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STAFF REPORT CDP APPLICATION

Application Number:	3-18-1081
Applicant:	City of Santa Cruz Public Works Department
Project Location:	Santa Cruz Municipal Wharf, extending about one-half mile into the Monterey Bay from the intersection of Pacific Avenue with Beach Street and between Cowell and Main Beaches to just offshore of the City of Santa Cruz's eastside near the Santa Cruz Beach Boardwalk
Project Description:	Wharf maintenance and repair activities, including related to underlying support structure and pilings, pavement surfaces, buildings, railings, and related wharf infrastructure over a five-year period
Staff Recommendation:	Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

The City of Santa Cruz requests authorization to carry out Santa Cruz Municipal Wharf maintenance and repair activities associated with wharf structural components (such as pilings and wharf understructure) and surface features (such as decking, pavement, buildings, and railings). Located just off the coast of Santa Cruz, the entire Wharf lies within the Coastal Commission's original retained jurisdiction in the near-shore waters at the north end of Monterey Bay. The proposed project would repair or replace damaged wooden pier pilings and associated structural components, repair or replace worn sections of railings and surface pavement, and repair buildings and other structures on the Wharf. To decrease delays and cost, the City of Santa Cruz has proposed to package all these repair and maintenance activities into one coastal development permit (CDP) application to allow for better streamlining and more efficient

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implementation, including to help better ensure safe operation and continued public use of the Wharf.

The historic Wharf is an iconic local and regional landmark and a centerpiece of public recreation and coastal tourism in the City, as well as being a gateway to exploring the Monterey Bay National Marine Sanctuary just offshore. The Wharf extends one-half mile into the Monterey Bay and provides both vehicular and pedestrian access along its entire length to open deck areas as well as to a variety of visitor-serving shops, restaurants, and boat rental and fishing shops. Built almost entirely of timber over one-hundred years ago, the Wharf has been remarkably resilient, and continues to provide unique coastal access to over one million people per year. The City is currently working on an updated Wharf Master Plan that will recognize the Wharf's community value, and provide for measures to enhance and improve its utility. However, that process has not yet been completed, and will be submitted to the Commission at a later date.

In the interim, the Wharf continues to be regularly exposed to harsh wind, waves, and storms throughout the year, and requires regular upkeep to maintain its stability and function. The proposed project is designed to serve that purpose, and its prime objective is to repair or replace up to 200 of the Wharf's over 4,400 wooden pier pilings. In addition, the project would also replace some large wooden structural ledgers and other support beams that connect the pilings to each other and to the upper areas of the Wharf's main structure below its paved roadway surface. Where creosote was originally used to preserve the wharf's wooden components from seawater decay, new wooden components will be preserved with ammoniacal copper zinc arsenate (ACZA), which is less harmful to the marine environment than other wood preservatives. The treated wood will also be sealed with either a penetrating sealer or wrap (or latex paint for railings) to minimize potential leaching of wood preservatives. Together with smaller repair projects on the surface of the Wharf, the piling and structural work is intended to fortify the structural integrity of the Wharf's lower framework and the viability of upper surface features that have been compromised as old components have gradually degraded in the marine environment. The proposed five-year repair and maintenance program will protect the Wharf's significant ability to provide public recreational access and visitor-serving commercial access to an unparalleled Central Coast landmark, and thus such outcome is well supported by the Coastal Act.

At the same time, any sort of work such as this in the marine environment and significant public recreational access areas poses some challenges. In terms of access impacts, these would primarily be temporary limitations as potential closures would be limited to small areas at a time to allow the majority of the Wharf to continue to be available for public access during construction. Above water, other potential temporary impacts would accrue to birds and sea lions that inhabit portions of the wharf's understructure and buildings, and who might be in or scared off from construction areas. In water, there is also the potential for disturbance to marine wildlife around the Wharf, especially related to pile driving. Such work will require heavy machinery that would operate on and under the Wharf and be supported by workers in boats around the Wharf. Numerous seabirds and pinnipeds live on and around the wharf and will face temporary disruptions from noise, vibration, and other disturbances associated with pile

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driving and other construction work during the proposed project. Finally, there are also potential impacts to the coastal environment from wood preservatives and coatings, as well as the from debris and other materials. Although ACZA is designed to be used in the marine environment and is considered a preferred and less toxic marine wood preservative compared to some others, it also has known to have harmful effects to marine organisms that come in close and/or frequent contact with such treated material or benthic concentrations after the wood preservative has leached from woods.

To mitigate risks posed by construction, staff proposes conditions and best management practices (BMPs) designed to minimize the potential for coastal resource impacts and disturbances to wildlife during construction (such as 'soft startups' for pile work, ensuring a wildlife exclusion zone (monitored by a marine wildlife monitor) is maintained for in water work, measures to limit impacts to sea lions and seals that may be hauled out on Wharf sub-structures, pre-construction bird nesting surveys, bird nest buffer areas, avoiding bird nesting season when feasible, etc.). Staff also recommends a series of requirements associated with limiting potential impacts from wood preservatives and debris, that should ensure that impacts of this type are not significant.

Staff believes that the proposed project, as conditioned, would be consistent with the Coastal Act's public access and marine resource protection policies, and that it would enhance resiliency, safety, and overall public utility for an enduring local and regional landmark on the Central Coast. Thus, staff recommends **approval** of a CDP with conditions to authorize the project, and the motion is found on page 5 below.

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EXHIBITS

- Exhibit 1 – Regional Vicinity Map
- Exhibit 2 – Aerial Image of Wharf and Local Vicinity
- Exhibit 3 – Graphic Depiction and Photographs of Wharf
- Exhibit 4 – Santa Cruz Wharf Maintenance Plan
- Exhibit 5 – NMFS-Approved Wildlife Training Program
- Exhibit 6 – Coastal Commission Ecologist's Bird Nesting Recommendations

1. MOTION AND RESOLUTION

Staff recommends that the Commission, after public hearing, **approve** a CDP 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 3-18-1081 pursuant to the staff recommendation, and I recommend a yes vote.

Resolution to Approve CDP: The Commission hereby approves Coastal Development Permit Number 3-18-1081 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

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 Permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
- 2. Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
- 3. Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
- 4. Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
- 5. Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the Permittee to bind all future owners and possessors of the subject property to the terms and conditions.

3. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

- 1. Approved Project and CDP Duration.** This CDP shall be valid for five years from the date of Commission approval (i.e., until 5pm on September 9, 2026). This CDP authorizes maintenance and repair activities at the Santa Cruz Municipal Wharf as described in the Wharf Maintenance Plan shown in **Exhibit 4**, as modified by the terms and conditions of the CDP.
- 2. Major and Minor Activities.** Authorized project activities are either considered major or minor for the purposes of minimizing impacts to public access and nesting birds. Activities considered "minor" shall be limited to that which only requires hand tools and small hand equipment (such as a motorized screwdriver or handheld power drill) as the noise produced from such activities is not expected to exceed 60-65 dB 50 feet from development. Activities considered "major" shall be all activities that aren't minor, including all activities that utilize heavy machinery (such as jack hammers, power saws, nail guns, pile driving equipment, or any removal of the Wharf's surface) unless the Executive Director approves the use of a specific brand, model, and type of equipment that can qualify the equipment/activity as minor, including based on the published equipment sound levels. These definitions shall be incorporated into the Revised Santa Cruz Wharf Maintenance Plan (**see Special Condition 8**).
- 3. Piling Replacement Mitigation Measures.** The following mitigation measures shall be implemented during all pile replacement activities:
 - a. Soft Starts.** An initial ramp-up period or "soft start" procedure at the commencement of any impact hammer pile-driving activities, or after a break in impact hammer driving of 30 minutes or more, shall be implemented to avoid potential impacts to marine species that may be present in the exclusion zones. The "soft start" shall consist of an initial set of three strikes made by the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets, before initiating continuous driving. In addition, the pile driver shall employ sound dampening techniques and/or devices (such as wooden blocks, pile cushions, and/or caps) during all pile driving activities.
 - b. Marine Wildlife Monitor.** One qualified marine wildlife monitor (MWM), or more if required to effectively observe the identified exclusion zones, shall be present to conduct observations during all pile driving activities. The MWMs shall be either qualified wildlife biologists with experience observing marine wildlife and differentiating normal behavior from signs of injury or distress, or a member of the maintenance crew that has been trained by a qualified biologist using the National Marine Fisheries Service (NMFS)-approved Marine Mammal Disturbance training outline developed for the proposed project (seen in **Exhibit 5**) and has effectively demonstrated to the qualified biologist that they are able to identify marine wildlife species and approximate their distance. MWM duties shall be dedicated to observing marine wildlife only, and MWMs shall not be assigned

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other duties. MWMs shall have the appropriate safety and monitoring equipment (e.g., binoculars, etc.) adequate to conduct required monitoring activities and shall be located at an effective vantage point to observe all exclusion zones without obstruction.

- c. **Exclusion Zones and Construction Halts.** The MWMs shall monitor around the active site of pile driving as follows:

1. **Cetaceans, Sea Otters, and Turtles.** A 60-meter exclusion zone shall be implemented for all cetaceans, sea otters, and sea turtles during all pile driving activities. If the MWMs observe any such marine wildlife within 60 meters from the site of active pile driving, then the MWMs shall require an immediate shut-down of pile driving activities. Such activities may restart once such wildlife are observed to have left the specified exclusion zone or are not observed within the specified exclusion zone for at least 30 minutes. If the exclusion zone is not entirely visible (e.g., due to darkness, fog, etc.), pile driving shall not commence or continue to proceed (if it is underway) until visual conditions have improved and the entirety of the exclusion zone is visible to the MWMs.
2. **California Sea Lions and Pacific Harbor Seals.** California sea lions and Pacific harbor seals shall have a discretionary exclusion zone of 30 meters wherein the effects of pile driving on California sea lions and Pacific harbor seals located within the discretionary exclusion zone shall be monitored by the MWM using the following criteria:
 - a. If the normal commotion of preparing the work site for the day's pile driving does not cause the resident pinnipeds to disperse away from the discretionary exclusion zone, the MWM will record this in the required logs (see **Subsection (d)** below) and take photos of any lingering pinnipeds on the Wharf's substructure or landings.
 - b. The first piles to be driven on any given day will be located as far as possible from known pinniped haul-out locations in the vicinity of the Wharf's substructure or landings so that the reaction of the pinnipeds to the initial pile driving strikes pile driving activities can be evaluated.
 - c. If pinnipeds remain within the discretionary exclusion zone after the initial ramp-up period described in **Subsection (a)** above, regular pile driving activities may proceed if the pinnipeds do not exhibit any observable signs of injury or distress.
 - d. If one or more pinnipeds appear injured or distressed, the MWM shall direct pile driving activities to cease until the affected pinnipeds leave the discretionary exclusion zone or until the affected pinnipeds are determined by the MWMs to no longer be at risk.
- d. **Reporting.** The MWMs shall maintain a daily log of observed marine wildlife

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behavior that shall be of sufficient detail to determine whether the project causes observable effects to marine wildlife and shall submit annual monitoring reports to the Executive Director:

