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COASTAL DEVELOPMENT PERMIT APPLICATION

Application number.....**3-03-049 Scenic Road Armoring Repairs**

Applicant.....City of Carmel-by-the-Sea

Project location .....Three bluff locations below Scenic Road and the Scenic Road Recreational Trail (between 13th Avenue & Santa Lucia) along the back-beach of Carmel Municipal Beach in the City of Carmel-by-the-Sea, Monterey County.

Project description.....Repair and augment the existing shoreline armoring in several locations below Scenic Road at Carmel Beach.

Local approval.....The City of Carmel-by-the-Sea City Council approved the project and certified the CEQA mitigated negative declaration on November 7, 2000.

File documents.....Carmel Beach Management Plan (CDPs P-980, P-79-320, 3-83-217-A1, 3-83-217-A2, 3-83-217-A3, 3-83-217-A4, 3-00-140 and 3-03-013-G.

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

Summary of staff recommendation: This application requests authorization to retain emergency repairs to storm-damaged rock revetments along the bluffs adjacent to Scenic Road undertaken by the City of Carmel-by-the-Sea during the winter of 2003 pursuant to emergency permit 3-03-013-G. Much of the back-beach along this stretch of coastline within the vicinity of the project is currently armored by both pre-Coastal Act structures and by a variety of structures permitted by the Coastal Commission since 1974. The armoring is designed to protect the Scenic Road recreational trail system, storm water outfalls, as well as public parking along Scenic Road and vertical access stairways to the beach.

The emergency work undertaken involved resetting displaced rip-rap stones and filling voids in the rock with smaller armoring stones at two locations along Carmel Beach. In addition, the City filled a sinkhole that developed behind a granite-faced vertical seawall with gabion rock, and replaced the lost topsoil and native vegetation. The City proposes to maintain the existing Carmel back beach aesthetic through the use of sand contouring and upper bluff vegetation designed to hide the revetment segments that are the subject of this application.

The city of Carmel-by-the-Sea does not have a certified LCP, though the Commission formally certified the City's LUP at its July 10, 2003 meeting. The land use policies and objectives provide guidance on

future development, repair, and maintenance of the City's shoreline protection structures and access/recreation improvements. In general, the LUP policies require the City to protect public access and recreational improvements by maintaining existing shoreline armoring and evaluating feasible alternatives that minimize impacts on access, visual, and coastal resources. Additionally, the LUP requires all modifications of existing structures to follow the same standards for establishing need, obtaining permits, and evaluating design criteria as new seawall projects.

In this case, the standard of review for the seawall repairs and augmentation is the Coastal Act. As proposed by the City, the project does not conform to the Chapter 3 policies of the Coastal Act or with the City's certified Land Use Plan policies due to its excessive footprint, visual impact, and significant adverse impacts to public access and other coastal resources. As a result, additional measures are needed to ensure that the project is carried out consistent with Chapter 3 of the Coastal Act, as well as the coastal resource protection and shoreline hazard provisions of the certified LUP. Staff therefore recommends that the Commission **approve a revised project with conditions** requiring the Applicants to:

- Provide an evaluation of vertical seawall alternatives and a coastal development permit amendment application to implement the best vertical seawall alternative within 3 years of the CDP approval and complete construction of the best alternative within 5 years of CDP approval;

- Update and resubmit the Carmel Shoreline Management Plan for incorporation into the LCP. The Plan shall address the long-term preservation and protection of Carmel Beach, the Scenic Road recreational path, beach access stairways, beach parking, and other public access improvements. The SMP update should identify and evaluate, among other things, methods for responding to emergency shoreline erosion situations, and procedures for obtaining coastal development permits for all Plan-identified maintenance and repair activities and other development;

- Submit an application for a multi-year coastal development permit to implement the Shoreline Management Plan and undertake routine maintenance activities;

- Assume the risk of known hazards associated with development along the shoreline, and waive the liability for claims of injury or damage against the Commission.

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1. Staff Recommendation on Coastal Development Permit

The staff recommends that the Commission, after public hearing, **approve** the proposed project subject to the standard and special conditions below. Staff recommends a **YES** vote on the motion below. A yes vote results in approval of the project as modified by the conditions below. The motion passes only by affirmative vote of a majority of the Commissioners present.

> ***Motion:*** *I move that the Commission approve Coastal Development Permit Number 3-03-049 subject to the conditions below and that the Commission adopt the following resolution:*
>
> ***Approval with Conditions.*** *The Commission hereby grants a permit for the proposed development, as modified by the conditions below, on the grounds that the modified development is consistent with the requirements of Chapter 3 of the California Coastal Act of 1976 (Coastal Act), will not prejudice the ability of the City of Carmel to prepare a local coastal program conforming to Chapter 3 of the Coastal Act, is located between the sea and the first public road nearest the shoreline and is in conformance with the public access and recreation policies of the Coastal Act, and will not have any significant adverse effects on the environment within the meaning of the California Environmental Quality Act (CEQA).*

2. 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. **Revetment Removal & Replacement.** The City of Carmel by-the-Sea (Permittee) shall submit to the Executive Director for review and approval, an alternatives analysis of vertical seawall designs and a coastal development permit amendment application to implement the best vertical seawall alternative within 3 years of this CDP approval. Removal of the existing rip-rap revetments at Sites 1 and 3 and construction of the preferred vertical seawall alternative at these locations shall be completed within 5 years of this CDP approval.

2. **Carmel Shoreline Management Plan.** WITHIN THREE (3) MONTHS OF THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the City shall resubmit the Carmel Shoreline Management Plan for incorporation into the LCP Implementation Plan. To fulfill the requirements of prior coastal development permits (e.g., 3-83-217-A4 and 3-00-140), the existing Shoreline Management Plan planning efforts shall be updated to include procedures and methods for responding to emergency situations arising from shoreline erosion *and* procedures to obtain coastal development permits, emergency CDP's, and permit amendments for all Plan-identified maintenance activities and other development. The Plan shall cover the area seaward of and including the first through public road inland of Carmel Beach (i.e., North San Antonio Avenue, Ocean Avenue, and Scenic Road) including: all of Carmel Beach, the bluffs and dunes backing Carmel Beach, Scenic Road, the Scenic Road recreational trail, the Ocean Avenue parking lot, and all accessways to Carmel Beach from the first through public road. The Plan shall be prepared in consultation with: (1) a licensed geologist or civil or geotechnical engineer; and (2) a licensed landscape architect or equivalent resource specialist experienced with Carmel beach and bluff vegetation. Updates to the Plan shall at a minimum include:

   (a) **Emergency Erosion Response.** Procedures and methodologies for responding to an emergency situation arising from shoreline erosion where emergency is defined as "a sudden unexpected occurrence demanding immediate action to prevent or mitigate loss or damage to life, health, property, or essential public services."

