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THIRD ADDENDUM
TO THE
CHULA VISTA BAYFRONT MASTER PLAN
FINAL ENVIRONMENTAL IMPACT REPORT

HARBOR PARK PROJECT

Prepared for:

San Diego Unified Port District

3165 Pacific Highway

San Diego, California 92101

Contact: Michelle Chan, Senior Planner, Development Services

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACMs	asbestos-containing materials
BCDC	Bayfront Cultural and Design Committee
BEPP	Business Emergency Plan
BMP	Best Management Practices
CAC	Community Advisory Committee
Cal-IPC	California Invasive Plan Council
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
City	City of Chula Vista
CNEL	Community Noise Equivalent Level
CVB	Chula Vista Bayfront
CVBMP	Chula Vista Bayfront Master Plan
dB	decibel
dB(A)	decibel A-weighted
DR	Demand Reduction
District	San Diego Unified Port District
EE	energy efficiency
EIR	Final Environmental Impact Report
EPA	Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
GHG	Greenhouse gas
I-	Interstate
LBPs	lead-based paints
LCP	Local Coastal Program
LEED	Leadership in Energy and Environmental Design
LEDs	light emitting diodes
LOS	level of service
M&V Plan	measurement and verification plan
MGD	million gallons per day
MM	mitigation measure(s)
MMRP	Mitigation Monitoring and Reporting Program
MSCP	Multiple Species Conservation Program
MWWD	Metropolitan Wastewater Department
NPDES	National Pollutant Discharge Elimination System
NRMP	Natural Resources Management Plan
NO_x	nitrogen oxide
O_3	ozone
Port	San Diego Unified Port District
$PM_{2.5}$	suspended particulates of 2.5 microns or less in diameter
PM_{10}	suspended particulates of 10 microns or less in diameter

Acronym/Abbreviation	Definition
PMP	Port Master Plan
PMPA	Port Master Plan Amendment
PWC	personal watercraft
RAQS	Regional Air Quality Strategy
RDA	City of Chula Vista Redevelopment Agency
RHCC	Resort Hotel and Conference Center
RV	Recreational vehicle
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDBNWR	San Diego Bay National Wildlife Refuge
SDG&E	San Diego Gas and Electric
SLRA	Sea-Level Rise Analysis
SO_2	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1 Introduction

In May 2010, the Board of Port Commissioners (BPC), the City of Chula Vista (City or Chula Vista) City Council, and the City Redevelopment Agency (RDA) certified the Chula Vista Bayfront Master Plan (CVBMP) Final Environmental Impact Report (FEIR) (SCH No. 2005081077; San Diego Unified Port District (District) Clerk Document No. 56562), and each agency unanimously approved its respective amendments to the District's Port Master Plan (PMP) and the City's Local Coastal Program (LCP), which includes the Land Use Plan and Bayfront Specific Plan; and the City's Multiple Species Conservation Program (MSCP) Chula Vista Subarea Plan. The FEIR was prepared as a combined program and project FEIR, and the District was the California Environmental Quality Act (CEQA) lead agency. The FEIR analyzed amendments to the PMP and the City's General Plan and LCP, and a mapping change to the MSCP Chula Vista Subarea Plan, which provide for future development and redevelopment of the CCVBMP area, as well as certain site-specific development projects.

The California Coastal Commission (CCC) certified the District's Port Master Plan Amendment (PMPA,) No. 6-PSD-MAJ-41-11 on August 9, 2012. The District's amended application for the PMPA added Development Policies (District Clerk Document No. 59407) and a Public Access Program (PAP) (District Clerk Document No. 59408), both of which were incorporated by reference into the PMPA. The Development Policies consist of detailed and specific planning and development objectives and policies for the PMP Chula Vista Bayfront (CVB) Planning District 7 (Planning District 7) covering environmental protection, energy conservation, views and aesthetics, public transit, pedestrian orientation, and visitor-serving requirements, including no-cost waterfront public recreational opportunities, such as public parks. The PAP includes a description of the proposed circulation improvements including the roadways, the Bayshore Bikeway, public transit improvements, shuttle, and parking requirements.[1]

The controlling documents, including the FEIR, PMPA, Development Policies, and PAP, analyzed a waterfront park in Planning Subarea 74, the Harbor District, of Planning District 7. The park, referred to in these controlling documents as the "Harbor District Signature Park" or "Signature Park Extension" was analyzed in the FEIR. The Park, now referred to as Harbor Park (Project), is an expansion of the existing Bayside Park, totaling 25 acres. It is envisioned as a waterfront park which would include a range of amenities for members of the public, such as food and beverage facilities, family play areas, a non-motorized boat launch, and a beach, while also designed to accommodate large scale public and private special events. The Project is analyzed in the FEIR at conceptual level, and the District has developed project design details since the certification of the FEIR. In addition, the District has prepared a site-specific Sea Level Rise Analysis (SLRA), sand nourishment assessment and a Traffic Memo during the development of the project details. The District now proposes issuance of a non-appealable Coastal Development Permit for construction, operation and maintenance of the Project and the purpose of this analysis is to analyze the project design detail and determine if any new significant environmental effects would be resulted.

CEQA Guidelines Sections 15162 through 15164 (see Section 1.1) set forth the criteria for determining the appropriate additional environmental documentation, if any, to be completed when there is a previously certified FEIR covering the project for which a subsequent discretionary action is required. Approval shall occur if the District finds that the changes associated with the Project are minor and not substantial. There are no new significant impacts resulting from the Project, and there would not be a substantial increase in the severity of previously identified environmental impacts in the FEIR. In addition, certain Mitigation Measures (MM) are no longer required as they do not apply to the Project. The exclusion

[1] Subsequent to the certification of the FEIR by the District and certification of the PMPA by the CCC, the District adopted two Addenda to the FEIR (Document No. 60864 filed Oct 13, 2013 and Document No.68404 filed May 15, 2018), which are incorporated into the FEIR.

of these MM would not result in new or more severe environmental impacts or require new MM. Therefore, in accordance with CEQA Guidelines Section 15164(e), no additional environmental review is deemed necessary pursuant to CEQA and adequate documentation may be provided through an addendum to the FEIR pursuant to these sections of the CEQA Guidelines.

1.1 Regulatory Requirements

CEQA Guidelines, Section 15162: Subsequent EIR

Under CEQA, a lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary to the EIR but none of the conditions described in CEQA Guidelines Section 15162 calling for preparation of a subsequent EIR have occurred (14 CCR 15164(a)).

CEQA Guidelines Section 15162 provides that when an EIR has been certified for a project, a subsequent EIR shall be prepared for that project if the lead agency determines one or more of the following have occurred:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR … due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete … shows any of the following:

   (a) The project will have one or more significant effects not discussed in the previous EIR;

   (b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

   (c) MM or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

   (d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

As explained in Section 3, there is no substantial evidence, in light of the whole record, that the Project would result in any new significant environmental effects or result in a substantial increase in the severity of previously identified significant effects, MM, or alternatives. Further, there are no new MM or Project alternatives that were considered infeasible in the FEIR and are now feasible that could substantially reduce one or more significant impacts. Finally, there is no new information not previously known that shows new significant environmental effects or that results in an increase in the severity of previously identified significant effects. Therefore, preparation of an addendum is appropriate under these circumstances.

CEQA Guidelines, Section 15164: Addendum to an EIR

CEQA Guidelines Section 15164 provides that when some changes or additions to an EIR are necessary, but a subsequent EIR does not need to be prepared per CEQA Guidelines Section 15162, an addendum to the EIR may be prepared and adopted.

A. The lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

B. An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.

C. An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.

D. The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.

E. A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's required findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

This addendum complies with the provisions of CEQA Guidelines Section 15164, which governs the preparation and adoption of an addendum to an EIR. Section 15164 requires the preparation of an addendum to an EIR where some changes or additions to the EIR are necessary, but none of the conditions calling for preparation of a subsequent EIR exist. No additional significant impacts or increase in severity in existing significant impacts would occur as a result of the Project. Therefore, the analysis of the Project is appropriately addressed in an addendum to the FEIR.

CEQA Guidelines, Section 21094(a)(2): Later Projects; Tiered Environmental Impact Reports; Initial Study; Use of Prior Reports

This section indicates that the lead agency incorporates into the later project all the applicable MM identified by the prior EIR.

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2 Project Description

This section of the addendum summarizes the Project's location and setting, which has not changed from what was identified in the previously certified FEIR. It also describes the specific characteristics of the minor changes to the Project.

2.1 Location and Setting

The CVB is located on the southeastern edge of San Diego Bay (Bay) in the city of Chula Vista, which is located in southwestern San Diego County. The Harbor District consists of approximately 282 acres located in the middle portion of the CVBMP area, between the existing Marine Group Boat Works boatyard to the north and J Street/Marina Parkway to the south. The Project is located east of the San Diego Bay, south of the Marine Group Boat Works site, west of the Resort Hotel and Convention Center (RHCC), and north of the Chula Vista Marina (see Figure 1, Project Location), situated on portions of parcels HP-1N, HP-1S, HP-3A, HP-28 (first half), and H-8 . The Project does not include Parcels H-1A(S), HP-28 (H Street Pier- Second Half) and the remaining portion of HP-1N.(Project Site). Access and parking lot access roads connecting frontage roads to internal parking and drop-off areas would be provided by the E and H Street extensions, to be completed as part of the RHCC Phase 1A improvements, which includes site preparation for Parcel H-3, new public streets (portions of E, G and H streets), utility services, Sweetwater Park and/or Harbor Park construction or improvements. The Harbor District and the Project site are relatively flat. The Project site is currently developed with Bayside Park; Plover Way, which traverses the site from north to south; an existing bicycle and pedestrian pathway that traverses the site from north to south; two public toilets; cemented surface parking lots; and one graded surface parking lot. The Project site is largely disturbed and includes some mature trees throughout the existing Bayside Park.

2.2 Project Background

In 2002, the District and the City joined together to create a master plan for the approximately 556-acre CVB and reconfigure its 497 acres of land and 59 acres of water uses, connecting them in a way that would promote public access to and engagement with the water while enhancing the quality and protection of key habitat areas, with the ultimate goal of creating a world-class bayfront through strong planning and design, economic feasibility, and community outreach. In May 2010, the BPC, the City Council, and the City RDA certified the FEIR, and each agency unanimously approved its respective amendments to the District's PMP and the City's LCP. The FEIR was prepared as a combined program and project FEIR. The FEIR consists of amendments to the District's PMP and the City's General Plan and LCP, and a mapping change to the MSCP Chula Vista Subarea Plan, which provide for future development and redevelopment of the CVB, as well as certain site-specific development projects[2].

The CVBMP envisioned that the existing Bayside Park would be improved as a 25-acre extension of the Sweetwater District signature park to create Harbor Park in the Harbor District with similar amenities, such as lighting, sculptures, restrooms, interactive fountains, plaza areas, drinking fountains, bicycle racks, tot lots, picnic areas, benches, trash bins, interpretive signage, a sculpture garden, landscaped berms, public art, decomposed granite paving, and open lawn area. Harbor Park could also include cultural uses, small food and beverage vending, and other park-activating ancillary uses. Allowed structures include restrooms, picnic tables, shade structures and

[2] Subsequent to the certification of the FEIR by the District and certification of the PMPA by the CCC, the District adopted two Addenda to the FEIR (Document No. 60864 filed Oct 13, 2013 and Document No.68404 filed May 15, 2018), which are incorporated into the FEIR.

overlooks, and are limited to single-story heights. Harbor Park, along with other parks in the Harbor District, are planned to accommodate flexible spaces and programmable elements that allow for more active uses or events (PMP, page 101).

While the Sweetwater Park was envisioned in the CVBMP as a passive use, meadow-type open space, Harbor Park, like other parks in the Harbor District, is intended to serve more active uses and take advantage of the marina setting and form the foreground to the adjacent mixed-use developments, hotels, convention center facilities, and retail which front onto the marinas. Unlike the other Sweetwater and Otay districts where protecting the environment of the natural habitat is the critical focus, the Harbor District parks are designed to activate the waterfront.

The environmental impacts of Harbor Park were originally analyzed in the FEIR, which considered the proposed land uses and development of Harbor District by parcel and phase. Under the CVB PMPA and the CVB FEIR, parcels HP-1 and H-8 were slated for development of Harbor Park; Parcel HP-3 was slated to be developed as Shoreline Promenade; and Parcel H-28 was to be developed as the H Street Pier (first half). The PMP land use designations of the Project site are "Open Space," "Park," "Estuary", and "Promenade." Development of parcels H-8 and HP-1 was slated to occur under Phase I of the build-out of the CVBMP, while development of H-28 would be developed as Phase II, and HP-3 would be developed as Phase III.

CVBMP FEIR Analysis

The FEIR included a project-level analysis for Phase I projects, including the hotel and convention center (RHCC) on Parcel H-3], the residential and ancillary retail on parcels H-13 and H-14, the Bayfront Fire Station on parcel H-17, Sweetwater Park, and wetlands and buffer on parcel HP-5. The Project was analyzed at the program level. The description of the design refinements of the Project are outlined in Section 2.3.

As discussed above, the FEIR identified development of the Project site as a park, with associated promenade and pier. However, these components were analyzed at the program-level, and specific details regarding the design of the Project were not provided at the time. The FEIR stated that the Project would accommodate flexible spaces for more active uses or events.

Feasible MM were identified in the FEIR that would reduce impacts to a level below significance for the build-out of the CVBMP, including the Project. With the prescribed MM, the CVBMP was found to have a "less-than-significant" impact on hydrology and water quality, noise, terrestrial and marine biological resources, cultural resources, hazards and hazardous materials and public safety, public utilities, energy, and population and housing. A number of these MM are applicable to the Project and are included in this addendum under each applicable environmental analysis topic. These MM include 4.4-2, 4.5-1 through 4.5-3, 4.5-5, 4.6-1 through 4.6-4, 4.8-1, 4.8-3, 4.8-6, 4.8-8, 4.8-12, 4.9-1, 4.9-4, 4.10, 4.11-1, .12-1 through 4.12-3, 4.12-5, 4.12-7, 4.13-1, 4.15-1, 4.15-2, 4.16-1, 4.16-2. With implementation of these previously adopted MM and the Development Policies, the Project would not result in any significant environmental effects to these environmental resources.

The FEIR indicates that the CVBMP has the potential to create significant environmental impacts on land/water use compatibility, traffic and circulation, aesthetics/visual quality, hydrology/water quality, air quality, energy, noise, terrestrial biological resources, marine biological resources, paleontological resources, hazards and hazardous materials/public safety, public services, public utilities, and seismic/geologic hazards. The following impacts were identified in the FEIR to remain significant even after implementation of all feasible MM: traffic impacts on local freeway segments; visual impacts from the height and mass of buildings to be constructed in the Harbor District;

air quality impacts from emissions of nitrogen oxides, carbon monoxide, reactive organic gas, and particulate matter; and impacts to library services.

Development Policies

The Development Policies are compiled from MM in the FEIR and adopted Mitigation Monitoring and Reporting Program (MMRP), the Settlement Agreement (District Clerk Document No. 56523), and revisions of the PMPA, as certified by the CCC. The Development Policies were certified as part of the PMPA in August 2012, by the CCC, and all development projects associated with the CVBMP must comply with the Development Policies. The relevant Development Policies are presented under their respective environmental topics below.

2.3 Proposed Project Refinements

The Project as described in this Permit includes Harbor Park "Phase 1A" and "Future Phase(s)," which are Parcels: portion of HP-1N, HP-1S, HP-3A, HP-28 (First Half), and H-8. This Permit does not include the remaining portions of Harbor Park, which are on the following Parcels: remainder of HP-1(N), H-1A(N), H-1A(S), HP-3B, and HP-28 (Second Half), unless authorized by a future Permit Amendment or new Permit. Construction of any Harbor Park components (Phase 1A and Future Phase(s) as described in this Permit) are contingent upon funding becoming available to construct each component and phase of the park. It is anticipated that the Harbor Park Phase 1A components will be constructed in parallel with RIDA Chula Vista LLC's construction of its Resort Hotel and Convention Center (RHCC)(CDP 2019-03, Clerk Document No. 70152).

It is anticipated that Harbor Park will be implemented in phases; this Permit includes work anticipated in Phase 1A and Future Phase(s). It is further anticipated that the "Phase 1A" Harbor Park Phase 1A components will be constructed in parallel with RIDA Chula Vista LLC's construction of its Resort Hotel and Convention Center (RHCC) (CDP 2019-03, Clerk Document No. 70152). Funding for the first phase of Harbor Park (Harbor Park Phase 1A) is subject to financing for the future RHCC and Phase 1A public improvements (Phase 1A Infrastructure Improvements).

Phase 1A development would consist of: a portion of the Waterfront Promenade, North and South Lawns (excluding event lighting), Improved Beach, Terraced Headlands (including North and South Headlands), North Promontory (including a modular support building with restrooms, outdoor showers, drinking fountains, and park equipment rentals), North Ramp, Streetscape Event Plaza, Pocket Marsh, North and South Meadows, fill/stockpile area, utility improvements (including sewer, water, and dry utilities), and drainage improvements), pedestrian and bicycle improvements, parking and vehicular circulation improvements (including a connector path to Sweetwater Park and a temporary access drive off H Street to connect to the existing Bayside Park to remain), landscaping/planting improvements, trash service enclosures, park lighting (excluding North and South Lawn event lighting), park furnishings, signage, public art, improvements to address sea level rise, and site preparation and grading.

Future Phase(s) development will be contingent upon availability of additional funding and would consist of: the remaining portion of the Waterfront Promenade, Beach Lawn, Fountain, Play Area, Hill, Picnic Grove, North and South parking lots, Café and Beach Rental building (including restrooms), Park Hub, Family Restrooms, North and South Lawn event lighting; H Street Pier (first half); potential additional improvements to the North Lawn and South Lawns and pedestrian and vehicular circulation, and potential additional park furnishings, signage, public art, landscaping and plantings, utilities, site preparation, and grading. Sand nourishment would also continue.

A detailed discussion of each phase is provided under the "Phase 1A Development" and "Future Phase(s) Development" sections below.

Phase 1A Development

Phase 1A will include demolition of existing improvements within the Phase 1A project site footprint, construction of Phase 1A park improvements, and retention of a portion of the existing Bayside Park, and operation and maintenance of the park unless otherwise specified herein (e.g., special events). Phase 1A includes the following Parcels: portion of HP-1N, HP-1S, HP-3A, and H-8, and includes the following components (see Exhibit 1 Phase 1A Plan):

- Waterfront Promenade: Harbor Park will include approximately 1,590 linear feet of Waterfront Promenade (Baywalk) with a minimum width of 25 feet. Promenade paving is anticipated to be a combination of cast in place concrete, asphalt, modular pavers, and decomposed granite (primarily stabilized). The Promenade will be lighted and furnished to include several seating types (including benches and seat walls), trash and recycling receptacles and various site furnishings. The Promenade will be designed as a shared bike and pedestrian path that connects to Sweetwater Park to the north and the existing Bayside Park to the south.

- North Lawn (approximately 3.5 acres): The multi-use North Lawn will be the largest of Phase 1A Harbor Park spaces. The lawn will be improved with natural turf and will be designed to accommodate a wide range of passive activities, such as picnicking, pick-up sports (not organized team sports), sunbathing at the beach edge, and staging/drying for kayaks and windsurfers. The lawn will also be available to host diverse programmed events, activities, performances, and festivals permitted under this Permit. No permanent stage or bandshell (performance venue) will be constructed within the park.

- South Lawn (approximately 0.4 acres): The multi-use South Lawn will be improved with natural turf and will be designed to accommodate passive activities, such as picnicking and pick-up sports (not organized team sports). The lawn will also be available to host diverse programmed events, activities, performances, and festivals permitted under this Permit. No permanent stage or bandshell (performance venue) will be constructed within the park.

- Improved Beach (approximately 3.3 acres): The Improved Beach will occupy a bay frontage within the existing footprint of the eroding beach (identified by the 500-foot-wide gap in the existing shoreline riprap revetment). It will be constructed by excavating behind and above the existing Mean High Water (MHW) line (approximately 4.56 feet) to create a "perched" beach above the existing sandy mudflat. The upper beach (above elevation 9 feet) will be generally composed of finer sand. The remaining area (below elevation 9 feet and above elevation 4.56 feet) will be generally composed of a layer of coarse sand underlaid with a layer of cobble. The sand and cobble used to construct the beach would consist of a mixture of on-site reuse and imported material. The top of the beach along the Waterfront Promenade will be constructed at elevation 11 feet, and the toe of the improved beach will connect to the top of the existing sandy mudflat at an elevation slightly above MHW.

    - The beach would consist of an intertidal zone, a dry zone, and an upper zone. The intertidal zone and the bottom of the dry zone would have daily contact with the bay and wave action. The upper zone, beginning at an elevation of 9 feet, would be a flat recreational beach perched above the bay and wave action.
    - The intertidal and dry zones, with a total area of approximately 75,830 square feet, would be generally composed of coarse sand, with a volume of approximately 9,830 cubic yards to be installed to a depth of approximately 3.5 feet and underlaid with cobble to complete construction.
    - The upper zone, with an area of approximately 73,900 square feet, would be generally composed of fine sand, with a volume of approximately 9,580 cubic yards to be installed to a depth of approximately 3.5 feet to complete construction.
    - The sand and cobble used to construct the beach would consist of a mixture of on-site reuse and imported material.
    - The improved beach would be aligned to the shoreline at an angle of 290 degrees, approximately 40 degrees different than the alignment of the existing beach at 250 degrees. This is anticipated to reduce littoral drift and nourishment demands as per the Shoreline Sand Transport Assessment

and Conceptual Beach Design for the Chula Vista Bayfront Harbor Park Project Memo (Attachment A).

- Terraced Headlands (including North and South Headlands): The Terraced Headlands will provide a structured enclosure for the beach to the north and south (helping with erosion and sand retention). The Terraced Headlands will be composed of landscape shelves that step down to the bay from the higher elevation of the park, connected with sloped walks and accessible ramps. The sloped bayside edges of the Terraced Headlands below elevation 9 feet will be composed of repositioned riprap currently along the shoreline edge. Above elevation 9 feet, the sloped edges of the terraces will be a combination sloped shoreline rock gardens (riprap integrated with reinforced planting pockets), and concrete seating terraces.

- North Promontory: The North Promontory will be the northern terminus of the park, providing dramatic views across the bay to the west, to downtown San Diego and the Coronado Bridge to the north. Harbor Park Phase 1A will include a small single-story modular park support building on the North Promontory at the site of the future Beach Rental/Café (see Future Phase(s) section below). The modular park building will include restrooms, outdoor showers, drinking fountains, and park equipment rentals. It will have a maximum height of 18 feet (measured from adjacent grade to top of roof), with isolated mechanical enclosures and/or optional solar panels extending a maximum of 3.5 feet above roof height. It is anticipated that in Phase 1A the beach/boat rentals will be managed by an operator with a mobile facility that will be stationed adjacent to the modular park building.

- North Ramp: The North Ramp will provide a convenient sloped connection between the North Promontory (Beach/Boat Rental building) and the bay/mudflat at the toe of the shoreline revetment. It may be utilized as a service corridor by the operator of the boat rental facility to move water recreation rentals (kayaks, paddleboards, and windsurfers) to and from the north end of the beach where they may be staged for daily rental. All rentals of personal watercraft (PWC) will be prohibited. For the purpose of this Permit, PWC means a motorboat less than 16 feet in length which uses an inboard motor powering a jet pump as its primary motive power and which is designed to be operated by a person sitting, standing, or kneeling on rather than in the conventional manner of sitting or standing inside the vessel.

- Streetscape Event Plaza: A paved linear plaza will extend along the east edge of the North Lawn, off E Street near the H Street roundabout. The open paved area of the plaza will be the primary hardscape area utilized to support setup and staging of events and activities within the park (service access, setup/staging of tents, temporary stages and event materials).

- Pocket Marsh: The Pocket Marsh will consist of approximately 0.3 acre of salt-water marsh plantings. It will provide an interpretive and environmental education opportunity. The Pocket Marsh will be protected by an intermittent riprap sill and will be at an average elevation of 5 feet.

- North and South Meadows (approximately 4.4 acres): The North Meadow (approximately 1.6 acres) and South Meadow (approximately 2.7 acres) will be visual landscapes defined by tall, decorative, regionally-adapted grasses and perennials that will create an attractive low-maintenance garden between the frontage streets and the shoreline edge. The meadows will integrate a simple framework of paths and will be activated by dispersed picnic tables.

- Fill/Stockpile Area: The excavation for the Improved Beach will offset (balance) required Harbor Park Phase 1A fill, with excess excavation stockpiled at the South Meadow in preparation for future phase park improvements at the south end of the existing Bayside Park. The stockpile will be smoothly graded to a maximum height of 10 feet relative to the adjacent 'H' Street sidewalk, and will be planted with tall decorative meadow grasses and perennials such that it will have the appearance of a hill within the larger South Meadow.

Utility Improvements: Utility improvements in Phase 1A will anticipate and accommodate the full buildout vision for Harbor Park, although the utility improvements will be phased in parallel with ongoing park improvements in a manner that minimizes disruption to recently constructed improvements, while preserving services to the south end of Bayside Park which will remain in Phase 1A.

- Sewer: Sewer improvements include sewer laterals from the new park buildings and restrooms to the proposed sewer mains in E Street and H Street proposed with the Phase 1A Infrastructure Improvements for the RIDA Gaylord Chula Vista Resort Hotel and Convention Center (RHCC) project. Localized sewer pumps stations may be included for the Park Building if it cannot be accommodated by a gravity sewer system. Phasing of the park implementation may require additional sewer laterals and a pump station from the existing restrooms.

- Water: Water improvements include domestic, irrigation, and fire services connection to the new park building, restrooms, irrigation meters, and fire hydrants from the proposed water mains in E Street and H Street proposed with the Phase 1A Infrastructure Improvements for the RHCC project. An existing water loop through the existing park will be removed and replaced with a water loop system connection back to E Street and H Street. Phasing of the park implementation may require portions of the loop to remain to serve the existing remaining facilities

- Dry Utilities: The dry utilities, including gas, electrical, and telecommunications will extend from connection points in E Street and H Street to provide service to the new park building, restrooms, and other park uses. All new dry utilities will be in easements.

Drainage Improvements: Drainage improvements include storm drain piping and associated drainage structures to provide drainage of the new park improvements and stormwater treatment areas. Drainage improvements will connect to the new storm drain system piping and treatment areas proposed by the Phase 1A Infrastructure Improvements for the RHCC Project, including new outfalls located at the north, west, and south portions of Harbor Park. Phasing of park improvements may require portions of existing storm drain on site to remain in use until completion of the ultimate Harbor Park improvements.

Pedestrian and Bicycle Improvements: Harbor Park Phase 1A will include a network of paths connecting park amenities and shoreline experiences with parking/arrival areas and frontage streets. A connector path will be constructed in Phase 1A that connects Harbor Park to Sweetwater Park to the north. Harbor Park will include a hierarchy of paths from the expansive and dynamic multi-use Waterfront Promenade (shared by pedestrians, bikes, rollerbladers, families with strollers, dog walkers, food carts, etc.), to more intimate garden paths. Primary park paths (10 to 16 feet wide) will be asphalt or cast in place concrete, but some of the secondary and tertiary paths may be stabilized decomposed granite. All park paths will be ADA accessible. Six pedestrian crossings will be installed along ‘E’ Street and ‘H’ Street and will connect Harbor Park to the public and private open spaces of the RHCC development (CDP-2019-03; Resolution No. 2019-080; District Clerk Document No. 70152) to the east of the Project Site.

Parking and Vehicular Circulation: Over 216 public parking stalls will be provided at the park in Harbor Park Phase 1A. Two new parking areas will be located at the north and southeast ends of the park, in addition to the slightly modified south parking lot at the existing Bayside Park that will remain in Phase 1A. The north parking area at the widened terminus of the existing ‘G’ Street will integrate approximately 40 stalls and retain access to the Marine Group Boat Works (MGBW) facility at approximate existing gate locations. The north parking area will be improved with asphalt. The modified existing parking lot at the south end of the existing Bayside Park will include

approximately 35 stalls. New on-street parking along the future realigned 'E' Street and 'H' Street frontages will be built by the RHCC as a separate project (i.e., constructed with RHCC Phase 1A Infrastructure Improvements as part of the RHCC CDP) and will provide approximately 72 stalls within the 'E' Street and 'H' Street ROW. The gravel southeast 'overflow' parking lot will provide approximately 70 parking stalls.

Vehicular circulation within Harbor Park will be confined to parking lot access roads connecting frontage roads to internal parking and drop-off areas. The parking quantity within each area and overall parking distribution are subject to change as the project is elaborated during design development phase work, and as the project evolves to the full-buildout condition. Total parking provided at Harbor Park in Phase 1A will meet or exceed the required 216 stalls per the CVB Public Access Program.

Landscape/Planting Improvements: Harbor Park will include several types of gardens and three natural turf lawn areas to enrich the visitor experience of the park. Below is a summary of Harbor Park Phase 1A landscape improvements:

- Approximately 4.3 acres of gardens composed of a combination of native and regionally-adapted plant materials that conform to CALGreen requirements for low-water consumption. These gardens include the North Meadow, the South Meadow, and the shoreline rock gardens.

- Approximately 5,400 square feet of biofiltration/bioretention gardens.

- Approximately 3.9 acres of turf lawn including the larger North Lawn and smaller South Lawn. Lawn areas will be irrigated with pop-up spray heads. For the purposes of CALGreen both lawns are being considered as Special Landscape Areas.

- Planting of over 110 trees, of multiple tree types. Trees will be a mixture of evergreen, deciduous and semi-deciduous, and will be selected for a range of shade, flower color, seasonal diversity, and wind sheltering. The tree palette may include Tipu Trees, Golden Rain Trees, Torrey Pines, and Queen Palms. Installed tree sizes will be 24- to 36-inch boxes. All trees will be seaside tolerant. Trees will be irrigated with bubblers, where planted in garden areas, or subsurface drip where planted in decomposed granite.

Trash Service Enclosure(s): The park will include a maximum of two trash/service enclosures. The enclosures will have a maximum height of 18 feet, and will be a total of approximately 450 square feet with solid walls and roofs, and natural ventilation.

Park Lighting: Harbor Park will be illuminated at night (during park use hours) to create a safe, comfortable, and welcoming nighttime park environment. Illuminated park areas will include the Waterfront Promenade (Baywalk) and primary park paths and plazas. Secondary park paths and garden areas will generally not be illuminated at night. Primary park light fixtures will be "full cut-off" and directed downward to minimize light spill beyond the area for which illumination is required, and will have no light spill above the light source. Accent lighting may be integrated at discrete special features within the park, including civic art. In Phase 1A. light fixture density will generally be higher along streetscape edges and the Waterfront Promenade, than in the center of the park. Light color temperature shall not exceed 3,000 Kelvin. Average light levels on the Waterfront Promenade (Baywalk), and plazas shall not exceed 2 foot-candles. All street and walkway lighting would be shielded to minimize sky glow. Lighting would consist of the following light fixture types and conditions:

- Pole lights at plazas and primary park paths between 11 and 18 feet high.
- Pole lights along the Waterfront Promenade (Baywalk) between 11 and 22 feet high.

- Pole lights at parking lots and access roads between 18 and 25 feet high.
- Accent lighting will be used for park special features such as civic art.
- Wall-mounted and soffit-mounted lights at the park building to illuminate the immediate building perimeter and surrounding outdoor seating areas.
- Street lights along 'E' and 'H' Street park frontages shall be installed as a component of the RHCC Phase 1A Infrastructure Improvements (separate project). Street lights will be consolidated along the east edge of 'E' Street and the north edge of 'H' street along the Harbor Park frontage, which would be consistent with RHCC lighting. Supplemental streetscape and parking lighting will be provided with pedestrian pole lights along the sidewalk edge.

Park Furnishings: Harbor Park will be furnished to create a highly activated and diverse park environment. A summary of anticipated park furnishing types is provided below:

- Benches
- Concrete seatwalls
- Picnic tables
- Movable tables and chairs
- Trash and recycle receptacles
- Barbecue grills
- Bike racks
- Convenience electrical bollards
- Drinking fountains at each building
- Dog waste dog dispensers

Signage and Wayfinding:

- Wayfinding signage would be provided at a minimum of two locations and would provide a graphic map of the park and surrounding areas.
- Permanent advertising signs and banners shall be prohibited at Harbor Park, including the beach.
- One to two interpretive nodes would be located throughout the Project Site. Each interpretive node may include a combination of interpretive text, images, and graphics combined with adjacent seating. Information may include cultural, historical, and land use history, as well as sea-level rise information.
- Regulation signage would be posted at all primary park entrances, the beach, and at the park support building.
- Restroom directional signage and accessibility signage would be located as needed throughout the park.

Public Art: Public art is intended to be integrated into the park. It is anticipated the public art may take such forms as stand-alone installations, interactive art elements, or possibly interpretive exhibits. Public art would be procured under the Board of Port Commissioners (BPC) Policy 609 – Public Art Program. Commissioned public art would be coordinated with the park design team, the District's Arts, Culture, and Design Committee (ACDC), and the Bayfront Cultural and Design Committee (BCDC) and seamlessly integrated into Harbor Park.

Sea Level Rise: Per the recommendations of the Chula Vista Bayfront Harbor Park Sea-Level Rise Analysis (SLR Analysis) prepared by ESA, dated December 2019 (Attachment B), the final elevation for Harbor Park will be 13.5 feet at the shoreline (with the exception of the beach), and revetment will be raised by an average of 2.5 to 3 feet to an elevation of 13.5 to 14.0 feet NAVD. The SLR Analysis assessed the vulnerability of the parks based on the scenarios used for the Port of San Diego's sea-level rise vulnerability assessment and adaptation plan as part of the Port Master Plan Update, in coordination with the Ocean Protection Council's (OPC) 2018 State of California Sea-Level Rise Guidance. According to the SLR Analysis, the proposed Harbor Park improvements with a revetment set to 13.5 feet NAVD, are only expected to experience minor flooding during the 100-year flood scenario in the 2080-2120 sea-level rise projection of 4.5 feet of sea-level rise.

Site Preparation/Grading/Construction: Harbor Park will be relatively flat and filled to achieve an average grade of approximately 13.75 feet to accommodate sea level rise (excluding the Beach, the Marsh, and the Terraced Headlands). This requires that the park be filled approximately 2 feet above average existing grade. The excavation for the Improved Beach will offset (balance) required Phase 1A fill, with excess excavation stockpiled at the South Meadow in preparation for future phase park improvements at the south end of the existing Bayside Park.

