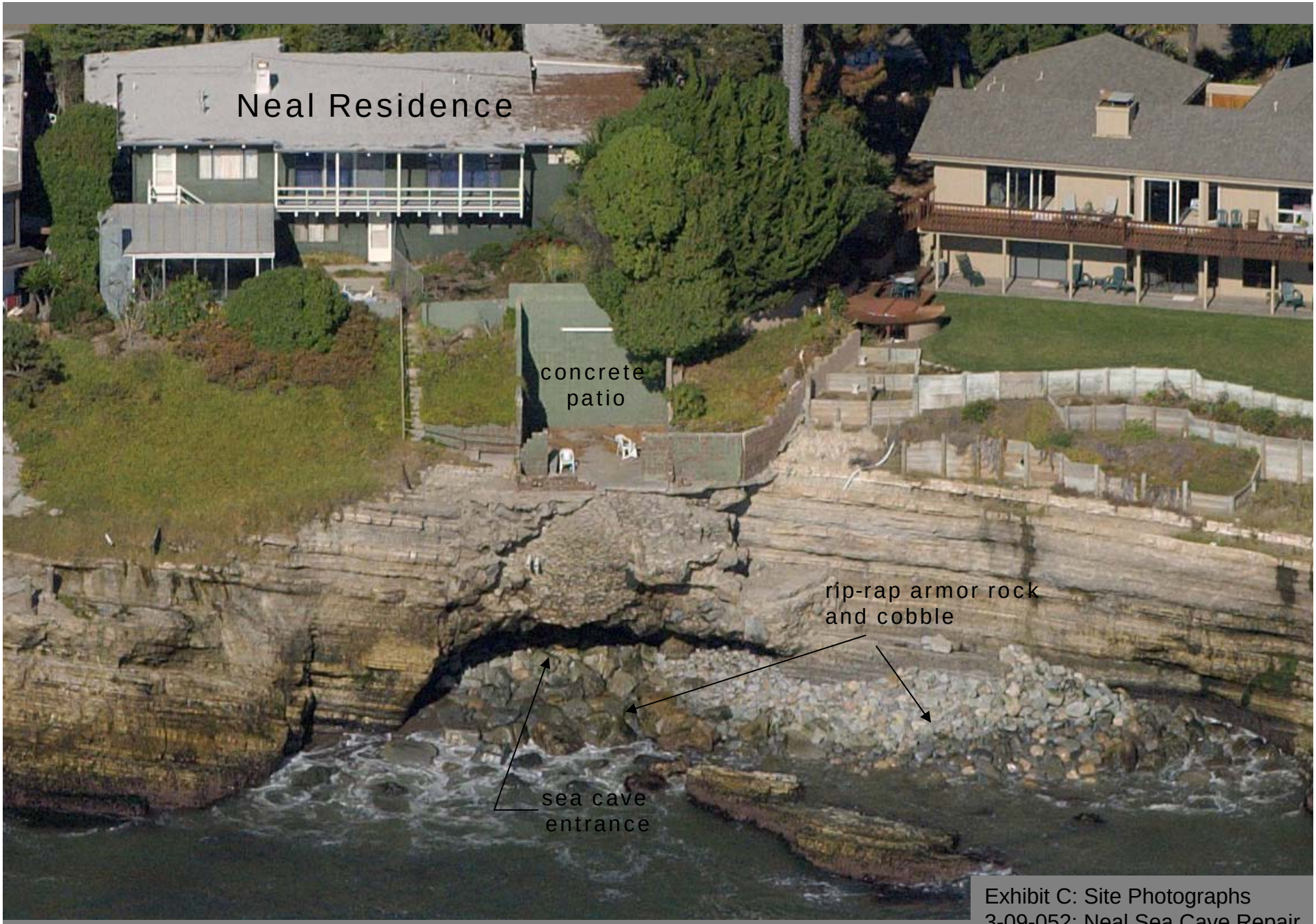
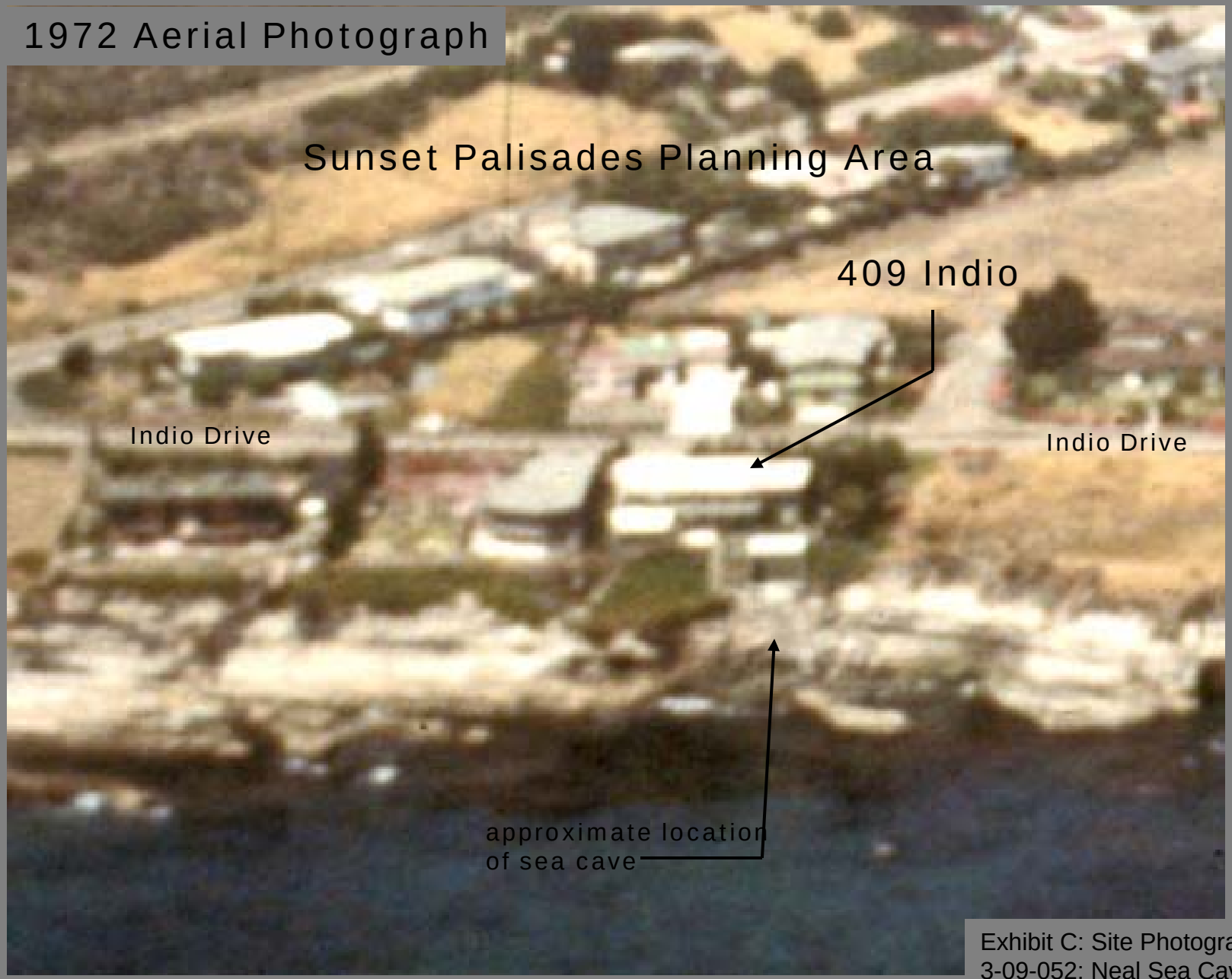