   (b) **Coastal Permitting.** Procedures to obtain coastal development permits, emergency coastal development permits, and/or permit amendments from the Coastal Commission and, when the City's Local Coastal Program is certified, from the City of Carmel, for all Plan-identified maintenance activities and other Plan development. All maintenance activities shall be identified as either: (1) regular routine activities (examples may include, but are not limited to: retrieval of rocks from revetments; placement of soils on the blufftop and atop revetments and seawalls; removal of invasive exotic plants and replanting of bluff and back-beach vegetation; regrouting and minor repair of rockwork in existing seawalls, stairways, trash enclosures, etc.; clearing of vegetation from access trails to the beach; etc.), or as (2) non-routine activities (examples may include, but are not limited to: seawall or revetment repairs; recontouring of beach sand at the

base of revetments; stairway replacement, etc.).

3. **Carmel Shoreline Management Plan Implementation.** WITHIN THRTY (30) DAYS OF COMMISSION APPROVAL OF THE CARMEL SHORELINE MANAGEMENT PLAN, the Permittee shall apply for a multi-year coastal development permit from the Coastal Commission, and from the City of Carmel if applicable, to undertake the regular routine maintenance activities identified by the approved Carmel Shoreline Management Plan. Those activities identified as non-routine maintenance activities and as other development by the approved Carmel Shoreline Management Plan shall require separate coastal development permit or permit amendment applications.

4. **Assumption of Risk, Waiver of Liability and Indemnity Agreement.** By acceptance of this permit, the Permittee acknowledges and agrees: (a) that the site is subject to hazards from episodic and long-term bluff retreat, waves, flooding, liquefaction and erosion; (b) to assume the risks to the Permittee 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 landowner.

5. **Landscaping**. All plantings installed in the project area shall be native or non-invasive, as well as drought-tolerant.

Recommended Findings and Declarations

The Commission finds and declares as follows:

3. Project Description & Background

A. Project Location

The project proposes to retain revetment repair work approved by emergency permit on January 29, 2003, at three locations below Scenic Road and the Scenic Road public recreational trail between 13th Avenue and Santa Lucia Avenue, along the back-beach of Carmel Municipal Beach in the City of Carmel-by-the-Sea in Monterey County. All of the property involved is owned by the City of Carmel. See Exhibit A for a map showing both the general project location, Exhibit C for individual site locations, and Exhibit D for photos of the three individual sites involved.

B. City of Carmel Shoreline Coastal Permitting History

In 1974, the Commission approved the original Carmel Beach Management Plan that described the use of shoreline protection structures and landscaping to stabilize slopes along Scenic Road in order to protect both Scenic Road and the character of the Carmel Beach itself (P-980, approved November 4, 1974). This original plan acknowledged the need to protect the bluffs through a combination of retaining walls, landscaping, and sand contouring that would look in harmony with natural beach and bluff appearance. The stated main goal of the plan was "to preserve the beauty of this unique and scenic area" by maintaining the bluff as a greenbelt between the white sand beach and Scenic Road.

The 1974 coastal permit also authorized beach bluff seawalls at four different locations as well as multiple stairways to the beach. This 1974 shoreline work was augmented in 1979 by additional rip-rap revetments at the coves at 12th and 13th Avenues (P-79-320, approved by the Commission June 25, 1979).

The severe 1982-83 El Niño winter storms caused extensive damage to not only the beach itself, but to the existing revetments, seawalls, bluff slopes, stairways, and utilities. These winter storms removed much of the beach and large portions of blufftop leaving the remaining bluffs, shoreline protective work, and stairways unprotected from wave attack. In addition, major damage was caused by storm water runoff and groundwater drainage, which weakened the natural bluffs along Carmel Beach.

In 1983, the Commission approved Phase 1 of the Carmel Beach Restoration Plan (3-83-217-A1, November 15, 1983) as an amendment to the original Beach Management Plan. Phase 1 consisted of the installation of emergency restoration measures in the form of major areas of rip-rap revetment (approximately 10,000 tons of rip-rap), reconstruction of lost stairways, repair of failed bluffs, and interim sand replenishment. The 1983 approval included the revetment(s) currently proposed for repairs running north of Santa Lucia Avenue (Site 3 in the current application). An important part of these Phase 1 repairs was the construction of the City's shoreline storm drainage system designed to relieve pressure on the bluffs from water saturation and to redirect storm drainage away from stairs and bluff slopes.

In 1987, the Commission approved another segment of seawall at the terminus of 12th Avenue (immaterial amendment approved April 6, 1987) and further amended the Beach Management Plan through Phase 2 of the Carmel Beach Restoration Plan (3-83-217-A2, approved June 9, 1987). Phase 2 was the culmination of 3 years of planning efforts and resulted in redirecting Scenic Road to one-way to make way for access improvements, the development of the blufftop scenic walkway, designed public parking, rebuilding of 5 stairways, creation of a sand ramp for handicapped access, revegetation of bluff slopes, construction of visitor amenities (i.e., benches, trash receptacles, drinking fountains, etc.), and guardrails to direct pedestrians away from fragile bluff slopes to developed accessways.

In 1997, the Commission approved additional armoring in the form of a camouflaged revetment between 11th and 12th Avenues below Scenic Road (CDP 3-83-217-A4, approved November 6, 1997). More recently, in 2000, the Commission approved the placement of 120 – 180 tons of stacked rip-rap stones at the base of an existing granite-faced vertical seawall (site 1 of the current application -13th Avenue) to

forestall undercutting of the wall and public access stairway at this location (CDP 3-00-140 approved April 13, 2001). As approved, the revetment is approximately 60' long and 10' wide. In addition to the installation of the revetment, CDP 3-00-140 also permitted a 25' extension to an existing pre-coastal act vertical seawall (site 2). The seawall in this location has existed since the late 1950's and is faced with golden granite-rock.

C. Carmel Beach Recreational System Today

The comprehensive work begun in 1983 and completed in 1988 through Phases 1 & 2 of the Carmel Beach Restoration Plan, as augmented by work undertaken both previously and since, has defined the Carmel Beach recreational experience and character. Together Carmel Beach, the bluffs, the blufftop trail, and Scenic Road itself combine to form a world-renowned, diverse, much-used, and visually significant system of public access.

The Scenic Road trail system is a unique public pathway that is defined in part by its natural symbiosis with the undulating bluffs and landscape canopy falling off to the beach below. The decomposed granite pathway meanders between tree-dotted, vegetated bluff outcrops and the rock curb that defines the edge of Scenic Road inland. Most of the blufftop area is landscaped by the City and is complemented by nine stairways and a series of benches and overlooks, many of the improvements faced with decorative rockwork in keeping with the informal organic aesthetic. The trail provides a panoramic view of Carmel Bay and the beach below (see photo 1 of Exhibit D).