Prior to construction and/or reconfiguration of the existing Bayside Park, the District shall post a public notice at each affected park site at least 30 days prior to commencement of construction activity and maintain the posting throughout construction of each affected park area. Said public notice shall identify the duration of park closure and information related to optional locations for public park and recreational facilities.

The estimated duration of Phase 1A construction is approximately 14 months and is anticipated to commence in early 2023, with an anticipated completion in early 2024. Demolition is anticipated to occur from early 2023 through mid 2023. Demolition work will consist of removal and disposal of existing Bayside Park improvements within the "Phase 1A Park Improvements" footprint, including pavement, walkways, parking lots, restroom buildings, plantings and trees, and underground utilities and miscellaneous lighting, signage and site furnishings. All demolition work is necessary for new grading to raise elevations as required for sea level rise mitigation; thus, no improvements can be salvaged for the new Harbor Park.

The existing Bayside Park to remain in Phase 1A, including the parking lot, would remain open and be serviced by a temporary internal vehicular access road connecting the existing parking lot with the western side of the future E Street and H Street roundabout. The Phase 1A improvements may include site preparation and temporary park improvements in the area between the existing Bayside Park and the realigned E Street frontage. Temporary gravel parking area(s) may be provided in Phase 1A to accommodate early-phase parking demands. The existing fishing pier, south restrooms, play equipment, and Bayside Park parking lot will remain open during Phase 1A construction. Construction staging is anticipated to take place in the southern portion of Harbor Park south of the proposed extension of H Street (part of RIDA development).

Future Phase(s) Development

After construction of Phase 1A is complete, and subject to availability of additional future funding, Future Phase(s) development would occur. It would involve demolition of existing improvements (including demolition of the portions of Bayside Park that remained in Phase 1A) to make way for Future Phase(s) development. Future Phase(s) development includes Parcels: remainder of HP-1N, HP-1S, HP-3A, H-8, and HP-28 (First Half), (see Exhibit 2) and would include the following components:

- Waterfront Promenade (remaining portion): Harbor Park will ultimately include approximately 2,780 linear feet of Waterfront Promenade (Baywalk) with a minimum width of 25 feet. The Promenade will be designed as a shared bike and pedestrian path. Promenade paving is anticipated to be a combination of cast in place concrete, asphalt, modular pavers, and decomposed granite (primarily stabilized). The Promenade will be lighted and furnished to include several seating types (including benches and seat walls), trash and recycling receptacles and various site furnishings.

- North and South Lawns (approximately 3.2 acres): The lawns will be planted with natural turf and will be designed to accommodate a wide range of passive activities. The lawns will also be available to host diverse programmed events, activities, performances, and festivals permitted under this Permit. In Future Phase(s), the lawns will include event lights along the east edge (see Exhibit 5). No permanent stage or bandshell (performance venue) will be constructed within the park, but below-grade electrical vaults will be installed to accommodate event operations.

- Beach Lawn: The Beach Lawn, located at the site of the North Meadow constructed in Phase 1A, will be a small, garden-enclosed lawn at the north end of the park adjacent to the beach

- Fountain: The Fountain, located at the site of the South Meadow constructed in Phase 1A and portion of Bayside Park that remained in Phase 1A, will provide a safe and exciting water play environment. The interactive fountain will utilize internally recycled (recirculated) water and programmed jet sequences to reduce water consumption. It is anticipated that the fountain programming will create a shallow reflecting pool/sheet with a depth less than 3 inches during periods of the week with low-intensity park use. During higher-intensity park use periods of the week, the fountain will be activated with cascading jets of water less than 8 feet high. All fountain water will be filtered, chemically treated, and sterilized with ultraviolet (UV) treatment, with a 30-minute turnover rate per the County of San Diego Department of Environmental Health (DEH) requirements. Water Feature signage will be mounted in clear view of the fountain per DEH requirements. A wind sensor connected to the fountain programming and mounted on the roof of the adjacent Park Hub building will decrease jet height during windy days or gusty times of the day to minimize overspray and water loss. The fountain mechanical/pump room (filter pump, jet pumps, and associated fountain mechanical, electrical and plumbing equipment) will be located in the basement level of the Park Hub building, with secure stair access from ground level.

- Play Area (approximately one acre): The Play Area, located at the site of the South Meadow constructed in Phase 1A and portion of Bayside Park that remained in Phase 1A, will be designed as a destination playscape for children. It will be passively zoned to provide play for all age groups. A tree-shaded picnic grove and garden buffers will provide passive barriers necessary for play for all ages, providing parents and caregivers clear views across the play zones for ease of supervision. Clear wayfinding and lighting will create an inclusive and accessible play space. Play equipment will include embankment slides, dynamic climbing nets, and kinetic elements such as spinners. Natural elements such as stone terraces, net climbers, and colorful garden planting will be integrated. Resilient rubber surfacing under play equipment will meet American Society for Testing Materials (ASTM) standards for fall protection.

- Hill: The Hill, located at the site of the South Meadow constructed in Phase 1A and portion of Bayside Park that remained in Phase 1A, will be a topographic feature located between the fountain and the play area, providing topographic relief and interest within the prevailingly flat waterfront. The Hill will be 8 to 12 feet high relative to adjacent park grades.

- Picnic Grove: The Picnic Grove, located on a portion of Bayside Park that remained in Phase 1A, will be located at the southeast end of the park, adjacent to the Waterfront Promenade and Family Restrooms. The grove will provide picnic tables and post-mounted barbecue grills for the general public to enjoy.

- H Street Pier - First Half (approximately 0.4 acre): The 'H' Street Pier will provide a destination pier at the terminus of H Street that would connect downtown Chula Vista to the bay via H Street, and would enhance pedestrian and visual access to the water and offer picturesque views of the bay. The Project will include construction of the first half of the 'H' Street Pier (240 to 300 feet long and approximately 60 feet wide), which will not require realignment of the existing boat navigation channel. The pier will integrate diverse seating opportunities, lighting, open non-programmed areas for events and activities, view scope(s), and a visually permeable perimeter guardrail to preserve views out to the bay.

Pedestrian and Vehicular Circulation

Pedestrian and Bicycle Improvements

Ultimately, Harbor Park will provide a network of paths connecting all park amenities and shoreline experiences with parking/arrival areas and frontage streets. Harbor Park will include a hierarchy of paths from the expansive and dynamic 25-foot-wide multi-use Waterfront Promenade to 5-foot-wide garden strolling paths. Primary park paths (10 to 16 feet wide) will be cast in place concrete, but many of the secondary and tertiary park paths (5 to 8 feet wide) will be stabilized decomposed granite. All park paths will be ADA accessible. A total of six pedestrian crossings will be installed along E Street and H Street and would connect the Park to the public and private open spaces of the RIDA Gaylord Chula Vista Resort Hotel and Convention Center Project (RHCC) (CDP-2019-03; Resolution No. 2019-080; District Clerk Document No. 70152) to the east of the Project Site.

Vehicular Circulation and Parking
A total of 220 public parking stalls will be provided at Harbor Park at buildout (including designated parking spaces on E and H Streets). As part of this Project, the existing Bayside Park south parking lot will be removed, and further improvements will be made to the two Phase 1A parking lots located at the north and southeast ends of the park ("North Parking" and "South Parking" on Exhibit X8). A total of approximately 140 spaces will be provided by both parking lots. On-street parking along the "E" and "H" Street frontages will be built by the RHCC as a separate project (i.e., constructed with RHCC Phase 1A Infrastructure Improvements as part of the RHCC CDP), and will provide a total of approximately 80 spaces.

Vehicular circulation within Harbor Park will be confined to parking lot access roads connecting frontage roads to internal parking and drop-off areas. The north parking lot will be configured to retain access to the MGBW facility at approximate existing gate locations. Parking lots and access roads will be improved with Asphalt Concrete (AC) or cast in place concrete, and will include stormwater capture and conveyance structures connected to proximate bioretention/biofiltration gardens

Furnishings: Additional furnishings may be added throughout the Project Site, such as:

- Benches
- Concrete seat walls
- Picnic tables
- Movable tables and chairs
- Trash and recycle receptacles
- Barbecue grills
- Bike racks
- Convenience electrical bollards
- Drinking fountains
- Dog waste bag dispensers

Signage and Wayfinding

- Additional wayfinding signage may be provided and would provide a graphic map of the park and surrounding areas.
- Permanent advertising signs and banners shall be prohibited at Harbor Park, including the beach.
- Additional interpretive nodes may be located throughout the Project Site. The interpretive node may include a combination of interpretive text, images, and graphics combined with adjacent seating. Information may include cultural, historical, and land use history, as well as sea-level rise information.
- Additional regulation signage would be posted at all primary park entrances, the beach, the Café and Beach Rental building, and at the Family Play Area.
- A specific fountain rules sign would be installed at the interactive Fountain per County of San Diego DEH requirements.
- Additional restroom directional signage and accessibility signage would be located as needed throughout the park.

Public Art: Public art is intended to be integrated into the park. Additional public art may occur in Future Phase(s). It is anticipated the public art may take such forms as stand-alone installations, interactive art elements, or possibly interpretive exhibits. Public art would be procured under the Board of Port Commissioners (BPC) Policy 609 – Public Art Program. Commissioned public art would be coordinated with the park design team, the District's ACDC, and the BCDC and seamlessly integrated into Harbor Park.

Park Facilities: In Future Phase(s) development, Harbor Park would integrate three small single-story park support buildings (Café and Beach Rental, Park Hub, and Family Restrooms), all with a maximum height of 18 feet, with isolated mechanical enclosures and/or optional solar panels extending a maximum of 3.5 feet above roof height (see Attachment C for building locations and elevations). Below is a summary of the program, sizes, and materials of the three park support buildings:

Café and Beach Rental

The Café and Beach Rental will be located at the North Promontory at the site of the modular park support building provided in Phase 1A. The tallest point of the Café and Beach Rental building will be 18 feet in height, while the rest of the building will be 14.5 feet in height. The building will utilize durable, low-cost materials that are easy to maintain, and will withstand the coastal climate, including the use of Fiberglass Reinforced Plastic (FRP) grates as shading devices, polycarbonate panels for privacy screens, galvanized woven wire mesh to create secure visible exterior storage, glass with frit patterns to prevent bird strikes, low maintenance weathered steel as building cladding, as well as durable cast in place concrete.

The Beach Rental will anchor the north end of the Promenade providing approximately 1,000 to 1,200 square feet of dedicated vendor space for rental equipment for beach and/or watersport activities, including storage space, a rental service counter and seating area. The adjacent non-motorized boat launch ramp (North Ramp) will facilitate access to the bay. All rentals of PWC will be prohibited. For the purpose of this Permit, PWC means a motorboat less than 16 feet in length which uses an inboard motor powering a jet pump as its primary motive power and which is designed to be operated by a person sitting, standing, or kneeling on rather than in the conventional manner of sitting or standing inside the vessel.

The Café with ample outdoor shaded seating is will be strategically positioned to overlook the beach, the Promenade, and the bay with dramatic views to the downtown San Diego skyline and the Coronado Bridge. Outdoor seating surrounding the Café will be available for general public use. Movable tables and seating will be provided for a minimum of 70 Café/park visitors in close proximity to the Café. Additional fixed communal tables at the North Promontory will also be provided. Ample informal seating opportunities on the seating terraces that step down to the beach and overlook the bay will also be available to the public. The Café is will be designed to accommodate a food and beverage vendor, with approximately 400 to 800 square feet for food preparation, a service window, and approximately 200 to 300 square feet of storage.

Three single occupancy, ADA friendly, family-style restrooms will be provided inside the Café/Beach Rental building with a drinking fountain, with a custodial walk-in utility chase for ease of maintenance.

Park Hub

The Park Hub will be located at the E Street arrival plaza (at the site of the Streetscape Event Plaza provided in Phase 1A), and will provide services such as an information kiosk, snack bar, and restrooms. The structure will also serve as the equipment room for the interactive fountain

- The Park Hub structure will be approximately 12 feet high. It will be constructed using durable low-cost materials that are easy to maintain, and will withstand the coastal climate, including the use of polycarbonate panels as privacy screens, glass with frit patterns to prevent bird strikes, coated steel as building cladding, as well as durable cast in place integral color concrete.
- The facility would be designed to accommodate an approximate 100-square-foot information kiosk, an approximate 100-square-foot concession snack bar, up to 500 square feet of storage, an approximate 650-square-foot below-grade space for the interactive fountain mechanical room, and a covered porch and seating area.
- The facility would include six restroom stalls, both with changing areas, as well as one single occupancy, ADA compliant, family style restroom.

Family Restrooms

- The Family Restrooms will be located adjacent to the Play Area in the southern portion of the park. It will provide three single occupancy, ADA compliant, family style restrooms with a custodial walk-in utility chase, a small covered exterior waiting area, and opportunity for interpretive display along an aluminum perforated screen wall along the restroom entry.
- The Family Restroom facility would use durable, low-cost materials that are easy to maintain and will withstand the coastal climate, including aluminum perforated privacy screen, weathered galvanized steel as building cladding, as well as durable cast in place integral color concrete.

Harbor Park Landscaping, Lighting and Utilities

Landscaping and Plantings

Harbor Park will include several types of gardens and three natural turf lawn areas to enrich the visitor experience of the park. Below is a summary of anticipated Harbor Park Future Phase(s) landscape improvements:

- Approximately 6000 square feet of biofiltration/bioretention gardens at buildout.
- Approximately 3.7 acres of turf lawn at buildout, including the multi-use lawn and the hill feature, irrigated with a combination of pop-up spray head and sub-surface drip irrigation.
- Planting of approximately 200 trees, of multiple tree types as identified in the attached tree palette (see Attachment D). Trees would be a mixture of evergreen, deciduous and semi-deciduous, and would be selected for a range of shade, flower color, seasonal diversity, and wind sheltering. Trees would be irrigated with bubblers where planted in garden areas, or subsurface drip where planted in decomposed granite. Tree sizes will be 24- to 36-inch boxes. All trees will be seaside tolerant. All planted areas will be irrigated utilizing water-conserving methods in accordance with CalGreen requirements.

Lighting

The Project Site would be illuminated at night, during park use hours, to create a safe, comfortable, and welcoming nighttime park environment. Primary park light fixtures would be full cut-off, directed downward, and shielded to minimize light spill. Light color temperature shall not exceed 3,000 Kelvin, while average light levels on the Waterfront Promenade, plazas, and the Family Play Area shall not exceed 2 foot-candles. All street and walkway lighting should be shielded to minimize sky glow. Additional lighting may consist of the following fixture types and conditions (see Exhibit 3):

- Pole lights at plazas and primary park paths between 11 and 18 feet high.
- Pole lights along the Waterfront Promenade between 11 and 22 feet high.
- Pole lights at parking lots and access roads between 18 and 25 feet high.
- Event lights along the eastern edge of the North and South lawns between 40 and 50 feet high will be installed in Future Phase(s) and be used during programmed nighttime performances, events, and activities allowed under this Permit. Event lights will be directed downward and westward (and shielded) to minimize fixture glare and light-spill. It is anticipated that event lights will only be utilized during events and activities, and not utilized for typical daily park lighting.
- Accent lights at special features including the interactive fountain, public art elements, and monument signage.
- Linear LED lights integrated into guardrails around the perimeter of the H Street Pier.
- Wall-mounted and soffit-mounted lights at all park buildings to illuminate the immediate perimeter and surrounding outdoor seating areas.

Utility Services and Drainage

Additional utility improvements (sewer, water, and dry utilities), and drainage improvements) may be required as part of Future Phase(s) development.

Site Preparation/Grading/Construction

Ultimately Harbor Park will be filled to achieve an average grade of approximately 13.75 feet to accommodate sea level rise (excluding the Beach, the Marsh, and the Terraced Headlands). This requires that the park be filled approximately 2 feet over average existing grade across 16.5 acres. The excavation for the Improved Beach largely offsets (balances) this required fill. The net import fill required to achieve the park as envisioned is less than 15,000 cubic yards. At buildout, construction of the park's topographic features will require 6,500 cubic yards of the 15,000 cubic yards of fill.

Prior to construction and/or reconfiguration of the existing Bayside Park in Future Phase(s), the District shall post a public notice at each affected park site at least 30 days prior to commencement of construction activity and

maintain the posting throughout construction of each affected park area. Said public notice shall identify the duration of park closure and information related to optional locations for public park and recreational facilities.

Harbor Park Operations, Programming and Maintenance (Phase 1A and Future Phase(s))

The following will apply to both Phase 1A and Future Phase(s):

Operations

- Harbor Park shall open and close in accordance with District Park Regulations (codified at District Code Section 8.02(b)7).
- Food trucks and carts could operate within the park after appropriate permits are secured, and these operations could occur along the Waterfront Promenade and on the numerous plaza areas.
- All dogs are to be leashed at all times except in any designated and controlled off-leash areas.
- A maximum of three (3) fireworks events can be held at the Chula Vista Bayfront per year, all outside of Least Tern nesting season except 4th of July, which may be allowed if in full regulatory compliance and if the nesting colonies are monitored during the event and any impacts are reported to the Wildlife Advisory Committee so they can be addressed (in accordance with EIR MM 4.8.6). All shows must comply with all applicable water quality and species protection regulations and Article 14 of the District Code, referred to as the San Diego Unified Port District Fireworks Display Event Ordinance. In addition, laser light shows are be prohibited pursuant to the CVB Development Policies.

Programming

Harbor Park will be operated in accordance with District Park Regulations (including issuance of a usage permit where applicable from the District's Waterfront Arts and Activation Department), and Chula Vista Bayfront governing documents, including the Chula Vista Bayfront Development Policies (Clerk Document No. 59407), the CVBMP & PMPA (Clerk Document No. 59406), and the CVBMP Public Access Program (Clerk Document No. 59408).

- No festivals, concerts, or other special events proposing to utilize the entire Harbor Park site, including the beach area are permitted under this Permit and shall require a separate Coastal Development Permit.
- The park shall be open to the general public during park hours for at least 85 percent of the year. Access to the general public in these areas shall be limited for permitted temporary special events and programmed uses no more than 15 percent of the year.
- The following areas of the park shall remain open to the general public during the park's operating hours, regardless of whether a special event allowed under this Permit is occurring:
    - North Promontory and North Headland (and Beach Rental and Café in Future Phase(s))
    - Existing Bayside Park play equipment in Phase 1A, Play Area in Future Phase(s)
    - All public restrooms within Harbor Park
    - Public access to the existing fishing pier shall continue to be available in accordance with the Port Code.
- District shall ensure event sponsors provide adequate and clear signage to indicate available public access during any District permitted events which require an admission fee
- Shuttle/alternate transportation use shall be encouraged in accordance with the applicable CVBMP Development Policies Section 24, Transit.
- The park shall support programming and a variety of recreational activities, with a wide range of affordability and price points to ensure all visitors are able and encouraged to experience the waterfront. The park should include activation uses, such as kiosks, retail, or amenities, or passive recreation activities. Activating features attract visitors to, and extend users' stay on, Tidelands. They may be commercial or noncommercial and are intended to offer a range of recreational experiences to the user and appeal to a variety of visitors. Activating features should complement adjacent or nearby waterfront uses and activities. Activating features may include:

    1. A variety of recreational uses, such as fitness activities and play structures;

2. Movable kiosks or carts; and

3. The following standard applies to all activating features: the number of activating features shall be commensurate with the intensity of the development in the Harbor District. Activating features may be grouped or distributed throughout the park.

Maintenance - Sand Nourishment

The Improved Beach would require periodic nourishment as per the Beach Nourishment Maintenance for the Chula Vista Bayfront Harbor Park Project Memo (Attachment E). It is estimated that the beach will require nourishment intervals between 2 to 5 years and approximately 2,000 to 6,000 cubic yards of sand to maintain beach access and prevent progressive shoreline recession.

3 Environmental Analysis

The FEIR analyzed various components of development of the CVBMP at both the program-level and project-level. Development of Harbor Park was analyzed in the FEIR at the program level. This addendum covers the project-level analysis for the Project, as the conceptual design has been refined. In addition, this addendum covers the additional construction within the Bay that would be required for construction of the proposed Improved Beach. Lastly, this addendum incorporates the findings of the subsequent Sea-Level Rise Analysis (SLRA) that has been recently prepared to ensure the long-term success and viability of the Project. In summary, the addendum analyzes the Project and supports a finding that no supplemental or subsequent CEQA analysis is warranted.

The FEIR identified potentially significant impacts related to the CVBMP in its entirety to land/water use compatibility, traffic and circulation, aesthetics/visual quality, hydrology/water quality, air quality, energy, noise, terrestrial biological resources, marine biological resources, paleontological resources, hazards and hazardous materials/public safety, public services, public utilities, and seismic/geologic hazards. These impacts would require implementation of feasible MM to reduce or avoid significant impacts.

This addendum addresses the potential environmental impacts that would occur from the Project. The existing conditions and significance criteria outlined in the FEIR are applicable to the Project. In accordance with CEQA Guidelines Section 15150, existing conditions and significance criteria are incorporated in this addendum by reference. The incorporated FEIR (Clerk Document No. 56562), including addenda, is available for viewing online at https://www.portofsandiego.org/public-records/port-updates/notices-disclosures/ceqa-documents. Note that the analysis looks at the proposed changes from the CVBMP that occurred as the design of Harbor Park was finalized, and whether the Project would result in new significant impacts, increase the severity of significant impacts already identified, require new MM, or include MM that were infeasible but now are feasible. The analysis for the CVBMP in the FEIR remains the same unless otherwise noted. Additionally, this addendum analyzes the elimination of certain MM that are no longer needed due to the Project and the exclusion of certain Project features.

Each section below includes MMs and DPs that apply to both Phase 1A development and Future Phase(s) of Harbor Park development. The MMs and DPs in the below sections will indicate which MMs and DPs will apply to either Phase1A only, Future Phase(s) only, or both Phase1A and Future Phase(s) of the Project.

3.1 Aesthetics

Would the Proposed Project have a substantially adverse effect on a scenic vista, public view, or scenic resource (such as a symbol or landmark)?

As stated in the FEIR, various view corridors are present near and within the Project site, including views of the Bay from the existing Bayside Park at the Project site. Under the Project, views to the Bay would be enhanced at these locations, including views from Bayside Park. The Project would result in redevelopment of the Project site, and would involve expansion of the existing Bayside Park, providing additional viewing opportunities of the Bay, as well as enhanced viewing opportunities to Downtown San Diego and the Coronado Bay Bridge. Consistent with what is stated in the FEIR, views of the Bay from H Street would also be enhanced with implementation of the Project, through development of the H Street Pier, which in conjunction with the proposed H Street extension, would create an unobstructed view corridor along H Street to the Bay. The three structures that are proposed at the Project site would be one story in height and not exceeding 18 feet, and would be located outside of all view corridor and vista

areas. Lastly, the Project would result in planting of over 300 trees of multiple tree types including evergreen, deciduous, and semi-deciduous trees. Trees would be sited to protect views from vistas identified in the PMP. More specifically, trees would not obstruct views of the Bay from H Street, while trees proposed within parcel HP-1 would be limited due to the development of the Improved Beach and Waterfront Promenade, with high-canopy varieties preferred in order to preserve viewing opportunities at eye level. Therefore, the proposed structures and landscaping would not interfere with views of the Bay from view corridors such as F Street and the Chula Vista Marina.

Further, Bayside Park, located within the western portion of the Project site, is designated as a scenic landmark in the FEIR. However, as described in the FEIR, because the Project would result in an increased area of publicly accessible parkland and result in increased visual quality of the site, impacts to Bayside Park would not be considered significant. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project substantially degrade the existing visual character or quality of the site and its surroundings?

The Project site is currently developed with Bayside Park and other grassy areas; Plover Way, which traverses the site from north to south; an existing bicycle and pedestrian pathway that also traverses the site from north to south; two public toilets; cemented surface parking lots; and one graded surface parking lot. Various mature trees are present throughout the existing parks. As discussed in the FEIR, although the removal of existing park elements throughout the CVBMP area (including the existing parks on the Project site) may cause impacts to the existing visual quality of the CVBMP area, new park elements have the potential to improve visual quality of the area. The Project would result in redevelopment of the Project Site with an Improved Beach, multi-use natural-turf lawn areas, a family play area, pedestrian and bicycle paths, plazas, and landscaping. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR. *Would the Proposed Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

The FEIR, as well as the other controlling documents, envisioned an active, illuminated park, including use of the area for special events, similar to the existing design and operation of Bayside Park. The Project would retain the envisioned lighting improvements throughout the Project site, excluding the Improved Beach. Lighting improvements would consist of the following approximate standards, as depicted on Exhibit 3:

- Handrail mounted lights with detailing to avoid light pollution on the H Street Pier;
- 12-foot-tall pole lights with full-cutoff fixtures at 30-foot intervals on primary pathways;
- 20-foot-tall pole lights with full-cutoff fixtures in parking areas;
- 20-foot-tall pole lights with full-cutoff fixtures at 50-foot intervals on pedestrian promenades;
- 30-foot-tall pole lights with full-cutoff fixtures at 140-foot intervals for right-of-way parking areas; and
- 50-foot-tall pole lights with shielding and directional considerations to reduce glare and light-pollution on the event lawn.

All light fixtures would be limited to a color temperature of 3000 Kelvin or below. In addition, as discussed in the FEIR, given the future urban nature of most of the surrounding properties, adjacent development types would not likely be especially sensitive to light changes and the majority of light fixtures and proposed to be full-cutoff; however, the potential exists for spillover from proposed lighting sources. Implementation of MM 4.4-2, as stated in the FEIR and MMRP, would be implemented under the Project and would further reduce effects related to light

and glare. The Development Policies stated summarized below would also ensure the Project would not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

The Project would result in development of three one-story buildings on site and two trash service enclosures. Although some glass is proposed along the elevations of the proposed Café and Beach Rental facility and Hub buildings, glass components would be minimal and would not adversely affect day or nighttime views in the area. As such, the Project would not result in significant changes compared to what was analyzed in the FEIR, and would not create any new impact or exacerbate impacts related to glare which would adversely affect day or nighttime views.

Would the Proposed Project conflict with urban visual design guidelines in adopted plans and policies?

The Project has been designed in accordance with the PMP, Development Policies, and the CVB Design Guidelines (District Clerk Document No. 67959), implemented in accordance with the Settlement Agreement, and in consideration of the PMP and Development Policies. Further, regarding aesthetics and visual resources, the Development Policies that would apply to and be implemented by the Project are outlined below. Therefore, in complying with the Development Policies, the Project would not result in significant changes compared to what was analyzed in the FEIR, and would not create any new impact or impacts related to all pertinent urban design visual guidelines.

Applicable FEIR Aesthetics MM

The following MM that was included in the FEIR and adopted MMRP would still be implemented with the Project.

[Phase1A and Future Phase(s)] 4.4-2: Port/City: Prior to design review approval, lighting design plans with specifications for outdoor lighting locations and other intensely lighted areas shall be submitted to the Port and City for review and approval. The specifications shall identify the lighting intensity needs and design light fixtures to direct light toward intended uses. Outdoor and parking lot lighting shall be shielded and directed away from adjacent properties, wherever feasible and consistent with public safety. Consideration shall be given to the use of low-pressure sodium lighting or the equivalent. The lighting plan shall illustrate the location of the proposed lighting standards and type of shielding measures. The lighting plan shall incorporate specific design features including, but not limited to, the following:

- Where lighting must be used for safety reasons (FAA 2000 Advisory Circular), minimum intensity, maximum off-phased (3 seconds between flashes) white strobes shall be used.
- All event lighting shall be directed downward and shielded, unless directed downward or shielded to minimize light spill beyond the area for which illumination is required.
- Exterior lighting shall be limited to that which is necessary and appropriate to ensure general public safety and navigation, including signage for building identification and orientation.
- Exterior lighting shall be directed downward and shielded to prevent upward lighting and to minimize light spill beyond the area for which illumination is required.
- Office space, residential units, and hotel rooms shall be equipped with motion sensors, timers, or other lighting control systems to ensure that lighting is extinguished when the space is unoccupied.
- Office space, residential units, and hotel rooms shall be equipped with blinds, drapes, or other window coverings that may be closed to minimize the effects of interior night lighting.

Applicable Development Policies

The following Development Policies would apply to and be implemented by Project.

[Phase1A and Future Phase(s)] Policy 4.1.1 (d): Exterior lighting shall be limited to that which is necessary and appropriate to ensure general public safety and way finding, including signage for building identification and way finding.

[Phase1A and Future Phase(s)] Policy 4.1.2: Use of reflective coatings on any glass surface is prohibited.

[Phase1A and Future Phase(s)] Policy 7.3: All street and walkway lighting should be shielded to minimize sky glow.

[Phase1A and Future Phase(s)] Policy 23.1: Public views to the beach, lagoons, and along the shoreline as well as to other scenic resources from major public viewpoints, as identified by the "vista" icon on the Precise Plan for Planning District 7 shall be protected. Development that may affect an existing or potential public view shall be designed and sited in a manner so as to preserve or enhance designated view opportunities. Street trees and vegetation shall be chosen and sited so as not to block views upon maturity.

[Phase1A and Future Phase(s)] Policy 23.2: The impacts of proposed development on existing public views of scenic resources shall be assessed by the District or City prior to approval of proposed development or redevelopment.

[Phase1A and Future Phase(s)] Policy 23.3: Buildings and structures shall be sited to provide unobstructed view corridors from the nearest view corridor road. These criteria may be modified when necessary to mitigate other overriding environmental considerations such as protection of habitat or wildlife corridors.

[Phase1A and Future Phase(s)] Policy 23.4: Public views of the Bay and access along the waterfront shall be provided via a proposed "Baywalk" promenade. This pedestrian path will also connect to the Signature Park, and the pathway system within the Sweetwater District, ultimately linking the two districts and "enabling viewers to experience visual contact at close range with the Bay and marshlands."

[Phase1A and Future Phase(s)] Policy 23.5: Existing views to the water from the following view corridor roads shall be protected and enhanced: E Street, F Street, Bay Boulevard between E and F Streets, Marina Parkway, and G and L Streets (in the City of Chula Vista); as shall the new views of the Bay created from the H Street corridor. These protected views shall be denoted by the "vista" icons on the Precise Plan for Planning District 7.

[Phase1A and Future Phase(s)] Policy 23.10: Bayfront Gateway Objective/Policies: Certain points of access to the Bayfront will, by use, become major entrances to the different parts of the area. A significant portion of the visitors' and users' visual impressions are influenced by conditions at these locations. Hence, special consideration should be given to roadway design, including signage and lighting, landscaping, the protection of public views towards the Bay, and the siting and design of adjoining structures. Concurrent with the preparation of Phase I infrastructure design plans for E and H Streets, a Gateway plan shall be prepared for E and H Streets. Prior to issuance of certificates of occupancy for any projects within the District's jurisdiction in Phase I, the E and H Street Gateway plan shall be approved by the District and City's Directors of Planning and Building. The E and H Street Gateway plan shall be coordinated with the Gateway plan for J Street. All Gateway plans must conform with the setback policies and height limits in the PMP.

[Phase1A and Future Phase(s)] Policy 23.11: The landscape designs and standards shall include a coordinated street furniture palette including waste containers and benches, to be implemented throughout the Bayfront at appropriate locations.

3.2 Agriculture and Forestry Resources

Would the Proposed Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

Would the Proposed Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Would the Proposed Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Would the Proposed Project result in the loss of forest land or conversion of forest land to non-forest use?

Would the Proposed Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

As determined in the FEIR, the CVBMP area does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The FEIR also concluded that the Project site does not have a land designation for agricultural use and that there is not a Williamson Act contract for the site. Further, no forestland or timberland land exists in the CVBMP area, nor has any land been designated as forestland or timberland within the boundaries of the CVBMP area. As a result, the Project would not result in the loss of forestland or timberland, nor would it result in the conversion of farmland to a nonagricultural use or the conversion of forestland to a non-forest use. None of these conditions change as the result of the Project. Therefore, no impact on agriculture and forestry resources would occur.

Applicable FEIR Agricultural and Forestry Resources MM

There are no MM related to agriculture and forestry resources in the FEIR.

Applicable Development Policies

There are no Development Policies related to agriculture and forestry resources.

3.3 Air Quality

Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan (e.g., RAQS)?

As stated in the FEIR, while the CVBMP would meet several of the criteria set by the Transportation Control Measures plan, it does not conform to the planning assumptions that were used to generate the forecast of the region's ability to achieve the National Ambient Air Quality Standards. The current Regional Air Quality Standards (RAQS) are based on the City's former General Plan. However, the CVBMP would not be inconsistent with either the City's General Plan or the District's PMP that served as the basis of the RAQS or with the growth assumptions in the RAQS and, therefore, would not result in a significant impact.

The Project includes the construction of an approximately 25-acre park. The Project would include analysis of a more refined design than incorporated into the FEIR; the findings of the subsequent SLRA that has been recently prepared to ensure the long-term success and viability of Harbor Park; and the Potential Impacts to Eelgrass from the CVB Harbor Park Project Memorandum ("Eelgrass Memorandum", see Attachment F), prepared for proposed development of the water components of the Project. The FEIR outlined the development of parcels HP-1, HP-3, H-8, and H-28 to result in ground disturbance of approximately 20.4 acres. Under the Project, grading and earthwork would be completed within a similar footprint as the original Project as analyzed in the FEIR. Implementation of the proposed Improved Beach would require approximately 6,900 cubic yards of excavation to flatten the slope placement of 4,270 cubic yards of cobbles and 19,410 cubic yards of sand veneer. This would equate to approximately 267 round-haul truck trips for import of cobbles and 971 round-haul truck trips for sand import. ProjectFurthermore, maintenance of the Improved Beach, consisting of semi-annual sand replenishemnt, would consist of placement of up to approximately 6,000 cubic yards of sand, equating to up to approximately 300 round-haul truck trips for sand import. Therefore, approximately 971 additional construction-related trips and up to 300 additional semi-annual operations related trips would be required under the Project. The Project would include two surface parking lots and access roads extending from E Street (E Street would be developed as a component of the RHCC Phase IA improvements). Operational impacts of proposed parks within the CVBMP area were analyzed in the FEIR. No significant changes to operations at the Project site, such as vehicle trips, would result with implementation of the Project. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.]