Photo of sea cave entrance, loose rip-rap rock deposits, and upper bluff armoring.



mailed to Executive Director 6/21/10

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Date and time of communication: 6/21/10 - 10:30 a.m.

Location of communication: County Government Building - San Luis Obispo
(If communication was sent by mail or facsimile, indicate the means of transmission.)

Identity of person(s) initiating communication: Rita Neal

Identity of person(s) receiving communication: Mary Ann Reiss

Name or description of project: Application No. 3-09-052
439 Indio Drive

Description of content of communication: in person
(If communication included written material, attach a copy of the complete text of the written material.)

Spoke w/ Rita Neal Katcho Achadjian + Charles Lester regarding CDP for sea cave - Mrs. Neal indicated she had lost her permanent permanency because of temporary permit - looking to achieve a permanent fix because of the cost to do temporary then may have to tear it out. There is no historic fill and will look to hear from staff as to what is required to achieve permanent fix - Agenda for 7/7/10 - will be available to discuss w/ staff prior to meeting.

6/21/10
Date

Mary Ann Reiss
Signature of Commissioner

If communication occurred seven (7) or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director **within** seven (7) days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven (7) days of the hearing, **complete** this form, provide the information orally on the record of the proceeding **and** provide the Executive Director with a copy of any written material that was part of the communication.

APPENDIX *2*