- 1. Daily Logs.** A copy of the MWM's logs shall be submitted to the Executive Director when mitigation measures (i.e., shut down or delay of pile driving activities) are implemented five or more times within a seven-day period. At a minimum, the daily log observations shall include: (1) the date and time that monitored pile driving activity begins and ends; (2) pile driving activities (e.g., the number and type of piles being driven and their location on the wharf, the type of hammer being used (i.e., impact or vibratory) occurring during each observation period, etc.); (3) weather parameters (e.g., wind speed and direction, percent sky cover, visibility, precipitation, etc.); (4) ocean conditions (e.g., water level fluctuation, tide, etc.); (5) a map showing species, numbers, location, and, if possible, sex and age class of all observed marine wildlife; (6) a description of any observable marine wildlife behavior patterns, including those in response to pile driving activities, including their location and distance relative to the work site, direction of travel, and if possible, the correlation of behavior to sound pressure levels (SPLs); (7) a description of implementation of any required mitigation measures (e.g., shutdown or delay of piling driving activities, etc.); and (8) a description of other human activities in the area (e.g., fishing, diving, swimming, etc.).
- 2. Annual Monitoring Reports.** Annual MWM monitoring reports shall be submitted to the Executive Director in the Post-Activity report (see **Special Condition 7**). Each Annual Monitoring Report shall include daily log observations from the MWMs, descriptions of any project delays or cessation of operations due to the presence in the project area of marine wildlife subject to exclusion zones, and an evaluation of monitoring protocol effectiveness as determined by the MWMs.
- 4. Nesting Bird Surveys.** Nesting birds and their nests shall be protected during construction by use of the following measures:
 - a. Avoidance.** Maintenance and repair activities will occur outside the primary nesting season (i.e., March 15th through August 15th) as much as possible.
 - b. Pre-Construction Surveys.** For any work that would occur between March 15th and August 15th, pre-construction surveys will be completed by a qualified biologist, approved by the Executive Director, with experience in observing seabird reproductive and nesting behavior, to identify displays of nesting behavior and/or active nests (i.e., as occupied by eggs or nestlings). The following shall apply:
 - 1. Timing.** Surveys shall commence no more than 30 days prior to the initiation of construction and occur weekly thereafter over the breeding season, with the last survey occurring no more than 72 hours prior to the start of construction in any given area.

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2. **Coverage.** Surveys may be focused on specific work areas rather than necessarily covering the entire Wharf structure and they may be sequenced as needed to address specific work areas and schedules over the course of the breeding season. Surveys shall be performed extending 300 feet from the project work area to locate any active nests, including areas above the wharf's deck (e.g., rooftops, eaves, etc.) and below the wharf's deck (e.g., substructures viewed from the water).
 3. **Survey Maps.** Maps identifying the location of any active nests detected shall be provided, showing the date of survey and nest stage (e.g., eggs, nestlings, etc.) and shall clearly delineate appropriate buffers (as defined in **Subsection(c)** below) to inform work plans for maintenance and repair activities.
- c. **Nest Identification and Buffers.** The qualified biologist shall establish a no-disturbance buffer around the nests and all project work shall halt within the buffer until the qualified biologist determines the nest is no longer in use. The buffers shall be applied around active nests as follows:
1. **Major Activities Buffer.** A 300-foot buffer shall be applied between active nests and any major activities (see **Special Condition 2**), unless evidence is provided to the Executive Director to conclusively show that a different distance is appropriate, and the Executive Director concurs with that determination.
 2. **Minor Activities Buffer.** A 50-foot buffer shall be applied between active nest sites and any minor activities (see **Special Condition 2**). Additional measures shall be applied to active nests located between 50 feet and 300 feet from minor repair and maintenance work sites as follows:
 - a. **Above Deck.** When only minor activities will be conducted along the topside of the wharf, work shall not commence prior to 10:00 AM and shall not exceed four hours per day or three consecutive days at a time. Should minor maintenance and repair work necessarily exceed the four hours per day or three consecutive days at a time threshold identified above, the qualified biologist shall conduct additional behavioral monitoring to assure that nesting seabirds are not being further impacted by the ongoing activities in close proximity. Once satisfied, the biologist may approve planned activities near observed nests. Under no circumstances shall buffers be less than 50 feet or shall work commence prior to 10:00 AM.
 - b. **Below Deck.** When only minor activities will be conducted along the underside or substructure of the wharf, the same restrictions as described above in (a) will apply. In addition, if minor activities are expected to exceed two hours in duration, blinds and similar materials shall be placed between the active nests and the work area to avoid visually disturbing nesting birds. The placement of the blinds shall be overseen by the qualified biologist, who will observe nest sites and parent behavior over

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the course of activities, or until he/she is satisfied that the nesting birds will not be significantly disturbed by the work in that area.

- d. **Construction Halts.** If under any circumstances either construction staff or the qualified biologist observes signs of nesting distress (e.g., parents flush from the nest and do not readily return as activities continue, anxious warning calls, etc.), then work shall be stopped immediately, and the qualified biologist shall consult with the Executive Director to determine necessary modifications to activities. Activities shall resume only after the biologist and the Executive Director are satisfied that the modifications are sufficient to avoid continued disturbance to the nests.
 - e. **Reporting.** Annual nesting survey reports shall be submitted to the Executive Director in the Post-Activity report (see **Special Condition 7**). The report shall include: the maps from each nest survey conducted that year; a brief narrative describing the survey methods and observations of the species' tolerances to noise, vibration, and visual disturbance cues; a record of maintenance and repair activities carried out during the nesting season, including their location relative to active nests; and a discussion of any incidents that have resulted in a need for further consultation with the qualified biologist and/or the Executive Director.
5. **Construction Best Management Practices (BMPs).** The following water quality best management practices shall be implemented during all repair and maintenance activities to protect coastal water quality and related coastal resources:
- a. **Selection of Treated Wood.** For all components of the wharf and ancillary structures that the Permittee proposes to repair or replace using preservative-treated wood, the Permittee shall comply with the following requirements:
 1. **Wood Preservatives and Sealants.** Treated wood used for repair or replacement of components of the wharf, including piles, support structures, decking, and railings, shall be treated with the preservative Ammoniacal Copper Zinc Arsenate (ACZA). All fresh cut ends treated wood shall be sealed with penetrating sealer. All railings and rail posts shall be sealed with latex paint.
 2. **Minimum Preservative Retention Level.** All treated wood shall be treated to the standards of the lowest appropriate Use Category for each component of the structure, to ensure that the treated wood does not exceed the minimum preservative retention level. Wood treated to the standards for a higher Use Category (i.e., with a higher preservative retention level) than is necessary for that component shall not be used.
 3. **BMP Mark.** Where available, only treated wood that has been certified as produced for use in aquatic environments shall be used (as indicated by a BMP Mark or Certificate of Compliance), in accordance with industry standards such as the Best Management Practices for the Use of Treated

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Wood in Aquatic and Wetland Environments by the Western Wood Preservers Institute, et al.

4. **Sealed Fixed Landings.** All replacement decking on the lower ledges of the Wharf's fixed landings shall be entirely coated on all sides with a penetrating sealer to protect sea lions and harbor seals from coming into direct contact with Ammoniacal Copper Zinc Arsenate (ACZA)-treated wood.
 5. **Wood Alternatives.** Use of alternatives to treated wood (such as concrete, metal, fiberglass, plastic, wood-plastic composites, or naturally decay-resistant wood species) shall be prioritized if replacement of most of a wood component is necessary (such as the decking of a fixed landing or set of stairs).
 6. **Pile Coating.** Replacement piles shall be ACZA-treated timber piles sealed with a polyurea coating or a pile wrapping consisting of a 30-millimeter PVC plastic barrier over a 6-millimeter polyethylene liner. The polyurea coating or linear/wrapping shall extend from two feet below the mudline to two feet above Ordinary High Water (OHW), at a minimum.
- b. **Treated Wood Debris Containment and Disposal.** All debris shall be effectively contained, collected, and properly disposed of. For major activities over sandy beach areas, containment netting or similar measures shall be placed under the wharf to collect such debris, including to avoid debris contact with beach areas. For all major activities over ocean areas, such containment netting and/or other floating containment measures (contained via booms, boats, or a combination of same) shall be applied to avoid debris making it into the ocean. Alternative methods of may be utilized for debris containment under major activities if evidence is provided to the Executive Director to conclusively show that a different method is appropriate, and the Executive Director concurs with that determination.
- c. **Wood Cleaning and Maintenance.** To the extent feasible, treated wood shall not be pressure-washed, sanded, or scraped, as this may increase the leaching of wood preservatives and the discharge of treated wood particles into coastal waters. If treated wood is sanded or scraped for repair or maintenance, all sawdust and debris generated shall be contained and removed, to prevent treated wood particles from entering the water below. In addition, deck cleaners and brighteners, especially those containing acid-based or highly oxidizing chemicals (such as bleach, sodium hydroxide, sodium percarbonate, oxalic acid, and citric acid) shall not be used for maintenance of treated wood, as they may increase the leaching of wood preservatives, and contain chemicals that may directly harm aquatic life.
6. **Daylight Work Only.** All work shall take place during daylight hours (i.e., from one hour before sunrise to one hour after sunset), except that the Executive Director may authorize non-pile-driving and non-in-water nighttime work due to demonstration of

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extenuating circumstances, and subject to all appropriate mitigation measures to minimize lighting of coastal water and beaches, and to avoid coastal resources impacts, as much as possible.

- 7. Annual Work Plan and Post-Activity Monitoring Reports.** The Permittee shall submit, for review and written approval by the Executive Director, an Annual Work Plan that lists all anticipated routine repair and maintenance for the upcoming calendar year. The Permittee shall also submit, for Executive Director review, an Annual Wharf Maintenance Monitoring Report that describes all work completed during the previous calendar year as well as any issues encountered in terms of ensuring compliance with that year's Annual Work Plan. In addition, the Annual Wharf Maintenance Monitoring Report shall include all biological monitoring reports and maps (see **Special Conditions 3(d)(2) and 4(e)**), any reports of complaints and the investigation of these complaints, any reports of work stoppages related to work crew biological monitoring, and a visual post-winter inspection report of any pilings installed or any damage to piles or coatings and repairs needed or made. The Annual Work Plan shall be submitted annually by January 31st beginning in 2022; the first Annual Wharf Maintenance Monitoring Report shall be submitted annually by January 31st beginning in 2023.
- 8. Revised Wharf Maintenance Plan.** PRIOR TO COMMENCING ANY MAINTENANCE AND REPAIR ACTIVITIES AUTHORIZED BY THIS CDP, the Permittee shall submit, for Executive Director review and approval, a revised version of the "Santa Cruz Wharf Maintenance Plan" (**Exhibit 4**), modified as necessary to incorporate the requirements of the special conditions of this CDP, and to (a) eliminate references to the potential use of CCA wood preservatives; (b) clarify that ACZA and CA-C are the only wood preservatives to be used; and (c) replace all descriptions of the "slow-start" mitigation measure within the document with the description in **Special Condition 3(a)**. The Permittee shall undertake development in conformance with the approved revised Santa Cruz Wharf Maintenance Plan.
- 9. U.S. Army Corps of Engineers (ACOE) Approval.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit a valid ACOE authorization for the approved project under this CDP. The Permittee shall inform the Executive Director of any changes to the project required by the ACOE authorization. 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.
- 10. Minor Modifications.** Additional development beyond the repair and maintenance activities specified in this approval shall be submitted for a determination of CDP requirements (i.e., a separate CDP, a CDP amendment, a CDP waiver, a CDP exemption). Minor adjustments to the terms and conditions of this CDP may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; (2) do not adversely impact coastal resources; and (3) do not legally require a CDP amendment.