In terms of shoreline armoring, to the extent one can make such assertions regarding such unnatural structures, the existing armoring in Carmel is widely recognized as some the most aesthetically pleasing in the State. The seawalls here undulate with the natural curves of the bluffs and are faced with indigenous Carmel golden granite, overtopped with hardy cascading vegetation that help to soften the walls and provide a visual transition to the blufftop trail system above (see, for example, photos 3 and 4 of Exhibit D). The existing revetments are unique in that the City has an active management system in place to camouflage the piles of rock by covering the base of such revetments with sand and the upper portion with a soil and vegetation cap that is, again, integrated with the upper blufftop plantings. Although winter storm events and scour can remove such camouflage during peak events, the City regularly re-camouflages the revetments (see photo example in Exhibit E). During most active beach use periods, the revetments appear as natural back-beach bluff dune slopes. The effect of the City's efforts is that the armoring generally melds with the Carmel Beach aesthetic and character. Although not always readily apparent at first glance, almost the entire shoreline along the southern end of Carmel Beach (i.e., south of Ocean Avenue) is currently armored (see Exhibit B).

D. Project Description

The Applicant proposes to retain three individual revetment repairs, undertaken pursuant to 3-03-013-G, as follows (see also proposed project plans in Exhibit C, and photos of the sites in Exhibit D):

Site 1

The City repaired the existing permitted rip-rap revetment by resetting displaced large armor stones and filling voids with approximately 50 tons of ¼ to ½ ton rock at the base of a currently undermined existing golden-granite faced seawall perched atop the sandstone just north of the 13th Avenue stairway. Installation of approximately 120 to 180 tons of rip-rap was approved in 2001 at this location (CDP 3-00-140), but due to significant wave action, structural integrity of the revetment had been compromised. The rock is keyed into the underlying bedrock for structural stability and extends roughly 60 linear feet between a natural notch in the sandstone below the existing wall. The rock was placed below the summer sand level and is designed to address ongoing scour that has undermined the existing wall. The rip-rap repair acts as the footing for the existing vertical seawall where erosive scour has removed the sandstone previously supporting this wall segment. Rip-rap was chosen for this repair location because of the scoured configuration of the underlying sandstone (the existing notch) as well to help diffuse wave energy that would otherwise be focused into the walled cove at this location during times of heavy storm driven waves. Emergency repair to the existing revetment was essential to protect the footing of the vertical seawall and prevent a collapse of this structure.

Site 2

At this location, the City repaired and filled a moderately sized sinkhole behind the existing golden-granite faced seawall just south of the 13th Avenue stairway. The settled topsoil was removed from the sinkhole and the sinkhole was filled with 18 inch and 6 inch gabion rock. Filter fabric was placed over the rock and the excavated topsoil replaced. The bluff slope was re-vegetated with drought tolerant native coastal plantings. Without repair, the existing vertical wall may have soon failed.

Site 3

Similar to site 1, the City repaired the existing permitted rip-rap revetment(s) by resetting the displaced large armor stones and filling voids with approximately 10 tons of ¼ to ½ ton rock at the base of the bluff near the terminus of Santa Lucia Avenue. Emergency repair of the rip-rap revetments was necessary to protect the public access stairway, storm water outfall, and the only public restroom facility currently serving the southern portion of Carmel Beach (there is another public restroom at the base of Ocean Avenue to the north) at this location.

E. Standard of Review

The entire City of Carmel falls within the coastal zone. The City does not have a certified Local Coastal Program (LCP), though the Commission recently certified the City's LUP. A broad categorical exclusion (E-77-13) was granted to the City, which, among other things, exempts most residential development from coastal permitting requirements. However, development along the Scenic Road shoreline and on the beach is not excluded by the order. Thus, although the LUP can provide useful guidance in evaluating project consistency with the Coastal Act, the standard of review for the proposed development is the Coastal Act.

4. Coastal Development Permit Determination

A. Hazards

1. Coastal Act and LUP Policies

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

> ***Section 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 avoid additional, more substantial protective measures in the future. Section 30253 provides, in applicable part:

> ***Section 30253.*** *New development shall:*
>
> *(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 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 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, new shoreline structures may be approved if: (1) there is an existing structure in danger from erosion; (2) shoreline altering construction is required to protect the existing threatened structure; and (3) the required protection is designed to eliminate or mitigate the adverse impacts on shoreline sand supply. Repair of existing seawalls can be either exempt from permit requirements or required to obtain a permit depending on the nature of the repair (Title 14 CCR, Section 13252(a)).

In addition to the applicable Coastal Act sections, P5-5 of the City's certified Land Use Plan states in part:

> ***P5-5*** *Protect public access, Scenic Road, and the aesthetic character of the coast by maintaining existing seawalls and engineered revetments. When any existing seawalls or revetments need to be replaced or substantially reconstructed, review seawall and revetment design alternatives, as well as other beach management strategies and determine the best balance among objectives for access, aesthetics and protection of coastal resources (biological, geological, and recreational)… For the beach and shoreline area, only consider the installation of new protective structures after careful review of alternatives and when to existing structures in danger of erosion. Mitigate the impacts of shoreline protective structures on visual quality and beach dynamics using landscaping, sand management and prudent engineering.*

Policies P5-15 and P5-22 of the certified LUP require the applicant to evaluate specific seawall alternatives to minimize impacts to access and sand supply.

> ***P5-15*** *Evaluate the potential to replace existing revetments with faced vertical seawalls or seawalls designed to mimic the natural bluff face to reduce sandy beach area coverage and the need for sand bulldozing. All replacement structures must be found compatible with the areas aesthetic qualities. Recognize that physiographic conditions may dictate a better alternative (e.g., when a specific area of the beach is more susceptible to reflected wave energy and consequent accelerated scour).*
>
> ***P5-22*** *Maintain records of the volumes of sand moved and the volumes needed to cover each engineered revetment. When revetments fail or need to be substantially reconstructed or replaced, consider vertical seawalls as a preferred alternative unless monitoring data and/or engineering requirements favor an engineered revetment design.*

Recognizing that the seawalls have adverse affects on sand supply, public access, and coastal views, the City's LUP policies require applicants to evaluate seawall alternatives, choose the least damaging feasible alternative, and provide mitigation for project impacts. The LUP places particular emphasis on evaluating vertical and natural-loooking seawall designs as a preferred alternative to revetments, both existing and proposed.

2. Hazards Analysis

Existing Structures to be Protected

As described earlier, the project is primarily a repair project designed to protect the structural integrity of the previously permitted armoring structures originally designed to protect Scenic Road and the recreational trail system on the bluff above Carmel Beach. Almost all of the bluffs below Scenic Road are currently armored (see Exhibit B). As such, the Commission has previously recognized the inland structures at risk here (e.g., Scenic Road, public parking, and access system) as existing development for

which shoreline armoring is appropriate under Section 30235. As described in the project description section of this report, the public access facilities at this location are resources of tremendous local and statewide value.

Danger from Erosion

The City's consulting engineering geologist, Rogers Johnson, has been studying the oceanographic and geologic conditions at Carmel Beach for many years.[1] Evidence in the file shows that the bluffs at Carmel Beach have been actively eroding for as long as records have been kept. From historic records[2] and thorough field investigation, Mr. Johnson concluded that, while highly variable, average long-term erosion rates along Carmel Beach (taking into account steady erosion as well as severe episodic events) range from 0.7 to 2.35 feet per year.[3] Erosion has more recently been slowed as the bluffs have now made their way back to Scenic Road and the recreational trail in most cases and have been armored. In fact, until the 1982-83 El Niño storms, there was roughly 30 feet of additional bluff area present in the general vicinity of the proposed project; the winter storm episodes of 1982-83 removed this bluff area.

