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STAFF REPORT

CDP APPLICATION

Application Number: 2-21-0912

Applicant: City and County of San Francisco (via the San Francisco Public Utilities Commission (SFPUC))

Project Location: The Great Highway road corridor along nearly a mile of shoreline between Sloat and Skyline Boulevards and seaward of the San Francisco Zoo and SFPUC's Westside Pump Station and Oceanside Water Pollution Control Plant in the City and County of San Francisco

Project Description: Remove temporarily authorized armoring and related development; close and demolish the Great Highway; construct SFPUC-only service road; construct a public recreational pathway, beach access stairway, parking lot, and restroom; construct new intersection improvements (at Sloat/Great Highway, Sloat/47th Avenue (a potential project variant), Great Highway/Skyline, and Zoo entrance intersections); construct a buried seawall and related armoring (to protect subsurface wastewater infrastructure); and enhance/restore dune and related habitats

Staff Recommendation: Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

The proposed project is located along and seaward of the Great Highway corridor where it runs along Ocean Beach from Sloat to Skyline Boulevards in the City and County of San Francisco (City) fronting the Pacific Ocean. The Great Highway was initially constructed in 1929 and has been modified many times since, including the addition of major subsurface wastewater infrastructure at various more recent junctures, such as the construction of the Lake Merced Tunnel (or LMT, an 18-foot diameter

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pipeline for combined stormwater/wastewater flows and overflow storage that runs beneath the Great Highway, starting at the Westside Pump Station and extending up and around Lake Merced downcoast), which was completed in 1993. As part of its overflow function, the LMT holds untreated combined stormwater and wastewater flows during periods when the Oceanside Water Pollution Control Plant (WWTP) is unable to treat the quantity of inflow, such as during major storm events. If the quantity of inflow surpasses LMT capacity, the untreated stormwater/wastewater is directly released to the ocean via an overflow pipe that extends 3.5 miles offshore from the LMT in the project area. It is the LMT that the Applicant is applying to protect with armoring in this application, although additional major stormwater/wastewater infrastructure exists directly inland of the LMT in the project area, including the Westside Pump Station and the WWTP.

Originally, and as authorized by the Commission, the LMT and related infrastructure was to be protected via aggressive beach nourishment, and not armoring. However, in the 1990s, and in response to a series of storms that undermined parking areas and threatened the stability of the Great Highway and the LMT, the City armored portions of the project area without CDPs and supplemented such armoring in the 2000s via emergency CDPs. Ultimately, the Commission denied regular CDPs for that work in 2011, leaving it all unpermitted, and directed the City to look at non-armoring alternatives. At the same time, the physical circumstances at the project area continued to deteriorate, and the Commission authorized both nourishment and sand bags as temporary emergency measures to address the problem, and ultimately approved a CDP in 2015 that temporarily authorized all of the prior measures, including the armoring that had been installed to date, and required the City to come in with a long-term plan that could be implemented no later than 2021, where the Commission subsequently extended that deadline twice (via City CDP amendment requests), and where the City is currently required to remove all such temporarily approved armoring measures and implement a long-term plan no later than July 1, 2024 (in other words, the City is currently in violation of this deadline, which passed several months ago).

The proposed project is the City's proposed long-term plan, and it includes: abandoning and removing the Great Highway and constructing a seawall armoring structure seaward of the LMT that would be covered with engineered dunes; constructing a service road (for City wastewater vehicle use only), a public multi-use recreational trail, parking lot (near Skyline), and a restroom (near Sloat) atop the dunes; regular beach replenishment; roadway and intersection modifications; removal of all prior temporary armoring and related development; and dune habitat restoration, all over what has been described as a nearly decade-long construction project. The City estimates that construction costs for the project will amount to approximately \$175 million, and that each beach replenishment event is expected to cost about \$1 million. As such, the proposed project represents a type of nature based adaptation solution, albeit one that is anchored by a substantial armoring structure (and a project that is much more armoring-centric that was originally envisioned by the Commission and the Ocean Beach Master Plan).

In any case, although the LMT is in danger from erosion, it was constructed in the early 1990s and it does not constitute an "existing structure" as that term is understood in a

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Coastal Act armoring sense. As a result, the armoring proposed does not qualify to use the Section 30235 “override”, and because it has significant adverse coastal resource impacts that are inconsistent with a myriad of other Coastal Act provisions, the Coastal Act directs denial of the proposed project. Given the lack of feasible Coastal Act-consistent alternatives to the armoring, however, denial of a project to protect the LMT could lead to damage or destruction of the LMT, which could lead to adverse beach, marine, and water quality impacts inconsistent with other Coastal Act policies. Further, given that additional significant critical wastewater infrastructure is located just inland of the LMT (e.g., the pump station and WWTP), these facilities would also be subsequently threatened in short order, which would only exacerbate all such potential adverse impacts. In other words, denial would lead to conflicts between meeting the requirements of different Coastal Act policies.

Therefore, staff believes it is appropriate to approve a CDP for the project through the Coastal Act’s conflict resolution procedures, where protecting the LMT via the armoring proposed, along with some required project changes to limit impacts and mitigate for those that are unavoidable, would be, on balance, more protective of significant coastal resources than would denying the CDP. Thus, the staff recommendation would require: the armoring to be limited as much as possible; public recreational access enhancements to be realized, expanded (e.g., adding a restroom at the parking lot, additional overlooks, and improvements to the additional beach accessway), and enhanced (including as a means of offsetting the roughly \$200 million armoring impact to sand supply and public access identified for its initial term); modified beach nourishment provisions, including nourishment triggers to ensure that the beach and created dunes are maintained through an adaptive management protocol (and subject to Commission reassessment of success 5 years post-armoring construction); performance standards and related measures to maximize the utility and value of dune construction and dune restoration/enhancement components (including eliminating most of the proposed City-use-only road in the dunes); comprehensive monitoring and adaptation provisions; and related measures to best protect coastal resources over time as much as possible with an approval of this sort (e.g., construction BMPs, tribal/archeological BMPs, assumption of risk and waiver of liability, etc.). Finally, in recognition of both the significant wastewater infrastructure at this location, valued by the City at some \$1.6 billion, and the need to provide a means for reevaluation of the appropriateness of retaining the armoring longer term since armoring removal is not tied to moving such infrastructure out of harm’s way (as might typically be – and has been in the past – the case by a date certain in such wastewater cases), the staff recommendation would authorize the armoring for 25 years past the date of its construction completion, which date is currently estimated by the City to be 2031 (so a duration limitation to roughly the mid-2050s (or 2056)). Although the project would allow armoring when that would not normally be allowed by the Coastal Act, it would also transform this area into a more coastal hazards resilient beach stretch in a way that would camouflage the armoring, and protect public access opportunities, beaches, and dunes in as natural a framework and context as is possible if an armoring project of this sort is to be approved here.

Thus, staff recommends that the Commission approve a CDP for the proposed project with terms and conditions designed to plan for and address coastal hazard issues in the

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long run in a manner that is as protective of natural shorelines and natural shoreline processes as is possible with an armoring project like this, and that is consistent with the objective of maximizing and enhancing public recreational access and utility in this area. The motion to approve the CDP with conditions is found on page 5 below.

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Exhibits

- Exhibit 1 – Project Location
- Exhibit 2 – Site Plans
- Exhibit 3 – Proposed Monitoring and Adaptive Management Plan
- Exhibit 4 – Proposed Habitat Monitoring and Maintenance Plan
- Exhibit 5 – Proposed Habitat Restoration and Enhancement Plan
- Exhibit 6 – Proposed Sand Management Plan
- Exhibit 7 – City’s Conceptual Engineering Report
- Exhibit 8 – City’s Geotechnical Interpretive Report
- Exhibit 9 – Construction BMPs for Habitat Resources
- Exhibit 10 – Mitigation Calculations (Real Estate Land Valuation)
- Exhibit 11 – Beach Adaptive Management Plan Monitoring Scheme

1. MOTION AND RESOLUTION

Staff recommends that the Commission, after public hearing, **approve** a CDP with conditions for the proposed development. To implement this recommendation, staff recommends a **yes** vote on the following motion. Passage of this motion will result in approval of the CDP as conditioned and adoption of the following resolution and findings. 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 2-21-0912 pursuant to the staff recommendation, and I recommend a **yes** vote.*

Resolution to Approve CDP: *The Commission hereby approves Coastal Development Permit Number 2-21-0912 for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the Chapter 3 policies 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.*

2. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid, and development shall not commence until a copy of the permit, signed by the Applicant or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent 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 Applicant to bind all future owners and possessors of the subject property to the terms and conditions.

3. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Revised Final Plans.** PRIOR TO CONSTRUCTION, the Permittee shall submit one electronic copy and two paper copies of Revised Final Plans to the Executive Director for review and written approval. The Plans shall be prepared by a licensed professional or professionals (e.g., geotechnical engineer, surveyor, etc.), shall be based on current professionally surveyed and certified topographic elevations for the site, and shall include a graphic scale. The Plans shall be substantially in conformance with the proposed plans (titled “Ocean Beach Climate Change Adaptation Project Long Term Improvements” dated March 1, 2023, and received in the Coastal Commission’s North Central Coast District Office on August 18, 2023; see Exhibit 2) except that they shall be modified to meet the following requirements:
 - a. **Service Road.** The service road between Sloat Boulevard and Skyline Boulevard shall be eliminated from the project to the maximum extent feasible (MEF),¹ with the exception of an accessway for the Westside Pump Station from Sloat Boulevard and an accessway for the Oceanside Water Pollution Control Plant from the Skyline Boulevard area if they are required, and such accessways shall constitute the least amount of paving needed to address access needs for ingress/egress, maintenance, and emergencies. The Permittee is encouraged to make use of other Permittee and City-owned lands in and around those facilities (e.g., San Francisco Zoo lands, etc.) for such accessway needs to the MEF. Any such road areas that cannot be eliminated shall be located as far inland as feasible (including making use of the Permittee’s land inland of the Great Highway right-of-way for this purpose where conditions allow), and shall be modified to reduce its impacts, including through application of all of the following to the MEF: limiting road widths; eliminating bulb outs; eliminating connections between the road and the multi-use pathway; eliminating bike lanes; limiting related components (e.g., signals, gates, signage, etc.); and, in the case of the Westside Pump Station, constructing an extension of the trail/promenade in this area as close to the facility as possible in a way that it would be available for general public use but that could be used for vehicular access when needed (e.g., through use of temporary barriers, bollards, etc.); etc. In short, allowed service road components shall be minimized in scope and scale, and shall be sited and designed to effectively blend into the dune and natural setting (including being colorized to match the multi-use pathway, etc.), both to the MEF. The Permittee is strongly encouraged to look at inland opportunities on the Applicant’s property, as well as other City-owned properties. In addition, any necessary intersection and other improvements (e.g., traffic calming measures, etc.), along expected travel routes between the Westside Pump Station and the Oceanside Water Pollution Control Plant shall be identified as well, all subject to the same parameters. Any service road areas that can be eliminated per the above requirements shall instead be used for the multi-use pathway and/or dune habitat purposes.

¹ Where the acronym “MEF” as used in these conditions means “maximum extent feasible”.

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- b. Multi-Use Pathway.** The multi-use pathway shall be set back from the seawall location in such a way as to optimize its public access utility while ensuring at least 10 feet of separation between it and the realigned service road (where present) and maximizing dune function to the MEF, and shall be sited and designed to be curvilinear and to effectively blend into the dune and natural setting to the MEF (including being colorized to match dune colors to the MEF). The multi-use pathway shall also be designed to be able to accommodate emergency and maintenance vehicles.
- c. Overlooks.** The multi-use pathway shall include at least 5 overlook areas on the seaward side of the pathway, each equipped with benches and picnic tables for public use.
- d. Surface Treatments.** All armoring system surfaces above -10 feet NAVD88, and all concrete stairway components (see also below), shall be faced with a surface that mimics natural undulating bluff landforms in the vicinity in terms of mottled color, texture, and undulation to the MEF (except that the stairway treads, ramp surface, and lateral accessway surface on top of the armoring system may be contoured for safety as long as they meet all other camouflaging requirements to the MEF. Any protruding elements (e.g., corners, edges, etc.) in such areas shall be contoured in a non-linear manner designed to evoke natural bluff undulations, to the MEF. The color, texture, and undulations of all required surface treatments shall be maintained in their approved state throughout the life of the structure.
- e. Slope Stabilization Layer.** The slope stabilization layer (SSL) shall be structured to minimize the slope and to maximize potential ecological function (including through maximizing sand depth) to the MEF. Generally, the slope of the SSL in the middle portion of the project shall be at steepest 6:1, while slope at the northern (Sloat) and southern (Skyline) termini shall be 3:1, or even less sloped, to the MEF.
- f. Railings.** Railings and/or other barrier types associated with the stairway, ramp, multi-use pathway, overlooks and related project features along the armoring system may be allowed by the Executive Director if evidence is provided that conclusively demonstrates that any such railings/barriers are required to ensure public safety, and if all such railings/barriers are sited and designed to be as inconspicuous, and to minimize public view impacts (e.g., cable rail), to the MEF. Project features shall be sited and designed to avoid the need for railings and/or other barrier types to the MEF.
- g. Beach Accessways.** The new beach access stairway located in the southern portion of the project area shall be shifted approximately 500 feet north of original planned location, to near the entrance to the Oceanside Water Pollution Control Plant, and shall be modified so that it avoids its current 'flyover' design, and instead shall be configured in such a way as to be integrated into the approved slope as naturally as possible, utilizing natural material at all elevations, until the potential wave interaction elevation, at which point stairway materials shall be concrete. All stairway treads shall be at least 6 feet wide and at least 16 inches

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deep with a roughly 6-inch rise, and the stairway shall extend to the below expected scour depth by at least 3 feet, where the lower portion of the stairway that will be subject to regular storm/wave attack shall be concrete. At the northern access point, the sand ramp shall be publicly accessible year round and shall include features as necessary to ensure its public access utility for the majority of beachgoers, for a majority of the year. Should access issues arise at this location, the City shall install a wood sand ladder adjacent to the sand ramp, or some similar feature, to facilitate and restore beach access. The Plans shall provide that each of these beach accessways shall be modified as necessary to maintain continued safe access over the time period that the armoring system is allowed to remain (see Special Condition 10), and the Plans shall identify all mechanisms to ensure safe use, including a requirement for Executive Director approval for any significant modifications.

- h. Signs.** All signs and any other project elements that will be used to facilitate, manage, and provide public access to and through the approved project, shall be clearly identified, including identification of all public education/interpretation features that will be provided on the site (i.e., educational displays, interpretive signage, etc.). Sign details showing the location, materials, design, and text of all such signs shall be provided to the Executive Director for review and approval prior to installation. All signs shall be sited and designed: (1) to minimize their visibility in public views; (2) to seamlessly integrate into the dune and natural landform (including using natural materials, earth tone colors and graphics, directing any allowed sign lighting downward, etc.); (3) to be of a unified design theme; and (4) to be subordinate to the dune and natural setting, all to the MEF. At least three interpretive panels/installations that provide interpretation of the site, engineered dunes, erosion and coastal hazards, or other related and/or similar subjects shall be provided at appropriate locations (e.g., at the overlooks). Signs shall include the California Coastal Trail and California Coastal Commission emblems and recognition of the Coastal Commission's role in providing public access at this location. All signs shall be sited and designed to maximize their utility and minimize their impacts on public views to the MEF.
- i. Lighting Minimized.** Exterior lighting shall be wildlife-friendly, shall use lamps that minimize the blue end of the spectrum, and shall be limited to the minimum lighting necessary for pedestrian and vehicular safety purposes. All lighting (exterior and interior) shall be sited and designed so that it limits the amount of light or glare visible from public viewing areas and visible from restoration areas to the MEF (including through uses of minimum feasible luminosity, directing lighting downward, etc.). If required for pedestrian and vehicular safety purposes, all lighting, except in the parking lot and Sloat Plaza, shall be limited to rustic pathway and roadway bollards 36 inches or less in height. The height of lighting in the plaza and the parking lot shall be minimized to the MEF and consistent with minimum public safety requirements. Overhead light standards and decorative pole lights shall be prohibited, except as allowed above for the plaza and parking lot. Nighttime lighting fixtures for the multi-use pathway shall be solar-powered, only be added where it is necessary, shall be shielded, directed

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downward, and only use warm-colored bulbs. The Plans shall be submitted with documentation demonstrating compliance with these lighting requirements.

- j. Drainage.** All drainage and related elements and any related energy dissipation measures shall be camouflaged (e.g., randomly spaced, hidden, etc.) so as to be hidden or inconspicuous as seen from public viewing areas to the MEF. All drainage elements shall be sited and designed to reduce the potential for drainage-caused erosion, and to be as minimally inconspicuous as feasible.
- k. Parking Lot.** The parking lot near the intersection of Skyline Boulevard and the Great Highway shall: be expanded upcoast and to the right-of-way boundary (and further inland on the Permittee's wastewater treatment plant property where space and grades permit use for parking); be allowed to incorporate any emergency access needs for the wastewater treatment plant in a way that uses parking lot ingress/egress areas for such emergency access (and not a separate emergency access road) unless the service road in that area is two-way; reduce the size of the drop-off area; identify the maximum amount of parking that can be sensitively designed into the expanded space (e.g., making use of diagonal and other parking maximization measures); and shall include a restroom facility that is sited, designed, colored, screened, and camouflaged (including making maximum use of integrated dune screening and natural landscaping and screening elements) to maximize coastal view protection and minimize visual intrusion, including through use of materials appropriate to the shoreline context that blend with the natural environment and existing improvements in the area, all to the MEF. In addition, for ADA purposes, 5% of the parking spaces shall be ADA accessible (or as otherwise required under the ADA), and, for EV charging purposes, 10% of the parking spaces shall provide EV charging stations and 25% of the parking spaces shall be EV-ready (or as otherwise required under the California Building Code). All such parking shall be free of charge for all users in perpetuity.
- l. Sloat Restroom.** The restroom at the intersection of Sloat Boulevard and the Great Highway shall match the restroom style/design at the parking lot (including being subject to all of the same parameters), be seamlessly integrated into the recreational plaza, and be located inland, all to the MEF.
- m. Drainage Basins.** All drainage basins shall be sited and designed to seamlessly integrate into the surrounding dune areas, including to appear as dune-like and natural as possible, and including by ensuring any weir components are curvilinear and screened by vegetation, all to the MEF.
- n. Landscaping.** All non-native and invasive plant species in the South Ocean Beach project area shall be removed and not be allowed to persist, and all non-hardscape project areas shall be landscaped with native and noninvasive dune plant species chosen for their ability to help integrate constructed features into the dune landscape, to soften the perception of hard edges and straight-line elements, to provide the appearance of access features amongst the dunes as opposed to dune features adjacent to access features, and where used as

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mitigation for habitat purposes, also comply with Special Condition 3. Special attention shall be applied to areas surrounding the multi-use pathway and other public access amenities, and areas on the site shall also be landscaped with the same native and noninvasive plant species to help ensure that such features appropriately blend into the shoreline aesthetic and improve public views. All such plants shall be kept in good growing condition and shall be replaced as necessary to maintain the approved vegetation over the life of the project. Regular monitoring and provisions for remedial action (such as replanting as necessary) shall be identified to ensure landscaping success (see also Special Conditions 3, 4, and 5).

- o. Property Owner Consent.** Written property owner consent shall be provided for any development associated with the project that may occur on properties not owned by the Permittee, including in terms of construction and staging, where such consent shall only be deemed to have been given if the consent allows for approved development consistent with the terms and conditions of this CDP, including as it affects such properties.
- p. Public Views.** All publicly visible development shall be sited, designed, colored, screened, and camouflaged (including making maximum use of integrated dune screening and natural landscaping and screening elements to the MEF) to maximize coastal view protection and minimize visual intrusion, including through use of materials appropriate to the shoreline context that blend with the natural environment and existing improvements in the area, all to the MEF.
- q. Construction Plan.** The approved Construction Plan (see Special Condition 2) shall be provided as notes and/or plan sheets on the Revised Final Plans.

All requirements above and all requirements of the approved Revised Final Plans shall be enforceable components of this CDP. The Permittee shall undertake development in accordance with this condition and the approved Revised Final Plans.

- 2. Construction Plan.** PRIOR TO CONSTRUCTION, the Permittee shall submit one electronic copy and two paper copies of a Construction Plan to the Executive Director for review and written approval. The Construction Plan shall, at a minimum, include and provide for the following:
 - a. Construction Areas.** The Construction Plan shall identify the specific location of all construction areas, all staging areas, and all construction access corridors in site plan view. All such areas within which construction activities and/or staging are to take place shall be minimized in order to have the least impact on public access and other coastal resources, including by using inland areas for staging and storing construction equipment and materials, all to the MEF. Construction areas shall be sited and designed to minimize impacts to public beach access and public views to the MEF.
 - b. Construction Methods.** The Construction Plan shall specify the construction methods to be used, including all methods to be used to keep the construction

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areas separate from public recreational use areas (including using unobtrusive temporary fencing or equivalent measures to delineate construction areas), and including verification that equipment operation and equipment and material storage will not significantly degrade public access and public views during construction, all to the MEF. The Plan shall include a detour plan that specifies how access from the Skyline/Great Highway intersection to the Sloat/Great Highway intersection and public parking will be accommodated during construction, and how such access users will be informed and directed, with a preference for measures that maximize public access to the MEF. The Plan shall limit construction activities to avoid coastal resource impacts, including that lighting of the work area is prohibited, to the MEF, unless the Executive Director determines that lighting the work area is required to safely carry out construction and measures are applied to ensure maximum coastal resource protection to the MEF.

- c. **Construction Timing.** Construction is prohibited during weekends, from the Saturday of Memorial Day through Labor Day inclusive, and during non-daytime hours (i.e., from one-hour after sunset to one-hour before sunrise), unless due to extenuating circumstances the Executive Director authorizes such work and measures are applied to ensure maximum coastal resource protection to the MEF. The Plan shall include a complete construction schedule, which shall be structured to prioritize the construction and use of public recreational access improvements and amenities as soon as is feasible.
- d. **Construction BMPs.** The Construction Plan shall identify the type and location of all construction best management practices that will be implemented during construction to protect coastal resources, including coastal water quality, including at a minimum all of the following:
 1. **Runoff Protection.** Silt fences, straw wattles, or equivalent apparatus shall be installed at the perimeter of all construction areas to prevent construction-related runoff and sediment from discharging from the construction area or entering into storm drains or otherwise offsite or towards the beach, ocean, waterways, or natural drainage swales. Similar apparatus shall be applied on the beach area for the same purpose when potential runoff is anticipated. Special attention shall be given to appropriate filtering and treating of all runoff, and all drainage points, including storm drains, shall be equipped with appropriate construction-related containment, filtration, and treatment equipment. Tarps or similar such devices shall be used to capture debris, dust, oil, grease, rust, dirt, fine particles, and spills.
 2. **Erosion and Sediment Controls.** All erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each workday.
 3. **Equipment.** Equipment washing, refueling, and servicing shall take place at an appropriate off-site and inland location to help prevent leaks and spills of hazardous materials at the project site, at least 50 feet inland from the beach

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and preferably on an existing hard surface area (e.g., a road) or an area where collection of materials is facilitated. All construction equipment shall also be inspected and maintained at a similarly sited inland location to prevent leaks and spills of hazardous materials at the project site.

4. **Good Housekeeping.** The construction site shall maintain good construction housekeeping controls and procedures at all times (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 site; etc.).
5. **Rubber-tired Construction Vehicles.** Only rubber-tired construction vehicles are allowed on the beach, except track vehicles may be used if the Executive Director determines that they are required to safely carry out construction and maximum feasible measures are applied to ensure maximum coastal resource protection to the MEF. When transiting on the beach, all vehicles shall remain the maximum distance from the ocean as feasible and avoid contact with ocean waters and intertidal areas.
6. **Intertidal Grading Prohibited.** Grading of intertidal areas is prohibited, except where expressly approved by this CDP or where approved development is sited in such areas, and only when tidal waters are not present.
7. **Habitat BMPs.** All BMPs identified in Exhibit 9 shall apply.
8. **Materials/Equipment Storage.** 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 these areas by one-hour after sunset each day that work occurs, except for necessary erosion and sediment controls and construction area boundary fencing where such controls and fencing are placed as far inland as feasible and are minimized to the MEF.
- e. **Biological Monitoring.** The Permittee shall retain the services of a qualified biologist or environmental resources specialist (hereinafter, "Biological Monitor") with appropriate qualifications acceptable to the Executive Director, to conduct sensitive species pre-construction surveys and potential species relocation, and to monitor the project and the project site during construction. The Plan shall include a description of the Biological Monitor's qualifications, as well as their duties and schedule. The Biological Monitor shall survey the project site and 100 feet upcoast, downcoast, and seaward to determine the presence and behavior of any sensitive species seven days prior to the commencement of any construction. If any federally or state-designated sensitive species are identified, the Biological Monitor shall report the results of the survey within 24 hours to the Permittee, Executive Director, California Department of Fish and Wildlife (CDFW), and the United States Fish and Wildlife Service (USFWS), as

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applicable, and construction initiation shall be delayed until the Executive Director has approved a response plan, where that plan may require relocation of such species identified and/or additional buffering or other construction changes as necessary. Separate specific monitoring protocols shall apply for the following:

1. **Rare Plant Surveys.** The Permittee shall retain the services of a qualified botanist or plant biologist, with appropriate qualifications acceptable to the Executive Director, to conduct pre-construction protocol-level surveys for San Francisco spineflower. Any San Francisco spineflower plants identified within the construction area shall be flagged for salvage for reuse within the project area; or removed and transplanted to appropriate habitat, as close as possible to the project area, in coordination with CDFW and the California Native Plant Society (CNPS) or a similar organization.
 2. **Nesting Birds.** Nesting bird surveys shall be required for any work to be conducted during the nesting season (February 1 - September 1). Nesting surveys shall include and extend at least 300 feet out from the construction area for non-raptor species, and at least 500 feet out for raptors. A final nesting survey shall occur no more than 72 hours prior to the initiation of construction. In the event that active nests are identified, minimum buffers of 300 feet for non-raptor and 500 feet for raptor species shall be applied and maintained until the nests have fully fledged. If no such buffers are feasible, construction activities that could impact the nest will be delayed until the Executive Director approves appropriate mitigation measures.
- f. **Restoration.** All construction debris shall be removed, and all beach area and other public recreational access and use areas and all beach access points impacted by construction activities shall be restored to their pre-construction condition or better within three days of completion of construction. Any native materials impacted shall be appropriately filtered as necessary to remove all construction debris.
- g. **Construction Site Documents.** The Construction Plan shall provide that copies of the signed CDP, the approved Revised Plans (see Special Condition 1) and the approved Construction Plan be maintained in a conspicuous location at the construction job site at all times, and that such copies are available for public review on request. All persons involved with the construction shall be briefed on the content and meaning of the CDP, the approved Revised Plans, and the approved Construction Plan, as well as the public review requirements applicable to them, prior to commencement of construction.
- h. **Construction Coordinator.** The Construction Plan shall provide that a construction coordinator be designated to be contacted during construction should questions arise regarding the construction (in case of both regular inquiries and emergencies), and that the construction coordinator's contact information (i.e., address, phone numbers, email, etc.), including, at a minimum, an email address and a telephone number that will be made available 24 hours a day for the duration of construction, is conspicuously posted at the job site where

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such contact information is readily visible from public viewing areas while still protecting public views to the MEF, 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 and contact information (i.e., address, email, phone number, etc.) 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. All complaints and all actions taken in response shall be summarized and provided to the Executive Director on at least a weekly basis.

- i. **Construction Specifications.** All construction specifications and materials shall include appropriate control provisions that require remediation for any work done inconsistent with the terms and conditions of this CDP.
- j. **Notification.** The Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office at least three working days in advance of commencement of construction, and immediately upon completion of construction.

All requirements above and all requirements of the approved Construction Plan shall be enforceable components of this CDP. The Permittee shall undertake development in conformance with this condition and the approved Construction Plan.

3. **Habitat and Dune Management and Mitigation Plan.** PRIOR TO CONSTRUCTION, the Permittee shall submit one electronic copy and two paper copies of a Habitat and Dune Management and Mitigation Plan to the Executive Director for review and written approval. The Plan shall be substantially in conformance with the proposed plans (titled "Monitoring & Adaptive Management Plan" dated March 2024 and prepared by MN + AGS JV; "Habitat Restoration & Enhancement Plan" dated March 2024 and prepared by MN + AGS JV; and "Habitat Monitoring & Management Plan" dated April 2024 and prepared by ESA), which shall be consolidated into a single document, and which shall be modified to meet the following requirements:

- a. **Habitat Mitigation Strategies.** For the purpose of this condition, habitat mitigation strategies that may be used include, but are not limited to: creation, which includes the development of new habitat where none currently exists; substantial restoration, which focuses on areas where habitat exists in a degraded state but a full suite of self-sustaining functions would be restored; enhancement, which involves improvement of some limited ecological functions rather than recovery of a full suite of such functions.
- b. **Mitigation Ratios.** The Permittee is required to mitigate for 3.21 acres of permanent dune ESHA impacts. A minimum base ratio of 3:1 shall be applied for such impacts (i.e., requiring at least 9.63 acres), assuming compensation is provided as habitat creation or substantial restoration. Alternatively, enhancement strategies may be proposed at no less than base a ratio of 6:1 (i.e.,

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requiring at least 19.26 acres), and/or a mixture between habitat creation/substantial restoration and enhancement with acreages adjusted accordingly. The required mitigation base ratios may be reduced if compensatory mitigation is provided per the following schedule. Where early mitigation is delivered 0-4 years after the commencement of construction, and assuming a minimum 5-year performance period, the required mitigation ratio may be reduced by 0.25 acres per year (e.g., for substantial dune restoration starting at 3:1, the obligation becomes 2.75:1 if delivered only 4 years following initial impact; 2.5:1 if delivered only 3 years following initial impact, etc.). Reductions to the mitigation ratios shall apply only when the complete set of final performance criteria for a habitat area has been met over the minimum period specified in the Plan.

- c. **Project Components as Mitigation.** The engineered dune components of the approved development may be credited toward mitigation requirements as follows:
 1. **Seaward and Landward Foredunes.** The seaward and landward foredune zones (which constitutes the same area that was referred to as “Vegetation Stabilization Zone (VSZ)” in the proposed plans cited above) may be credited towards mitigation as enhancement and may be credited as substantial restoration if the planting plan is further modified to increase support of natural ecological functions. To qualify for the latter, modifications to project design shall include, at a minimum: adjustments to density distributions to reflect a more natural dune vegetation pattern, including patches of open space to potentially support San Francisco spineflower; measures to facilitate sand movement between these foredune zones and back dunes; measures to increase species richness and diversity across the seaward and landward foredune zones; and measures to ensure the revegetation is self-sustaining and not dependent on ongoing irrigation after the initial plant establishment period.
 2. **Back Dunes.** The back dune features may be credited towards mitigation as enhancement or substantial restoration if the restoration plan is further modified to increase support of natural ecological functions. To qualify for the latter, modifications to project design shall include, at a minimum: a modified planting plan inclusive of the entire back dune area (areas previously proposed as infiltration basins and planters, as well as areas that were previously planned as trails, walkways, or walls) with planting density distributions that reflect a more natural dune vegetation pattern, based on appropriate reference sites; re-design of the planting palette to better represent species naturally occurring in back dune communities; re-design of infiltration basins to function as natural dune slack features without frequent management and sand clearing; and measures to ensure the revegetation is self-sustaining and not dependent on ongoing irrigation after the initial plant establishment period.
 3. **Mitigation Duration.** Any engineered dune components credited as

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mitigation shall be maintained in their approved and required form for the life of the approved development.

4. **Consistency with Mitigation Framework.** Design, monitoring, and performance of project components proposed as mitigation shall be consistent with part (d) below.

d. **Other Mitigation Areas.** If the engineered dune components of the approved development, including if modified to meet substantial restoration standards, do not provide sufficient acreage to meet all mitigation requirements, the Permittee shall identify additional mitigation areas sufficient to meet all mitigation requirements consistent with all of the following:

1. **Goals/Objectives.** Mitigation shall be premised on substantially restoring habitat so that it is self-functioning, high quality habitat in perpetuity. For all mitigation, including any project components used as mitigation, each mitigation area shall include: clear identification of the desired habitat types with supporting rationale (e.g., to be based on a high functioning reference site); description of the major vegetation components and intended sensitive species and wildlife support functions, clear, specific, actionable, and measurable objectives; implementation measures, and success criteria (see below) to support and achieve stated goals; and, a detailed timeline laying out all major activities, including any preliminary work such as surveys, site preparation, and mitigation implementation (including revegetation activities, interim and final monitoring periods, etc.).
2. **Design, Site Preparation and Revegetation Plans.** Plans detailing the mitigation design, including those for final topography, revegetation, any significant features characteristic of the intended habitat, and how these connect to the surrounding environment shall be provided, and shall consider future conditions including surrounding land use, climate, and other potential stressors. Methods and plans for site preparation (including any salvage and storage of material for reuse (e.g., topsoil, seed, plants), debris removal, landform alteration, soil treatment, etc.) shall be included. Invasive species removal plans shall be described for all mitigation areas and constitute the least environmentally damaging feasible alternative, with provisions for continued removal on an as-needed basis. If it is determined that herbicide use is appropriate given the type of invasive plants and level of infestation at the respective mitigation site an Integrated Pest Management Plan as described in Special Condition 3.e.2 above shall be submitted. All mitigation areas shall be covered by a detailed revegetation plan that prioritizes the use of seeds, plugs, or container plants planted prior to fall rains, unless another time period or planting method is fully described and justified within the Plan. Only native species appropriate for the mitigation areas shall be used, source material shall be limited to local genetic stock (i.e., within coastal San Francisco, San Mateo, and Marin Counties), and the plan shall be submitted with adequate evidence demonstrating that that is the case. The planting plans shall be based on relevant vegetation community structure (e.g.,

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- species and relative densities) with a clear technical basis (e.g., an approved reference site, published literature, etc.), and shall be designed to avoid the use of irrigation following the plant establishment stage. If irrigation is considered necessary to initiate restoration, it should be temporary, above-grade, and provisions for its removal must be included.
3. **Sensitive Resource Parameters.** Mitigation areas shall include special provisions to facilitate the survival and success of affected sensitive species and native vegetation communities, and such provisions shall be consistent with applicable state and federal requirements for these.
 4. **Success Criteria.** Success criteria shall have a clear empirical basis (i.e., reference sites and/or published technical literature appropriate for the local area) and shall include representative of target vegetation communities (e.g., species composition, cover, structure, diversity, and presence of major structure-producing and habitat-defining species as characterized by the Manual of California Vegetation community alliances and/or associations); physical parameters such as topography, bare substrate, and hydrology; and target wildlife support functions or usage. Criteria may be fixed values where there is a strong empirical basis, but, where feasible, should be relative to high-functioning reference sites in order to account for environmental variability. Any such reference sites proposed shall be informed by consideration of proximity to the mitigation sites, current and future conditions including stressors, similarity to mitigation areas with regard to soil type, aspect, slope, and other relevant abiotic characteristics; and shall be clearly identified, sampled, and quantitatively described. Invasive species at the mitigation sites shall be maintained at less than 5% cover with no more than 1% of that being attributed to species ranked as highly invasive by Cal-IPC.
 5. **Performance Assessment.** Methods for assessing mitigation success shall include clear supporting rationale for their selection and be specified in terms of: the types of comparison, including whether relative to fixed criteria or reference sites; clear identification of any proposed reference sites; tests of similarity; specification of the maximum allowable difference or effect size between the mitigation value and the reference value for each success criterion, based on sound ecological principles; and where statistical tests will be employed (as opposed to the use of censusing), statistical power analyses to document that the planned sample sizes will provide adequate power (typically 90%) to detect maximum allowable differences (and, for such a test, alpha must equal beta; these values are typically 0.10 and any proposal to deviate from this shall be supported by a clear technical rationale).
 6. **Sampling Design.** The field sampling program shall be designed in conjunction with the success criteria and selected methods of assessment and relate logically to these. The sampling design and methods shall provide sufficient detail to enable an independent scientist to implement them, including description of the randomized placement of sampling units, unit size, replication, etc. If non-traditional survey methods are proposed (e.g.,

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remote-sensing), these shall be demonstrated as capable of informing quantitative analyses with confidence relative to more traditional methods (e.g., point-intercept).