Would the Proposed Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Air quality emissions associated with construction of Signature Park and the Signature Park Extension (which includes both Sweetwater Park and the Project) and the proposed Waterfront Promenade (expanding throughout the CVBMP area) were analyzed in the FEIR. Per the FEIR, construction of parks and the Waterfront Promenade would exceed the standard for criteria air pollutants for nitrogen oxide (NOx), suspended particulates of 10 microns or less in diameter (PM10), and suspended particulates of 2.5 microns or less in diameter (PM2.5). As discussed in the FEIR, the region is not in compliance with the standards for criteria pollutants for (state and federal) ozone, (state) PM10 and (state) PM2.5. Contributions to these pollutants are analyzed in accordance with Significance Criterion No. 3, below. As discussed below, MM 4.6-1, 4.6-2 (for Phase I), 4.6-3 (for Phase II), and 4.6-4 (for Phase III) would be implemented to reduce impacts to air quality. These MM would be required to ensure the Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. None of the changes attributed to the Project would result in a significant change of operational air emissions compared to what was analyzed in the FEIR. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard? (In the San Diego Air Basin, the project region is in nonattainment for the federal or state standards for ozone (O_3), PM_{10}, and $PM_{2.5}$.)?

As described in the FEIR, projected emissions during construction of the parks and shoreline promenade proposed under the CVBMP would result in significant air quality impacts for each criteria aside from nitrogen oxide (NO_x), suspended particulates or 10 microns per diameter (PM_{10}) and suspended particulates or 2.5 microns per diameter ($PM_{2.5}$), resulting in potentially significant impacts. Implementation of MM 4.6-1 would be required to ensure

cumulatively considerable net increases of any criteria pollutant for which the project region is in nonattainment would be less than significant during construction. As described above, the Project would require grading and earthwork within a similar footprint as the original Project as analyzed in the FEIR. Implementation of the proposed Improved Beach would require approximately 6,900 cubic yards of excavation to flatten the slope and placement of placement of 4,270 cubic yards of cobbles and 19,410 cubic yards of sand veneer. This would equate to approximately 267 round-haul truck trips for import of cobbles and 971 round-haul truck trips for sand import. Furthermore, maintenance of the Improved Beach, consisting of semi-annual sand replenishment, would consist of placement of up to approximately 6,000 cubic yards of sand. Operational air quality emissions under the CVBMP were also analyzed in the FEIR. Per the FEIR, the CVBMP would result in potentially significant impacts to each criteria pollutant except sulfur dioxide (SO_2). MM were required for each phase of development of the CVBMP to reduce operational air quality impacts. Because the Project corresponds to impacts identified in Phases I, II, and III, implementation of MM 4.6-2 (for Phase I), 4.6-3 (for Phase II), and 4.6-4 (for Phase III) would be required. All MM require compliance with Title 24 of the California Energy Efficient Standards for Residential and Non-Residential buildings (see 4.6-2/ 4.6-3/4.6-4, below). The Project would include additional disturbance within parcel HP-1 and the adjacent Bay, for construction of the widened Improved Beach. Thus, this addendum focuses on incorporation of the findings of the subsequent SLRA and the marine biological study. However, the estimated area of disturbance would be similar to the original project and what was described to occur at the Project site in the FEIR. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?

As discussed in the FEIR, the Project region is in attainment for all federal criteria pollutants except for the 8-hour ozone standard. As previously stated, the park and promenade components of the CVBMP, to be developed under Phase I, were determined to exceed the standard for reactive organic gases, NO_x, PM_{10}, $PM_{2.5}$. Therefore, as described in the FEIR, impacts to sensitive receptors during construction would be significant and temporary. Similarly, per the FEIR, development of H-28 (proposed H Street Pier) and HP-3 (proposed Waterfront Promenade) correspond to Phase II and III of the CVBMP development, respectively. Therefore, these components would contribute to exceedance of significance thresholds for reactive organic gases, NO_x, carbon monoxide (CO), $PM_{10,}$ and $PM_{2.5}$. The Project would include additional disturbance within parcel HP-1 and the adjacent Bay, for construction of the widened Improved Beach. However, the estimated area of disturbance would be similar to the original project and what was described to occur at the Project Site in the FEIR. Therefore, with incorporation of MM 4.6-2/4.6-3/4.6-4, described below, per the FEIR, the Project would not result in a significant change of exposure of sensitive receptors to substantial pollutant concentrations. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project locate housing within 1,000 feet of a plant or any other toxic air emitting facility, for which a significant health risk assessment has not been conducted?

As stated in the FEIR, there are two major sources of pollution within the CVBMP area, the Rohr Industries/Goodrich and the South Bay Power Plant. However, the South Bay Power Plant was decommissioned in 2010, and demolished in summer of 2012, after the FEIR was adopted. While the Project is located within approximately 1,200 feet of the Rohr Industries/Goodrich facility, the Project is not within 1,000 feet of either of these present and past pollution sources. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR .

Would the Proposed Project create objectionable odors affecting substantial number of people?

As stated in the FEIR, odors are possible from construction emissions, but they would be temporary and would dissipate quickly and, therefore, would not affect substantial numbers of people. Impacts would not be significant. Similarly, the Project has the potential to produce odors during construction; however, there would not be a substantial number of people in the vicinity to be impacted, and odors would be temporary. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Conflict with or obstruct goals of CA Global Warming Solutions Act?

As discussed in the FEIR, the CVBMP would not result in a significant global climate change impact because it would not conflict with or obstruct the State of California's ability to achieve the goals and strategies of Assembly Bill (AB) 32 or related Executive Orders. Additionally, the CVBMP would not experience a substantial increase in risk from potential adverse effects of global warming beyond those addressed in the other sections of the FEIR.

This addendum has been prepared for the Project to include analysis of a more refined design than incorporated into the FEIR as well as incorporation of the findings of the subsequent SLRA that has been recently prepared to ensure the long-term success and viability of Harbor Park as well as the marine biological study, prepared for proposed development of the Improved Beach. The Project would not contribute substantial global climate change impacts compared to what was analyzed in the FEIR. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Applicable FEIR Air Quality MM

The following MM that were included in the FEIR and adopted MMRP would still be implemented with the Project.

[Phase1A and Future Phase(s)] 4.6-1: Port/City: Prior to the commencement of any grading activities, the following measures shall be placed as notes on all grading plans and shall be implemented during grading of each phase of the project to minimize construction emissions. These measures shall be completed to the satisfaction of the Port and the Director of Planning and Building for the City of Chula Vista (These measures were derived, in part, from Table 11-4 of Appendix 11 of the SCAQMD CEQA Air Quality Handbook, and from SCAQMD Rule 403):

Best Available Control Measures for Specific Construction Activities

a. Backfilling activities:
    i. Stabilize backfill material when not actively handling
    ii. Stabilize backfill material during handling
    iii. Stabilize soil at completion of backfilling activity.
b. Clearing and grubbing activities:
    i. Maintain stability of soil through pre-watering of site prior to clearing and grubbing
    ii. Stabilize soil during clearing and grubbing activities
    iii. Stabilize soil immediately after clearing and grubbing activities.
c. Clearing forms:
    i. Use water spray to clear forms
    ii. Use sweeping and water spray to clear forms

iii. Use vacuum system to clear forms.

d. Crushing activities:
   i. Stabilize surface soils prior to operation of support equipment
   ii. Stabilize material after crushing.

e. Cut and fill activities:
   i. Pre-water soils prior to cut and fill activities
   ii. Stabilize soil during and after cut and fill activities.

f. Demolition activities – mechanical/manual:
   i. Stabilize wind erodible surfaces to reduce dust
   ii. Stabilize surface soil where support equipment and vehicles will operate
   iii. Stabilize loose soil and demolition debris.

g. Disturbed soil:
   i. Stabilize disturbed soil throughout the construction site
   ii. Stabilize disturbed soil between structures.

h. Earth-moving activities:
   i. Pre-apply water to depth of proposed cuts
   ii. Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction
   iii. Stabilize soils once earth-moving activities are complete.

i. Importing/exporting of bulk materials:
   i. Stabilize material while loading to reduce fugitive dust emissions
   ii. Stabilize material while transporting to reduce fugitive dust emissions
   iii. Stabilize material while unloading to reduce fugitive dust emissions
   iv. Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling
   v. Comply with Vehicle Code Section 23114.

j. Landscaping activities:
   i. Stabilize soils, materials, slopes

k. Road shoulder maintenance:
   i. Apply water to unpaved shoulders prior to clearing
   ii. Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.

l. Screening activities:
   i. Pre-water material prior to screening
   ii. Limit fugitive dust emissions to opacity and plume length standards

iii. Stabilize material immediately after screening.

m. Staging areas:
   i. Stabilize staging areas during use
   ii. Stabilize staging area soils at project completion.

n. Stockpiles/bulk material handling:
   i. Stabilize stockpiled materials by covering/watering
   ii. Stockpiles within 100 yards of off-site occupied buildings must not be greater than 8 feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.

o. Traffic areas for construction activities:
   i. Stabilize all off-road traffic and parking areas
   ii. Stabilize all haul routes
   iii. Direct construction traffic over established haul routes.

p. Trenching activities:
   i. Stabilize surface soils where trencher or excavator and support equipment will operate
   ii. Stabilize soils at the completion of trenching activities.

q. Truck loading activities:
   i. Pre-water material prior to loading
   ii. Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling.

r. Turf overseeding activities:
   i. Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards
   ii. Cover haul vehicles prior to exiting the site.

s. Unpaved roads/parking lots:
   i. Stabilize soils to meet the applicable performance standards
   ii. Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.

t. Vacant land:
   i. In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures.

Other General Best Available Control Measures:

u. Minimize idling time
v. Maintain properly tuned equipment
w. Regular maintenance—keep equipment well maintained
x. Where practicable, use low pollutant-emitting equipment

y. Use of ultra-low-sulfur diesel fuel
z. Use construction equipment that is CARB-certified or that meets Tier 3 emissions or better, if available
aa. Use alternative diesel formulations (e.g., aqueous diesel), if available
bb. Where practicable, use catalytic reduction for gasoline-powered equipment
cc. Use injection timing retard for diesel-powered equipment
dd. Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry
ee. Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads
ff. Remove any visible track-out into traveled public streets within 30 minutes of occurrence
gg. Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred
hh. Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads
ii. Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 miles per hour
jj. Enforce a 15 mile-per-hour speed limit on unpaved surfaces
kk. On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce re-suspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.
ll. Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the City or Port to reduce dust generation.
mm. Electrical construction equipment shall be used to the extent feasible.
nn. Low-VOC coatings will be used during application of architectural coatings. Coatings must meet the VOC content limitations set forth in APCD Rule 67.0.

[Phase1A and Future Phase(s)] 4.6-2, 4.6-3, 4.6-4 Port/City: Prior to the issuance of building permits, the applicant shall demonstrate that the Proposed Project complies with Title 24 of the California Energy Efficient Standards for Residential and Nonresidential buildings. These requirements, along with the following measures, shall be incorporated into the final project design to the satisfaction of the Port and the Director of Planning and Building for the City:

- Use of low NOx emission water heaters
- Installation of energy efficient and automated air conditioners when air conditioners are provided
- Energy efficient parking area lights
- Exterior windows shall be double paned.

Applicable Development Policies

[Phase1A and Future Phase(s)] Policy 24.7: In order to reduce transportation-related air quality impacts, the following items should be encouraged at the project-level planning phase:

a) Limit idling time for commercial vehicles, including delivery and construction vehicles.
b) Use low- or zero-emission vehicles, including construction vehicles.

c) Promote ride sharing programs, for example, by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides.

d) Provide the necessary facilities and infrastructure to encourage the use of low- or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling).

e) Provide public transit incentives, such as free or low-cost monthly transit passes.

f) For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle commuting, including (for example) showers, lockers, locked bicycle storage or covered or indoor bicycle parking.

g) Institute a telecommute work program. Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences.

h) Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation.

3.4 Biological Resources

Would the Proposed Project have a significant impact if it has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS?

Land Component

As stated in the FEIR, no candidate, sensitive, or special-status species were determined to be present on the Project site. Nonetheless, due to the presence of trees and open space at the, there is the potential for impacts to nesting raptors, as well as birds protected by the Migratory Bird Treaty Act, to be present. All active raptor nests, regardless of state or federal listing status, are protected under the California Fish and Game Code Section 3503.5. Direct impacts to nesting raptors due to the removal of an active nest would be significant, and implementation of MM 4.8-1 would be required as part of the Project. Similarly, destruction or removal of active nests during the breeding season could occur during construction or grading activities. Therefore, MM 4.8-3 would be required to reduce potentially significant impacts to birds protected by the Migratory Bird Treaty Act.

Further, per the FEIR, indirect impacts to all sensitive bird species located within the CVBMP area could result during construction and operation of the CVBMP. These include impacts to breeding birds from construction noise and lighting, impacts to sensitive birds through a potential increase in perches for raptors that prey on birds, impacts to the birds and their habitat from post-development lighting and operational noise, intrusion into the habitat by pets and humans (public access), increased drainage, and exposure to additional toxins from runoff from streets and landscaping. These indirect impacts could be significant because they would potentially result in increased predation, abandonment of nests, or degradation of nesting and foraging habitat for the light-footed clapper rail (*Rallus longirostris levipes*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), all raptor species and migratory birds, which can cause a drop in population numbers of these species. As required through MM in the FEIR, all new development must adhere to guidelines provided in the MSCP Subarea Plan, which addresses issues associated with potential indirect impacts on the MSCP area from lighting, noise, drainage, use of invasive, toxic substances, and public access. Implementation of these guidelines would ensure that the Project would not result in impacts to potentially significant birds located within the open space and trees within the Project Site. MM 4.8-6 would be implemented to ensure compliance with the City's MSCP Subarea Plan and would reduce impacts

to less than significant. Therefore, with implementation of MM 4.8-1, 4.8-2, and 4.8-6 in the FEIR and MMRP, the Project would not create any new impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species compared to what was analyzed in the FEIR.

Water Component

As discussed in the FEIR, the first phase of development of the H Street Pier would result in driving of piles for pier support that would result in a total impact to 0.4 acres of eelgrass within the South Bay. As discussed in the Eelgrass Memorandum prepared for the Project (Appendix A), the proposed H Street Pier would result in a direct impact of approximately 0.06 to 0.27 acres of eelgrass. The eelgrass survey recommends construction of a temporary fill peninsula, use of crane mats, or erection of a temporary trestle to complete construction of the proposed H Street Pier. These recommendations are part of the project's features for the proposed H Street Pier design, in order to reduce potential impacts to existing eelgrass. In addition, to ensure direct impacts to eelgrass would be less than significant, MM 4.8-8 and 4.9-1, outlined in the FEIR would be required and implemented for the construction of the proposed H Street Pier.

Further, as discussed in the FEIR, development of H Street Pier would also increase shading, possibly resulting in a loss of eelgrass habitat in the area. Shading affects an area greater than the footprint of the structure. As the height of the structure increases, shading impacts generally increase as well.. At full buildout, development of the H Street Pier would extend approximately 600 total linear feet west of the base of H Street into the Bay and would be approximately 60 feet wide. However, under the Project, development of the proposed H Street Pier would only extend approximately 240 to 300 feet, and no relocation of the boat channel, outlined in the FEIR, would be required. As discussed in the FEIR, the H Street Pier would be designed to be the maximum feasible height and have the maximum feasible space between pilings in order to minimize shading impacts. Shading effects were also identified in the Eelgrass Memorandum prepared for the Project (see Attachment F), which recommended that access be taken along the northern margin of the pier as this area is most likely to be adversely influenced by future shading effects. Similar to what was analyzed in the FEIR, the design features outlined in the Eelgrass Memorandum would reduce potential impacts to eelgrass related to shading associated with the H Street Pier.

Further, per the Eelgrass Memorandum , construction of the Improved Beach would avoid direct disturbance to existing eelgrass due to the work being limited to areas above the MHWL, an area that is currently eroding, and because the MHWL is located above and away from the existing eelgrass beds to the west of the lower margin of the proposed Improved Beach. More specifically, from north to south, the approximate distance from the MHWL to existing eelgrass beds ranges from 120 to 198 feet. However, although construction of the proposed Improved Beach would not result in direct impacts to existing eelgrass, per the Shoreline Sand Transportation Memorandum and Eelgrass Memorandum, prepared for the Project by ESA (ESA 2020) (see Attachments A and F), it is anticipated that, post construction, wave action could result in displacement of an average of approximately 1,000 to 3,280 cubic yards of sand per year, that would be extracted from the proposed Improved Beach by waves and transported southward via littoral drift. Based on the prevailing northwest winds, the displaced sand associated with the proposed Improved Beach could migrate along the shoreline towards the terminal shoal at the Chula Vista Marina. The proposed Improved Beach is expected to result in reduced sand transport compared to existing conditions because the proposed Improved Beach would reconfigure alignment of the existing beach to better align with the dominant wind wave direction, encouraging sand to be pushed back onto the beach rather than drifting southward. Further, the proposed Improved Beach would be setback between the proposed Terraced Headlands, which are expected to further reduce the existing rate of sediment transport to the south from the higher elevations of the beach. The Eelgrass Memorandum recommended implementation of a maintenance program that reclaims sand from the terminal shoal, or traps sand along the beach prior to reaching terminal shoal so that it may be recollected and placed back at the erosion scraps. This would require disruption of sediment transport path via groin features,

or disruption of transport wave energy such that sand deposits in areas along the beach prior to reaching the terminal shoal where eelgrass overrun occurs. This may be possible through the design of the H Street Pier to serve both as over water access and as a physical or energy break in the littoral cell. To further reduce impacts to marine resources (including eelgrass) from increasing turbidity and stirring up of sediment and potentially contaminated soils, implementation of MM BIO-4.9-4, included in the FEIR, would also be required for the Project.

Lastly, new on-site storm drain piping and associated drainage structures are proposed at the Project site. Per the Eelgrass Memorandum , it is recommended that the Project consolidate and relocate drains into the proposed storm drain collectors or discharge through the revetment north and south of the proposed Improved Beach and flats, where discharge would cross directly into the water, as opposed to crossing intertidal flats. Further, the Project would include biofiltration bioretention/biofiltration gardens, in order to assist with stormwater treatment and infiltration and reduce potential of untreated stormwater to runoff into the nearby Bay, further reducing impacts to eelgrass and other marine resources.

Therefore, with implementation of MM 4.8-4, 4.9-1, and 4.9-4, as stated in the FEIR and MMRP, substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species, associated with water components of the Project, would be less than significant. The Project would not create any new impacts compared to what was analyzed in the FEIR.

Would the Proposed Project have a significant impact if it has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFG or USFWS?

Land Component

As described in the FEIR, existing vegetation/land use cover at the Project site includes urban developed, non-native grassland, and disturbed habitat, and no riparian habitats or sensitive natural communities are present within the land-portion of the Project site. As such, no new impacts would occur, nor would any impacts be exacerbated, and no new MM are required.

Water Component

As discussed in the FEIR, construction of the H Street Pier would result in impacts from the driving of piles for pier support into shallow subtidal benthic habitat where eelgrass is known to occur. As discussed above, and in the Eelgrass Memorandum, construction of the Proposed H Street Pier would result in a total impact to 0.06 to 0.27 acres of eelgrass acre of eelgrass habitat in South Bay, which is less than what was anticipated in the FEIR. Indirect impacts to eelgrass associated with the proposed H Street Pier can also occur from shading of eelgrass habitat. Further, per the FEIR, construction and the driving of piles for the H Street Pier would have temporary adverse effects on marine resources such as short-term increase in turbidity, a temporary loss of intertidal and subtidal benthic habitat in the construction zone, and noise and vibration disturbances of fish communities. However, per the FEIR, the benthic community impacted would rapidly recolonize the area following pile driving. Although temporary noise and vibration from the pile driving may disturb fish species, the effect would not be significant because fish have a behavioral avoidance of high-intensity sound levels. Although noise disturbance would be temporary, the addition of hard substrate piles in the area of the H Street Pier would attract a wider variety of fish species than currently occur in the area. Lastly, artificial night lighting can also indirectly cause water quality impacts. For example, many aquatic invertebrates, such as zooplankton, move up and down within the water column during a 24-hour period. This “vertical migration” presumably results from a need to avoid predation during lighted conditions; therefore, many zooplankton forage near water surfaces only during dark conditions. It is

hypothesized that, with fewer zooplankton migrating to the surface to graze, algae populations may increase, which would then have a series of adverse effects on water quality. The Project would result in introduction of some lighting sources near the Bay, including lighting from the proposed H Street Pier. Therefore, as analyzed in the FEIR, impacts on marine resources related to lighting associated with construction and operation of the Project would be significant and implementation of MM 4.9-6, as stated in the FEIR and MMRP, would be required to reduce impacts from lighting to less than significant. Lastly, as discussed under threshold a, above, direct and indirect impacts to eelgrass and intertidal and subtidal communities would be mitigated through MM 4.8-4, 4.9-1, and 4.9-4, as stated in the FEIR and MMRP. As such, with implementation of MM 4.8-4, 4.9-1, 4.9-4, and 4.9-6, the Project would not create any new significant to any riparian habitat or other sensitive natural community. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project have a significant impact if it has a substantial adverse effect on federally or state protected wetlands as defined by Sections 401 and 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.), and Section 1600 of the CDFG Code through direct removal, filling, hydrologic interruption, or other means?

Land Component

As discussed above, existing vegetation/land use cover at the Project site includes urban developed, non-native grassland, and disturbed habitat. No wetlands are present within the land portion of the Project site. As such, no new impacts would occur, nor would any impacts be exacerbated, and no new MM are required.

Water Component

Although no riparian habitats or sensitive natural communities are present within the land-portion of the Project site, per the FEIR, the western portion of the Project Site, within the San Diego Bay, is located within Waters of the U.S, designated by the U.S. Army Corps of Engineers (USACE). Development of the proposed Improved Beach and H Street Pier would result in excavation within waters of the U.S. and a Section 404 permit would be required. Implementation of MM 4.8-12, stated in the FEIR and MMRP, shall be required to reduce direct impacts to USACE jurisdictional waters. Therefore, with implementation of MM 4.8-12, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors?

As stated in the FEIR, no significant direct impacts would occur to wildlife movement corridors for use by terrestrial wildlife, such as small mammal species. Nonetheless, the CVBMP area is located along the coastline and includes a portion of a bird mitigation corridor and likely includes important migratory stopover habitat. Therefore, development of structures, especially tall structures, within the CVBMP area could result in bird strikes. Bird strikes to windows on buildings increase with increasing amount of vegetation and glass, especially reflective glass, opposite proposed vegetation. Further, per the FEIR, night lighting could result in impacts to night-migrating birds, especially during periods of cloudy, foggy, or inclement weather when lighting may cause confusion and result in bird strikes into buildings. However, the proposed structures at the Project site would not exceed 18 feet in height. Therefore, mitigation to reduce impacts to bird strikes would not be required. Further, to reduce the potential for bird strikes and disorientation, the Project would incorporate the use of glass windows with frit patterns for the proposed Café and Beach Rental facility and the Hub structures. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Water Component

As discussed in the FEIR, the CVBMP area, at the southeast end of the San Diego Bay, does not function as a movement corridor for resident and migratory fish species. Although migratory fish, such as the top smelt, deep body and northern anchovies, and Pacific sardine exist in the Bay, the CVBMP or the Project would not interfere with these species' movement patterns.

Applicable FEIR Biological Resources MM

The following MM that were included in the FEIR and adopted MMRP would still be implemented with the Project. Note that although the full MM are incorporated in this addendum, not all portions of the MM, below, would apply to the Project. The portions of the MM that do not apply to the Project have been identified below.

[Phase1A and Future Phase(s)] 4.8-1 shall be implemented to reduce the direct impact to nesting raptors to a level of less than significant.

Port/City: Prior to construction in any areas with suitable nesting locations for raptors (such as trees, utility poles, or other suitable structures) and, if grading or construction occurs during the breeding season for nesting raptors (January 15 through July 31), the project developer(s) within the Port's or City's jurisdiction shall retain a qualified, Port- or City-approved biologist, as appropriate, who shall conduct a pre-construction survey for active raptor nests. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port or City, as appropriate, for review and approval. If an active nest is found, an appropriate setback distance will be determined in consultation with the applicant, Port or City, USFWS, and CDFG. The construction setback shall be implemented until the young are completely independent of the nest or the nest is relocated with the approval of the USFWS and CDFG. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint.

[Phase1A and Future Phase(s)] 4.8-3 shall be implemented to reduce the direct impact to nesting migratory birds to a level of less than significant:

Port/City: If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, approved by the Port/City (depending on the jurisdiction), to conduct a preconstruction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port or City, as appropriate, for review and approval. If active nests are present, the Port will consult with USFWS and CDFG to determine the appropriate construction setback distance. Construction setbacks shall be implemented until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFG. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall

also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint.

[Phase1A and Future Phase(s)] 4.8-6 shall be implemented to reduce the indirect impacts (from lighting, noise, use of invasives, toxic substances, and public access) to all sensitive birds located within the CVBMP, including the light-footed clapper rail, Belding's savannah sparrow, all raptor species, and migratory birds, all of which are protected by state and/or federal regulations in the adjacent Preserve areas to a level of less than significant. Implementation of Mitigation Measure 4.8-6 would also ensure the City's compliance with the adjacency guidelines within the City of Chula Vista MSCP Subarea Plan, which would reduce indirect impacts to MSCP Preserve areas from lighting, noise, use of invasives, toxic substances, and public access within the City's jurisdiction to a level of less than significant:

Port/City:

A. **Construction-related noise.** Construction-related noise shall be limited adjacent to the Sweetwater Marsh and South San Diego Bay Units of the San Diego Bay National Wildlife Refuge, F & G Street Marsh, the mudflats west of the Sweetwater District, and the J Street Marsh during the general avian breeding season of January 15 to August 31. During the avian breeding season, noise levels from construction activities must not exceed 60 dB(A) Leq., or ambient noise levels if higher than 60 dB(A). The project developer(s) shall prepare and submit to the Port/City for review and approval an acoustical analysis and nesting bird survey to demonstrate that the 60 dB(A) Leq. Noise level is maintained at the location of any active nest within the marsh. If noise attenuation measures or modifications to construction activities are unable to reduce the noise level below 60 dB(A), either the developer(s) must immediately consult with the Service to develop a noise attenuation plan or construction in the affected areas must cease until the end of the breeding season. Because potential construction noise levels above 60 dB(A) L_{eq} have been identified at the F & G Street Marsh, specific noise attenuation measures have been identified and are addressed in *Section 4.7* of the EIR. [Not applicable to the Project.]

B. **Perching of raptors.** To reduce the potential for raptors to perch within the landscaping and hunt sensitive bird species from those perches, the following design criteria shall be identified in the CVBMP master landscape plan and incorporated into all building and landscape plans with a line of site to the City's MSCP Preserve, buffer zones, and on-site open space:
   - Light posts shall have anti-perching spike strips along any portions that would be accessible to raptors.
   - The top edge of buildings shall be rounded with sufficient radius to reduce the amount of suitable perching building edges.
   - If building tops are hard corners, spike strips shall be used to discourage raptors from perching and building nests.
   - Decorative eaves, ledges, or other protrusions shall be designed to discourage perching by raptors.

- To the extent practicable, buildings on Parcels S-1 and S-4 will be oriented to reduce raptor perches within the line of sight to adjacent sensitive habitats.

C. **Raptor management and monitoring**. Prior to the issuance of a Coastal Development Permit, the project developer shall prepare a raptor nest management plan to be implemented once the project is built. A biologist retained by the project developer and approved by the Port and/or City shall be responsible for monitoring the buildings and associated landscaping to determine whether raptor nests have been established on Port or City lands within 500 feet of the Preserves. If a nest is discovered, the nest would be removed in consultation with USFWS, CDFG, and the Port/City, outside of the raptor breeding season of January 15 to July 31.

D. **Lighting.** The following mitigation measure is required during all phases of development to ensure that outdoor lighting throughout the project area is minimized upon any of the habitat buffers, Preserve areas, habitats, or open water.

Prior to issuance of a building permit, each applicant within the Port's or City's jurisdiction shall prepare a lighting design plan, including a photometric analysis, to be reviewed by the Port or City, as appropriate. Each plan shall include the following features, as appropriate to the specific locations:

- All exterior lighting shall be directed away from the habitat buffers, Preserve Areas, habitats, or open water, wherever feasible and consistent with public safety. Where necessary, lighting of all developed areas adjacent to the habitat buffers, Preserve Areas, habitats, or open water shall provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the habitat buffers, Preserve Areas, habitats, or open water and sensitive species from night lighting. The light structures themselves shall have shielding (and incorporate anti-raptor perching criteria); but the placement of the light structures shall also provide shielding from wildlife habitats and shall be placed in such a way as to minimize the amount of light reaching adjacent habitat buffers, Preserve Areas, habitats, or open water. This includes street lights, pedestrian and bicycle path lighting, and any recreational lighting.
- All exterior lighting immediately adjacent to habitat buffers, Preserve Areas, habitats, or open water shall be low-pressure sodium lighting or other approved equivalent.
- No sports field lights shall be planned on the recreation fields near the J Street Marsh or the Sweetwater Marsh.
- All roadways will be designed, and where necessary edges bermed, to ensure automobile light penetration in the Wildlife Habitat Areas, will be minimized, subject to applicable City and Port roadway design standards.
- Explicit lighting requirements to minimize impacts to Wildlife Habitat Areas will be devised and implemented for all Bayfront uses including commercial, residential, municipal, streets, recreational, and parking lots. Beacon and exterior flood lights are prohibited where they would impact a Wildlife Habitat Area and use of this lighting should be minimized throughout the project. All street and walkway lighting should be shielded to minimize sky glow.
- To the maximum extent feasible, all external lighting will be designed to minimize any impact to Wildlife Habitat Areas, and operations and maintenance conditions and procedures will be devised to ensure appropriate long-term education and control. To the

maximum extent feasible, ambient light impacts to the Sweetwater or J Street Marshes will be minimized.

- In Sweetwater and Otay District parks, lighting will be limited to that which is necessary for security purposes. Security lighting will be strictly limited to that required by applicable law enforcement requirements. All lighting proposed for the Sweetwater and Otay District parks and the shoreline promenade will be placed only where needed for human safety. Lights will be placed on low-standing bollards, shielded, and flat bottomed, so the illumination is directed downward onto the walkway and does not scatter. Lighting that emits only a low-range yellow light will be used since yellow monochromatic light is not perceived as natural light by wildlife and minimized eco-disruptions. No night lighting for active sports facilities will be allowed.
- Sweetwater and Otay District parks will open and close in accordance with Port park regulations.
- Laser light shows will be prohibited.
- Construction lighting will be controlled to minimize Wildlife Habitat Area impacts.

E. Noise

Construction Noise. Mitigation Measure 4.8-6, and the measures outlined in *Section 4.7, Noise,* shall be implemented in order to reduce potential indirect construction noise impacts to sensitive species within the F & G Street Marsh and J Street Marsh. In order to further reduce construction noise, equipment staging areas shall be centered away from the edges of the project, and construction equipment shall be maintained regularly and muffled appropriately. In addition, construction noise must be controlled to minimize impacts to Wildlife Habitat Areas.

Operational Noise. Noise levels from loading and unloading areas; rooftop heating, ventilation, and air conditioning facilities; and other noise-generating operational equipment shall not exceed 60 dBA L_{eq}. at the boundaries of the F & G Street Marsh and the J Street Marsh during the typical breeding season of January 15 to August 31.

Fireworks. A maximum of three (3) fireworks events can be held per year, all outside of Least Tern nesting season except 4th of July, which may be allowed if in full regulatory compliance and if the nesting colonies are monitored during the event and any impacts reported to the Wildlife Advisory Committee so they can be addressed. All shows must comply with all applicable water quality and species protection regulations. All shows must be consistent with policies, goals, and objectives in the Natural Resource Management Plan (NRMP), described in Mitigation Measure 4.8-7.

F. Invasives. All exterior landscaping plans shall be submitted to the Port or City, as appropriate, for review and approval to ensure that no plants listed on the California Invasive Plan Council (Cal-IPC) List of Exotic Pest Plants of Greatest Ecological Concern in California (Appendix 4.8-7 of this FEIR), the California Invasive Plant Inventory Database, Appendix N of the City's MSCP Subarea Plan, or any related updates shall be used in the Proposed Project area. Any such invasive plant species that establishes itself within the Proposed Project area will be removed immediately to the maximum extent feasible and in a manner adequate to prevent further distribution into Wildlife Habitat Areas.

The following landscape guidelines will apply to the Proposed Project area:

- Only designated native plants will be used in No Touch Buffer Areas, habitat restoration areas, or in the limited and transitional zones of Parcel SP-1 adjacent to Wildlife Habitat Areas.

- Non-native plants will be prohibited adjacent to Wildlife Habitat Areas and will be strongly discouraged and minimized elsewhere where they will provide breeding of undesired scavengers.
- Landscaping plans for development projects adjacent to ecological buffers and/or the MSCP Preserve shall include native plants that are compatible with native vegetation located within the ecological buffers and/or MSCP Preserve.
- No trees will be planted in the No Touch Buffer Areas or directly adjacent to a National Wildlife Refuge, J Street Marsh, or SP-2 areas where there is no Buffer Area.

G. Toxic Substances and Drainage. Implementation of general water quality measures identified in Section 4.5 of the FEIR, Hydrology/Water Quality, would reduce impacts associated with the release of toxins, chemicals, petroleum products, and other elements that might degrade or harm the natural environment to below a level that is significant, and would provide benefits to wetland habitats. As a reference, these MM are repeated below and apply to the Port and City:

- If contaminated groundwater is encountered, the project developer shall treat and/or dispose of the contaminated groundwater (at the developer's expense) in accordance with NPDES permitting requirements, which include obtaining a permit from the Industrial Wastewater Control Program to the satisfaction of the RWQCB. The project developer(s) shall demonstrate satisfaction of all permit requirements prior to issuance of a grading permit.
- Prior to the discharge of contaminated groundwater for all construction activities, should flammables, corrosives, hazardous wastes, poisonous substances, greases and oils, and other pollutants exist on site, a pre-treatment system shall be installed to pre-treat the water to the satisfaction of the RWQCB before it can be discharged into the sewer system.
- Prior to the issuance of a grading, excavation, dredge/fill, or building permit for any parcel, the applicant shall submit a Spill Prevention/Contingency Plan for approval by the Port or City as appropriate. The plan shall:
    - Ensure that hazardous or potentially hazardous materials (e.g., cement, lubricants, solvents, fuels, other refined petroleum hydrocarbon products, wash water, raw sewage) that are used or generated during the construction and operation of any project as part of the Proposed Project shall be handled, stored, used, and disposed of in accordance with NPDES permitting requirements and applicable federal, state, and local policies
    - Include material safety data sheets
    - Require 40 hours of worker training and education as required by the Occupational Safety and Health Administration
    - Minimize the volume of hazardous or potentially hazardous materials stored at the site at any one time
    - Provide secured storage areas for compatible materials, with adequate spill contaminant
    - Maintain all required records, manifest and other tracking information in an up-to-date and accessible form or location for review by the Port or City
    - Maintain all required records, manifest and other tracking information in an up-to-date and accessible form or location for review by the Port or City
- Prior to issuance of a permit by USACE for dredge and/or fill operations in the Bay or Chula Vista Harbor, the applicant shall conduct a focused sediment investigation and submit it

to USACE, EPA, and RWQCB for review and approval. The applicant shall then determine the amount of bay sediment that requires remediation and develop a specific work plan to remediate bay sediments in accordance with permitting requirements of the RWQCB. The work plan shall include but not be limited to dredging the sediment, analyzing the nature and extent of any contamination, and allowing it to drain. Pending the outcome of the analytical results, the RWQCB and the Port shall prescribe the appropriate method for disposal of any contaminated sediment.