Bluff retreat rates can be notoriously difficult to accurately predict, although an increased understanding of coastal processes is improving the reliability of estimates. In this case, the City's consulting engineering geologist has provided a range of applicable rates based upon analysis of an array of source information pertaining to Carmel Beach. Because of the importance of public recreational resources at stake here (as described earlier) and the value of Scenic Road as a critical access road, the most cautious approach is warranted and the analysis of the threat from ongoing erosion needs to based on the conservative end of the estimated erosion spectrum. To rely instead on the less conservative end (i.e., the lowest erosion estimate), does not make good public policy and planning sense in this case. As such, 2.35 feet per year is the long-term rate used to estimate erosion for purposes of establishing the threat to existing structures in this report.

To conclusively show that the structures in this case are in danger from erosion, there must be an imminent threat to these structures. While each case is evaluated based upon its own merits, the Commission has generally interpreted "imminent" to mean that a structure would be imperiled in the next two or three storm cycles (generally, the next few years).

At Site 1 (see Exhibits C and D), the public access stairway is directly connected to the existing seawall that is being undermined. Absent the proposed repair <u>and augmentation</u> of the rip-rap at the base of this seawall to reset the displaced armoring stones and infill the voids in the revetment, the previously approved seawall will be lost, and the stairway itself could be compromised, within the next year or so,

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1 Mr. Johnson's comprehensive background work in 1984 formed the basis for the complete makeover of the Carmel beach and bluff access system (Phase 2 of the Carmel Beach Restoration Plan; CDP 3-83-217-A2, approved June 9, 1987); *Phase II Report, Carmel Beach* by Rogers E. Johnson and Associates, February 22, 1984.

2 Information used in this assessment included: U.S. Coast Guard and Geodetic Survey topographic and hydrographic maps from as far back as 1876; United States Geologic Survey maps from 1945; City Assessor Parcel Maps from 1908; nine sets of aerial photographs from as early as 1939; historic beach profiles from the 1940s; interviews with long-time City residents and Public Works personnel; and current field measurements.

3 Johnson (1984).

if not before.

At Site 2 (see Exhibits C and D), a sinkhole has formed behind an existing vertical seawall that is now susceptible to being undermined. Without placing gabion rock at the bottom of the hole and back filling the void with topsoil, the undercut section of the existing vertical seawall may fail and an even greater portion of the bluff (and public access improvements landward of this location) retained by the wall lost in a very short period of time.

At Site 3 (see Exhibits C and D), the pathway atop the bluff is located from about 4 feet to about 10 feet from the bluff edge, Scenic Road is roughly 20 feet from the top of the bluff, there is a vertical access stairway and storm water outfall immediately landward of the existing revetment already present at this site. The proposal is to reset the displaced stacks of rip-rap and place additional rock within the voids of the revetment. Without the proposed revetment repair, it is possible the vertical accessway and storm drain outfall will be lost in the next storm cycle and the pedestrian pathway and other public access improvements lost shortly thereafter.

Overall, there appears to be clear evidence that repair of the existing armoring, including augmentation of existing revetments in two locations, is needed and that significant near term risk exists to the extensive public access and recreation improvements as well as the City's storm drain outfall landward of Scenic Road should the project not occur. Without the proposed project, ongoing erosion can be expected to result in up to roughly 2 feet of bluff loss per year in the affected reach of Carmel Beach. Such continued erosion can be expected to result in the loss of sections of existing permitted seawalls and revetments, the pathway system to varying degrees, and ultimately Scenic Road itself. Substantial evidence has been provided to document the erosion danger at these locations and the Commission finds that the existing structures at these locations are in danger from erosion for the purposes of Section 30235 and that repair is warranted.

Feasible Protection Alternatives

Section 30235 of the Coastal Act requires that, where permitted, shoreline structures must be designed to eliminate or mitigate impacts on local sand supplies. Thus, project alternatives that avoid and reduce impacts on sand supply, such as the amount of beach coverage, must be pursued. Section 21080.5(d)(2)(A) of CEQA likewise prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse effect that the activity may have on the environment. The City's land use plan policies require an evaluation of shoreline armoring alternatives. Specifically, the LUP requires the City to evaluate the potential to replace rip-rap revetments with vertical walls to reduce the structural encroachment on the sandy beach and to eliminate the need for ongoing sand manipulation.

Other alternatives typically considered include: the "no project" alternative; abandonment of threatened structures; relocation of the threatened structures; and other drainage and maintenance programs on the blufftop itself. An evaluation of alternatives was conducted during the original review of the structures being repaired (3-83-217-A1 & 3-00-140), which concluded that the "no project" as well as other "soft" options was inadequate to forestall erosion and the loss of the Scenic Road public access amenities.

Likewise, relocation of the access amenities was found to be infeasible due to the narrow road right-of-way and little room to relocate the pedestrian path landward. Thus, absent some form of armoring, the public access amenities along Scenic Road would be lost.

In this instance, rip-rap revetments were installed at the location of Site 1 in 2001 and at Site 3 in 1984. The rip-rap at site 1 currently occupies a 600 square foot area (60' x 10') in a notch in the sandstone bedrock adjacent to the 13th Avenue access stairway. The revetment rises from +2' above mean sea level to approximately +9' above mean seal level. During the winter, the sand profile is low and much of the rip-rap is exposed, impeding access at this location. The summer beach profile covers more of the rip-rap, but not entirely. The rip-rap at site 3 is located further up the beach bluff at a higher elevation than site 1 (+2' MSL to +16' MSL). The revetment covers approximately 800 square feet of back beach area (50' x 16'), much of it exposed throughout the year. These revetments impede public access, degrade the visual aesthetics of Carmel Beach, require annual beach sand manipulation to disguise the revetments, and impose a host of temporary impacts associated with maintenance of the structures. Many of these impacts have been reduced or eliminated through the installation of vertical walls elsewhere in the City. At site 2, a vertical wall was installed prior to adoption of the Coastal Act in the 1950's, there is no rip-rap.

In response to concerns raised regarding the adverse impacts associated with installing, maintaining, and mitigating revetments along the City's shoreline, the City adopted LUP policies (P5-5 and P5-15) that require an evaluation of alternatives when shoreline armoring is necessary, as well as, evaluating the potential to replace existing revetments with vertical seawalls to lessen the environmental and coastal resource impacts. Throughout the City, vertical walls have proven to be superior to other forms of shoreline armoring such as rip-rap revetments because they minimize encroachment on the sandy beach area, are less visually intrusive, require less maintenance, and do not require sand manipulation. The City has installed vertical wall armoring along the beach bluffs and with the exception of a small pocket cove (the area under consideration in this permit -Site 3), the entire length of the back beach bluff from 13th Avenue to Martin Way (city limits) is armored with Golden Granite-faced vertical walls.[4] Because the damage to the revetment necessitated an immediate response early in the 2002 –2003 winter storm season, and was implemented by an emergency permit, the City did not have time to evaluate alternatives including removing the rip-rap and extending the vertical wall down to the bedrock at Site 1, and replacing the rip-rap at Site 3 with a golden granite faced vertical wall. Accordingly, these alternatives must be fully considered during the review of this follow-up application.