- 7. Habitat Monitoring and Reporting.** Eight weeks after completion of mitigation site construction and activities, an as-built report summarizing mitigation activities to-date, a description of consistency with approved plans, documentation of acreage treated, maps and descriptions of any temporary infrastructure installed, photos taken from fixed points, and a description of consistency with all terms and conditions, shall be submitted to the Executive Director for review and written approval. Once an annual monitoring report is approved by the Executive Director, recommendations identified in the report shall become prescriptive (and enforceable components of this CDP) unless otherwise advised in writing. All mitigation areas shall be monitored by a qualified restoration ecologist (or ecologists) acceptable to the Executive Director for consistency with the approved Plan on at least an annual basis for at least 5 years following initial revegetation and for at least 3 years following the conclusion of all remediation and maintenance activities other than weeding, whichever is later. Results of such monitoring (including recommendations for adaptations to better achieve consistency with the approved goals, objectives, and success criteria and the other terms and conditions of this CDP) shall be provided in an annual report submitted to the Executive Director for review and written approval by January 31st each year, with the first monitoring year commencing in the spring the calendar year after completing revegetation of the mitigation areas. Raw data and associated metadata shall also be provided in digital format with each report. If the final annual monitoring report indicates that the mitigation effort has been unsuccessful, in part or in whole, based on the approved success criteria, the Permittee shall submit within 90 days a revised or supplemental Plan prepared by a qualified restoration ecologist acceptable to the Executive Director, to compensate for those portions of the original program which did not meet the approved success criteria, to the Executive Director for review and written approval.
- 8. Temporal Delay.** If the required mitigation has not commenced within 5 years of construction commencement, then the required mitigation acreage shall be required to be increased by 0.5 acres relative to the base mitigation ratio (i.e. 3:1 becomes 3.5:1 after year 5, then 4:1 after year 6) for each portion of a year beyond the initial 5-year period. If such mitigation has not commenced within 10 years of construction commencement, or if mitigation under the approved Plan is not completed (e.g., met all success criteria in an approved final monitoring report), or been underway for at least 3 years and is meeting designated success criteria in the approved Plan, then the required mitigation acreages shall follow the same 0.5-acre increase per year, and the Permittee shall additionally be required to submit a supplemental Plan to address such lack of performance for the review and written approval of the Executive Director. The Executive Director may apply a lesser rate of increase if the Permittee can demonstrate diligent pursuit of mitigation implementation that

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has been delayed by matters outside of Permittee control (e.g., litigation complications, etc.).

9. **Mitigation on Protected Lands.** Lands that presently support or would support dune habitats following habitat improvement activities, and which occur on lands already protected for the purposes of habitat conservation, may be restored or enhanced with agreement and coordination with the landowner and Executive Director. In such cases, the landowner may specify the acreage available and terms of agreement between the Permittee and landowner. Land already obligated to other regulatory requirements, including but not limited to prior Commission decisions, legal obligation, and Habitat Conservation Plans, shall not be considered available as compensation for this project unless the work would demonstrably exceed those obligations in the opinion of the Executive Director. The Executive Director shall review and approve any tentative agreement between the Permittee and landowner prior to execution, in order to ensure that it is consistent with all terms and conditions of this CDP.

e. Dunes.

1. **Design.** Design plans for the engineered dune system, including the embryo foredune, seaward foredune, landward foredune, and back dune areas, shall be modified to maximize the area of continuous dune habitat and promote its potential to be self-sustaining following project construction. At a minimum, these dune components shall cover all project areas not developed with public access components or accessways for the Westside Pump Station and the Oceanside Water Pollution Control Plant and shall extend inland (including making use of other City lands in and around those facilities (e.g., SFPUC lands, San Francisco Zoo lands, etc.) to the MEF. The slope stabilization layer shall be structured to minimize the slope and maximize potential ecological function of the overlying dune landscape (including through maximizing sand depth) to the MEF (see also Special Condition 1). To the MEF, the area between the landward edge of the dune system and the multi-use pathway shall be designed as a contiguous system of back dunes unconfined by planters or other containment structures, and the dunes shall extend as far inland of the multi-use pathway as feasible, including inland of the right-of-way boundary where feasible. The design shall aim to support ecological functions and values to the MEF, including through provision of habitat for special status species and native dune resources with the potential to occur in the area. Sand shall be allowed to move naturally through the dune areas to the MEF.
2. **Invasives Control - IPM.** Dune vegetation shall be managed via Integrated Pest Management protocols that shall clearly describe the steps and details required to eliminate and remove invasive plant species through hand, mechanical removal, and, if necessary, herbicide application. For areas where hand and mechanical methods are not practical, such as where invasive plants are widespread and well established, chemical treatment

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methods must be those using the appropriate herbicide mix and surfactants (registered in California) considered to be the least toxic appropriate for the target species and constituting the least environmentally damaging alternative. A California licensed Pest Control Advisor (PCA) must provide written recommendations regarding the appropriate herbicides and adjuvants for the respective circumstances and species. The product registration numbers shall be provided along with a complete usage description including where/when/how criteria and limits, precautions taken for sensitive species (e.g., buffers) and potential runoff, and triggers for adaptive management or remedial actions. In no instance shall spray herbicide application occur if wind speeds on site are greater than 5 mph or 48 hours prior to predicted rain. In the event that rain does occur, herbicide application shall not resume again until at least 72 hours after rain. Herbicide applications during the rainy season shall be timed to avoid rainfall events. For all work involving chemical applications, a PCA or Qualified Licensed Applicator must be on site.

3. **Invasives Control - Timing.** Invasive species management shall occur at least quarterly during the initial plant establishment period and thereafter, as needed to prevent establishment in the area. Following the initial dune performance period, invasives shall be managed for the life of the project and shall rely on approved triggers and a specified monitoring schedule to ensure that the native dune functions and values that have been created are not threatened and the engineered dune system performs as intended.
4. **Success Criteria.** Engineered dune success criteria shall be modified as follows: (a) success criteria for vegetation cover and species richness shall have a clear technical basis, developed with consideration of relevant literature and/or reference sites, and shall relate specifically to the dune design goals (an explanation of the rationale for performance standards shall be included); and (b) invasive species shall not exceed 5% cover with no more than 1% being attributed to species ranked 'high' by the California Invasive Plant Council.

All requirements above and all requirements of the approved Habitat and Dune Management and Mitigation Plan shall be enforceable components of this CDP. The Permittee shall undertake development in accordance with this condition and the approved Habitat and Dune Management and Mitigation Plan.

4. **Beach Monitoring and Adaptive Management Plan.** PRIOR TO ISSUANCE OF THE CDP, the Permittee shall submit one electronic copy and two paper copies of a Beach Monitoring and Adaptive Management Plan to the Executive Director for review and written approval. The objective of the Plan shall be to establish clear and measurable monitoring protocols to be used to collect data that can be used to inform actions to be taken to ensure that the armoring structure remains buried (via a connected beach-dune system) and a useable sandy beach is maintained over the life of the project. The Plan shall be structured so as to capture baseline data before the armoring structure is constructed, and then to allow for the proposed sand nourishment/placement activities to proceed post-construction (with some

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modifications seen below) for 5 years, at which time the success of such activities shall be measured, and conclusions from the first 5 years brought to the Commission for the Commission to decide if additional measures are necessary to ensure that the armoring structure remains buried and a useable sandy beach is maintained. Plan shall be adapted from the proposed plans, which shall be consolidated into a single document, and shall be modified to account for and meet the following requirements:

- a. **Monitoring Areas.** Monitoring shall occur as described in Table 1 (see Exhibit 11), as may be modified herein, and in project area, adjacent reference site, and sand borrow site beaches, bluffs, and offshore areas described herein. At least 12 monitoring transects shall be established in the project area, with one at either end of the armoring structure, and at least 3 more located at appropriate locations along the armoring structure's length, including at least one transect at the location at which the armoring structure is the furthest seaward. At least 1 monitoring transect shall be established at a reference location downcoast (south of the project area) of the project area in a location that is as similar to the natural conditions underlying the project area (absent armoring) and as nearby as possible. Transects shall be established across the length of the sand borrow site at no more than 250 foot intervals. All such transects shall extend to at least the mean lower low water (MLLW) contour and into the surf zone to the MEF, and at least 75 feet inland of blufftop edges (or up to the first substantial development, like the armoring structure, if less).
- b. **Monitoring Frequency.** Prior to commencement of construction of the armoring structure, monitoring shall be undertaken at least twice per year, at least once between December through March (inclusive) and at least once from the Saturday of Memorial Day through September (inclusive), where such monitoring shall be used to help identify a baseline of monitoring areas that can be used for comparison purposes against data collected through subsequent monitoring. For the first 5 years following completion of construction of the armoring structure,² monitoring shall be undertaken (1) every three months; (2) immediately before and immediately after any sand borrow, sand nourishment, and/or sand placement episode; and (3) immediately after any 10-year return storm event or greater.
- c. **Monitoring Methods.** The Plan shall identify clear monitoring methods, including in terms of the manner in which data will be collected and presented, all of which shall be structured to provide useful evidence and clear information for both measuring success and identifying appropriate adaptations, including topographic surveys at each identified transect (including providing for surf zone bathymetry seaward of the MHW contour) and reconnaissance-level surveys to more qualitatively evaluate beach profiles, beach use, beach access, armoring

² The Plan shall establish a means to clearly identify the date of completion of armoring structure construction, where completion shall at a minimum be defined in a way that considers construction complete when the primary structural elements that provide the substantial protection to the Lake Merced Tunnel are complete.

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exposure, and surf quality. Monitoring shall include photographic documentation (in at least digital jpg color format) from a sufficient number of viewpoints so as to provide complete photographic coverage of the monitored/surveyed area. Such photographs shall be at a scale that allows comparisons to be made with the naked eye between photographs taken in different years and from the same vantage points, where all photographs shall be documented on a site plan that notes the location of each photographic viewpoint and the date and time of each photograph (as well as GPS coordinates if feasible).

- d. **Sand Nourishment/Placement.** The Plan shall provide that only sand that is similar to and compatible with project area sand (including in terms of grain size distribution, color, minerality, and organics content) shall be used for sand nourishment/replenishment in the project area, and prior to commencing any such nourishment/replenishment episode, the Permittee shall submit conclusive evidence demonstrating as much to the Executive Director for review and written approval. The Plan shall provide for sand nourishment/placement activities as follows:
1. **Summer Beach Profile.** If the June 1st beach profile survey in any given year shows 50 feet or less distance between the seawall and the MHW contour at any two or more of the project area transects, then sand nourishment along the length of the armoring structure shall be implemented the following spring (i.e., from March to May inclusive).
 2. **Winter Beach Profile.** If winter (i.e., December to February inclusive) storms result in a beach width of less than 20 feet (measured from the seawall to the MHW contour) at any of the project area transects over any consecutive 60-day period between January 1st and April 30th, then sand nourishment along the length of the armoring structure shall be implemented that May.
 3. **Armoring Exposure.** If the armoring is exposed along 500 or more linear feet measured cumulatively across its frontage, then sand shall be placed to cover such exposed portions of the armoring structure to the MEF at the next feasible opportunity.
 4. **Borrow Site.** If any sand borrow site transects show that there is less than 250 feet between the O'Shaughnessy Seawall and the MHW contour, borrow activities shall be suspended and a discussion of the potential causes for the erosion as it relates to the borrowing activities shall be summarized in the required monitoring report (see below); including recommendations on whether additional borrowing should continue at that site and/or if alternative sand borrow sources are necessary. In such a circumstance, no additional sand borrowing shall occur without written approval by the Executive Director.
- e. **Success Criteria.** The Plan shall establish clear success criteria to be evaluated following armoring structure completion, including as a means of identifying appropriate remediation and adaptations at the required 5-year Commission review (see below) should success criteria not be met, including at a minimum

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identifying that success shall be considered to be achieved if at least all of the following criteria are met:

1. **Beach Access.** Project area public access to the beach (at the Sloat Boulevard access ramp area and the project staircase (once complete)) shall be available at all times in the project area.
 2. **Beach Passability.** Project area public access along the beach seaward of the armoring structure shall be available at all times that public access is available along the beach at the downcoast reference site.
 3. **Beach Use.** Project area beach use and beach use utility/value seaward of the armoring structure shall be an improvement as compared to baseline conditions, which shall be measured by qualitative and quantitative metrics through the Plan, including but not limited to, monthly counts of days when there is no dry beach fronting the project; types of beach use (e.g., sunbathing, walking, picnicking, fishing, surfing, etc.) by season; and any detectable patterns of changes in beach use as it relates to armoring exposure or beach width throughout the year.
 4. **Beach-Dune Connectivity.** Project area embryonic foredunes shall persist continuously for at least a year, shall result in substantial burial of the armoring structure by sand, and shall ensure habitat connectivity between the beach and the perched dune system.
- f. **Annual Reporting.** The results of all above-identified sand nourishment/placement and monitoring activities shall be summarized and presented in an Annual Report prepared by a licensed engineer with substantial expertise and experience in coastal structures and processes acceptable to the Executive Director,³ and submitted by the Permittee for Executive Director review by December 31st of each year. The main purpose of the Annual Report is to interpret the results of the sand nourishment/placement activities and monitoring data as a means of assessing whether Plan objectives and success criteria are being achieved.⁴
- g. **5-Year Commission Review.** The fifth Annual Report shall be submitted to the Coastal Commission as a condition compliance matter where the Commission shall decide whether and how to continue the proposed sand

³ The Permittee shall submit the qualifications of such engineer to the Executive Director for the Executive Director's written approval prior to the submittal of any Annual Report.

⁴ In addition, Annual Reports shall also at a minimum include: a summary of all monitoring results, findings, and recommendations related to achieving Plan objectives and success criteria; observed changes in beach and dune volumes over the reporting period relative to baseline and/or post-nourishment conditions; analysis of seasonal and interannual changes in width and length of dry beach, beach slope, and dune profile; beach width and dune profile changes based on aerial image analysis; comparison of the actual changes to the shoreline in relation to the projected changes based on the results of the modeling conducted prior to construction; a description of management actions taken during the monitoring period; and results of the prior year's observations and measurements from monitoring activities.

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nourishment/placement activities and monitoring protocols, as modified/refined herein, to best achieve Plan objectives and success criteria, where the Commission shall have the discretion to modify any part of this condition to do so.⁵ At a minimum, the fifth Annual Review shall respond wholistically to monitoring data trends that might suggest that the proposed sand nourishment/activities, as modified/refined herein, require modification to adapt to what the monitoring data is showing, including adapting to any undesirable trends that suggest that additional/different measures and/or requirements are needed to ensure that Plan objectives and success criteria are achieved. Thus, critically, the fifth Annual Report shall recommend remedial measures and/or adaptations to the proposed sand nourishment/placement activities and monitoring protocols, as modified/refined herein, as needed to best meet Plan objectives and success criteria, where the Commission can modify any part of this condition to do so, and the Permittee shall comply with any changes made by the Commission. At a minimum, the Commission shall identify required reporting and re-review parameters to be applied after the initial 5-year review, which parameters are expected to continue annual reporting and every 5-year review requirements, including where such review episodes (at whatever recurrence interval identified) are allowed to transition to Executive Director review and approval episodes, as deemed appropriate by the Commission.

All requirements above and all requirements of the approved Beach Monitoring and Adaptive Management Plan shall be enforceable components of this CDP. The Permittees shall undertake development in conformance with this condition and the approved Beach Monitoring and Adaptive Management Plan.

- 5. Public Access Management Plan.** PRIOR TO ISSUANCE OF THE CDP, the Permittee shall submit one electronic copy and two paper copies of a Public Access Management Plan to the Executive Director for review and written approval. The Plan shall clearly describe the manner in which public recreational access in the project area is to be provided and managed, with the objective of maximizing public access and recreational use of all public access areas (along the former Great Highway and seaward of it at this location) and improvements/amenities associated with the approved project (i.e., parking areas, restrooms, pathways, stairways, overlooks, benches, picnic tables, bicycle racks, interpretive signage, waste and recycling receptacles, doggie mitt stations, etc.) as described in this special condition and Special Condition 1. All public access improvements/amenities shall be sited and designed to seamlessly integrate into the natural dune/beach setting and to maximize public view protection, including through use of siting/design approaches and materials that are appropriate to the dune and beach shoreline context, and including to ensure that the approved development effectively blends into and enhances the natural environment, all to the MEF. All public access improvements/amenities are required to be maintained and managed pursuant to the Plan over time. The Plan shall at a minimum include and provide for the preceding, and all of the following:

⁵ Until such time as the Commission takes action, the provisions of this condition shall continue to govern.

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- a. **Public Access Use Parameters.** All parameters for use of the public access areas, improvements and amenities shall be clearly identified. All such public access areas, improvements, and amenities shall be publicly available and maintained in their approved state for general public pedestrian and other general public access consistent with the terms and conditions of this CDP for at least as long as any portion of the approved development remains present. All public access areas, improvements, and amenities shall be available to the general public free of charge.
- b. **No Public Access Disruption.** Development and uses within the Plan's public access areas that disrupt or degrade public access, including areas set aside for private uses, barriers to public access (such as planters, temporary structures, private use signs, fences, barriers, ropes, etc.) shall be prohibited, other than limited emergency and maintenance use (where maintenance use is structured in such a manner as to protect public recreational access use to the MEF, and where provisions for such use shall be clearly described). The public use areas, improvements, and amenities shall be maintained consistent with the approved Plan and in a manner that maximizes public use and enjoyment.
- c. **Public Access Use Hours.** All public access areas, improvements, and amenities shall be available to the general public 24 hours a day, except that the parking lot may be gated to prevent vehicular access from midnight to 5 am; and the restrooms shall be opened no later than 8 am, and closed no earlier than 5:30 pm in the winter (i.e., December to February inclusive) and no earlier than 8 pm in the summer (i.e., the Saturday of Memorial Day weekend to Labor Day inclusive).
- d. **Public Access Construction.** All public access areas, improvements, and amenities associated with the approved project shall be constructed and available for public use as soon as feasible, and no later than 6 months following completion of the seawall structure.
- e. **Public Access Areas and Amenities Maintained.** All of the public access areas, improvements, and amenities shall be constructed in a structurally sound manner and maintained in their approved state consistent with the terms and conditions of this CDP, including through ongoing repair, maintenance, or relocation (if necessary to respond to shoreline erosion) of all public access improvements. Any modification, movement, or replacement of such access improvements shall require Executive Director approval. Public use areas shall be maintained consistent with the approved Public Access Management Plan and in a manner that maximizes public use and enjoyment.

All requirements above and all requirements of the approved Public Access Management Plan shall be enforceable components of this CDP. The Permittee shall undertake development, maintenance and management of all such public access areas, improvements, and amenities in accordance with this condition and the approved Public Access Management Plan.

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- 6. As-Built Plans.** WITHIN THREE MONTHS OF COMPLETION OF CONSTRUCTION, the Permittee shall submit one electronic copy and two paper copies of complete As-Built Plans to the Executive Director for review and written approval showing all elements of the approved development as built, including in relation to all property lines, right-of-way line, and adjacent development. The As-Built Plans shall be substantially consistent with the Executive Director-approved Revised Final Plans required by Special Condition 1 and the terms and conditions of this CDP, and any inconsistencies shall be highlighted. The As-Built Plans shall include color photographs (in both color hard copy 8½ x 11 and digital jpg formats) that clearly show the as-built project and that are accompanied by a site plan that notes the location of each photographic viewpoint and the date and time of each photograph. At a minimum, the photographs shall be from upcoast, seaward, inland, and downcoast viewpoints on the beach, and from a sufficient number of other viewpoints so as to provide complete photographic coverage of the approved development. Such photographs shall be at a scale that allows comparisons to be made with the naked eye between photographs taken in different years and from the same vantage points; recordation of GPS coordinates would be desirable for this purpose. The As-Built Plans shall include vertical and horizontal reference data from inland surveyed benchmarks (which shall be clearly identified) for use in future monitoring efforts. 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 project has been constructed in conformance with the Executive Director-approved Final Plans (see Special Condition 1) and the terms and conditions of this CDP.
- 7. Infrastructure Monitoring Plan.** PRIOR TO ISSUANCE OF THE CDP, the Permittee shall submit, for the review and written approval of the Executive Director, an Infrastructure Monitoring Plan. The Permittee shall ensure that the condition and performance of the approved development is regularly monitored and maintained, with reports to the Executive Director as described in this condition. Such monitoring evaluation shall, at a minimum, be designed to ensure that all approved development is maintained in its approved and required state consistent with the terms and conditions of this CDP, including to address whether any significant weathering, damage, and/or wear and tear has occurred that could adversely impact existing or future performance. The Plan shall also identify any repair and/or maintenance that is needed to maintain approved structural development in a structurally sound manner and its approved state as recommended by a licensed civil engineer with experience in coastal structures and processes. Such monitoring shall at a minimum provide for the following:
- a. Armoring/Infrastructure.** The approved infrastructure (i.e., remaining service road (if any), underground utilities, drainage systems, etc.) and the approved armoring system (and all associated development, including its integral public accessways) shall be regularly monitored by a licensed civil engineer with experience in coastal structures and processes to ensure structural integrity, including at a minimum evaluation of and recommendations regarding concrete competence, spalling, cracks, movement, outflanking, undercutting, and all required surface treatments.

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- b. Public Access Improvements/Amenities.** The approved public access improvements and amenities (i.e., parking areas, restrooms, pathways, stairways, overlooks, benches, picnic tables, bicycle racks, interpretive signage, waste and recycling receptacles, doggie mitt stations, etc.) as described in Special Conditions 1 and 5, shall be regularly monitored to ensure continued public safety and maximized public recreational access utility.
- c. Photo Documentation.** All monitored elements shall be photographed at least bi-annually from upcoast, seaward, inland, and downcoast viewpoints on the beach, and from a sufficient number of other viewpoints so as to provide complete photographic coverage of the approved development. Such photographs shall be at a scale that allows comparisons to be made with the naked eye between photographs taken in different years and from the same vantage points; recordation of GPS coordinates would be desirable for this purpose, as would be vertical and horizontal reference data relative to the inland surveyed benchmarks associated with the approved As-Built Plans (see Special Conditions 1 and 6). All photographs shall be documented on a site plan that notes the location of each photographic viewpoint and the date and time of each photograph (as well as GPS coordinates and distances relative to surveyed benchmarks if feasible), including to allow naked eye comparison of the same views over time. All photographs shall be in color and shall be provided in the monitoring reports in both color hard copy 8½ x 11 and digital jpg formats. Such photo documentation shall commence no later than the date of construction completion.
- d. Reporting.** Monitoring reports covering the above-described evaluations and materials shall be submitted to the Executive Director for review and written approval annually for the first five years following completion of construction, and every five years thereafter, by June 1st of each applicable year for as long as any part of the approved development remains. Should the Executive Director determine that any monitoring report shows significant inconsistencies with the terms and conditions of this CDP, then all subsequent monitoring reports shall be required annually by June 1st until the Executive Director determines in writing that a five year report increment is sufficient moving forward. Any proposed actions necessary to maintain the approved development 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. In addition to the annual and every five year reporting requirement, separate and additional monitoring reports shall be submitted by June 1st of the year after either of the following occur (1) A 20-year or larger storm event, or (2) an earthquake of magnitude 5.5 or greater with an epicenter in San Francisco County.
- 8. Future Maintenance/Repair.** This CDP authorizes future maintenance-oriented development associated with the approved development as described in this special condition. The Permittee acknowledges and agrees on behalf of itself and all successors and assigns that it is the Permittee's responsibility to: (1) maintain the approved development in a structurally sound manner, visually/ecologically

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compatible with the beach and bluff shoreline surroundings, and in its approved and required states consistent with the terms and conditions of this CDP; (2) retrieve any failing portions of the approved development that might otherwise substantially impair the use, aesthetic qualities, or environmental integrity of the public recreational areas, including the beach and ocean areas, and restore affected areas to as good or better conditions as existed before such failures; and (3) monitor the approved development and take actions to ensure CDP compliance as described in Special Condition 7, including as directed by the Executive Director through the required annual and five-year monitoring reports.

For maintenance-oriented development associated with non-armoring components of the approved development, this CDP authorizes limited future repair, maintenance, and/or improvement development that is determined by the Executive Director to: 1) fall within the overall scope and intent of this CDP; 2) be consistent with the City and County of San Francisco LCP; and 3) not have any significant adverse impacts to coastal resources. Any development that the Executive Director determines does not meet such criteria shall require a separate CDP or a CDP amendment, as directed by the Executive Director.

For maintenance-oriented development associated with the armoring components of the approved development, this CDP authorizes future maintenance and repair development be subject to the following:

- a. Maintenance/Repair.** “Maintenance” and “repair” as understood in this portion of this special condition means development that would otherwise require a CDP, with the purpose to maintain and/or repair the approved armoring development in its approved and/or required state pursuant to the terms and conditions of this CDP.
- b. Other Agency Approvals.** The Permittee acknowledges that these armoring maintenance and repair stipulations do not obviate the need to obtain permits and/or authorizations from other agencies for any future maintenance or repair.
- c. Maintenance/Repair Notification.** At least two weeks prior to commencing any armoring maintenance and/or repair activity, the Permittee shall notify, in writing, planning staff of the Coastal Commission’s North Central Coast District Office. The notification shall include: (1) a detailed description of the maintenance/repair proposed; (2) any plans, engineering, geology, or other reports describing the event; (3) a construction plan that clearly describes construction areas and methods, and that is consistent with the parameters of Special Condition 2 above; (4) other agency authorizations; and (5) any other supporting documentation describing the armoring maintenance/repair event. Armoring maintenance/repair shall not commence until the Permittee has been informed by planning staff of the Coastal Commission’s North Central Coast District Office that the armoring maintenance proposed complies with this CDP. If the Permittee has not been given a verbal response or sent a written response within 30 days of the notification being received in the North Central Coast District Office, the armoring maintenance shall be authorized as if planning staff affirmatively

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indicated that the armoring maintenance/repair complies with this CDP. The notification shall clearly indicate that armoring maintenance/repair is proposed pursuant to this CDP, and that the lack of a response to the notification within 30 days constitutes approval of it as specified in the CDP. If the notification does not clearly and explicitly indicate same, then the automatic authorization provision does not apply. In the event of an emergency requiring immediate armoring maintenance, the notification of such emergency shall be made as soon as possible, and shall (in addition to the foregoing information) clearly describe the nature of the emergency.

- d. Maintenance/Repair Coordination.** Armoring maintenance/repair activity shall, to the MEF, be coordinated with other maintenance/repair activity proposed in the immediate vicinity with the goal being to limit coastal resource impacts, including the length of time that construction occurs in and around the beach and beach access points. As such, the Permittee shall make reasonable efforts to coordinate their maintenance/repair activity with other adjacent property maintenance/repair activities, including adjusting their maintenance/repair activity scheduling as directed by planning staff of the Coastal Commission's North Central Coast District Office.
- e. Restoration.** The Permittee shall restore all beach and other public access areas impacted by construction activities to their pre-construction condition or better within three days of completion of construction. Any beach sand impacted shall be filtered as necessary to remove all construction debris from the beach. The Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office upon completion of restoration activities to allow for a site visit to verify that all project and beach-area restoration activities are complete. If planning staff should identify additional reasonable measures necessary to restore project and/or beach areas, such measures shall be implemented as quickly as feasible.
- f. Noncompliance Provision.** If the Permittee is not in compliance with permitting requirements of the Coastal Act, including the terms and conditions of any Coastal Commission CDPs or other coastal authorizations that apply to the subject property, at the time that an armoring maintenance/repair event is proposed, then such armoring maintenance/repair that might otherwise be allowed by the terms of this future maintenance/repair condition may be disallowed by the Executive Director until the Permittee is in full compliance with the permitting requirements of the Coastal Act, including all terms and conditions of any outstanding CDPs and other coastal authorizations that apply to the subject properties.
- g. Emergency.** Notwithstanding the emergency notifications set forth in subsection (c) of this special condition, nothing in this condition shall affect the emergency authority provided by 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).

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- h. Duration of Covered Maintenance/Repair.** Future armoring maintenance under this CDP is allowed subject to the above terms until the armoring authorization expires (see Special Condition 10), unless the Executive Director determines that circumstances have changed in such a way as to require a separate new CDP (or CDP amendment) review.
 - i.** The Permittee shall maintain the approved development in its approved and required state, and consistent with the terms and conditions of the CDP.
- 9. Coastal Hazards.** By acceptance of this CDP, the Permittee acknowledges and agrees, on behalf of itself and all successors and assigns, that:
- a. Coastal Hazards.** The approved development is and may be subject to future coastal hazards including but not limited to episodic and long-term shoreline retreat and coastal erosion, high seas, ocean waves, storms, tsunamis, tidal scour, wave overtopping, coastal flooding, landslides, bluff and geologic instability, bluff retreat, liquefaction and their interaction, many of which are likely to worsen with sea level rise.
 - b. Assume Risks.** (1) All risks to the Permittee and to the property that is the subject of this CDP are assumed by the Permittee, including any injury and/or damage from coastal hazards in connection with this permitted development; (2) any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from coastal hazards are unconditionally waived; (3) the Commission, its officers, agents, and employees are indemnified and held harmless by the Permittee with respect to the approval or issuance of this CDP, the interpretation and/or enforcement of CDP terms and conditions, or any other matter related to this CDP, 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 coastal hazards; and (4) all responsibility for any adverse effects to people and/or property caused by the approved development is assumed by the Permittee.
 - c. CDP Intent.** The intent of this CDP is to allow for the approved development to be constructed and used consistent with the terms and conditions of this CDP for only as long as the development remains safe for use and access, without significant additional measures beyond ordinary repair or maintenance to protect the development from coastal hazards.
 - d. No Future Armoring.** Other than the shoreline armoring authorized by this CDP, no additional shoreline armoring (including but not limited to seawalls, revetments, retaining walls, gabion baskets, tie backs, piers, groins, caissons/grade beam systems, etc.) shall be constructed to protect inland development at this location in the event that it is threatened with damage or destruction from coastal hazards in the future. Any rights to construct such armoring that may exist under Coastal Act Section 30235, the San Francisco City and County LCP, or any other applicable law, shall be waived, and no such

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inland development qualifies as an “existing structure” for purposes of Section 30235.

- e. **Public Trust.** This CDP does not allow encroachment onto public trust lands, and any future encroachment must be removed unless the Coastal Commission determines that the encroachment is legally permissible pursuant to the Coastal Act and authorizes it to remain. Any future encroachment would also be subject to the State Lands Commission’s (or other designated trustee agency’s) leasing and/or other approval.

10. CDP Expiration/Shoreline Armoring Duration.

- a. **Expiration.** Notwithstanding the provisions of Standard Condition 2 above, this CDP shall expire four years after its approval (i.e., on November 14, 2028). The Commission may extend the expiration date in one-year increments if: (1) the Permittee submits a complete CDP amendment application to change the expiration date (where it can be extended in one-year increments) prior to the expiration date, (2) evidence shows that the Permittee has pursued the approved development in a diligent manner and extra time is needed for appropriate and reasonable reasons, and (3) there are no changed circumstances that the Executive Director determines would suggest that the CDP expiration date not be extended.
- b. **Duration.** This CDP authorizes the approved armoring portion of the development for 25 years from the date of completion of seawall construction (see Special Condition 4). If the Permittee intends to keep the approved armoring portion of the development in place after the authorization has expired, then the Permittee shall submit a complete CDP amendment application within the year prior to the authorization expiration, requesting that the armoring authorization be extended. Such application shall at a minimum include an evaluation of any changed site or other conditions (including but not limited to changes relative to erosion and sea level rise) that might affect whether authorization extension is warranted, and an evaluation of methods to reduce any continuing coastal resource impacts and to mitigate any that cannot be avoided moving forward. If the Commission approves the armoring duration extension prior to the expiration, then the armoring may be retained past that point until the date specified in the Commission’s approval, subject to any terms and conditions applied by the Commission. If the Commission does not approve the armoring duration extension prior to the authorization expiration, then the Permittee shall remove the armoring portion of the development and appropriately restore the affected area to natural conditions within 6 months of such decision subject to Executive Director approval of a plan to accomplish same with the least coastal resource impacts.

- 11. **Future Permitting.** Any and all future proposed development related to this project, this project area, and/or this CDP shall be subject to the Coastal Commission’s continuing CDP jurisdiction. In addition to the parameters of Special Condition 8 (which shall control when more specific), this CDP authorizes limited future repair,

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maintenance, and/or improvement development that is determined by the Executive Director to: 1) fall within the overall scope and intent of this CDP; 2) be consistent with the City and County of San Francisco LCP; and 3) not have any significant adverse impacts to coastal resources. Any development related to this project and/or this CDP that the Executive Director determines does not meet such criteria shall require a separate CDP or a CDP amendment, as directed by the Executive Director.

12. Interim Authorization of Temporary Measures. The temporary armoring and related measures authorized by the Commission via CDP 2-15-1357 as amended (through and including amendment 2-15-1357-A2) are authorized to continue immediately upon CDP approval and remain in place until Phase 3 of the approved development is completed (anticipated to be complete by the end of 2031). If such temporary armoring and related measures have not been removed and the affected areas restored as envisioned by the approved development by the time of completion of Phase 3, or by December 31, 2031, whichever occurs first, then all approved development construction activities shall halt, and shall not be allowed to recommence until authorized by the Executive Director, and the temporary armoring and related measures shall be removed no later than December 31, 2031 and the area restored no later than the Saturday of Memorial Day weekend 2032 (i.e., May 26, 2032), subject to approval by the Executive Director of a plan to do so.

13. Protection of Archaeological and/or Tribal Cultural Resources. The Permittee shall undertake the approved project in compliance with the following measures to protect archaeological and/or tribal cultural resources to the MEF.

a. Monitoring. A qualified, locally experienced archaeologist and a tribal monitor, if requested and approved by relevant tribe(s), shall be on site to monitor all activities with the potential to impact archaeological and/or tribal cultural resources, including all ground disturbing activities. The monitor(s) shall have experience monitoring for archaeological resources of the local area during excavation projects, be competent to identify significant resource types, and be aware of recommended tribal procedures for the inadvertent discovery of tribal cultural and/or archaeological resources and/or human remains.

b. Discovery Protocol. If any tribal cultural deposits are discovered during the course of the project, all construction within 200 feet of such deposits shall cease and shall not re-commence until a qualified cultural resource specialist (which could be a person identified in subpart (b), above), in consultation with the relevant tribe(s), analyzes the significance of the find and, if deemed significant, prepares a supplementary archaeological plan for the review and approval of the Executive Director that evaluates and provides suggested measures related to the discovery. The Executive Director shall review the plan and either: (1) approve it and determine that its recommended changes to the project or mitigation measures do not necessitate an amendment to this CDP, or (2) determine that the changes proposed therein necessitate a CDP amendment. The location of any and all identified archaeological and tribal cultural resources shall be kept confidential, and only those with a “need to know” shall be informed

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of their locations.