- Prior to issuance of a grading permit for marina redevelopment on Parcels HW-1 and HW-4, the developer shall submit a work plan for approval by the RWQCB and Port/City that requires the implementation of BMPs, including the use of silt curtains during in-water construction to minimize sediment disturbances and confine potentially contaminated sediment if contaminated sediment exists. If a silt curtain should be necessary, the silt curtain shall be anchored along the ocean floor with weights (i.e., a chain) and anchored to the top with a floating chain of buoys. The curtain shall wrap around the area of disturbance to prevent turbidity from traveling outside the immediate project area. Once the impacted region resettles, the curtains shall be removed. If the sediment would be suitable for ocean disposal, no silt curtain shall be required. However, if contaminants are actually present, the applicant would be required to provide to the RWQCB and Port/City an evaluation showing that the sediment would be suitable for ocean disposal. [Not applicable to the Project.]

In addition, the following measures will apply:

- Vegetation-based storm water treatment facilities, such as natural berms, swales, and detention areas are appropriate uses for Buffer Areas so long as they are designed using native plant species and serve dual functions as habitat areas. Provisions for access for non-destructive maintenance and removal of litter and excess sediment will be integrated into these facilities. In areas that provide for the natural treatment of runoff, cattails, bulrush, mulefat, willow, and the like are permissible.
- Storm water and non-point source urban runoff into Wildlife Habitat Areas must be monitored and managed so as to prevent unwanted ecotype conversion or weed invasion. A plan to address the occurrence of any erosion or type conversion will be developed and implemented, if necessary. Monitoring will include an assessment of stream bed scouring and habitat degradation, sediment accumulation, shoreline erosion and stream bed widening, loss of aquatic species, and decreased base flow.
- The use of persistent pesticides or fertilizers in landscaping that drains into Wildlife Habitat Areas is prohibited. Integrated Pest Management must be used in all outdoor, public, buffer, habitat, and park areas.
- Fine trash filters (as approved by the agency having jurisdiction over the storm drain) are required for all storm drain pipes that discharge toward Wildlife Habitat Areas.

H. Public Access. In addition to site-specific measures designed to prevent or minimize the impact to adjacent open space preserve areas from humans and domestic animals, the following would prevent or minimize the impact to adjacent open space preserve areas from humans and domestic animals.

Buffers: All buffers shall be established and maintained by the Port/City. Appropriate signage will be provided at the boundary and within the buffer area to restrict public access. Within the western 200-foot width of Parcel SP-1, a portion of the buffer areas would be re-contoured and

restored to provide habitat consistent with the native vegetation communities in the adjacent open space preserve areas and to provide mitigation opportunities for project impacts. *Appendix 4.8-8* provides more specific detail of the mitigation opportunities available within the buffer area included within the Proposed Project. *Table 4.8-5* provides a breakdown of the available maximum mitigation acreage that is available within the buffer. *Figure 4.8-23* depicts the conceptual mitigation opportunities within the Sweetwater District. *Figures 4.8-24* and *4.8-25* display the cross section of the buffer zones in the Sweetwater District indicated on the conceptual illustration. *Figure 4.8-26* depicts the conceptual mitigation opportunities within the Otay District. The proposed restoration includes creating and restoring coastal salt marsh and creating riparian scrub vegetation communities. In addition, the coastal brackish marsh, disturbed riparian habitat, and wetland would be enhanced.

The first 200 feet of buffer areas adjacent to sensitive habitats, or full width in the case of reduced buffer areas, will be maintained as a "no touch" buffer and will not contain any trails or overlooks. Fencing, consisting of a 6-foot-high vinyl-coated chain link fence will be installed within the buffer area to prevent unauthorized access. Fencing in Parcel SP- 1 will be installed prior to occupancy of the first buildings constructed in Phase I. District enforcement personnel will patrol these areas and be trained in the importance of preventing human and domestic animal encroachment in these areas. In addition, signs will be installed adjacent to these sensitive areas that provide contact information for the Harbor Police to report trespassing within the sensitive areas.

Table 4.8-5. Potential Mitigation Acreage Available for Proposed Impacts to Vegetation Communities and Land Cover Types for Chula Vista Bayfront (acres)

Habitat	District/Area	Created	Restored	Enhanced	Total Credits
Coastal salt marsh	Sweetwater	4.87			5.97
	Otay	4.54			4.54
Coastal brackish marsh	Sweetwater			3.4-	1.70
Riparian	Sweetwater				
	Otay	1.99			1.99
Coastal Salt Marsh	F & G Street Marsh		5.02		5.02
Wetland	Sweetwater			2.14	1.07
Total Wetland Acreage		**11.40**	**5.02**	**8.57**	**25.00**
Total Wetland Credits[1]		**11.40**	**5.02**	**4.29**	**20.71**
CSS/Native Grassland Restoration	Sweetwater		17.73		17.73
	Otay		1.99		1.99
	F & G Street Marsh		2.49		2.49
Total Upland Acreage		**0**	**22.21**	**0**	**22.21**
Total Upland Credits		**0**	**22.21**	**0**	**22.21**

[1] Credits are based on an assumption that habitat creation and restoration will receive a 1:1 mitigation credit and enhancement will receive a 0.5:1 mitigation credit.

Impacts to disturbed coastal sage scrub would be mitigated by the restoration of a coastal sage scrub/native grassland habitat also within this buffer. There is the potential to provide a maximum of 20.71 acres of mitigation credit for impacts to wetland habitats and 22.21 acres

for impacts to upland habitats. This would exceed the required mitigation needed for impacts within the Port's and City's jurisdiction.

A detailed coastal sage scrub (CSS) and maritime succulent scrub (MSS) restoration plan that describes the vegetation to be planted shall be prepared by a Port- or City-approved biologist and approved by the Port or City, as appropriate. The City or Port shall develop guidelines for restoration in consultation with USFWS and CDFG.

The restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, and monitoring and maintenance practices; and shall establish success criteria for each mitigation site.

Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions are expected. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months from the date the report is submitted.

The project developer(s) shall be responsible for implementing the proposed mitigation measures and ensuring that the success criteria are met and approved by the City or Port, as appropriate, and other regulatory agencies, as may be required. [Not applicable to the Project.]

Strategic Fencing

Temporary Fencing. Prior to issuance of any clearing and grubbing or grading permits, temporary orange fencing shall be installed around sensitive biological resources on the Project site that will not be impacted by the Proposed Project. Silt fencing shall also be installed along the edge of the SDBNWR during grading within the western portion of the ecological buffer. In addition, the applicant must retain a qualified biologist to monitor the installation and ongoing maintenance of this temporary fencing adjacent to all sensitive habitat. This fencing shall be shown on both grading and landscape plans, and installation and maintenance of the fencing shall be verified by the Port's or City's Mitigation Monitor, as appropriate.

Permanent Fencing. Prior to approval of landscape plans, a conceptual site plan or fencing plan shall be submitted to the Port or City, as appropriate, for review and approval to ensure areas designated as sensitive habitat are not impacted. Fencing shall be provided within the buffer area only, and not in sensitive habitat areas.

Domestic Animals. In all areas of the Chula Vista Bayfront, especially on the foot path adjacent to the marsh on the Sweetwater District property, mandatory leash laws shall be enforced. Appropriate signage shall be posted indicating human and domestic animal access is prohibited within the designated Preserve areas.

Trash. Illegal dumping and littering shall be prohibited within the Preserve areas. Throughout the Proposed Project site, easily accessible trash cans and recycling bins shall be placed along all walking and bike paths, and shop walkways. These trash cans shall be "animal-proof" and have self-closing lids that close, to discourage scavenger animals from foraging in the cans. The trash cans shall be emptied daily or more often if required during high use periods. Buildings and stores shall have large dumpsters in a courtyard or carport that is bermed and

enclosed. This ensures that, if stray trash falls to the ground during collection, it does not blow into the Bay or marshes.

Training. Pursuant to permitting requirements of the Resource Agencies, preconstruction meetings will take place with all personnel involved with the project, to include training about the sensitive resources in the area.

I. **Boating Impacts.** All boating, human and pet intrusion must be kept away from F & G Street channel mouth and marsh.

- Water areas must be managed with enforceable boating restrictions. The Port will exercise diligent and good faith efforts to enter into a cooperative agreement with the Resource Agencies and Coast Guard to ensure monitoring and enforcement of no-boating zones and speed limit restrictions to prevent wildlife disturbances.
- No boating will be allowed in vicinity of the J Street Marsh or east of the navigation channel in the Sweetwater District during the fall and spring migration and during the winter season when flocks of bird are present.
- All rentals of jet-skis and other motorized personal watercraft (PWCs), as defined in Harbors and Navigations Code Section 651(s), will be prohibited in the Proposed Project area.
- Use of PWCs will be prohibited in Wildlife Habitat Areas, subject to applicable law.
- A five (5) mile per hour speed limit will be enforced in areas other than the navigation channels.
- Nothing in this mitigation measure shall preclude bona fide research, law enforcement, or emergency activities.

[Future Phase(s)] 4.8-8 Port: Prior to construction of the H Street Pier, the Port shall create 0.96 acre of eelgrass habitat to mitigate for the loss of surface water foraging habitat in accordance with the Southern California Eelgrass Mitigation Policy. The creation of eelgrass habitat shall be conducted in accordance with Mitigation Measures 4.9-1 and 4.9-2 in *Section 4.9, Marine Biological Resources*.

[Phase1A and Future Phase(s)] 4.8-12 Port: The Port or Port tenants, as appropriate, shall mitigate for permanent and temporary impacts to USACE jurisdictional waters at the following ratios: 1:1 for permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts. A minimum of 1:1 mitigation must be created in order to achieve the no-net-loss requirement of the CWA. *Table 4.8-8* provides a breakdown of the required mitigation acreages for all USACE impacts within the Port's jurisdiction. Mitigation for impacts from the Bay and Marina components of the Proposed Project will be established through USACE regulations once final designs for this work in Phases II through IV are finalized.

Prior to the commencement of grading activities for any projects that impact USACE jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, and monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they

shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies.

Port/City: Prior to issuance of the first clearing and grubbing or grading permit, for activities that impact USACE jurisdictional waters, the Port or Port tenants, as appropriate, and project developer(s) within the City's jurisdiction shall obtain a Section 404 permit from USACE. The permit application process would also entail approval of the restoration plan from the USACE as described above, with regard to areas that fall under the jurisdiction of USACE.

[Future Phase(s)] 4.9.1 Port:

A. Prior to construction of the H Street Pier during Phases II and IV or work within Parcel HW-4, a pre-construction eelgrass survey shall be conducted by a qualified marine biologist to confirm the exact amount of eelgrass to be affected at the time of pile driving operations. The pre-construction survey must be conducted during the period of March through October and would be valid for a period of no more than 60 days, with the exception that surveys conducted in August through October would be valid until the following March 1.

B. Prior to construction of the H Street Pier during Phases II and IV or work within Parcel HW-4, the Port shall establish and implement a plan to create new eelgrass habitat. The loss of eelgrass habitat must be mitigated at a 1.2:1 ratio as described in the SCEMP (NMFS 1991, Revision 11). Impacts to approximately 0.4 acre of eelgrass shall require the creation of approximately 0.48 acre of eelgrass to mitigate losses caused by construction of the H Street Pier.

C. Prior to or concurrent with the completion of the H Street Pier or work within Parcel HW-4, the Port shall create new eelgrass habitat at a ratio of 1.2:1 for the actual amount of impacts. This shall be done by removing the existing eelgrass currently located at the proposed H Street Pier site and transplanting it at an appropriate location within the filled area of the existing navigation channel, to the satisfaction of a qualified marine biologist.

D. Subsequent to construction of the H Street Pier during Phases II and IV or work within Parcel HW-4, a post-construction eelgrass survey shall be conducted by a qualified biologist. The post-construction survey shall be conducted within 30 days of the cessation of construction activities to confirm the exact amount of eelgrass affected. The difference between the pre-construction and postconstruction eelgrass surveys shall determine the amount of required mitigation. In addition, the Port shall:
    - Conduct transplant reports following construction (Initial Report).
    - Conduct monitoring reports at 6, 12, 24, 36, 48, and 60 months posttransplant. Specific milestones and criteria for success are directed in the SCEMP along with guidelines for remedial actions if the success criteria are not met (including presence of green sea turtles based on soundings from the existing tagging program), which would require (based on the absence of other mitigating environmental considerations) a Supplementary Transplant Area to be constructed and monitored for an additional 5 years.
    - Initiate mitigation within 135 days of project inception; projects requiring more than 135 days to complete would result in additional mitigation.
    - Coordinate with Sweetwater Authority to share monitoring reports, as necessary.

[Phase 1A and Future Phase(s)] 4.9-4 Port:

A. Prior to issuance of a permit by USACE for dredge and/or fill operations in the Bay or Chula Vista Harbor, the applicant shall conduct a focused sediment investigation and submit it to USACE and RWQCB for review and approval. The applicant shall then determine the amount of bay sediment that requires remediation and develop a specific work plan to remediate bay sediments in accordance with permitting requirements of the RWQCB. The work plan shall include but not be limited to: dredging the sediment, allowing it to drain, and analyzing the nature and extent of any contamination. Pending the outcome of the analytical results, a decision by RWQCB shall prescribe the requirements for disposition of any contaminated sediment.

B. Prior to issuance of a grading permit for marina redevelopment on HW-1 and HW-4, the developer shall submit a work plan for approval by the RWQCB and Port/City that requires the implementation of BMPs, including the use of silt curtains during in-water construction to minimize sediment disturbances, and the confinement of potentially contaminated sediment if contaminated sediment exists. If a silt curtain should be necessary, the silt curtain shall be anchored along the ocean floor with weights (i.e., a chain) and anchored to the top with a floating chain of buoys. The curtain shall wrap around the area of disturbance to prevent turbidity from traveling outside the immediate project area. Once the impacted region resettles, the curtains shall be removed. If the sediment would be suitable for ocean disposal, no silt curtain shall be required. However, if contaminants are actually present, the applicant would be required to provide to the RWQCB and the Port/City an evaluation showing that the sediment would be suitable for ocean disposal.

Applicable Development Policies

[Phase 1A and Future Phase(s)]Policy 2.4: The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this Plan, 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, including commercial fishing facilities.
2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps
3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
6) Restoration purposes.
7) Nature study, aquaculture, or similar resource dependent activities.

[Phase 1A and Future Phase(s)] Policy 4.1: Prior to issuance of any building permits, building plans shall be reviewed by a qualified biologist retained by the developer and approved by the District, to verify that the proposed building has incorporated specific design features to avoid or to reduce the potential for bird strikes and that employ measures described below:

Policy 4.1.1: Lighting

a. No solid red or pulsating red lights shall be installed on or near the building unless required by the Federal Aviation Administration (FAA).
b. Where lighting must be used for safety reasons (FAA 2000 Advisory Circular), minimum intensity, maximum off-phased (3 seconds between flashes) white strobes shall be used.
c. No solid spot lights or intense bright lights shall be used during bird migration periods in the spring (from March to May) and fall (from August to October). All event lighting shall be directed downward and shielded, unless such directed and shielded minimized light spills beyond the area for which illumination is required.
d. Exterior lighting shall be limited to that which is necessary and appropriate to ensure general public safety and way finding, including signage for building identification and way finding.
e. Exterior lighting shall be directed downward and shielded to prevent upward lighting and to minimize light spill beyond the area for which illumination is required.
f. Office space, residential units, and hotel rooms shall be equipped with motion sensors, timers, or other lighting control systems to ensure that lighting is extinguished when the space is unoccupied.
g. Office space, residential units, and hotel rooms shall be equipped with blinds, drapes, or other window coverings that may be closed to minimize the effects of interior night lighting.

Policy 4.1.2: Glass and Reflection

a. Use of reflective coatings on any glass surface is prohibited.
b. Buildings shall incorporate measures to the satisfaction of the District or the City to indicate to birds that the glass surface is solid by creating visual markers and muting reflection.
c. Project design standards will encourage window stencilling and angling.
d. These measures may include but are not limited to the following:
    i. Glass surfaces which are non-reflective
    ii. Glass surfaces which are tilted at a downward angle
    iii. Glass surfaces which use fritted or patterned glass
    iv. Glass surfaces which use vertical or horizontal mullions or other fenestration patterns
    v. Glass surfaces which are fitted with screening, decorative grills, or louvers
    vi. Glass surfaces which use awnings, overhangs, bris sole, or other exterior sun-shading devices
    vii. Glass surfaces which use external films or coatings perceivable by birds
    viii. Artwork, drapery, banners, and wall coverings that counter the reflection of glass surfaces or block "see through" pathways.

Policy 4.1.3: Building Articulation

a. Structure design will include secondary and tertiary setbacks and, to the maximum extent possible, stepped back building design, protruding balconies, recessed windows, and mullioned glazing systems, shall be incorporated to the extent feasible. Balconies and other elements will step back from the water's edge.
b. Design features that increase the potential for bird strikes, such as walkways constructed of clear glass and "see through" pathways through lobbies, rooms and corridors, shall be avoided except for minor features intended to enhance view opportunities at grade level and only when oriented away from large open expanses.

c. Buildings shall be sited and designed to minimize glass and windows facing Wildlife Habitat Areas to the maximum extent possible. Design for towers on Parcel H-3 should avoid east-west monolith massing and shall include architectural articulation.
d. Parcels containing surface parking, such as those depicted for the Sweetwater District, will be designed with parking lots located nearer to the Wildlife Habitat Areas. Site plans on parcels adjacent to Wildlife Habitat Areas will maximize distance between structures and such areas.

Policy 4.1.4: Landscaping

a. Exterior trees and landscaping shall be located and glass surfaces shall incorporate measures so that exterior trees and landscaping are not reflected on building surfaces.
b. In small exterior courtyards and recessed areas, the building's edge shall be clearly defined with opaque materials and non-reflective glass.
c. Interior plants shall be located a minimum of 10 feet away from glass surfaces to avoid or reduce the potential for attracting birds.

Policy 4.1.5: Public Education

a. The owner or operator of each building shall implement an ongoing procedure to the satisfaction of the District or the City to encourage tenants, residents, and guests to close their blinds, drapes, or other window coverings to reduce or avoid the potential for bird strikes.
b. The owner or operator of each building shall enroll in the Fatal Light Awareness Program's "Bird-Friendly Building Program" and shall implement ongoing tenant, resident, and guest education strategies, to the satisfaction of the District or the City, to reduce or avoid the potential for bird strikes, such as elevator and lobby signage and educational displays, e-mail alerts and other bulletins during spring and fall migratory seasons, and other activities designed to enlist cooperation in reducing bird collisions with the building.

Policy 4.1.6: Monitoring Bird Strikes and Collisions

For Phase I projects, the project applicant shall retain a qualified biologist to design a protocol and schedule, in consultation with the USFWS and subject to the approval of the District or City, as appropriate depending on jurisdiction, to monitor bird strikes which may occur during the first 12 months after the completion of construction. Within 60 days after completion of the monitoring period, the qualified biologist shall submit a written report to the District or the City, which shall state the biologist's findings and recommendations regarding any bird strikes that occurred. Based on the findings of those reports, the District or the City, as appropriate depending on jurisdiction, in coordination with the USFWS, will evaluate whether further action is required, which may include further monitoring or redesign of structures for future phases.

[Phase 1A and Future Phase(s)] Policy 5.6: Require all dogs to be leashed in all areas of the Chula Vista Bayfront at all times except in any designated and controlled off-leash areas.

[Phase 1A and Future Phase(s)] Policy 6.1a: Invasive plant species (as listed in the California Invasive Plant Inventory list or California Invasive Plant Inventory Database or updates) will not be used in the Chula Vista Bayfront area. Any such invasive plant species that establishes itself within the Chula Vista Bayfront area will be immediately removed to the maximum extent feasible and in a manner adequate to prevent further distribution into Wildlife

Habitat Areas. A condition of approval for coastal development permits will require applicants to remove any such invasive plant species that established itself within the Chula Vista Bayfront area.

[Phase 1A and Future Phase(s)] Policy 10.2: Water areas will be managed with enforceable boating restrictions.

[Phase 1A and Future Phase(s)] Policy 10.3: All rentals of personal watercraft (PWC) will be prohibited in the Chula Vista Bayfront. (Note: PWC will mean a motorboat less than sixteen feet in length which uses an inboard motor powering a jet pump as its primary motive power and which is designed to be operation by a person sitting, standing, or kneeling on rather than in the conventional manner of sitting or standing inside the vessel.)

3.5 Cultural Resources

Would the Proposed Project have a significant impact if it causes a substantial adverse change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5, including resources that are eligible for the CRHR and the National Register of Historic Places and resources that are locally designated as historically significant, or the City of Chula Vista finds the resource historically significant based on substantial evidence?

As discussed in the FEIR, implementation of the CVBMP is not anticipated to result in direct impacts to cultural resources in the CVBMP area. However, ground-disturbing activities would have the potential to encounter historical and archaeological resources. As such MM 4.10 would be applied to construction of the Project, where necessary, to ensure appropriate implementation and enforcement in case cultural resources are discovered. The Project would be required to implement MM 4.10. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project have a significant impact if it disturbs any human remains, including those interred outside of formal cemeteries?

Per the FEIR, there are no cemeteries within the Project Site and no known or expected human remains within the CVBMP area. The possibility of encountering human remains within the Project site is low because the Harbor District has been completely developed and is largely located on fill land that has been previously imported to expand the CVB. However, in the event that human bones are discovered, the Project would be required to implement MM 4.10, which mandates that the County coroner be contacted and in the event that the remains are determined to be of Native American origin, the Most Likely Descendant (MLD) as identified by the Native American Heritage Commission shall be contacted by the project archaeologist to determine proper treatment and disposition of the remains. Ground disturbance that would occur under the Project would be similar to ground disturbance analyzed under the FEIR. Therefore, with implementation of MM 4.10, no new impacts would occur related to human remains. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Applicable FEIR Cultural Resources Mitigation Measures

The following MM that was included in the adopted MMRP would still be implemented with the Project

[Phase 1A and Future Phase(s)] 4.10 The Port shall implement a grading, monitoring, and data recovery program to reduce potential impacts to undiscovered buried archaeological resources on the Proposed Project to the satisfaction of the Director of Development Services. Elements of the program will include that only certified archaeologists and Native American monitors are accepted.

The project archaeologist shall monitor all areas identified for excavation, including off-site improvements. The monitors shall be present during the original cutting of previously undisturbed deposits. In the event that a previously unidentified potentially significant cultural resource is discovered, the archaeological monitor shall have the authority to divert or temporarily halt ground disturbance operations in the area of discovery to allow evaluation of potentially significant resource. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared and approved by the County, then carried out using professional archaeological methods.

In the event that human bones are discovered, the County coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant (MLD) as identified by the Native American Heritage Commission shall be contacted by the project archaeologist to determine proper treatment and disposition of the remains. In the event that previously unidentified cultural resources are discovered, a report documenting the field and analysis results and interpreting the artifact and research data within the context shall be completed and submitted to the satisfaction of the Director of Development Services.

* *This measure is not associated with a significant impact related to cultural resources; however, it has been incorporated to ensure appropriate implementation and enforcement.*

Applicable Development Policies

There are no Development Policies related to cultural resources.

3.6 Energy

Would the Proposed Project increase the demand of energy resources to exceed the City's available supply or cause a need for new and expanded facilities?

As discussed in the FEIR, implementation of the proposed uses and development of the same identified in the CVBMP has the potential to result in impacts to energy supply as a result of anticipated growth. Further, implementation of the CVBMP would increase the use of natural gas at the Project site. San Diego Gas & Electric (SDG&E) has indicated that an adequate supply of natural gas is currently available to serve the CVBMP and the natural gas level of service provided to the surrounding area would not be impaired by the CVBMP. New natural gas lines to serve the CVBMP area would be located underground and would be constructed in accordance with SDG&E's policies and extension rules on file with the California Public Utilities Commission at the time contractual agreements are made. The Project would require limited natural gas usage. Therefore, the Project would not result in an increase the demand of natural gas resources to exceed the City's available supply or cause a need for new and expanded facilities, and impacts associated with the use of natural gas would be less than significant.

In addition to an analysis of electricity and natural gas demands from the CVBMP, the FEIR section also includes an analysis of energy consumption due to the gasoline use associated with vehicle trips during construction and operation of the CVBMP. Implementation of the CVBMP would create the need for significant transportation resources (e.g., gasoline) for the construction and operation of the project. MM 4.16-1 and 4.16-2 are identified in the FEIR and would be implemented as part of the Project to reduce potential impacts to energy, including electricity and gasoline, to less than significant. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project result in the wasteful, inefficient, or unnecessary use of energy?

As discussed in the FEIR, all new buildings are required to conform to the energy conservation standards specified in California Code of Regulations Titles 20 and 24. The CVBMP and the Project include a number of features including alternative modes of transportation, such as attractive, pedestrian-friendly walkways and bicycle route improvements in close proximity to local and regional transit. These features would help reduce the number of vehicle miles traveled generated by the Project and as a result, would also reduce the gallons of gasoline that would be consumed by Project operation. Decreased consumption of gasoline would promote the use of alternative energy sources and would reduce the amount of energy generated by the Project. Impacts from the Project resulting in a wasteful or unnecessary use of energy would not occur; therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Applicable FEIR Energy Mitigation Measures

[Phase 1A and Future Phase(s)] 4.16-1 The following mitigation measure is required to reduce impacts associated with long-term energy consumption that would result from the Project to a level less than significant. In order to achieve Title 24, the following measures shall be implemented to the satisfaction of the Port/City.

Port/City: Prior to the issuance of certificates of occupancy or building permits, the project applicant shall demonstrate that the Proposed Project complies with Title 24 of the California Energy Efficient Standards for Residential and Nonresidential Buildings. These requirements, along with the following measures, shall be incorporated into the final project design to the satisfaction of the Port and the Director of Planning and Building for the City:

- Use of low NOx emission water heaters
- Installation of energy-efficient and automated air conditioners when air
- conditioners are provided
- Energy-efficient parking area lights
- Exterior windows shall be double paned.

Implementation of these measures along with the SDG&E efforts for long-term energy supply as outlined in their filing with the CPUC that proposes a mix of conservation, demand response, generation, and transmission would reduce the potential significant impact to below a level of significance.

[Phase 1A and Future Phase(s)] 4.16-2 The following standards are intended to be interpreted broadly and with the flexibility to adapt to new energy technology and evolving building construction and design practices. They will apply to and govern development of all individual parcels within the Proposed Project area, except Parcels HP-5, H-13, H-14, and H-15. The term "Development" will mean the development of an individual parcel within the Proposed Project area.

A. To help reduce the need for fossil-fueled power generation, reduce greenhouse gas emissions, and support the California Energy Commission's Loading Order for Electricity Resources, all Developments will achieve a minimum of a fifty percent reduction in annual energy use as described below.
   1. Each building in each Development will perform at least fifteen (15) percent better than Title 24, Part 6 of the California Building Energy Efficiency Standards ("Title 24") in effect as of the date of this FEIR. The minimum energy efficiency performance standard adopted by the City is hereinafter described as its Energy Efficiency Requirement" or "EER". Should revised Title 24 standards be adopted by the State of California, the City's EER at the time a building permit application is submitted for such Development shall apply.

2. The balance of the reduction in annual energy use required will be achieved through the use of any combination of the energy reduction measures described below. To achieve compliance, sponsors of Developments may select one of two paths. The first path is based on Title 24 ("Title 24 Path") and the second is described in Energy and Atmosphere, Credit 1 "Optimize Energy Performance" (Credit EA-/c1) in the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Version 3 system ("LEED Path"). The definition of the term "Baseline" against which energy reduction will be measured will vary depending on the path selected and is further described in Exhibit 3 of the MMRP to this Agreement. Choosing the LEED Path does not require a Development to achieve LEED Certification, but simply uses the methodology of EA-/c1.
    a. Renewable Energy generated within the boundaries of the Development will be credited toward the energy reduction requirement. The term "Renewable Energy" will mean energy derived from the sources described in California Public Resources Code Section 25741 (b)1.
    b. Renewable Energy generated on one or more sites ("Renewable Energy Sites") within the boundaries of the Proposed Project by the Port, City or other third party and fed to the electrical grid or to the Development will be credited toward the energy reduction requirement described above. Aggregate energy generated on Renewable Energy Sites may be allocated to an individual Development up to the amount necessary to achieve such Development's compliance with the energy reduction requirement described above. Once allocated to a Development, the amount of energy generated by Renewable Energy Sites so allocated may not be further allocated to another Development.
    c. Participation in a City of Chula Vista sponsored energy efficiency program provided that the resulting energy reduction may be calculated and verified. The methodology for calculating the amount of the credit toward the energy reduction requirement described above under the Title 24 Path and the LEED Path as described in Exhibit 3 of the MMRP.
    d. Each Development will develop, implement, and for the life of each Development, maintain a measurement and verification plan ("M&V Plan"). Such participation has been shown to increase the persistence of energy efficiency ("EE") and also to provide a way of recognizing and encouraging the ongoing conservation efforts of occupants and facility managers and will be awarded a waiver for five (5) percent credit against the Baseline to determine compliance with the energy reduction requirement described above. The Port will include in all leases the requirement to perform an energy audit every three (3) years for the convention centers and hotel Developments over 300 rooms and five (5) years for all other Developments to ensure that all energy systems are performing as planned or corrective action will be taken if failing to meet EE commitments.
    e. Participation in one of SDG&E's manual or semi-automatic Demand Reduction (DR) utility rates will be awarded a waiver for three (3) percent credit against the Baseline to determine compliance with the energy reduction requirement described above.
    f. Participation in one of SDG&E's automatic Demand Reduction (DR) utility rates will be awarded a waiver for five (5) percent credit against the Baseline to determine compliance with the energy reduction requirement described above.
    g. Incorporation of natural ventilation into design such that at least 75% of the conditioned area is naturally ventilated according to the guidelines set forth in Exhibit 3 of the MMRP, and if this benefit was not included in the energy efficiency calculations, the project will be awarded either: a waiver for five (5) percent credit against the Baseline to determine compliance with the energy reduction requirement described above; or, a waiver for ten (10) percent credit will be awarded if the natural ventilation system is coupled with an energy or cooling system that does not draw from the grid if and when natural

ventilation is not used. This may be prorated if less than 75% of the conditioned area is naturally ventilated.

3. The parties understand and acknowledge that the energy reduction measures described above for a Development or component of a Development may be phased in over time to achieve compliance with the energy reduction requirement provided such energy reduction measures are completed no later than thirty-six (36) months following issuance of a certificate of occupancy for such Development or such component thereof.
4. To further incent responsible and sustainable development practices within the boundaries of the Proposed Project, the Port, the City and the Redevelopment Agency will consider voluntary commitments to levels of energy reduction in excess of the energy requirements described above, commitment to achievement of a LEED Certification, and/or a "Living Building Challenge" in connection with the selection of respondents in RFP/RFQ processes for Developments within the Proposed Project area.
5. Within one year following the CCC's approval of a PMP amendment substantially consistent with the Proposed Project, the Port will in good faith consider adoption of an ordinance, in a public hearing process, that if approved by the Board of Port Commissioners, will require the following:
    a. Within six months following adoption of the ordinance and every three years thereafter, the Port will conduct an energy efficiency and renewable energy analysis that will:
        i. Assess the feasibility and cost-effectiveness of programs and options to reduce demand on the electric grid from all lands under Port's jurisdiction; and
        ii. Include, but not be limited to, an assessment of the potential for reduction in energy use on all land under Port's jurisdiction through increases in energy efficiency, demand response, clean renewable and distributed energy generation and other methods and technologies.
    b. Upon the completion of each analysis, the Port will consider good faith implementation of cost-effective programs and options as part of its commitment to greenhouse gas reductions and global climate change prevention activities consistent with Assembly Bill 32.
    c. The results of each analysis will be published on the Port's website and received by the Port's Board of Port Commissioners in a public forum.

Applicable Development Policies

Policy 15.1:

[Phase 1A and Future Phase(s)] Port/City: Prior to the grading of parcels for specific developments, the applicant shall provide a comprehensive site-specific geotechnical evaluation, including subsurface exploration and laboratory testing showing that individual parcels are suitable for proposed development work and that on-site fill materials and soils can support proposed structures. The applicant shall submit a geotechnical design report to the Port or City, depending on jurisdiction, for approval showing site-specific measures to be employed. As applicable, these measures shall include:

- Conformance to the California Building Code Seismic Zone 4 Design Parameters, as detailed in Table 1 of the geotechnical study (see Appendix 4.15-1)
- Design capable of withstanding strong seismic accelerations
- Earthwork procedures, including removal, moisture conditioning, and recompaction of existing fills on the site
- Selective grading, densification of the subsurface soils, and/or deep foundations

- Removal, moisture conditioning, and compaction of bay deposits/alluvial soils. Deep foundations shall be used for structural support in areas of relatively thick bay deposits/alluvium
- Removal or deep burial of expansive soils during grading, moisture conditioning, or specially designed foundations and slabs
- Removal, moisture conditioning, and compaction of the topsoil on site.

3.7 Geology and Soils

Would the Proposed Project have a significant impact if there were a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; or strong seismic ground shaking?