4. FINDINGS AND DECLARATIONS

A. Project Location and Background

The City of Santa Cruz is located at the northern end of the Monterey Bay in Santa Cruz County (see **Exhibit 1** for regional location map). The site of the proposed development is the Santa Cruz Municipal Wharf (Wharf). The Wharf is situated between Main Beach (which is adjacent to the Santa Cruz Beach Boardwalk) and Cowell's Beach on the west side of the City of Santa Cruz (see **Exhibit 2** for an aerial image). The base of the Wharf is located over the sandy shoreline and intertidal habitat, and the rest of the Wharf extends some half-mile into the Monterey Bay and reaches approximately 35 feet in ocean depth at its terminus.

The Wharf was originally constructed in 1914 and was originally about 183,000 square feet in size, but the Wharf has been expanded several times over the years to its current size of about 327,000 square feet. The Wharf varies in width (55 feet to 250 feet) along its length as it was widened in different construction periods (see **Exhibit 3** for a graphic depiction of the wharf, its various expansions, and images of Wharf structures). The Wharf extends approximately 2,745 feet (or over one-half mile) into Monterey Bay. It is the longest pier on the West Coast of the United States and is the longest timber-pile-supported pier structure in the U.S. with approximately 4,450 timber piles. It was originally constructed to facilitate the shipment of materials but was primarily used by the commercial fishing industry soon after its construction as it was an attractive facility for the mooring and off-loading of commercial fishing vessels.

Today, the Santa Cruz Wharf is a major visitor attraction that provides numerous coastal-related and coastal-dependent activities, including recreational boating. The Wharf currently has approximately 60,000 square feet of commercial building space, with 433 vehicle and 16 motorcycle public parking spaces to accommodate commercial and other uses. The Wharf also provides opportunities for pier fishing and has concessions for kayak and small fishing boat rentals. There are five active landings presently on the Wharf for boat access. Two are available to the public, two for boat and kayak rentals via Wharf concessions, and one landing is limited to use by Wharf staff.

Wharves and piers that extend out into near-shore waters are subject to ordinary wave action in calm weather as well as more damaging, powerful storm waves and wind during winter season storms (see **Exhibit 3** for images of storm action at the Santa Cruz Wharf). Given that the Wharf is over 100 years old, is heavily visited and used, and is subject to the constant effects of wear and tear from the coastal environment, there is a great need for regular upkeep of all exposed Wharf structural components and buildings. Structural elements, such as pier pilings and support beams, degrade and must be replaced for the Wharf to remain structurally sound and safe to use. For example, storms during the 2018-2019 winter season critically damaged numerous pilings and ledgers which support the Wharf, and the City received emergency authorization under emergency coastal development permit (ECDP) G-3-19-0041 to replace seven pilings (including caps, joists, and related decking) and repair six ledgers at various locations along the outermost portion of the Wharf structure. In addition, high levels of public and commercial use of the Wharf require that its facilities be repaired

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and maintained to accommodate the high numbers of recreational boaters and tourists. Further, recent inspections of the Wharf found that approximately 200 piles need to be replaced in addition to other repair and maintenance projects necessary to maintain safe public access to the Wharf. The Wharf is presently owned, maintained, and operated by the City of Santa Cruz, and the City employs a full-time wharf maintenance staff.

B. Project Description

The proposed project is for authorization of a five-year repair and maintenance program (Program) to facilitate safe and reliable continued and future uses of the Wharf. To decrease delays and cost, the City of Santa Cruz has proposed to package all its repair and maintenance activities into one CDP application to allow for efficient implementation of such activities required for safe operation and public use of the Wharf. Specifically, the Program includes the repair and replacement of Wharf structures separated into three functional groups: foundation (piles and caps), decking (stringers, decking, and asphalt/concrete paving), and superstructure (buildings on top of the Wharf). The proposed foundation and decking materials (other than paving) are proposed to be comprised of treated timber. The proposed five-year project would remove and replace approximately 200 wooden pier pilings and their associated wooden support beams and hardware at locations across the Wharf's entire length. In addition to the work planned for the Wharf's underlying structure, the project would address several areas of the wharf's surface components (such as decking, concrete walkways, drivable paved sections, and railings) that have weathered due to normal wear and tear. Sections of hand railing along the edge of the Wharf and small areas of asphalt pavement in vehicle parking areas will be replaced on an as-needed basis. Further, proposed repairs to the "superstructure" or buildings on top the Wharf include replacement of doors, windows, and roofs, repair of damaged wood framings, exterior painting, and preservation activities for the historic Marcella fishing boat. All Program activities are designed to maintain existing wharf configurations (i.e., not to change or expand these dimensions) using similar materials as to what currently exists.

To avoid impacts during the busy tourist summer season, work that requires the use of heavy machinery, such as pile driving and removal of the Wharf's decking or paved surfaces, will be prioritized to take place after Labor Day and prior to the Memorial Day weekend, though major activities may occur outside of this time. All other proposed activities would occur year-round on an as needed basis and will include activities such as replacement of building windows or damaged railings. Work would be performed during daytime hours from the Wharf's deck to the maximum extent practical, with small boat assistance as needed or via a barge-mounted crane. In-water repairs may be performed by a diver utilizing a small boat. In-water work is limited to the removal of broken piles, repair of lower ledgers, pilings, landings, floating docks, and storm damaged deck structure and will require removal of obsolete materials by boat. Staging would occur on the Wharf's deck or in a City-owned private parking lot. Construction equipment and materials would be transported via truck along the wharf's deck or by boat.

In addition to the proposed Program, the proposed project would authorize repairs

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completed pursuant to ECDP G-3-19-0041, including the replacement of seven pilings (including caps, joists, and related decking) and six ledgers (horizontal bracing) at various locations along the Santa Cruz Municipal Wharf.

The Santa Cruz Wharf Maintenance Plan (WMP) (see **Exhibit 4**) describes the proposed repair and maintenance components and procedures to cover both critical and non-critical activities over the next five years to ensure safe and reliable continued and future use the Wharf. The WMP also includes a variety of proposed mitigation measures (see Appendices A and B of **Exhibit 4**) and project plans in Appendix C.¹

C. Standard of Review

The proposed project site is located seaward of the mean high tide line within the Commission's retained CDP jurisdiction. The standard of review for development within the Commission's retained jurisdiction is Chapter 3 of the Coastal Act.

D. Coastal Act Use Priorities

Applicable Coastal Act Provisions

The Coastal Act defines coastal-dependent and coastal-related as follows:

Section 30101: "Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.

Section 30101.3: "Coastal-related development" means any use that is dependent on a coastal-dependent development or use.

Coastal Act Section 30001.5 states, in relevant part:

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....

(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...

¹ Activities that do not qualify as development, and thus are not subject to the conditions of this CDP, include interior repair and maintenance, the hanging of flags, cleaning of site furnishings such as trash cans, and the setup of temporary scaffolds for less than 24 hours to complete inspections.² Coastal Act Section 30610.

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Coastal Act Sections 30234 and 30234.5 also provide specific protections for boating harbors and commercial fishing. They state:

Section 30234. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Section 30234.5. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Analysis

Marine biological resources in the Monterey Bay support numerous coastal-dependent and coastal-related activities that emanate from the Wharf. An estimated one million individuals visit the Wharf annually to simply take in the shoreline and ocean views, and to use the Wharf's restaurants, fishing areas, fish markets, gift shops and other businesses. The Wharf also provides opportunities for pier fishing, as well as kayak and small fishing boat rentals.

Coastal-dependent and coastal-related developments are among the highest priority Coastal Act uses. As indicated, the Wharf provides an array of recreational boating, fishing, and coastal-related opportunities that generate jobs, provide recreational opportunities, and draw tourists from around the world. The proposed Program activities not only support coastal-dependent and coastal-related uses but are in fact integral to the continuation of such uses and therefore have a priority under the Coastal Act. Further, recreational ocean boating and fishing are coastal-dependent priority uses that cannot function without the proposed Program activities which are required to ensure safe and reliable use of the Wharf. Accordingly, the proposed repair and maintenance program is considered a high priority under the Coastal Act.

Coastal Act Section 30234 calls for the protection of recreational fishing and boating industries, as well as the upgrading of such facilities where feasible. Coastal Act Section 30234.5 recognizes the economic, commercial, and recreational importance of fishing activities. To decrease delays and cost, the City of Santa Cruz has proposed to package all its repair and maintenance activities into one CDP application to allow for efficient implementation of such activities required for safe operation and public use of the Wharf. While the Coastal Act provides exemptions from CDP requirements for certain routine repair and maintenance activities to facilitate ongoing work that does not involve a risk of substantial adverse environmental impact,² Section 13252 of the California Coastal Commission's regulations (that implements Section 30610's repair and maintenance provisions) requires a CDP for repair and maintenance in this case because the proposed activities are located in, adjacent to, and above coastal waters,

² Coastal Act Section 30610.

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and thus the CDP exemptions that might otherwise apply do not.

Program activities are limited to necessary structural maintenance to degraded structural components to ensure safe continued and future use of the Wharf. Such activities will prevent the need for emergency repairs that have a greater risk for environmental impacts. This CDP allows the City of Santa Cruz to proceed with repair and maintenance activities that are essential to maintaining recreational fishing and support numerous coastal-dependent and coastal-related businesses. Therefore, the Commission finds that this project implements, and is consistent with, Coastal Act Sections 30234 and 30234.5.

E. Public Access and Recreation

Applicable Coastal Act Provisions

As indicated above, one of the Coastal Act's enumerated goals is to maximize public recreational use and enjoyment in the coastal zone. To do so, the Coastal Act requires that public recreational access opportunities be maximized, and specifically protects public recreational activities in coastal areas, such as the boating, fishing, and visitor-serving activities and opportunities found on the Santa Cruz Municipal Wharf.

Applicable provisions include:

Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

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

Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

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 30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in

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existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

These overlapping Coastal Act policies protect public recreational access to and along the beach/shoreline and to offshore waters for public recreational access purposes, particularly free and low-cost access. Importantly, Coastal Act Section 30210 requirement to maximize access and recreational opportunities represents a different threshold than to simply provide or protect such access, and it is fundamentally different from other like provisions in this respect. Namely, it is not enough to simply *provide* access to and along the coast, and not enough to simply *protect* access; rather such access must also be *maximized*. This terminology distinguishes the Coastal Act in certain respects, and it provides fundamental direction with respect to projects along the California coast that raise public access issues, like this one.

Analysis

Since its construction in 1914, the Wharf has been a multi-use facility whose main function has evolved from being primarily a commercial shipping and fishing hub for the Central Coast to its present-day focus as a recreation and tourist destination. The Wharf provides to the public free and low-cost³ opportunities for recreational fishing, wildlife viewing, dining, shopping, and enjoying time on the coast of Monterey Bay. The Wharf's offerings of public access to the coast and its close proximity to the highly popular visitor destinations of coastal Santa Cruz make it a valuable free and low-cost access point to the coast, as well as a cherished landmark along the Central Coast.