- c. **Human Remains.** Should human remains be discovered on-site during the course of the project, immediately after such discovery, the on-site archaeologist and/or tribal monitor shall notify the City and County of San Francisco Coroner within 24 hours of such discovery, and all construction activities shall be temporarily halted until the remains can be identified. If the Coroner determines that the human remains are those of a Native American, the Coroner shall contact the NAHC within 24 hours, pursuant to Health and Safety Code Section 7050.5. The NAHC shall deem the Native American most likely descendant (MLD) to be invited to participate in the identification process pursuant to Public Resources Code Section 5097.98. The Permittee shall comply with the requirements of Section 5097.98 and work with the MLD person(s) to discuss and confer with the descendants all reasonable options regarding the descendants' preference for treatment. Within 5 calendar days of notification to NAHC, the Permittee shall notify the Coastal Commission's Executive Director of the discovery of human remains. The Executive Director shall maintain confidentiality regarding the presence of human remains on the project site.

14. Beach Nourishment Benthic Monitoring. PRIOR TO ISSUANCE OF THE CDP, the Permittee shall submit one electronic copy and two paper copies of a Beach Nourishment Benthic Monitoring Plan to the Executive Director for review and written approval. The Plan shall provide for annual monitoring of benthic infauna at any beach nourishment sites, and shall be substantially in conformance with the proposed plans (titled "Habitat Restoration & Enhancement Plan" dated March 2024 and prepared by MN + AGS JV; and "Habitat Monitoring & Management Plan" dated April 2024 and prepared by ESA), which shall be consolidated into a single document, and which shall be modified to meet the following requirements:

- a. **Design/Protocols.** Monitoring study design and protocols shall be substantially similar to the Proposed Scope of Work for Spatial and Temporal Variation in Ecological Values in South Ocean Beach, prepared by ESA and Applied Marine Sciences (AMS), dated March 2021, with the modifications detailed in this condition, unless an alternative monitoring design with clear scientific justification is submitted, and is determined acceptable in writing by the Executive Director.
- b. **Reference Sites.** A second reference site shall be added to ensure that conclusions drawn from monitoring are statistically significant, or justification shall be provided to explain how use of a single reference site can support statistically sound conclusions that can support adaptive management decisions. The bounds of the Fort Funston reference site shall be adjusted as necessary to minimize potential impacts from other projects (e.g., the Vista Grande Drainage Improvement Project). If the reference site bounds cannot be changed to avoid ongoing impacts, alternative reference sites shall be identified.
- c. **Timing.** Monitoring shall commence a minimum of two years prior to the first nourishment event to establish baseline conditions, and shall continue for a minimum of 10 years after the first nourishment event. Monitoring shall occur

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annually in the fall, prior to any nourishment events, to characterize infauna communities during the season of maximal abundance. If monitoring has consistently shown no adverse effects of nourishment for a sufficient number of events after the 10-year minimum, the Permittee may request exemption from further monitoring efforts, or if results suggest monitoring could be refocused through specific parameters, frequencies, or spatial cover, the Permittee may request other adjustments to the monitoring program. Implementation of any such requests shall require review and written approval by the Executive Director.

- d. Impact Assessment.** Quantitative methods shall be described for determining adverse impacts of beach nourishment to benthic infauna communities. If results indicate adverse impacts are occurring, strategies for adaptively managing nourishment approaches (including but not limited to sand placement timing, sand placement methods, and usage of construction equipment) shall be identified.
- e. Reporting.** results of all above-identified monitoring activities shall be summarized and presented annually in a report for the review and approval of the Executive Director by December 31st of each year. Annual monitoring reports shall describe any nourishment events that occurred during the monitoring period, adverse impacts measured and/or observed, and adaptive management actions proposed. Prior to implementation of any adaptive management actions, these shall be subject to the review and written approval of the Executive Director.

All requirements above and all requirements of the approved Beach Nourishment Benthic Monitoring Plan shall be enforceable components of this CDP. The Permittee shall undertake development in conformance with this condition and the approved Beach Nourishment Benthic Monitoring Plan.

15. Other Authorizations. PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall provide to the Executive Director written documentation of authorizations from all entities from which such authorization is necessary for the approved development (including but not limited to the U.S. Park Service, U.S. Army Corps of Engineers, California State Lands Commission, California State Water Resources Control Board, and San Francisco Bay Regional Water Quality Control Board) or conclusive evidence that no such authorizations are required from each of these entities. The Permittee shall inform the Executive Director of any changes to the project required by any other such authorizations. Any such changes shall not be incorporated into the project until the Permittee obtains a Commission amendment to this CDP, unless the Executive Director determines that no amendment is legally required. Any future additional authorizations (e.g., associated with future sand placement, etc.) shall be provided subject to the same criteria prior to implementation of the activity that requires such future authorization.

16. Minor Changes. The Permittee shall undertake development in conformance with the terms and conditions of this CDP, including with respect to all Executive Director-

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approved plans and other materials, which shall also be enforceable components of this CDP. Any proposed project changes, including in terms of changes to identified requirements in each condition, shall either (a) require a CDP amendment, or (b) if the Executive Director determines that no amendment is legally required, then such changes may be allowed by the Executive Director if such changes: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources.

17. Liability for Costs and Attorneys' Fees. The Permittee shall reimburse the Coastal Commission in full for all Coastal Commission costs and attorneys' fees (including but not limited to such costs/fees that are: (1) charged by the Office of the Attorney General; and/or (2) required by a court) that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Permittee against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of these CDPs, the interpretation and/or enforcement of CDP conditions, or any other matter related to these CDPs. The Permittee shall reimburse the Coastal Commission within 60 days of being informed by the Executive Director of the amount of such costs/fees. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission. By acceptance of this CDP and its terms and conditions, the Permittee irrevocably agrees to this obligation, which shall be continuing in nature and remain in full force and effect regardless of whether this CDP approval is invalidated as the result of the litigation contemplated by this condition or otherwise changed in any way.

4. FINDINGS AND DECLARATIONS

A. Project Location

The project site encompasses primarily the portion of San Francisco's Ocean Beach extending south from Sloat Boulevard to the northern edge of Fort Funston (often referred to as "South Ocean Beach"), and the Great Highway corridor (also known as the "Great Highway Extension" in this area) between Sloat and Skyline Boulevards. The project also includes some beach and ADA access components along Ocean Beach between Taraval Avenue and Sloat Boulevard (or "Middle Ocean Beach") and includes sand harvesting in the northernmost part of Ocean Beach north of Lincoln Boulevard (or "North Ocean Beach") (see Exhibit 1). In addition, a 0.5-acre plant propagation site is proposed at Fort Funston in the vicinity of an existing plant nursery, immediately south of the Fort Funston main parking lot, west of Skyline Boulevard at the intersection of Fort Funston Road.

Ocean Beach is a north-south trending sandy beach that is nearly 4 miles long, located on the western, Pacific Ocean, side of San Francisco and south of the Golden Gate entrance to the San Francisco Bay. The beach and the Great Highway that front it are iconic and well-known visitor destinations. The primary project area between Sloat and Skyline Boulevards extends along a roughly one-mile stretch of this area at its southern end and is managed by a variety of entities (with the Great Highway corridor controlled by San Francisco Recreation and Parks and Public Works Departments, and the beach and dunes seaward of that controlled by the National Park Service (NPS) as part of the

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larger Golden Gate National Recreation Area (GGNRA)). The areas inland of the Great Highway corridor in the project area is also managed by various other agencies, including the San Francisco Zoo, California Army National Guard, and the San Francisco Public Utilities Commission (SFPUC, the Applicant for the proposed project on behalf of the City) which is responsible for the Oceanside Water Pollution Control Plant (WWTP) and Westside Pump Station just inland of the highway, as well as subsurface infrastructure under the highway itself.

The project area currently includes two large rock revetments along the bluff (one 600 linear feet long and the other 440 linear feet long) that the City installed in 1997 and 2010, respectively, both of which are covered by sand berms.⁶ The sand berms, the revetments, and sand bag arrays were all temporarily authorized by a 2015 Commission CDP that originally required to the City to come in with a long-term plan that was required to be submitted no later than 2018 so the City could implement it no later than 2021, but where the Commission subsequently extended that deadline twice (via City CDP amendment requests), and where the City is currently required to remove all such temporarily approved armoring measures and implement a long-term plan no later than July 1, 2024.⁷ The backshore in this area transitions from fairly low profile dunes at Sloat Boulevard to bluffs of about 50 feet above beach grade near Fort Funston. Public access to the beach is supported by two blufftop parking lots, the Sloat Parking Lot (also referred to as the North Lot) located at the intersection of Sloat Boulevard and the Great Highway, and the South Parking Lot, located in the middle of the project area at the intersection of Great Highway and Zoo Road, both of which have been severely damaged by episodic erosion that occurred between the early 1990s and early 2010s. These severe erosion episodes reduced the capacity of the North Parking Lot from 200 parking spots (in 1993) to just 55 (in 2012), and now to only about 35 remaining parking spaces in 2024. This erosion has also resulted in the permanent closure of the South Parking Lot, which previously provided about 100 parking spaces.

B. Project Background and Permitting History

A version of the Great Highway has existed along Ocean Beach, between upcoast 'Land's End' (and the entrance to the San Francisco Bay, and the Golden Gate Bridge further upcoast and inland) and downcoast Fort Funston, since the 1920s, where the most recent substantial redevelopment of the road occurred in the late 1970s and early 1980s. Specifically, in 1979 the Commission originally conditionally approved a Public Works Plan (PWP) and several related projects, and subsequently conditionally approved PWP amendments and additional projects, all designed to implement the City's Clean Water Program under the 1972 Federal Clean Water Act. Over the course of several decades, the PWP and its projects allowed for major wastewater infrastructure upgrades, including related to Westside Transport and Storage structures; the Westside Pump Station (inland of the Great Highway nearest to Sloat Boulevard); Great Highway replacement; the Oceanside Water Pollution Control Plant (WWTP)

⁶ The 1997 revetment was installed by the City without benefit of a CDP, and the 2010 revetment was installed by the City and temporarily authorized by the Coastal Commission via emergency CDP 2-10-033-G.

⁷ Pursuant to CDP 2-15-1357 as amended through and including CDP amendment 2-15-1357-A2. The City is currently in violation of this deadline, which passed several months ago.

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(immediately inland of the Great Highway in the southern portion of the project area nearest to the northern portion of Fort Funston); the Lake Merced Tunnel (LMT);⁸ and the Southwest Ocean Outfall Pipe extending 3.5 miles offshore (and intended to reduce the frequency of wastewater overflows onto the beach and immediate shoreline).

All told, from the late 1970s until the early 1990s the City (through the current Applicant, SFPUC) constructed a major complex of sewer and stormwater infrastructure on the City's westside that still collects, transports, and treats approximately 35 percent of all stormwater/wastewater flows in the City.⁹ The LMT is a critical part of this system that provides transport, storage, and overflow functions within a 18-foot-diameter pipe that is located roughly 20 feet beneath the Great Highway in the project area. As part of its overflow and storage functions, the LMT (and other similar large diameter pipes underlying the Great Highway outside of the project area) holds untreated stormwater and sewer effluent during periods when the WWTP is unable to treat the quantity of inflow, such as during intense storms. If the quantity of inflow surpasses LMT capacity, the untreated stormwater/wastewater is directly released to the ocean via Southwest Ocean Outfall (SWOO) overflow pipe (a roughly 18-foot square pipe), where the SWOO meets the LMT roughly in the middle of the approximately mile long project area stretch. It is the LMT that the Applicant is applying to protect with armoring in this application, although additional major stormwater/wastewater infrastructure exists directly inland of the LMT in the project area, including the Westside Pump Station and the Oceanside Water Pollution Control Plant itself.

At the time all of this infrastructure was proposed during those initial decades, the Commission was particularly concerned that such infrastructure would eventually require armoring for protection, where that armoring would adversely impact sandy areas of Ocean Beach that support recreation and habitats. The City, however, assured the Commission that such infrastructure would not require armoring, but rather could be protected and maintained via aggressive beach nourishment. Thus, the Commission's original approvals were contingent upon locating such infrastructure, including the relocated Great Highway, as far inland as possible, and upon establishing required measures to ensure ongoing beach nourishment by the City (including, as related to the LMT, requiring new sand nourishment episodes whenever erosion uncovered a row of markers buried in the sand 50 feet seaward of the LMT).

Ultimately, however, these nourishment assurances and requirements fell by the wayside. Specifically, the original PWP was conditioned to establish a fund adequate to provide at least 100,000 cubic yards of sand for the required replenishment annually at

⁸ The LMT was authorized under PWP Project Number PWP-1-79-6 in 1991, and construction was completed in 1993.

⁹ The City of San Francisco is one of the largest of about 1,000 combined stormwater/wastewater systems in the country. In a combined system, stormwater and sewer effluent are collected, transported, treated, and disposed of in the same singular system (and thus "combined"). Non-combined systems predominate the United States and California, where these two waste streams are separated into distinct stormwater and sewer effluent systems where the two never touch (although more and more 'separated' systems have the ability to direct smaller volumes of stormwater runoff (often referred to as 'dry weather flows') into wastewater treatment facilities for treatment in recognition of the concentration of pollutants that can be found in such runoff).

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Ocean Beach. However, based on both a revised estimate of the annual erosion rate at Ocean Beach and the State Water Resources Control Board indicating that only half of the cost for required sand replenishment was grant eligible, the Commission allowed an amendment to the PWP to instead require establishment of an escrow fund to pay for such sand replenishment, expecting federal funds to cover the actual cost of such replenishment efforts. Ultimately, these federal funds did not materialize, and in 1981 the State Legislature actually abolished the escrow fund, and instead required that the City prepare a Beach Nourishment Plan for Commission review and approval to ensure integrity of the beach area as a recreational resource, with the City required to contribute funding toward implementation of the plan, along with a requirement to submit the plan to the Commission for review and approval. Then, the severe El Niño storms of 1982-1983 (commonly referred to as 100-year storms) eliminated about 70 percent of the sand that had been stockpiled at North Ocean Beach that was intended for sand replenishment, and emergency riprap was placed in various areas.

In 1986, the City submitted the required Beach Nourishment Plan, and the Commission promptly denied it due to its reliance on armoring as the primary element of the shoreline protection plan instead of the required sand replenishment. In the plan, the City also attempted to absolve itself from further financial commitment to beach replenishment, ignoring the effects of its decision to locate structures on an eroding beach and shoreline, and claimed that San Francisco was not responsible for conditions that were not caused by City projects, such as the uncertainty of erosion from year to year. Several months later, the City submitted a revised plan that included beach replenishment as a key element of long-term management at Ocean Beach and described it as the favored solution, but only to the degree it was feasible, finding that periodic large-scale sand replenishment projects of 2 to 3 million cubic yards would be the most successful option, and that the City would request assistance from the U.S. Army Corps of Engineers (ACOE) for that purpose. The Commission ultimately approved a Beach Nourishment Plan that required the City to work to obtain federal funds if the ACOE determined sand replenishment to be appropriate, with a contingency plan for the City to initiate beach replenishment on its own, but again only if the ACOE study indicated the need for it. Put another way, the Commission agreed to an implementation framework that only required the City to implement beach replenishment if both ACOE and the City determined it to be an appropriate response. Then, in 1992, about a year after the Commission approved the LMT based on a beach nourishment and no armoring protection framework, ACOE determined that beach nourishment was not economically feasible compared to alternatives that included dune nourishment and a concrete seawall. Although the Commission expressed concern at the time, its prior approval of the plan subject to whatever ACOE and the City agreed to essentially tied its regulatory hands. Thus, what had started out as a City assurance and a Commission requirement for aggressive beach nourishment and no armoring turned into a watered down requirement for limited dune nourishment and seawalls.

Subsequently, from the 1990s to 2010, a series of storms caused significant damage and led to temporary closures to the two aforementioned parking lots and the Great Highway Extension itself in the area of Ocean Beach south of Sloat Boulevard, requiring

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additional measures be put in place.¹⁰ Such storms resulted in significant amounts of erosion, where the LMT lost much of the bluff needed to stabilize and even keep the tunnel in place, thus putting it at risk. To protect the LMT infrastructure and to prevent further bluff erosion, the City placed 600 linear feet of rock revetment in 1997 without the benefit of a CDP and an additional 440 linear feet of rock revetment in 2010 under emergency CDP 2-10-003-G.¹¹ In 2011, the Commission denied the City's application proposing after-the-fact authorization for the 1997 and 2010 revetments, as well as a new revetment and two new tangent pile walls (CDP Application No. 2-10-033), citing inadequate consideration of alternatives by the City that would avoid and/or minimize the adverse impacts of the proposed project, encouraging the City to develop a viable non-armoring alternative for consideration.

Recognizing the need for a long-term management strategy for South Ocean Beach, in 2009, the City began working with the non-profit San Francisco Bay Area Planning and Urban Research Association (or 'SPUR') and a range of stakeholders¹² to develop a comprehensive plan to address sea level rise, protect infrastructure, restore coastal ecosystems, and improve coastal access across the entirety of Ocean Beach. Completed in 2012, this became known as the Ocean Beach Master Plan (OBMP). The Ocean Beach Master Plan is a non-regulatory vision document with the goal "[t]o knit the unique assets and experiences of Ocean Beach into a seamless and welcoming public landscape, planning for environmental conservation, sustainable infrastructure, and long-term stewardship."¹³ To execute this vision, the OBMP outlined six recommendations, or "Key Moves", two for each section of Ocean Beach (North, Middle, and South). Relevant to this CDP are Key Moves 1 and 2, which envision a combined managed retreat and 'protect in place' strategy at South Ocean Beach, from Sloat to Skyline Boulevards. More specifically, the managed retreat element of these key moves involved closing the section of the Great Highway Extension in that stretch, re-aligning parking lots and restrooms further inland, and building a multi-use recreational pathway. Critical wastewater infrastructure was then to be protected in place through a combination of a low buried wall and rock cobble, sand placement, and dune vegetation. These two key moves became the basis for the project under consideration for this CDP.

¹⁰ For example, in 2004 the City was authorized by the Commission (via PWP Project Number PWP-1-79-10) to perform maintenance activities to the promenade and seawall along the Great Highway between Noriega and Santiago Streets, where sand was to be excavated from an area extending 25 feet seaward along the 2,500-foot length of the promenade/seawall and transported by truck via the Great Highway south to the Sloat Boulevard parking lots and then pushed from the parking lots onto Ocean Beach to help provide some level of protection.

¹¹ Emergency CDP 2-10-003-G has long since expired (emergency permits require follow up authorization to authorize them on anything other than a temporary basis, which did not happen here), and thus no longer provides authorization for the revetment.

¹² These included the project funders California Coastal Conservancy, NPS, SFPUC, as well as partner agencies such as SFPUC, NPS/GGNRA, ACOE, San Francisco Recreation and Parks Department, San Francisco Department of Public Works, and the Coastal Commission, as well as members of interested non-profit organizations.

¹³ OBMP Page 3.

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From 2011 to 2015, the Commission authorized a series of alternative measures in response to ongoing erosion episodes, including sand relocation activities (i.e., from North to South Ocean Beach, also referred to by the City as ‘sand backpassing’) and the placement of temporary sandbags. In 2011, the Commission issued Emergency CDP 2-11-042-G, allowing for the temporary placement of sandbags fronting an approximately 100-foot segment just south of Sloat. In 2012, through its Federal Consistency review process, the Commission issued a negative determination (ND-030-12) for the movement of 77,000 cubic yards of sand from North to South Ocean Beach, and in 2014, another negative determination (ND-0036-14) for the movement of 30,000 cubic yards of sand from North to South Ocean Beach, conducted by NPS in coordination with the Applicant.

In 2015, the Commission provided temporary authorization for the two unpermitted revetments installed in 1997 and 2010,¹⁴ sandbag structures amounting to 1,000 cubic yards of sand (including either three sandbag structures of 100 feet in length, 70 feet in width, and 20 feet in height or a single combined sandbag structure of up to 300 linear feet) located south of Sloat Boulevard, placement of additional sandbags as needed, and continued sand placement within an approximately half-mile stretch extending south from Sloat Boulevard, all to help protect the Great Highway, the parking lot at Sloat Boulevard, and the LMT south of Sloat Boulevard (CDP 2-15-1357). The intention of this temporary authorization was to allow the City time to develop a long-term permanent solution for continued erosion and resulting threats to critical infrastructure, using the 2012 Ocean Beach Master Plan as a guiding document, to submit that solution to the Commission for review by 2018, and to implement such measures approved by the Commission by 2021. Under the 6-year term of CDP 2-15-1357, the City moved sand as needed from North to South Ocean Beach to construct protective sand berms within the half-mile stretch extending south from Sloat Boulevard, and in 2018 built two 100-foot long sandbag structures, one just south of the intersection at Sloat Boulevard and the other fronting the South Parking Lot at Zoo Road. In September 2021, through the Federal Consistency process (ND-0039-20), NPS placed an additional 265,000 cubic yards of sand in a series of sand berms along the project area, using sand dredged from the San Francisco Main Ship Channel.

In October 2021, the Applicant requested an extension of the 6-year term established by CDP 2-15-1357 in order to complete CEQA review and related documentation for the long-term solution, which the City continued to develop from the initial concepts laid out in the OBMP. In response, the Commission amended the permit to extend the temporary authorization until June 2023 (CDP 2-15-1357-A1). Per the requirements of CDP 2-15-1357, the Applicant submitted the CDP application for the long-term solution on December 30, 2021, with the understanding that the application would not be complete (under the Permit Streamlining Act) given the environmental documents in the works at the time, and therefore the Commission would not act on the application until after the City completed its CEQA determination and provided any relevant documentation to the Commission. In May 2023, the Commission once again amended

¹⁴ The 1997 revetment was installed by the City without benefit of a CDP, and the 2010 revetment was installed by the City and authorized by the Coastal Commission via emergency CDP 2-10-033-G, but that permit had by this time expired, thus both were violations at the time.

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the permit to extend the temporary authorization until July 1, 2024 (CDP 2-15-1357-A2), in order to give time to the City to complete its EIR and other analyses necessary to support their long-term project.

Thus, in summary, as originally authorized by the Commission, the City was to protect the LMT and related infrastructure via aggressive beach nourishment, and not armoring. However, in the 1990s, and in response to a series of storms that undermined parking areas and threatened the stability of the Great Highway and the LMT, the City armored portions of the project area without CDPs and supplemented such armoring in the 2000s via emergency CDPs. Ultimately, the Commission denied regular CDPs for that work in 2011, leaving it all unpermitted, and directed the City to look at non-armoring alternatives. At the same time, the physical circumstances at the project area continued to deteriorate, and the Commission authorized both nourishment and sand bags as temporary measures to address the problem, and ultimately approved a CDP in 2015 that temporarily authorized all of the prior measures, and required to the City to come in with a long-term plan that could be implemented no later than 2021, where the Commission subsequently extended that deadline twice (via City CDP amendment requests), and where the City is currently required to remove all such temporarily approved armoring and related measures and implement a long-term plan no later than July 1, 2024. Given that deadline passed several months ago, and none of the armoring and related measures have been removed, the City is in violation of that CDP, and all such development is currently unpermitted.

C. Project Description

The proposed project is intended to provide a long-term and somewhat adaptive solution to the ongoing erosion threats to public access facilities and critical infrastructure at South Ocean Beach. Under the City's proposal, this would be accomplished through demolishing and removing abandoned,¹⁵ and moving necessary, infrastructure where feasible and protecting existing infrastructure that is infeasible to move at this time, namely critical wastewater infrastructure. Major project components involve: (1) constructing a buried seawall with a connected slope stabilization layer (SSL; essentially a concrete 'cap' extending from the seawall on a slope extending inland roughly 40 feet) to protect the LMT from shoreline erosion; (2) removing rubble, debris, pavement, and temporarily authorized rock and sandbag revetments from the beach; reshaping the bluff, creating a dune vegetation stabilization zone to help stabilize the dunes, and installing a plant propagation site at Fort Funston for the vegetation that would be planted as part of the dune restoration element of this project; (3) long-term continuous beach nourishment to ensure the armoring elements remain buried and a sandy beach is maintained; (4) permanently closing to vehicular traffic, decommissioning and restoring the Great Highway Extension between Sloat and Skyline Boulevards and intersection improvements at Sloat/Great Highway, Sloat/47th Avenue,¹⁶ Great Highway/Skyline, and the San Francisco Zoo entrance; (5)

¹⁵ Abandoned infrastructure to be removed includes pipes, pedestrian tunnels, an army bunker, etc.

¹⁶ The potential project variant for intersection improvements at Sloat/47th Avenue would change how visitors would enter and exit the Zoo. The variant would allow vehicles to enter and exit the Zoo via the signalized intersection at Sloat Boulevard and 47th Avenue and would include one inbound lane, one outbound lane, one reversible lane, a dedicated right turn lane from eastbound Sloat Boulevard, and a

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constructing a public parking lot near Skyline Boulevard and a restroom near Sloat Boulevard; and (6) constructing a City-use-only service road between the Sloat and Skyline Boulevards;¹⁷ (7) constructing a multi-use trail, overlooks, and a beach access stairway in the abandoned roadway area. The City estimates that construction costs for the project will amount to approximately \$175 million, and that each beach replenishment event is expected to cost about \$1 million. Exhibit 2 provides an overview of the components of the proposed project, all of which are described in more detail below.

Seawall, Revetment, Slope Stabilization Layer, and Associated Components

The proposed seawall component of the project would involve the construction of a partially below-grade seawall intended to protect the LMT, the most seaward element of the existing storm/wastewater infrastructure system, from erosion and future sea level rise. The proposed seawall would extend some 3,200 linear feet, fronting the LMT roughly between the Sloat Boulevard/Great Highway intersection to the point where the Great Highway turns inland toward Skyline Boulevard (i.e., the seawall would stop about 1,000 feet short of that intersection), and would extend partially onto National Parks Service land. The top elevation of the seawall would range from +14.5 to +21 NAVD88¹⁸ (or about 10-15 feet above typical beach elevations) with the higher elevation found in the southern part of the project. The portion of the seawall extending down 25 to 30 feet (to -10 NAVD88) would be made up of 3-foot diameter concrete piles in a row (i.e., forming a continuous barrier), and the portion of the wall extending down 20 to 30 feet below the continuous barrier (to -30 to -40 NAVD88) would be made up of the same 3-foot diameter concrete piles but spaced 5-foot on center (i.e., forming a discontinuous barrier (with a 2-foot gap between piles), akin to a pier foundation). In all, the seawall would extend vertically an average of 55 feet and a maximum of 60 feet, where its topmost elements would be about 20 feet above mean sea level.

The proposed seawall would include a 40-foot gap at the Southwest Ocean Outfall (SWOO), which extends outward towards the ocean perpendicular to the beach, and the Applicant proposes a rock revetment in this area. The seawall gap is necessary because drilling piles for the seawall could potentially damage the SWOO. The revetment would occupy nearly 5,000 square feet and be about 20 feet in height, consisting of 2-ton rocks for the armor layer and half-ton rocks for the underlayer, at a slope of 1.5:1 (see Exhibit 2).

dedicated left turn lane from westbound Sloat Boulevard. New crosswalks would be striped to align with the new Zoo driveway across the south, west and east legs of the Sloat Boulevard/47th Avenue intersection.

¹⁷ As proposed, this would be a new road open only to City vehicles and to WWTP employees, and intended to provide vehicular access to and between the Westside Pump Station and the WWTP, including via a 'loop' line of travel that would include 47th Avenue and Skyline Boulevards as well. The service road would be constructed just inland of the proposed recreational trail, with connections provided between the two.

¹⁸ NAVD88 stands for the North American Vertical Datum of 1988, which is the official vertical control datum in the United States. Since mean sea level is about 3 feet above 0 NAVD88 in this area, the top of the proposed seawall ranges from 11.5 to 18 feet above sea level.

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The proposed seawall would be sited roughly along the location of the temporarily authorized armoring (which is about 20 feet seaward of the LMT for the majority of its length but up to about 40 feet seaward of the LMT nearest Sloat Boulevard), where the space between the seawall and the LMT is intended to provide space for tieback anchors to be installed. Put another way, the seawall must be sited a certain distance from the LMT to allow for enough space for the tiebacks (an essential part of the wall design that ensures stability of the wall) to extend at a 45 degree angle from the top of the wall towards the LMT. The wall cannot be brought closer to the LMT without decreasing the angle of the tiebacks, which would decrease structural stability without a significantly thicker seawall and deeper piles.¹⁹ An overview of the seawall alignment can be seen in Exhibit 2.

To minimize erosion of bluff material necessary to weigh down the LMT, protect against scour behind the buried seawall in the event of wave run-up or high surf conditions, and to help stabilize the bluff above it, the City also proposes a 3-foot thick, gently sloping “Slope Stabilization Layer” (SSL) composed of cement mixed with the sand and bluff material, extending from the top of the seawall (and the revetment at the gap) to the start of the multi-use pathway, inland of the wall, essentially occupying a space about 40 feet wide on average, although this width varies along the length of the project stretch given the siting of the wall. Once built, the City would bury the seawall and SSL with a 4-foot-thick layer of sand (sourced from both sand stockpiled from excavation of the sandy bluff during construction of the buried wall and from North Ocean Beach) contoured into a dune-like formation and planted with native dune vegetation. The SSL would be at a 3:1 slope from the top of the seawall/revetment to the multi-use trail, which the City indicates is generally the natural angle of repose for the dunes at Ocean Beach, and therefore the minimum angle needed to ensure stability of the engineered dune system intended to cover the buried seawall. At this slope, the City believes that the sand placed on top of the SSL will not slip off, assuring the formation of a healthy dune system and protection of the structure beneath. An overview of the seawall and SSL design can be found in Exhibit 2.

The buried seawall and SSL have been designed to accommodate sea level rise and erosion over a lifespan estimated by the City to be about 50 years under a medium-high risk scenario, and with the proposed beach nourishment, as discussed below, the Applicant anticipates that the life of the armoring structure is about 80 years.

In addition to the buried seawall and SSL, the City proposes to add additional hard infrastructure consisting of deep soil mixing²⁰ (DSM) at three locations along the project stretch in order to ensure protection of the seawall and the LMT in the event of beach or bluff erosion inland of the seawall: (1) at the north end of the seawall at Sloat Boulevard,

¹⁹ The Commission’s engineer, Jeremy Smith, has reviewed this design and concurs with this assessment.

²⁰ Deep soil mixing is where augers mix cement with existing soil to replace approximately 30 percent of the existing soil with cement.

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(2) at the intersection of the LMT with the SWOO,²¹ roughly in the middle of the project area, just north of the WWTP, and (3) at the buried seawall's southern terminus fronting the WWTP. At the 40-foot gap, the DSM would overlap with the buried wall, extending 67 feet in length across the gap, and extending roughly 10 feet seaward of the seawall alignment.

Debris/Temporary Armoring Removal, Sand Placement and Revegetation

Following the construction of the seawall and related elements described above, the City would remove the existing temporarily authorized revetments and sandbags, as well as remove any rubble and/or debris from the beach.²² In terms of revegetation, SFPUC submitted a dune landscape plan, which envisions three vegetation zones across the project area. The farthest landward is called out as the 'stable back dunes area', which is proposed for the area between the service road and the multi-use trail. Seaward of that area would be the 'stable foredunes area' (identified in the submitted plans as the 'Vegetative Stabilization Zone' or VSZ), consisting of native vegetation planted on the created foredunes perched above the slope stabilization layer and the to be buried seawall. The farthest seaward would be the 'embryonic foredune zone' (identified in the submitted plans as a 'sacrificial zone'), consisting of less stable foredune habitat and backshore beach. The embryonic foredune zone would be expected to erode periodically and then be replenished during sand placement events. The City would provide temporary irrigation for up to three years for the initial dune vegetation establishment and would also perform periodic replanting and removal of invasive species. Once established, the City expects that proposed landscape maintenance of this area would be minimal and generally limited to restoration of portions of the stable foredunes that erode due to severe weather events. An overview of the dune landscape plan can be found in the project plans (see Exhibits 2, 3, 4, and 5).

Fort Funston Plant Propagation Site

Non-native and invasive plants, especially iceplant, would be removed and replaced with plants native to the dunes of the project area. Plants needed for restoration efforts and installation of native plant species (such as for the bluff and dune areas) would be sourced from a new propagation site located within Fort Funston,²³ in the near vicinity of the already existing plant nursery. The propagation site at Fort Funston would be planted during the first phase of construction and once planted, would require at least two growing seasons to establish mature vegetation suitable for transplanting. This propagation would be intended to serve as both a source for initial plantings as well as

²¹ As indicated previously, the SWOO is where treated effluent from the WWTP is discharged, and where untreated overflow effluent is discharged when storage and treatment capacities are exceeded. The SWOO is a 18-foot diameter, square pipe, buried 80 feet deep, and extending 3.5 miles off-shore.

²² It's important to note here that removing the existing shoreline protection structures is required as a condition of approval of CDP 2-15-1357, and in the absence of an approval for this long-term project that provides additional time for its removal, such temporarily allowed development was required to be removed by July 1, 2024, which deadline passed several months ago.

²³ The proposed plant propagation site at Fort Funston would also need to be approved by NPS by permit or agreement.

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replacement plantings in the future for the project's restoration plan along South Ocean Beach.

Beach Nourishment

In order to ensure that the seawall and related components remain buried through their anticipated life (again, modeled by the City as 80 years), and to ensure continued lateral access along the beach throughout the year, including as affected by seasonal fluctuation of beach widths and rising sea levels, the Applicant proposes an adaptive sand management plan that would consist of regular, planned sand placements (referred to in the Sand Management Plan proposed by the Applicant as "scheduled" sand replenishments, see Exhibit 6 for further details on proposed sand management). As proposed, the placements are anticipated for milder years with less severe conditions, as well as sand placements when certain triggers are met as observed during annual monitoring (referred to as "non-scheduled" sand replenishments) for years with more severe conditions (e.g., during strong El Niño years). The proposed Sand Management Plan was informed by a model that included natural erosion at South Ocean Beach, seasonal fluctuations in beach width, sea level rise projections under a medium-high risk scenario, and El Niño conditions which was used to evaluate the number and size of placements that would be needed in different scenarios. For the milder years, scheduled sand replenishments using sand moved from the North Ocean Beach borrow site to South Ocean Beach would occur at an interval of every 2-8 years depending on annual conditions and volumes of sand needed. Similar sand replenishments of dredged sand at an interval of every 4-10 years would also occur in more mild years. For the milder years, the Applicant also proposes either repeated small placements of sand (85,000-120,000 cubic yards) that would be sourced from North Ocean Beach, larger placements of sand (300,000-500,000 cubic yards) sourced from ACOE dredged material from the main ship channel in the mouth of the San Francisco Bay,²⁴ or a combination of the two, which would be placed directly fronting the seawall and related project components.

Sand that naturally accretes at North Ocean Beach tends to accumulate from sand that moves from South Ocean Beach, so in a sense, much of the sand that will be used from this source will be recycled from sand that was eroded away from the same areas in previous years. The sand that accretes in the shipping channel is part of the larger San Francisco Littoral Cell, and while the exact process of sediment transport within this cell is not well understood, the sand used in the project area would most likely remain within this larger sediment transport system as well. Therefore, the plan overall is that new sand would not be brought into this system per se, but rather would instead be redistributed throughout the system from areas of accretion to areas of erosion.

²⁴ To provide deep-draft marine vessel access between the Pacific Ocean and San Francisco Bay, ACOE regularly dredges a sandbar located approximately 2 miles offshore of the Golden Gate Bridge. Commonly known as the main ship channel, the passage measures approximately 2,000 feet wide and 26,000 feet long and is maintained at a depth of approximately 55 feet relative to mean lower low water. Dredged material from the main ship channel generally consists of fine sand (median diameter range from 0.15 to 0.21 millimeters).