Per the FEIR, no active faults have been mapped or were observed within the CVBMP area, nor is the CVBMP area located within a State of California Earthquake Fault Zone. The potential for ground rupture due to faulting at the Project site is considered low. However, lurching or cracking of the ground surface as a result of a nearby seismic event is possible. Earthquakes on the Rose Canyon Fault having a maximum magnitude of 7.2 are considered to be representative of the potential for seismic ground shaking within the property. However, the CVBMP area does not possess any greater seismic risk than that of the surrounding development. Implementation of MM 4.15-1 would be required by the Project to reduce impacts associated with strong motion and surface rupture. This MM would be applied to all phases of the CVBMP, and therefore would be applied to the Project. With implementation of MM 4.15-1, impacts resulting from rupture of a known earthquake fault would be less than significant. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project have a significant impact if the site experienced seismic-related ground failure, including liquefaction, or it is located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

As stated in Section 4.15 of the FEIR, various geotechnical evaluations were completed for the CVBMP. The geotechnical evaluations determined that implementation of the CVBMP would not cause a geological unit or soil to become unstable and exacerbate the potential of on-site or off-site lateral spreading, subsidence, or collapse. Further, the geotechnical evaluations for the CVBMP area determined that no landslides or indications of deep-seated slope instability were observed underlying the CVBMP area. In addition, the CVBMP, including Project site is relatively flat. Based on this, the Project site is generally not susceptible to landslides or collapse hazards. Although there is potential for lateral spreading in the liquefiable soils below the groundwater table within the existing Marine Group Boat Works site, directly to the north of the Project Site and in the immediate vicinity of the Chula Vista Harbor, to the south of the Project site, ground disturbance would not occur within these areas under the Project.

Therefore, the potential for impacts associated with liquefaction and induced settlement within the Project site would be less than significant. Implementation of the Project would not exacerbate the potential for seismic ground failure to occur. Nonetheless, per the FEIR, MM 4.15-2, which requires site-specific geotechnical studies for each individual project during all phases of CVBMP development, would be implemented for the Project. As such, the Project would not create new impacts or worsen impacts related to seismic-related ground failure and

no new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project have a significant impact if it is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating a substantial risk to life or property?

The deposits beneath the Project site are comprised of Undocumented Fill (Qudf) (within the land portion of the Project site) and Bay Deports (Qb) (within the water portion of the Project Site). Per the FEIR and the Geotechnical Report prepared for the CVBMP in 2008 (see Appendix 4.15-2 of the FEIR), expansive soil is not expected to pose a geologic hazard in the CVBMP area. Further, implementation of MM 4.15-1, incorporated in the FEIR and MMRP, would be required for all phases of the CVBMP, including the Proposed Project. MM 4.15-1 requires a site-specific geotechnical evaluation, which would identify any potential hazards from expansive soils at the Project site. Therefore, MM 4.15-1 would reduce impacts associated with strong motion and surface rupture, settlement, and expansive soils during all phases to a less than significant level. With implementation of approved MM in the FEIR, impacts related to expansive soils would be reduced to less than significant. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project have a significant impact if there is the potential for tsunamis?

As discussed in the FEIR, the Project site is protected from the open ocean by intervening land features (Coronado and Silver Strand) which would provide some protection from direct wave action in the event of a tsunami. Historically, the instances of damage from tsunamis in this area of Southern California are rare; therefore, impacts associated with tsunamis are not significant for all phases of development, including the Project. As such, the Project would not exacerbate or create any new impacts related to tsunamis. No new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

As discussed in the FEIR, artificial fill underlies essentially the entire Harbor District, which is not anticipated to possess paleontological value. Therefore, development of the Project would not result in significant impacts to sensitive paleontological resources. The Project would not exacerbate or create any new impacts related to paleontological resources. No new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Applicable FEIR Geology and Soil Mitigation Measures

[Phase 1A and Future Phase(s)] 4.15-1

Port/City: Prior to the grading of parcels for specific developments, the applicant shall provide a comprehensive site-specific geotechnical evaluation, including subsurface exploration and laboratory testing showing that individual parcels are suitable for proposed development work and that on-site fill materials and soils can support proposed structures. The applicant shall submit a geotechnical design report to the Port or City, depending on jurisdiction, for approval showing site-specific measures to be employed. As applicable, these measures shall include:

- Conformance to the California Building Code Seismic Zone 4 Design Parameters, as detailed in Table 1 of the geotechnical study (see Appendix 4.15-1)
- Design capable of withstanding strong seismic accelerations
- Earthwork procedures, including removal, moisture conditioning, and recompaction of existing fills on the site
- Selective grading, densification of the subsurface soils, and/or deep foundations
- Removal, moisture conditioning, and compaction of bay deposits/alluvial soils. Deep foundations shall be used for structural support in areas of relatively thick bay deposits/alluvium
- Removal or deep burial of expansive soils during grading, moisture conditioning, or specially designed foundations and slabs
- Removal, moisture conditioning, and compaction of the topsoil on site.

[Phase 1A and Future Phase(s)] 4.15-2

Port/City: For all phases, the project applicant shall prepare a site-specific geotechnical study. Mitigation of potential hazards due to liquefaction may include the densification or removal of the potentially liquefiable soil and placement of surcharge fills within building areas, or the use of deep foundation systems and mat slabs which still provide acceptable structural support should liquefaction occur. Soil densification can be accomplished by surcharging, compaction grouting, vibrocompaction, soil mixing, and deep dynamic compaction. Deep foundation systems may be used to transmit structural loads to bearing depths below the liquefiable zones and may consist of driven piles or drilled piles.

Applicable Development Policies

There are no applicable Development Policies related to geology and soils.

3.8 Greenhouse Gas Emissions

Would the Proposed Project conflict with or obstruct goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or related Executive Orders?

The CVBMP would result in approximately 120,780 metric tons of greenhouse gas (GHG) emissions a year. The CVBMP provides a variety of land uses, locating increased housing density, employment, and pedestrian connections near transit options, including the H Street and E Street stations, San Diego Trolley system, and freeway access. The CVBMP would not be considered to contribute substantially to a cumulatively significant global climate change impact because it would not contribute to a conflict with or the obstruction of the goals or strategies of AB 32 or related Executive Orders. Per the FEIR, all future developments would be required, as conditions of approval, to adopt GHG emission reduction measures at a project level. Therefore, the Project would implement MM 4.6-6 in order to reduce impacts to climate change associated with potential conflicts with the goals and strategies of AB 32 or related Executive Orders. Per the FEIR, new, more effective design features may become available prior to the initiation of the program phases, and these would be required of projects and would be identified in subsequent environmental analyses. The Project would be required to comply with the latest amendments of the Energy

Efficiency Standards for Nonresidential Buildings outlined in Title 24 of the California Code of Regulations, made in 2019, which are more stringent than the 2005 requirements, which were the latest at the time the FEIR was drafted.

The FEIR outlined the development of parcels HP-1, HP-3, H-8, and H-28 to result in ground disturbance of approximately 20.4 acres. Grading and earthwork for the current Project would be completed within a similar footprint as analyzed in the FEIR. No additional construction-related trips would be required as the scope of construction is substantially similar. Similarly, no significant changes to operations at the Project site, such as vehicle trips, would result with implementation of the minor changes to the Proposed Project. Therefore, with implementation of MM 4.6-6, impacts resulting from conflict with or obstruct goals or strategies of AB 32 or related Executive Orders would be less than significant, and no new impacts would occur, as compared to the FEIR.

Applicable FEIR Greenhouse Gas Emissions Mitigation Measures

[Phase 1A and Future Phase(s)] 4.6-6 The following mitigation measure is required to mitigate potential conflict with the goals or strategies of AB 32 or related Executive Orders:

Port/City: Development of Program-level components of the Chula Vista Bayfront Master Plan (Phases I through IV) shall implement measures to reduce GHG emissions. Specific measures may include, but are not limited to the following:

Energy Efficiency

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping, and sun screens to reduce energy use.
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.
- Install light colored "cool" roofs, cool pavements, and strategically placed shade trees.
- Provide information on energy management services for large energy users.
- Install energy-efficient heating and cooling systems, appliances and equipment, and control systems.
- Install light emitting diodes (LEDs) for traffic, street, and other outdoor lighting.
- Limit the hours of operation for outdoor lighting.
- Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.
- Provide education on energy efficiency.

Renewable Energy

- Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning. Educate consumers about existing incentives.
- Install solar panels on carports and over parking areas.
- Use combined heat and power in appropriate applications.

Water Conservation and Efficiency

- Create water-efficient landscapes.
- Install water-efficient irrigation systems and devices, such as soil moisture–based irrigation controls.

- Use reclaimed water for landscape irrigation in new developments and on public property where appropriate. Install the infrastructure to deliver and use reclaimed water.
- Design buildings to be water efficient. Install water-efficient fixtures and appliances.
- Use gray water. (Gray water is untreated household wastewater from bathtubs, showers, bathroom wash basins, and water from clothes washing machines.) For example, install dual plumbing in all new development allowing gray water to be used for landscape irrigation.
- Restrict watering methods (e.g., prohibit systems that apply water to nonvegetated surfaces) and control runoff.
- Restrict the use of water for cleaning outdoor surfaces and vehicles.
- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage stormwater and protect the environment. (Retaining stormwater runoff on site can drastically reduce the need for energy-intensive imported water at the site.)
- Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items listed above, plus other innovative measures that are appropriate to the specific project.
- Provide education about water conservation and available programs and incentives.

Applicable Development Policies

[Phase 1A and Future Phase(s)] **Policy 15.1:** The following energy standards shall be applied to development of all parcels within the Chula Vista Bayfront area except Parcels HP-5, H-13, H-14 and H-15. These parcels are addressed on separate standards provided below. The term "Development" will mean the development of an individual parcel within the Chula Vista Bayfront area.

a) To help reduce the need for fossil-fueled power generation, reduce greenhouse gas emissions, and support the California Energy Commission's Loading Order for Electricity Resources, all Developments will achieve a minimum of a fifty (50) percent reduction in annual energy use in accordance with these policies.

b) Each building in each Development will perform at least fifteen (15) percent better than Title 24, Part 6 of the California Building Energy Efficiency Standards ('Title 24") in effect on the date of the execution of the Chula Vista Bayfront Master Plan Settlement Agreement (May 2010). The minimum energy efficiency performance standard adopted by the City is hereinafter described as its "Energy Efficiency Requirement" or "EER". Should revised Title 24 standards be adopted by the State of California, the City's EER at the time a building permit application is submitted for such Development shall apply.

c) The balance of the fifty (50) percent reduction in annual energy use will be achieved through the use of any combination of the energy reduction measures described in these policies. To achieve compliance with this policy, sponsors of Developments may select one of two paths. The first path is based on Title 24 ("Title 24 Path") and the second is described in Energy and Atmosphere, Credit 1 "Optimize Energy Performance" (Credit EA-/c1) in the US Green Building Council's Leadership in Energy and Environmental Design (LEED) v3 system ("LEED Path"). The definition of the term "Baseline" against which energy reduction will be measured will vary depending on the path selected and is further described in Exhibit 3 of the MMRP. Choosing the LEED Path does not require a Development to achieve LEED Certification, but simply uses the methodology of EA-/c1.

d) Renewable Energy generated within the boundaries of the Development will be credited toward the minimum of a fifty (50} percent reduction in annual energy use in accordance energy reduction requirement. The term "Renewable Energy" will mean energy derived from the sources described in California Public Resources Code section 25741 (b} 1.

e) Renewable Energy generated on one or more sites ("Renewable Energy Sites") within the boundaries of the Chula Vista Bayfront by the District, City or other third party and fed to the electrical grid or to the Development will be credited toward the minimum of a fifty (50) percent energy reduction requirement. Aggregate energy generated on Renewable Energy Sites may be allocated to an individual Development up to the amount necessary to achieve such Development's compliance with the minimum of a fifty (50) percent energy reduction requirement. Once allocated to a Development, the amount of energy generated by Renewable Energy Sites so allocated may not be further allocated to another Development.

f) Participation in a City of Chula Vista sponsored energy efficiency program provided that the resulting energy reduction may be calculated and verified. The methodology for calculating the amount of the credit toward the minimum of a fifty (50} percent energy reduction requirement under the Title 24 Path and the LEED Path is described in Exhibit 3 of the MMRP.

g) Each Development will develop, implement, and for the life of each Development, maintain a measurement and verification plan ("M&V Plan"). Such participation has been shown to increase the persistence of energy efficiency ("EE"} and also to provide a way of recognizing and encouraging the ongoing conservation efforts of occupants and facility managers and will be awarded a waiver for five (5) percent credit against the Baseline to determine compliance with the minimum of a fifty (50) percent energy reduction requirement. The District will include in all leases the requirement to perform an energy audit every three (3) years for the convention centers and hotel Developments over 300 rooms and five (5) years for all other Developments to ensure that all energy systems are performing as planned or corrective action will be taken if failing to meet EE commitments.

h) Participation in one of SDG&E's Voluntary Demand Reduction (DR) utility rates will be awarded a waiver for three (3) percent credit against the Baseline to determine compliance with the minimum of a fifty (50) percent energy reduction requirement.

i) Participation in one of SDG&E's Mandatory Demand Reduction (DR) utility rates will be awarded a waiver for five (5) percent credit against the Baseline to determine compliance with the minimum of a fifty (50) percent energy reduction requirement.

j) Incorporation of natural ventilation into design such that at least 75% of the conditioned area is naturally ventilated according to the guidelines set forth in Exhibit 3 of the MMRP, and if this benefit was not included in the energy efficiency calculations, the project will be awarded either: a waiver for five (5) percent credit against the Baseline to determine compliance with the minimum of a fifty (50) percent energy reduction requirement; or, a waiver for ten (10) percent credit will be awarded if the natural ventilation system is coupled with an energy or cooling system that does not draw from the grid if and when natural ventilation is not used. This may be prorated if less than seventy-five (75) percent of the conditioned area is naturally ventilated.

k) The parties understand and acknowledge that the energy reduction measures described above for a Development or component of a Development may be phased in over time to achieve compliance with the minimum of a fifty (50) percent energy reduction requirement provided such energy reduction measures are completed no later than thirty-six (36) months following issuance of a Certificate of Occupancy for such Development or such component thereof.

l) To further incentivize responsible and sustainable development practices within the boundaries of the Chula Vista Bayfront, District and City will consider voluntary commitments to levels of energy reduction in excess of the requirements of above, commitment to achievement of a LEED Certification, and/or a "Living Building Challenge" in connection with the selection of respondents in Request for Proposals/Request for Qualifications (RFP/RFQ) processes for Developments within the Chula Vista Bayfront area.

3.9 Hazards and Hazardous Materials

Would the Proposed Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Excavation, demolition, and construction activities of the Project would temporarily involve the transportation, use, and/or disposal of hazardous materials. Relatively small amounts of hazardous substances such as gasoline, diesel fuel, lubricating oil, grease, solvents, caulking, paint, and welding gases would be used on site for construction activities. Storage and use of such substances would be short term and would be subject to federal, state, and local health and safety requirements. The Project would include the proper removal and disposal of all construction debris as mandated by applicable regulations. Although not expected to occur, a spill or unintentional discharge of fuel, lubricants, or hydraulic fluid from the transportation of construction materials and/or the equipment used during construction, including dredge and fill activities, could occur.

Further, as discussed in the FEIR, during excavation, demolition, and construction activities associated with the CVBMP, hazardous materials could be encountered within or adjacent to the boundaries of the site in the vicinity of three areas of concern, including the former Goodrich South Campus and the South Bay Power Plant. These areas are not located in the vicinity of the Project site. Therefore, no impacts from hazardous materials related to excavation, demolition, and construction activities in these areas would occur, and no mitigation would be required.

Further, the Project would result in disturbance within the Bay for construction of the proposed Improved Beach and H Street Pier areas, which would potentially upset and suspend the release of hazardous contaminants into the marine environment. Per the FEIR, the suspension and/or release of contaminants in the water could create a significant hazard to the marine resources living at this location and in the surrounding area.

Lastly, the Project would result in demolition of existing structures on site, including the existing public restroom. Per the FEIR, based on the dates of construction of structures located within the boundaries of the CVBMP (prior to 1980), there is a high likelihood that asbestos-containing materials (ACMs) and lead based paints (LBPs) are present within these structures. Other hazardous materials may also be encountered in site structures, such as mercury-containing thermostats, fluorescent light tubes, and freon-containing refrigeration systems. Demolition activities at these locations could result in a potential exposure to hazardous substances. The potential for exposure of ACMs, LBPs, and other hazardous materials during demolition activities is considered a significant impact, as identified and analyzed in the FEIR.

However, previously approved MM would be applied to the Project in order to address potential spills of construction materials during construction of the proposed Improved Beach and H Street Pier, and potential exposure of ACMs, LBPs, and other hazardous materials during demolition activities. These MM include 4.12-2, 4.12-3, 4.12-5, and 4.12-7. Implementation of these MM, incorporated into the FEIR and MMRP, would be

required and would reduce impacts related to the routine transport, use, or disposal of hazardous material to levels below significance. No new impacts would occur and no increase in the severity of the identified significant impact in the FEIR would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Section 4.12 of the FEIR determined that the potential for spills of hazardous materials during construction activities could potentially cause soil or groundwater contamination. However, as discussed above, the Project would require the use, transport, and storage of minimal hazardous materials during construction. Although not expected to occur, a spill or unintentional discharge of fuel, lubricants, or hydraulic fluid from the transportation of construction materials and/or the equipment used during construction, including dredge and fill activities, could occur. Previously approved MM would be applied to the Project to reduce potential impacts to less-than-significant levels. With implementation of MM 4.12-2, which requires contractor and subcontractor training for handling hazardous materials spills, fully enclosed trash containers, and a Business Emergency Plan, and MM 4.12-3, which requires a focused sediment investigation for in-water construction, impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant. No new impacts would occur; therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project emit hazardous emissions or handles hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Project would include the construction and operation of a park with recreational amenities. The Project is located approximately 3,300 feet, or 0.63 miles, northwest of National University Virtual High School. This is the nearest existing school to the Project site, and there are no additional schools within a quarter mile. As such, the Project would not emit hazardous emissions within a-quarter mile of an existing or proposed school. No new impacts would occur; therefore the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, a significant hazard to the public or the environment would be created?

As discussed in the FEIR, areas within Parcel HP-1 and H-8, which make up the majority of the Project site, were created by placement of fill into San Diego Bay sometime between 1957 and 1964. Given the relatively recent development and lack of industrial activities, it is not likely that these areas would have been impacts by hazardous waste or petroleum products. There are no records of underground storage tanks in these areas, and further environmental investigation is not warranted. While it is not anticipated, a potential still exists that future construction on these parcels would encounter contamination. However, the Project includes development of a park on these parcels. Implementation of MM 4.12-2, would be required to ensure significant impacts from potential spills would be less than significant. Thus, impacts resulting from hazardous materials sites compiled pursuant to Government Code Section 65962.5 would be less than significant. No new impacts would occur; Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Proposed Project result in a safety hazard or excessive noise for people residing or working in the project area?

As discussed in the FEIR, the CVBMP area is not located within 2 miles of an airport land use plan, or where such a plan has been adopted. Therefore, no impact would occur regarding public safety hazards relating to an airport. The Project would occur within the same area slated for development of Harbor Park under the FEIR. Thus, no new impacts related to airport hazards would occur;, Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan?

As discussed in the FEIR, the District does not have an adopted emergency response plan. The CVBMP would not interfere with a city emergency response plan or evacuation plan and no impact would occur. The Project would occur within the same area slated for development of Harbor Park under the FEIR. Thus, no new impacts related to emergency response plans would occur; Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, death involving wildland fires?

The Project would be located in a Non-Very High Fire Hazard Severity Zone (CALFIRE 2009). Therefore, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, death involving wildland fires. No impacts related to wildland fire would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Applicable FEIR Hazards and Hazardous Materials MM

[Phase 1A and Future Phase(s)] 4.12-2 Implementation of the following mitigation measure reduces impacts associated with accidental spills during construction to below a level of significance. Note that although the full Mitigation Measures are incorporated in this addendum, not all portions of the Mitigation Measures, below, would apply to the Project. The portions of the MM that do not apply to the Project have been identified below.

Port/City: Prior to construction, all contractor and subcontractor project personnel shall receive training regarding the appropriate work practices necessary to effectively comply with the applicable environmental laws and regulations, including, without limitation, hazardous materials spill prevention and response measures. Hazardous materials shall not be disposed of or released onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment shall be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials shall be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.

The Port of San Diego shall require that a Business Emergency Plan (BEPP) is prepared for the construction of the Proposed Project, if not covered under their approved SWPPP. The plan shall identify all hazardous materials (e.g., fuels, solvents) that would be present on any portion of the construction area and Project site. Contingency analysis and planning shall be presented to identify

potential spill or accident situations, how to minimize their occurrence, and how to respond should they occur. The plan shall also identify spill response materials (e.g., absorbent pads, shovels) to be kept at the construction site and their locations.

Hazardous materials spill kits shall be maintained on site for small spills.

[Phase 1A and Future Phase(s)] 4.12-3

Port:

A. Prior to issuance of a permit by USACE for dredge and/or fill operations in the Bay or Chula Vista Harbor, the applicant shall conduct a focused sediment investigation and submit it to USACE and RWQCB for review and approval. The applicant shall then determine the amount of bay sediment that requires remediation and develop a specific work plan to remediate bay sediments in accordance with permitting requirements of the RWQCB. The work plan shall include but not be limited to dredging the sediment, allowing it to drain, and analyzing the nature and extent of any contamination. Pending the outcome of the analytical results, a decision by RWQCB shall prescribe the requirements for disposition of any contaminated sediment.
B. Prior to issuance of a grading permit for marina redevelopment on HW-1 and HW-4, the developer shall submit a work plan for approval by the RWQCB and Port/City that requires the implementation of BMPs, including the use of silt curtains during in-water construction to minimize sediment disturbances and confine potentially contaminated sediment if contaminated sediment exists. If a silt curtain should be necessary, the silt curtain shall be anchored along the ocean floor with weights (i.e., a chain) and anchored to the top with a floating chain of buoys. The curtain shall wrap around the area of disturbance to prevent turbidity for traveling outside the immediate project area. Once the impacted region resettles the curtains shall be removed. If the sediment would be suitable for ocean disposal, no silt curtain shall be required. However, if contaminants are actually present, the applicant would be required to provide to the RWQCB and Port/City an evaluation showing that the sediment would be suitable for ocean disposal. [Not applicable to the Proposed Project.]

[Phase 1A and Future Phase(s)] 4.12-5 Implementation of the following mitigation measure reduces impacts associated with exposure to ACMs, LBPs, and hazards during demolition.

Port/City: Prior to the issuance of a demolition permit for buildings scheduled for demolition that have not been surveyed to date for ACMs and LBPs, the applicant shall conduct a survey to determine the locations and amounts of ACMs and LBPs present, as well as other miscellaneous hazardous materials, such as potential mercury-containing thermostats and switches, light ballasts and switches that might contain PCBs, fluorescent light tubes that might contain mercury vapor, exit signs that might contain a radioactive source, air conditioning systems, lead-acid batteries and batteries associated with emergency lighting systems, and Freon™-containing refrigeration systems. Should ACMs, LBPs, or other miscellaneous hazardous building materials be encountered in the site structures, the applicant shall obtain a licensed abatement contractor to remove the hazardous materials in accordance with all applicable federal, state, and local laws, regulations, and permitting requirements prior to initiation of demolition activities.

Prior to any proposed demolition activities, the applicant shall conduct a thorough inspection of the facilities that have permits to store hazardous materials to confirm whether a release of hazardous materials at these facilities has impacted the underlying soil and/or groundwater. The facilities that currently store hazardous materials are located at 596 Sandpiper Way, 997 G Street, and 979 G Street. If indications of contamination are encountered during demolition, a qualified environmental consultant shall be retained to observe the contamination, consult with the regulatory oversight agency, perform environmental media (soil, soil gas, and groundwater) sampling and analysis as necessary, report the result and provide recommendations for further action.

[Phase 1A and Future Phase(s)] 4.12-7 Implementation of the following mitigation measure reduces impacts potential for contamination from hazardous runoff associated with park maintenance to a level less than significant.

Port/City: Management of the parks throughout the Project site must be required to comply with the Port and City's Integrated Pest Management Policies (IPM). IPM shall be used on all landscaped areas. In addition, fertilizers must be minimized and only non-toxic products used. Runoff from irrigation sprinklers into surface waters must be minimized and use of mulching and drip irrigation, where needed, maximized.

Measures shall be employed to ensure that landscape chemicals and wastes do not get into surface waters or habitat areas.

Applicable Development Policies

Policy 16.1: Parcels contaminated with hazardous materials will be remediated to levels adequate to protect human health and the environment [Not applicable to project].

3.10 Hydrology and Water Quality

Would the Proposed Project substantially deplete groundwater or interferes substantially with groundwater recharge?

As discussed in the FEIR, the CVBMP would not include the direct use of groundwater during any phase of development, and permanent dewatering would be prohibited by on-site operations. As such, the Project would not deplete groundwater. Further, the Project would be required to implement the applicable Development Policies, which would minimize impervious surfaces in new development. More specifically, per Development Policy 13.2 g, although the Project would introduce some impervious features on site, the majority of features introduced at the site would be pervious, and would include natural-turf lawns, the Improved Beach, a terraces beach lawn, and a hill. These pervious features would make up the majority of the Project Site. Impervious features introduced would include a family play area, interactive fountain area, urban plaza, H Street Pier, surface parking lots, the nonmotorized boat launch, the Café and Beach Rental facility, and the Waterfront Promenade. Paving of the proposed Waterfront Promenade would consist of cast-in-place concrete, modular pavers, and decomposed granite that would primarily be stabilized and pervious, while other trails would be constructed of cast-in-place concrete and stabilized decomposed granite. The Project would minimize impervious surfaces to the maximum extent feasible and would not interfere substantially with groundwater recharge. Therefore, the Project would not result in significant changes compared to what was analyzed in the FEIR. No new impacts to groundwater depletion or interference with groundwater recharge would occur.

Would the Proposed Project alter an existing 100- year floodplain or would place structures within a 100-year flood hazard area which would impede or redirect flood flows?

As described in the FEIR, the CVBMP area is located in an area designated by the Federal Emergency Agency as Zone X, meaning the land is within an area of a 500-year floor or an area protected by levees from a 100-year flood. A SLRA was prepared for the Project on February 2020 by ESA and is included as Appendix C of this addendum. As discussed in the SLRA, with approximately 4.5 feet of sea-level rise, which is projected between 2080–2120 in a medium-high to low-risk aversion scenario, only minor flooding would occur at the edge of the 13.5 feet North American Vertical Datum proposed revetment of the Project during a 100-year event, and no flooding would occur for the 10-year and 1-year events. Therefore, by raising the revetment under the Project to between 13.5 and 14 feet, the Project is only expected to experience minor flooding during the 100-year flood scenario in the 2080–2120 sea-level rise projection of 4.5 feet of sea-level rise. Per the SLRA, this level of flood risk could likely be accommodated and, therefore, represents an acceptable level of risk. The SLRA also incorporated potential adaptation measures, such as raising the revetment, would reduce this minor flooding and avoid potential future flood risks beyond 4.5 feet of sea-level rise. The shoreline improvements would be designed to accommodate future raising of the revetment to further avoid inundation of the Project, including proposed structures such as the Café and Beach Rental facility, the Hub Building, and the family restroom. Therefore, because the Project is designed to account for sea level rise and a 100-year flood scenario, the Project would not alter an existing 100-year floodplain or place structures within a 100-year flood hazard area, which would impede or redirect flood flows. The Project would not result in significant changes compared to what was analyzed in the FEIR. No new impacts to the 100-year flood plain would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project have a significant impact if it exposes people or structures to a significant risk of loss, injury, or death involving flooding and/or exposes people or structures to inundation by seiche, tsunami, or mudflow?

As discussed in the threshold above, the Project is designed to account for sea level rise and a 100-year flood scenario. With approximately 4.5 feet of sea-level rise, which is projected between 2080–2120 in a medium-high to low-risk aversion scenario, only minor flooding at the edge of the 13.5 feet North American Vertical Datum proposed revetment of the Project would occur during a 100-year event, and no flooding would occur for the 10-year and 1-year events. The Project shoreline improvements would be designed to accommodate future raising of the revetment and avoid inundation of the Project, including proposed structures such as the Café and Beach Rental facility, the Hub Building, and the family restroom.

Per the FEIR, the CVBMP area is protected from tsunamis by natural formations such as Coronado Island and Point Loma to the northwest, and the Silver Strand to the west. Although the force of a tsunami would cause substantial damage, a tsunami has never occurred in the San Diego Bay, and the geologic conditions of the region are not conducive to tsunamis. Therefore, it is reasonable to assume there is a low likelihood for a seiche or tsunami to occur within the CVBMP area and the Project site.

Lastly, as discussed in Section 3.7, Geology and Soils, the geotechnical evaluations for the CVBMP area determined that no landslides or indications of deep-seated slope instability were observed underlying the CVBMP area. In addition, the Project site is relatively flat and is generally not susceptible to landslides or collapse hazards. Therefore, impacts related to mudflow are not anticipated to occur as a result of the Project.

Therefore, the Project would not subject people or structures to a significant risk of loss, injury, or death involving flooding and/or expose people or structures to inundation by seiche, tsunami, or mudflow. Thus, the Project would

not result in significant changes compared to what was analyzed in the FEIR. No new impacts related to inundation by seiche, tsunami, or mudflow would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?

As discussed in the FEIR, although grading of the CVBP site would occur, implementation of the CVBMP would not substantially alter the drainage pattern of the Project area, because the drainage would continue to flow toward structural controls before entering the Bay, similar to existing conditions. Therefore, the CVBMP would have a less-than-significant impact on the existing drainage pattern of the site. Similarly, with implementation of the Project, drainage improvements on site would include storm drain piping and associated drainage structures, including bioretention/biofiltration gardens, to assist with stormwater treatment and infiltration. All parking lots and access roads would be asphalt concrete or cast-in-place concrete, and would include stormwater capture and conveyance structures connected to the bioretention/biofiltration gardens proposed on site. The Project would also incorporate drainage improvements that would connect new storm outfalls proposed by the Phase IA Improvements for the RHCC project to the east of the site. A new 18-inch to 24-inch outfall from the stormwater improvements on the west side of the site would provide drainage from the new stormwater treatment areas. Per the stormwater/drainage analysis prepared by Nasland, the Project would not result in substantial alternations of the site. Therefore, the Project would not substantially alter the existing drainage pattern of the Project Site or surrounding area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site. Thus, the Project would not result in significant changes compared to what was analyzed in the FEIR. No new impacts related to alteration of the existing drainage pattern of the site or area would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project degrade water quality or violate any water quality standards or waste discharge requirements, resulting from a substantial increase in the rate or amount of polluted surface runoff?

As discussed in the FEIR, potential impacts on water quality during construction activities would be reduced through compliance with all applicable regulations established by the U.S. Environmental Protection Agency (EPA) as set forth in the National Pollutant Discharge Elimination System (NPDES) permit requirements for urban runoff and stormwater discharge. Compliance with NPDES includes meeting the requirements of the General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit). Compliance with the permit requires that a stormwater pollution prevention plan (SWPPP) be prepared and implemented for the CVBMP. The SWPPP would be implemented during CVBMP construction to prevent water quality impacts from construction activities. The SWPPP would include erosion and sediment control best management practices (BMPs), stormwater management controls and other controls such as measures to prevent construction vehicles from tracking sediment off the construction site. The Project would be required to comply with these NPDES permit requirements, thus reducing water quality impacts. Further, as discussed in the FEIR, parcels HP-1 and HP-3, which make up the Project Site, would be graded to the west, where runoff would be discharged into the Bay at the existing discharge outlet. This would be consistent with the Project.

Additionally, as discussed in the FEIR, an increase in vehicle traffic would potentially increase surface runoff carrying oils and other vehicle-related contaminants, ultimately increasing the potential to impact the water quality of the Bay during storm events. Streets and parking lots within the CVBMP would be landscaped where

feasible, thus reducing the potential for sediment transported in runoff. The Project would incorporate construction of two surface level parking lots in the eastern portion of the Project Site. However, as discussed above, the Project would implement on-site drainage improvements such as bioretention/biofiltration gardens, which would assist with stormwater treatment and infiltration. All parking lots and access roads would be asphalt concrete or cast-in-place concrete and would include stormwater capture and conveyance structures connected to the bioretention/biofiltration gardens proposed on-site. The Project would also incorporate drainage improvements that would connect new storm outfalls proposed by the Phase IA Improvements for the RHCC project to the east of the Project Site, as well as a new 18-inch to 24-inch outfall from the stormwater improvements on the west side of the Project Site that would provide drainage from the new stormwater treatment areas. Although pollutants still have the potential to enter waterways, there would be an incremental reduction in runoff after storm events, which would not result in an increase in impacts to water quality. A combination of Low-Impact Development techniques would be used based on the development category. These actions identified to occur with implementation of the CVBMP in the FEIR related to water quality standards would be applied to the Project s, where necessary. Similarly, MM previously identified in the FEIR (such as 4.5-1), and applicable Development Policies, would be applied to the Project, where necessary. The Project would have a similar effect on water quality as analyzed in the FEIR. No new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

As described in the FEIR, the CVBMP would not increase runoff flows or exceed the capacity of the existing stormwater system. Under the Project, stormwater would be captured and conveyed within bioretention/biofiltration gardens proposed on the Project Site. Additional drainage improvements include new storm outfalls proposed by the Phase IA Improvements for the RHCC project to the east of the Project Site, as well as a new 18-inch to 24-inch outfall from the stormwater improvements on the west side of the Project Site that would provide drainage from the new stormwater treatment areas. Lastly, per the stormwater/drainage analysis prepared for the Project, with implementation of drainage improvements, the Project would not exceed the capacity of existing or planned stormwater drainage systems. Thus, stormwater from the Project would not exceed the capacity of existing or planned stormwater drainage systems. The Project would have a similar effect on stormwater drainage systems as analyzed in the FEIR. No new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project result in pollution or contamination that may have an impact on human health and the environment, including the aquatic habitat, or impacts on biological communities?

Construction-related dewatering (as required during the construction of utilities, excavation of the wet wells, and excavation for emergency storage vaults for the sewer lift stations) would withdraw water from the aquifer, which may be contaminated. The potential to contaminate runoff conflicts with the Basin Plan and the water quality objectives for the Bay. The CVBMP's potential to disturb contaminated soils and groundwater during construction activities would be significant and would require implementation of mitigation measures. More specifically, adverse temporary impacts to water quality could result during accidents and unintentional discharges resulting from spills of fuels, lubricants, or hydraulic fuel from the equipment used during construction, including dredge and fill activities and construction of the H Street Pier. The Project would have the same potential impact to disturb contaminated soils and groundwater during construction as the rest of the CVBMP. Similar to what was analyzed in the FEIR, construction of H Street Pier as well as the Improved Beach could result in water quality impacts related to potential spills of construction fuels into the Bay. Further, as discussed in the FEIR, the potential exists for contaminants

contained in the bottom of the Bay to be released into the water column during the dredge and fill operations and the construction of the H Street Pier. These potential impacts, especially impacts related to potential contamination in the bottom of the Bay with construction of H Street Pier and the Improved Beach, would still occur under the Project. As such, applicable mitigation measures, such as MM 4.5-1, 4.5-2 and 4.5-3 included in the FEIR and MMRP, as well as applicable Development Policies would be implemented by the Project to reduce potential impacts. The Project would not create any new impacts or exacerbate any impacts identified in the previously approved FEIR. No additional mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project result in substantial erosion and subsequent sedimentation of water bodies?