The Wharf offers an excellent public vantage point from which to observe the near-shore waters of northern Monterey Bay and the Monterey Bay National Marine Sanctuary (MBNMS). Extending almost half a mile into the bay, the Wharf provides viewing opportunities for many of the marine species that live in and migrate through the MBNMS, including sea birds, pinnipeds, dolphins and porpoises, whales, and sea turtles. Visitors and Wharf users may access the Wharf via two public bus lines, by car with the payment of parking fees on the Wharf, by parking on nearby City streets (some of which are metered), and by bicycle using well-marked bike lanes on City streets near the Wharf. Free pedestrian access is available on sidewalks located on both sides of the Wharf.

The Wharf's function as a free and low-cost access point for coastal recreation, tourism, and wildlife viewing will be maintained during the proposed maintenance and repair activities because the numerous sub-projects within the overall five-year plan will not be conducted all at once. Rather, they will be staggered across the Wharf area over the extended timeframe of the project. Work taking place on any particular area of the Wharf will necessarily restrict public access to that relatively small area for safety reasons, but access will remain available to the rest of the wharf. Even if multiple sub-

³ Access to the wharf for bicyclists and pedestrians is free, and the only charge is for parking cars on the wharf.

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projects are conducted simultaneously across several areas of the wharf, most of the wharf and its facilities will remain open to the public. Accomplishing the proposed needed structural repairs and routine maintenance of this century-old wooden structure in the harsh marine environment will ensure that the Wharf remains structurally sound and safe for public use. By contrast, deferring crucial maintenance actions only worsens the compromised condition of some wharf components and compounds the ever-present challenge of maintaining the structure.

In conclusion, public access will be maintained throughout the duration of the proposed maintenance and repairs as much as possible. Access to the Wharf and travel up and down the Wharf has never been completely interrupted by maintenance work except for in the case of severe weather events and/ or a loss of power, water, or sewer service. During necessary maintenance activities, a small area will be fenced off where the work is occurring. Traffic is almost always able to pass around the worksite and traffic is always able to enter and exit the Wharf. Furthermore, work is typically limited to weekdays and major activities is prioritized during the non-summer months to minimize potential impacts to public access.

The Wharf provides an outstanding public gateway to the coast and a unique means of accessing marine recreational opportunities and the MBNMS. The five-year project's total package of small sub-projects is arrayed across a time frame and the Wharf's large area and will temporarily limit but not severely impede public access to the Wharf. As conditioned, the proposed project will maintain and enhance public recreational access and facilities, including for fishing, recreation, and other visitor-serving activities, and is therefore consistent with the above-cited Coastal Act public access and recreation provisions.

F. Marine and Biological Resources

Applicable Coastal Act Provisions

Although the proposed project clearly provides for Coastal Act priority uses and development, including in terms of protecting and enhancing public recreational and visitor-serving access, as described above, the proposed project is also located over the beach, the Pacific Ocean, and the MBNMS, all of which raise concerns for the protection of marine resources during project implementation. Coastal Act Sections 30230, 30231, and 30233 each protect such marine resources in a variety of ways, including limiting overwater/fill development to seven enumerated use types. They state:

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,

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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.

Section 30233(a). *The diking, filling, or dredging of open coastal waters...shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:* (1) *New or expanded port, energy, and coastal-dependent industrial facilities. ...* (3) *In open coastal waters...new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. ...* (7) *Nature study, aquaculture, or other similar resource-dependent activities. ...*

Analysis

Background

The Santa Cruz Wharf is located at the northern end of Monterey Bay. Monterey Bay supports a diverse complex of marine and marine-related habitats, including open ocean, kelp forests, rocky seashore, nearshore intertidal, sandy beaches, coastal streams, estuarine systems, and wetlands. Annual seasonal upwelling brings nutrient rich, cold water up from the Monterey Bay Canyon, which causes the bay to teem with microscopic life and krill. In turn, this upwelling provides an abundance of nutrition for numerous species along the food chain and supports a wide range of marine life, including benthic communities, marine mammals, turtles, and fish. While the abundance of some of the whale species varies seasonally in the bay, many marine mammal species such as seals, sea lions, porpoises, dolphins, and otters are year-round residents of the bay and are often found in the vicinity of the Wharf.

The Santa Cruz Wharf extends into Monterey Bay for approximately 2,700 feet, and the base of the Wharf (spanning approximately the initial 200 feet) is located over a portion of Main Beach. The marine habitats in the area surrounding the Wharf consist of various intertidal, kelp forest, and open-water habitats. Bottom substrates in the project vicinity are predominantly soft, sandy sediments. The open water habitat in the area surrounding the Wharf includes a variety of pelagic marine invertebrates such as jellyfish, squid, and shrimp. Fish commonly found in vicinity of the Wharf include anchovies, sardines, and adult salmon and steelhead.

Of the twenty-seven species of cetaceans seen in the Monterey Bay, about one-third occur with relative frequency. Gray whales are the most common and typically are present within three kilometers of the coastline during their predictable winter and spring seasonal migration, while others, such as humpback whales, are typically present in the

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bay during feeding aggregations in the summer and fall months. Waters surrounding the Wharf are commonly used by harbor porpoises and bottlenose dolphins. In addition to cetaceans, five species of pinnipeds (i.e., seals and sea lions), as well as the southern sea otter, are widely present in the waters surrounding the Wharf and some species use the lower wharf structures to haul out.⁴ However, marine mammal presence is difficult to predict and not all species and individuals follow these general trends. Predictions of marine mammal presence and density are typically based on average observations over many years and therefore may not reflect the actual behavior of all individuals within a species, or the variation in abundance or occurrence in a single year or season.

The Monterey Bay area also has a significant bird population including shorebirds that make their nests on various Wharf structures, as well as migratory birds resting on the Wharf during their journey on the Pacific Flyway. A variety of bird species use the Wharf and surrounding waters for nesting, roosting, and feeding. Species known to nest regularly on the Wharf include the pigeon guillemot (*Cephus columba*), rock pigeon (*Columba livia*), western gull (*Larus occidentalis*), pelagic cormorant (*Phalacrocorax pelagicus*), California brown pelican (*Pelecanus occidentalis californicus*), California gull (*Larus californicus*), and Heermann's gull (*Larus heermanni*).

Proposed activities with the potential to adversely affect sensitive marine resources include repair and maintenance of the Wharf's structure (associated with piles, bents, caps, decking, etc.), the materials being used which may be hazardous to the marine environment (including concrete, plastics, and wood preservatives), as well as fluids and oils associated with mechanized construction equipment. Potential direct and indirect impacts to marine resources include damage to sensitive species and/or their habitats from pile driving activities or interference with movement, foraging, and/or reproduction of sensitive species from equipment operation (e.g., noise, disturbance, etc.), and the discharge of harmful materials into the marine environment.

Biological studies were completed to determine the extent to which the proposed repair and maintenance activities may affect aquatic or terrestrial species listed as threatened or endangered under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), and for species that are candidates for listing, along with any designated or proposed critical habitats, Essential Fish Habitat (EFH), and Habitat Areas of Particular Concern.⁵ Endangered or sensitive marine animal species that have a high potential to occur in the immediate vicinity of the Wharf include Chinook salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*Oncorhynchus tshawytscha*), South/Central California Coast steelhead (*Oncorhynchus mykiss irideus*), North American green sturgeon (*Acipenser medirostris*), and southern sea otter (*Enhydra lutris nereis*). Other special-status species with a potential to occur are the Steller sea lion (*Eumetopias jubatus*), humpback whale (*Megaptera noveangliae*), and

⁴ Sea lions regularly haul out on lateral bracing structures under the deck and near the terminus of the Wharf, and the Wharf has several viewing portals that provide visitors the opportunity to view the sea lions. Harbor seals sometimes haul out on Wharf landings.

⁵ The biological studies include site reconnaissance and nesting bird surveys, which can be found in their entirety within the Santa Cruz Wharf Master Plan's Environmental Impact Report (EIR).

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killer whale (*Orcinus orca*). Three birds commonly known to nest on Wharf structures, including the pelagic cormorant (*Phalacrocorax pelagicus*), pigeon guillemot (*Cephus columba*), and western gull (*Larus occidentalis*), are afforded protection under the Migratory Bird Treaty Act, and are considered sensitive during their reproductive life history phases. No special status plant species are expected to occur on or immediately adjacent to the Wharf. Furthermore, the Wharf is located within an area designated as EFH⁶ in three fishery management plans (FMPs): the Coastal Pelagic Species FMP, the Pacific Coast Groundfish FMP, and the Pacific Coast Salmon FMP. Lastly, National Marine Fisheries Service (NMFS) requested on November 27, 2019 that critical habitat for the Southern Resident distinct population segment (DPS)⁷ killer whale be included in the consultation with the Army Corps of Engineers for the proposed project.

Because the repair and maintenance activities have the potential to impact marine resources, the Santa Cruz Wharf Master Plan EIR recommended a series of best management practices (BMPs) that were developed through consultation with other federal and state natural resources agencies to avoid or minimize impacts from the proposed repair and maintenance activities. The proposed BMP's are included in the project description and are located in Appendix A and Appendix B of the proposed Wharf Maintenance Plan (see **Exhibit 4**). Special conditions (as described below) are also required to codify the proposed BMPs and impact minimization measures or to provide additional protection and enhancement of coastal water quality, marine wildlife, and habitats consistent with the Coastal Act.

Treated Wood and Other Materials

In terms of materials, the Wharf, like all coastal wharves and piers, is exposed to extreme elements, not the least of which is the ocean itself. These elements generally require materials to be used that can withstand such a brutal environment (see images of the Wharf during a storm in **Exhibit 3**). Historically, that has meant that the wooden components that make up the overwater structure, such as pilings and railings, were heavily treated with preservatives designed to limit deterioration, including creosote timbers for piles, which were historically very commonly used (and continue to be in place at this Wharf). The most used types of preservatives for treating piles have changed over time, with the oldest piles being treated with creosote. More recently installed piles are either treated with ammoniacal copper zinc arsenate (ACZA),⁸ or treated with ACZA and then dipped in a marine grade

⁶ EFH is defined very broadly in these plans and includes the marine environment from the shoreline out to hundreds of miles offshore.

⁷ Under the Federal Endangered Species Act, a distinct population segment—or DPS—is a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. NMFS listed the Southern Resident killer whale DPS as endangered under the FESA in 2005.

⁸ ACZA is a wood preservative that includes both copper and arsenic, and it is used to prevent insect infestation, rot, and other sources of wood degradation and breakdown. Dissolved copper is highly toxic to a broad range of aquatic species. However, the arsenic, chromium, and zinc in the metal-arsenate preservatives are less toxic than copper to aquatic organisms in both freshwater and marine environments.

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polyurea coating to prevent leaching of the ACZA into ocean waters.