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During more severe storm seasons, the non-scheduled sand replenishments would occur if certain proposed triggers were to occur.²⁵ The first such trigger would be reached when the beach is at a width of 50 feet or less between the mean high tide line (MHTL) and the face of the buried wall, over 500 linear feet of beach. The City indicates that the proposed 50 feet of beach width would allow for dry beach in front of the wall even during a King Tide. Even if this trigger is reached, nourishment would not be implemented if the beach were to recover naturally during the 12 months between initial June 1st measurement, since width fluctuates seasonally, reaching its lowest in March and April and highest in September and October. When 50 feet of beach width is reached, this will trigger a requirement for sand to be placed within the year, allowing for 12 months to prepare the sand placement. Sand would most likely be placed in the spring, at which point it would have the greatest positive impact and longest retention duration (as opposed to winter, when increased storm and erosion intensity might frustrate such efforts).

The second proposed trigger would be if 500 feet or more total length of the buried seawall is exposed, which would then require placement of emergency sandbags on the exposed portion of the seawall to reduce wave run-up hazard and reduce wave reflection off the wall. If neither of these triggers are met, beach nourishment would proceed per the regularly proposed sand placement schedule, unless the beach width is measured as greater than 80 feet along the entire length of the beach along the project area, in which case the sand placement would be deferred. According to the Applicant's estimates, which incorporate sea level rise projections, wave runup, and the effects of El Niño years, with scheduled sand placements, the beach width is estimated to be less than 50 feet only 9% of the time and the buried wall exposed approximately four times, or less than 3% of the time, during the wall's anticipated 80-year life. It's important to note here that this section of beach varies dramatically in width over the course of the year, and the beach width is only projected to be less than 50 feet seasonally.

Roadway and Intersection Modifications

As a part of the proposed project the City would permanently close the Great Highway Extension between Sloat and Skyline Boulevards to non-City vehicular access. To accommodate the road closure, the City would modify the intersections at Sloat Boulevard and the Great Highway as well as at Skyline Boulevard and the Great Highway, and the Sloat entrance to the San Francisco Zoo would be reconfigured as both an entrance and an exit. What is currently the inland-most northbound lane of the Great Highway Extension would be removed. A new one-way service road, aligned just inland of the current alignment of the seaward-most northbound lane of the Great Highway Extension, would be constructed to allow City vehicles (only) to transit between the WWTP and the Westside Pump Station (and Sloat and Skyline Boulevards in a 'loop'). This road would not be open to public vehicular traffic.

At the San Francisco Zoo, the project could potentially include a project variant for intersection improvements that would shift the existing Zoo driveway from Sloat Boulevard inland to the 47th Avenue intersection, to include one inbound lane, one outbound lane, one reversible lane, a dedicated right turn lane from eastbound Sloat

²⁵ The City proposes that triggers be evaluated annually around June 1st.

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Boulevard, and a dedicated left turn lane from westbound Sloat Boulevard. If the City determines that this variant is required, then new crosswalks would be striped to align with the new Zoo driveway, a new sidewalk would be constructed across the existing entrance and continue south to the existing parking lot, and a sidewalk with new concrete retaining wall and spread footings and guardrail would parallel the new driveway along the eastern side. In addition to these changes at the Zoo, the project would involve signal modifications, a curb ramp, and sidewalk improvements, all of which would involve grading and demolition of existing structures including a pump station with a partially collapsed roof, pool heating plant and restroom building, office and storage building, well pump, well pump building with collapsed roof, shipping container, and storage building.

Parking Lot and Restroom Relocation

The City would remove and replace the restroom located at the intersection of Sloat Boulevard and the Great Highway with a new 1,080 square-foot restroom approximately 50 feet inland of the existing restroom location, integrated as part of a proposed recreational plaza (Exhibit 2). The current 35 parking-space NPS parking lot at Sloat Boulevard would be replaced with a new 60-space free parking lot near the intersection of Skyline Boulevard and the Great Highway.

Public Access Improvements

Pedestrian and cyclist access to and along South Ocean Beach would be provided via a new multi-use pathway through the project area, accessible via the new Skyline Boulevard parking lot and the Sloat Boulevard/Great Highway intersection. This pathway would vary from 15 to 20 feet wide, with turnouts, seating, viewpoints, and an 18-inch wide retaining wall to provide informal seating along its seaward edge. The pathway would be located seaward of the new service road, gently meandering for much of its extent, with barriers between the service road and the multi-use pathway where necessary. This pathway would help to augment the California Coastal Trail between Sloat Boulevard and Skyline Boulevard. The multi-use pathway would include native landscaping and public art. Nighttime lighting fixtures for the multi-use pathway would be solar-powered and incorporate NPS best management practices for lighting (e.g., only adding lighting where it is needed, shielding lights, directing lights downward, and using lighting with warmer colors).

Access to the beach would be provided via a stairway located in the southern area of the project area, near the new Skyline Boulevard parking lot. There would also be beach access through a maintained sand ramp at the northern end of the project area, in the same location as the existing sand ramp/beach access point from Sloat Boulevard. The proposed project would also incorporate several ADA improvements north of the main project area,²⁶ with the goal of providing continuous ADA access from the existing features at the intersection of Taraval Street and extending along the new multi-use pathway. Such features are proposed to include improving the existing multi-use path north of the main project area by providing beach access to wheelchairs and walkers via ADA-compliant non-slip rollable pathway mats (Mobi-Mats), which would be

²⁶ As discussed, the main project area is in South Ocean Beach, and the ADA improvements will be at North and Middle Ocean Beach.

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natural-colored and low profile and would be made available on the beach at the Taraval Street beach access point.

Construction Schedule

The City estimates that it will take them roughly three years to prepare all the necessary plans and materials that would be associated with this approval's conditions, as well as to line up necessary authorizations from others, contractors, etc. After that, construction is proposed to occur in five phases as follows:

- Phase 1 (late 2027 to mid 2028): Modify the Sloat Boulevard/Great Highway intersection, remove the existing restroom, reconfigure San Francisco Zoo parking access, reroute the Muni 23 Monterey bus layover and turnaround, permanently close the Great Highway Extension, construct ADA access improvements, and establish the Fort Funston plant propagation site.
- Phase 2 (mid 2028 to mid 2030): Remove Great Highway Extension southbound lanes, construct the buried seawall, revetment, and SSL.
- Phase 3 (2029 to 2030): Remove temporarily approved armoring and rubble from the beach, place sand on the beach and on the SSL.
- Phase 4 (2030 to 2031): Remove Great Highway Extension northbound lanes, construct the multi-use pathway and service road, construct the Skyline public parking lot, new restroom, and beach access stairway, install landscaping along the multi-use pathway, and restripe the Great Highway/Skyline Boulevard intersection.
- Phase 5 (2031): Install native landscaping along the reshaped bluff and temporary irrigation (as needed), initiate planting establishment maintenance and undertake site cleanup activities.

To summarize, the City proposes to construct the project over an approximately four year period ranging from 2027 through 2031, with construction up to seven days per week except for holidays, between 7am and 8pm (consistent with the City's noise ordinance), and some nighttime construction for the proposed seawall (which would require the use of portable lights).

D. Standard of Review

The proposed project involves development both in the Commission's retained permit jurisdiction and in the City and County of San Francisco's permit jurisdiction, as delegated by the Commission through certification of the City and County's Local Coastal Program (LCP). Coastal Act Section 30601.3 authorizes the Commission to process a consolidated CDP application in such cases when the local government, the applicant, and the Executive Director all agree to such consolidation. Such was the case for the original CDP application, for which the Commission remains the decision-making body for any changes to that CDP, and such is the case for this CDP application as well. The standard of review for a consolidated CDP application and any amendments to it is the Coastal Act Chapter 3 policies, with the City and County of San Francisco's certified LCP providing non-binding guidance.

E. Coastal Hazards and Sea Level Rise

Applicable Coastal Act and LCP Provisions

The Coastal Act is, at its core, a law that requires coastal resource protection. In adopting the Act in 1976, the State Legislature included a series of goals and objectives. For example, Coastal Act Sections 30001 and 30001.5 state:

Section 30001. *The Legislature hereby finds and declares: (a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem. (b) That the permanent protection of the state's natural and scenic resources is a paramount concern to present and future residents of the state and nation. (c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction. (d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially to working persons employed within the coastal zone.*

Section 30001.5. *The Legislature further finds and declares that the basic goals of the state for the coastal zone are to: (a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources. (b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state. (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners. (d) Assure priority for coastal-dependent and coastal-related development over other development on the coast. (e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone. (f) Anticipate, assess, plan for, and, to the extent feasible, avoid, minimize, and mitigate the adverse environmental and economic effects of sea level rise within the coastal zone.*

In short, the law recognizes the coastal zone as a special place, where coastal resources are of “paramount concern”, and requires that it both be protected against degradation, and enhanced where feasible. To implement these objectives, Chapter 3 of the Coastal Act includes a series of specific provisions that clearly and emphatically require the protection of coastal resources, from public recreational access to coastal habitats to public views and landforms.²⁷ Perhaps just as clearly, and as explained in detail subsequently, armoring generally has significant adverse impacts on the coastal

²⁷ See, for example, more than 40 sections nested in Chapter 3, including sections related to public access, recreation, the marine environment, and land resources.

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resources protected by Chapter 3 of the Coastal Act, leading to unavoidable impacts on natural landforms, public recreational access, natural processes (which also significantly impacts public recreational access) and public views.²⁸ These impacts are all inconsistent with the Coastal Act's resource protection requirements, and consequently, the Coastal Act generally directs that armoring be denied in order to meet these coastal resource protection requirements. In other words, the Coastal Act generally prohibits armoring except under very limited circumstances, and this general prohibition is echoed by Coastal Act Section 30253, which makes it clear that all development, including armoring, is not to be approved if it will cause erosion or destruction of the site, or substantially alter natural landforms,²⁹ which past cases have shown is predominately the case with armoring.³⁰

In fact, as contrasted with the numerous Coastal Act resource protection provisions, both broad and specific, there is only one Coastal Act section that specifically allows armoring, Section 30235, and it includes important – and severely limiting – criteria. Section 30235 states, in applicable part:

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.

...

Section 30235 requires the Commission to approve armoring under very limited circumstances, namely when required to serve coastal-dependent uses or to protect public beaches or existing structures in danger from erosion, and only when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. In other words, when there are qualifying uses, beaches, or structures,³¹ armoring must be allowed only

²⁸ See, for example, Commission findings in LCP amendments LCP-3-SCO-20-0066-2 (Santa Cruz County Hazards Update) and LCP-3-MRB-21-0047-1 (Morro Bay Land Use Plan Update), and in CDPs A-3-SCO-07-095/3-07-019 3-07-019 (Pleasure Point Seawall), 3-09-025 (Pebble Beach Company Beach Club Seawall), 3-09-042 (O'Neill Seawall), 2-10-039 (Lands End Seawall), 3-14-0488 (Iceplant LLC Seawall), 3-16-0446 (Rockview Seawall), 2-17-0702 (Sharp Park Golf Course), 3-18-0720 (Candau Armoring), 3-20-0166 (Wavefarer Partners LLC Armoring), and 3-22-0440 (Casanova Armoring).

²⁹ Section 30253 states, in applicable part, that "New development shall...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" (emphasis added).

³⁰ Ibid.

³¹ Two of the three qualifying uses are based on protecting important State shoreline priorities (coastal-dependent uses and public beaches). Importantly, armoring rarely protects beaches; rather, armoring typically leads to the incremental loss of beaches. In fact, when public beaches are in danger of erosion, such danger is typically exacerbated by armoring as opposed to protected by it because armoring typically not only occupies beach and shoreline space that would otherwise be available to public recreational uses, but it also inhibits the transmittal of beach-generating materials from bluffs, and typically leads to loss of beaches over time as an eroding shoreline bumps up against such armoring (also referred to as the 'coastal squeeze' or passive erosion). Thus, bracketing groins in certain circumstances, armoring is typically not a viable/fruitful response to protect a public beach in danger from

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if it is required to serve/protect them, meaning when there are no other less environmentally damaging feasible alternatives that can perform that same function. Put differently, given that armoring has significant adverse impacts on a variety of protected coastal resources and is only required to be approved in very limited circumstances, implementation of the Coastal Act's resource protection policies generally requires denial of proposals for armoring.³² When framed in this way, Section 30235's limited requirement to approve shoreline armoring is probably best understood as an exception with respect to the Coastal Act's coastal resource protection provisions, or put another way, an 'override' of the other Coastal Act sections found in Chapter 3 that would require the Commission to otherwise deny the project.

The purpose and structure of the Coastal Act support such an interpretation as well, as reflected in numerous policies of the Act. For example, not only does Section 30009 require a liberal interpretation to protect shoreline and beach resources,³³ but Section 30007.5 also directs the Commission to resolve conflicts in a manner that is "most protective of significant coastal resources."³⁴ Courts have relied on Section 30009 to find that exceptions to the Act's requirements must be read narrowly.³⁵ Accordingly, the courts have upheld that the Coastal Act's requirements are to be implemented so as to be most protective of coastal resources, and this methodology applies to the limitations on allowable armoring including in light of the discernible adverse coastal resources impacts associated with such armoring.³⁶

In addition, Objective 12 of the City and County of San Francisco's certified LCP is supported by six policies related to coastal hazards. The City added (and the Commission certified) Objective 12 and the six policies to the LCP in 2018 for the purpose of supporting proactive adaptation measures to erosion, coastal flooding, and sea level rise. The LCP states:

Objective 12. Preserve, enhance, and restore the Ocean Beach shoreline while protecting public access, scenic quality, natural resources, critical public infrastructure, and existing development from coastal hazards.

erosion. Finally, past these two important State shoreline priorities, the only other development allowed armoring by Section 30235 are existing structures, including both public and private (e.g., residences) structures.

³² In very rare circumstances, a project may include shoreline armoring and the overall project may still be consistent with Coastal Act, and the Commission may not need to invoke Section 30235.

³³ Section 30009 requires that: "This division [i.e., the Coastal Act] shall be liberally construed to accomplish its purposes and objectives."

³⁴ Section 30007.5 states, in applicable part: "The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources."

³⁵ See, for example, *Citizens for a Better Eureka v. California Coastal Com.* (2011) 196 Cal.App.4th 1577, 1586-87 ("[i]n light of the legislative directive to construe the Act liberally...it is appropriate to construe the exceptions narrowly", quoting *Capon v. Monopoly Game LLC* (2011) 193 Cal.App.4th 344, 355).

³⁶ *Ibid.*

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Policy 12.1. *Adopt Managed Retreat Adaptation Measures Between Sloat Boulevard and Skyline Drive. (a) As the shoreline retreats due to erosion and sea level rise, incrementally remove shoreline protection devices, rubble that has fallen onto the beach, roadway surfaces, and concrete barriers south of Sloat Boulevard. (b) Relocate public beach parking and public restrooms to areas that will not be affected by shoreline erosion or sea level rise for their expected lifespan given current sea level rise projections and mapping. The relocated facilities should not require the construction of shoreline protection devices and should be relocated if they are threatened by coastal hazards in the future. (c) Close the Great Highway between Sloat and Skyline boulevards and make circulation and safety improvements along Sloat and Skyline boulevards to better accommodate bicyclists, pedestrians, and vehicles. (d) Import sand to restore the beach and construct dunes. Stabilize dunes with vegetation, beach grass straw punch, brushwood fencing, or other non-structural methods. (e) Extend the coastal trail to Fort Funston and Lake Merced by constructing a multi-use public access pathway along the shoreline from Sloat Boulevard to Skyline Boulevard. (f) Permit shoreline protection devices if necessary to protect coastal water quality and public health by preventing damage to existing wastewater and stormwater infrastructure due to shoreline erosion only when less environmentally damaging alternatives are determined to be infeasible. (g) Maintain service vehicle access necessary for the continued operation and maintenance of existing wastewater and stormwater infrastructure systems.*

Policy 12.2. *Develop and Implement Sea Level Rise Adaptation Plans for the Western Shoreline. (a) Conduct detailed sea level rise vulnerability assessments and develop adaptation plans to minimize risks to life, property, essential public services, public access and recreation, and scenic and natural resources from shoreline erosion, coastal flooding and sea level rise for the Western Shoreline Area. (b) The vulnerability assessments shall be based on sea level rise projections for likely and worst-case mid-century and end-of-century sea level rise in combination with a 100-year storm event, and shall include one or more scenarios that do not rely on existing shoreline protection devices. (c) Adaptation measures shall be designed to minimize impacts on shoreline sand supply, scenic and natural resources, public recreation, and coastal access. (d) The adaptation plans shall consider a range of alternatives, including protection, elevation, flood proofing, relocation or partial relocation, and reconfiguration. (e) Adaptation measures that preserve, enhance, or restore the sandy beach, dunes, and natural and scenic resources such as beach nourishment, dune restoration, and managed retreat shall be preferred over new or expanded shoreline protection devices. (f) The adaptation plans shall consider the recommendations contained in the SPUR Ocean Beach Master Plan. (g) Create and maintain sea level rise hazard maps to designate areas within the coastal zone that would be exposed to an increased risk of flooding due to sea level rise. The maps shall include likely and worst case mid-century and end-of-century sea level rise projections in combination with a 100-year storm event. The maps shall include a scenario does not include existing shoreline protection devices. The maps shall be updated when new information warranting significant adjustments to sea level rise projections becomes available.*

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Policy 12.3. *Develop and Implement a Beach Nourishment Program to Sustain Ocean Beach ... Work with the U.S. Army Corps of Engineers to develop and implement a beach nourishment program involving the placement of sand dredged from the San Francisco bar navigation channel offshore of the Golden Gate onto Ocean Beach. Other sources of suitable sand for beach nourishment may also be identified and permitted. Sand shall not be removed from stable dunes.*

Policy 12.4. *Develop the Shoreline in a Responsible Manner. Sea level rise and erosion impacts will worsen over time and could put private and public development in the Western Shoreline Area at risk of flooding. Given these future impacts, development in the Coastal Zone should be sited to avoid coastal hazard areas when feasible. If avoidance is infeasible, development shall be designed to minimize impacts to public safety and property from current or future flooding and erosion without reliance on current or future shoreline protection features. ...*

Policy 12.5. *Limit Shoreline Protection Devices. ...Shoreline protection devices such as rock revetments and seawalls shall be permitted only where necessary to protect existing critical infrastructure and existing development from a substantial risk of loss or major damage due to erosion and only where less environmentally damaging alternatives such as beach nourishment, dune restoration and managed retreat are determined to be infeasible. New or expanded shoreline protection devices should not be permitted solely to protect parking, restrooms, or pedestrian or bicycle facilities.*

Policy 12.6. *Minimize Impacts of Shoreline Protection Devices. Shoreline protection devices may be necessary to protect existing critical infrastructure or development. These shoreline protection devices shall be designed to minimize their impacts on coastal resources while providing adequate protection for existing critical infrastructure and existing development. All shoreline protection devices shall be designed and constructed to avoid, minimize, and mitigate impacts on shoreline sand supply, environmentally sensitive habitat areas, scenic quality, public recreation, and coastal access. Shoreline protection devices shall be designed to blend visually with the natural shoreline, provide for public recreational access, and include proportional mitigation for unavoidable coastal resource and environmentally sensitive habitat impacts. Coastal permit applications for reconstruction, expansion, or replacement of existing shoreline protection devices shall include a re-assessment of the need for the device, the need for any repair or maintenance of the device, any additional required mitigation for unavoidable impacts to coastal resources and the potential for removal or relocation based on changed conditions. Coastal permits issued for shoreline protection devices shall authorize their use only for the life of the structures they were designed to protect.*

Consistency Analysis

As indicated above, Coastal Act Section 30235 is an override over other Coastal Act provisions that allows armoring if required to serve a coastal-dependent use or to

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protect an existing structure in danger from erosion subject to the requirement that adverse impacts to local shoreline sand supply are mitigated or eliminated. The Coastal Act provides for these limitations because shoreline armoring can have a variety of negative impacts on coastal resources, including adverse effects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beaches.³⁷

Thus, the applicable questions here under Coastal Act Section 30235 are whether: (1) there is an existing structure and/or a coastal-dependent use; (2) that existing structure is in danger from erosion and/or that coastal-dependent use needs to be served; (3) shoreline-altering construction is required to protect that existing endangered structure and/or to serve that coastal-dependent use; and (4) the required protection is designed to eliminate or mitigate its adverse impacts on shoreline sand supply.³⁸ The first three criteria relate to whether the proposed armoring is necessary, while the fourth criterion applies to mitigating some of the impacts from the proposed armoring if it is allowed.

Existing Structure/Coastal Dependent Use

The issue of what constitutes an “existing structure” for Section 30235 purposes has been debated for many years, where some, including some local governments in their LCP implementation, have argued at times that it means whether a structure is simply ‘extant’ at the time of armoring application. Another interpretation is that the Legislature intended the word to mean exactly what it meant at the time when the Legislature chose to use the word. In other words, in enacting the statute in 1976, the Legislature included the word “existing” in the natural sense, to mean existing at that time.

This controversy over these competing interpretations did not fully arise until roughly the early 2000s. This is likely due, in large part, to the fact that, prior to then, the only structures for which the distinction would be relevant (those built along the shoreline after 1976) were relatively new, and the parties who had secured permits to construct them had had to demonstrate that they would be safe without requiring armoring. Thus, even if that showing would eventually prove to have been mistaken, coastal erosion had not yet progressed far enough for that error to have become significantly evident and problematic. Since the early 2000s, as the issue has become increasingly contentious, and with few exceptions, the Commission has not found that a structure built after 1977 qualifies as an “existing structure” for purposes of Section 30235. Rather, it has been increasingly consistent in finding that “existing structures” as the phrase is used in Section 30235 refers to structures that were legally in existence as of January 1, 1977, the effective date of the Coastal Act.

The interpretation that ‘existing’ means ‘extant’ fails for other reasons as well. For example, Section 30253, the only other Coastal Act section that explicitly refers to armoring, prohibits new development that would “in any way require the construction of

³⁷ Ibid.

³⁸ CDP approval also requires that projects be found consistent with other Coastal Act provisions that independently protect coastal resources in addition to these Section 30235 requirements. The discussion in this Coastal Hazards analysis speaks to consistency with Section 30235, but overlapping and distinct discussions regarding consistency with other Coastal Act provisions are covered separately below.

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protective devices that would substantially alter natural landforms along bluffs and cliffs.” Thus, development approved since the Act’s effective date is not allowed such armoring³⁹ that leads to substantial natural shoreline landform alteration (which, in the case of shoreline armoring, is essentially all armoring cases)⁴⁰ pursuant to Section 30253. If Section 30235’s ‘existing’ meant ‘extant’ at the time of an application, then it would require approval of armoring that Section 30253 prohibits, and the two cannot readily be harmonized.

More appropriately, the application of Section 30253 since 1977 creates two types of development under the Coastal Act: pre-Coastal Act development that may not have been built to meet Section 30253 requirements to avoid armoring, and post-Coastal Act development that has (including because it is required by Section 30253). Put another way, the Section 30235 requirement to allow for armoring regardless of its coastal resource impacts or its inconsistencies with other Coastal Act resource protective provisions is intended to only apply to pre-Coastal Act development, and not anything else, essentially ‘grandfathering’ pre-Coastal Act structures and allowing them armoring as an exception to the otherwise applicable Coastal Act requirements.⁴¹ In addition, such pre-Coastal Act structures lose their ‘existing’ status under Section 30235 if they are modified in such a way that they are no longer the same structure, but rather a

³⁹ It is noted that some have argued that the use of the term “require the construction of” in Section 30253 means that Sections 30253’s provisions in that sense only apply prospectively to the future construction of armoring, and do not extend to armoring that may exist at the time that proposed development is being pursued, and thus that such proposed development can rely on such armoring notwithstanding it may lead to the types of prohibited impacts. However, such an interpretation completely ignores the qualifying language that proceeds such text, which states that the development cannot “in any way” require armoring construction. Proposed development attempting to rely on existing armoring is still dependent on that armoring having been constructed, which falls under the rubric of “in any way” requiring the construction of armoring to protect it. That such construction may have been constructed before the proposed development is being considered is immaterial to Section 30253’s application for that reason (and such conclusion is bolstered by the Section 30009 requirement to liberally construe the Act to protect coastal resources). In addition, if new development relies on armoring that is already present, it will also have to rely on the continued upkeep, expansion, or eventual rebuilding of that armoring. If the armoring needs to be expanded or rebuilt, then the new development would be relying on the construction of new armoring, in violation of Section 30253.

⁴⁰ Ibid.

⁴¹ As described in the Commission’s 2015 Sea Level Rise Policy Guidance, the Commission interprets the term “existing structures” in Section 30235 as meaning structures that were in existence on January 1, 1977, the effective date of the Coastal Act, and that have not been redeveloped since in a way that would require them to be reevaluated against the Coastal Act/LCPs as if new. In other words, Section 30235’s directive to permit shoreline armoring for structures in certain circumstances applies to development that lawfully existed as of January 1, 1977, and that has not subsequently been redeveloped (i.e., where changes to it since 1977 have been extensive enough that it is considered a replacement structure required to conform to applicable Coastal Act and LCP provisions). This interpretation is the most reasonable way to construe and harmonize Sections 30235 and 30253, which together evince a broad legislative intent to allow armoring for development that existed when the Coastal Act was passed, when such development is in danger from erosion, but to avoid such armoring for development constructed consistent with the Act, which does not allow shoreline altering armoring development to support same. This interpretation, which narrowly allows protection for development that predates the Coastal Act, is also supported by the Commission’s duty to protect public trust resources and interpret the Coastal Act in a liberal manner to accomplish its purposes.

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replacement structure (often referred to by the Commission as a ‘redeveloped’ structure).⁴²

In short, the Coastal Act reflects a broad legislative intent to allow armoring under certain very limited circumstances generally only for structures that existed when the Coastal Act was adopted and when such structures are in danger from erosion (Section 30235), but to prohibit armoring for new development constructed after adoption of the Act (Section 30253). This interpretation to allow protection only for certain structures that predate the Coastal Act is also supported by the Commission’s duty to protect public trust resources, and the Coastal Act requirement that the Act “shall be liberally construed to accomplish its purposes and objectives” (Section 30009, previously described), where, as described, the Act on this point protects these natural shoreline and beach resources and only allows for armoring as an exception – or, put another way, as an override – under extremely narrow circumstances and criteria.

Furthermore, Section 30270 requires the Commission to “take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise;” and recognizing the inevitability of ever increasing impacts from armoring in an era of sea level rise underlines the importance of limiting the circumstances under which armoring can be approved. Thus, the only types of structures that qualify as ‘existing structures’ allowed armoring under Section 30235 are those that existed before January 1, 1977, and have not been redeveloped since.

As indicated above, the proposed shoreline armoring is intended to protect the Lake Merced Tunnel, a critical component of the City’s stormwater/wastewater infrastructure.⁴³ Construction of the LMT originally began in 1991 and its construction

⁴² Coastal Act Section 30610(d) and Title 14 of California Code of Regulations (CCR) Section 13252(b) help define when structures meet or don’t meet the redevelopment threshold. CCR Section 13252(b) specifically states that replacement of 50% or more of a structure, including single-family residences, is not repair and maintenance under Coastal Act Section 30610(d) but instead constitutes a replacement structure that must be evaluated for Coastal Act compliance purposes. In applying Section 13252(b)’s 50% criteria, the Commission has, in the past, found that a structure will be considered a replacement structure (also referred to as redevelopment) if at least one of the following takes place: 1) 50% or more of the major structural components (i.e., including exterior walls, floor, roof structure, or foundation, where alterations are not additive between individual structural components) are altered; 2) there is a 50% or more increase in gross floor area; 3) alteration of less than 50% of a major structural component results in cumulative alterations exceeding 50% or more of that major structural component (taking into account previous replacement work undertaken since January 1, 1977); and 4) a less than a 50% increase in floor area where the alteration would result in a cumulative addition of 50% or more of the floor area, taking into account previous additions to the structure since January 1, 1977 (see, for example, LCP amendments LCP-2-MAR-13-0224-1 Part A and LCP-3-MRB-21-0047-1, and CDP 3-16-0345 (Honjo armoring)).

⁴³ While there are other stormwater/wastewater infrastructure components that the proposed shoreline armoring would also be incidentally protecting, including the Westside Pump Station and WWTP, these are sited inland of the LMT and the Great Highway.

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was completed in 1993.⁴⁴ As such, the LMT does not constitute an existing structure as understood in Section 30235 terms.

As to the Great Highway, although it was originally constructed in 1929, it has been redeveloped, replaced, and relocated multiple times since, including as part of the LMT project as applied to the project area. It too does not qualify as an existing structure as in Section 30235 terms.⁴⁵

As to the coastal dependent use criterion, the Coastal Act defines such development to be a use that “requires a site on, or adjacent to, the sea to be able to function at all” (Section 30101). Stormwater and wastewater outlets do not require a site on or adjacent to the sea to be able to function, including as evidenced by the fact that such infrastructure exists in a variety of other places throughout the state.⁴⁶ The LMT does not require a site on, or adjacent to, the sea to be able to function at all, which is further evidenced by the fact that the Applicant evaluated and identified an alternative that would move the LMT and its functions inland and away from the sea.⁴⁷

This project therefore fails the first “existing structure or coastal dependent use” test for shoreline armoring to be approved under Section 30235. As a result, the armoring proposed does not qualify to use the Section 30235 “override”, and because it has significant adverse coastal resource impacts that are inconsistent with a myriad of other Coastal Act provisions, the Coastal Act directs denial of the proposed project.

Danger from Erosion

The second Section 30235 test is whether the existing structure is in danger from erosion or whether the coastal-dependent use would be served by the proposed project. The Coastal Act allows shoreline armoring to be installed to serve coastal dependent uses and to protect existing structures that are in danger from erosion, but it does not define the phrase “in danger.” There is a certain amount of risk involved in maintaining any development along the actively eroding California coastline that also can be directly subject to violent storms, wave attack, flooding, earthquakes, and other hazards, including at the subject location. 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. In a sense, 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 Section 30235. Lacking a Coastal Act definition, the Commission has in the past evaluated the immediacy of any threat in order to make a determination as to whether an existing structure is “in danger” for the purposes of Section 30235 considerations. While each case is evaluated based upon its own

⁴⁴ Pursuant to Coastal Commission approved PWP Project Number PWP-1-79-6.

⁴⁵ In addition, the LMT is seaward of the Great Highway where it is not immediately below the roadway, and the Great Highway would be removed and replaced by a multi-use pathway as part of the project, so even if it so qualified, it is being removed and the question is immaterial.

⁴⁶ See also, for example, findings for CDP 3-19-0463 (Morro Bay Water Reclamation Facility).

⁴⁷ While the City determined this alternative to be infeasible for financial reasons, it still demonstrates that the LMT is not coastal-dependent.

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particular set of facts, the Commission has previously interpreted “in danger” to mean that an existing structure would be unsafe to use or otherwise 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).⁴⁸

South Ocean Beach is characterized by episodic coastal storms that result in chronic erosion of the beach and bluffs. In the past, this erosion has undermined and damaged beach parking lots, stormwater drainage facilities, and the Great Highway. This area is influenced by complex coastal processes, including strong tidal currents, and a large ebb shoal delta consisting of a semi-circular sand bar offshore and to the north of South Ocean Beach which has been thought to focus intense wave energy at the site. While the erosion dynamic here is complex, one of the main causes is a net sediment transport away from the project area to both the north and the south.

Surveys of the project area show ongoing erosion at and near the project location, despite the presence of temporary armoring since the late 1990s. Monthly U.S. Geological Survey (USGS) shoreline data collected at South Ocean Beach between 2004 and 2020 shows an average annualized shoreline erosion rate of about 2.3 feet per year, with as much as 4.7 feet per year occurring towards the south end of the project site (i.e., near the SWOO). Meanwhile, the USGS data for the shoreline to the north of the project area (Middle Ocean Beach) shows an average annual accretion rate of about 4.3 feet per year. Closer to the project site (i.e., within 1,000 feet upcoast of Sloat Boulevard), the average annual accretion rate is around 0.7 feet per year. In contrast, USGS data shows average annualized bluff and backshore erosion along Fort Funston to the south of the project area as roughly 2 to 3 feet per year, and closer to 5 feet per year immediately adjacent to the project site.⁴⁹ See Exhibits 7 and 8 for the Applicant’s Conceptual Engineering and Geotechnical Interpretive Reports for further information regarding erosion and other hazards in the project area.

The Lake Merced Tunnel is currently located at a range of 22 feet to 150 feet from the blufftop edge, starting at the Westside Pump Station, and extending up and around Lake Merced. Applying the three average annualized long-term erosion rates to each of the bluff areas in question shows that the LMT would be exposed due to bluff erosion within the next decade based on identified rates (i.e., 2.3 feet of erosion per year, where the LMT is located at closest 20 feet from the blufftop edge). In addition, however, USGS studies have concluded that a single storm event can cause over 30 feet of shoreline erosion at this location, suggesting the LMT would be imminently at risk without armoring. Furthermore, the Commission has acknowledged the threat of erosion in the area, and, because of that, in 2015 authorized the temporary armoring as well as ongoing sand placement along the project area, identifying that there was infrastructure inland of South Ocean Beach that was in danger from erosion (and that the impacts to

⁴⁸ See, for example, CDPs 3-07-019 (Pleasure Point seawall), 3-09-025 (Pebble Beach Company Beach Club seawall), 3-09-042 (O’Neill seawall), 2-10-039 (Land’s End seawall), 3-14-0488 (Iceplant LLC seawall), 2-17-0702 (Sharp Park Golf Course) 3-18-0720 (Candau Armoring), 3-20-0166 (Wavefarer Partners LLC Armoring), 3-22-0440 (Casanova Armoring), and 3-22-1027 (Hofmann Seawall).

⁴⁹ Within the project area, these erosion rates are likely skewed downward by the presence of the temporarily approved armoring, and erosion rates in an unarmored condition would likely be higher.

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coastal resources would be severe should damage as a result of erosion occur to the roadway, wastewater infrastructure, and public access facilities). In 2015 the Commission found:

...the existing infrastructure inland of South Ocean Beach...is in danger from erosion consistent with Coastal Act Section 30235, and...the impacts to coastal resources would be severe should damage as a result of erosion occur to the roadway, wastewater infrastructure, and public access facilities.

The danger of ongoing erosion of the beach and bluff has been acknowledged by the Commission for this area in the past (and the Commission's coastal engineer has reviewed the project and agrees that the LMT is in danger from erosion). Therefore, although it did not meet the first test and is thus ineligible to make use of the Section 30235 override for that reason alone, the project meets the second Section 30235 test.

Alternatives

The third Section 30235 test that the project must meet is that the proposed armoring must be "required" to protect existing endangered structures or to serve the coastal-dependent use. In other words, Section 30235 is structured that the third test is met if shoreline armoring is the only feasible⁵⁰ alternative capable of protecting the existing endangered structures or serving the coastal-dependent uses. When read in tandem with other applicable Coastal Act provisions cited in these findings, the Commission has in the past conceptualized this Section 30235 evaluation as a search for the least environmentally damaging feasible alternative that can serve to protect qualifying existing endangered structures or to serve the coastal-dependent uses. Other alternatives typically considered include the "no project" alternative, relocation of endangered structures and/or portions thereof, managed retreat (including abandonment and demolition of threatened structures), beach and sand replenishment programs, drainage and vegetation measures, and combinations of each. Additionally, if shoreline armoring is determined to be the only feasible alternative, this test also requires that the chosen siting and design of the armoring be the least environmentally damaging feasible option, including being the minimum necessary to protect the endangered qualifying structure in question.

The Applicant has submitted an alternatives analysis,⁵¹ initially considering 10 options in 2018, before selecting 4 final alternatives that were ultimately evaluated in the EIR prepared by the City for the project. It is important to note that the current temporarily authorized armoring covering about 1,200 linear feet of the project area, as well as a substantial amount of rubble and debris within the other 2,000 or so linear feet of the project area (mostly fill materials exposed by erosion of the roadbed), is required to be

⁵⁰ 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.