The Project would result in some construction within the Bay. As discussed in the FEIR, construction of the proposed storm drain system would require construction work within the Bay. The Project would require minor work within the Bay for construction of these storm drain improvements. However, as discussed in the FEIR, the storm drain outfalls would consist of a headwall and would include riprap to dissipate (reduce the velocity to reduce erosion potential) the energy of the conveyed stormwater as it discharges into the Bay, minimizing sediment disturbance. Some construction activities would only occur during low tide to reduce the potential for sediment entering the Bay. Because the time of day when low tide occurs would vary during the construction period, appropriate erosion control measures, such as silt curtains in the water, silt fences, and sand bags at the top of the slopes, would be used to prevent the migration of disturbed soils into the Bay. In addition, work during high tide would be unlikely and would not be anticipated, due to the increased dewatering that would be required. The storm drain system for the Project would be designed to function in a free outfall condition, thereby minimizing the tidal effect on the hydraulics of the storm drain system and reducing the potential for flooding upstream. The Project would implement BMPs for construction of the proposed storm drain improvements.

Further, construction of H Street Pier and the proposed Improved Beach would also occur within the Bay. As discussed in the FEIR, the pile driving necessary for navigation channel realignment and harbor construction, as well as removal/placement of riprap, bulkheads, sheet pile, and construction of the H Street Pier, would temporarily suspend bottom sediments in the water column. Suspension of sediments reduces water clarity, increases nutrients, and decreases dissolved oxygen available to marine organisms. Water clarity and dissolved oxygen concentrations would return to pre-construction conditions upon completion of these construction activities. Per the FEIR, these temporary impacts would be significant, and MM 4.5-5 would be required. Because the Project would result in pile driving within the Bay for construction of H Street Pier and the Improved Beach, implementation of MM 4.5-5 would be required during construction of all the water components of the Project.

Further, grading activities associated with the Project have the potential to expose soil surface, which would increase sedimentation through runoff during a storm event. This would be short-term and would cease at the competition of construction activities. The Project would be required to comply with and implement the NPDES permit; City grading ordinances; and other relevant BMPs, Low Impact Development which would mitigate impacts generated from erosion and sedimentation. MM 4.5-5 would minimize impacts resulting for erosion and sedimentation of water bodies. No new mitigation would be required, and no new impacts or worsened impacts related to erosion and subsequent sedimentation of water bodies would occur. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Applicable FEIR Hydrology and Water Quality MM

[Phase 1A and Future Phase(s)] **4.5-1** The following mitigation measure reduces the potential for litter to enter the Bay and cause potential significant impacts to Bay water quality:

Port/City: As a condition of approval of a Tenant Design Plan for projects within the Port's jurisdiction and a condition of the approval of a Final Map for projects within the City's jurisdiction, the project applicant shall include trash control measures that include animal-proof, covered and self-closing trash containers with attached lids and trash control enclosures, with frequent servicing, to prevent litter from being wind blown off-site to the satisfaction of the Port/City as appropriate pursuant to their water quality technical reports.

[Phase 1A and Future Phase(s)] **4.5-2** The following mitigation measure reduces impacts to surface water and groundwater contamination resulting from construction activities:

Port/City:

A. Prior to the issuance of a grading permit, the applicant shall notify the RWQCB of dewatering of contaminated groundwater during construction. If contaminated groundwater is encountered, the project developer shall treat and/or dispose of the contaminated groundwater (at the developer's expense) in accordance with NPDES permitting requirements, which includes obtaining a permit from the Industrial Wastewater Control Program to the satisfaction of the RWQCB.

B. Prior to the discharge of contaminated groundwater for all construction activities, should flammables, corrosives, hazardous wastes, poisonous substances, greases and oils, and other pollutants exist on site, a pretreatment system shall be installed to pre-treat the water to the satisfaction of the RWQCB before it can be discharged into the sewer system.

[Phase 1A and Future Phase(s)] 4.5-3: The following mitigation measure would reduce water quality impacts that could result from accidental spills and unintentional discharges of fuel, lubricants, or hydraulic fluid from the equipment used during land-side and water-side construction activities:

Port/City: Prior to the issuance of a grading, excavation, dredge/fill, or building permit for any parcel, the applicant shall submit a Spill Prevention/Contingency Plan for approval by the Port or City as appropriate. The plan shall:

- Ensure that hazardous or potentially hazardous materials (e.g., cement, lubricants, solvents, fuels, other refined petroleum hydrocarbon products, wash water, raw sewage) that are used or generated during the construction and operation of any project as part of the Proposed Project shall be handled, stored, used, and disposed of in accordance with NPDES permitting requirements and applicable federal, state, and local policies
- Include material safety data sheets
- Require 40 hours of worker training and education as required by the Occupational Safety and Health Administration
- Minimize the volume of hazardous or potentially hazardous materials stored at the site at any one time

- Provide secured storage areas for compatible materials, with adequate spill contaminant
- Maintain all required records, manifest and other tracking information in an up-to-date and accessible form or location for review by the Port or City
- Demonstrate that all local, state, and federal regulations regarding hazardous materials and emergency response have been or will be complied with.

[Phase 1A and Future Phase(s)] **4.5-5** The following mitigation measure reduces Significant Impact 4.5-5 (impacts resulting from the suspension of sediments into the water column during in-water construction activities):

Port: Prior to the commencement of in-water construction for all phases of development, the Port or Port tenants shall adhere to regulatory requirements including the use of BMPs, which shall include use of silt curtains during all sediment suspension activities.

Applicable Development Policies

[Phase 1A and Future Phase(s)] Policy 1.3e: Avoidance of actions within the Chula Vista Bayfront area that would adversely impact or degrade of water quality in San Diego Bay or watershed areas or impair efforts of other entities for protection of the watershed.

[Phase 1A and Future Phase(s)] Policy 1.3f: Maintenance and improvement of water quality where possible and coordination with other entities charged with watershed protection activities.

[Phase 1A and Future Phase(s)] Policy 13.2: In order to protect the quality of coastal waters the District shall promote the protection of water quality that meets state standards and the restoration of waters that do not meet state standards, and encourage and support public outreach and education regarding the water quality impacts of development.

All new development shall:

a) Comply with the Regional Water Quality Control Board Order No. R9-2007-0001, National Pollutant Discharge Elimination System Permit No. CAS0108758, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, and the San Diego Unified Port District (Municipal Permit), as adopted, amended, and/or modified or replaced by the Regional Water Quality Control Board with a new Municipal Permit. The Municipal Permit prohibits any activities that could degrade stormwater quality.

b) Comply with the District Jurisdictional Urban Runoff Management Document and the District Standard Urban Stormwater Mitigation Plan which provides BMP requirements for new development and redevelopment.

c) Be designed and managed to minimize the introduction of pollutants into coastal waters to the maximum extent practicable.

d) Be designed and managed to minimize increases in peak runoff rate and volume in order to avoid detrimental water quality impacts caused by excessive erosion or sedimentation.

e) Include Site Design and Source Control BMPs and Low Impact Development practices, where feasible, in all developments.

f) Implement the requirements of Hydromodification Management Plan developed pursuant to the Municipal Permit, as required.

g) Minimize impervious surfaces in new development, especially directly connected impervious areas, and, where feasible, increase the area of pervious surfaces in redevelopment.

h) Minimize erosion, sedimentation, and polluted runoff from construction-related activities of development, to the maximum extent practicable.

i) Minimize the land disturbance activities of construction (e.g., clearing, grading, and cut and fill), especially in erosive areas (including steep slopes, unstable areas, and erosive soils), to avoid detrimental water quality impacts caused by increased erosion or sedimentation. Incorporate soil stabilization BMPs on disturbed areas as soon as feasible.

j) Require Treatment Control BMPs, in addition to Site Design and Source Control measures, when the combination of Site Design and Source Control BMPs is not sufficient to protect water quality.

k) Be designed, constructed and maintain any required Treatment Control BMPs (or suites of BMPs) are designed and constructed so that they treat, infiltrate, or filter the amount of storm water runoff produced by all storms up to and including the 85th percentile, 24- hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event (with an appropriate safety factor of 2 or greater) for flow-based BMPs.

[Future Phase(s)] Policy 14.6: Channelizations or other substantial alterations of streams shall be prohibited except for: (1) necessary water supply projects where no feasible alternative exists; (2) flood protection for existing development where there is no other feasible alternative; or (3) the improvement of fish and wildlife habitat. Any channelization or stream alteration permitted for one of these three purposes shall minimize impacts to coastal resources, including the depletion of groundwater, and shall include maximum feasible MM to mitigate unavoidable impacts. Bioengineering alternatives shall be preferred for flood protection over "hard" solutions such as concrete or riprap channels.

[Phase 1A and Future Phase(s)] Policy 25.1: Excess dredge material from within the project area shall be tested for beach compatibility and placed on local beaches if suitable.

[Phase 1A and Future Phase(s)] Policy 25.2: Development in San Diego Bay waters shall be reviewed for potential impacts to open water (foraging) and eelgrass, including any direct (e.g., construction activity) and indirect (e.g., shading from structures or boats) impacts. Efforts must be made to maintain the eelgrass habitat available and improve water quality. No net loss of eelgrass meadows shall be permitted. Pre-construction and post-construction eelgrass surveys shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy or any later revised policy adopted by the National Marine Fisheries Service. Any existing eelgrass impacted shall be replaced at a minimum 1.2:1 ratio, in accordance with the Southern California Eelgrass Mitigation Policy. In addition, impacts to open water habitat shall be assessed and mitigated.

3.11 Land Use and Planning

Would the Proposed Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, master plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

As discussed in the FEIR, the existing and proposed designations of the parcels that make up the Project site are outlined in Table 1, below.

Table 1. Existing and Proposed Designations of the Project Site

Parcel	Existing PMP Designation	Proposed PMP Designation
HP-1	Commercial Recreation, Industrial Business Park, Park/Plaza, Promenade, Street	Park/Plaza, Promenade
H-8	Commercial Recreation, Park/Plaza, Promenade	Park/Plaza, Promenade
HP-3A	Habitat Replacement, Promenade	Promenade
HP-28	Boat Navigation Corridor	Promenade

Source: CVBMP FEIR

As shown in Table 1, the Project site was designated as Park/Plaza and Promenade in the PMP. The Project would result in redevelopment of the Project site with an Improved Beach, multi-use natural-turf lawn areas, a family play area, pedestrian and bicycle paths, plazas, and landscaping. The Project would be consistent with the proposed PMP designations of the Project Site. Although the Project is within the jurisdiction of the District, not the City, the development of the Project would be consistent with the City of Chula Vista General Plan land use designation for the site, which is Parks and Recreation (City of Chula Vista 2014). Because the Project is located within the boundaries of the District, the Project is not within the City's Local Coastal Program (LCP) (City of Chula Vista 2015). Additionally, the Project would be required to implement applicable Development Policies, which are incorporated by reference in the PMP. The Project would enhance public access and public recreation opportunities in the Chula Vista Bayfront by providing an improved and accessible public park, new pier, and an improved beach with various public amenities. The Project conforms to the land use designations of "Park/Plaza" and "Promenade," the Precise Plan map and text in the Chula Vista Bayfront Planning District, and Project list (Table 19), of the certified Port Master Plan (PMP). The CVBMP envisioned that the existing Bayside Park would be improved as a 25-acre extension of the Sweetwater District signature park to create Harbor Park in the Harbor District with similar amenities, such as lighting, sculptures, restrooms, interactive fountains, plaza areas, drinking fountains, bicycle racks, tot lots, picnic areas, benches, trash bins, interpretive signage, a sculpture garden, landscaped berms, public art, decomposed granite paving, and open lawn area. Harbor Park could also include cultural uses, small food and beverage vending, and other park-activating ancillary uses. Allowed structures include restrooms, picnic tables, shade structures and overlooks, and are limited to single-story heights. Harbor Park, along with other parks in the Harbor District, are planned to accommodate flexible spaces and programmable elements that allow for more active uses or events (PMP, page 101). Therefore, the Project would not create any new or exacerbate any previously identified impacts related to conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. No new impacts would occur, as compared to the FEIR.

Would the Proposed Project conflict with any applicable habitat conservation plan or natural community conservation plan?

The CVBMP area is located within the City of Chula Vista's Multiple Species Conservation Plan (MSCP) Subarea Plan. However, per the FEIR, the Project would not be located within or adjacent to an MSCP Habitat Preserve boundary. As discussed in Section 3.4, above, implementation of MM 4.8-6 would be required to ensure compliance with the City's MSCP Subarea Plan and would reduce impacts to less than significant. Therefore, with implementation of MM 4.8-6, the Project would not create any new or exacerbate any previously identified impacts related to conflicts with applicable habitat conservation plan or natural community conservation plan. No new impacts would occur, as compared to the FEIR.

Would the Proposed Project create a substantial land/water use incompatibility with adjacent or nearby existing and proposed land uses, resulting in significant incompatibility or nuisance impacts?

As discussed in the FEIR, the CVBMP would provide buffers within Sweetwater District, and more urbanized uses would be placed within Harbor District, where such uses already exist. Compared to what was analyzed in the FEIR, the Project would include additional disturbance within parcel HP-1 and the adjacent Bay, for construction of the widened Improved Beach, in order to help with erosion. The proposed Improved Beach would provide recreational opportunities, compatible with the rest of the Project site and consistent with the designation of the site in the CVBMP. Therefore, the Project would not create a substantial land/water use incompatibility with adjacent or nearby existing and proposed land uses. No new impacts would occur, as compared to the FEIR.

Would the Proposed Project be inconsistent with or conflicts with an adopted PMP water use designation where substantial indirect or secondary environmental impacts would occur?

Per the FEIR, water-linked uses, such as Bayside Park, are currently located at the Project site. The Project would result in redevelopment of a water-linked use, which includes public parks, commercial activities, and cultural uses, consistent with what was analyzed in the FEIR.

As discussed in the FEIR, construction of the proposed H Street Pier would create significant environmental impacts from the driving of piles of pier support into shallow subtidal benthic habitat, where eelgrass is known to occur. While this would be a significant impact to eelgrass, it would not be inconsistent with the PMP, as the PMP does not prohibit impacts to eelgrass. Further, as discussed in Section 3.4, above, MM 4.8-4, 4.9-1, and 4.9-4, outlined in the FEIR, would be implemented to reduce potential impact to eelgrass to less than significant. As discussed in Section 3.4, impacts to eelgrass related to disturbance within the Bay for construction of the proposed Improved Beach would be less than significant. Therefore, with implementation of MM BIO-4.8-4, 4.9-1, and 4.9-4, the Project would not be inconsistent with or conflicts with an adopted PMP water use designation where substantial indirect or secondary environmental impacts would occur. No new impacts would occur, as compared to the FEIR.

Applicable FEIR Land Use and Planning MM

The following MM that was included in the FEIR and adopted MMRP would still be implemented with the Project.

4.8-6 See Section 3.4, above, for the full MM.

Applicable Development Policies

[Phase 1A and Future Phase(s)] Policy 20.1: Shoreline promenades shall be a minimum of 25 feet in width allowing both pedestrians and bicyclists and shall be constructed directly along the waterfront where feasible and maintained free of private encroachment around the Bayfront. Pathways and walking trails not proposed along the shoreline shall be a minimum width of 12 feet.

[Phase 1A and Future Phase(s)] Policy 20.2: Provide a continuous open space system, fully accessible to the public, which would seamlessly connect the Sweetwater, Harbor, and Otay Districts through components such as a continuous shoreline promenade or "Baywalk" and a continuous bicycle path linking the parks and ultimately creating greenbelt linkages.

[Phase 1A and Future Phase(s)] Policy 21.6: Public recreational opportunities, such as parks, open space, and other no-cost visitor serving amenities shall be provided.

[Phase 1A and Future Phase(s)] Policy 21.7: Waterfront visitor-serving retail uses and public gathering spaces shall be provided.

[Phase 1A and Future Phase(s)] Policy 25.2: Development in San Diego Bay waters shall be reviewed for potential impacts to open water (foraging) and eelgrass, including any direct (e.g., construction activity) and indirect (e.g., shading from structures or boats) impacts. Efforts must be made to maintain the eelgrass habitat available and improve water quality. No net loss of eelgrass meadows shall be permitted. Pre-construction and post-construction eelgrass surveys shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy or any later revised policy adopted by the National Marine Fisheries Service. Any existing eelgrass impacted shall be replaced at a minimum 1.2:1 ratio, in accordance with the Southern California Eelgrass Mitigation Policy. In addition, impacts to open water habitat shall be assessed and mitigated.

[Phase 1A and Future Phase(s)] Policy 25.3: Prior to commencement of any in water development that involves disturbance of the subtidal water bottom, surveys will be done of the project area and a buffer area to determine the presence of the invasive alga Caulerpa taxifolia. The survey protocol shall be prepared in consultation with the Regional Water Quality Control Board, the California Department of Fish and Game, and the National Marine Fisheries Service.

3.12 Mineral Resources

As discussed in Section 4.15 of the FEIR, no significant economic mineral resources have been discovered within the limits of the CVBMP area. Therefore, the potential for loss of mineral deposits due to further development of the CVBMP is considered low. Compared to what was analyzed, at the program-level, in the FEIR, the Project would include additional dredging and disturbance within parcel HP-1 and the adjacent Bay, for construction of the widened Improved Beach. No mineral resources are known to occur within this area of the Bay (City of Chula Vista 2005). This change would not result in any new impacts to mineral resources. No new significant environmental impacts or increase in severity of impacts would occur, and no new MM would be required.

Applicable FEIR Mineral Resources MM

There are no MM related to mineral resources in the FEIR.

Applicable Development Policies

[Phase 1A and Future Phase(s)] Policy 2.4a(5): The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this Plan, where there is no feasible less environmentally damaging alternative, and where feasible MM have been provided to minimize adverse environmental effects, and shall be limited to: mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

3.13 Noise

Would the Proposed Project expose persons to or generate noise levels in excess of standards established in the City of Chula Vista General Plan or noise ordinance, or applicable standards of other agencies?

Construction

Construction of the Project would result in noise attributed to construction activities, generated from construction equipment. More specifically, grading would require the use of heavy equipment such as bulldozers, loaders, and scrapers. Further, the Project would involve pile driving for the construction of H Street Pier and the proposed Improved Beach. Per the FEIR, pile driving can cause noise levels between 82 and 105 dB(A).

Construction would be limited between 7:00 a.m. and 10:00 p.m., Monday through Friday, and between 8:00 a.m. and 10:00 p.m. on Saturday and Sunday, in accordance with the City noise ordinance. No residences are currently present near the Project site. Therefore, per the FEIR, with compliance with existing noise regulations, no impacts to residential receptors would occur from construction noise.

The FEIR outlined noise impacts related to construction of the CVBMP, including impacts from construction of off-site improvements and impacts to residential uses created during Phase I of development, including the Pacifica Residential project. The Project would not result in off-site improvements and would not be located near existing residential uses or residential uses proposed under the CVBMP. Further, the Project would result in pile driving for the construction of H Street Pier and the proposed improved beach. Per the FEIR, pile driving can cause noise levels between 82 and 105 dB(A). However, as there are no existing sensitive receptors in the vicinity of the Project site, no significant noise impacts would occur as a result of pile driving. Therefore, the Project would not result exposure of persons to or generations of noise levels in excess of standards established in the City of Chula Vista General Plan or noise ordinance, or applicable standards of other agencies. No new significant environmental impacts or increase in severity of impacts would occur, and no new MMs would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Operations

On-Site Traffic Noise

The FEIR analyzed future noise levels at land uses adjacent to roadways within the CVBMP using Federal Highway Administration Traffic Noise Model Version 2.5. Noise levels were estimated at a distance of 50 feet from the centerline of each roadway segment, and the distances to the 60, 65, 70 and 75 dB(A) Community Noise Equivalent Level (CNEL) noise contours were estimated. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography. Per the FEIR, traffic on CVBMP area roadways would be expected to generate noise levels at ground-level sensitive receptors in excess of the City's residential exterior standard to 65 dB(A) CNEL. However, the roadways listed as exceeding the 65 dB(A) exterior noise standard are not located in the vicinity of the Project. The Project would not expose future residents to traffic noise and would not result in on-site traffic noise impacts. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Off-Site Traffic Noise

As discussed in the FEIR, the CVBMP would result in additional traffic in on- and off-site roads. An increase of 3 dB is considered a perceptible increased in noise. For off-site roadways that currently generate noise levels in excess of applicable noise standards, a project-related increase of 3 dB would be significant. All off-site roadways affected by the Project traffic currently generate noise levels in excess of 65 dB(A). As discussed in the FEIR, the segment of Marina Parkway between H Street and Street C would experience an increase of approximately 11 dB(A) CNEL and the segment of Marina Parkway between Street C and J Street would experience an increase of approximately 12 dB(A) CNEL. The future Pacifica development site is adjacent to Marina Parkway between Street C and J Street and

is the only property with noise sensitive uses proposed adjacent to this segment. There are no noise sensitive land uses adjacent to the remainder of the roadway segments that would experience an increase of 3 dB(A) or more; therefore, noise level increases along these segments are not considered significant. Therefore, the Project would not result in significant off-site traffic noise impacts or expose future residents to traffic noise and would not result in on-site traffic noise impacts. No new significant environmental impacts or increase in severity of impacts would occur; and no new MM would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project expose persons to or generates excessive groundborne or waterborne vibrations, or noise levels?

The Project does not propose uses that generate groundborne vibration or noise levels. Therefore, the Project would not generate or expose persons to excessive groundborne vibration or groundborne noise levels at buildout. No new or exacerbated impacts would occur, and no new mitigation is required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project result in a substantial permanent increase in ambient noise levels?

As discussed above and in the FEIR, although some roadways within the CVBMP area are listed as exceeding the 65 dB(A0) exterior noise standard, these roadways are not located in the vicinity of the Project. Similarly, per the FEIR, all off-site roadways affected by project traffic currently generate noise levels in excess of 65 dB(A). The segment of Marina Parkway between H Street and Street C would experience an increase of approximately 11 dB(A) CNEL, and the segment of Marina Parkway between Street C and J Street would experience an increase of approximately 12 dB(A) CNEL. The Pacifica development site is adjacent to Marina Parkway between Street C and J Street and is the only property with noise sensitive areas proposed adjacent to this segment. There are no noise sensitive land uses adjacent to the remainder of the roadway segments that would experience an increase of 3 dB(A) or more; therefore, noise level increases along these segments are not considered significant. Thus, the Project would not result in substantial permanent increase in ambient noise levels. No new or exacerbated impacts would occur, and no new mitigation is required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Would the Proposed Project result in a substantial temporary or a periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

As discussed above and in the FEIR, construction of the Project would be limited to the hours between 7:00 a.m. and 10:00 p.m., Monday through Friday, and between 8:00 a.m. and 10:00 p.m. on Saturday and Sunday, in accordance with the City noise ordinance. The FEIR outlined noise impacts related to construction of the CVBMP, including impacts from construction of off-site improvements and impacts to residential uses created during Phase I of development, including the Pacifica residential project. The Project would not result in off-site improvements and would not be located near existing residential uses or residential uses proposed under the CVBMP. Further, the Project would result in pile driving for the construction of H Street Pier and the Improved Beach. Per the FEIR, pile driving can cause noise levels between 82 and 105 dB(A). However, as there are no existing sensitive receptors in the vicinity of the Project site, no significant noise impacts would occur as a result of pile driving. Therefore, the Project would not result in a substantial temporary or a periodic increase in ambient noise levels. No new significant environmental impacts or increase in severity of impacts would occur; and no new MM would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Applicable FEIR Noise Mitigation Measures

There are no applicable MM related to noise in the FEIR.

Applicable Development Policies

There are no applicable Development Policies related to noise in the FEIR.

3.14 Population and Housing

Would the Proposed Project have a significant impact if it induces substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

The Project involves development of a park but no residential units. As such, impacts would be less than significant. No new population or housing impacts would occur; Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project have a significant impact if it displaces substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?

The Project Site is currently developed with Bayside Park, Marina View Park, and other grassy areas; Plover Way, which traverses the site from north to south; an existing bicycle and pedestrian pathway that also traverses the site from north to south; two public toilets; cemented surface parking lots; and one graded surface parking lot. Therefore, no existing housing is present on site, and the Project would not result in displacement of a substantial number of housing or people. Development of the CVBMP would introduce more intensified nearby land uses with residential, hotels, commercial/retail uses, and the Resort Conference Center. The FEIR determined that with implementation of MM 4.17-1, which requires that the redevelopment agency use all low and moderate income housing funds generated by the CVBMP for the production of affordable housing units, impacts would be less than significant. The Project would not be required to implement MM 4.17-1 as it is inapplicable. The Project would not result in new impacts or exacerbate previously identified impacts related to displacing existing housing or people. No new mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Applicable FEIR Population and Housing MM

There are no MM related to population and housing in the FEIR.

Applicable Development Policies

There are no Development Policies related to population and housing.

3.15 Public Services

Would the Proposed Project reduce the ability to respond to calls within the City's threshold standard for Priority One emergency calls within 7 minutes in 81% of the cases and maintain an average response time to all Priority

One calls of 5.5 minutes or less or Priority Two urgent calls, within 7 minutes in 57% of cases, and maintain an average response time to all Priority Two calls of 7.5 minutes or less.

As discussed in the FEIR, police, fire, and emergency medical services within the District's jurisdiction within the City are provided by the City in accordance with the "Agreement for Police, Fire, and Emergency Medical Services between the City of Chula Vista and the San Diego Unified Port District" (Service Agreement). Police protection in the CVBMP area is currently provided by the Chula Vista Police Department, pursuant to the Service Agreement between the District and City for non-ad valorem properties.

The Project would include the development of a park, with features such as a beach, multi-use lawns, a family play area, and pedestrian and bicycle pathways. The Project site is already developed with a park and associated infrastructure. Nonetheless, implementation of the Project would attract more visitors, which would result in a slight increase in calls to the fire and police departments. Per the FEIR, the CVBMP area is currently underserved by the current fire station network. As a result, the CVBMP would include the construction of a new fire station on Parcel H-17 at the corner of J Street and Bay Boulevard within the Harbor District. As part of the CVBMP, the fire station would reduce any program level impacts to below a level of significance for Phase I development. Regarding police services, the FEIR determined that, through establishing a Bayfront beat of up to six additional police officers along with related equipment, would maintain current response times for service without increased travel time. For development of Phases II through IV, the FEIR determined that additional staffing and equipment may be required for police protection services at the CVBMP area. This additional staffing and equipment would be provided by the City and/or other funding agreements. However, the proposed park was slated development on the Project site under the CVBMP and therefore analyzed in the FEIR. Compared to what was analyzed in the FEIR, the Project would involve additional disturbance within parcel HP-1 and the adjacent Bay for construction of the widened Improved Beach, which would not result in increased need for police or fire services. As such, the Project would not result in any new or more severe significant public services impacts from those previously identified in the FEIR, and no additional mitigation is required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the fire protection and emergency services.

As discussed in the FEIR and above, with construction of a new fire station, the CVBMP would not result in significant impacts to fire protection services. Environmental impacts resulting from construction of the proposed fire station were analyzed throughout the FEIR, and MM were outlined to reduce potentially significant impacts to below a level of significance. Through additional staffing and equipment, to be provided by the City and/or other funding agreements, the proposed CVBMP would not result in significant impacts to police protection. The existing police station located at Fourth Avenue and F Street would be sufficient to accommodate additional officers needed to meet the law enforcement needs created by the increased demand associated with the CVBMP. Therefore, the Project would not introduce a new impact or exacerbate a previously identified impact related to physically altering governmental facilities for fire protection and emergency services. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would CVESD and SUHSD have the necessary school facilities to meet the needs of the students in new development areas in a timely manner?

And

Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools?

The Project would result in development of a park. Therefore, no students would be generated as a result of the Project because no residential uses are proposed. Therefore, no impacts to schools would occur. The Project would not result in new impacts or exacerbate previously identified impacts related to schools. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR, and no new mitigation would be required.

Applicable FEIR Public Services MM

There are no MM related to public services in the FEIR.

Applicable Development Policies

There are no Development Policies related to public services.

3.16 Recreation

Would the Proposed Project result in the inability to provide an adequate level of service for public parkland?

The FEIR used a standard from the Chula Vista Municipal Code, Chapter 17.10.040 Parklands and Public Facilities to analyze impacts to recreational facilities. This section of the Municipal Code requires developers dedicate a certain square footage of parkland for each multifamily, residential, and transient motel/hotel unit. The Project would not include the development of any housing units, therefore, this standard does not apply to the Project. The Project would include development of approximately 25 acres of parkland, to be utilized by the CVBMP and surrounding area. Amenities would include the Improved Beach, multi-use lawns, a family play area, bicycle and pedestrian pathways, and other recreational uses. These recreational amenities are anticipated to lower the demand created by the CVBMP area on existing and proposed parklands in the Project area. Nonetheless, per the FEIR, development of the Project would result in temporary, short-term significant impacts to park and recreation levels of service due to temporary closure of existing parks during the construction period. Therefore, due to temporary closure of Bayside Park, located on the Project site, impacts would be potentially significant. The Project would be required to implement MM 4.13.3-1 to mitigate short-term impacts to below a level of significance. As such, with implementation of MM 4.13.3-1, no additional or more severe significant impacts would occur, and no additional mitigation would be required. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental or recreational facilities, need for new, expanded, or physically altered governmental or recreational facilities, the construction of which could cause significant environmental impacts,

in order to maintain acceptable service ratios, response times, or other performance objectives for park and recreation services?

Per the FEIR, the CVBMP would be required to create approximately 27 acres of dedicated parkland. The CVBMP would exceed the minimum parkland requirement by designating approximately 80.1 acres of parkland total (including reconfiguration of the existing parkland as well as new parkland). The Project would involve construction of approximately 25 acres of this parkland. The environmental impacts of the Project have been analyzed within the CVBMP and this addendum. With incorporation of MM, all impacts resulting from the Project would be less than significant. Therefore, the Project would not introduce a new impact or exacerbate a previously identified impact related to physically altering governmental or recreational facilities. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR.

Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Existing parks in the area consist of regional parks on District tidelands and a City neighborhood park. As previously stated, the Project would result in development of recreational facilities which are anticipated to lower the demand created by the CVBMP on existing and proposed parklands in the Project area. Therefore, the Project would not result in substantial physical deterioration of existing recreational facilities. No new impact or more severe significant impact would occur related to the physical deterioration of recreational facilities. Therefore, the Project would not have any new significant impacts or create substantially more severe impacts than identified in the FEIR

Applicable FEIR Recreation MM

[Phase 1A and Future Phase(s)] 4.13.3-1 Prior to reconstruction and/or reconfiguration of existing parks within the Project, the Port shall post a public notice at each affected park site at least 30 days prior to commencement of construction activity and maintain the posting throughout reconstruction of each affected park. Said public notice shall identify the duration of park closure and information related to optional locations for public park and recreational facilities.

Applicable Development Policies

[Phase 1A and Future Phase(s)] Policy 10.2: Water areas will be managed with enforceable boating restrictions. No boating will be allowed in vicinity of the J Street Marsh or east of the navigation channel in the Sweetwater District during the fall and spring migration and during the winter season when flocks of birds are present.

[Phase 1A and Future Phase(s)] Policy 10.3: All rentals of personal water craft (PWC) will be prohibited in the Chula Vista Bayfront. (Note: PWC will mean a motorboat less than sixteen feet in length which uses an inboard motor powering a jet pump as its primary motive power and which is designed to be operation by a person sitting, standing, or kneeling on rather than in the conventional manner of sitting or standing inside the vessel.)

[Phase 1A and Future Phase(s)] Policy 10.5: A five (5) mile per hour speed limit will be enforced in areas other than the navigation channels.

[Phase 1A and Future Phase(s)] Policy 20.1: Shoreline promenades shall be a minimum of 25 feet in width allowing both pedestrians and bicyclists and shall be constructed directly along the waterfront where feasible and maintained free of private encroachment around the Bayfront. Pathways and walking trails not proposed along the shoreline shall be a minimum width of 12 feet.

[Phase 1A and Future Phase(s)] Policy 20.2: Provide a continuous open space system, fully accessible to the public, which would seamlessly connect the Sweetwater, Harbor, and Otay Districts through components such as a continuous shoreline promenade or "Baywalk" and a continuous bicycle path linking the parks and ultimately creating greenbelt linkages.

[Phase 1A and Future Phase(s)] Policy 20.3: Create a meandering pedestrian trail constructed of natural material that is easily maintained and interwoven throughout the Signature Park. Create, as part of the E Street Extension, a pedestrian pathway/bridge to provide a safe route for pedestrians to walk and to transition from the Sweetwater District to the Harbor Park Shoreline Promenade and park in the Harbor District.

[Phase 1A and Future Phase(s)] Policy 20.4: Segregate pedestrian and bike trails where feasible. Provide a meandering public trail along the entire length of the Bayfront. Leave unpaved the meandering trail within the Sweetwater Park and adjacent to Buffer Areas.

[Phase 1A and Future Phase(s)] Policy 21.6: Public recreational opportunities, such as parks, open space, and other no-cost visitor serving amenities shall be provided.

[Phase1A and Future Phase(s)] Policy 21.7: Waterfront visitor-serving retail uses, and public gathering spaces shall be provided.

3.17 Transportation and Traffic

Would the Proposed Project have a significant impact if it substantially increases hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project would provide vehicle access roads from H Street to two surface parking lots within the northern and southern portion of the site (see Exhibit 2, Project Conceptual Site Plan). Vehicular circulation within Harbor Park will be confined to parking lot access roads connecting frontage roads to internal parking and drop-off areas. The Project would not substantially increase hazards due to design features. No new impacts would occur, and no previously identified impacts would be exacerbated related to hazardous design features.

Would the Proposed Project have a significant impact if it conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

As discussed in the FEIR, the CVBMP is designed to encourage the use of alternate transportation by including the H Street transit center close to the rail line, bike and pedestrian pathways, water taxis, and a private employee parking shuttle. The Project would include various pedestrian pathways throughout the site, including the meandering, shared bike and pedestrian Waterfront Promenade that would extend along the western portion of the Project site, from the south of the H-8 parcel towards the northern portion of E Street and Sweetwater District. The Project would provide additional bicycle and pedestrian pathways and trails throughout the Project site, connecting park amenities to the shoreline and the rest of the CVBMP area. As such, the Project would not conflict with adopted policies, plan, or programs supporting alternative transportation. No new impacts would occur, and no previously identified impacts would be exacerbated related to alternative transportation regulations.