Preservative-treated wood has historically been commonly used in the construction of over-water structures because it is economical, easy to install, and provides protection from corrosive saltwater, fungal decay, and marine boring organisms. However, the pesticides in wood preservatives—commonly copper—used to protect the integrity of the structure's wooden components can adversely impact aquatic species by leaching into the water column or accumulating in the underlying sediment. Dissolved copper is highly toxic to a broad range of aquatic species. For example, metals leached into sediments near copper-treated wooden piles in aquatic environments have been found to accumulate in benthic and epibenthic organisms. These metals can bioaccumulate throughout the food chain and can cause toxic effects at higher trophic levels. In addition, humans and mammals that utilize the Wharf may be directly exposed to the preservatives from either frequent contact by humans (such as deck railings) or by marine mammals (such as dock decking onto which sea lions commonly haul out). Thus, the use of undipped or unsealed treated wood in or over water is of particular concern.

The proposed project includes the as-needed repair, replacement, and maintenance of the Wharf's preservative-treated wood components (including the wooden piles supporting the Wharf, Wharf and floating dock decking, and Wharf and floating dock railings) with similar wooden components treated with ACZA.

There are few suitable alternatives to the proposed use of treated wood because of the Wharf's distinctive all-wood construction and multi-faceted value to the region as a historical structure. Specifically, priority was given to finding replacement components that are both durable, would blend well with the Wharf's existing historic wooden structure, and would minimize environmental impacts during and after construction. Replacing worn wooden piles with concrete or composite piles would seriously impact the aesthetic value of the historic wooden Wharf. Choosing to not carry out structural repairs and ordinary maintenance on the Wharf through the five-year repair and maintenance plan would allow the Wharf to become further weakened by wave action and weather that naturally occur in a coastal environment. Gradual weakening of the Wharf through further degradations to its basic structure would risk public safety and property, private businesses operating on the public Wharf, and the Wharf's broad intrinsic value to the region. Thus, using wooden components that pose the least environmental risk to the marine environment through a comprehensive maintenance plan is the most effective option at the lowest environmental cost.

Although today there are many more inert materials (such as fiberglass, concrete, and steel) that can and are used in such open water applications, it is still not uncommon to use wood-based products that are treated to help limit their deterioration over time. The Coastal Commission's Coastal Water Quality Program staff has developed recommendations to minimize the water quality impacts of building materials used in overwater, in water, and waterfront structures. While Commission Water Quality staff recommends the use of alternative inert materials instead of treated wood when constructing overwater and in water structures (such

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as reinforced concrete, steel, or fiber-reinforced polymer composites), such staff acknowledges that replacing piles in an existing and historic treated wood structure is a valid engineering reason to use treated wood. In more historic applications, where the wood timbers of a Wharf are part of its aesthetic appeal and historicity, which is the case for the Santa Cruz Municipal Wharf, wood material can sometimes be the only choice that meets other project objectives. That almost always means that the wooden materials are treated with substances to reduce decay of wood that is exposed to the ocean environment. In such cases, it is important to ensure that such materials appropriately maintain the marine environment. Further, the Commission's Water Quality staff has found that when preservatives are used to treat wood piles and other in-water or over-water wooden components, ACZA and Chromated Copper Arsenate (CCA)⁹ preservatives may be used if the treated wood is appropriately sealed because the arsenic, chromium, and zinc in the metal-arsenate preservatives are less toxic than copper alone.

As previously stated, the City proposes to treat all replacement wooden Wharf components with similar wood components treated with ACZA.¹⁰ The ACZA-treated wood is pressure-treated with the preservative at a treatment facility and the City will store the wood offsite until it is proposed for use. Final preparation of the treated wood will occur off the Wharf to the maximum extent feasible. When brought to the project site location on the Wharf, the pressure treated wood will be placed into an impervious containment device (i.e., a portable berm system) where any final preparation may occur (such as cutting railings or decking to length) to prevent construction debris, treated saw dust, or penetrating sealant from entering the marine environment.

In terms of ACZA-treated piles and the potential bioaccumulation of metals in sediment, there is evidence that sediments near pilings in moderately flushed areas (i.e., areas with active wave or ocean action) do not show accumulation of metals. Because the sediment below the Wharf is well-flushed, it is therefore anticipated that such trophic (meaning related to feeding and nutrition) transfer of metals from ACZA-treated piles to prey species would be insignificant. Further, when piling replacement is necessary, the City proposes to use ACZA-treated Douglas fir piles dipped with a marine-grade epoxy/polyurethane coating to prevent leaching of the ACZA preservative into marine environment. The marine-grade polyurethane coating is applied to encapsulate the portions of each piling from the mudline to beyond the area in contact with water. In this case, it is appropriate to use polyurea-coated ACZA-treated wood replacement piles instead of alternative materials due to the historic nature of the Wharf and because less than 5 percent of the existing 4,450 wooden piles are expected to require replacement over the next five years.

However, the Wharf Maintenance Plan (**Exhibit 4**) contains conflicting information

⁹ In this case ACZA is being used instead of CCA.

¹⁰ Note that the Wharf Maintenance Plan (**Exhibit 4**) states that CA-A-preserved lumber may also be used but Commission staff clarified with the Applicants that only ACZA wood preservative is proposed for use, and Special Condition xxx incorporates this limitation.

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regarding the extent of the proposed polyurea sealant. Section 4.3 of the Maintenance Plan states that the “Polyurea sealant shall terminate approximately thirteen feet from the tip of the pile and five feet from the butt end of the pile, so that the portion of each pile exposed above the mudline is coated to inhibit leaching of the AZCA preservative into coastal waters.” This conflicts with the description in Appendix A of the Wharf Maintenance Plan which reads “For piles, protection shall extend two feet below the mudline and two feet above OHW,¹¹ at a minimum...”. The latter will better maintain ocean water quality because it references the OHW instead of a specific distance on the piling itself and is similar to the Commission’s approach in other wharf projects. Thus, **Special Condition 5(a)(6)** clarifies that that piling polyurea sealant shall extend, at a minimum, two feet below the mudline and two feet above OHW. This condition also provides that a PVC plastic barrier over a polyethylene liner may be used in lieu of a polyurea pile coating.

When decking, railing, or railing post replacement is necessary, the City also proposes to use ACZA-treated lumber. All exposed, or freshly cut, ends of treated lumber will be sealed with a penetrating sealant. The City also proposes to paint the treated wood railings and rail posts with a latex paint (as seen on page 17 of **Exhibit 3**) to seal the treated lumber where it is expected to come into frequent, direct contact with humans. A steel grating will be secured at the bottom section of all railings, which will capture trash and debris due to stormwater runoff or littering and prevent such materials from entering ocean waters. As stated above regarding the use of treated wood for replacement pilings, ACZA-treated wood is generally appropriate to replace damaged or deteriorated components of the Wharf’s support structure (such as the railings or decking) due to the relatively small percentage of these components that would be replaced over the five-year duration of the permit. The proposed use of ACZA-treated lumber and sealants is codified in **Special Condition 5(a)(1)**.

Another concern with the proposed use of ACZA-treated wood at this wharf is with respect to sea lions and harbor seals that haul out on decking and landings, because the arsenic in ACZA is highly toxic to marine mammals. Further, the ACZA-treated wood decking on the boat landings and docks is subject to saltwater splash, and thus requires a higher preservative retention level (0.60pcf) than the decking wood on the wharf itself (0.25pcf), meaning potentially more toxicity to marine mammals and more ACZA leaching into the marine environment. While not described in the Wharf Maintenance Plan, the City has proposed to coat the entirety of the replaced ACZA-treated wood on the lower ledgers of the Wharf’s fixed landings (i.e., where marine mammals are known to haul out) with a penetrating sealant to address this issue. **Special Condition 5(a)(4)** codifies this proposed measure and **Special Condition 8** requires submittal of a revised Wharf Maintenance Plan to incorporate the terms and conditions of this permit into the

¹¹ OHW is an acronym for ordinary high-water mark.

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Wharf Maintenance Plan as well as eliminate internal inconsistencies within the document.¹²

While the proposed wood preservative for replacement wooden components is consistent with the Commission's Water Quality staff's recommendations, it would be also preferable to use alternative materials instead of treated wood if most of the decking and/or stairways leading down to any one of the five fixed boat landings is replaced, as this decking will not be surfaced with asphalt or concrete. Thus, **Special Condition 5(a)(5)** requires alternatives to treated wood (such as concrete, metal, fiberglass, plastic, wood-plastic composites, or naturally decay-resistant wood species) to be prioritized for use if replacement of most of a component is necessary (such as the stairs leading to a fixed landing or the fixed landing decking).

The railings along the Wharf are also made of wood treated with ACZA. Because the railings are frequently touched by human hands, the Applicant proposes to seal all treated wood railings and railing posts with latex paint to minimize the leaching of preservatives from the treated wood. The maintenance and reapplication of the latex paint should follow BMPs to minimize the release of treated wood particles and leaching of preservatives into coastal waters. Sanding, scraping, and pressure-washing, and using deck cleaners and brighteners, should all be avoided on preservative-treated wood components (such as the dock decking), as these methods may increase the leaching of wood preservatives and the discharge of treated wood particles into the water. **Special Condition 5(c)** describes the parameters for maintenance and cleaning of treated wood in a manner that maintains marine resources and the biological productivity of coastal waters.

Other aspects of the proposed project are either not consistent with Commission Water Quality staff's recommendations or are not specified in the project description. Thus, **Special Conditions 5(a)(2) and 5(a)(3)** are needed to include additional measures ensure Coastal Act consistency, including by requiring that all treated wood be treated to the standards of the lowest appropriate Use Category for each component of the structure and requiring that only treated wood that has been certified as produced for use in aquatic environments shall be used (as indicated by a BMP Mark or Certificate of Compliance) be used where available.

Lastly, the proposed project also has the potential to impact marine resources and coastal water quality through the incidental release of preserved wood into the marine environment during removal and replacement of preserved wood components. The proposed project includes demolition and replacement of the preserved wooden Wharf components of the Wharf such as decking, cap beams, stringers, bracing. Due to the substantial amount of preserved wooden elements that may be deconstructed and replaced during implementation of repairs and the location of the Wharf within the Monterey Bay, the possible leaching of ACZA from

¹² Inconsistencies such as references to the use of CCA wood preservative (as only ACZA is proposed) and disparate descriptions of pile driving mitigation measures (described further in the "Noise Impacts During Pile Driving" section below).

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preserved wood (either in the form of small pieces of wood or sawdust) that may fall into adjacent marine waters presents a potential source of adverse impacts to both water quality and marine biological productivity. To address this issue, the Applicant proposes to retrieve any errant debris that may enter the water via the use of a skiff and removal by hand at the end of each day; however, that may not capture any smaller pieces of errant debris that enters the water. Further, retrieval by hand is not likely to capture pieces that become imbued with water and sink or those that have floated out into coastal waters. To ensure that the hazardous substances associated with the proposed development activities are adequately contained, consistent with Coastal Act Sections 30230 and 30231, **Special Condition 5(b)** requires additional protective measures be implemented during major repair and maintenance activities to prevent foreign materials from entering the water in accordance with Commission standards.

Accordingly, as modified by the conditions of this permit, the use of treated wood for the proposed repair and maintenance activities will be sufficient to maintain biological productivity and water quality consistent with Coastal Act sections 30230 and 30231.