⁵¹ "Alternatives Analysis Report for Coastal Adaptation Strategies for South Ocean Beach Wastewater Systems," prepared by Engineering Management Bureau, dated February 15, 2018.

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removed under the conditions of an underlying 2015 CDP regardless of this current application. Several potential alternatives are discussed briefly below.

No Project Alternative

The first option the City considered is the “no project alternative,” which the City conceptualized as not constructing the proposed project, but leaving in place the temporarily authorized revetments, rubble, and sandbag structures, NPS restroom and parking lot, sand ramp, and Great Highway as they are currently configured. While this specific option is the “no project” alternative as evaluated by the City’s EIR, the Commission’s view of a no project alternative would be notably different, namely that the temporarily authorized armoring and related measures are required to be removed, and that is the starting point for considering a no project alternative. Still, the City’s evaluation can provide some useful information regardless.

For the City’s version of “no project”, while the City would monitor shoreline conditions on an ongoing basis, the shoreline would continue to erode absent more significant armoring to better hold the line against erosion. Rubble underlying the Great Highway used as fill material during the construction of the highway, along with roadbed material, would continue to fall onto the beach as the shoreline erodes and would require removal. The beach would remain narrow with seasonal limitations on lateral access due to lack of an alternative trail and dry beach. The City indicates that they would maintain the existing armoring, continue periodic sand backpassing, and implement additional temporary emergency armoring measures to include additional sand placement, sandbags, rock revetments, and/or other longer-term measures (and the Commission here notes that any and all of this would require new CDP and/or ECDP authorization by the Commission, and would not achieve a project that is the least environmentally damaging feasible alternative in a Coastal Act sense).

As previously discussed, the true “no-project” alternative here, which was not evaluated in the EIR, would remove the temporary short-term armoring, which could cause the LMT to be in nearer term danger of exposure, thereby increasing the likelihood that it would be damaged and/or destroyed by storms and erosion. Such damage to the combined storm and sewer water line could result in failure of this critical public infrastructure, in addition functional losses to the visitor-serving uses on site, and potential impacts to the beach, coastal waters, and marine resources below would likely occur. This likely impact to such coastal resources is inconsistent with the Coastal Act’s marine resource and water quality protections (Sections 30230 and 30231) and is not by itself a feasible alternative in this case for these reasons. The Applicant rejected the no-project alternative because of the potential dramatic impacts the failure of the LMT tunnel would have on coastal resources, and the Commission agrees, while noting the differences in perspective on a true no-project scenario.

Beach Nourishment and Dune Restoration

Under this alternative, the City would remove the existing temporarily authorized armoring and related measures from South Ocean Beach, the Great Highway would remain as is (until erosion results in the need to close the road), the proposed seawall, multi-use pathway, restroom, parking lot and stairs would not be constructed, and the bluffs would not be reshaped. The NPS restroom and parking lot would remain in place

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until future erosion results in the need to close/remove such facilities. To protect the LMT and prevent the bluffs from eroding, the City would place a larger volume of sand at a greater frequency, as compared to the proposed project. Given the shoreline's susceptibility to erosion, the City estimates that a substantially larger quantity of sand (approximately five times more) would be needed to buffer critical infrastructure from coastal hazards and maintain a beach. Under this alternative the beach width would be anticipated to remain similar to the proposed project (at least 50 feet most of the time), and approximately 200,000 cubic yards of sand would need to be placed every 1-2 years (as compared to an estimated 36,000 cubic yards of sand every 4-10 years under the proposed project), increasing the potential for limited lateral beach access due to closures for sand placement and management, including sand grading and grooming.

Removal of the temporarily authorized armoring and related measures would widen the beach, and the Applicant anticipates that this would reduce the wave-revetment reflection that contributes to beach and sandbar scour as well as reduce the roughness of the shore, which would allow wave action to extend further landward. South of the NPS parking lot, the beach would be backed by exposed Colma Formation, and thus there would be greater potential for wave-bluff interactions until the bluff face equilibrates into a more gradual slope. While this alternative would not fix the shoreline in place with armoring structures, would offer benefits to visual resources, and would not directly remove the bank swallow habitat (see below for discussion), no new public access facilities would be constructed, the increased nature of sand placement would provide less time for recovery of impacted benthic communities, and the main infrastructure this project is intended to protect would not be as buffered or protected from erosive forces. Despite the fact that beach nourishment under this alternative would be expected to increase beach width and elevation, minimize the occurrence of wave-bluff interactions, substantially reduce the rate of shore erosion, and protect the infrastructure, the bluff would most likely continue to erode during periodic storm events in-between nourishment events, which would put the LMT and associated infrastructure at risk of damage or failure.

In terms of feasibility of this alternative, there is a certain reality that must be considered regarding sand supply. Over the last 10 years, the City's main source of sand for beach nourishment activities has come from North Ocean Beach. The City collects sand that has naturally accumulated over the course of the year from North Ocean Beach near the O'Shaughnessy seawall and places it along South Ocean Beach. The most sand that was gathered in a year's time was in 2016, when a total of 95,000 cubic yards was gathered by bulldozers and brought by trucks to be placed at South Ocean Beach. Under this alternative, the City would need more than double that amount every one to two years to ensure adequate beach width and protection of the wastewater infrastructure. Given the quantity of sand needed, the preferred primary source of sand would be the San Francisco Main Ship Channel. In 2021, the ACOE executed one such sand placement at South Ocean Beach, which resulted in the placement of 255,000 cubic yards (after losses during placement). Due to the uncertainty of securing dredged sand annually, this alternative would likely necessitate a combination of dredged sand and sand trucked from North Ocean Beach, and maybe even purchase and delivery of beach quality sand. The proposed project also requires frequent sand placements, but

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at a much lower rate, and therefore emissions and impacts from truck traffic would be significantly higher under the nourishment only option, comparatively.

In conclusion, while this alternative is a significant improvement over the proposed project in terms of avoiding shoreline armoring and its attendant impacts, this approach would require a much higher amount of sand placement, that may not even be possible to achieve. In addition, even with sand placement, there is still the possibility that in a year with high wave energy, such as an El Niño event, combined with increasing sea level rise, the City may still need to place sandbag revetments or other emergency measures to keep the LMT from failing, causing beach and public view impacts, and there is a higher probability of the LMT failing in this scenario. Given these factors, this project alternative is not feasible.

Conventional Seawall or Riprap

Another alternative evaluated by the City is to construct a more conventional seawall from Sloat Boulevard to the Fort Funston bluffs, approximately 30 feet above sea level, up to the height of the existing bluff top at the north end and the existing revetments at the south end. This alternative would include removal of the temporarily authorized armoring and related measures currently in place. The seawall would be constructed of shotcrete on the face of the exposed bluff and would include tieback anchors, and then be sculpted to resemble a natural bluff surface, with the toe located approximately 80 feet seaward of the LMT, further seaward than the proposed buried seawall by about 50 feet. The Great Highway would remain open to public vehicular traffic in both directions, the existing NPS restroom and parking lot would remain, and the City would construct a new multi-use pathway behind the seawall (which would potentially necessitate adjustments to the alignment of the southbound travel lanes), and an integrated beach access stairway at one location. As the Great Highway would remain open to public vehicular traffic, there would be no need for a dedicated service road or modifications to nearby intersections and zoo parking access as proposed.

In this scenario, the City would not reshape the bluff or plant associated vegetation but rather would place more sand at a greater frequency relative to the proposed project. To maintain at least 50 feet of beach width, the City concluded that this alternative would require approximately triple the amount of sand placement as the proposed project, which would be sourced primarily from the ACOE main ship channel dredging material. The conventional seawall would be regularly exposed and thus be a regular, albeit unnatural, feature of the shoreline, with no dune restoration or landscaping. While such an alternative would achieve protection of the LMT, it would also have significant and unavoidable visual and character impacts to the project area and would eventually lead to loss of beach area. As sea level continues to rise, the wall would prevent the shoreline from naturally retreating, and the beach would continue to be eroded in front of the wall in a process called “coastal squeeze”, where the beach fronting hard armoring is lost as the shoreline erodes. The wall could be exposed to wave interaction more often than with the proposed buried seawall version of the project, which could in turn lead to downshore impacts and accelerate erosion of the Fort Funston bluffs.

In terms of other armoring alternatives, riprap has the advantage that it can be installed relatively quickly to protect the base of bluffs. However, such riprap occupies significant

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sandy beach space, and often is less stable, more easily dispersed, and difficult to maintain in its approved configuration.

In short, the conventional armoring alternatives that are combined with more intensive beach nourishment are likely infeasible for similar reasons as the beach nourishment alone alternative, and even if that kind of nourishment were eliminated, would lead to likely greater impacts to coastal resources over time. This option is not the least environmentally damaging feasible alternative.

Relocate LMT Functions Inland

In this alternative, the City would construct new inland infrastructure to replace the function of the LMT. Temporarily authorized armoring and related measures would be removed, the LMT would be abandoned in place, and there would be no protection from erosion. The City would construct new conveyance facilities along an inland alignment and could either replace the LMT with a new pump station and tunnel or a new pump station, pipeline, and storage tank, extending beneath the Zoo or Zoo parking lot. The City would close the Great Highway between Sloat and Skyline Boulevards and close the NPS restroom and parking lot. The easternmost northbound travel land of the Great Highway would be retained or reconstructed as a service road to the Oceanside Treatment Plant and Westside Pump Station. The City would build a temporary unpaved trail between Sloat and Skyline boulevards, without beach access stairs, and a new restroom and parking area would be constructed. The City would implement a beach nourishment program similar in scope to the proposed project to maintain a beach width of at least 50 feet most of the time, slow bluff retreat, and protect inland infrastructure and the Coastal Trail. As the LMT is buried in the bluff at near beach elevation, over time coastal processes would be anticipated to expose the top of the tunnel seasonally during storm events; while this may impact beach access and public views, it would not affect water quality or marine resources as this portion would not be operational under this alternative. If segments were exposed for longer periods of time or substantially weakened or damaged such that they presented a safety hazard, the City would remove them.

From the Commission's perspective, this alternative evaluates exactly the type of "managed retreat" project that can and should be analyzed and strategically planned out, in this case one that relocates critical infrastructure functions under threat from erosion and sea level rise. However, it is important to note here that the Applicant did not analyze this alternative in as complete a manner as necessary, namely in that this proposed alternative wouldn't move the Westside Pump Station, WWTP, or SWOO in addition to the LMT, so those critical infrastructure facilities would remain vulnerable and would likely raise questions about what to do to protect them in the short term. Further, the scoring methodology used to rank the alternatives evaluated measured resiliency based off of the number of feet of shoreline eroded,⁵² which would imply that armoring the shoreline is the most resilient option, notwithstanding armoring tends to have the most coastal resource impacts, and none of that was evaluated.

⁵² As outlined in "Alternatives Analysis Report for Coastal Adaptation Strategies for South Ocean Beach Wastewater Systems," prepared by Engineering Management Bureau and dated February 15, 2018.

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The 2018 California Coastal Commission Sea Level Rise Policy Guidance document encourages both siting infrastructure, especially wastewater infrastructure, away from areas threatened by sea level rise and other coastal hazards over the life of the infrastructure, as well as phased movement of infrastructure inland as areas are further threatened by sea level rise. Therefore, this project would appear to be the perfect opportunity to move a piece of critical infrastructure inland, allow the bluff to naturally retreat to maintain beach widths, and to effectively solve the potential danger to the LMT in perpetuity. However, there are several variables that need to be considered for this to be a “feasible” option, which is defined under the Coastal Act as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”

In terms of cost, the City has estimated that the value of the LMT is \$26.1 million, determined the cost for relocation of its function to be \$270 million (in 2018 dollars), and determined it to be infeasible. While it is not clear how the City derived its \$270 million figure, it is clear that the cost would be significant. That said, in light of the serious and significant impacts from the armoring (themselves equating to roughly \$200 million in terms of beach and related sand supply impacts alone – see also calculations below), it may be that such an option starts to become more economically feasible than the proposed project at some point. That said, however, while the LMT is the most seaward piece of wastewater infrastructure, the Westside Pump Station and its associated infrastructure lie 25-55 feet inland of the LMT. In a previous permit approved by the Commission for various improvements and upgrades to the Westside Pump Station, it was estimated that without the presence of the current revetments, the Pump Station would be impacted by coastal hazards within 30 years (i.e., by 2048).⁵³ The City estimates that under this alternative, in advance of 2050 it would be required to begin at least one, if not several new projects to either protect the Westside Pump station and several other pieces of wastewater infrastructure, or move them inland as well. On this point the City estimates the value of the Westside Pump Station to be \$143.1 million (based on a 2013 valuation report, adjusted for inflation and additional structures that have since been added to the facility), the value of the Oceanside Water Pollution Control Plant to be \$916.1 million, and the value of the Southwest Ocean Outfall to be \$542.4 million. All told, that means that the City’s stormwater/wastewater infrastructure in the area south of Sloat Boulevard, where it is subject to significant coastal hazards as detailed above, is valued at over \$1.6 billion, not counting how much it would cost to move such facilities (or more aptly, replace inland and demolish). When those kinds of replacement costs are also considered, and they should be given the domino effect associated with the LMT as the seawardmost element of this system, the costs start to be quite infeasible.

Finally, this alternative would require substantial construction within this heavily used recreational area, both for this project, and for future projects as the additional infrastructure becomes threatened by ongoing erosion. To construct up to three new major wastewater infrastructure facilities in this area would come with a whole other

⁵³ It’s important to note that that CDP, CDP 2-17-0184 (Westside Pump Station Redundancy Project), included conditions that specifically prohibited the pump station project to be used to justify shoreline armoring in the future.

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additional set of environmental and other costs. The City therefore deemed this alternative infeasible due to the economic, environmental, and significant permitting and legal hurdles to overcome, although it was not fully assessed as a realistic alternative by the Applicant.

In short, while not evaluated to the degree that would provide greater certainty, it appears that this alternative is likely infeasible for financial reasons.

Proposed Project

As described above, the City's proposed long-term solution includes: abandoning and removing the Great Highway and constructing a seawall armoring structure seaward of the LMT that would be covered with engineered dunes; constructing a service road (for City wastewater vehicle and employee use only), a public multi-use recreational trail, a parking lot (near Skyline), and a restroom (near Sloat) atop the dunes; regular beach replenishment; roadway and intersection modifications; removal of all prior temporary armoring; and dune habitat restoration. As such, the proposed project represents a type of nature based adaptation solution, albeit one that is anchored by a substantial armoring structure (and a project that is much more armoring-centric that was originally envisioned by the Commission and the Ocean Beach Master Plan).

In addition, the Applicant performed an analysis of sea level rise in the project area with their proposed project in place, based on the 2018 OPC guidance under a medium-high risk scenario, and reviewed local effects such as tidal and extreme water levels (including under 100 year storms and King Tides) and accounting for wave run-up. Under these conditions, they predicted that two major impacts could occur. First, under 1.9 feet to 6.9 feet of sea level rise, substantial scour behind the wall could develop if the slope at the crest is not protected. This could threaten the LMT, as well as undermine the slope, threatening the pathway and other proposed future access amenities above. Accordingly, the SSL was developed to protect against scour. Second, without substantial initial sand placement, and subsequent repeated sand placements throughout the life of the structure, the Applicant found there would be substantial loss of the sandy beach area, as well as exposure of the buried wall. Accordingly, the proposed beach nourishment program is intended to maintain beach width and limit exposure of the seawall, and the Applicant's analysis suggests that a modest sandy beach could persist at the site with periodic sand nourishment. However, the success of such a program is highly dependent on the ability to place the estimated amount of sand, and to increase the frequency or amount of sand should the predictions underestimate the rate of erosion at the site or the efficacy of the sand placements at maintaining beach width.⁵⁴

Large armoring structures alter existing coastal processes, resulting in impacts to adjacent areas along the beach, bluffs, and through the surf zone. Shoreline protection structures are designed to prevent erosion of the land behind the structures and thus can change wave energy dissipation and the rate of sand transport locally. During

⁵⁴ For example, prior to ACOE placement of dredged sand in September 2021, the estimates for the rates of erosion of the placed sand was much lower than the erosion that actually occurred post-placement, and in fact the sand eroded faster than expected.

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elevated wave events, scour can occur in front of and adjacent to an exposed shoreline protection structure, lowering the beach, increasing wave deflection, as well as offshore and alongshore sand movement. The offshore sand movement and reflected waves can change the shape of the nearshore sand bars and associated breaking wave patterns. In a coastal process analysis conducted as part of the EIR for this project, the City estimated that the proposed project would increase the annualized erosion rate over a ten-year period by up to 0.3 feet per year at the south end of the project for conditions where the wall is exposed. However, as estimated by the City the wall is not expected to be exposed often and would be managed by trigger-based beach nourishment. Commission staff Coastal Engineer Jeremy Smith reviewed the estimates regarding wall exposure and estimates the wall on average is likely to be exposed (i.e. any visibility of the wall) every 3-5 years based on wave runup analyses conducted by USGS, although the wall could subsequently be naturally buried by wind and wave deposition of sand. Mr. Smith also estimates the beach area fronting the wall would likely be disturbed by waves at least once a year on average.

However, in effect, the entirety of the beach nourishment component of the project is dependent on the assumption that sufficient sand will be dredged by ACOE and diverted to South Ocean Beach for this project and/or that sufficient sand will continue to accrete at North Ocean Beach in order to be able to continue backpassing sand at the necessary rate. The Applicant here notes that they are already working with ACOE regarding sand availability and placement, and that they generally dredge annually and there is a large sand supply from these activities. They further note that per USGS shoreline monitoring data, the beach generally accretes at North Ocean Beach within a few months of a borrow operation, as evidenced across a span of 4 sand backpassing episodes between 2013 and 2019. If an El Niño event were to erode the beach during the same year that the Applicant was planning on conducting a backpassing event from North Ocean Beach, they would not implement that nourishment episode. Further, the required shoreline monitoring through their adaptive management plan would require assessment of available sand on a regular basis, and if North Ocean Beach recovery rate of sand availability were to decline as a regular pattern, they would reassess measures to provide sufficient sandy beach area at South Ocean Beach.

The Commission is skeptical about some of these sand supply availability assumptions, both because there is no guarantee about securing the ACOE dredged sand annually, not to mention the quantity of sand required, as well as the likely possibility that with the impacts of sea level rise and climate change, North Ocean Beach could experience higher erosion rates and slower accretion rates than have historically been seen. In fact, if the Applicant were to come across a situation where the necessary quantity of sand was not available via either USACE or North Ocean Beach or a combination thereof, they would likely need to purchase and place beach-quality sand in its place.

In any event, the City has determined that the proposed project is feasible, and the Commission concurs. Though it raises its own coastal resource issues, the proposed project at least provides a foundation from which to minimize impacts and mitigate for those which are unavoidable. In other words, the Commission concurs with the Applicant that the proposed project represents the least environmentally damaging feasible alternative, as long as coastal resource impacts and mitigations are factored in

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(see below sand supply discussion, and see subsequent findings related to public recreational access, public views, and marine resources, all incorporated here by reference). Therefore, although it did not meet the first test and is thus ineligible to make use of the Section 30235 override for that reason alone, the project meets the third Section 30235 test.

Alternatives Conclusion

In summary, the LMT does not constitute an “existing structure” or a “coastal dependent use” for purposes of Coastal Act Section 30235 and is not entitled to make use of the Section 30235 override for those reasons. That said, while the LMT is not entitled to armoring, it is in danger from erosion, and while there is an alternative that could address the ramifications of the coastal hazard risk without constructing shoreline armoring, namely moving LMT functions inland, which would be the least environmentally damaging alternative and the direction the Commission believes local governments throughout the State should be exploring, it does not appear to be economically feasible at this time. Rather, and if modified to minimize impacts and mitigate for those which are unavoidable, the proposed project could be the least environmentally damaging feasible alternative.

At the same time, because the proposed project has significant adverse coastal resource impacts that are inconsistent with a myriad of other Coastal Act provisions, the Coastal Act directs denial of the proposed project (again, see below sand supply discussion, and see subsequent findings related to public recreational access, public views, and marine resources). Given the lack of feasible Coastal Act-consistent alternatives to the armoring, however, denial of a project to protect the LMT could lead to damage or destruction of the LMT, which could lead to adverse beach, marine, and water quality impacts inconsistent with other Coastal Act policies. Further, given that additional significant critical wastewater infrastructure is located just inland of the LMT (e.g., the pump station and WWTP), these facilities would also be subsequently threatened, which would only exacerbate all such potential adverse impacts. In other words, denial would lead to conflicts between meeting the requirements of different Coastal Act policies.

Therefore, the Commission believes it is appropriate to approve a project through the Coastal Act’s conflict resolution procedures (i.e., Coastal Act Sections 30007.5 and 30200(b)), procedures that allow for resolution of conflicts between a policy or policies of the Coastal Act that warrant denial (here, public access, public view, landform alteration, and coastal hazards policies) with a policy or policies that compel approval (here, protection of marine resources and water quality) by taking the action which, on balance, is most protective of significant coastal resources (see “Conflict Resolution” section below for further explanation justifying approval).⁵⁵

⁵⁵ As further explained in that section, where such changes would require: the armoring to be limited as much as possible; public recreational access enhancements to be realized, expanded (e.g., adding a restroom at the parking lot and an additional beach accessway), and enhanced (including as a means of offsetting the approximately \$200 million impact identified – see below); performance standards and related measures to maximize the utility and value of dune construction and dune restoration/enhancement components (including eliminating most of the proposed City-only road in the

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Sand Supply Impacts

The fourth test of Section 30235 that the project must meet is that the armoring must be designed to eliminate or mitigate adverse impacts to local shoreline sand supply.

Shoreline Processes

Some of the effects of engineered armoring structures on the beach (such as scour, end effects, and modification to the beach profile) are often temporary or may be 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), and can be imprecise proxies for understanding the total impact of an armoring structure to the coastline. Some of the effects that a shoreline armoring structure may have on natural shoreline processes can be quantified, however, including: (1) the loss of the beach area on which the structure is located (encroachment); (2) the long-term loss of beach that will result when the back-beach location is fixed on an eroding coastline (passive erosion); and (3) the amount of material that would have been supplied to the beach if the bluff and back-beach were to erode naturally (sand retention). The first two calculations relate to directly affected underlying and adjacent beach and shoreline use areas, and the third calculation is related to shoreline sand supply impacts that can affect that area but also larger sand supply systems, but all three calculations relate to public recreational access to the beach, shoreline, and offshore recreational areas. The analysis that follows is based on the Applicant's proposed project.

The following analysis is approximate and is intended to be a rough order-of-magnitude estimate of the impacts of armoring that can be relatively easily quantified. Ultimately, the proposed project, as conditioned, would mitigate for the impacts of the proposed development over the period of authorization through a series of public access improvements such as multi-use trails and viewpoints, the creation and use of natural features such as dunes, and a sand management program with robust monitoring and commitments to adaptive management. Furthermore, the proposed project pulls the armoring alignment as far landward as possible and, in some cases, may even enable additional beach area that may have been created in a scenario without human alteration. However, impact analysis conclusions in a case like this are extremely difficult to ascertain with absolute quantitative certainty due to the decades of human intervention such as pre-coastal fill, a sand backpassing program, large-scale beach nourishment, and a range of armoring. The overall project includes a mix of both in-kind mitigation (creation of beach area and contribution of sand to the littoral cell) in addition to out-of-kind mitigation such as the improvement or enhancement of coastal access. For the Commission's consideration of how to weigh the impacts and mitigating aspects of the project, the following analysis estimates project impacts, and then estimates what a potential compensatory in-lieu fee might have been based on those impacts, and then

dunes); comprehensive monitoring and adaptation provisions; and related measures to best protect coastal resources over time as much as possible with an approval of this sort (e.g., construction BMPs, tribal/archeological BMPs, assumption of risk and waiver of liability, etc.). Although the project would allow armoring when that would not normally be allowed by the Coastal Act, it would also transform this area to be more resilient to coastal hazards in a way that would camouflage the armoring, and protect public access opportunities, beaches, and dunes in as natural a framework and context as is possible with an armoring project of this nature.

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quantitatively and qualitatively evaluates a mitigation package that can serve as the necessary offsetting project area mitigations in place of a fee.

Encroachment Area

With respect to loss of beach and other shoreline recreational area, shoreline protective devices, such as the armoring proposed in this case, regardless of their configuration are all physical structures that occupy beach/shoreline space that would otherwise be unencumbered. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used by the public. This generally results in a loss of public access and recreational opportunity as well as a loss of sand and 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 beach area located beneath a shoreline protective device, referred to as the encroachment area, is the area of the structure's footprint.

In this case, the proposed seawall would cover approximately 9,600 square feet of potential beach area and the DSM/revetment sections at the north and south termini of the wall and at the SWOO would cover approximately 7,300 square feet of potential beach area for a total of 16,900 square feet of beach area that could otherwise be unencumbered.⁵⁶ However, because almost all of these areas are landward of the current backshore which would have a mix of armoring, debris, pre-coastal fill, and natural bluff removed, these impacts may be within the passive erosion impacts discussed in the following section, and therefore, for the purposes of this order-of-magnitude analysis, will not be incorporated into the final impact assessment.

Fixing the Back Beach (the "Coastal Squeeze")

On an eroding shoreline, a beach will typically continue to recreate itself between the waterline and the bluff as long as there is sufficient sand supply and space to form a beach between the bluff and the ocean. When beaches erode, they can migrate landward as the backshore i.e., a bluff, erodes from increased wave attack, which makes space for the beach to persist even while the shoreline retreats landward. This process stops, however, when the backshore is fronted by a hardened, protective structure such as a revetment or a seawall. Experts generally agree that where the shoreline is eroding and armoring is installed, the armoring will eventually define the boundary between the sea and the upland.⁵⁷ While the shoreline up and downcoast of

⁵⁶ The proposed wall would be 3200 linear feet by 3 feet out from the bluff for a total of 9,600 square feet of beach area. The DSM at the north end of the project area would be 36.5 feet by 18.5 feet in one section plus 72.5 feet by 20 feet for a total of 2,100 square feet of beach area; the DSM at the SWOO would be approximately 95 feet by 40 feet for a total of 3,800 square feet of beach area; and the DSM at the south end of the project area would be 13.5 feet by 103.5 feet for a total of 1,400 square feet of beach area. All of these components added together results in approximately 16,900 square feet of beach area.

⁵⁷ See, for example: Kraus, Nicholas (1988) "Effects of Seawalls on the Beach: An Extended Literature Review", *Journal of Coastal Research*, Special Issue No. 4: 1-28; Kraus, Nicholas (1996) "Effects of Seawalls on the Beach: Part I An Updated Literature Review", *Journal of Coastal Research*, Vol.12: 691-701, pages 1-28; and Tait and Griggs (1990) "Beach Response to the Presence of a Seawall", *Shore and Beach*, 58, 11-28.

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the armoring continues to retreat and reform new beach areas, shoreline in front of the armoring eventually stops at the armoring's seaward toe. This effect is also known as passive erosion, or "coastal squeeze." The sandy beach area will narrow, squeezed between the moving shoreline and the fixed backshore. The coastal squeeze phenomenon caused by armoring is (and will continue to be in the future) exacerbated by climate change and sea level rise.⁵⁸ As climate change causes the seas to rise ever faster, beach and recreational shoreline areas will be lost at an increasingly rapid pace. If the inland area cannot also retreat, eventually there will be no available dry beach or shoreline area, and the shoreline will be fixed at the base of the armoring structure. In the case of an eroding shoreline, this represents the loss of a beach and shoreline recreational area as a direct result of the armoring. Specifically, beach areas are diminished as the beach is compressed between the ocean migrating landward and the fixed backshore.

Consistent with past practice, including the Commission's experience that shoreline armoring often needs to be reinforced, augmented, replaced, or substantially changed within a reasonable period of years from its original installation, and to provide for re-review on a regular basis to allow for consideration of possible changes in policy, law, and physical conditions associated with armoring, the Commission typically evaluates such impacts over 20-year periods. Here, in recognition of both the significant wastewater infrastructure at this location, valued by the City at some \$1.6 billion, and

⁵⁸ Sea level rise (SLR) will have dramatic impacts on California's coast in the coming decades and is already impacting the coast today. In the past century, the average global temperature has increased by about 0.8°C (1.4°F), and global sea levels have increased by 7 to 8 inches (17 to 21 cm). In addition, SLR has been accelerating in recent decades, with the global rate of SLR tripling since 1971 (IPCC, 2021). There is strong scientific consensus that SLR will continue over the coming years regardless of future human actions, but the exact rate and amount will depend on the amount of future greenhouse gas emissions as well as the exact contribution from sources such as the Antarctic and Greenland ice sheets, which are areas of continuing research. Currently, the best available science on SLR projections in California is provided in the State of California Sea Level Rise Guidance (OPC 2024) and is reflected in the Draft 2024 Update to the Coastal Commission Sea Level Rise Policy Guidance (CCC 2024). According to these Guidance documents, the estimated range of sea level rise for the project area (based on the San Francisco tide gauge) for 2070 is approximately 1.4 to 2.2 feet; and 2.4 to 3.8 feet for 2090 under the Intermediate to Intermediate-High Scenarios. Additionally, scientific studies have analyzed the potential for rapid ice-sheet loss in conjunction with high future greenhouse gas emissions and suggest that there could be sea level rise of as much as 6.5 feet by 2100 under the High Scenario. The observed trend for global sea level has been a long-term, persistent rise. 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. This, too, leads to loss of the beach as a direct result of the armor as the beach is squeezed between the landward migrating ocean and the fixed backshore (e.g., even without any armoring, a 1-foot rise in sea level generally translates into a 40-foot inland migration of the land/ocean interface for a roughly 40:1 beach slope, typical of average sandy beach profiles). This change could also expose previously protected backshore development to increased tidal/wave action and flooding, and those areas that are already exposed to such conditions will be exposed more frequently and with greater severity. In addition, recent research has suggested that winter wave heights and winter storm intensity in the North Pacific have, on average, increased over the last 50 years in parallel with climate change, sending larger and more powerful waves to the California shoreline. Some studies suggest that wave heights could continue to increase in the future, generally extending the reach of wave run up and further exacerbating the erosion that is already expected to increase due to rising sea levels, though this is an area of developing research.

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the need to provide a means for reevaluation of the appropriateness of retaining the armoring longer term since armoring removal is not tied to moving such infrastructure out of harm's way, as might typically be the case by a date certain in such wastewater cases, the armoring would be allowed for an initial term of 25 years past the date of its construction completion, which date is currently estimated by the City to be 2031 (so a duration limitation to roughly 2056). After the construction completion and initial 25-year initial authorization period ends (expected around in 2056), any CDP reauthorization attempt would need to provide additional impact analysis to assess appropriate additional mitigation necessary at that time, if any (see Special Condition 10).

The Commission has in the past used a methodology for calculating passive erosion impacts of armoring, or the long-term loss of beach due to fixing the back beach. The area of beach lost due to long-term erosion is equal to the long-term average annual erosion rate multiplied by the number of years that the back beach or bluff will be fixed, multiplied by the width of the property that will be protected. Applying the average long term annualized erosion rate (estimated by the Applicant to be 2.3 feet per year, which Commission staff agrees is a reasonable erosion rate to use given the wide range of rates across the length of the project site) over the initial 25-year mitigation period of the proposed 3,200-foot-long buried wall, 184,000 square feet of beach would have been created naturally if the back beach had not been fixed by the armoring for those 25 years.⁵⁹ In addition, when the Commission temporarily authorized the existing armoring at the site in 2015, the mitigation for the presence of that armoring through 2021, and then for an additional 3 years as that initial deadline was extended, was deferred. That means that the impacts from the time such armoring was initially installed (some since 1997, some since 2010, and some since 2018) must also be addressed. Given that it is intended to stay in place until the new seawall is operational in 2031, those impacts can also be estimated through that time to be 74,152 square feet of passive erosion.⁶⁰ Thus, the total passive erosion impact in need of mitigation through 2056 could be as much as approximately 260,000 square feet (i.e., $184,000 + 74,152 = 258,152$).

There is no doubt that such impacts represent a significant public recreational access impact, including a loss of the social-economic value of beach and shoreline recreational access, for which the Coastal Act requires mitigation. The most obvious in-kind mitigation for these impacts would be to create a new roughly 260,000 square-foot area of beach/shoreline to replace that which was and will be lost since the time that the armoring was first installed up to the end of this CDP's authorization for it with an identical area of beach/shoreline in close proximity to the lost beach/shoreline area. While in concept this would be the most direct mitigation approach, in reality, finding an area that can be turned into a beach and ensuring it does so appropriately over time is very difficult in practice. At the same time, the calculations of affected area do provide a means to identify an appropriate relative scale for evaluating alternative mitigations. For example, in the past the Commission has looked at several ways to value such lost beach and shoreline areas in order to determine appropriate in-lieu mitigation fees, including evaluating the recreational value of the beach/shoreline in terms of the larger

⁵⁹ That is 3,200 feet multiplied by 2.3 feet of erosion per year, multiplied by 25 years.

⁶⁰ Based on 600 linear feet of armoring since 1997, 440 linear feet of armoring since 2010, and 200 linear feet of armoring since 2018, and an erosion rate of 2.3 feet per year.

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economy, as well as the real estate value of property acquisition necessary to accommodate an area that could be so created through natural erosion.

In terms of the recreational beach/shoreline value, the Commission has recognized that in addition to the more qualitative social benefits of beaches and shoreline areas (e.g. recreational, aesthetic, habitat values, etc.), beaches and shoreline areas provide significant direct and indirect revenues to local economies, the state, and the nation. It is well known that the ocean and coastline of California contribute greatly to the state's economy through activities such as tourism, fishing, recreation, and other commercial activities.⁶¹ There is also value in just spending a day at the beach and having wildlife and clean water at that beach and being able to walk along a stretch of beach and shoreline. There are also societal benefits of beaches and shoreline areas, including the ways in which they contribute to local community and state social fabric and cultural identity. However, it can be difficult to put a price tag on these types of benefits, including 'existence' values, where people are asked how much it is worth to them for a beach to exist, even if they do not visit the beach or seldom visit the beach. Depending on the person, even one beach can be priceless.

Thus, these types of beach impacts are in many cases difficult to quantify. In other cases, including where detailed visitation data is lacking, as it is here, the Commission has found that using a real estate valuation method as a basis for identifying mitigation values allows for objective quantification of the value of lost beach and shoreline area, and that this valuation is appropriate both in terms of the scope of the impacts and the rational basis for applying such methodology.⁶² This method requires an evaluation of the cost of property that could be purchased and allowed to erode and turn into beach naturally to offset the area that will be lost due to the construction and continued placement of the proposed armoring over time.

Toward this end, the market values of representative properties along the Great Highway between Ulloa Street and Sloat Boulevard near the project area supply a means to identify what it might cost to purchase such property and allow it to erode in this way to create offsetting beach/shoreline recreational space. Specifically, this review was conducted by looking at the sales of five properties in the immediate vicinity of the project area within the last four years. This value is then divided by the property square footage to arrive at a price per square-foot. The price per square-foot calculated value serves as a way to gauge the cost of acquiring an equivalent shoreline/blufftop property, where any development on it could be removed, and then the area could be allowed to

⁶¹ See Coastal Commission's Adopted Sea Level Rise Policy Guidance at <https://www.coastal.ca.gov/climate/slrguidance.html>: "Just over 21 million people lived in California's coastal counties as of July 2014 (CDF 2014), and the state supports a \$40 billion coastal and ocean economy (NOEP 2010)."