The Proposed Project would have a significant impact if changes to the land use and the circulation plans would result in the following:

a) *A roadway segment that currently operates at LOS C or better and with the proposed changes would operate at LOS D or worse at General Plan buildout; or*

b) *A roadway segment that currently operates at LOS D or E and with the proposed changes would operate at LOS E or F at General Plan buildout respectively, or which operates at LOS D, E, or F and would worsen by five percent or more at General Plan buildout.*

As stated in the FEIR, there would be four significant impacts to roadway segment level of service (LOS), under Phase I, outside the Urban Core. The following four roadway segments would require mitigation:

- Lagoon Drive/F Street (Marina Parkway to Bay Boulevard) (LOS F)
- H Street (west of Marina Parkway) (LOS F)
- Marina Parkway (Lagoon Drive to G Street) (LOS F)
- Bay Boulevard (E Street to F Street) (LOS F).

These segments would require MM to reduce impacts below a level of significance under the FEIR. Per the FEIR, development of the Project (including the park development within Parcels H-8 and HP-1 and development of the proposed Waterfront Promenade along HP-3A) would result in generation of approximately 942 trips, including 119 AM peak hour trips and 84 PM peak hour trips as identified in the FEIR. Impacts to roadways segments in the vicinity of the Project site would be limited to impacts within H Street, west of Marina Parkway. However, these impacts would be attributed to the CVBMP development as a whole, and not the Project specifically. Improvements to H Street west of Marina Parkway would occur under MM 4.2-3, prior to the issuance of any certificates of occupancy for any development on H-3. Further, the FEIR outlined trips of the entire CVBMP area, at full buildout, and includes trips to and from the Project Site associated with a significant amount of other proposed development. Therefore, operations of the Project would not, independently, result in impacts to these intersections.

The refined design of the Project would not cause an increase of visitors to the Project Site that would result in increased operational vehicle trips to and from the site compared to what was analyzed in the FEIR. However, the Project would result in a greater amount of soil imported onto the site than the amount of soil exported than originally analyzed in the FEIR.

For changes to signalized and unsignalized intersections:

a) *An intersection that currently operates at LOS D or better and with proposed changes would operate at LOS E or worse at General Plan buildout; or*

b) *An intersection that currently operates at LOS E or F and the project trips generated comprise five percent or more of the entering volume. Entering volumes are the total approach volumes entering an intersection.*

As outlined in the FEIR, the following intersections will be characterized by LOS E or F conditions under Phase I Baseline Plus Project conditions and would result in direct project impacts and would require mitigation:

- Street/Interstate (I-) 5 Southbound Off-Ramps (LOS F, PM peak hour)
- F Street/Bay Boulevard (LOS F, PM peak hour)
- J Street/Bay Boulevard (LOS F, both peak hours)

- L Street/Bay Boulevard (LOS F, both peak hours)
- I-5 Southbound Ramps/Bay Boulevard (LOS F, PM peak hour)
- J Street/Marina Parkway (LOS E, PM peak hour)

As discussed above, the Project would result in generation of approximately 942 trips, including 119 AM peak hour trips and 84 PM peak hour trips, which are accounted as part of the trip generation for the overall CVBMP development. As required by the FEIR, MM would be incorporated prior to development within Parcels H-3, H-13, and H-14 to reduce potential impacts to these intersections. Further, the FEIR outlined trips of the CVBMP as a whole, at full buildout, and includes trips to and from the Project site associated with a lot of other proposed development. Therefore, operations of the Project would not, independently, result in impacts to these intersections.

The refined design of the park would not result in the increase of visitors to the Project site that would result in increased operational vehicle trips to and from the site compared to what was analyzed in the FEIR. Nonetheless, the Project would result in a greater amount of soil imported onto the site, than the amount of soil exported from the site that was originally analyzed in the FEIR.

c) A cumulative impact would occur if the operations at intersection are at LOS E or F only.

Per the FEIR, the various intersections would result in a cumulative traffic impact with implementation of Phases I through III of the CVBMP. The Project would not result in implementation of Phase IV components of the CVBMP. Therefore, Phase IV cumulative traffic impacts have not been incorporated into this discussion. The FEIR outlined trips of the CVBMP as a whole, at full buildout, and includes trips to and from the Project site associated with a lot of other proposed development. Therefore, operations of the Project would not, on its own, result in cumulative impacts to affected intersections. The refined design of the park would not result in the increase of visitors to the Project site that would result in increased operational vehicle trips to and from the site compared to what was analyzed in the FEIR. Nonetheless, the Project would result in a greater amount of soil imported onto the site, than the amount of soil exported than was originally analyzed in the FEIR.

If changes to the land use and circulation plans would affect signalized and unsignalized intersections as follows:

a) An intersection that currently operates at LOS D or better and with proposed changes would operate at LOS E or worse at General Plan buildout;

b) An intersection that currently operates at LOS E or F and the project trips generated comprise five percent or more of the entering volume. Entering volumes are the total approach volumes entering an intersection; or

c) A cumulative impact would occur if the operations at intersection are at LOS E or F only.

As identified in the FEIR, the CVBMP would generate a total of 5,251 AM trips, and 7,324 PM trips across all phases of the CVBMP. Phase I of the CVBMP would directly impact the following six intersections, and would require mitigation:

- E Street/I-5 Southbound Off-Ramps (LOS F, PM peak hour) (Significant Impact 4.2-6)
- F Street/Bay Boulevard (LOS F, PM peak hour) (Significant Impact 4.2-7)
- J Street/Bay Boulevard (LOS F, both peak hours) (Significant Impact 4.2-8)
- L Street/Bay Boulevard (LOS F, both peak hours) (Significant Impact 4.2-9)

- I-5 Southbound Ramps/Bay Boulevard (LOS F, PM peak hour) (Significant Impact 4.2-10)
- J Street/Marina Parkway (LOS E, PM peak hour) (Significant Impact 4.2-11).

Mitigation for these intersections would bring these impacts below a level of significance under the FEIR. However, as discussed above, the FEIR outlined trips of the CVBMP as a whole, at full buildout, and includes trips to and from the Project site associated with various other proposed development within the CVBMP area. Therefore, operations of the Project would not, on its own, result in cumulative impacts to these intersections. This addendum covers the project-level analysis for the Project, as the conceptual design of the park has been refined, and additional details and revisions to the original design have been developed. The refined design of the park would not result in the increase of visitors to the Project site that would result in increased operational vehicle trips to and from the site compared to what was analyzed in the FEIR. Nonetheless, the Project would result in a greater amount of soil imported onto the site, than the amount of soil exported from the site than originally analyzed in the FEIR.

Applicable FEIR Transportation and Traffic MM

There are no applicable MM related to transportation and traffic in the FEIR.

Applicable Development Policies

[Phase 1A and Future Phase(s)] Policy 20.1: Shoreline promenades shall be a minimum of 25 feet in width allowing both pedestrians and bicyclists and shall be constructed directly along the waterfront where feasible and maintained free of private

[Phase 1A and Future Phase(s)] Policy 20.2: Provide a continuous open space system, fully accessible to the public, which would seamlessly connect the Sweetwater, Harbor, and Otay Districts through components such as a continuous shoreline promenade or "Baywalk" and a continuous bicycle path linking the parks and ultimately creating greenbelt linkages.

[Phase 1A and Future Phase(s)] Policy 20.4: Segregate pedestrian and bike trails where feasible. Provide a meandering public trail along the entire length of the Bayfront. Leave unpaved the meandering trail within the Sweetwater Park and adjacent to Buffer Areas.

3.18 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a CA Native American tribe, and that is:

a) Listing or eligible for listing in the CA Register of Historic Resources, or in a local register of historical resources as defined in PRC section 5020.1(k) or

The FEIR does not contain an analysis chapter on tribal resources because the FEIR was certified prior to the passing of AB 52, which requires tribal consultation as a part of the CEQA process. As expressed in the FEIR (p. 4.10-3), a records search was conducted for the entire CVBMP area and only two archeological sites were found, one of them being the Coronado Belt Line Railroad Line. The entire CVBMP area has been disturbed by previous historic and modern activities. The Project site is already developed and has been

graded in the past. As such, it is not anticipated to encounter any items listed or eligible for California Register of Historic Resources, or in a local register of historical resources.

In addition, Pursuant to California Public Resources Code, Section 21080.3.1 (AB 52), California Native American tribes traditionally and culturally affiliated with the Project site can request notification of projects in their traditional cultural territory. The District has not received a request for project notification from any local Native American tribes. Additionally, the District has not received a specific request from a tribe to be notified on the Project.

However, as there is always potential to encounter historically important items during ground-disturbing activities, MM 4.10 would be applied to the construction of the Project, thus reducing any potential impacts to tribal cultural resources to levels below significance. With inclusion of this MM, the Project would not result in any new or worsened impacts related to eligible or listed historical resources as defined in Public Resources Code section 5020.1(k). No new mitigation would be required.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a CA Native American tribe.

As previously stated, a records search was conducted for the entire CVBMP area, and only two archeological sites were found, one of them being the Coronado Belt Line Railroad Line. The entire CVBMP area has been disturbed by previous historic and modern activities. The Project site is already developed and has been graded in the past. As such, it is not anticipated to encounter any items listed or eligible for California Register of Historic Resources, or in a local register of historical resources. However, as there is always potential to encounter historically important items during ground-disturbing activities, MM 4.10 would be applied to the construction of the Project, thus reducing any potential impacts to tribal cultural resources to levels below significance. With inclusion of these actions, the Project would not result in any new or worsened impacts related to a tribal resource determined by the lead agency to be significant. No new mitigation would be required.

Applicable MMRP Tribal Cultural Resources MM

4.10 See Section 3.5, above.

Applicable Development Policies

There are no development policies related to tribal cultural resources.

3.19 Utilities and Service Systems

Would the Proposed Project result in insufficient water supplies that are not available to serve the project from existing entitlements and resources, or results in the need for new or expanded entitlements?

As stated in the FEIR, the CVBMP (all phases included) would use an average of 2.020 million gallons per day (MGD), or 2,262.7 acre-feet year. It was determined in the FEIR that the CVBMP's water demand would be served by the Sweetwater Authority with the additional purchase of imported water supplies from the Metropolitan Water District's reserve supplies. However, the Sweetwater Authority would not have to rely on the availability of Metropolitan Water

District's Reserve and Replenishment Supplies in order to provide a sufficient water supply to the CVBMP. As such, the FEIR concluded that the CVBMP would not have a significant impact because sufficient water supplies are available to serve the project from existing entitlements and resources.

The Project would include the development of a park, which would consist of approximately 2,780 linear feet of Waterfront Promenade, an approximately 3.2-acre multi-use lawn, an approximately 3-acre Improved Beach, an approximately 1-acre family play area, a non-motorized boat launch, H Street Pier, landscaped areas and various plazas and lawns. One proposed plaza, the Urban Plaza, would provide an interactive fountain that would provide water play for children. The Project would also incorporate three small single-story support buildings and two trash/service enclosures. The single-story support buildings would include a Café and Beach Rental facility, the Hub building, and a family restroom. All plantings proposed within the Project would be composed of a combination of native and regionally-adapted plant materials that conform to CALGreen requirements for low-water consumption and integrate drip irrigation.

As outlined in the FEIR, the Project was estimated to result in water use of approximately 17,738 gallons of water per day, or 19.88 acre-feet/year with incorporation of water conservation reduction measures. The Project would result in water improvements, which would include domestic, irrigation, and fire connections from the buildings proposed on site; restrooms; irrigation meters; and fire hydrants to water mains within E and H Street, to be developed under the RHCC project. The existing water loop throughout the site would be removed; however, construction phasing of the Project may require portions of the water loop to remain in order to serve existing facilities. Therefore, adequate water infrastructure would be incorporated to serve the Project, and sufficient water supplies are available to serve the Project. The Project would not result in any new or worsened impacts related to water supplies. No new mitigation would be required.

Would the Proposed Project require or result in the construction of new water treatment facilities or expansion of existing facilities and services, the construction of which could cause significant environmental effects?

As discussed above, water supply for the Project would be provided via domestic, irrigation, and fire connections from the buildings, restrooms, irrigation meters, and fire hydrants proposed on site to water mains within E and H Street, to be developed under the RHCC project. The environmental effects of construction of the Project, inducing water infrastructure improvements on site, have been analyzed throughout this addendum. As discussed throughout this addendum, no new or worsened environmental impacts would occur with implementation of the Project, compared to what was analyzed in the FEIR.

As discussed in the FEIR, wastewater treatment at the CVBMP area and at the Project would be provided by the City of San Diego Metro Sewage System. Implementation of the CVBMP would require construction of new sewer facilities in addition to replacement of existing sewer facilities on the Project site. The only sewer mains in the project vicinity that would remain in the project vicinity are the existing 24-inch sewer main in G Street located adjacent to the Metropolitan Wastewater Department (MWWD) interceptor (CV-3), the existing 30-inch sewer main in J Street adjacent to the MWWD interceptor (CV-2), and the existing 8-inch sewer main in Bay Boulevard that serves the existing businesses on this street. Implementation of the CVBMP would require gravity sewer mains in the streets ranging in size from 8 to 18 inches and sewer force mains ranging in size from 6 to 12 inches. The gravity sewer generally flows in the direction of the street grade to minimize depth. The gravity sewer mains would convey flow to up to three proposed sewer lift stations; one would potentially be constructed in each district. There are at least two connections proposed to the existing City sewer system. The proposed sewer system under the CVBMP would connect to the MWWD interceptor. On-site sewer improvements would be constructed as part of the Project and would include sewer laterals extending from the new proposed buildings to the sewer mains along E

and H Street, to be developed under the RHCC project. Phasing of the Project may require additional sewer laterals and pump stations from the existing restrooms.

As discussed in the FEIR, the CVBMP would be expected to generate a total average flow of approximately 1.328 MGD and an approximate peak flow of 2.578 MGD. The City anticipates a future sewage generation rate of 26.2 MGD, which would require an additional needed capacity of 5.336 MGD after 2031 (buildout). This results from all the projects envisioned in the current General Plan. Because the City does not have capacity for future sewage generation, the City would not have adequate capacity to serve the additional 1.328 MGD generated by the CVBMP. Although additional capacity is being negotiated in the MWWD sewer interceptor, the capacity is currently not available, resulting in a significant impact to wastewater treatment. Implementation of MM 4.14.2-1 would be required by the Project to reduce impacts to less than significant and ensure adequate wastewater treatment is available to serve the Project. Further, the FEIR identified MM to reduce impacts from construction of wastewater infrastructure in the CVBMP area. These include MM 4.14.2-2, which requires noise mitigation during construction. However, as discussed in Section 3.13, because no sensitive receptors are or would be located in the vicinity of the Project site, no noise impacts would occur. Further, the FEIR outlined MM 4.14.2-3, associated with construction-related noise impacts on breeding birds in the adjacent wildlife refuge. Because the Project is not located near an adjacent wildlife refuge, this MM would not be required. No new or worsened impacts would occur related to water treatment facilities, with implementation of the Project. No new mitigation is required.

The Proposed Project would have a significant impact if it is inconsistent with the assumptions in the San Diego County Water Authority's 2005 Updated Urban Water Management Plan.

The FEIR concluded that the CVBMP level of water demand is expected to fall within the level of water demand included in San Diego County Water Authority's 2005 Urban Water Management Plan. The Project would result in limited water consumption, for operations restrooms, irrigation meters, and fire hydrants, and would not result in an increased water demand compared to what was analyzed in the FEIR. As such, no new or worsened impacts would occur related to the San Diego County Water Authority's 2005 Updated Urban Water Management Plan assumptions, with implementation of the Project. No new mitigation is required.

Would the Proposed Project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?

As stated in the FEIR, the CVBMP area would continue to be served primarily by the Otay Landfill until its capacity is reached. The City of Chula Vista is assured that the solid waste generated in the City of Chula Vista shall be accommodated by a landfill, regardless of which landfill accepts the waste. Therefore, the CVBMP would be served by landfills with sufficient permitted capacity to accommodate the Project's solid waste disposal needs, and no significant impact to integrated waste management services would result.

Operations of the Project is not anticipated to generate an increased demand for landfill capacity, compared to what was analyzed in the FEIR. Therefore, no new or worsened impacts are anticipated related to landfill capacity with implementation of the Project. Project No new mitigation would be required.

Would the Proposed Project comply with federal, state, and local statutes and regulations related to solid waste?

Similar to the originally approved plan, the Project would comply with local regulations through consistency with City of Chula Vista General Plan goals, policies, and objectives. Further, the Project would be required to comply with AB

939, which requires diversion of 50% of construction and demolition waste. As such, no new or worsened impacts would occur related to compliance with federal, state, and local regulations related to solid wastes.

Applicable FEIR Utilities and Service Systems MM

The following MM that were included in the FEIR and adopted MMRP would still be implemented with the Project.

[Phase 1A and Future Phase(s)] 4.14.2-1: The following mitigation measure is required to reduce Significant Impact 4.14.2-1 (associated with insufficient sewage capacity resulting from the Proposed Project) to a level less than significant:

City: Prior to the approval of a building permit for any development in Phases III and IV, the City shall verify that it has adequate sewer capacity to serve the proposed development. In the event the City does not have adequate sewer capacity to serve the proposed development, no building permit shall be approved for the proposed development until the City has acquired adequate sewer capacity to serve the proposed development.

Applicable Development Policies

There are no Development Policies related to utilities and service systems.

3.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Proposed Project:

Substantially impair an adopted emergency response plan or emergency evacuation plan?

Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As the wildfire section was not a part of Appendix G at the time the FEIR was drafted, this issue was not analyzed in the FEIR. The Project would be located in a Non-Very High Fire Hazard Severity Zone (CALFIRE 2009). Therefore, the Project would not result in impacts involving wildland fires. No impacts related to wildland fire would occur.

3.21 Mandatory Findings of Significance

Does the Proposed Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to

eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Similar to the CVBMP, the Project would include ground-disturbing activities to accommodate the Proposed Project Refinements. As such, MM previously noted within this addendum would be applied to the Project to reduce any construction-related impacts on biological and cultural resources. As discussed in Section 3.4, the Project would potentially result in significant impacts to special-status species, movement of any native resident or migratory fish or wildlife species, and other sensitive natural communities. However, with incorporation of MM outlined in Section 3.4, all potentially significant impacts would be reduced to a level below significance. Thus, the Project would not substantially degrade the quality of the environment, impact fish or wildlife species, or plant communities. As discussed in Section 3.5, implementation of the CVBMP and the Project is not anticipated to result in direct impacts to cultural resources in the CVBMP area. However, because ground-disturbing activities would have the potential to encounter historical and archaeological resources, MM 4.10 would be applied to construction of the Project to ensure appropriate implementation and enforcement in case cultural resources are discovered. Thus, the Project would not result in a potential significant impact to cultural resources including examples of major periods of California history or prehistory in the Project area.

Does the Proposed Project have impacts that are individually limited but cumulatively considerable?

As discussed in the FEIR, the CVBMP would result in cumulative impacts to aesthetics, air quality, GHG emissions, marine biology resources, wastewater, schools, library services, energy, and transportation and traffic. As discussed throughout this addendum, the Project would result in potentially significant impacts to air quality, biological resources, marine biological resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, recreation, tribal cultural resources, and utilities and services systems. However, as discussed above, applicable MM from the FEIR would reduce any cumulative impacts to less-than-significant levels.

Although MM would reduce the air quality impacts of the Project, they would not bring area and operations emissions to a level below the standard established by the South Coast Air Quality Management District and used in this document by the City and District. Therefore, cumulative air quality impacts remain significant and unmitigated. Despite the CVBMP's adoption of conservation measures, the cumulative impact relative to energy supply would remain significant and unmitigated because of the uncertainty of the future supply of energy, which is within the responsibility and control of SDG&E and other entities responsible for arranging electric energy supplies, not the District or the City. As stated in Section 3.7, the CVBMP would not be considered to contribute substantially to a cumulatively significant global climate change impact, because it would not contribute to a conflict with or the obstruction of the goals or strategies of AB 32 or related Executive Orders. With implementation of the MM and Development Policies included in the FEIR and described through Section 3 of this addendum, the Project would not have any cumulative impacts. As such, the Project would not result in any new or more severe significant impacts related to this topic, and no additional mitigation is required.

Does the Proposed Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The Project would not contribute any cumulatively considerable impacts, nor would they cause a substantial adverse effect on human beings. As such, the Project would not result in any new or more severe significant impacts related to this topic, and no additional mitigation is required.

Applicable FEIR Mandatory Findings of Significance MM

See Applicable MM outlined in Section 3.

Applicable Development Policies

See Applicable Development Policies outlined in Section 3.

4 Determination

CEQA Guidelines Sections 15162 through 15164 set forth the criteria for determining the appropriate environmental documentation, if any, to be completed when there is a pre-existing certified EIR covering the project. The District makes the following findings, and the Rationale of Findings is presented in Section 3 of this addendum.

CEQA Guidelines Section 15162(a) states: When an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

   Discussion: As discussed in Section 3 of this addendum, no substantial changes are proposed to the originally proposed park which would result in new significant effects or an increase in the severity of previously identified significant effects. As such, major revisions to the previous FEIR are not required to reflect the Project changes.

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which require major revisions of the previous EIR due to the involvement of new significant effects or a substantial increase in the severity of previously identified significant effects.

   Discussion: As identified in Section 3 of this addendum, the Project would not involve any new significant environmental effects or a substantially increase the severity of a previously identified environmental effect.

3. New information of substantial importance, which was not known and could not have been know with the exercise of reasonable diligence at the time the previous EIR was certified as complete shows any of the following:

   A) The project will have one or more significant effects not discussed in the previous EIR;

   Discussion: As identified in Section 3 of this addendum, the Project would not involve any new significant environmental effects or a substantially increase the severity of a previously identified environmental effect.

   B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

      Discussion: As identified in Section 3 of this addendum, the Project would not involve any new significant environmental effects or a substantially increase the severity of a previously identified environmental effect.

   C) MM or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the MM or alternative;

      Discussion: As discussed in Section 3 of this addendum, no previously identified MM or alternatives have been determined to be feasible that were previously identified as not feasible.

   D) MM or alternatives which are considered different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the MM or alternative.

Discussion: As discussed in Section 3 of this addendum, all the MM identified in the FEIR would be the same, and no new MM or alternatives have been identified that would substantially reduce one or more significant effects on the environment.

CEQA Guidelines Section 15164(a) states that "The lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred."

Discussion: This addendum provides details and changes to the originally analyzed FEIR. The updated project includes the construction of a park consisting of approximately 2,780 linear feet of Waterfront Promenade, an approximately 3.2-acre multi-use lawn, an approximately 3-acre Improved Beach, an approximately 1-acre family play area, a non-motorized boat launch, H Street Pier, landscaped areas and various plazas and lawns, and one plaza with an interactive fountain. The Project would be low in scale and intensity, with a maximum height of 25 feet. No additional impacts are anticipated as a result of changes to this Project. Therefore, this project-level analysis of the proposed changes to the Project is appropriately addressed in this addendum to the FEIR.

5 Conclusion

None of the conditions requiring the preparation of a subsequent EIR pursuant to CEQA Guidelines Section 15162(a) have occurred. As such, pursuant to CEQA Guidelines Section 15164, and based on the rationale presented in Section 3 of this document, the project-level analysis for the updated Project are appropriately addressed in this addendum to the FEIR.

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6 References and Preparers

6.1 References Cited

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Environmental Science Associates (ESA). 2020. Shoreline sand transport assessment and conceptual beach design for the Chula Vista Bayfront Harbor Park Project. February 28, 2020.

6.2 List of Preparers

Dudek

Iulia Roman, Environmental Planner
Carey Fernandes, Principal
Amy Seals, Senior Technical Editor

6.3 Exhibits and Attachments

Exhibits:

1. Phase 1A Plan
2. Project Conceptual (Future Phase(s)) Site Plan
3. Lighting Plan

Attachments:

A. Sand Transportation Memo
B. Sea Level Rise Analysis
C. Buildings Location and Elevations
D. Conceptual Landscape Plan

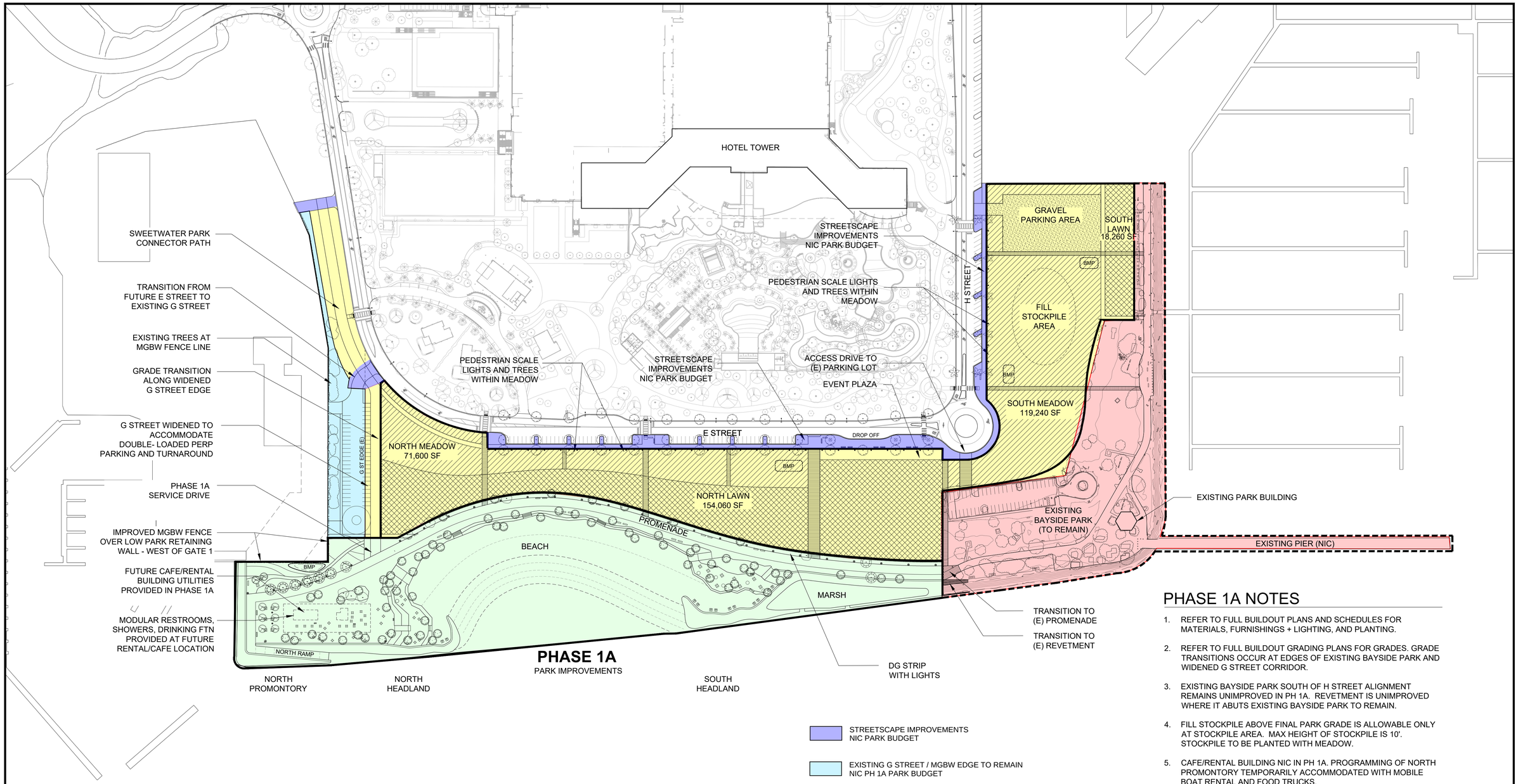
E. Sand Nourishment Memo
F. Harbor Park Eelgrass Memo
G. Traffic Memo

Exhibit 1

PHASE 1A IMPROVEMENTS - $19.5M

HARBOR PARK KTUA / PETERSEN STUDIO

NORTH END BEACH AND TERRACED SHORELINE



PHASE 1A NOTES

1. REFER TO FULL BUILDOUT PLANS AND SCHEDULES FOR MATERIALS, FURNISHINGS + LIGHTING, AND PLANTING.
2. REFER TO FULL BUILDOUT GRADING PLANS FOR GRADES. GRADE TRANSITIONS OCCUR AT EDGES OF EXISTING BAYSIDE PARK AND WIDENED G STREET CORRIDOR.
3. EXISTING BAYSIDE PARK SOUTH OF H STREET ALIGNMENT REMAINS UNIMPROVED IN PH 1A. REVETMENT IS UNIMPROVED WHERE IT ABUTS EXISTING BAYSIDE PARK TO REMAIN.
4. FILL STOCKPILE ABOVE FINAL PARK GRADE IS ALLOWABLE ONLY AT STOCKPILE AREA. MAX HEIGHT OF STOCKPILE IS 10'. STOCKPILE TO BE PLANTED WITH MEADOW.
5. CAFE/RENTAL BUILDING NIC IN PH 1A. PROGRAMMING OF NORTH PROMONTORY TEMPORARILY ACCOMMODATED WITH MOBILE BOAT RENTAL AND FOOD TRUCKS.
6. MEADOW TO BE IRRIGATED WITH SPRAYHEADS ON 3' STANDPIPES FOR EFFICIENCY. INTENT IS TO PROVIDE MINIMAL IRRIGATION AFTER ESTABLISHMENT.

PETERSEN STUDIO
LANDSCAPE ARCHITECTURE | PLANNING
133 KEARNY STREET SUITE 303 SAN FRANCISCO, CA 94108

NOTE:
THIS DRAWING MAY BE A REDUCED SCALE PRINT OF THE ORIGINAL DRAWING. UTILIZE GRAPHIC SCALES TO VERIFY IF DRAWING IS A REDUCTION, AND ADJUST SCALES ACCORDINGLY TO THE GRAPHIC SCALES SHOWN.

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN	04/26/2019
100% SCHEMATIC DESIGN	06/22/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED PETERSEN
DRAWN MM/RG
CHECKED JP

CHULA VISTA, CALIFORNIA

PHASE 1A PLAN

HARBOR PARK

DATE 06/22/2020
A/E NO. L003
SHEET 8 OF 58
DRAWING NO. CV-2019-01
REV.

FULL BUILDOUT

Exhibit 2

PETERSEN STUDIO
LANDSCAPE ARCHITECTURE | PLANNING
133 KEARNY STREET SUITE 303 SAN FRANCISCO, CA 94108

NOTE:
THIS DRAWING MAY BE A REDUCED SCALE PRINT OF THE ORIGINAL DRAWING. UTILIZE GRAPHIC SCALES TO VERIFY IF DRAWING IS A REDUCTION, AND ADJUST SCALES ACCORDINGLY TO THE GRAPHIC SCALES SHOWN.

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN	04/26/2019
100% SCHEMATIC DESIGN	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED: PETERSEN
DRAWN: MM/RG
CHECKED: JP

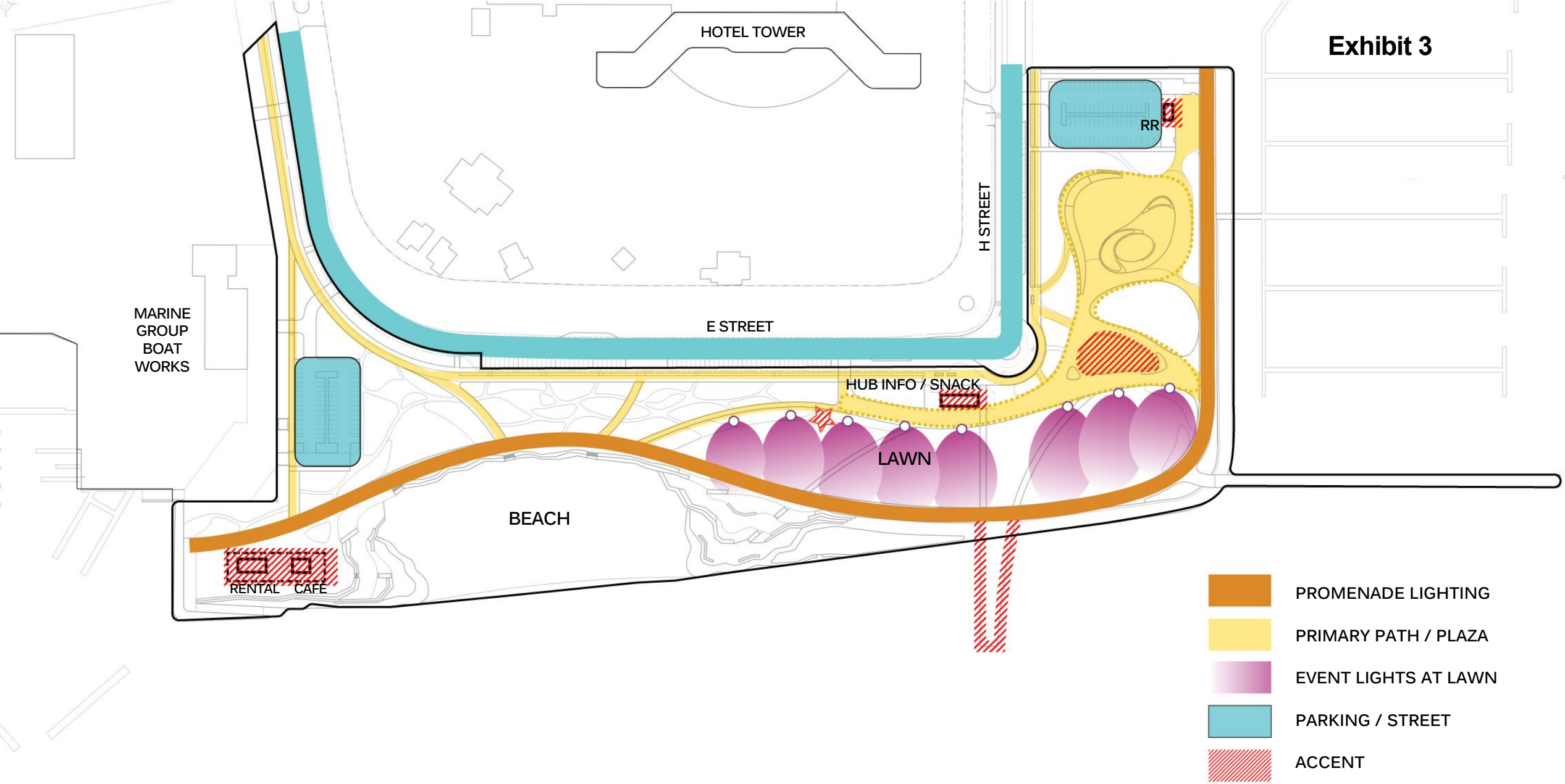
CHULA VISTA, CALIFORNIA

ILLUSTRATIVE PLAN

HARBOR PARK

DATE 04/24/2020
A/E NO. L004
SHEET 9 OF 54
DRAWING NO. CV-2019-01
REV.