Wharf Piling Repair

Wharf maintenance staff regularly inspect the Wharf for broken or damaged pilings that require repair or replacement. Piles most commonly break at the sand line or at the water line. The portion of the pile above the break can swing freely and damage the Wharf; broken or damaged piles are typically removed as soon as conditions allow. For piles that break at the water line, the portion of the pile below the water line may be left in place until a repair to that area is made. When the repair is made, the crew evaluates whether the pile needs to be removed to allow for a safe and structurally sound repair. If it does, and if weather conditions allow, the pile is removed. When removing the pile is not possible, the pile is left in place and a replacement pile is driven next to the adjacent pile.

Structural damage of timber piles at the waterline is commonplace in marine environments. Tidal action, saltwater exposure, marine borers, and general weathering are all examples of factors affecting the lifecycle of these structures. For timber wharf pilings that may be damaged but do not require full replacement, the proposed project

includes repair of existing wooden wharf pilings using the FX-70 structural piling repair and protection system, which is essentially a fiberglass jacket that is custom-made and assembled to the precise specifications of each repair project. The FX-70 system eliminates the need to dewater the site or build cofferdams as the structure can generally remain in service while the pile repair is executed. However, this type of piling repair includes the use of marine epoxy grout, which has the potential to introduce grout to the marine environment. However, the proposed project includes appropriate containment and mitigation measures to maintain water quality during piling repair activities as seen in Appendix A of the Wharf Maintenance Plan (see **Exhibit 4**). Thus, as proposed, the Commission finds the proposed piling repair method is consistent with the Coastal Act.

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Noise Impacts During Pile Driving

The existing Wharf piles are 14-inch diameter Douglas Fir timber piles that have been treated by a preservative to minimize marine borer degradation in the marine environment. The proposed project includes the replacement of up to two piles per day and up to twenty piles in one year, for a cumulative total of up to 200 pilings that may be replaced over the five-year maintenance period. Replacement piles will be 16-inch (or less) diameter Douglas fir timber piles installed using an impact hammer. As discussed above, these piles will be treated with an ACZA preservative (see **Special Condition 5(a)(1)**) and encapsulated within a continuous marine grade polyurea coating, from just below the mudline to just above the ordinary high-water line (see **Special Condition 5(a)(v)**) to prevent leaching of wood preservatives into the marine environment. As proposed, a cushion block will also be used between the pile cap and the impact hammer to attenuate sound during pile driving.

Because timber pile driving activities would be carried out both above and within marine waters, the project has the potential to result in adverse impacts to both marine organisms and the marine environment (see also “Water Quality” discussion above). Specifically, the proposed pile driving would result in the generation of elevated levels of underwater sound in nearshore waters known to support a number of species of marine mammals, including harbor seals, California sea lions, southern sea otters, and numerous species of dolphins, porpoises, and whales. All of these species are protected under the Marine Mammal Protection Act. Several of these species are listed under the federal endangered species act, including the southern sea otter (threatened) and three whale species: the blue, humpback, and killer whales (all endangered).

Marine mammals, in particular cetaceans such as whales, dolphins, and porpoises, are known to be susceptible to disturbance and injury from high levels of human-generated underwater sound (see also below). Marine mammals rely on sound for communication and the ability to sense their environment for a variety of critical life functions (e.g., traveling, finding mates or young, foraging, etc.). Although an animal may communicate and sense its environment in many ways and with a variety of different sensory organs, light can only penetrate a few hundred feet underwater while sound can travel much farther. Because water is denser than air, sound travels faster and farther in the ocean. Its speed and distance depend on the density of the water (determined by its temperature, salinity, and depth) and the frequency of the sound, measured in hertz (Hz). For example, noise waves bend toward colder, denser water.¹³ Some sounds, particularly low-frequency ones, can cover vast distances, even across ocean basins. As a result, cetaceans and other marine mammals have evolved to rely primarily on sound to sense their environment, communicate, and avoid predators. Increased anthropogenic generated noise in the marine environment has been shown to interfere with these activities and, in some cases, to cause internal injury, stranding, and mortality. Similar adverse impacts exist for fish, turtles, and invertebrates as they also use sound for basic life

¹³ See, for example, <https://www.nrc.gov/docs/ML1225/ML12250A723.pdf>.

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functions.

Sound pressure pulses as a function of time are referred to as a waveform. Peak waveform pressure underwater is typically expressed in decibels (dB) referenced to 1 microPascal (μ Pa). Sound levels are generally reported as peak levels (peak), root-mean-square pressure (RMS), and sound exposure levels (SEL). In addition to the pressure pulse of the waveform, the frequency of the sound (in Hz) is also important to evaluating the potential for sound impacts. Low frequency sounds are typically capable of traveling over greater distances with less reduction in the pressure waveform than high frequency sounds.

The striking of a pile by a pile-driving hammer creates a pulse of sound that propagates through the pile and radiates out through the water column, seafloor, and air. Exposure of marine mammals or fish to low levels of sound for a relatively long period of time, or exposure to higher levels of sound for shorter periods of time, may result in auditory tissue damage (damage to the sensory hair cells of the ear) or temporary hearing loss referred to as a “temporary threshold shift” (TTS). Species may recover from TTS minutes to days following exposure. An additional possible effect on hearing from loud underwater sound is referred to in the literature as a permanent threshold shift (PTS). PTS is a permanent loss of hearing and is generally accompanied by death of the sensory hair cells of the ear. Several studies carried out in recent years suggest that instantaneous exposure to a peak sound pressure level (known as SPL) as well as from accumulated exposure to a lower sound level over a longer period (known as cumulative sound exposure level (SEL)) can affect hearing through auditory tissue damage.

Marine mammals have been divided into hearing sensitivity groups, referred to as functional groups, under the assumption that there will be differences in hearing sensitivity and dynamic hearing range between the various species. For example, it is assumed that there are only minor differences between the hearing systems of baleen whales, and thus all baleen whales are classified into the Low-Frequency cetaceans hearing group, while pinnipeds are divided into phocid seals (earless) and otariids (eared seals) (NMFS 2018). NOAA (National Oceanic and Atmospheric Administration) Fisheries compiled and summarized the best available information on the effects of sound on marine mammals' hearing into the NMFS (National Marine Fisheries Service) “Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing.” This document provides technical guidance for assessing the effects of underwater man-made sound on the hearing of marine mammal species (i.e., onset of PTS and TTS) by identifying acoustic thresholds that may harass or injure marine wildlife. In addition, substantial progress has been made in quantifying marine mammal hearing and the effects of noise on hearing for a range of taxa in the past few years with updated acoustic thresholds being released annually over the past two years, with the most recent guidance published in 2019.¹⁴ This most recent update reflects the latest science and generally indicates that animals are more sensitive than previously thought, and

¹⁴ Southall et al, 2019.

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includes acoustic thresholds for amphibious species, such as the sea otter, and reclassified several function groups based on new scientific knowledge. Similarly, in 2008, an interagency working group comprised of representatives of state and federal resource management agencies from California, Oregon, and Washington developed recommendations of peak and accumulated sound levels to be used as thresholds for injury to fish, which are used as the current standard.

Pile driving produces high sound pressure levels in both the surrounding air and underwater environment. Sound levels vary substantially and are specific to the materials and methods in use, such as the method of pile driving, the pile materials, and the diameter of the pile. The two basic pile driving methods are impact pile driving, where the pile is driven by strikes from a high-energy hammer, and vibratory pile driving, where the pile is effectively vibrated into the sediment. One advantage of using a vibratory hammer is it creates reduced ground vibrations and noise levels compared to impact pile driving, which produces a loud, impulsive sound during every strike. This makes vibratory hammers the preferred alternative. However, according to the Applicant, the use of a vibratory hammer to install timber piles would result in damage to the pile because the hydraulic clamps needed to connect the vibratory hammer to the pile would damage the timber. Thus, the Applicant proposes that timber piles will only be driven using an impact hammer because this method of driving will preserve the integrity and extend the life of the replacement timber piles.

To minimize the damaging effects of sound to marine mammals, turtles, and fish during pile driving activities, the proposed Program includes several noise minimization protective measures when driving piles with an impact hammer such an implementation of the “soft start” technique and use of sound dampening devices. The “soft start” or ramp-up technique allows fish, turtles, and marine mammals to vacate the area before peak sustained pile driving commences. The “soft start” technique begins with a slow increase of impact hammer energy (i.e., an initial set of three strikes made by the hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets) before initiating continuous pile driving. The Program also proposes the use of sound dampening devices and techniques, in the form of wooden cushion blocks placed between the pile hammer and timber pile, to reduce the sound energy transmitted from the hammer into the wooden piles. However, the descriptions of the proposed “soft-start” method differ between different sections of the proposed Wharf Management Plan (see one description of “soft-start procedures on pages 12 and 23 and a different description on page 19 of **Exhibit 4**). To reconcile these differences, **Special Condition 8(b)** requires the disparate descriptions of the soft-start method be revised to reflect the Commission’s standard soft-start procedures as described in **Special Condition 3(a)**. These noise minimization measures to be implemented during all pile driving activities are codified into **Special Condition 3**.

To determine the distance from the active site of pile driving that may harass or injure marine wildlife (i.e., onset of PTS and TTS), referred to as an Exclusion Zone

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(EZ),¹⁵ the City completed hydroacoustic testing of two of the seven Wharf pilings replaced under the emergency authorization provided by G-3-19-0041. Based on results of the hydroacoustic monitoring report, the City is proposing a 60-meter EZ for cetaceans, sea otters, and sea turtles. NMFS staff has reviewed the hydroacoustic monitoring report and is in agreement with the 60-meter EZ (see **Special Condition 3(c)(1)**). The City proposes to employ one Marine Wildlife Monitor (MWM) during all pile driving activities, who will be a trained¹⁶ member of the maintenance crew with the sole duty of monitoring the EZ. The MWM will have the authority to halt work if pile driving activities pose a threat to marine wildlife. The proposed marine mammal protection measures are codified in **Special Condition 3**.

The extensive use of certain Wharf structures by California sea lions and harbor seals poses a challenge for observing an exclusion zone for such species while conducting timber pile driving. However, it is understood that these species are accustomed to a noisy waterfront and are not easily deterred by human activities. Thus, it is anticipated that pinnipeds accustomed to living on the substructure of the wharf will tolerate some amount of commotion and disturbance associated with the project's pile driving activities. Instead of ceasing activities if a pinniped is observed within the 60-meter EZ, the effects of pile driving noise on all pinnipeds within 60 meters of pile driving activities will be monitored and the MWM will have the discretionary authority to cease pile driving activities if one or more pinnipeds appears injured or distressed. Further, the first piles to be driven on any given day will be located as far as possible from known pinniped haul-out locations on the Wharf so that the reaction of the pinnipeds to pile driving activities can be evaluated by the MWM. Finally, a series of protections for pinnipeds will be implemented during pile driving activities to ensure the protection of these species (**Special Condition 3(c)(2)**).

Special Condition 3 also includes a number of measures to be implemented during all pile driving activities at the Wharf, and describes the responsibilities of the MWMs to include: monitoring the exclusion zones, evaluating the effects of pile driving on pinnipeds in the project area, requiring cessation of pile driving activities if marine mammals (other than pinnipeds) or sea turtles enter the exclusion zone or if pinnipeds show signs of distress or if the exclusion zone is not entirely visible (e.g., due to darkness or fog), the keeping of daily logs during piling driving events, and the submission of an annual report summarizing the results of that year's monitoring activities. With these measures in place, adverse impacts to marine mammals, sea turtles, and fish species during pile driving activities are appropriately addressed, and the project can be found consistent with Coastal Act Sections 30230 and 30231.