⁶² See, for example, CDPs 2-10-039 (Land's End Seawall), 2-11-009 (City of Pacifica Shoreline Protection), A-3-PSB-12-042 (Capistrano Seawall), A-3-PSB-12-043 (Vista del Mar Seawall), 3-16-0345 (Honjo Seawall), 3-18-0720 (Candau Armoring), 3-19-0446 (Rockview Seawall and Accessway), 3-19-1287 (Fanshell Beach 17-Mile Drive Armoring), 3-20-0166 (Wavefarer Partners LLC Armoring), 3-22-0440 (Casanova Armoring), and 3-22-1027 (Hofmann Seawall).

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erode to provide an equivalent amount of beach and shoreline area to that which will be lost over the mitigation timeframe.

This evaluation focused specifically on five properties along the Great Highway just north of the project area, all residential, including both single-family and two-unit properties (see Exhibit 10). The range of values starts at the high end for the property at 2630-2632 Great Highway with a value of \$1,264.88 per square-foot, to the low end for the property at 2542 Great Highway with a value of \$308.56 per square-foot, with an average of \$769.56 per square-foot.⁶³ This average per square-foot value represents a reasonable estimate of the market value of properties within the proximate area of the subject site based on actual sales data in the last four years.⁶⁴ Given that the properties in question are not actually shoreline-facing, and further given that median sales prices have been rising in San Francisco, and coastal California, in general, over the same timeframe, such a value likely underestimates true costs, but it is still a valid, if conservative, estimate for mitigation purposes.⁶⁵

Applying this average land acquisition value of representative properties along the Great Highway to the 258,152 square-foot impact identified would result in a mitigation fee of nearly \$200 million for the loss of beach and shoreline use areas through 2056 (i.e., 258,152 square-foot (area of beach lost due to long-term erosion) x \$769.56/square foot = \$198,663,453). The Commission finds that this potential mitigation fee amount is most closely tied to specific property values in the vicinity of the project and is thus both reasonably related and roughly proportional to the anticipated loss of beach and shoreline recreational use areas due to the project through 2056.

Retention of Potential Beach Material

The final Section 30235 impact calculation pertains to the loss of sand and sand generating materials due to the project, and the way that loss affects the larger sand supply system. 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 feeding the beach. Bluff retreat/shoreline erosion is one of several ways that sand and sand generating materials are added to the shoreline. Bluff retreat and erosion are natural processes resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse of caves; saturation of the bluff soil from groundwater causing the bluff to slough off; and natural bluff deterioration. For coastal dunes, the contribution to the system is typically more direct, with sand becoming part of the shoreline system during and as a result of

⁶³ The property sales used to derive the average price per square foot for 5 properties in the immediate vicinity are for property sales at the following locations: 2630-2632 Great Highway, 2646-2648 Great Highway, 2554 Great Highway, 2542 Great Highway, and 2538 Great Highway.

⁶⁴ Source: Zillow.com (March 2024).

⁶⁵ Meanwhile, SFPUC estimates the value of the Westside Pump Station to be \$143.1 million, based on a 2013 valuation report, adjusted for inflation and additional structures that have since been added to the facility; the Oceanside Water Pollution Control Plant to be \$916.1 million; the Lake Merced Tunnel to be \$26.1 million; and the Southwest Ocean Outfall to be \$542.4 million. Thus, if these SFPUC properties were to be used to generate the values for estimating mitigation fees, the cost per square foot would be many orders of magnitude higher.

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climatic events, including wind, rain, and storms. When the bluff/shoreline is armored with a shoreline protective device, the natural exchange of material from the armored area to the beach and shoreline is interrupted, and, if the armored bluff area would have otherwise eroded, there will be a measurable loss of material provided to the beach/shoreline/offshore sand supply system area as a result.

In bluff areas, if natural erosion were allowed to continue (absent of any shoreline armoring), bluff sediment would be added to the beach, as well as to the larger littoral cell sand supply system fronting the bluffs. The volume of total material that would have gone into the sand supply system over the life 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 face location without shoreline protection. Using the Commission's methodology⁶⁶ the amount of beach-quality sand that would be retained due to the armoring over 25 years would be equal to 7,496 cubic yards of sand per year, or approximately 187,407 cubic yards over the initial 25-year mitigation period. When added to the sand retention impacts from armoring extending back to 1997 (some 55,000 cubic yards),⁶⁷ a total impact through 2056 of over 240,000 cubic yards of sand (i.e., 242,335 cubic yards).

To mitigate for this loss of sand, the Commission oftentimes requires payment of an in-lieu fee to contribute to ongoing sand replenishment or other appropriate mitigation programs. Typically, the Commission has mitigated for such sand retention impacts with an in-lieu fee based on the cost of buying and delivering an equivalent volume of beach quality sand to the affected area. Using an approximate cost of to deliver beach quality sand for a nearby project (Vista Grande Drainage Basin Improvement Project in Fort Funston, at a cost of \$69.52 per cubic yard), an in-lieu sand retention fee would be approximately \$17 million through 2056 (i.e., \$16,847,129). In this case, as discussed above, the proposed project would employ beach nourishment by importing between 1,680,000 to 4,000,000 cubic yards of sand over the 80-year anticipated life of the structure,⁶⁸ or between 420,000 and 1,000,000 cubic yards of sand over the initial mitigation period. What's more, the Applicant has already to date brought in some more than 600,000 cubic yards as part of efforts since the early 2000s. That said, much of this sand is assumed to come from backpassing which does not represent a net contribution of sand to the littoral cell and would typically not qualify as in-kind

⁶⁶ Sand supply loss is calculated with a formula that utilizes factors such as the fraction of beach quality material in the bluff material; the length of time the back beach will be fixed; the predicted rate of erosion with no seawall; the height of the seawall; and the width of property to be armored. In this case, the fraction of beach quality material was estimated by the Applicant to be between 40-60%, here averaged to be 50% (see Conceptual Engineering Report regarding sand material retention); the height of the seawall and the secondary piles combined is on average 55 feet; the width of the property that is armored is 3,200 feet; the average rate of retreat is 2.3 feet per year; and the initial mitigation period is 25 years.

⁶⁷ Using the same erosion rate of 2.3 feet per year, 50% sand content, an average height of 40 feet, and 600 linear feet (since 1997), 440 linear feet (since 2010) and 200 linear feet (since 2018).

⁶⁸ The range of values represented here is a result of whether the sand placements are many small placements, or several large placements. The city estimates that over the 80-year anticipated life of the structure it will be necessary to have 20 placements of 85,000 cy (1,700,000 cy total), 14 placements of 120,000 cy (1,680,000 cy total), 11 placements of 300,000 cy (3,300,300 cy total), or 8 placements of 500,000 cy (4,000,000 cy total).

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mitigation. However, due to the abundance of sand at the proposed borrow site and uncertainty as to the ultimate fate of sand placed at South Ocean Beach, the Commission finds this as an appropriate form of in-kind mitigation for the impacts on sand supply. Thus, even at the low end, the project would cover the sand retention losses, and thus this aspect of the project would not require mitigation.

Approvable Mitigation

Accordingly, the cost associated with the proposed project's sand supply and related beach/shoreline loss impacts through 2056 is approximately \$216 million (approximately \$199 million in passive erosion impacts + \$17 million in sand retention impacts), which could potentially be accommodated by collecting a mitigation fee in that amount were the Commission to only consider the gross impacts of the proposed project. Given the sand supply impacts are addressed through in-kind sand placement already implemented and/or proposed by the Applicant, the remaining gross impacts to consider are approximately \$200 million. While requiring such a mitigation fee could commensurately mitigate for these impacts, the Commission has also instead required the provision of in-lieu public recreational access improvements to offset such impacts, particularly when a public agency is an applicant for a shoreline armoring project. Such mitigation strategies can allow for bona fide improvements to public recreational access infrastructure and utility so that mitigation benefits can be realized in the near term, and in the area of the impacts. This is especially opportune in this case given the Applicant is a public City and County of San Francisco agency, given there are many and varied immediate public recreational, access, and park facilities in the area, and that the larger project also contemplates creating new facilities to enhance the Ocean Beach recreational visitor experience including improvements to the present beach condition which has been significantly altered. As proposed and as would be modified (see findings that follow for more detail), the project mitigation package would include elimination of the service road as much as possible (to allow this area to be used for dune and public access purposes instead), a new multi-use pathway for pedestrians and bicyclists, improved restroom facilities, restored parking lot, improved access to Coastal Trail and Ocean Beach, seating and viewing areas, and beach nourishment to protect useable beach space. Such enhancements together represent significant public access improvements in this area, including a formalized and much more accessible segment of the California Coastal Trail. See Special Conditions.

With respect to the service road specifically, the Commission notes that the proposal to take out the Great Highway Extension, as an adaptation and resiliency effort, but then to propose to build a brand new road on the blufftop in that same area, defies adaptation common sense. A primary component of this project is to move critical infrastructure, here the Great Highway and its vehicle, pedestrian, and bicycle functions, away from harm and coastal hazards, which is not an unusual objective in a project like this. What isn't usual, however, is to remove such functions, and then simply suggest that they be provided in the same area but in different ways, and then to simply propose a brand new 15-foot wide (with wider sections for passing etc.) road, where that road would only be used by the Applicant.

What makes much better sense in an adaptation project like this is to adapt any necessary access functions for both the pump station and the WWTP such that any

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such road or access is limited to the maximum extent feasible. It appears that there are options to do so here, especially since the pump station is immediately adjacent to Sloat Boulevard, and also to the San Francisco Zoo parking area, and otherwise located adjacent to other Applicant and City-owned land directly inland of the Great Highway right-of-way that could be used to provide any access functions. Similarly, the WWTP already has an access entrance on Skyline Boulevard, so it may be able to modify its needs on its seaward side, while still ensuring appropriate emergency ingress and egress. That the service road might provide more convenient access for the Applicant is not a good enough reason to establish a new piece of critical infrastructure in an area that is subject to serious and significant coastal hazards, especially in a conflict resolution approval where such impacts are to be avoided. Thus, the Commission here eliminates the service road where it is feasible to do so, other than components of it that are required for access to these two facilities at the ends of the project area, including in order to access the Westside Pump Station and Oceanside Treatment Plant for emergency ingress/egress and infrastructure maintenance needs. Instead conditions of approval require this area to be put to dune and public access use as much as feasible. In searching for other ways of meeting their access needs, the Applicant is strongly encouraged to look at inland opportunities on their property, as well as other City-owned properties, and to avoid any such road infrastructure in the area seaward of the pump station and the WWTP at all, except for the minimum necessary for emergency ingress/egress and infrastructure maintenance needs, where feasible. See Special Condition 1.

Thus, in this case the Commission finds it reasonable to mitigate for the above-identified armoring impacts to require the Applicant to improve and maintain public recreational access areas, improvements, and amenities as described. This mitigation package strategy and approach is similar to compensatory projects and mitigation packages required by the Commission in the past.⁶⁹ In addition, this approach will allow public access improvements to be realized in the very near term, providing fairly immediate and tangible public benefits as opposed to an overall single fee approach that may not be used or applied for some time, reducing its effectiveness. In addition, the above-described recreational use and access improvement projects will likely be worth much more to users than the cost to develop these improvement projects, as they have an intrinsic value to the shoreline-visiting public, particularly given the significant popularity of the CCT and related public access features on this stretch of coast that is difficult to quantify. In short, the above-described access improvement project constitutes an appropriate and adequate compensatory mitigation package to offset the impacts identified above, and to address the fourth test of Section 30235.

At the same time, and even with such mitigations, a core premise of the proposed project is that it will be able to maintain (and even improve) beach access, maintain sand coverage of the armoring system, and facilitate a living dune feature that extends

⁶⁹ See, for example, CDPs 2-17-0702 (Sharp Park Armoring), 3-02-107 (Podesto), 2-16-0684 (Aimco), A-3-SCO06-006 (Willmott), 3-09-029 (Rusconi), 3-09-042 (O'Neill), 3-10-044 (Crest Apartments), 2-11-009 (Pacifica drainage armoring), A-3-PSB-12-0042 and -0043 (Pismo Beach Oceanview Boulevard Seawalls), A-3-SCO-07-015/3-07-019 (Pleasure Point Seawall and Parkway), and 3-14-0488 (Iceplant LLC).

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across the project area. While it is possible that the Applicant and their modelling are correct that their proposed sand management efforts will successfully accomplish these objectives, it is not guaranteed, and there is some uncertainty. For example, it appears likely that the 50-foot beach width trigger proposed by the Applicant will likely lead to periods of time – and potentially extended periods of time – where the public loses beach access in the project area as a result of the project. This is particularly the case given the strong potential that the lag time between a triggering event and actual sand placement would be a year's time. This potential situation is just one example of the beach width concerns. Given the fact that maintaining a beach area, armoring coverage, and dunes are such a fundamental part of both the proposed project and its mitigation for impacts, the Commission believes that a refined/updated beach monitoring and adaptive management plan is necessary to assure beach accessibility and dune coverage is maintained and the project can be responsive to impacts accruing to these resources.

Thus, this approval requires just such an updated Beach Monitoring and Adaptive Management Plan (see Special Condition 4), which can build upon the Applicant's proposed plan (see Exhibits 3 and 6),⁷⁰ where the objective is to establish clear and measurable monitoring protocols to be used to collect data that can be used to inform actions to be taken to ensure that the armoring structure remains buried (via a connected beach-dune system) and a useable sandy beach is maintained over the life of the project. The plan would be required to be structured so as to capture baseline data before the armoring structure is constructed, and then to allow for the proposed sand nourishment/placement activities to proceed post-construction (with some modifications seen below) for 5 years, at which time the success of such activities would be measured, and conclusions from the first 5 years brought to the Commission for the Commission to decide if additional measures are necessary to ensure that the armoring structure remains buried and a useable sandy beach is maintained. The plan would be required to clearly identify monitoring areas (including the project area, the borrow site, and a reference site), frequencies (i.e., quarterly, immediately before and immediately after any sand borrow/nourishment/placement episode, and immediately after any 10-year return storm event or greater), and methods, and to overall establish clear and measurable monitoring, clear and actionable success criteria, and an adaptive management program, in order to assess the project's performance as it relates to defined success criteria (such beach passability, dune connectivity, and beach use parameters) as well as an assessment of benthic infaunal health. Although the plan would include triggers largely similar to those initially proposed by the Applicant, these would be required to be modified to represent reasonable efforts to minimize periods of very narrow beaches caused by the proposed armoring structure. These include an adjusted and clearer 50-foot beach width trigger that has a shorter lag between the trigger being met and nourishment occurring, a more conservative trigger to cover exposed portions of the armoring system (as opposed to the proposed allowance for

⁷⁰ The Applicant's proposed plans are made up of a "Beach Monitoring and Adaptive Management Plan", prepared by MN + ESA and dated September 2024 (dated received in the Commission's North Central Coast District Office on September 16, 2024); and a "Monitoring and Adaptive Management Plan", prepared by MN + AGS JV and dated March 2024 (dated received in the Commission's North Central Coast District Office on March 29, 2024) (see Exhibits 3 and 6; Appendix A).

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nearly 10 vertical feet of exposure before action was required), an extreme condition recovery trigger, and an adjusted trigger for when borrowing at North Ocean Beach needs to pause.

Thus, the plan would essentially be structured as a ‘proof of concept’ of sorts, where expectations from the Applicant’s modelling are tested in real time, allowing for an initial five-year period to reach certain equilibriums and conclusions in that respect, all of which would be subject to Commission consideration at that time, where the Commission would be tasked with deciding whether and how to continue the proposed sand nourishment/placement activities and monitoring protocols to best achieve plan objectives and success criteria, and where the Commission would have the discretion to modify any part of the required plan to do so. The intent is that that 5-year review would be supported by a report that would respond holistically to monitoring data trends that might suggest that the proposed sand nourishment/placement activities require modification to adapt to what the monitoring data is showing, including adapting to any undesirable trends that might suggest that additional/different measures and/or requirements are needed to ensure that plan objectives and success criteria are achieved. In short, the plan would be one of the main mitigations that the Commission believes are necessary to approve the project despite its impacts, and are necessary to establish a framework for monitoring that can inform science-based adaptive management to adjust the project over time to ensure that the armoring structure remains buried (via a connected beach-dune system) and a useable sandy beach is maintained over the life of the project (see Special Condition 4).

Duration of Authorization

The Commission typically imposes conditions that restrict the use of armoring to the time frame when the existing structure being protected has not been redeveloped (and requiring armoring removal upon redevelopment) and could impose such a requirement here too. However, this is not a typical situation, and the structure in question is not considered existing for Section 30235 armoring purposes, essentially negating the value of that approach. More appropriate here is to provide a specified time period for the authorization for the armoring portion of the project. In past cases when confronted with this question the Commission has typically applied a 20-year duration clause, where 20 years has been deemed an appropriate amount of time to provide for re-review based on a consideration of possible changes in policy, law, and physical conditions associated with armoring. Here, in recognition of both the significant wastewater infrastructure at this location, valued by the City at some \$1.6 billion, and the need to provide a means for reevaluation of the appropriateness of retaining the armoring longer term since armoring removal is not tied to moving such infrastructure out of harm’s way, as might typically be the case by a date certain in such wastewater cases, the armoring would be allowed for an initial term of 25 years past the date of its construction completion, which date is currently estimated by the City to be 2031 (so a duration limitation to roughly 2056). After the construction completion and initial 25-year initial authorization period ends (expected around in 2056), any CDP reauthorization attempt would need to provide additional impact analysis to assess appropriate additional mitigation necessary at that time, if any (see Special Condition 10). Such application would at a minimum require an evaluation of any changed site or other conditions (including but not limited to changes relative to erosion and sea level rise) that might

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affect whether authorization extension is warranted, and an evaluation of methods to reduce any continuing coastal resource impacts and to mitigate any that cannot be avoided moving forward. If the Commission approves the armoring duration extension prior to the date of expiration, then the armoring may be retained past that point, subject to any terms and conditions applied by the Commission. If the Commission does not approve the armoring duration extension prior to the date of expiration, then the Applicant would be required to remove the armoring portion of the development and appropriately restore the affected area to natural conditions within 6 months of such decision subject to Executive Director approval of a plan to accomplish same with the least coastal resource impacts.

Long-Term Stability, Maintenance, and Risk

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. This is particularly critical given the dynamic shoreline environment in this area. Also critical to the task of ensuring long-term stability, as required by Section 30253, is a formal long-term monitoring and maintenance program. If the completed project were damaged in the future (e.g., as a result of wave action, storms, an earthquake, etc.), it could lead to a degraded public access condition as well as loss of the integral public access improvements. In addition, such damages could adversely affect nearby beaches and recreational use areas by resulting in debris on the beaches and/or creating a hazard to the public using the beaches and offshore areas. Therefore, in order to find the proposed project consistent with Coastal Act Section 30253, the Applicant must maintain the project in its approved and required state. Further, in order to ensure that the Applicant and the Commission know when repairs or maintenance are required, the Applicant must regularly monitor the condition of the completed project, particularly after major storm events. Such monitoring will ensure that the Applicant and the Commission are aware of any damage to or weathering of the completed project and can determine whether repairs or other actions are necessary to maintain the completed project in their approved state. To assist in such an effort, monitoring plans should provide vertical and horizontal reference distances from the completed project to surveyed benchmarks for use in future monitoring efforts.

Thus, to ensure that the project is properly maintained to ensure its long-term structural stability, Special Condition 7 requires regular submission of monitoring and maintenance reports. Such reports are required to provide for evaluation of the condition and performance of the completed project and its overall stability, and to provide for necessary maintenance, repair, changes, or modifications to the completed project. In addition, Special Condition 8 authorizes the Applicant to maintain project components in their approved state through this CDP, subject to the terms and conditions identified by the special conditions. Such future monitoring and maintenance activities must be understood in relation to clear as-built plans that are required to be submitted by the Applicant (Special Condition 6).

In terms of recognizing and assuming the hazard risks for shoreline development, the Commission's experience in evaluating proposed development in areas subject to hazards has been that development has continued to occur despite periodic episodes of

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heavy storm damage and other such occurrences, as well as more steady erosion and other coastal hazards, all as may be exacerbated by sea level rise. Separate from its impact on coastal resources directly, development in such dynamic environments is also 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 many, many 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, the Commission has in the past required applicants to acknowledge site hazards and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed. Accordingly, this approval is conditioned for the Applicant to assume all risks for developing at this location (see Special Condition 9).

Finally, the Commission has long analyzed consistency with Section 30253 in terms of analyzing a project's risks and structural integrity over time, taking sea level rise into account. However, Section 30270 now explicitly requires the Commission to consider sea level rise when analyzing risks under Section 30253 and also requires the Commission to assess and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise. The findings above identify and assess the project's hazards-related impacts in a manner that accounts for sea level rise. As described above, the Commission has also imposed conditions to avoid, where feasible, and mitigate the adverse, hazard-related impacts of sea level rise, as they relate to these projects. For example, Special Condition 7 requires submission of monitoring and maintenance reports to ensure that the project remains stable over time, and Special Condition 8 authorizes maintenance of the project to ensure it does not erode or cause destruction of the site or surrounding area over time as sea levels rise and potentially cause the project to deteriorate. The above findings also describe how it is not feasible to completely avoid all project-related impacts because there is no less damaging alternative to the armoring in this instance. With these findings and conditions, the project can be found consistent with Section 30270.

Coastal Hazards Conclusion

There are no "existing structures" in danger from erosion as that term is understood in a Coastal Act armoring sense, including because the LMT, which is the seaward-most component of the City's critical infrastructure for wastewater and stormwater, was constructed after passage of the Coastal Act in 1976 and its 1977 effective date. Therefore, none of the structures qualify for the shoreline armoring "override" available when Coastal Act Section 30235 tests are met, and because such armoring is inconsistent with Section 30253 (and other coastal resource protection policies), the project cannot be found consistent with the Coastal Act, which directs denial. However, given that the LMT is potentially at risk of being compromised, denial could lead to threats to the City's stormwater/wastewater infrastructure, including damage to and/or destruction of the pipeline (and ultimately significant additional wastewater infrastructure just inland of it). This approach would be inconsistent with Coastal Act Sections 30230 and 30231 that affirmatively require that marine resources and water quality be protected (because the pipeline would be likely to fail in the short term and lead to debris and pollution on the beach and in the ocean). In other words, denial of the project would also be inconsistent with the Coastal Act. Therefore, it is appropriate to approve a

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project through the Coastal Act's conflict resolution procedures (see Conflict Resolution findings), provided that impacts can be minimized, and unavoidable impacts mitigated for.

F. Habitat Resources

Applicable Coastal Act and LCP Provisions

The Coastal Act protects the marine resources and habitat at this location and offshore. 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.*

In addition, certain habitats, such as those present at the project site, qualify as environmentally sensitive habitat area (ESHA), which are provided an even greater degree of protection under the Coastal Act, as follows:

Section 30107.5. *"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activities and developments.*

Section 30240. *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

In addition, the LCP also protects habitat features, stating:

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LUP Objective 12. *Preserve, enhance, and restore the Ocean Beach shoreline while protecting public access, scenic quality, natural resources, critical public infrastructure, and existing development from coastal hazards.*

LUP Policy 2.7. ... *Design parking to afford maximum protection to the dune ecosystem.*

LUP Policy 6.2. *Improve and stabilize the sand dunes where necessary with natural materials to control erosion.*

LUP Policy 6.3. *Keep the natural appearance of the beach and maximize its usefulness by maintaining the beach in a state free of litter and debris.*

Consistency Analysis

Dune ESHA

The dunes at Ocean Beach have a long history of human influence and alteration. Prior to development and shoreline engineering, the most seaward dunes of Ocean Beach were continuous with the bare sand of the backshore beach, only sparsely vegetated in discrete mounds with mostly unimpeded wind-blown sand transport from the beach to waves of transverse dunes extending miles.⁷¹ Construction of the Great Highway and associated sand clearing, in addition to other anthropogenic factors, have resulted in significant fragmentation and degradation of remnant dune features at the project site. However, these features still exhibit dune morphology, dune substrate, and/or the influence of aeolian process. Additionally, despite degradation, portions of the extant dune system support the native yellow sand verbena-beach bur dune mat community (*Abronia latifolia* – *Ambrosia chamissonis* Herbaceous Alliance), which is ranked S3 by the California Department of Fish and Wildlife, indicating that it is considered vulnerable and sensitive.⁷² In addition to the eponymous species, others characteristic of this vegetation community have been recorded on-site, including beach sagewort (*Artemisia pycnocephala*), sea lettuce (*Dudleya farinosa*), beach strawberry (*Fragaria chiloensis*), coast buckwheat (*Eriogonum latifolium*), and beach evening primrose (*Camissoniopsis cheiranthifolia*). Dune features within the site may also provide habitat for the special-status San Francisco spineflower (*Chorizanthe cuspidata* var. *cuspidata*) (California Rare Plant Rank 1B), which has been documented in close proximity to the project site

⁷¹ MN + AGS JV (2024). Ocean Beach Climate Change Adaptation Project Habitat Restoration and Enhancement Plan.

⁷² Since the mid-1990's, the State of California has used hierarchical classification standards for mapping and describing vegetation communities (see <https://wildlife.ca.gov/data/vegcamp/publications-and-protocols>). Under the Manual of California Vegetation (available online at: <https://vegetation.cnps.org/>), alliances are quantitatively defined by their membership rules, which include plant species compositions, constancy, cover values, and the presence of indicator species. Associations are the most granular level within the hierarchy, represent variations of communities within each alliance, and where available, are the preferred level for evaluating communities in terms of resource protection. Alliances and associations with State rankings 1-3 are considered sensitive and are generally protected under ESHA policy. All associations within a sensitive alliance are considered sensitive; however, sensitive associations can also occur under alliances not ranked as sensitive. The list of community rankings for both alliances and associations per CDFW is updated regularly and is available at the URL above.

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on the northern portion of the Fort Funston dunes as well as within San Francisco Zoo facilities near Armory Road.⁷³

Coastal dunes throughout California have suffered disproportionate losses to human development and remain both vulnerable to a multitude of stressors and critical as natural 'infrastructure' for protecting our coastline from extreme oceanographic events as well as sea level rise. The Commission has consistently found that coastal dunes, even when disturbed or degraded, constitute ESHA when the area displays certain dune traits, such as an occurrence of plant species or communities normally associated with dunes, sandy substrates, or dune morphology.⁷⁴ Coastal dunes are an irreplaceable resource that are created by a unique confluence of physical and biological factors that only exist in a narrow band of the coastal zone. Dunes form only under certain conditions where adequate sand supply and appropriate wind energy and direction allow. They are a dynamic habitat subject to extremes of physical disturbance, drying, and salt spray. The winds and shifting sands in dune habitat can cause the habitat characteristics and the species at any given location to change on a relatively short or shifting timescale, so a particular area of dune habitat may have relatively higher or lower resource values over time. However, the changing and often harsh conditions found in coastal dune habitat support plant and animal species that have evolved strategies adapted to these conditions – for example, many dune plants have seeds that can remain dormant for extended periods of time until conditions allow for them to germinate, and several animals burrow beneath the sand for significant portions of their lives. Many of the plant and animal species adapted to dune ecosystems are considered rare, endangered, or have a similar special status, and the dunes themselves can be recognized as especially valuable habitat under the definition of ESHA, not only because of their rarity but also because of the unique biological and physical factors that contribute to their role in the landscape (described above). Moreover, because the dunes at Ocean Beach represent one of the last remnants of what was once an extensive dune system, they are particularly valuable and susceptible to irreversible loss, including via coastal squeeze. Thus, most of the dune features on the project site have been determined to qualify as ESHA as defined by the Coastal Act.⁷⁵

⁷³ A California Rare Plant Rank (CRPR) of 1B indicates that a species is considered rare, threatened, or endangered throughout its range, and is limited to occurrences primarily in California. Plants with a 1B rank meet the definitions of the California Endangered Species Act and are eligible for state listing. San Francisco spineflower is considered a coastal endemic species and is only known from scattered records between southern Sonoma County and northern Monterey County, primarily around San Francisco.

⁷⁴ For example, see California American Water Company (CDP Appeal A-3-MRA-19-0034 and CDP 9-20-0603), CEMEX Sand Mining (Consent Cease and Desist Order CCC-17-CD-02), City of Malibu (LCP Amendment 1-07, Malibu Bay Company), City of Oxnard (LCP Amendment 1-05, Oxnard Shores), Fort Ord Dunes State Park (CDP 3-14-1613), Monterey Bay Aquarium Research Institute (CDP Appeal A-3-MCO-17-0068), Oceano Dunes State Vehicular Riding Area (Permit Review (2021] for CDP 4-82-300), and Huntington Beach Bike Lane (CDP 5-23-0291).

⁷⁵ Of the dune features analyzed in the 2022 ESA Memorandum, "Ocean Beach Climate Change Adaptation Project – Dune Delineation", one of these was determined not to be ESHA (polygon N3). This area is the designated disposal zone for sand cleared from the Great Highway under a 2004 amendment

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Coastal Act Section 30240 allows only resource-dependent development in ESHA. The project would remove all existing dune features from the project site to allow for removal of the old roadbed, construction of the seawall and slope stabilization layer to protect the Lake Merced Tunnel, and construction of an engineered dune system. As a result, construction of the proposed armoring structure would permanently impact 3.21 acres of coastal dune ESHA. Since the project is not a resource-dependent use as required by the Coastal Act, it is inconsistent with the ESHA protection requirements of the Coastal Act. However, because the armoring component of the project may be approved in order to resolve conflicts between Coastal Act mandates (see below in Conflict Resolution section), these impacts can also be allowed but only if they can't be avoided and are adequately mitigated. Using the Commission's typical base mitigation ratio for ESHA impacts (3:1), the project would require a total of 9.63 acres of mitigation in the form of substantial habitat restoration or creation. Under the Commission's typical definition of substantial restoration, a mitigating action must restore a full suite of self-sustaining functions to qualify, whereas enhancement actions involve improvement of limited ecological functions (e.g., one or two functions as opposed to a full suite). As such, mitigation ratios are adjusted to reflect this difference in ecological lift provided by efforts, typically by requiring twice the base ratio when enhancement is used (i.e., 6:1 for ESHA).

As proposed, the project is best characterized as armoring to protect wastewater infrastructure that will be 'softened' via incorporating natural features, including an engineered dune vegetated with native dune species. The design includes creation and planting of a stable foredunes or vegetative stabilization zone (VSZ) as its referred to in the plans, which is a sandy area that would be placed on top of a cement slope stabilization layer (SSL) intended to represent something of a foredune; an embryonic foredune in front of the low-profile wall, consisting of embryonic dunes that are expected to wash away on average every few years; and backdune habitat, confined within the engineered dune system. The engineered dunes will not function as a natural dune system, as the foredune area will be fixed in place by the low-profile wall and the SSL protecting the Lake Merced tunnel beneath; vegetation, though native to dunes, will be planted in atypical compositions and densities in order to maximize sand capture and retention benefiting infrastructure protection; and sand inputs will primarily come from the programmatic beach nourishment efforts. However, given the significant ecological lift that the engineered dunes could provide relative to the highly degraded state of the current dunes, taken together with the importance of maintaining dune habitat in this area where it has already been so significantly reduced, in this case it is acceptable to count the dune creation and re-vegetation elements, as modified through Special Condition 3 as enhancement or substantial restoration if they qualify.

The SSL as currently designed will only allow for placement of sand at a depth of approximately 3 feet, which is expected to limit the growth of beach wild rye (*Leymus mollis*) and other vegetation proposed for planting in this area. *Leymus mollis* growing naturally at a reference site at Irving Street on North Ocean Beach is dependent on deep sand covering a natural freshwater seep, creating better internal sand moisture

to PWP 1-79-10. Because sand accretion in this area is primarily a function of authorized ongoing placement, this feature does not constitute ESHA.

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storage.⁷⁶ Other native dune vegetation is reliant on root systems that extend deep into the substrate to avoid desiccation and in some cases, access the water table. For example, yellow sand verbena relies on large taproots, which may extend up to 8 feet beneath the sand surface.⁷⁷ To allow for sand to persist at a greater depth, and allow for deeper rooting depth for vegetation, Special Condition 1 requires that the slope of the SSL be reduced. To increase the habitat area and improve habitat value of the engineered dune system, Special Condition 1 requires that most of the service road be eliminated, and the coastal trail be relocated further landward of its current alignment to allow for creation of more dune habitat, including a transitional area between the stable foredunes and stable back dune features. Special Condition 3 requires that sand at the project's inland extent is not confined, to the extent feasible, so that sand can move naturally between the foredunes and a back dune area, increasing the likelihood that the engineered dune system will develop aspects of natural dune morphology and provide some related functions and values. With these modifications, the stable foredunes and back dune areas are expected to provide some mitigation value, though because the system would fall short of restoring the areas to natural, self-sustaining habitat, this would most accurately be considered habitat enhancement rather than a substantial restoration or creation.

Special Condition 3 provides for the stable foredunes and back dune area to be credited as substantial restoration, provided additional specific modifications are made to planting plans for each of these areas. Revegetation plans for the stable foredunes, as proposed, would create a relatively continuous and densely vegetated canopy of beach wild rye, which is not representative of natural conditions though is understood as intended to maximize sand capture and stabilization over the SSL protecting the City's infrastructure. *Leymus mollis* has been found to grow at high density over small areas of dunes, typically adjacent to freshwater seeps; however, growth at this density over the entire 4.48 acre stable foredunes/VSZ would be uncharacteristic and leave little space for other native dune vegetation to establish, and thus provide limited habitat value. Providing a more diverse planting palette and areas of lower vegetation density can facilitate the development of ecological values and functions lost with the impacts to ESHA. Special Condition 3 also requires development of a plan to revegetate the continuous sandy area with native dune vegetation that would be typically observed as communities transition to more stable back dunes before terminating at the urban fringe, and at densities and distributions more reflective of natural conditions. Modifications to planting plans would ensure that the revegetation actions are restorative by striving to mirror natural vegetation community dynamics and allowing for establishment of additional dune-dependent plants and animals while still achieving project goals to protect urban infrastructure. These changes, taken together with changes required by

⁷⁶ MN + AGS JV (2024). Ocean Beach Climate Change Adaptation Project Habitat Restoration and Enhancement Plan.

⁷⁷ Webster, J.S., and Wilson, R.C. (1980). Anatomical Diversity in Roots of Seven Species of *Abronia* from California and Its Ecological Implications. *Aliso: A Journal of Systematic and Floristic Botany*. Volume 9, Issue 4, Article 5. See <https://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1655&context=aliso>.

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Special Condition 3, would result in delivery of a suite of improved ecological functions, and thus could be considered qualifying as substantial restoration.

The creation of the embryonic foredune zone, on the other hand, is less likely to provide for compensatory mitigation. This area is primarily intended and managed to provide a buffer for the armoring, and is expected to erode frequently by design, thus limiting the ecological value that might be feasible there. The embryonic foredune zone may be re-created through beach nourishment events, or possibly through seasonal deposition of sand, and may provide some temporary habitat value, but its unpredictable and ephemeral nature neither ensures spatial or temporal persistence, nor emulates natural processes, which are typically expected as part of a mitigation action.

As proposed and further modified by Special Condition 3 to improve ecological functions and values, the project's engineered dune features are expected to partially satisfy the 9.63 acres of compensatory mitigation required for the project's adverse effects to dunes. As this acreage assumes provision through habitat creation or substantial restoration at the 3:1 ratio, the acreage requirement would necessarily increase to 6:1 for any fraction delivered via habitat enhancement. The stable foredunes/VSZ is 4.48 acres and would qualify as habitat enhancement if the design is minimally modified, as required by Special Condition 3 or, could qualify as substantial restoration if the design is further modified as required by Special Condition 3. The acreage of mitigation provided by the back dune habitat will depend on the areal extent of continuous habitat, as modified by Special Condition 3, and the extent of design changes to infiltration basins and planting plans, though it is estimated that this area could provide something between 1 and 3 acres of habitat mitigation, depending on the extent of modifications.