As detailed in the following findings, vertical seawalls are generally preferable to maintaining the existing revetment in this location because they occupy a smaller footprint on the back beach and are less visually intrusive, eliminating the need for public access and visual impact mitigation (i.e., sand manipulation). In addition, vertical walls typically require less maintenance and by extension fewer temporary impacts to public access, visual resources and the ambient quality of the beach and bluffs.

[4] The pocket cove area (site 3) is currently armored with rip-rap and requires a fair bit of sand manipulation each year to camouflage the bare rock and maintenance to reset displaced boulders and make the area accessible/usable to beach goers. This area is subject to high wave energy in the fall and winter, which strips the revetment of its sand covering and displaces the large armoring stones, in turn leading to ongoing maintenance of the structure.

Anecdotal evidence further suggests that vertical seawalls may maintain their structural integrity longer, without the need for substantial reconstruction, than rip-rap revetments.

Sand Supply Impacts

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.

If natural erosion were allowed to continue (absent the existing armoring), some amount of beach material would be added to the Carmel Beach sand supply system. The volume of total material which would have gone into the sand supply system over the lifetime of the shoreline protective devices 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.

Similarly, experts generally agree that where the shoreline is eroding and armoring is installed, as is the case with Carmel Beach bluffs, shoreline armoring will eventually define the boundary between the sea and the upland. This is definitely the experience at Carmel Beach, particularly the southern end of the beach where the six proposed sites are located, where most of the shoreline south of Ocean Avenue is currently armored (see Exhibit B). On an eroding shoreline fronted by a beach, the beach will be present as long as some sand is supplied to the shoreline. As erosion proceeds, the profile of the beach also retreats. This process stops, however, when the retreating shoreline comes to a revetment or a seawall. While the shoreline on either side of the armor continues to retreat, shoreline retreat in front of the armor stops. Eventually, the shoreline fronting the armor protrudes into the water, with the winter mean high tide line 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.

Shoreline protective devices such as seawalls, revetments, gunnite facings, groins, et cetera are also physical structures which occupy space. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used as beach. This generally results in a loss of public access as well as a loss of sand. 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 beach area located beneath a shoreline protective device, referred to as the encroachment area, is the area of the structure's footprint.

Section 30235 requires that shoreline structures must be designed to eliminate or mitigate adverse impacts to local shoreline sand supply. The sand supply impacts associated with retention of beach sand material, fixing the back beach, and encroachment on the beach, as well as the assessed mitigation for these impacts were addressed in prior permits that authorized the installation of rip-rap and/or vertical seawalls at the three subject sites (3-00-140, sites 1 & 2; 3-83-217-A1, site 3). This mitigation included, in part, the completion and submittal of the City's Shoreline Management Plan (the Plan). The staff report findings for 3-00-140 concluded that there were identifiable impacts associated with armoring at Carmel Beach, and that the best solution for addressing long-term sand supply impacts would be through a comprehensive evaluation of shoreline trends and the establishment of response mechanisms to identified impacts as directed by the Plan. This approval is likewise conditioned for re-submittal of the updated Carmel Beach Shoreline Management Plan (see Special Condition 2) and implementation of the Plan via a multi-year coastal development permit (see Special Condition 3). Such a plan will provide the context and methodology to ensure long-term protection of Carmel Beach and its related access facilities for future generations to enjoy.

The current application to repair the existing seawall structures includes augmentation of the amount of rip-rap rock, though the footprint of the structures remain unchanged (i.e., the additional rock does not cover any additional beach area or retain additional bluff material). The back beach in these locations has already been fixed and the repair project will have not additional effect on this. Though the repair and augmentation of the City's revetments will not lead to any additional direct sand supply impacts, there are indirect impacts associated with this type of armoring. As part of the mitigation package for previously approved rip-rap revetments, the City performs beach "grooming" to cover the revetments with beach sand. Each year, prior to the summer vacation season, the City bulldozes the beach sand up on top of the rip-rap revetments. See Exhibit E. This temporarily camouflages the unsightly visual aesthetics of the revetments and provides more usable beach area along the back beach, until visitor use, along with wind and wave action, eventually strips the revetments of the sand covering and the whole process starts anew the following year. It is unclear what effect, if any, the City's annual bulldozing is having on the Carmel Beach sand supply system. Although recent anecdotal evidence is that the beach here is in a relative state of equilibrium, at least one study indicates that the beach may be retreating.[5] Given the importance of the sandy beach resource, the most conservative tact is warranted. Because vertical walls typically are installed down to the bedrock, there is no need for sand manipulation to cover the base of the wall. Thus, by replacing the rip-rap revetments with vertical seawalls, the ongoing need to mitigate for visual and public access impacts through sand manipulation can be eliminated along with any potential sand supply impacts. In addition, vertical walls will reduce the amount of sand covered by the revetment by minimizing the structure's footprint. Special condition 1 requires the applicant to submit plans to replace the existing rip-rap revetments with vertical seawalls that either

[5] A recent article in the Journal of Marine Geology reported that the beach width at Carmel Beach has narrowed noticeably in the last 40 years (C.D. Storlazzi, M.E. Field / Marine Geology 170 (2000) 289 - 316).

mimic the natural bluff form or are similar in design and look to the surrounding decorative seawalls elsewhere along Carmel Beach. In so doing, the indirect sand supply impacts that may arise with beach sand manipulation will be avoided.

Thus, as conditioned to replace the existing rip-rap with a vertical seawalls and avoid potential future sand supply impacts, the project is consistent with section 30235 of the Coastal Act.

Long Term Structural Stability

Coastal Act Section 30253 requires the project to assure long-term stability and structural integrity, minimize future risk, and avoid additional, more substantial protective measures in the future. For the proposed project, the main Section 30253 concern is assuring long-term stability. This is particularly critical given the dynamic shoreline environment within which the proposed project would be placed.

Moreover, with global warming and sea level rise, increased wave heights and wave energy are likewise expected. Along much of the California coast, the bottom depth controls the nearshore wave heights, with bigger waves occurring in deeper water. Since wave energy increases with the square of the wave height, a small increase in wave height can cause a significant increase in wave energy and wave damage. So, combined with the physical increase in water elevation, a small rise in sea level can expose previously protected back shore development to both inundation and wave attack, and those areas that are already exposed to wave attack will be exposed to more frequent wave attack with higher wave forces. Structures that are adequate for current storm conditions may not provide as much protection in the future.