¹⁵ The exclusion zone is defined as the radial distance between the work site and the locations at which the maximum recorded peak sound pressure level (SPL) or cumulative sound exposure level (SEL) falls below the temporary threshold shift (TTS) and permanent threshold shift (PTS) levels for marine mammals and fish.

¹⁶ The maintenance crew will be trained by a qualified biologist using a NMFS-approved NMFS Approved Wildlife Training Program developed for the proposed project (see **Exhibit 5**).

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Nesting Birds

More than 180 different marine bird species visit or live in the Monterey Bay. Some seabird or shorebird species flock to the area to feed on the teeming numbers of fish that are present due to the upwelling of nutrient-rich coastal waters, while others may stop on their annual “Pacific flyway” migration between southern wintering grounds in Central and South America to northern breeding sites along the North Slope of Alaska.

A variety of bird species use the Wharf, the Wharf buildings, and the surrounding waters for nesting, roosting, and feeding. Bird surveys in the vicinity of the Wharf (i.e., on/under the Wharf and within 100 meters of the Wharf) completed between February 2012 and February 2014, and in 2017, reported 61 and 27 bird species, respectively. Both surveys found that four species were nesting/breeding on Wharf structures: pelagic cormorant (*Phalacrocorax pelagicus*), pigeon guillemot (*Cephus columba*), western gull (*Larus occidentalis*), and rock pigeon (*Columba livia*). The first three of these, including many of the bird species with the potential to be near the Wharf, are afforded protection under the Migratory Bird Treaty Act, and are considered sensitive during their reproductive life history phases.

Of the three native bird species known to nest on the Wharf, pigeon guillemots raise the greatest concern because their nests have been regularly observed and documented along the length of the wharf. Pigeon guillemots nest in protected rock cavities, cliff burrows, artificial nest boxes, and within man-made structures such as the underside and inner cavities of wharves. The inconspicuous nature of their nests make detection challenging for untrained personnel and often requires careful observation for behavioral cues that indicate nest location and status (e.g., active versus fledged). At the Wharf, nesting bird surveys would necessarily be done from the water via kayak or a small skiff, which adds to the challenge of identifying nests. Pigeon guillemots begin to arrive at the wharf in March and peak around late May along this part of the coast; once eggs are laid, the estimated time from incubation to full fledging is on the order of 60-70 days.

In terms of potential construction noise disturbance to shorebirds, gulls, and other coastal birds that may forage or rest on the beaches adjacent to the wharf, these potential impacts are anticipated to be less than significant due to the temporary nature of construction activities and because undisturbed foraging and rest areas not far from the wharf will be available to birds for the duration of the construction window. However, construction equipment and noise generated from the proposed project have the potential to impact bird nesting and roosting habitat on the Wharf’s substructures or buildings, which could affect nestling survivorship.

To minimize potential impacts to nesting birds, the City has proposed to complete “major” activities (proposed as any repair or maintenance activity that involves onsite pile driving, use of jack hammers, or any removal of the Wharf’s deck surface) outside of bird nesting season (i.e., between February 15th and September 1st) as much as possible. When any major activities are proposed to occur within bird nesting season, the City proposes pre-construction nesting bird surveys be completed by a qualified biologist to identify displays of nesting behavior and/or active nests both above and

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below the Wharf's surface.¹⁷ The proposed surveys would be completed within seven days prior to the initial onset of construction activities, would extend to capture all structures within at least 150 feet of the work area, and would be valid for 30 days. If active western gull or pigeon guillemot nests are identified during the surveys, the City proposes that a qualified wildlife biologist delineate no-major-work buffer zones of 100 feet for western gulls and 150 feet for pigeon guillemots active nests unless a reduced buffer is approved by the City biologist.¹⁸ As proposed by the City, a reduced buffer distance for up to four hours of work each day for three consecutive days each week may be allowed if authorized by the City's biologist and if a blind is installed or if a solid decking structure is located between workers and occupied nests. When completing "minor" activities during nesting season (proposed to be all other covered activities not classified as major), the construction crew would conduct informal bird surveys before initiating minor maintenance activities and a no-work buffer of no less than 10 feet would be implemented as described in Appendix A of the Maintenance Plan (**Exhibit 4**). The City states that the Wharf environment is already abnormally loud and particularly busy during the nesting season (as it overlaps with the summer tourist season) and that any seabirds that select nest sites there are undisturbed by, or habituated to, the normal course of business such that additional bird surveys or larger buffers are unwarranted.

The Commission's Staff Ecologist, Dr. Lauren Garske-Garcia, has concerns that the proposed bird nesting surveys and mitigation measures may result in impacts to nesting birds (**Exhibit 6**), particularly in terms of the definition of "major" versus "minor" activities, the proposed buffers, and the use of untrained personnel to complete bird nesting surveys.¹⁹ Typically, the Commission either requires complete avoidance of the general bird nesting season (February 1st through August 31st) or when complete avoidance is infeasible, requires standard construction buffers from active nests of either 500 feet (for raptor species) or 300 feet (for other species) throughout the nesting season. These distances are based on a combination of published scientific literature and a cumulative professional experience among regulatory agencies. In some cases, they are arguably still less than ideal but they are generally consistent across Commission decisions and with the recommendations from agency partners at the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife. At times, the Commission has adjusted distance requirements in either direction depending on the nature of work being done and/or the specific environment; however, when reducing buffers, the Commission has still required measures to dampen the effects of sound and limit visibility of human activities relative to active nests.

Given the numerous proposed repair and maintenance activities, and the challenges presented with conducting some of these activities during stormy weather and rough

¹⁷ This includes surfaces both on and above the Wharf's deck (including rooftops of Wharf buildings) as well as below the Wharf's deck.

¹⁸ No buffers are proposed for any other bird species.

¹⁹ Surveys completed by the construction crew instead of a qualified biologist may not capture all species present given cryptic and inconspicuous nature of certain species of birds known to nest at the Wharf, particularly the pigeon guillemot, making detection challenging for untrained personnel.

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oceanographic conditions, the Commission recognizes that complete avoidance of such activities during bird nesting season is infeasible. That said, the Commission's Staff Ecologist has reviewed the site and recommends buffers of 300 feet from active nests for all major activities that involves the use of heavy machinery but agrees that reduced buffers of 50 feet from active nests is appropriate for minor activities that can be completed solely with hand tools and light power tools (e.g., hand drills but not jackhammers or power saws). However, there is a clear disparity between the proposed definitions of major and minor activities between that proposed by the City and that recommended by the Commission's ecologist.

As previously described, the City proposes the definition of "major" activities to be "any repair or maintenance activity that involves on site pile driving, jack hammers, or removal of the Wharf's deck surface," and proposes the definition of "minor" activities to be all other repair and maintenance activities not contained within the "major" activities definition. Under the City's proposed definition, minor maintenance would include the use of power saws, such as chainsaws for replacement of lower ledgers (i.e., horizontal bracing structures between the pilings). However, the Commission's staff ecologist's recommendation of a reduced buffer of 50 feet from active nests for minor maintenance is based on the use of only hand tools or light handheld power tools, the use of which is not expected to disturb nesting birds at that distance. However, the sound produced using power saws, such as chain saws, 50 feet from an active nest may disturb nesting birds and cause parents to leave the nest and possibly not return.

The intensity or loudness of a sound are described in terms of decibels (dB). Decibels are measured on a logarithmic scale. Environmental noise, such as the sound produced from construction equipment, is commonly measured in A-weighted decibels (dBA). Generally, a 3 dBA increase in ambient noise levels represents the threshold at which most people can detect a change in the noise environment; an increase of 10 dBA is perceived as a doubling of loudness. Sound levels associated with heavy construction equipment range from 80 to 120 dBA and power tools commonly used in construction produce sound levels up to 115 dBA.²⁰ For reference, the volume of a normal conversation is approximately 60 dBA, a vacuum cleaner is approximately 70 dBA, and a blender or lawn mower is approximately 90 dBA.²¹ The Center for Disease Control's National Institute for Occupational Safety and Health published a "Power Tools Sound Power Dataset" that contains sound power levels and vibrations data for a variety of common power tools that have been tested by researchers. Based on that data, the quieter motorized construction tools are the orbital sander (mean dBA of 92) and the motorized screwdriver (mean dBA of 91); the loudest tools are power saws meant for cutting wood (reciprocating saw with a mean dBA of 106, circular saw with a mean dBA of 108, and miter saw with a mean dBA of 107) and tools meant for drilling in masonry or rock (such as the hammer drill with a mean dBA of 105). The sound produced from

²⁰ Seixas N [2004]. University of Washington Final Report: Noise and Hearing Damage in Construction Apprentices.

²¹ See, for example, Federal Aviation Administration (2020).

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the louder tools (~105 dBA) will be perceived as over twice as loud as the quieter motorized construction tools (of approximately 90 dBA).

The Commission's general recommendation is that noise from construction activities at a sensitive receptor (an active nest in this case) should never exceed 60-65 dB due to development activities. Sound intensity decreases in proportion with the square of the distance from the source. Generally, sound levels for a point source will decrease by 5 dBA for each doubling of distance over water. While sound levels taken on site at various distances from the proposed construction equipment would be necessary to know the exact distance at which a 60-65 dB sound level is maintained, the Washington State Department of Transportation published a Biological Assessment preparation manual that includes the average maximum noise levels (L_{max})²² at 50 feet from common construction equipment that shows heavy equipment at that distance ranges from about 73 to 101 dBA for non-impact equipment.²³ Thus, the use of heavy machinery or louder power tools such as power saws could result in elevated sound levels beyond that which is recommended at sensitive noise receptors (an active bird nest in this case). Thus, **Special Condition 2** defines "major" and "minor" activities such that major activities is defined as construction activities that utilize motorized or heavy machinery such as jackhammers, power saws, nail guns, pile driving equipment, or any removal of the Wharf's deck surface, unless the Executive Director finds that the use of a specific brand, model, and type of equipment (based on the published sound levels it produces) qualifies as "minor activities"; and minor activities is limited to that which only requires hand tools or small handheld power equipment such as a motorized screwdriver or a power drill.,.

To allow for the completion of necessary repair and maintenance activities while also providing appropriate protections to nesting bird species, **Special Condition 4** requires pre-construction nesting bird surveys to identify any active nests within or adjacent to the planned work areas and application of a 300-foot buffer (for major activities) or a 50-foot buffer (for minor activities) from any such nests. **Special Condition 4** further requires that the pre-construction nesting bird surveys be completed by a qualified biologist to identify displays of nesting behavior and/or active nests (i.e., as occupied by eggs or nestlings) within 300 feet from the work area along the Wharf up to 30 days but no more than 72 hours prior to commencement of all proposed major activities to be done between March 15th through August 15th.²⁴ Such surveys would be valid for one week and may be focused on those areas for planned maintenance and repair activities rather than necessarily covering the entire wharf structure and may be sequenced as needed to address specific work areas and schedules over the course of the nesting

²² L_{MAX} is the highest sound level measured during a single noise event (such as a vehicle pass by), in which the sound level changes value as time goes on.