If effort is made to maximize the ecological benefits within the project's design, approximately 7.81 acres of mitigation could be provided by the project itself. The remaining deficit of 1.81 acres (and possibly greater, if project design is minimally modified) could be provided for via substantial restoration, enhancement, or some combination thereof, following the mitigation framework laid out in Special Condition 3. Two apparent opportunities for project-adjacent mitigation focus on removal of invasives in the area, for example: 1) removal of *Ammophila* on adjacent sections of Ocean Beach, and 2) removal of iceplant at the Fort Funston dunes bordering on the southern portion of the project area. Invasive species removal at either of these sites would not only provide benefits by creating more opportunities for native plant re-establishment in the broader area but would also likely reduce the threat of invasive species encroaching on the restored sites within the project area and thus benefit its long-term management. Depending on the specifics, including whether subsequent revegetation with native species is proposed, these actions could be considered as either enhancement or substantial restoration.

If compensatory mitigation beyond the finalized engineered dune components of the project is determined to be necessary, there may be an opportunity for such work to be implemented off-site prior to project impacts, which could attenuate temporal losses of habitat and uncertainty around performance. In this case, the estimated start of construction in 2027-2028 would allow for mitigation to be implemented as much as 3 years prior to initial project impacts. **Special Condition 3(b)** lays out a framework to

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guide reductions in mitigation ratios, which may be allowable if the mitigation is implemented earlier than anticipated, *and* meets all performance standards within the required performance monitoring period. According to the framework, reductions in mitigation ratio are based on when mitigation project *delivery* occurs (i.e., when the project meets all required performance standards indicating that mitigation was successful) relative to the typical timeline of mitigation delivery 5 years after project impacts. Following this framework, if mitigation is implemented one year prior to project impacts and delivered one year earlier than typically anticipated (i.e., 4 years after project impacts), the required mitigation ratio could be reduced by 0.25:1, resulting in a mitigation ratio of 2.75:1. Similarly, if mitigation is implemented two years prior to project impacts and delivered two years earlier than anticipated (i.e., 3 years after project impacts), the ratio could be reduced by 0.5:1, resulting in a mitigation ratio of 2.5:1; and so on. At the typical ratio of 3:1, 3.21 acres of impacts expected from the project would require 9.63 acres of compensatory mitigation; whereas application of the 2.75:1 early mitigation ratio would require 8.83 acres of compensatory mitigation; application of the 2.5:1 early mitigation ratio would require 8.03 acres of compensatory mitigation, and so on. This approach is consistent with and grounded in an early and advance mitigation framework first developed for the Vista Grande Drainage Improvements project (CDP 2-23-0862) approved earlier this year, and detailed in Exhibit 7 of the staff report for CD 2-23-0862.⁷⁸ The intent of this framework is to provide an adaptive schedule that meets the Coastal Act's mitigation requirements while also reducing the time lags between mitigation delivery and the impacts such mitigation is intended to address.

In summary, there are sufficient opportunities to modify the project design to further benefit ecological resources per Special Condition 3, as well as opportunities to mitigate in-kind at surrounding dune habitats, and the flexibility provided within the framework described above enables not only the City to determine what is feasible with the constraints of other project elements, but also helps to address Coastal Act ESHA requirements.

Bank Swallow Habitat

The sandy bluffs at South Ocean Beach and Fort Funston seasonally support a population of state-listed threatened bank swallows (*Riparia riparia*). Annual monitoring records dating back to 1993 show consistent use of the bluffs at Fort Funston, immediately south of the project area. Monitoring north of Fort Funston, within the project area, commenced in 2010, concurrent with the installation of one of the City's rock revetments at that time, spanning some 500 linear feet of the South Ocean Beach bluffs. Shortly after the rock revetment was installed, bank swallow nesting was observed in the bluffs above. Use of this site has declined since 2007, and no active burrow nests were recorded in 2020 or 2021. Construction of the seawall component of the project would result in permanent impacts to this portion of the bluffs that have supported bank swallows at the site.

Bank swallow nesting habitat would generally constitute ESHA, as bank swallows are a threatened species, and these bluffs provide habitat for one of the few coastal breeding populations remaining in the state. However, the Commission has typically found that

⁷⁸ <https://documents.coastal.ca.gov/reports/2024/6/th11a/th11a-6-2024-exhibits-3.pdf>

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permitted development created and maintained for a non-habitat use, and which may provide habitat as an incidental use, does not qualify as ESHA. For example, artificial ponds that are permitted on agricultural land used and primarily maintained for agricultural purposes may also provide habitat for California red-legged frog; however, these areas would not typically be considered ESHA as long as the ponds are actively being maintained and used for that intended purpose, and 'safe harbor' provisions are written into the CDP. Similarly, maintained roadside bioswales intended to treat stormwater may provide incidental habitat values, but can be permitted with similar safe harbor provisions. In this instance, evidence suggests that the bank swallows have only used the bluffs within the project site because the rock revetment was installed. There is a strong temporal correlation between the first documented occurrences of bank swallow nesting in the area where the revetment was installed and the timing of that installation, suggesting that the structure itself created conditions benefiting the occupation by bank swallows. This may have resulted from revetment's protection of the bluff face from the ongoing erosion and wave action and/or proximity to disturbance by human activities on the beach. As the revetment is set to be removed as required by the existing CDP, impacts resulting from its removal would not be considered impacts to ESHA; and because the habitat value of the bluffs at this particular site was incidentally provided as a result of the revetment, this area does not constitute ESHA.

Although not required under the Coastal Act, the City has proposed measures to minimize disturbance to any nesting bank swallows in the area during construction including the following: 1) avoid or minimize future disturbance or impact on the remaining suitable bluff habitat for nesting bank swallow, 2) contribute to research and understanding of population dynamics, movement, and coastal habitat preference, 3) improve foraging habitat within Fort Funston through removal of invasive vegetation and restoration of native dune plants, 4) enhance or expand nesting habitat through removal of ice plant from the bluff face, and 5) explore the feasibility and efficacy of artificial habitat concepts by studying and implementing such concepts. These activities will be implemented through mitigation measures M-BI-2a-h in the EIR.

Benthic Habitat

Coastal Act Section 30231 requires that biological productivity be protected to maintain optimum populations of marine organisms, including benthic habitats. Beach nourishment events like those proposed here, have been shown to have negative impacts on benthic infauna populations that can last well over a year.⁷⁹ Factors including ecological compatibility of sediment used for nourishment, time of year that sediment is placed, and placement methods can influence the likelihood and rate of infaunal recovery.⁸⁰ To reduce the likelihood of adverse impacts to infauna caused by incompatibilities between sand at South Ocean Beach and imported sand, Special Condition 4 requires sand qualities, including grain size, organic content, mineral content, color, shape, debris content, and compactability to be analyzed, and limits

⁷⁹ See, for example, Wooldridge, T., Henter, H.J., and J.R. Kohn (2016). Effects of beach replenishment on intertidal invertebrates: A 15-month, eight beach study. *Estuarine, Coastal and Shelf Science* 175 (2016) 24-33.

⁸⁰ See, for example, Rosov, B., Bush, S., Briggs, T., and N. Elko. 2016. "The State of Understanding the Impacts of Beach Nourishment Activities on Infaunal Communities." *Shore and Beach* (2016).

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nourishment material to sand that is sufficiently similar to that already existing on the beach.

Even with this measure, nourishment events could result in sustained adverse impacts to benthic infauna. Direct burial or increased sand migration could thwart ecological recovery post-placement. Habitat responses to beach nourishment, and the amount of time it takes for the habitat to fully recover, are generally highly variable and site-specific. A 2023 report concerning South Ocean Beach found that the 2021 ACOE one-time beach nourishment event of approximately 380,000 cubic yards of dredged sand had potentially altered the benthic communities at South Ocean Beach relative to the pre-placement condition.⁸¹ Based on data from one year post-nourishment, the report concluded that additional surveys and monitoring were needed to better understand the benthic community response at South Ocean Beach and the effects of beach nourishment events.

The project will include placement of 85,000 – 300,000 cubic yards of sand (potentially more in some cases) at South Ocean Beach at frequent intervals (expected to be approximately every 2-8 years, depending on beach width and seawall exposure triggers).⁸² Programmatic, ongoing nourishment presents unique challenges to benthic infauna communities that differ from one-time sand placement events. Depending on the sand placement method, benthic infauna will be impacted in various ways including all infauna being killed via burial, certain species of benthic infauna surviving, and other community structure scenarios. Following sand placement, the area would be gradually re-colonized through larval recruitment and dispersal from adjacent parts of the beach. Regularly occurring sand placement events may not provide the time necessary for the placement site to fully recover, and continuing in such a pattern over a prolonged period may have significant impacts on the benthic infauna community, which could go undetected without monitoring. In an ongoing nourishment program, outcomes of a single placement event are not necessarily indicative of future outcomes, as each placement event could have unique circumstances that may have different effects on the benthic infauna community. Thus, ongoing monitoring will enable a better understanding of benthic infaunal community dynamics at South Ocean Beach, detection of benthic infauna community composition changes relative to pre-nourishment conditions and reference sites, and the potential to identify adaptive management opportunities to minimize the community composition changes such as modifications to sand placement timing, sand volume, sand placement locations (e.g., nearshore, swash zone, or dry beach) and sand placement strategies (e.g., one large plug of sand, interspersed smaller volumes of sand, etc.).

To evaluate the potential impacts of the project's ongoing nourishment activities and enable adaptive management strategies, Special Condition 14 would require the Applicant to conduct benthic infauna monitoring similar to the protocol developed for the baseline and post-nourishment monitoring associated with the 2021 ACOE beach

⁸¹ Applied Marine Sciences (2023). Technical Memo Summarizing the Results of the South Ocean Beach Year 1 Post-Nourishment Benthic Survey

⁸² MN + AGS JV (2024). Ocean Beach Climate Change Adaptation Project Monitoring and Adaptive Management Plan.

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nourishment event. The conditions allow for modifications to the protocol to reflect the difference in circumstances between the two projects, provided a clear rationale supported by best available science and review and approval by the Executive Director. Continuation of the existing monitoring program would involve collection of benthic infauna samples from along the length of the beach nourishment area for at least two years prior to the first beach nourishment event, thereby capturing a pre-nourishment baseline for comparison immediately prior to placement. Monitoring would also occur at two nearby reference sites (including Funston Beach, directly south of the project site) to aid in interpreting effects of natural variation versus project activities on ecological trends at the project site. While only a single reference site was used for monitoring associated with the 2021 ACOE placement event, Special Condition 14 requires the use of two reference sites for annual monitoring required by this CDP to ensure that meaningful patterns can be detected from the effort, and to reduce chances that stochastic occurrences at a single site would confuse interpretation of results; unless the Applicant can justify how information useful for adaptive management decisions can be gleaned from use of a single reference site. Post-nourishment monitoring and reporting would occur annually thereafter, during the autumn months to characterize benthic infauna communities when they are at maximal abundance. Given the long duration of the nourishment program, it is anticipated that sufficient information to inform ongoing activities over the long term might be achieved within the first decade associated with nourishment events. Therefore, this special condition provides for the possibility of adjusting or terminating monitoring efforts if multiple placement events have occurred over the course of at least 10 years and results suggest the monitoring approach could be refocused through specific parameters, frequencies, or spatial cover, or if nourishment effects on benthic infauna are demonstrably negligible. Special Condition 14 thus serves to address Coastal Act provisions that protect biological productivity and marine organisms.

Construction Impacts

Impacts from construction have the potential to affect special status species and marine habitats at and surrounding the project site. The Applicant has proposed several best management practices (BMPs) in the EIR and the draft Habitat Mitigation and Monitoring Plan, which will minimize most expected construction impacts. Among these are the requirement of a 650-foot buffer around any nesting bank swallows, avoidance and minimization measures for special status bats and maternity roosts, and a worker environmental awareness training program. However, some additional measures are required to further address these concerns.

Construction activities may impact special status birds and bats, including bank swallows (as described above), burrowing owls, brown pelicans, and western red bats, as well as nesting birds or bat maternity roosts in the area. The operation of large construction equipment, tree and vegetation removal and trimming, ground disturbance, and noise may all exert both direct and indirect impacts on sensitive wildlife. For example, activities may exclude animals from areas that they would otherwise occupy, increase behavioral and physiological stress responses, or mask critical communication signaling. The Applicant's proposed Standard Construction Measure 7 (see Exhibit 9), regarding monitoring requirements for special status species on the site, lacks detail on the frequency of monitoring or timing of pre-construction surveys. Special Condition 2

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clarifies this by requiring a biological monitor to conduct surveys no more than 7 days prior to the start of construction, and weekly during construction, to ensure that special status species that may potentially use the site are identified and avoided. In addition, construction work would be required to halt until any observed special status species have left the site, and if animals are exhibiting reproductive or nesting behavior, consultation with the Executive Director, CDFW, and USFWS is required. Special Condition 2 also requires that monitoring is conducted for nesting birds during nesting season, and that if any nests are identified, appropriate buffers are placed around nests to maintain noise levels that would not disturb nesting activities. Typically, the Commission requires that noise levels at sensitive receptor sites, such as an active bird nest, be maintained below a 60-65 decibel threshold, which is approximately equivalent to the range between noise produced by an air conditioning unit and that of a normal conversational level.

Although the rare San Francisco spineflower has not been observed on the site to-date, potential spineflower habitat exists, particularly on the dunes directly adjacent to Fort Funston. San Francisco spineflower has been observed within very close proximity to the project site, in multiple directions, and as an annual species with a seedbank understood to exhibit dormancies of a decade or more, its potential to go undetected at any given point is high. Therefore, Special Condition 2 requires that protocol-level surveys are conducted during the appropriate season prior to the start of construction, to detect any spineflower plants that may be present within the site. Any individual plants that are identified will be salvaged, either through transplanting to an appropriate area where it won't be impacted, or through seed collection for dispersal within the project area.

Finally, several aspects of the Project's construction have the potential to harm marine water quality, marine organisms, and terrestrial wildlife, without proper controls. These impacts could include generation of sediment, debris, and other foreign material that could settle on the beach or in ocean water; artificial lighting from night work that could interrupt circadian behaviors of a suite of marine and terrestrial wildlife; and generation of excessive noise from the use of construction equipment without rubber tires. Special Condition 2 requires that measures are put in place to reduce these impacts on special status wildlife and the marine environment. See Exhibits 3, 4, 5, and 6 for aspects of the project proposal's plan to avoid, lessen, and mitigate for habitat impacts.

Habitat Resources Conclusion

Thus, the impermissible impacts from the construction of the armoring to dune and related ESHA areas are not Coastal Act consistent, and even if mitigated properly the inconsistency with those policies directs a project denial. However, given that the LMT is potentially at risk of being compromised, denial could lead to threats to the City's infrastructure, including damage to and/or destruction of the pipeline, this approach would be inconsistent with Coastal Act Sections 30230 and 30231 that affirmatively require that marine resources and water quality be protected (because the pipeline would be likely to fail in the short term and lead to debris and pollution on the beach and in the ocean). In other words, denial of the project would also be inconsistent with the Coastal Act. Therefore, it is appropriate to approve a project through the Coastal Act's

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conflict resolution procedures (see Conflict Resolution findings), provided that impacts can be minimized, and unavoidable impacts mitigated for.

G. Water Quality

Applicable Coastal Act and LCP Provisions

Coastal Act Section 30230 requires that marine resources be maintained, enhanced, and restored. New development must not interfere with the biological productivity of coastal waters or the continuance of healthy populations of marine species. Coastal Act Section 30230 states:

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.*

Coastal Act Section 30231 requires that the productivity of coastal waters necessary for the continuance of healthy populations of marine species shall be maintained and restored by minimizing wastewater discharges and entrainment and controlling runoff. Specifically:

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 waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Consistency Analysis

The Commission recognizes that the marine and coastal water resources involved with the proposed project are important coastal resources for which thoughtful consideration of potential project impacts is necessary. Given the proposed project is located at the shoreline interface with the Pacific Ocean, there is the potential for impacts to marine resources and coastal water quality. Further, according to water quality monitoring data submitted by SFPUC under its NPDES permit from 2012-2017, the City has had multiple episodes of partially treated wastewater being discharged to the Pacific Ocean from the sewer and stormwater infrastructure system at issue in this permit, during this recent time frame, from a low of 7 such annual discharges to a high of 35, with the higher discharge amounts corresponding to wetter winters such as that of 2016-2017. The Applicant's NPDES permit allows for a maximum of 8 such discharges annually, and the Westside Pump Station was designed to ensure that this limit was not exceeded. Exceedance of this limit as established in a facility's NPDES permit means that the facility is not meeting the design criteria originally established for the particular

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facility. These discharges could be further aggravated if the LMT is threatened by erosion worsened by sea level rise and increased storm frequency and intensity.

If no action is taken to prevent or slow down erosion fronting the Lake Merced Tunnel, erosion could undermine the stability and functionality of the combined wastewater and stormwater infrastructure, resulting in debris and sewage being deposited and discharged to the adjacent beach and ocean, resulting in adverse effects to the marine habitat and organisms that rely on these resources, contrary to Coastal Act Sections 30230 and 30231. Thus, the proposed project should have an overall positive effect on marine resources, and it should improve coastal water quality because the proposed shoreline armoring is intended to protect the LMT infrastructure, and as such, approval of the project would protect water quality and marine resources, consistent with the provisions of the Coastal Act. To further ensure that the project will adequately protect marine resources and water quality during construction and sand placements, the CDP is conditioned to include construction methods typically required by the Commission to protect water quality and marine resources during such development, including construction site housekeeping controls and procedures, the use of appropriate erosion and sediment controls, and a prohibition on equipment washing, refueling, or servicing on the beach (see Special Condition 2). To further protect marine resources and offshore habitat, Special Condition 2 requires construction documents to be kept at the site for inspection, and also requires a construction coordinator to be available to respond to any inquiries that arise during construction. As conditioned, the project can be found consistent with Coastal Act Sections 30230 and 30231 regarding protection of marine resources and offshore habitat.

H. Public Access and Recreation

Applicable Coastal Act and LCP Provisions

The Coastal Act calls for the provision of maximum public recreational access opportunities, consistent with the requirement for protection of natural resource areas from overuse, and protects and prioritizes oceanfront land suitable for recreational, visitor-serving, and water-oriented recreational uses to be developed with such uses, especially lower cost recreation and visitor facilities. Coastal Act Sections 30210 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 30212.5. *Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to*

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mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30213. *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred...*

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.*

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

Section 30240(b). *Development in areas adjacent to ... 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 ... recreation areas.*

Although not the standard of review, the City's LCP Section on Ocean Beach (page 10) states in part:

Objective 6: *Maintain and enhance the recreational use of San Francisco's Ocean Beach shoreline.*

Policy 6.1: *Continue Ocean Beach as a natural beach area for public recreation.*

...

Policy 6.3: *Keep the natural appearance of the beach and maximize its usefulness by maintaining the beach in a state free of litter and debris.*

These overlapping Coastal Act provisions protect public recreational access to and along the beach/shoreline and to offshore waters, particularly free and low-cost access. Specifically, Section 30210 requires the Commission to provide the general public maximum access and recreational opportunities, while respecting the rights of private property owners. Section 30211 prohibits development from interfering with the public's right of access to the sea, including as it relates to the use of dry sand and rocky coastal areas. In approving new development, Section 30212(a) requires new development to provide access from the nearest public roadway to the shoreline and along the coast, save certain limited exceptions, such as existing adequate nearby access. Section 30213 protects lower cost forms of access, such as the free access available at the shoreline at the project site. Section 30220 protects coastal areas suited for ocean-oriented activities, such as offshore surfing areas here, for such purposes. Sections 30221 and 30223 protect oceanfront and upland areas for public recreational uses, and Section 30222 prioritizes visitor-serving amenities providing for public recreational use.

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Section 30240(b) protects parks and recreation areas, like the shoreline at the site, from degradation, and requires any allowed development to be compatible with the continuation of those areas.

Finally, Coastal Act Section 30210's direction to maximize public access and recreation opportunities represents a different threshold than to simply provide or protect such access and is fundamentally different from other similar provisions in this respect. In other words, it is not enough to simply provide public recreational access to and along the coast, and not enough to simply protect such access, but rather that such access must also be maximized. This terminology distinguishes the Coastal Act in certain respects and provides fundamental direction to maximize public recreational access opportunities with respect to projects along the California coast that raise such issues, like this one. In addition, with sea levels rising and coastal erosion, the mean high tide line will generally move landward over time depending on the beach/shoreline profile, seasonal tidal activity, and continued sea level rise. Given that that line often defines the demarcation point between public and private property (with the public's property lying on the seaward side, and generally held in public trust by the California State Lands Commission),⁸³ it is also important to consider the effect of shoreline projects like this one on what is best understood as an ambulatory public trust area, including where structures can halt the inland migration of the mean high tide line, and thus potentially halt the inland migration of public trust areas, at least physically.⁸⁴ Thus, it is also important that the Commission assess the effect of the proposed project on public trust resources.

Consistency Analysis

Ocean Beach and the immediate project area attracts around 3 million visitors each year for a variety of recreational activities and is open year-round with no entrance or parking fees. Although the project will result in the temporary closure of portions of South Ocean Beach in the short-term, in the long term it will both improve and increase opportunities for public access and recreation at Ocean Beach by addressing bluff erosion issues and expanding the multi-use trail network, and provided the beach nourishment component effectively protects beach access (see Special Condition 4). In conformance with Section 30210 of the Coastal Act, "maximum access" for the public shall be provided from a long-term perspective. To not proactively adapt to the increasingly severe impacts of sea level rise and flooding would imperil future public access, primarily due to increased erosion. In short, near-term sacrifices for public access at South Ocean Beach will result in a variety of long-term improvements for

⁸³ The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds and manages these lands for the benefit of all people of the State for statewide purposes consistent with the common law Public Trust Doctrine ("public trust"). In coastal areas, the landward location and extent of the State's sovereign fee ownership of these public trust lands are generally defined by reference to the ordinary high-water mark (Civil Code Section 670), as measured by the mean high tide line (*Borax Consol. v. City of Los Angeles* (1935) 296 U.S. 10), and these boundaries generally remain ambulatory as natural processes dictate.

⁸⁴ The artificial fixing of a shoreline does not permanently fix the legal property boundary (see *United States v. Milner*, 583 F.3d 1174 (9th Cir. 2009)).

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public access, if the project is successful.

Since 1992, winter storms and extreme weather events have damaged or destroyed all the formal public access points to the beach in the area south of Sloat Boulevard, and substantially eroded and destroyed hundreds of public parking spots (with the parking lots in the area reduced from 300 spaces to now just 35), thereby compromising public access in multiple ways. The nearby vertical bluffs within the project area of South Ocean Beach range from roughly 5 feet to over 50 feet above the beach area between Sloat Boulevard and Fort Funston to the south. Informal lateral blufftop access exists in some places near the Sloat Boulevard area, located within the parking lots and roadside pullout areas between the blufftop and the Great Highway. However, no formally established vertical beach access currently exists along this area, and some of the informal pathways are unsafe and have numerous caution/warning signs nearby. This project would address these long-term public access and safety issues, while also creating new opportunities for access and recreation, particularly via the new multi-use trail.

Multi-Use Recreational Pathway

The new nearly a mile long multi-use pathway would provide new opportunities for pedestrian and cyclist access to and along South Ocean Beach. The multi-use pathway would be accessible from the modified Sloat Boulevard/Great Highway intersection as well as the Skyline public parking lot. The multi-use trail would vary from 15 to 20 feet wide and include various overlooks (or turnouts) with seating from which visitors and recreationists could view the reconfigured bluff, beach, and stunning ocean views to the west.

The multi-use trail would connect to the beach at two dedicated access points: a beach access sand ramp and a beach access stairway. The currently existing beach access sand ramp at the northwestern corner of the Sloat Boulevard/Great Highway intersection would be retained for pedestrian access and emergency vehicle access, and it would be connected to the new multi-use trail. The new beach access stairway, located towards the southern end of South Ocean Beach, would provide safe, formal, vertical access to the beach. The stairway would connect the southern end of South Ocean Beach, which currently lacks formal vertical access, to the multi-use trail network and surrounding area.

Increased lateral access will be provided via the new multi-use pathway, which includes substantial additions to the California Coastal Trail from Ocean Beach to Fort Funston. The segment of the California Coastal Trail that runs along North Ocean Beach and Middle Ocean Beach extends all the way from Balboa Street to Sloat Boulevard, providing scenic views and various access points to the beach below, but it ends at Sloat Boulevard. Within Fort Funston, the California Coastal Trail is a paved multi-use path, also known as the Sunset Trail. The new multi-use trail would provide a much-needed connection between the California Coastal Trail network north of Sloat Boulevard to the currently disjointed Fort Funston trail network to the south.

In the wake of a severe flooding event that erodes the beach access sand ramp, the City would regrade the sand ramp and/or place additional sand as soon as possible

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after storm conditions subside and it is safe to do so, ensuring that public access can be restored as soon as possible in the wake of flooding and severe weather events. Informal access between the multi-use trail and the beach (i.e. not occurring at either of the two designated access points) is not intended.

So, put another way, the multi-use recreational pathway and the related access improvements associated with the project, as conditioned (see, for example, Special Conditions 1, 4, and 5) will provide enhanced access in the project area that can help offset the impacts from the armoring (where those improvements are intended to help commensurately offset the almost \$200 million worth of impacts in need of mitigation). To ensure maximum mitigation value, some changes are needed. Specifically, the pathway needs to be sited and designed to be curvilinear and to effectively blend into the dune and natural setting as much as feasible (including being colorized to match dune colors at a minimum); to be at least 10 feet away from any remaining service road features; it needs to incorporate at least 5 overlook areas on the seaward side of the path equipped with benches and picnic tables for public use; it needs to avoid railings and/or other barrier types as much as possible (and only allow them if required for public safety and where they are sited and designed to be as inconspicuous as possible and to minimize public view impacts as much as possible (e.g., cable rail)); to be accompanied by sensitively designed signs to direct and inform users; to limit lighting, including where allowed lighting must be rustic pathway and roadway bollards 36 inches or less in height, and where its solar-powered, shielded, directed downward, and only uses warm-colored bulbs; and to camouflage all drainage features; to landscape in a manner as to help integrate constructed features into the dune landscape, to soften the perception of hard edges and straight-line elements, and to provide the appearance of access features amongst the dunes as opposed to dune features adjacent to access features; and to be managed with the objective of maximizing public access and recreational use and utility at all times and free to its users (see Special Conditions 1 and 5).

Sandy Beach Access

Lateral beach access currently exists along the entire beach shoreline from Sloat Boulevard to Skyline Boulevard, although the beach is often narrow, and it is inhibited by concrete rubble, armor rock, and outfall structures in some places. These conditions can create safety issues and detract from the aesthetic ideal of what the beach can and should be, thereby discouraging public use and recreation. Provided beach access is maintained by the project, then it appears that in the long run such access should be improved. As indicated above, however, there is some uncertainty that the Applicant's proposed beach management efforts will be successful (and where that entire discussion in the Coastal Hazards section is incorporated here by reference). Thus this approval requires an updated Beach Monitoring and Adaptive Management Plan that can build upon the Applicant's proposed plan (see Exhibits 3 and 6), where the objective is to establish clear and measurable monitoring protocols to be used to collect data that can be used to inform actions to be taken to ensure that the armoring structure remains buried (via a connected beach-dune system) and a useable sandy beach is maintained over the life of the project (see Special Condition 4). The plan would essentially be structured as a 'proof of concept' of sorts, where expectations from the Applicant's modelling are tested in real time, allowing for an initial five-year period to

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reach certain equilibriums and conclusions in that respect, all of which would be subject to Commission consideration at that time, where the Commission would be tasked with deciding whether and how to continue the proposed sand nourishment/placement activities and monitoring protocols to best achieve plan objectives and success criteria, and where the Commission would have the discretion to modify any part of the required plan to do so. The intent is that that 5-year review would be supported by a report that would respond holistically to monitoring data trends that might suggest that the proposed sand nourishment/placement activities require modification to adapt to what the monitoring data is showing, including adapting to any undesirable trends that might suggest that additional/different measures and/or requirements are needed to ensure that plan objectives and success criteria are achieved. In short, the plan would be one of the main mitigations that the Commission believes are necessary to approve the project despite its impacts, and are necessary to establish a framework for monitoring that can inform science-based adaptive management to adjust the project over time to ensure that the armoring structure remains buried (via a connected beach-dune system) and a useable sandy beach is maintained over the life of the project (see Special Condition 4).

In terms of vertical access to the beach, the sand ramp at Sloat Boulevard is currently the only developed such access, although a myriad of 'volunteer' trails provide access throughout the project area. The Applicant researched potential ways to enhance such vertical access and determined that maintaining the sand ramp and adding a formal stairway accessed from the proposed new parking lot near Skyline Boulevard would be sufficient. While a new beach accessway at the parking lot makes sense, including as it is where many users will initiate their access to the project area, changes are needed.

Specifically, the sand ramp needs to include provisions for features as necessary to ensure its public access utility for most beachgoers year-round, and to ensure users at the northern end of the project can readily reach the beach. In addition, the project extends almost a mile, which suggests that the beach accessway needs to be shifted more towards the center of the project area to be accommodate users coming from either end. Such an access will also help to ensure that new (and damaging) volunteer trails are not created in this middle area. This vertical accessway shall be a stairway or equivalent, sited and designed to maximize its utility, and seamlessly integrated into the dune and built environment. Over time, it will also be important that the beach accessways be modified as necessary to maintain continued safe use over the time period that the armoring system is allowed to remain, and that all mechanisms to ensure safe use, including a requirement for Executive Director approval for any significant modifications, are provided. See Special Conditions 1 and 5.

Finally, public beach access will be adversely affected by beach replenishment episodes, especially larger such episodes. Although this is a necessary project component, including to protect the beach access that would be impacted, it still needs to be done in as sensitive a way as possible. Thus, such beach replenishment must be accomplished in the manner that is most protective of beach access, including keeping areas of beach open as much as possible in light of equipment and other construction needs, and applying construction BMPs (see Special Conditions 2 and 4).

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Public Parking

Public access and recreation at South Ocean Beach was historically supported by two blufftop parking lots, one at Sloat Boulevard (also referred to as the North Lot) another located in the middle of the project area (known as the South Lot). However, although these parking lots historically provided some 300 parking spaces (200 in the North Lot and 100 in the South Lot), they were only providing about 110 spaces as of 2012 (55 in each lot), and only about 35 spaces today (all in the North Lot as the South Lot has been closed) all due to storm and erosion damage since early 1990s. Thus, the creation of the new 60-space public parking lot near the Skyline Boulevard would result in a net gain of 25 parking spaces relative to current conditions (where the North Lot is proposed to be removed to make way for the public access pathway and a promenade at the terminus of Sloat Boulevard), but a net loss when compared to past parking availability.

Given the popularity of the project area for visitors, and given the Great Highway Extension will be closed, the reality is that the new parking lot will be the main 'trailhead' of sorts not only for the multi-use recreational pathway in the project area, but for all of the recreational trail system along Ocean Beach that extends another roughly 3 miles past Sloat to the Land's End area (near the Cliff House). Its importance in that regard is elevated. Further, it appears from the Applicant's proposed plans that there is sufficient space in the area where the new parking lot is proposed to accommodate more than the 60 spaces proposed. Specifically, that area is roughly 100 feet wide by about 600 feet long (not counting space necessary for new intersection improvements), and it appears that it could probably accommodate some 100 parking spaces using diagonal parking, and more spaces if it is extended to the north and/or to the edge of the right-of-way.

Thus, to address the loss of parking, to help offset project impacts (again, calculated at some \$200 million of impacts in need of mitigation), and to maximize access utility in the project area, the parking lot needs to be expanded and maximized for parking access. Specifically, the area for the parking lot needs to be expanded upcoast and to the right-of-way boundary (and further inland on the WWTP property where space and grades permit use for parking) as much as feasible, and the parking lot needs to incorporate any emergency access needs for the WWTP into it in a way that limits paved areas as much as feasible; to identify the maximum amount of parking that can be sensitively designed into the expanded space (e.g., making use of diagonal and other parking maximization measures); and to be free for general access users to park (see Special Conditions 1 and 5).

Public Restrooms

The existing public restroom at Sloat Boulevard would be removed and reconstructed inland to accommodate a similar number of users. This helps to ensure continued facilities in a location that visitors are already accustomed to, and it is also near the Muni bus stop and Muni Metro light rail stop. Furthermore, since this location will be adjacent to the beach access sand ramp, it is appropriately located for maximizing its utility for public access, especially beach access.

At the same time, though, the Applicant does not propose restroom facilities at the new parking lot near Skyline Boulevard. Given the importance of this parking lot, including as

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a trailhead for the area, as discussed above, it is also important that this area is provided restroom facilities as well. It is common for trailheads of this sort, and public parking areas for beach access in general, to include restroom facilities, and it facilitates the general public's use of these areas, especially when it's combined with their parking needs. Thus, the Applicant needs to provide another restroom facility of a similar size and scale at the parking lot. In both cases, the restrooms need to be sited, designed, colored, screened, and camouflaged (including making maximum use of integrated dune screening and natural landscaping and screening elements to the maximum extent feasible) to maximize coastal view protection and minimize visual intrusion, including through use of materials appropriate to the shoreline context that blend with the natural environment and existing improvements in the area. See Special Conditions 1 and 5.

Surfing

Ocean Beach has a rich surfing history for surfers of all skill levels and has been a prime surfing destination for many decades. The most popular Ocean Beach surf peaks are around Beach Chalet, Noriega, Ortega, Pacheco, Taraval (The Avenues), and Fleishhacker Sloat, just seaward of the project area. In the short term, the main surfing impact due to the project is during construction. Namely, surfers are going to be impacted if they use the existing parking lot at Sloat Boulevard, as well as street parking, if they are driving to Ocean Beach to surf. During construction, such parking and beach access will be temporarily impacted and may affect surfers' ability to access the break at Fleishhacker Sloat. However, these impacts will be temporary, and Ocean Beach offers more than just a single surf spot - it's a multi-peak, exposed beach break with plenty of shifting take-off areas. Further, during construction, the rest of Ocean Beach will remain accessible, including the approximately three miles of North Ocean Beach and Fort Funston (south of the project site), and surfers can gain access to the ocean there as well. Furthermore, during the time that the beach is closed for construction, users would still be able to use existing multi-use trails and the California Coastal Trail to the immediate north and south of the temporary closure area, as well as vertical accesses in those areas, to access the beach and surf breaks, including since Middle Ocean Beach and North Ocean Beach, both of which are to the north of South Ocean Beach, have more than a dozen public access points for beachgoers and will help to ensure uninterrupted opportunities for surfers during construction.

The potentially more insidious impact of the project on surfing would be the way in which the armoring might affect the value and utility of the surf break over time. For example, with sea levels rising and armoring eliminating the ability of the natural shoreline to migrate in response, there is the potential for a surf breaks to be drowned out, especially if more inland 'tripping features' for the waves aren't able to be naturally established over time. There is also the potential for armoring to 'muddle' surf breaks when it essentially reflects waves back into the surf break area. For a variety of reasons, it doesn't appear that these sorts of impacts would be associated with this project. For one thing, Ocean Beach is a beach break that is dependent on sandy bottom variations that are shifting constantly, and the project is not expected to significantly modify these natural offshore variations, including because its beach replenishment components would help to ensure sandy materials are part of the on and offshore system. For another, the surf break at Ocean Beach is traditionally quite far

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offshore, and it seems unlikely that the armoring will have the sort of muddling and other such effects that might be associated with a site where the surf break was nearer to the armoring. In any case, it seems unlikely that any such impacts could be realized within the period of the armoring authorization, and the re-application procedure required after armoring duration expiration would ensure that any armoring that remains would be evaluated for impacts at that time on surfing resources. For all of these reasons, there is not a need for additional surfing-related modifications past the other conditions that are designed to enhance public access, and which, by definition, will also help enhance such access for surfers otherwise.