A second concern with global warming and sea level rise is that the climatic changes could cause changes to the storm patterns and wave climate for the entire coast. As water elevations change, the transformation of waves from deep water will be altered and points of energy convergence and divergence could shift. The new locations of energy convergence would become the new erosion “hot spots” while the divergence points may experience accretion or stability. It is highly likely that portions of the coast will experience more frequent storms and the historic “100-year storm” may occur every 10 to 25 years. For most of California the 1982/83 El Niño event has been considered the “100-year storm.” Certain areas may be exposed to storms comparable to the 1982/83 El Niño storms every few decades.

In an attempt to ensure stability under such conditions, the Commission has required that all new shoreline structures be designed to withstand either a 100-year storm event, or a storm event comparable to the 1982/83 El Niño. The existing revetments are designed to be flexible and move when subject to extreme wave energy. Though revetments perform reasonably well, the unconsolidated armor stones tend to migrate from their original position onto the sandy beach and into the surf line reducing the effectiveness of protection against storm surf and creating a hazard for beachgoers. For example, the rip-rap revetment placed beneath the vertical wall at site 1 was installed under permit 3-00-140 in 2001 to prevent undermining of a vertical seawall and a public access stairway. Less than 3 years later, the rip-rap requires substantial maintenance and augmentation to reset displaced rock and back-fill the voids in the structure.

The City's LUP policies require an evaluation of vertical wall alternatives when permitted shoreline structure has been structurally compromised and is in need of substantial reconstruction. Though this analysis was not prepared, anecdotal evidence suggest that the vertical walls that have been installed along Carmel's shoreline have weathered storm-driven surf and wave attack much better, requiring mainly maintenance and repair to the wall's decorative facing. In limited instances more significant repair work is needed, such as backfilling the sinkhole at site 2, but typically it does not include a significant maintenance or reconstruction of the seawall.

Since it is possible that storm conditions may worsen in the future, and the efficacy of rip-rap is insufficient in these locations, the Commission is requiring the applicant to submit plans for replacement of the existing rip-rap with vertical seawalls that either mimic the natural bluff face or vertical walls that have decorative Golden Granite rock placed on the outer facing consistent with the Carmel Beach aesthetic. Special Condition 1 requires the applicant to evaluate alternatives, prepare final seawall plans and submit a coastal development permit to replace the existing revetment within 3 years, and complete the replacement of the rip-rap with a vertical wall within 5 years of the date of issuance of the coastal development permit.

Critical to the task of ensuring long-term stability as required by Section 30253 is a formal long-term monitoring and maintenance program. The City indicates that it is currently revising its comprehensive Shoreline Management Plan for this, and other, purposes. The intent is that such a plan would become a component of the LCP. However, such an adopted plan is not currently in place.

If the repaired armoring was damaged in the future (e.g. as a result of wave action, storms, etc.) it could further threaten the stability of the pathway system and Scenic Road, which could lead to the need for more bluff alteration and/or more substantial armoring. In addition, such damages could adversely affect the beach by resulting in debris on the beach and/or creating a hazard to the public using the beach. Therefore, in order to find the proposed project consistent with Coastal Act Section 30253, the armoring must be maintained in its approved state. Further, in order to ensure that the City and the Commission know when repairs or maintenance are required, the City must regularly monitor the condition of the subject armoring, particularly after major storm events. Such monitoring will ensure that the Permittee and the Commission are aware of any damage to or weathering of the armoring and can determine whether repairs or other actions are necessary to maintain the structures in their approved state before such repairs or actions are undertaken. To assist in such an effort, monitoring plans should provide vertical and horizontal reference distances from armoring structures to surveyed benchmarks for use in future monitoring efforts.

The City was previously required to prepare such a comprehensive monitoring and maintenance plan as part of the Commission's 1997 approval.[6] As previously described, this plan has not yet been revised and implemented as required by previous Commission actions. To ensure that the armoring repairs and augmentations are properly maintained to ensure their long-term structural stability as directed by the Act, the required updated monitoring and maintenance plan must be submitted; see Special Condition 2.

[6] Special Condition 8 of CDP 3-83-217-A4 and Special Condition 2 of CDP 3-00-140.

Such a plan shall provide for evaluation of the condition and performance of the approved seawalls and revetments and overall bluff stability, and shall provide for submittal of regular reports with recommendations, if any, for necessary maintenance, repair, changes or modifications. Plan-identified maintenance activities will be the subject of a separate coastal development permit application (see Special Condition 3). As so conditioned, the project is consistent with section 30253 of the coastal act.

Assumption of Risk

The experience of the Commission in evaluating the consistency of proposed developments with Coastal Act policies regarding development in areas subject to problems associated with geologic instability, flood, wave, or erosion hazard, has been that development has continued to occur despite periodic episodes of heavy storm damage, landslides, or other such occurrences. Oceanfront development is susceptible to bluff retreat and erosion damage due to storm waves and storm surge conditions. Past occurrences statewide have resulted in public costs (through low interest loans and grants) in the millions of dollars. As a means of allowing continued development in areas subject to these hazards while avoiding placing the economic burden on the people of the state for damages, the Commission has regularly required that Applicants acknowledge site geologic risks and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed.

The risks of the proposed project include that the armoring will not protect against damage to the recreational structures from bluff failure and erosion. In addition, the armoring structures themselves may cause damage by increasing erosion up and downcoast of the structures. Such damage may also result from wave action that damages the armor itself. Although the Commission has sought to minimize these risks, the risks cannot be eliminated entirely. Given that the Applicant has chosen to construct the proposed project despite these risks, the Applicant must assume these risks. Accordingly, this approval is conditioned for the Applicant to assume all risks for developing at these locations (see Special Condition 4). Specifically, Special Condition 4 requires the City to acknowledge the risks and indemnify the Commission against claims for damages that may be brought by third parties against the Commission as a result of its approval of this permit.

3. Hazards Conclusion

As discussed above, the facts of this particular case show that the proposed project would repair previously permitted armoring and protect inland public access improvements and structures currently in danger from ongoing erosion. The Commission has recommended an alternative to the proposed armoring repairs and augmentations that are necessary to maintain the integrity of the existing permitted armoring system that currently extends along most all of the City of Carmel shoreline. Shoreline sand supply impacts and the long-term structural stability concerns are mitigated by a combination of the conditional requirement for an alternate project and an updated comprehensive Carmel Beach beach and bluff management plan. Long term monitoring and maintenance to ensure long-term structural stability is likewise encapsulated in the conditionally required plan. As so conditioned, the proposed project is consistent with Coastal Act Sections 30235 and 30253 as discussed in this finding.