²³ See <https://www.nrc.gov/docs/ML1225/ML12250A723.pdf>.

²⁴ **Special Condition 4** only requires nesting bird surveys (and construction buffers from active nests) for work done between March 15th and August 15th (instead of the full nesting season of February 15th and September 1st), which should alleviate some of the burden to the Applicant reducing the period in which bird surveys are required by six weeks annually.

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season (see **Exhibit 8**). A no-construction activity buffer of 300 feet would be applied to all active nests for all major activities.

For minor activities, **Special Condition 4** requires a no-construction activity buffer of no less than 50 feet from active nests in addition to either construction duration restrictions and/or visual screens depending on if the nest is located on the top side of the Wharf (e.g., on building roofs) or under the Wharf. For both major and minor activities during nesting season, **Special Condition 4** also requires annual monitoring reports be submitted to Coastal Commission staff by December 1st of each year that this CDP is effective that include a map from each nest survey conducted that year with delineated buffers where appropriate, a description of the activities carried out relative to identified active nests, and a description of the survey methods and any observations of the species.

With these measures in place, adverse impacts to breeding birds are appropriately addressed, and the project can be found consistent with Coastal Act Sections 30230 and 30231.

Ocean Fill

The proposed project includes potential for “filling” of open coastal waters through the replacement of pilings (including when removal of an existing piling is not possible during installation of a replacement pile).²⁵ More precisely, these proposed activities involve re-filling of coastal waters when existing structures, such as pilings, in coastal waters are replaced within the existing footprint, as opposed to new fill per se. This CDP is not intended to cover significant repairs or improvements but is instead intended to provide for the structural repairs of the wharf.

Projects that include, or have the potential to include, fill of coastal waters must satisfy the three-pronged test contained in Coastal Act Section 30233(a). As described above, the Wharf provides a slew of coastal-dependent and coastal-related functions and qualify as a public recreational pier generally. Thus, the project satisfies the first prong under Section 30233(a).

The second prong of the 30233 test requires there to be no feasible less environmentally damaging alternatives to the proposed project. The purpose of the proposed project is to repair and maintain the Wharf and its buildings to facilitate safe and reliable continued and future uses of the structure. Therefore, avoiding the work, or the “no project” alternative, is not considered feasible because repairs are necessary to adequately maintain existing facilities or enhance their usability by the public. Second, the proposed project is to repair existing structures to existing configurations with materials generally similar to the original construction. It involves repair and maintenance of existing infrastructure and there are no alternative locations or designs for the project that could entirely avoid coastal waters. Based on the above considerations, the Commission therefore finds that there are no feasible less

²⁵ Pilings, or a portion of a piling, may not be able to be removed if direct pull fails to remove the existing piling from the substrate. Piles that cannot be pulled out will be cut off at least two feet below the mudline.

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environmentally damaging alternatives to the proposed fill, and that the project therefore meets the second prong of the Coastal Act Section 30233 test.

The third and final prong of the Section 30233 test is that all feasible mitigation measures have been required to mitigate the impacts of the proposed fill. The primary impacts of the proposed fill are associated with disturbance of the benthic habitat, and other related impacts to marine resources. The Applicant proposes to implement measures to ensure that repair and maintenance activities do not result in unnecessary disturbance to the benthic habitat, such as repair of existing piles with an epoxy grout instead of replacement (see further discussion in “Wharf Piling Repair” section above) when possible; and when piling repair is not possible, removal of existing piles (when feasible) and replacement with new piles; and limiting maintenance and repair activities in coastal waters to that which will not expand existing development past its existing configuration and specifications. Other mitigation measures related to the potential for leaching wood preservatives and from the sound generated by installation are discussed above. Therefore, the Commission finds that, as conditioned, all feasible mitigation measures have been provided to minimize adverse environmental effects.

To ensure that development that may create new fill in coastal waters does not occur, the CDP authorizes the repair and maintenance activities as proposed by the Applicant, except as modified by the special conditions of this permit (see **Special Conditions 1** and **8**). Taken together, all three requirements of Section 30233 of the Coastal Act have been met and this project is consistent with Section 30233 as conditioned.

Lighting of the Marine Environment

The effects of artificial light on shallow marine species, including fish, amphipods, and sessile invertebrates have been documented in recent years, and include effects on physiology, navigation, reproductive behavior, predation success, community structure, and ecosystem services (i.e., the benefits people obtain from ecosystems, such as food and recreation).²⁶ Artificial night lighting could potentially affect terrestrial and avian species associated with the shore (e.g., sleeping organisms become more susceptible to predation by nocturnal species). Sessile marine organisms could be affected by changes to diurnal cues for reproduction by being more visible to predators, or due to altered growth patterns (e.g., photosynthesizers). To minimize impacts from artificial lighting of the marine environment, **Special Condition 6** requires all work to occur during daylight hours (i.e., from one hour before sunrise to one hour after sunset), except that the Executive Director may authorize non-pile-driving and non-in-water nighttime work if there is a demonstration of extenuating circumstances.

Other

In addition to the proposed measures and recommended conditions described above, the following conditions that are necessary to find that the project is consistent with the Coastal Act.

²⁶ Garratt, M., et al. (2019). *Mapping the consequences of artificial light at night for intertidal ecosystems*. Science of the Total Environment, 691, 760-768.

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The Applicant proposes to submit an annual Wharf Maintenance Monitoring Report by June 30th of each year. The report would include all biological monitoring reports and maps, any reports of complaints and the investigation of these complaints, any reports of work stoppages related to work crew biological monitoring, and a visual post-winter inspection report of any pilings installed, including damage to piles or coating and repairs needed or made. However, given the undefined scope of work in any given year and ongoing nature of the proposed activities, such post-work reports would not afford Commission staff the ability to review and provide comment on activities proposed for any given year. While some of the proposed activities, such as those in response to emergencies, cannot be anticipated, most routine repair and maintenance activities are planned in order to prepare for their costs, materials, equipment, etc. **Special Condition 7** requires submittal of annual pre-activity work plan in addition to the proposed post-activity report. The annual pre-activity work plan will describe all anticipated repair and maintenance activities to be completed in the upcoming year and is subject to Executive Director review and approval to ensure that the proposed work is authorized under this CDP, including with respect to fill in coastal waters. The post-activity report will include all information proposed in the annual Wharf Maintenance Monitoring Report. **Special Condition 1** limits the term for ongoing repair and maintenance activities to five years to allow for a review of the permit following initial implementation and to ensure that the project adequately protects coastal resources using the best available science and management practices as they evolve. Finally, **Special Condition 10** allows for minor project changes, and requires that any modifications to activities authorized by this CDP shall require a CDP amendment, unless the Executive Director determines that such modifications will not adversely impact coastal resources and that no amendment is legally necessary.

Biological Resources and Water Quality Conclusion

The project represents a long-term repair and maintenance program necessary to maintain and improve facilities for recreational boating and commercial fishing, as well as visitor-serving opportunities. The majority of the proposed activities, other than pile driving, would have relatively low potential for significant adverse impacts to biological resources and water quality because they limit the use of equipment in the water. The proposed project includes appropriate BMPs to protect water quality and marine resources, including pre-construction surveys and mitigation measures for protected or sensitive species; maintaining good construction-site housekeeping controls and procedures; a prohibition on equipment washing, refueling, or servicing over water; daily maintenance of equipment to prevent leaks of petroleum products; environmental awareness training for construction workers; and precautionary measures limiting the use of certain types of chemically treated wood products.

The proposed repair and maintenance program includes a variety of avoidance and mitigation measures to protect biological resources, as identified in the Santa Cruz Wharf Master Plan Environmental Impact Report (EIR),²⁷ which include (but are not

²⁷ The Santa Cruz Wharf Master Plan Environmental Impact Report considers the impacts of both development, such as expansion of the Wharf and construction of new facilities (which are not proposed

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limited to) pre-construction bird nesting surveys, the use of the most environmentally friendly materials, and incorporation of many of the Commission's standard best management practices (BMPs) to protect water quality during construction activities. In addition, the program includes a series of mitigation measures to minimize noise impacts from pile driving such as implementation of a "soft start" or ramp-up technique to allow fish and mammals to vacate the area before full pile driving activities commence, use of one qualified marine wildlife monitor searching for marine mammals during pile driving activities with the authority to halt work if those activities pose a threat to marine mammals, and implementation of a 60-meter exclusion zone for cetaceans, sea otters, and turtles and a 30-meter monitoring zone for California sea lions and Pacific harbor seals. A full list of the Applicant's proposed mitigation measures can be seen in Appendix A of the proposed Wharf Maintenance Plan (**Exhibit 4**). The BMPs and mitigation measures described in **Exhibit 4**, as refined, and modified by the terms and conditions of this CDP, are enforceable components of the project and will ensure the protection of biological resources during wharf repair and maintenance activities. As conditioned, the project is consistent with Coastal Act Sections 30230 and 30231 regarding protection of marine resources and offshore habitats.

G. Other Agency Approvals

The Applicant currently has a permit for the project from the Central Coast Regional Water Quality Control Board (Water Quality Certification Number 34418WQ14), and is awaiting approval of the necessary U.S. Army Corps of Engineers' (ACOE's) permit, which will incorporate recommendations from NMFS and USFWS. CDFW has indicated that a permit from their agency is not required. To ensure that the proposed project is authorized by all regulatory agencies, **Special Condition 9** requires the Applicant to submit evidence of a valid ACOE permit prior to commencement of construction activities.

H. California Environmental Quality Act (CEQA)

CEQA Section 21080.5(d)(2)(a) prohibits a proposed development from being approved if there are feasible alternatives and/or feasible mitigation measures available that would substantially lessen any significant adverse effect that the development may have on the environment. The City of Santa Cruz, acting as the CEQA lead agency, adopted an Environmental Impact Report for the proposed project in October 2020.

The Commission's review, analysis, and decision-making process for CDPs and CDP amendments has been certified by the Secretary of the Natural Resources Agency as being the functional equivalent of the environmental review required by CEQA (CCR Section 15251(f)). Accordingly, in fulfilling that review, this report has analyzed the relevant coastal resource issues with the proposal and has identified appropriate and necessary modifications to address adverse impacts to such coastal resources. All above findings are incorporated herein in their entirety by reference.

nor approved as part of the project) but also included avoidance and minimization measures applicable to the proposed repair and maintenance of existing Wharf components.

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

Appendices

A. Appendix A – Substantive File Documents²⁸

- National Marine Fisheries Service (2018). Revisions to: *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*. U.S. Dept. of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59, 167 pp.
- Caltrans. 2015. *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, Appendix I Compendium of Pile Driving Sound Data*. California Department of Transportation Division of Environmental Analysis. Pp. I-179 – I-180. November 2015.
- Southall, B., et al. (2019). *Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects*. Aquatic Mammals 45(2): 125-232.
- City of Santa Cruz, Economic Development (2020). Final environmental impact report: Santa Cruz Wharf Master Plan (SCH No: 2016032038)
- CDP File 3-18-1081
- Emergency CDP G-3-19-0041

B. Appendix B – Staff Contact with Agencies and Groups

- City of Santa Cruz
- United States Fish and Wildlife Service
- California Department of Fish and Wildlife
- Point Blue Conservation Science

²⁸ These documents are available for review in the Commission's Central Coast District office.