ADA Accessibility

In addition to the multi-use pathway itself, the project includes a variety of Americans with Disabilities Act (ADA)-related improvements to the north of Sloat Boulevard. In particular, ADA-compliant access will be provided to connect the new multi-use trail area to existing ADA-compliant features at Taraval Street and the Great Highway, and the project will improve ADA access to the beach from Taraval Street. In addition, the proposed “mobi-mats,” which are ADA-compliant non-slip rollable pathway mats, will be placed on the beach at the Taraval Street beach access point.

Access to Beach During Construction

The project will be constructed over the span of approximately four years, from roughly 2027 to 2031, during which time South Ocean Beach will be essentially closed to the public, including both vertical and lateral access to the beach. Although project construction would result in such temporary closures, multiple recreation areas and facilities, including the approximately three miles of North Ocean Beach and Fort Funston (south of the project site), would remain open during construction at South Ocean Beach. Furthermore, during the time that South Ocean Beach is essentially closed to the public, visitors and recreationists will be able to use the existing multi-use trail and the California Coastal Trail to the immediate north and south of the temporary closure area. These areas are therefore expected to experience increased use during construction. Middle Ocean Beach and North Ocean Beach, both of which are to the north of South Ocean Beach, have more than a dozen public access points for beachgoers and will help to ensure uninterrupted opportunities for public access during construction.

Public Trust

In addition to the Coastal Act provisions that support public access and equal opportunities for recreation, the Commission has the responsibility to protect public trust resources and public trust uses. Coastal Act regulations define public trust lands as “all lands subject to the Common Law Public Trust for commerce, navigation, fisheries, recreation, and other public purposes,” where such lands include “tidelands, submerged lands, the beds of navigable lakes and rivers, and historic tidelands and submerged lands that are presently filled or reclaimed, and which were subject to the Public Trust at any time.”⁸⁵ In the common law, the doctrine traditionally protects in-water uses such as fishing and navigation, but has been extended to protect the environment and

⁸⁵ CCR Section 13577(f).

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associated resources that affect trust lands, such as non-navigable tributaries supplying water to a lake, and groundwater resources that impact navigable waters.⁸⁶ California recognizes public recreational access as a component of public trust resources.

As noted earlier, the Coastal Commission is guided by the principle articulated in the *Milner* case that an upland owner cannot unilaterally and permanently fix the tidelands boundary with shoreline armoring, such as the armoring part of this proposal. Even so, as discussed above, the public's ability to recreate on the shoreline area will inherently be impacted as a direct result of the project, especially over time, which will interfere with public trust uses. These impacts on public trust uses are an additional impact basis for requiring mitigation.

Public Access Management

It will be critical that public recreational access in the project area is provided and managed with the objective of maximizing public access and recreational use of all public access areas (along the former Great Highway and seaward of it at this location) and improvements/amenities associated with the approved project (i.e., parking areas, restrooms, pathways, stairways, overlooks, benches, picnic tables, bicycle racks, interpretive signage, waste and recycling receptacles, doggie mitt stations, etc.). All of these public access improvements/amenities need to be sited and designed to seamlessly integrate into the natural dune/beach setting and to maximize public view protection as much as possible, including through use of siting/design approaches and materials that are appropriate to the dune and beach shoreline context, including to ensure that the approved development effectively blends into and enhances the natural environment. All public access improvements/amenities also need to be maintained and managed pursuant to maximize public recreational access opportunities in a manner that maximizes public use and enjoyment, including avoiding disruptions to public access, ensuring it remains free to users, and ensuring it is properly maintained (and relocated if needed due to erosion and other coastal hazards. See Special Condition 5.

Conclusion

The proposed project represents a sort of public access dilemma. On the one hand, once the temporarily authorized armoring and related development is removed, the beach and bluff would be able to react naturally absent armoring, and to move inland in that way. Thus, a no project alternative of that type would protect beach related public access. At the same time, however, it would be expected to limit any access atop the bluff as space becomes more confined there, and ultimately runs up against even more substantial stormwater and sewer infrastructure. On the other hand, with the proposed project, significant public access features would be developed atop the bluff, and if the beach nourishment is successful, a beach would be maintained seaward of that. Put another way, the project represents a tradeoff of sorts between letting nature run its course and naturally provide beach access, and attempting to better 'control' nature for public access purposes. So, although the armoring itself has significant public access impacts, the project by design is structured to try to offset those impacts. Provided that

⁸⁶ See *Marks v. Whitney*, 6 Cal.3d 251, 259-260 (1971), *Nat'l Audubon Soc. v. Super. Ct.*, 33 Cal. 419, 436-437 (1983), and *Env'tl. Law Found. v. State Water Res. Control Bd.*, 237 Cal. Rptr. 3d 393 (2018), respectively.

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the City's public recreational access enhancements are realized, expanded (e.g., expanding parking, adding a restroom at the parking lot, using beach width triggers, and proposing adaptive management of the beach, etc.), and enhanced (including as a means of offsetting the nearly \$200 million impact identified), the project should be able to address Coastal Act public access requirements as much as is possible with a project approval of this sort (see, particularly, Special Conditions 1, 4, and 5).

So, while some public access resources will be impacted due to temporary construction impacts, and the parking at the beach may not be fully restored to historical levels given the loss of space for parking lots to erosion, all told this project, as conditioned, will represent a boon to public access, coastal access amenities, and overall recreation at Ocean Beach once completed. The expansion of the multi-use pathway by nearly a mile, in addition to enhanced ADA accessibility, particularly serves to further the goal of improving both public access and recreation along this stretch of the coast. Access to the beach, both vertically and laterally, will be substantially improved. Any short-term negative impacts to public access and recreation will be outweighed by the long-term benefits. In addition, required conditions of approval regarding construction timing, limitations, and sand placement best management practices assure that any temporary impacts will be avoided and lessened where possible. Therefore, taken all together, the proposed project enhances public access and recreation at South Ocean Beach, and can be found consistent with the Coastal Act.

I. Public Views

Applicable Coastal Act and LCP Provisions

Section 30251 of the Coastal Act states, in part:

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

In addition, the certified LCP includes an objective that speaks to improving the scenic and visual resources of the Great Highway, stating that the objective is to "Redesign the Great Highway to enhance its scenic qualities and recreational use."

Consistency Analysis

The Coastal Act requires that development be sited and designed to protect public views to and along the ocean and scenic coastal areas as resources of public importance, to minimize the alteration of natural landforms, and to be visually compatible with the character of surrounding areas, and San Francisco's LCP echoes those protections through providing an objective to improve the scenic quality of the Great Highway. The visual character of the South Ocean Beach area and adjacent areas constitute a mix of urban, public utility, recreational, beach, and open space land uses in the near vicinity. This includes South Ocean Beach, the Zoo, Lake Merced, and urban development, as well as wastewater infrastructure. Visitors can view both natural and built features such as vegetated hills, walking paths, sandy beach, the ocean, utility

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infrastructure, and temporary shoreline protection structures (i.e., such as riprap, rock and sandbag revetments).

The visual resources at South Ocean Beach have been substantially degraded in recent years given the presence of temporarily authorized armoring, as well as by erosion events exposing debris and changing the contours of the beach. Short-term erosion control measures, including riprap, sandbags, and other temporary armoring mechanisms, are clearly degrading and offer a stark contrast with the natural beach and bluff area surrounding them. This degradation detracts from the area's overall scenic quality and visual resources.

Further, the current temporary armoring at South Ocean Beach includes regular placement of sandbags as well as sand backpassing. Through this project, the proposed beach nourishment scheme would help to maintain the visual quality of the beach while minimizing the negative visual impacts of erosion. Erosion has been a long-standing issue for several decades at South Ocean Beach, and its resulting negative visual impacts are plainly obvious to anyone viewing the area. The bluffs are crumbling, the temporary armoring measures are insufficient and visually jarring, and the beach itself has become severely eroded, especially in the wetter winter months.

The proposed project would also remove all temporary armoring measures and replace them with buried long-term armoring structures intentionally designed to be low-profile and blend with the surrounding environment as much as possible. The new multi-use trail and public access amenities will provide new viewing opportunities and new public viewpoints. Since the Great Highway Extension and most of the proposed service road would be removed as conditioned, this will create a substantial expansion of a more natural-appearing, continuous dune habitat in the area where the new multi-use trail will extend between the Westside Pump Station and the Oceanside Plant. However, it is also important to recognize the negative visual impacts of the proposed shoreline armoring structures.

The Coastal Act requires that shoreline armoring be avoided whenever possible, and that the visual impacts of any shoreline armoring be minimized to the greatest extent possible. The project and associated construction activities would be visible from the beach and adjacent areas, which is unavoidable. Parts of the proposed armoring will inevitably be visible when exposed as expected, especially during the winter and heavy rain events when the beach is lower and more eroded, however such exposure is anticipated to be limited, as discussed in the coastal hazards findings section of this report. Even so, at those times, the armoring would introduce a particularly unnatural and artificial structure into and degrading the beach viewshed. This impact can be addressed as much as possible by requiring such visible areas to be camouflaged to appear as natural and bluff/dune-like as possible, where this would apply to all such areas above 10 feet NAVD88 (see Special Condition 1).

If done properly, it is true that public views and visual resources would ultimately be enhanced by the project in the long term in several ways. For example, the existing sandbags, riprap, and revetments will be replaced by a buried armoring structure, creating a dunelike back beach in the viewshed. The public restroom would be

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redesigned and relocated approximately 50 feet further inland, which will create new public viewing opportunities (where the restroom used to be) closer to the ocean and beach area. The area of the SSL will be more gently sloping than the current bluffs (and is required by conditions to be as flattened out as possible) and be covered with native dune vegetation. All visible areas of the armoring elements will be treated to reflect a more natural condition. Regular sand placements and beach nourishment will help to minimize erosion, maximize the natural sandy beach area, cover the armoring, and enhance the overall aesthetic quality of the South Ocean Beach area. Short-term negative impacts to visual resources, due to construction activities, will be outweighed by the long-term benefits described above. Whether someone is strolling along the Great Highway or standing on South Ocean Beach, the project, if done properly, would enhance visual resources and the overall visitor experience of this coastal area following project completion.

Toward this end, the entire project needs to be in a way that is sensitive to the natural environment, including requiring appropriate native landscaping throughout the project area to help ensure that such all non-natural features appropriately blend into the shoreline aesthetic and improve public views, where all such plants would be required to be kept in good growing condition and be replaced as necessary to maintain the approved vegetation over the life of the project, and where regular monitoring and provisions for remedial action (such as replanting as necessary) would be required to ensure landscaping success. In addition, all publicly visible development needs to be sited, designed, colored, screened, and camouflaged (including making maximum use of integrated dune screening and natural landscaping and screening elements to the maximum extent feasible) to maximize coastal view protection and minimize visual intrusion, including through use of materials appropriate to the shoreline context that blend with the natural environment and existing improvements in the area. Further, all drainage and related elements and any related energy dissipation measures need to be camouflaged (e.g., randomly spaced, hidden, etc.) so as to be hidden or inconspicuous as seen from public viewing areas, where all drainage elements need to be sited and designed to be as inconspicuous as possible. In addition, lighting needs to be limited to the minimum lighting necessary for pedestrian and vehicular safety purposes and sited and designed so that it limits the amount of light or glare visible from public viewing areas to the maximum extent feasible (including through uses of lowest luminosity possible, directing lighting downward, etc.). All signs need to be sited and designed: (1) to minimize their visibility in public views; (2) to seamlessly integrate into the dune and natural landform to the maximum extent feasible (including using natural materials, earth tone colors and graphics, directing any allowed sign lighting downward, etc.); (3) to be of a unified design theme; and (4) to be subordinate to the dune and natural setting. See Special Condition 1.

In addition, because maintenance of these new site conditions will be required to assure the visual improvements are lasting, Special Condition 3 requires the Applicant to ensure establishment and ongoing maintenance of dune vegetation on the slope stabilization layer, thereby giving the slope stabilization layer a more natural and earthy aesthetic. Per Special Condition 4, the Applicant will also be required to ensure the armoring structure and SSL are monitored and adapted to assure impacts to the beach's visual quality are avoided and reduced where possible. Both special conditions

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will help to minimize the negative visual elements commonly attributed to shoreline armoring in general. Further, in order to assure that the short-term visual impacts from construction are avoided, lessened, and mitigated to the extent possible, Special Condition 2 requires the Applicant to submit a Construction Plan that limits staging and construction areas, as well as construction timing, and sets required construction best management practices in order to preserve the visual qualities of the area during construction periods.

On balance, and as conditioned, the proposed development would improve visual resources and thus can be found consistent with the Coastal Act public view provisions.

J. Tribal and Cultural Resources

Applicable Coastal Act and LCP Provisions

Coastal Act Section 30244 requires reasonable impact mitigation for development that would adversely impact archeological or paleontological resources.

Section 30244. *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

Consistency Analysis

Coastal Act Section 30244 requires reasonable mitigation measures be provided where archaeological or paleontological resources exist. On October 30, 2019, the City sent letters to the Native American representatives listed in the Native American Heritage Commission contact list for the City and County of San Francisco, which provided a brief description of the project, information on known archaeological resources in the vicinity, and requested that the recipients share any information regarding potential project impacts to tribal cultural resources, if they so desired. As part of the project's Clean Water Act Section 404 permitting process, the U.S. Army Corps of Engineers contacted Native American tribal representatives on September 22, 2022, regarding the project. To date the City and the U.S. Army Corps of Engineers have received no response regarding the project. On September 5, 2023, EPA sent letters to Native American tribal representatives requesting any comments or concerns regarding the project, and two tribes responded: the Amah Mutsun Tribal Band of Mission San Juan Bautista and the Indian Canyon Mutsun Band of Costanoan. On September 25, 2023, a meeting was held between representatives from SFPUC, EPA and the Indian Canyon Mutsun Band. During the meeting, SFPUC discussed the proposed project, identification efforts completed to date, and proposed mitigation. A plan was made for SFPUC to provide the draft archaeological monitoring plan, provide additional information about the habitat restoration plans and types of plants to be used, and to set up a meeting to discuss language and topics for the interpretive signage along the multi-use trail. Once the archaeological monitoring plan and habitat restoration plan is updated per final CDP special conditions, SFPUC will share those with Indian Canyon Mutsun Band. SFPUC will also follow up with the tribe prior to commencement of development and design of trail signage.

With regard to project activities that could impact tribal or archeological resources, the City determined that the ADA access improvements would require minor ground

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disturbance, and that there were no previously recorded cultural resources in the location of the ADA access improvements. The proposed ground disturbance would be shallow (no greater than 6 inches) and would not extend below disturbed and redeposited sand dunes. They further indicated that there are no known tribal cultural resources in the plant propagation site area, although there is the potential for the presence of undiscovered Native American archeological resources that may also be determined to be tribal cultural resources. Activity at the Fort Funston plant propagation site could result in the inadvertent discovery of Native American archeological resources, and any such archeological resource that may be encountered could be identified as a tribal cultural resource at the time of discovery or at a later date.

In order to assure impacts to the potential tribal and cultural resources listed above are avoided, the Applicant has stated they would implement standard construction measures for the project, including Standard Archeological Measures I (Archeological Discovery) and II (Archeological Monitoring). With these measures, the City's Final Environmental Impact Report (EIR) identified that the project would not result in a substantial adverse change in the significance of a tribal cultural resource, and in combination with the cumulative projects, would not result in significant cumulative impacts on tribal cultural resources. Given the EIR's findings of less-than-significant impacts to tribal and cultural resources, no mitigation is proposed at this time, however Special Condition 13 provides a process and procedure in the event that such tribal, cultural, or archaeological resources are found during the project construction.

As such, with the required conditions and agreement to continue coordination efforts with the interested Tribe, the proposed project can be found to be consistent with the tribal and cultural resource protection requirements of the Coastal Act.

K. Violation

As described earlier, violations of the Coastal Act have existed historically at the subject site including, but not necessarily limited to, the placement of over 1,000 linear feet of rock revetments without proper CDPs in the 1990s and 2010s. Ultimately, the Commission temporarily recognized such development, and other related development, and established a process for that development to be removed and replaced with a long term solution. Although the City missed its removal deadline earlier this year, the proposed project represents the City's proposed long term solution, and it includes removal of all unpermitted armoring and related development at the site. Thus, issuance of the CDP and the subsequent performance of the development authorized by the permit in compliance with all of the terms and conditions of the permit will result in resolution of the violations described above going forward.

However, Commission review and action on this CDP application does not constitute a waiver of any legal action with regard to these violations (or any other violations), nor does it constitute an implied statement of the Commission's position regarding the legality of the development undertaken on the subject site without a CDP, or of any other development, other than the development approved herein. In fact, approval of this CDP is possible only because of the terms and conditions of the CDP, and the Applicant's presumed subsequent compliance with said terms and conditions, and failure to comply with these terms and conditions in conjunction with the exercise of the

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CDP would also constitute a violation of the CDP and of the Coastal Act. Accordingly, the Applicant remains subject to enforcement action moving forward just as they were prior to this CDP approval for the violations described herein and for any violations of this CDP, unless and until the terms and conditions of this CDP are satisfied.

L. Other

Indemnification

Coastal Act Section 30620(c)(1) authorizes the Commission to require applicants to reimburse the Commission for expenses incurred in processing CDP applications. Thus, the Commission is authorized to require reimbursement for expenses incurred in defending its actions on the pending CDP application in the event that the Commission's action is challenged by a party other than the Applicant. Therefore, consistent with Section 30620(c), the Commission imposes Special Condition 17 requiring reimbursement for any costs and attorney fees that the Commission incurs in connection with the defense of any action brought by a party other than the Applicant challenging the approval or issuance of this CDP, or challenging any other aspect of its implementation, including with respect to condition compliance efforts.

Other Agency Approvals

The project may require authorization from several other entities, including but not limited to the U.S. Park Service, U.S. Army Corps of Engineers, Monterey Bay National Marine Sanctuary, California State Lands Commission, California State Water Resources Control Board, and San Francisco Bay Regional Water Quality Control Board. To ensure that the Applicant is able to carry out the proposed project consistent with the terms and conditions of this CDP, and to ensure that the proposed project is authorized by all applicable agencies, Special Condition 15 requires the Applicant to submit written evidence of these other agencies authorizations of the project (as conditioned and approved by this CDP) or evidence that such authorizations are not required.

Minor Changes

Although a great deal of thought and planning has gone into the proposed project, including as it is affected by CDP terms and conditions, oftentimes minor unforeseen issues present themselves in complicated projects of this nature, particularly as construction gets underway, and it is important that the CDP is nimble enough to account for potential minor changes. Thus, minor adjustments to special condition requirements that do not require a CDP amendment or a new CDP (as determined by the Executive Director) may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources (Special Condition 16).

Future Development/Permitting

The project site presents complicated coastal resource issues and is the site of past Commission approvals as well as this CDP, and the Commission finds that it is critical that any future development associated with the approved development be considered in that context. The Commission herein fully expects to review any future proposed development at and/or directly related to this project and/or project area, including to

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ensure continued compliance with the terms and conditions of this CDP through such future proposals, but also to ensure that any such future proposed development can be understood in terms of same. Thus, any and all future proposed development at and/or directly related to this project, this project area, and/or this CDP shall require a new CDP or a CDP amendment that is processed through the Coastal Commission, unless the Executive Director determines a CDP or CDP amendment is not legally required (see Special Condition 11). At the same time, it is not simply presumed that such future activities may require a CDP or CDP amendment, and this CDP also authorizes limited maintenance-oriented development for the armoring component of the project subject to certain criteria (see Special Condition 8), and future repair, maintenance, and/or improvement development for non-armoring components of the project that is determined by the Executive Director to: 1) fall within the overall scope and intent of this CDP; 2) be consistent with the City and County of San Francisco LCP; and 3) not have any significant adverse impacts to coastal resources (see Special Conditions 8 and 11). Put another way, this CDP authorizes certain such specific future activities associated with the project if consistent with the identified criteria, all as a means of helping to facilitate and streamline future such activities at this site consistent with this CDP, and to avoid the need for additional CDPs or CDP amendments where appropriate and applicable (

M. Conflict Resolution

Applicable Coastal Act Provisions

In actions such as this where one Coastal Act provision requires denial, but denial would frustrate a mandate of another Coastal Act provision, the Commission is tasked with resolving such differences “in a manner which on balance is the most protective of significant coastal resources” (often referred to as conflict resolution), as detailed in the Coastal Act as follows:

Section 30007.5. *The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

Section 30200(b). *Where the commission or any local government in implementing the provisions of this division identifies a conflict between the policies of this chapter, Section 30007.5 shall be utilized to resolve the conflict and the resolution of such conflicts shall be supported by appropriate findings setting forth the basis for the resolution of identified policy conflicts.*

To be clear, however, the fact that a proposal is consistent with one Chapter 3 policy and inconsistent with another policy does not necessarily result in such a conflict. In fact, virtually every proposal will be consistent with some Chapter 3 policy, and almost no project would violate every such provision. Put another way, a proposal does not

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present a conflict between two statutory directives simply because it violates some policies and not others.

In order to invoke conflict resolution, the Commission must find that although approval of a proposal would be inconsistent with a Chapter 3 policy, denial of such proposal based on that inconsistency would result in coastal zone effects that are inconsistent with some other Chapter 3 policy. In most cases, denial of a proposal will not lead to any coastal resource effects at all because it will simply maintain the status quo. However, in some cases such denial can result in coastal resource effects that are inconsistent with a Chapter 3 policy in that some Chapter 3 policies, rather than prohibiting a certain type of development, affirmatively mandate the protection and enhancement of coastal resources.⁸⁷ If there is ongoing degradation of one of these resources, and a proposal would cause the cessation of that degradation, then denial would result in coastal resource effects (in the form of the continuation of the degradation) inconsistent with the applicable policy. Thus, the only way that a true conflict can exist is if: (1) the proposal will stop some ongoing coastal resource degradation, and (2) there is a Chapter 3 provision requiring that the resource being degraded is protected and/or enhanced. Only then is the denial option rendered problematic because of its failure to fulfill the Commission's protective mandate, and only then can the Commission invoke the Coastal Act's conflict resolution provisions.

With respect to the second of those two requirements, though, there are relatively few Chapter 3 provisions that include such an affirmative mandate to enhance a coastal resource. Moreover, because the Commission's role is generally a reactive one, responding to proposed development rather than affirmatively seeking out ways to protect resources, even provisions that are phrased as affirmative mandates to protect resources more often function as prohibitions.⁸⁸ Denial of a project cannot result in a coastal resource effect that is inconsistent with a prohibition on a certain type of development. As a result, there are relatively few Coastal Act policies that can serve as a basis for a conflict.

⁸⁷ See, for example, Sections 30210 ("maximum access...and recreational opportunities shall be provided"), 30220 ("Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses"), 30230 ("Marine resources shall be maintained [and] enhanced"), and 30253 (Development shall "Minimize risks to life and property in areas of high geologic, flood, and fire hazard" and "(a)ssure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site").

⁸⁸ For example, Section 30240's requirement that environmentally sensitive habitat areas "shall be protected against any significant disruption of habitat values" generally functions as a prohibition against allowing such disruptive development, and its statement that "only uses dependent on those resources shall be allowed within those areas" is a prohibition against allowing non-resource-dependent uses within these areas. Similarly, Section 30251's requirement to protect "scenic and visual qualities of coastal areas" generally functions as a prohibition against allowing development that would degrade those qualities. Section 30253 begins by stating that new development shall minimize risks to life and property in certain areas, but that usually requires the Commission to condition projects to ensure that they are not unsafe. Even Section 30220, an affirmative mandate, can be seen more as a prohibition against allowing non-water-oriented recreational uses (or water-oriented recreational uses that could be provided at inland water areas) in coastal areas suited for such activities.

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Similarly, denial of a proposal is not inconsistent with Chapter 3 and thus does not present a conflict simply because the proposal would be less inconsistent with a Chapter 3 policy than some alternative project would be, even if approval of the proposal would be the only way in which the Commission could prevent the more inconsistent alternative from occurring. For denial of a proposal to be inconsistent with a Chapter 3 policy, the proposal must produce tangible, necessary enhancements in resource values over existing conditions, not over the conditions that would be created by a hypothetical alternative. In addition, the proposal must be fully consistent with the Chapter 3 policy requiring resource enhancement, not simply less inconsistent with that than the hypothetical alternative proposal would be. If the Commission were to interpret the conflict resolution provisions otherwise, then any proposal, no matter how inconsistent with Chapter 3, that offered even the smallest, incremental improvement over a hypothetical alternative proposal would necessarily result in a conflict that would justify a balancing approach. The Commission concludes that the Coastal Act's conflict resolution provisions were not intended to apply based on an analysis of different potential levels of compliance with individual provisions or to balance a proposal against a hypothetical alternative.

In addition, if a proposal is inconsistent with at least one Chapter 3 policy, and the essence of that proposal does not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the proposal's proponent cannot "create a conflict" by adding on an essentially independent component that does remedy ongoing resource degradation or enhance some resource. The benefits of a project must be inherent in the essential nature of the project. If the rule were to be otherwise, such proponents could regularly "create conflicts" and then demand balancing of harms and benefits simply by offering unrelated "carrots" in association with otherwise unapprovable proposals. The balancing provisions of the Coastal Act could not have been intended to foster such an artificial and manipulatable process. The balancing provisions were not designed as an invitation to enter into a bartering game in which proponents offer amenities in exchange for approval of their proposals.

Finally, a project does not present a conflict among Chapter 3 policies if there is at least one feasible alternative that would accomplish the essential purpose of the proposal without violating any Chapter 3 policies. Thus, an alternatives analysis is a condition precedent to invocation of conflict resolution. If there are alternatives available that are consistent with all the relevant Chapter 3 policies, then the proposal does not create a true conflict among Chapter 3 policies.

In sum, in order to invoke conflict resolution, the Commission must conclude all of the following with respect to the proposal before it: (1) approval of the proposal would be inconsistent with at least one of the policies listed in Chapter 3; (2) denial of the proposal would result in coastal resource effects that are inconsistent with at least one other Chapter 3 provision by allowing continuing degradation of a resource the Commission is charged with protecting and/or enhancing; (3) the proposal results in tangible, necessary resource enhancement over the current state, rather than an improvement over some hypothetical alternative proposal; (4) the proposal is fully consistent with the resource enhancement mandate that requires the sort of benefits that the proposal provides; (5) the benefits of the proposal are a function of the very

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essence of the proposal, rather than an ancillary component appended to the proposal's description in order to "create a conflict"; (6) the benefits of the project are not independently required by some other body of law; and (7) there are no feasible alternatives that would achieve the objectives of the proposal without violating any Chapter 3 provisions.⁸⁹

Conflict Resolution Analysis

The Commission finds that the proposal meets all seven of the above-stated tests, and thus presents a true conflict between Chapter 3 policies. As noted previously in this report, the proposed project is inconsistent with Coastal Act Sections 30240, 30235, and 30253 (and by extension other coastal resource policies implicated by the coastal resource degradation that would accrue due to the proposed armoring), thus meeting the first test.

This proposal meets the second test because the Commission's denial of the proposal would result in nonconformity with other Coastal Act policies, namely Sections 30230 and 30231. Specifically, Coastal Act Sections 30230 and 30231 affirmatively require the Commission to maintain and restore marine resources and the biological productivity and quality of coastal waters where feasible. Without approval of the armoring, there will be significant risk of erosion leading to compromise of the LMT's function, which is used for storage and transport of wastewater and stormwater. Specifically, such erosion could potentially undermine the stability and functionality of the pipeline, posing a risk of debris and sewage discharging to the beach and Pacific Ocean below, resulting in adverse impacts to marine resources and water quality. Thus, the proposed project with the armoring would protect this critical infrastructure while being required to monitor the shoreline on an ongoing basis and continue to develop adaptive management strategies once constructed and implemented, and as such, approval of the project would protect water quality and marine resources, consistent with the provisions of the Coastal Act. This armoring is necessary as moving the infrastructure inland is infeasible at this time.

The third step of conflict resolution requires that the proposal results in a tangible, necessary resource enhancement over the current state. As previously discussed, in this case, the project would maintain the biological productivity and quality of marine

⁸⁹ As an example, the Commission applied conflict resolution to a 1999 proposal involving the placement of fill in a farmed wetland area in order to construct a barn atop the fill and to install water pollution control facilities on a dairy farm in Humboldt County (CDP 1-98-103, O'Neil). In that case, one of the main objectives of the project was to create a more protective refuge for cows during the rainy season. However, another primary objective was to improve water quality by enabling the better management of cow waste. In short, the use of the site was degrading water quality, and the barn enabled consolidation and containment of manure, thus providing the first of the four necessary components of an effective waste management system. Although the project was inconsistent with Section 30233, which limits allowable fill of wetlands to seven enumerated purposes, the project also enabled the cessation of ongoing resource degradation. The project was fully consistent with Section 30231's mandate to maintain coastal water quality and offered to tangibly enhance water quality over existing conditions, not just some hypothetical alternative. Thus, denial would have resulted in impacts that would have been inconsistent with Section 30231's mandate for improved water quality. Moreover, it was the very essence of the project, not an ancillary amenity offered as a trade-off, that was both inconsistent with certain Chapter 3 provisions and yet also provided benefits. Finally, there were no alternatives identified that were both feasible and less environmentally damaging.

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resources and coastal waters by allowing for the endangered sewer and stormwater infrastructure to be protected. As conditioned, the Applicant would within 25 years from construction completion be required to submit a CDP application to reassess the armoring authorization, including mitigation required for the impacts of the armoring on the site; would be required to assess and maintain the vegetation and armoring included within this project proposal on an ongoing basis and report such findings to the Commission; and would require a number of modifications to the monitoring and adaptive management plan to ensure the beach nourishment and habitat enhancement and restoration components of the project are functioning as proposed, are maintained, and remain successful into the future. Thus, the project as conditioned is fully consistent with the Coastal Act marine resources and water quality policies and provides an actual tangible benefit in protecting those resources.

The fourth and fifth tests require that the proposal is fully consistent with the resource enhancement mandate that requires the sort of benefits that the proposal provides and that the benefits of the proposal are a function of the proposal itself and not an ancillary component appended to the proposal description in order to create a conflict. Here, the project, if approved, would result in tangible resource enhancement over existing conditions. This is the case here for several reasons. First, as conditioned, the proposed development results in tangible public access and recreation enhancements to the site. This includes a new approximately 4,000 foot-long multi-use pathway for pedestrian and cyclist access to and along South Ocean Beach, accessible from the modified Sloat Boulevard/Great Highway intersection as well as the Skyline coastal parking lot. The multi-use pathway would vary from 15 to 20 feet wide, include various seating amenities, a new beach access stairway located towards the southern end of South Ocean Beach, a new restroom, and a new parking area.

Second, as discussed throughout this report, allowing for continued protection of the Lake Merced Tunnel will protect marine resources and water quality (Sections 30230 and 30231) from significant adverse impacts. Lastly, as conditioned, the project will remove the temporary riprap revetment and sandbags currently impacting views along the shoreline and install a vegetative stabilization zone to mimic the natural dune formations of the area, to include native dune vegetation planting, designed to improve public views of and across the site. Thus, the proposed project can be found consistent with other resource policies of the Coastal Act, as mitigated and conditioned, and will result in tangible resource enhancement over existing conditions. Finally, it passes the sixth test because the proposed project's benefits are not required by another agency under another body of law.

The final test of conflict resolution requires there to be no feasible alternative that would achieve the objectives of the project without violating any Chapter 3 policies. As discussed above, there are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies. Possible alternatives for the proposed project include 1) "no project", 2) protect LMT with increased beach nourishment and dune restoration, 3) protect LMT with conventional seawall, and 4) replace LMT with inland infrastructure (see above Coastal Hazard alternatives findings incorporated herein by reference). In conclusion, while alternatives exist, none of the

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identified alternatives would be both feasible and fully consistent with all relevant Chapter 3 policies.

Therefore, in order to resolve the identified conflict, the Commission must take an action which is, on balance, the most protective of significant coastal resources. Such a determination is a discretionary decision for the Commission, where the pros and cons for various outcomes can be considered and applied.

In this case, the Commission finds that the impacts on coastal resources from not implementing the project, as conditioned, would be more significant than the project's potential adverse effects from allowing development as conditioned. Denying the proposed project because of its inconsistencies with Sections 30240, 30235, and 30253 (and others) would result in damage to critical infrastructure and is likely to lead to wastewater discharges into the ocean, which would adversely impact marine resources and water quality. In contrast, approving the development as conditioned would lead to a myriad of benefits including removal of the temporary shoreline armoring previously authorized by the Commission as a short-term solution, providing a mid to long term solution to protect critical infrastructure (and therefore water quality), improvements to habitat on site, and development of significant public access enhancements.

Finally, the test for conflict resolution approval under Section 30007.5 is not for the project to be more protective of coastal resources, rather it must be most protective of significant coastal resources. In order for that finding to be made, the adverse coastal resource impacts caused by the project have to be avoided, minimized, and mitigated to the maximum feasible extent. As such, and only in a conflict resolution context, this approval includes the development of robust public access improvements as a means of offsetting the impacts associated with the approved project. Specifically, the approval includes removal of most of the service road and expansion of restoration and habitat vegetation efforts, more aggressive beach protection requirements, an expansion of parking and an additional restroom at the parking lot, monitoring, reporting, and adaptation requirements, revisions to the monitoring and adaptive management plan to ensure appropriate performance measures, triggers, monitoring, design, and sufficient habitat mitigation are provided, assumption of risk, and a requirement to return to the Commission in 20 years for reauthorization of the armoring (see Special Conditions 1, 3, 4, 9, and 10).

As so modified, and by applying the Coastal Act's conflict resolution provisions as described above, the proposed project as conditioned is most protective of significant coastal resources and can be found consistent with the Coastal Act.

N. California Environmental Quality Act

Section 13906 of Title 14 of the California Code of Regulations requires Coastal Commission approval of CDP applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which

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would substantially lessen any significant adverse effect the proposed development may have on the environment.

The City and County of San Francisco, acting as lead agency, found Phase I of the project, originally approved by the Commission in the 2015 base CDP, to be categorically exempt under CEQA, and a “no substantial modification” approval in June of 2021 and 2022 for the extension of Phase I activities. For this phase of the project, Phase II, the City and County of San Francisco, again acting as lead agency, adopted an Environmental Impact Report for the project. The Coastal Commission’s review and analysis of land use proposals such as this CDP application has been certified by the Secretary of Resources as the functional equivalent of environmental review under CEQA (14 CCR Section 15251(c)).

The Commission incorporates its findings on Coastal Act consistency above at this point as if set forth in full. The findings address and respond to all public comments regarding potentially significant adverse environmental effects of the project that were received prior to preparation of this report. As specifically discussed in these above findings, mitigation measures that would minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible mitigation measures available which would substantially lessen any significant adverse impacts, either individually or cumulatively, that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA Section 21080.5(d)(2)(A).

4. APPENDICES

A. Substantive File Documents⁹⁰

- Files for CDP 2-15-1357, and CDP amendments 2-15-1357-A1 and 2-15-1357-A2
- City and County of San Francisco EIR for the project
- SSL Technical Memo
- Bank Swallow Habitat Assessment and Associated Documents
- Dune Delineation Memo
- Alternatives Analysis Report
- Ocean Beach Master Plan

B. Staff Contacts with Agencies and Groups

- San Francisco Public Utilities Commission
- San Francisco Recreation and Parks Department
- San Francisco Public Works Department

⁹⁰ These documents are available for review from the Commission’s North Central Coast District office.

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- San Francisco Planning Department
- National Park Service
- SPUR
- Surfrider Foundation
- Friends of the Great Highway
- Sunset-Parkside Education and Action Committee (SPEAK)