B. Public Access and Recreation

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

> ***Section 30210:*** *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*
>
> ***Section 30211:*** *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*
>
> ***Section 30213:*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*
>
> ***Section 30214(a):*** *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case…*
>
> ***Section 30221:*** *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*
>
> ***Section 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. 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.*

In addition to the applicable Coastal Act sections, P5-5 of the City's certified Land Use Plan states in part:

> ***P5-5*** *Protect public access, Scenic Road, and the aesthetic character of the coast by maintaining existing seawalls and engineered revetments. When any existing seawalls or revetments need to be replaced or substantially reconstructed, review seawall and revetment design alternatives, as well as other beach management strategies and determine the best balance among objectives for access, aesthetics and protection of coastal resources (biological, geological, and recreational)… For the beach and shoreline area, only consider the installation of new protective structures after careful review of alternatives and when to existing structures in danger of erosion. Mitigate the impacts of shoreline protective structures on visual quality and beach dynamics using landscaping, sand management and prudent engineering.*

Policy P5-15 of the certified LUP requires the applicant to evaluate specific seawall alternatives to minimize impacts to access and sand supply.

> ***P5-15*** *Evaluate the potential to replace existing revetments with faced vertical seawalls or seawalls designed to mimic the natural bluff face to reduce sandy beach area coverage and the need for sand bulldozing. All replacement structures must be found compatible with the areas aesthetic qualities. Recognize that physiographic conditions may dictate a better alternative (e.g., when a specific area of the beach is more susceptible to reflected wave energy and consequent accelerated scour).*

Carmel Beach is owned and maintained by the City of Carmel and accounts for over 20 acres of fabulous white sand beach. The beach is used year round and represents a major recreational and economic resource to the community and the State. The beach attracts an estimated 1,000 persons per day, with larger crowds on holidays and during special events. One of the beach's outstanding features is the sand itself, with the texture and bright appearance of granulated sugar. Beaches composed of such white quartz-feldspar sand are very rare.

Scenic Road and the Scenic Road recreational trail system are also owned and maintained by the City of Carmel. This area is likewise heavily used, providing a complementary experience to the sandy beach for those interested in enjoying the shoreline in a different manner (i.e., for: different vistas, benches, a hard surface for jogging or pushing strollers, for those whose physical condition makes walking on the beach difficult or impossible, etc.). The level of use for the pathway is also at least somewhat dictated by a climate (generally cool temperatures and fog prevalent in Carmel for much of the year) that is oftentimes more conducive to blufftop strolls than more active beach use. As previously described, this trail system is a unique public pathway experience that is defined in part by its natural symbiosis with the undulating bluffs and landscape canopy falling off to the beach below. The decomposed granite pathway meanders between tree-dotted, vegetated bluff outcrops and the rock curb that defines the edge of Scenic Road inland. Much of the blufftop area is landscaped by the City and is complemented by nine stairways and a series of benches and overlooks, many of the improvements faced with decorative rockwork in keeping with the informal organic aesthetic.

The proposed project would ensure the continuity of the trail system, and would preserve the existing trail aesthetic and experience, though there are a number of impacts associated with the proposed repair

and armoring augmentations to accomplish this.

There are ongoing temporary impacts associated with repair and augmentation of the rip-rap revetment. Rip-rap is a flexible type of shoreline armoring that moves when subject to wave attack. Ultimately, as the armor stones move and migrate from their original positions, repair and maintenance is required to replace/reset the stones so that the revetment continues to function properly. The displaced armor stones must be carefully placed with a large crane or excavator; the armor stones can weigh upwards of 6 tons each. Resetting the armor stones and installation of additional rock onto the revetment can take several days. This activity precludes public access to and use of the beach, prevents use of the blufftop pedestrian path, and eliminates public beach parking in the area of the repair work when the crane is in operation. These repair activities also present visual and noise disturbances in an area that is otherwise relatively serene.

Secondly, in order to maintain the visual aesthetic of Carmel Beach and to ensure that maximum public access is provided in the area of the revetments, the City of Carmel manipulates the beach sand. Using a bulldozer, sand from the beach berm is pushed onto the existing piles of rip-rap on the back beach. This creates additional usable beach area but also imposes temporary impacts associated with the operation of heavy machinery on a public beach. See Exhibit E. For about 5 days each year, large stretches of the beach are closed to the public as a bulldozer manipulates the beach sand. In addition to the direct public access impacts (i.e., closure of the beach and access points), there are issues with operating heavy equipment on a pristine beach within the Monterey Bay National Marine Sanctuary. Use of the heavy equipment in and around the tidal zone and beach area can foul coastal waters with oils, grease, and other petroleum products. Similarly, moving sand around the tidal zone and beach area can lead to disruption of shoreline habitat. And as noted in the section above, movement of sand can lead to potential sand supply impacts. All these activities have the potential to indirectly impact public access and recreational pursuits along Carmel Beach. The City has been manipulating the sand under permit by the Commission and the Monterey Bay National Marine Sanctuary to mitigate for public access and visual impacts associated with installation of its rip-rap revetments, however, this mitigation activity itself may be leading to significant temporary and possibly even more permanent impacts for which there is no mitigation.

In addition to the temporary impacts associated with maintaining and camouflaging rip-rap revetments, these structures also impair lateral access along the beach and result in the loss of beach area. As discussed in the Hazards finding above, revetments have a large footprint. In this particular case, the revetment at site 1 occupies roughly 600 square feet of beach area and the revetments at site 3 cover approximately 800 square feet of back beach. This is the amount of area that is lost (unusable) to the public, predominantly during the winter months when the beach profile (sand elevation) is low. The summer sand elevation does cover the rip-rap, particularly at site 1. Though, even at the peak summer sand elevation, the revetments at site 3 remain exposed. The revetments may preclude lateral access along the beach in these areas, during winter high tides.

Thus, staff is recommending special condition 1 requiring the applicant to replace the existing rip-rap revetments at sites 1 and 3 with vertical seawalls that maintain the Carmel Beach aesthetic. The vertical

walls have a smaller footprint and occupy much less of the back beach area while also being much less visually intrusive than rip-rap. In addition, the need to mitigate for public access and visual impacts through beach sand manipulation is eliminated along with the assortment of other indirect public access impacts.

As described in the previous finding, the construction and maintenance of shoreline armoring at Carmel Beach, may ultimately lead to a loss of the sandy beach itself over time. Such a loss would be inconsistent with the Act's protection of this vital and finite public access resource and would commensurately degrade the other existing public recreational facilities here that depend in large measure on the presence and condition of the beach itself. The City maintains that the beach is in a relative state of equilibrium, though, it is not clear that long term trends will validate this hypothesis. Given the importance of the sandy beach resource, the best way to ensure that sandy beach is not lost in the long term is to better understand the long-term shoreline erosion trends at Carmel Beach, particularly as they relate to shoreline armoring, and to develop an appropriate long-term planning response. It may be that preservation of the beach will ultimately require some form of beach nourishment. In either case, the inland beach recreational system as a whole (pathways, parking, restrooms, landscaping, etc.) must be understood within the context of its relationship to the beach.

Therefore, this approval is conditioned for re-submittal of the updated Carmel Beach Shoreline Management Plan (see Special Condition 2). Because the public recreational system is affected by and dependent upon the condition of the beach itself, the shoreline management plan should address the relationship of the beach to beach accessways and inland public facilities (parking, restrooms, etc.) in order to ensure that their utility is not otherwise compromised over time. Such a plan will provide the context and methodology to ensure long-term protection of Carmel Beach and its related access facilities for future generations to enjoy. This approval is likewise conditioned for the City to submit a CDP application to implement ongoing routine shoreline public access system maintenance activities (as identified in the updated plan) to ensure that maximum public access is maintained as directed by the Act (see Special Condition 3). The City indicates that it is nearing completion of its updates to the Shoreline Management Plan and thus, staff has required that the SMP be resubmitted within 3 months of the issuance of the coastal development permit.

As conditioned, long-term management and preservation of the precious public access resources of Carmel Beach will be facilitated. Likewise, because the project includes the replacement of the two revetments with vertical wall segments, a net short-term gain of recreational beach space is expected. In addition, impacts associated with the past practice of sand "grooming" will be eliminated at these locations. Active repair and replacement of the City's revetments through the long-term plan will ensure that similar public access and visual enhancements are encouraged elsewhere. Therefore, as conditioned, the project will protect existing access facilities, and upland recreational lands, while minimizing impacts to lateral beach access and sandy recreational areas, and is therefore consistent with the Coastal Act access and recreation policies cited in this finding.

C. Visual Resources

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 parks and recreation areas such as those involved in this application. 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.*

In addition to the applicable Coastal Act sections, P5-5 of the City's certified Land Use Plan states in part:

> ***P5-5*** *Protect public access, Scenic Road, and the aesthetic character of the coast by maintaining existing seawalls and engineered revetments. When any existing seawalls or revetments need to be replaced or substantially reconstructed, review seawall and revetment design alternatives, as well as other beach management strategies and determine the best balance among objectives for access, aesthetics and protection of coastal resources (biological, geological, and recreational)… For the beach and shoreline area, only consider the installation of new protective structures after careful review of alternatives and when to existing structures in danger of erosion. Mitigate the impacts of shoreline protective structures on visual quality and beach dynamics using landscaping, sand management and prudent engineering.*

An impact of the project on the recreational beach area is the retention of a decidedly unnatural structure in an area of tremendous scenic value. As previously discussed, a primary goal of the original 1974 Carmel Beach Management Plan with regards to shoreline protective work, as amended through 25 years of permitting history, is to maintain the natural beauty of back-beach bluffs. While rip-rap revetments are generally unsightly piles of rock, the City of Carmel has been active with covering its revetments with sand all along the beach. As previously noted, the City's methodology for camouflaging its revetments are leading to a variety of direct and indirect impacts that is degrading the Carmel Beach aesthetic. Conversely, the vertical seawalls along the back-beach undulate with the natural curves of the bluffs and are faced with indigenous Carmel golden granite overtopped with hardy cascading vegetation that help to soften the walls and provide a visual transition to the blufftop trail system above (see, for example, photos 2, 3, and 4 of Exhibit D).

Special Condition 1 requires the applicant to replace the existing rip-rap revetments (Sites 1 & 3) with vertical seawalls consistent with the City's certified LUP and the Carmel Beach aesthetic. The City has indicated that it will re-landscape the failed area behind the existing seawall (Site 2) with an assortment of drought tolerant, non-invasive plantings chosen from its palette of approved beach bluff landscaping plants consistent with LUP policies P5-27 and P5-29. In order to ensure that these efforts are maintained for the long-term, this approval is conditioned for the ongoing monitoring and maintenance of the vertical walls consistent with Shoreline Management Plan goals and policies, and is likewise conditioned for the City to submit a CDP application to implement ongoing routine maintenance contained in the SMP (see Special Condition 3). In addition, special condition 5 requires the City to use native or non-invasive, drought-tolerant landscaping within the project area. With the City's installation of golden-granite seawalls topped with cascading vegetation, these structures should blend into the natural back-beach bluff similar to previous efforts. The effect is that the replacement armoring will generally meld with, and in fact help to define, the Carmel beach aesthetic and character. As such, the scenic and visual qualities of the Carmel Beach will be maintained over the long term.

As conditioned, the Commission finds that the proposed project has been designed in such a way as to minimize public view impacts and will be visually compatible with the character of surrounding area; and, as such, is consistent with Coastal Act Sections 30240(b) and 30251 as discussed in this finding.

D. LCP Planning Process

Coastal Act Section 30604(a) states:

> *Prior to certification of the local coastal program, a coastal development permit shall be issued if the issuing agency, or the commission on appeal, finds that the proposed development is in conformity with Chapter 3 (commencing with Section 30200) and that the permitted development will not prejudice the ability of the local government to prepare a local coastal program that is in conformity with Chapter 3 (commencing with Section 30200). A denial of a coastal development permit on grounds it would prejudice the ability of the local government to prepare a local coastal program that is in conformity with Chapter 3 (commencing with Section 30200) shall be accompanied by a specific finding which sets forth the basis for that conclusion.*

In approving the subject project, the Commission continues to support the preservation of the Scenic Road recreational trail system and Carmel Beach itself. Such an action is consistent with past Commission actions,[7] is consistent with the goals and objectives of the City, and, as discussed in previous sections of this report, is consistent with Coastal Act Chapter 3 policies. The City is currently required to develop an updated Shoreline Management Plan by two previous Commission actions (i.e., the 1997 CDP and the 2001 CDP) and the current LCP completion grant and the conditions of this permit reinforces this requirement and will provide additional data to inform planning efforts.

In any case, it is anticipated that a final post-certification boundary map defining coastal permitting

[7] Past Coastal Commission permitting actions are described in detail in the Project Description section of this report.

jurisdiction in the City of Carmel will show that the Coastal Commission will retain coastal permitting authority over much, if not all, of the beach area as well as portions of the back-beach bluffs where armoring may be pursued in the future. Not to discount City LCP efforts in this regard (because any adopted LCP provisions will provide critical guidance), the Coastal Act will remain the standard of review for development proposed in these areas. As such, it is critical that the City complete their updated beach management plan efforts and that such a plan is pro-actively implemented for Carmel Beach to ensure maximum beach area is available in the future. In addition, because the whole public recreational system is affected by, and dependent upon to a certain degree, the condition of the beach itself, the plan must address the relationship of the beach to beach accessways and inland public facilities (parking, restrooms, etc.) in order to ensure that their utility is not otherwise compromised over time. Such a plan will provide the context and methodology to ensure long-term protection of Carmel Beach and its related access facilities for future generations to enjoy.

For the reasons discussed in this report, the Commission finds that, as conditioned, the proposed project would not prejudice Commission action on future coastal planning decisions regarding development in Carmel and is consistent with Coastal Act requirements that development not prejudice LCP planning efforts that conform to the Coastal Act.

E. 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 which the activity may have on the environment.

The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. The proposed project's coastal resource issues have been discussed in the Commission's findings incorporated herein, and appropriate mitigations have been developed to supplement the City's review of the proposed project. Accordingly, the project is being approved subject to conditions which implement the mitigating actions required of the Applicant by the Commission (see Special Conditions of Approval). As such, the Commission finds that only as modified and conditioned by this permit will the proposed project not have any significant adverse effects on the environment within the meaning of CEQA.