Exhibit 3



SYNTHESIS PLAN

ESA 50 YEARS 1969-2019

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

esassoc.com

memorandum

date	February 28, 2020
to	Chris Langdon, KTU+A, and Michelle Chan and Mark Mcintire, Port of San Diego
cc	Jacob Petersen, Petersen Studio
from	Nick Garrity, PE, Pablo Quiroga, and Lindsey Sheehan, PE
subject	Shoreline sand transport assessment and conceptual beach design for the Chula Vista Bayfront Harbor Park Project

Summary and Conclusions

ESA performed a preliminary assessment of Longshore Sediment Transport (LST) rates for existing and proposed conditions for the Chula Vista Bayfront Project Harbor Park Schematic Design. The purpose of ESA's LST assessment is to:

1. Inform the Harbor Park Schematic Design and beach nourishment maintenance needs
2. Provide a technical study for the Port's CEQA team to use to assess potential impacts on existing eelgrass habitats resulting from the erosion and transport of sand from the site and deposition in and burial of off-site eelgrass areas.

ESA's assessment includes an analysis to estimate the potential net LST rate at the site. The analysis includes two-dimensional wave modeling and accepted methodologies and formulas to estimate the LST potential. The calculated rates are referred to as potential rates as an indication of the transport capacity of the waves (i.e., the transport rate if sediment supply is not a limiting factor). For the Chula Vista Bayfront Project, the actual LST rates are expected to be lower than the calculated potential transport rates because the supply of sediment is likely lower than the transport potential. This is because there is no natural sand source or sand supply from the north of the Harbor Park. Note that Merkel & Associates, Inc.'s (2019) memorandum re: Potential Impacts to Eelgrass from the Chula Vista Bayfront Harbor Park Project assesses potential impacts to eelgrass separate from, but in coordination with, ESA's memo.

Final

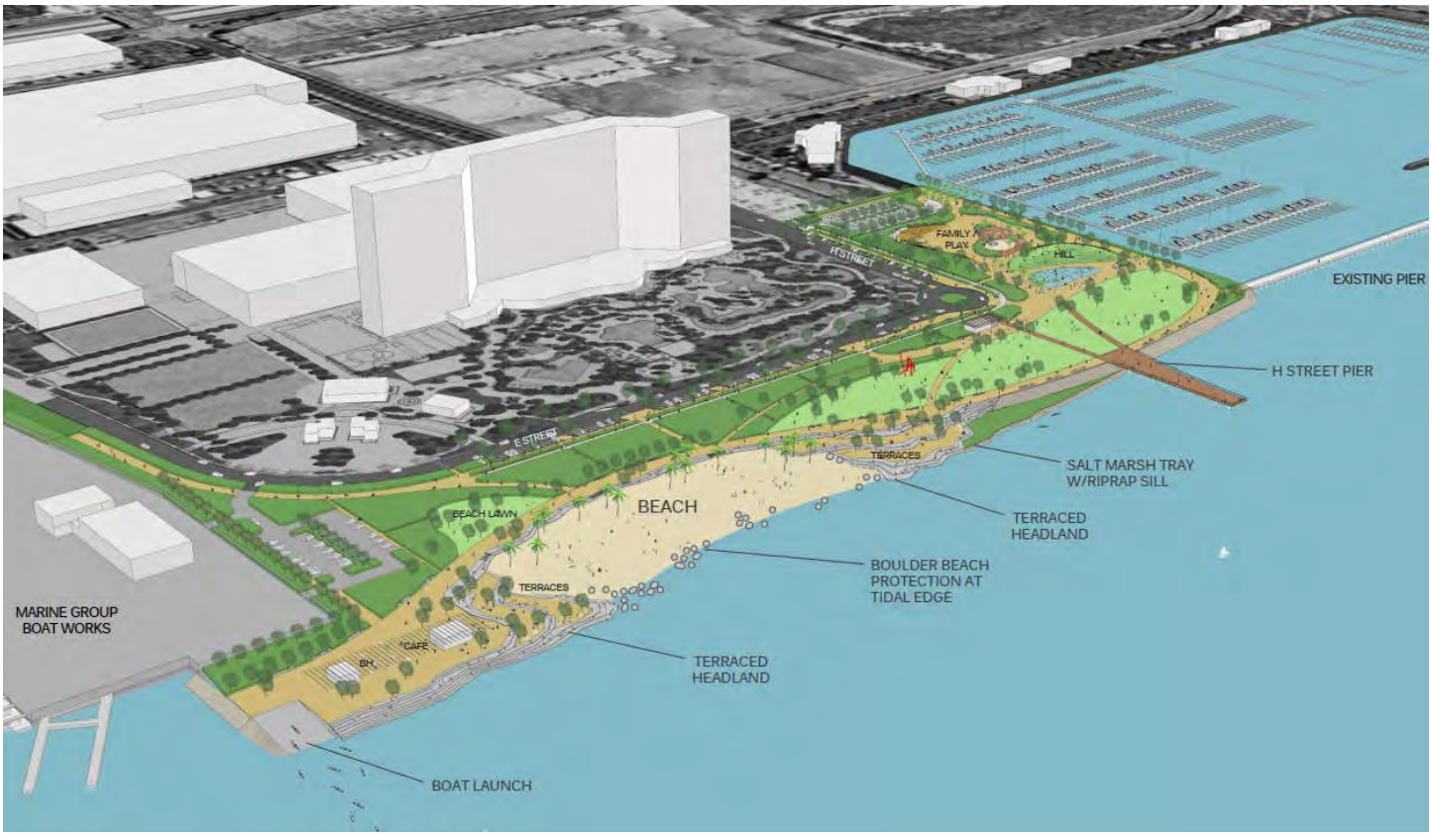
CHULA VISTA BAYFRONT HARBOR PARK

Sea-Level Rise Analysis

Prepared for
San Diego Unified Port District

February 2020

ESA



Attachment B

Final

CHULA VISTA BAYFRONT HARBOR PARK

Sea-Level Rise Analysis

Prepared for
San Diego Unified Port District

February 2020

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200
www.esassoc.com

ESA

Bend	Oakland	San Diego
Camarillo	Orlando	San Francisco
Delray Beach	Pasadena	Santa Monica
Destin	Petaluma	Sarasota
Irvine	Portland	Seattle
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D150733.03

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SECTION 1
Introduction

This report was developed as part of the Chula Vista Bayfront (CVB) Sweetwater and Harbor Parks Sea-Level Rise Analysis, completed by ESA for the San Diego Unified Port District. The CVB project is a proposed 535-acre resort, convention center, residential, and recreation development project on the San Diego Bay shoreline. The CVB project is being planned by the Port, City of Chula Vista, and the Pacifica Companies as a cooperative public/private effort (https://www.portofsandiego.org/chula-vista-bayfront-master-plan.html, http://www.cvbayfront.com/). As part of the CVB project, the Port is proposing improvement/development of two parks, the Sweetwater and Harbor Parks. This report provides an analysis of the potential for future flooding from San Diego Bay with sea-level rise for the proposed Harbor Park. This analysis includes an assessment of potential flood hazards/vulnerabilities and adaptation strategies to reduce the risk of bay flooding with sea-level rise.

Figure 1-1 shows the study area and the park areas proposed for improvement/development by the Port. This study estimates the bay flood level (total water level or TWL) along the CVB project's Harbor District for a variety of storm scenarios under present conditions and sea-level rise projections (Section 2) using available hydrologic and topographic data (Section 3). The TWL at the site is estimated by combining the San Diego Bay water levels near the site (still water level, SWL) with the wave runup, which is a function of the wave height, wave period, and the slope of the shore form (beach, marsh, embankment, etc.), as shown in Figure 1-2. SWL and TWL are expressed in terms of elevation, relative to a specific datum. For this report, all elevations are reported in the North American Vertical Datum of 1988 (NAVD).

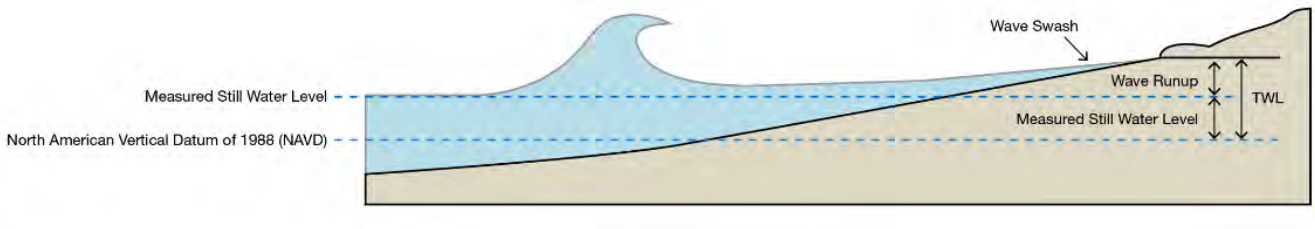
The coastal flood analysis conducted in this report consists of calculating the flood levels resulting from tides and waves for conditions expected to occur during the 100-year storm scenario (i.e., the storm scenario that, on average occur once every 100 years; also, the storm scenario that has a 1% chance of occurring in a given year). This analysis also considers the 10-year storm scenario (10% annual chance of occurrence) and the 1-year storm scenario (100% annual chance of occurrence).

Several steps are required to compute the coastal flood levels for these scenarios. First, high water levels (Section 4) and extreme large waves (Section 5) must be computed. Since observed data typically do not include a 100-year event, statistical methods must be employed. Once the wave and high water levels are determined, they are combined to determine the TWL (Section 6). This water level is then used to assess the vulnerability of the parks during the different scenarios (Section 7). Lastly, adaptation measures are identified to reduce the risk of flooding during these scenarios (Section 8).

SOURCE: California Coastal Conservancy TopoBathy 2009-2011, ESRI; ESA 2015; NOAA 2015

Chula Vista Bayfront Sea-Level Analysis

Figure 1-1
Site Map



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: FEMA 2005

Figure 1-2
Total Water Level (TWL) Diagram

SECTION 2
Sea-Level Rise Projections and Analysis Scenarios

2.1 Sea-Level Rise Projections

2.1.1 Background and Guidance Documents

Projections of global sea-level rise are well-documented and investigated, with recent research projecting sea-level rise on the order of 2 to 10 feet by 2100 in California (e.g., Cayan et al. 2008; Griggs et al. 2017). This research has been used to develop a series of policy guidance documents by the State of California that recommend including a specific amount of sea-level rise in project planning and design, the most recent being the California Ocean Protection Council's (OPC) *State of California Sea-Level Rise Guidance* (OPC 2018). The OPC (2018) Guidance includes tables of projected relative sea-level rise at well-established tide gages located along the coast of California through 2150 for a range of risk aversion scenarios, including low, medium-high, and extreme (e.g., H++). Table 2-1 shows the projections for San Diego Bay. These projections were developed and summarized with the intention that local planning and design efforts would have a consistent and accepted basis for addressing future sea-level rise.

The California Coastal Commission (CCC) recently updated its *Sea-Level Rise Policy Guidance* in 2018 (CCC 2018). The CCC (2018) Guidance provides a basis for selecting the time horizon and the risk level of the project, which are used to define the appropriate sea-level rise amounts. The CCC (2018) Guidance recommends that project planning and design consider a range of scenarios in order to bracket the possible timing of a given amount of sea-level rise.

TABLE 2-1
PROJECTED SEA-LEVEL RISE (IN FEET) FOR SAN DIEGO

		Probabilistic Projections (in feet) (based on Kopp et al. 2014)					H++ scenario (Sweet et al. 2017) *Single scenario
		MEDIAN	LIKELY RANGE		1-IN-20 CHANCE	1-IN-200 CHANCE	
		50% probability sea-level rise meets or exceeds...	66% probability sea-level rise is between...		5% probability sea-level rise meets or exceeds...	0.5% probability sea-level rise meets or exceeds...	
				Low Risk Aversion		Medium - High Risk Aversion	Extreme Risk Aversion
High emissions	2030		0.4 -	0.6	0.7	0.9	1.1
	2040	0.7	0.5 -	0.9	1.0	1.3	1.8
	2050	0.9	0.7 -	1.2	1.4	2.0	2.8
Low emissions	2060	1.0	0.7 -	1.3	1.7	2.5	
High emissions	2060	1.2	0.9 -	1.6	1.9	2.7	3.9
Low emissions	2070	1.2	0.9 -	1.6	2.0	3.1	
High emissions	2070	1.5	1.1 -	2.0	2.5	3.6	5.2
Low emissions	2080	1.4	1.0 -	1.9	2.4	3.9	
High emissions	2080	1.9	1.3 -	2.5	3.1	4.6	6.7
Low emissions	2090	1.6	1.0 -	2.2	2.9	4.8	
High emissions	2090	2.2	1.6 -	3.0	3.7	5.7	8.3
Low emissions	2100	1.7	1.1 -	2.5	3.3	5.8	
High emissions	2100	2.6	1.8 -	3.6	4.5	7.0	10.2
Low emissions	2110*	1.9	1.3 -	2.7	3.5	6.4	
High emissions	2110*	2.8	2.0 -	3.7	4.7	7.5	12.0
Low emissions	2120	2.0	1.3 -	3.0	4.1	7.6	
High emissions	2120	3.1	2.3 -	4.3	5.5	8.8	14.3
Low emissions	2130	2.2	1.4 -	3.3	4.6	8.6	
High emissions	2130	3.5	2.6 -	4.9	6.3	10.2	16.6
Low emissions	2140	2.4	1.5 -	3.6	5.1	9.8	
High emissions	2140	3.9	2.8 -	5.4	7.1	11.7	19.2
Low emissions	2150	2.5	1.5 -	3.9	5.7	11.1	
High emissions	2150	4.3	3.0 -	6.1	7.9	13.3	22.0

Source: OPC 2018

The OPC Guidance identifies three levels of risk to consider when planning for sea-level rise (blue boxes in Table 2-1):

- The low-risk aversion scenario is appropriate for adaptive, lower consequence decisions (e.g., unpaved coastal trail), but is not adequate to address high impact, low probability events.
- The medium-high risk aversion scenario is appropriate as a precautionary projection that can be used for less adaptive, more vulnerable projects or populations that will experience medium to high consequences as a result of underestimating sea-level rise (e.g., coastal housing development).

- The extreme risk aversion scenario is appropriate for high consequence projects with little to no adaptive capacity and which could have considerable public health, public safety, or environmental impacts (e.g., coastal power plant, wastewater treatment plant, etc.).

2.1.2 Port of San Diego Sea-Level Rise Projections

The Port recently completed a sea-level rise vulnerability assessment[1] pursuant to Assembly Bill 691. During the development of the Port's AB 691 Report, the OPC Guidance was in draft form and the recommended risk levels (blue boxes in Table 2-1) were not identified. With technical feedback from a Sea Level Rise Ad Hoc Committee comprised of important Port stakeholders, the Port chose to use three sea-level rise projections for years 2030, 2050, and 2100 consistent with the 5% probability identified in the OPC Guidance. Due to the uncertainty of long range projections of sea-level rise, the Port also chose a fourth scenario for 2100, consistent with the 50% probability identified in the OPC Guidance. Table 2-2 presents the scenarios developed for the vulnerability assessment.

TABLE 2-2
PORT OF SAN DIEGO'S SEA-LEVEL RISE PROJECTIONS (IN FEET)

	2030	2050	2100
"Low" projection	n/a	n/a	2.6
"High" projection	0.7	1.4	4.5

2.1.3 CVB Project Sea-Level Rise Scenarios

To assess the potential flood impacts and to inform the park design for CVB project, four sea-level rise amounts were selected to bracket the range of potential projections: 0.7, 1.4, 2.6, and 4.5 feet. These amounts take into consideration both the Port-recommended scenarios and State recommendations. A projection of 7.0 feet by 2100 (medium-high risk aversion scenario) was considered and not included, since the Port considers Harbor Park a low-risk asset, with medium adaptability, per the OPC guidance. Table 2-3 shows the model scenarios and the corresponding time frames under the medium-high to low-risk aversion projection.

TABLE 2-3
CHULA VISTA BAYFRONT SEA-LEVEL RISE PROJECTIONS (IN FEET)

	2025 – 2030	2040 – 2055	2060 – 2080	2080 – 2120
Amounts of sea-level rise	0.7	1.4	2.6	4.5

The first year in the range represents the medium-high risk aversion scenario, while the second year in the range represents the low risk aversion scenario.

[1] https://pantheonstorage.blob.core.windows.net/environment/FINAL-San-Diego-Unified-Port-District-Sea-Level-Rise-Vulnerability-and-Coastal-Resiliency-Report-AB691.pdf

2.2 Flood Scenarios with Sea-Level Rise

The following flood scenarios with sea-level rise were used in this analysis for Harbor Park:

1. 100-year bay flood level (TWL) with the 2080 – 2120 projection of 4.5 ft of sea-level rise.
2. 100-year bay flood level with the 2060 – 2080 projection of 2.6 ft of sea-level rise.
3. 100-year bay flood level with the 2040 – 2055 projection of 1.4 ft of sea-level rise.
4. 100-year bay flood level with the 2025 – 2030 projection of 0.7 ft of sea-level rise.
5. 10-year bay flood level with the 2080 – 2120 projection of 4.5 ft of sea-level rise. This and the following scenarios were used to assess park vulnerability to more frequently-occurring flooding given that some accommodation for flooding by the 100-year bay flood level with sea-level rise may be acceptable.
6. 10-year bay flood level with the 2060 – 2080 projection of 2.6 ft of sea-level rise.
7. 10-year bay flood level with the 2040 – 2055 projection of 1.4 ft of sea-level rise.
8. 10-year bay flood level with the 2025 – 2030 projection of 0.7 ft of sea-level rise.
9. 1-year bay flood level with the 2080 – 2120 projection of 4.5 ft of sea-level rise.
10. 1-year bay flood level with the 2060 – 2080 projection of 2.6 ft of sea-level rise.
11. 1-year bay flood level with the 2040 – 2055 projection of 1.4 ft of sea-level rise.
12. 1-year bay flood level with the 2025 – 2030 projection of 0.7 ft of sea-level rise.

These scenarios are analyzed and assessed in the following sections.

2.3 Silver Strand Flooding and Erosion Assessment

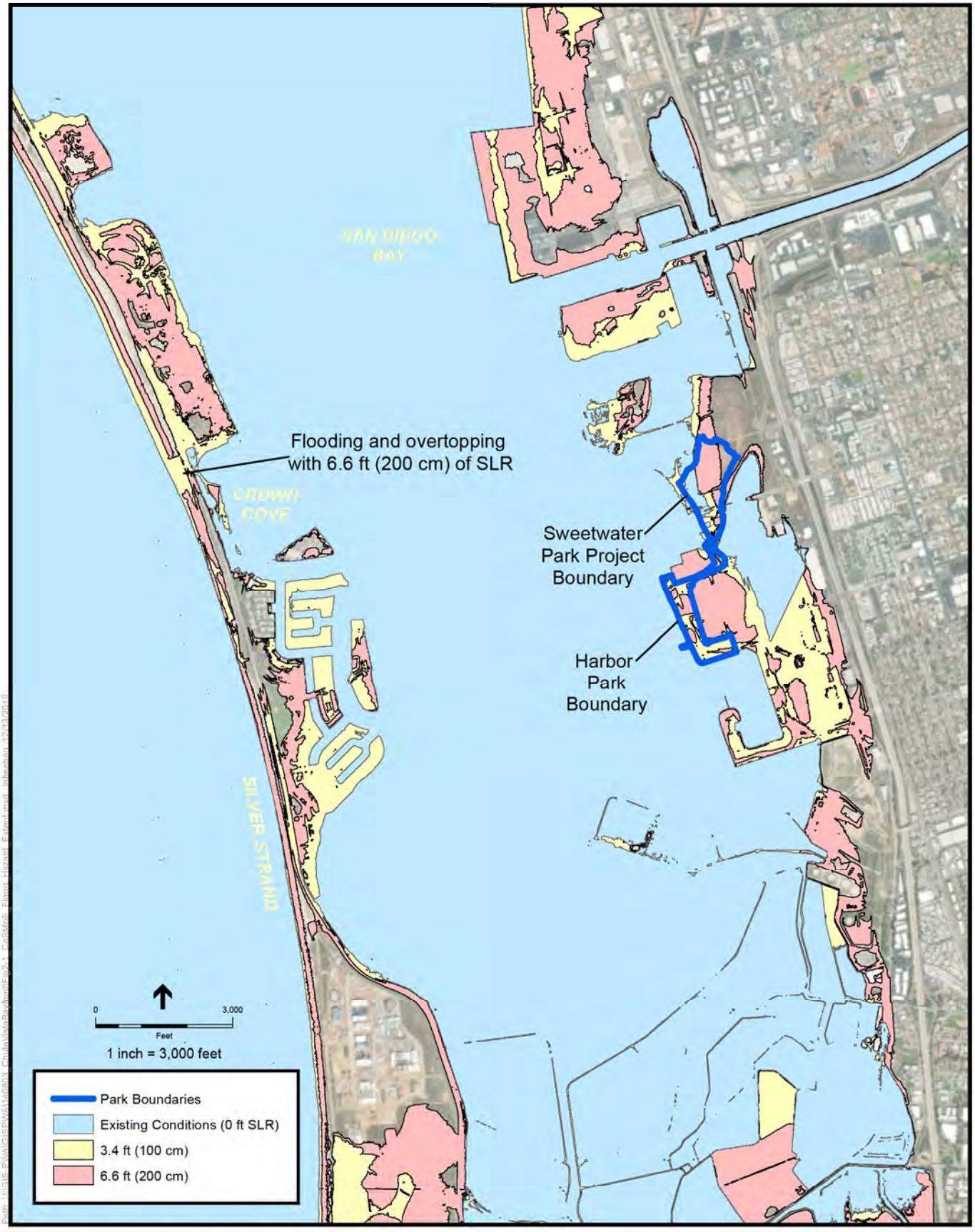
The USGS CoSMoS 3.0 Phase 2 results for San Diego County released in November 2016 are the final CoSMoS results for San Diego County (P. Barnard, USGS, pers. comm., January 2017). The CoSMoS results provide projected shoreline erosion and flooding with sea-level rise for the Southern California region. Figure 2-1 shows the CoSMoS 100-year storm flood hazard extent results for the Silver Strand. These results show that with 100 cm of sea-level rise (3.4 ft, which is expected to occur between 2060 and 2080 under the medium-high risk scenario), the Silver Strand is not completely flooded or overtopped in the 100-year storm. With 200 cm of sea-level rise (6.6 ft, which is comparable to the medium-high risk aversion scenario of 7.0 ft of sea-level rise by 2100), the Silver Strand is flooded and overtopped by the 100-year storm near the northern end of Crown Cove. Figure 2-2 shows the flood depth from CoSMoS for the 100-year storm with 200 cm of sea-level rise, which shows the flood depth over the Silver Strand at Crown Cove is about 2 to 4 ft or less. Figure 2-3 shows the CoSMoS wave height results for the 100-year storm with 200 cm (6.6 ft) of sea-level rise. The wave height results show that large ocean waves are dissipated by the Silver Strand and do not propagate into or across San Diego Bay. The CoSMoS results show wave heights of 3 to 4 ft in San Diego Bay and at the CVB. These CoSMoS results indicate that with 200 cm (6.6 ft) of sea-level rise, the Silver Strand protects the CVB from wind waves during the 100-year storm. Note that these CoSMoS results for the 100-

year storm flood hazard extent, flood depth, and wave heights are modeled for the existing shoreline condition and do not account for projected erosion of the shoreline with sea-level rise.

Projected shoreline erosion with sea-level rise is modeled by CoSMoS separately from the flood hazard modeling described above. Figure 2-4 shows the CoSMoS shoreline erosion projections for the "no hold the line and no continued beach nourishment" model scenario, which is the "worst case" erosion scenario in which erosion is allowed to continue past existing development and no sand is placed to nourish the beach. Figure 2-4 shows the projected shoreline position in 2100 with 1 m (3.3 ft), 2 m (6.6 ft), and 5 m (16.4 ft) of sea-level rise. The results show that with 2 m (6.6 ft) of sea-level rise in 2100, the beach shoreline does not erode past Highway 75 or through the Silver Strand. With 5 m (16.4 ft) of sea-level rise in 2100, which is beyond the extreme risk aversion scenario, the shoreline could potentially erode through the Silver Strand at Crown Cove and south of Coronado Cays. Note that CoSMoS does not include modeling of flood hazards with the projected shoreline erosion. The CoSMoS 100-year storm flood hazard results discussed in the paragraph above and shown in Figures 2-1 through 2-3 are based on the existing shoreline condition and would be more severe with the projected shoreline erosion.

CoSMoS is a regional model for Southern California and was not specifically developed to assess erosion of the Silver Strand; however, the results represent the latest and final information available from the USGS and are intended for use in assessing and planning for sea-level rise hazards in Southern California. As discussed above, projected erosion of the Silver Strand shoreline erosion is expected to increase flood hazards with sea-level rise; however, CoSMoS does not address the increase in flood hazards with projected shoreline erosion. Given that CoSMoS results show that the shoreline is not expected to erode past Highway 75 in 2100 with 2 m (6.6 ft) of sea-level rise in the worst case scenario of "no hold the line and no beach nourishment," existing high ground along Highway 75 would likely remain and dissipate ocean wave energy during storms similar to how the existing shoreline dissipates waves (per CoSMoS results shown above).

In summary, the CoSMoS results indicate that the Silver Strand is not expected to erode or breach by 2100 for the current medium-high risk aversion scenario of 2 m (6.6 ft) of sea-level rise. The CoSMoS results also indicate that the existing Silver Strand shoreline protects the CVB from ocean waves with high-range sea-level rise projections. This analysis therefore assumes that the Silver Strand will protect the CVB from ocean waves through 2100 as suggested by the CoSMoS results and/or that the Silver Strand will be maintained by others through 2100 with beach nourishment, armoring, and/or other adaptation measures to address potential future erosion with sea-level rise and limit wave propagation over the Strand.

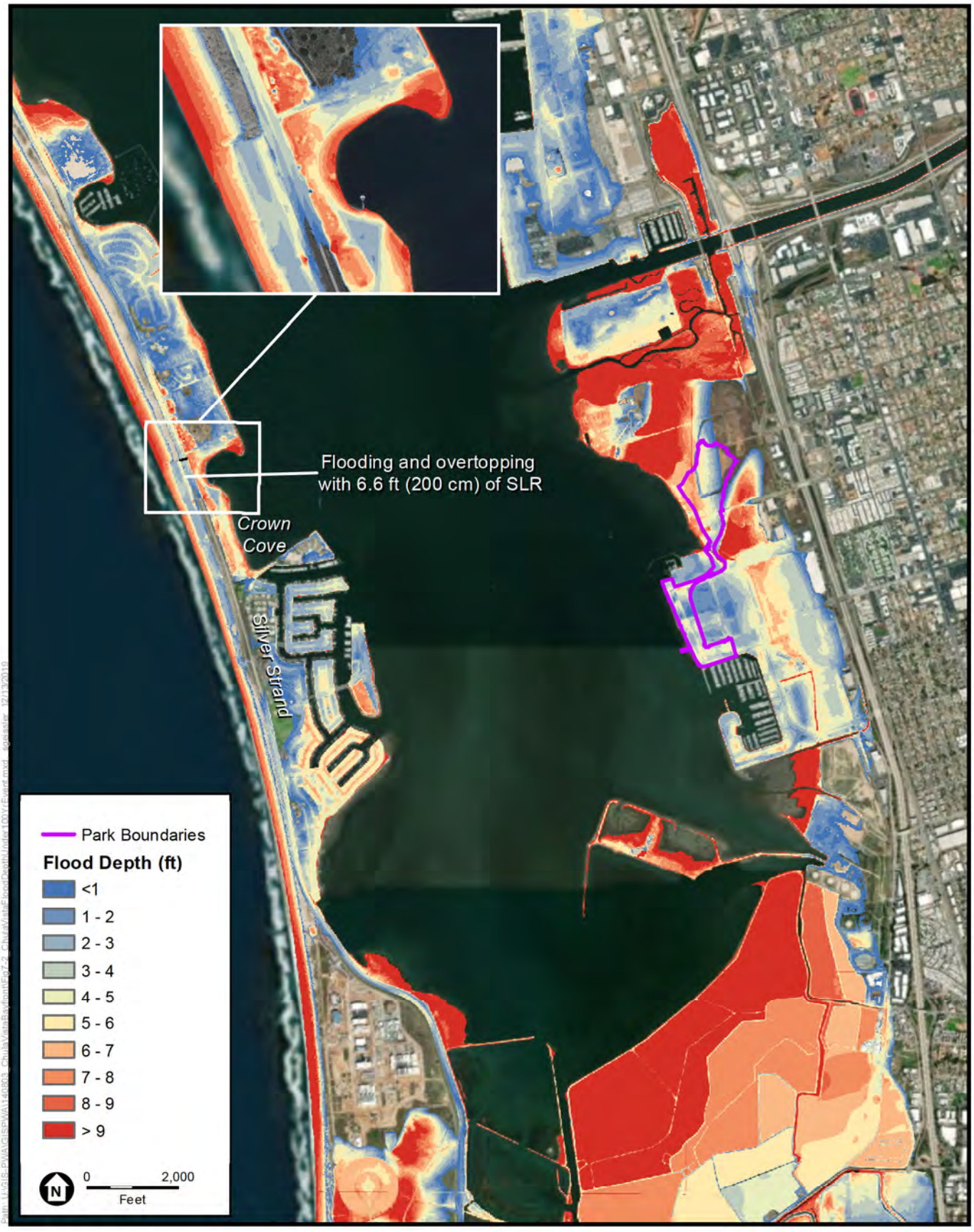


SOURCE: USGS CoSMoS v3.0 Phase 2 - San Diego County

Chula Vista Bayfront SLR

Figure 2-1
CoSMoS Flood Hazard Extent
100-year Flood

ESA

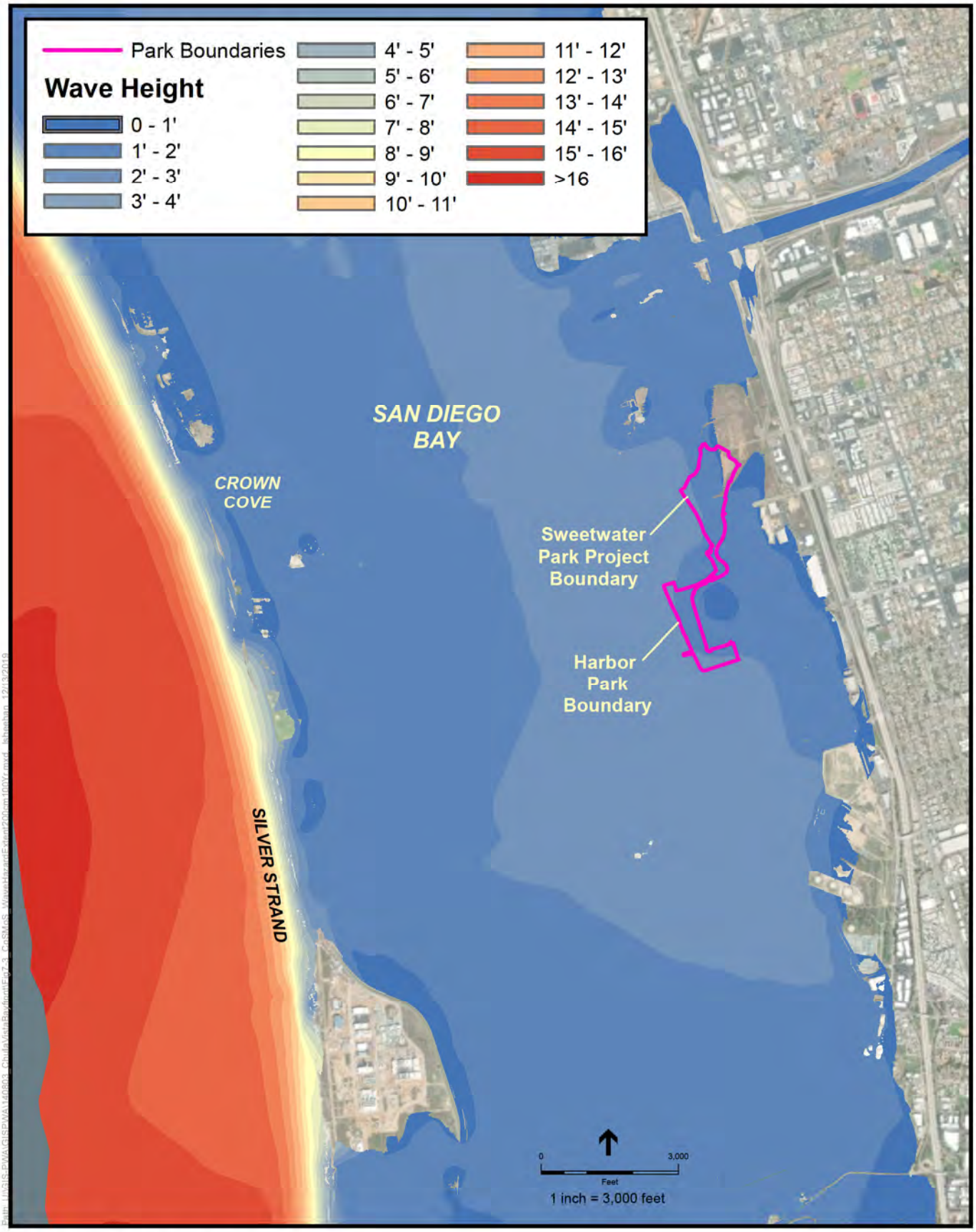


SOURCE: USGS 2016

Chula Vista Bayfront SLR

Figure 2-2
CoSMoS Flood Depth
6.6 ft (200 cm) of SLR and 100-year Flood

ESA



SOURCE: USGS CoSMoS v3.0 Phase 2 - San Diego County

Chula Vista Bayfron SLR

Figure 2-3

CoSMoS Wave Hazard Extent

6.6 ft (200cm) of SLR and 100-year Flood

ESA

SOURCE: USGS CoSMoS 3.0 Phase 2 - San Diego County

Chula Vista Bayfront Sea Level Rise . 150388.00

Figure 2-4

CoSMoS Shoreline Erosion Projections with SLR in 2100 No Hold the Line / No Nourishment Scenario

ESA

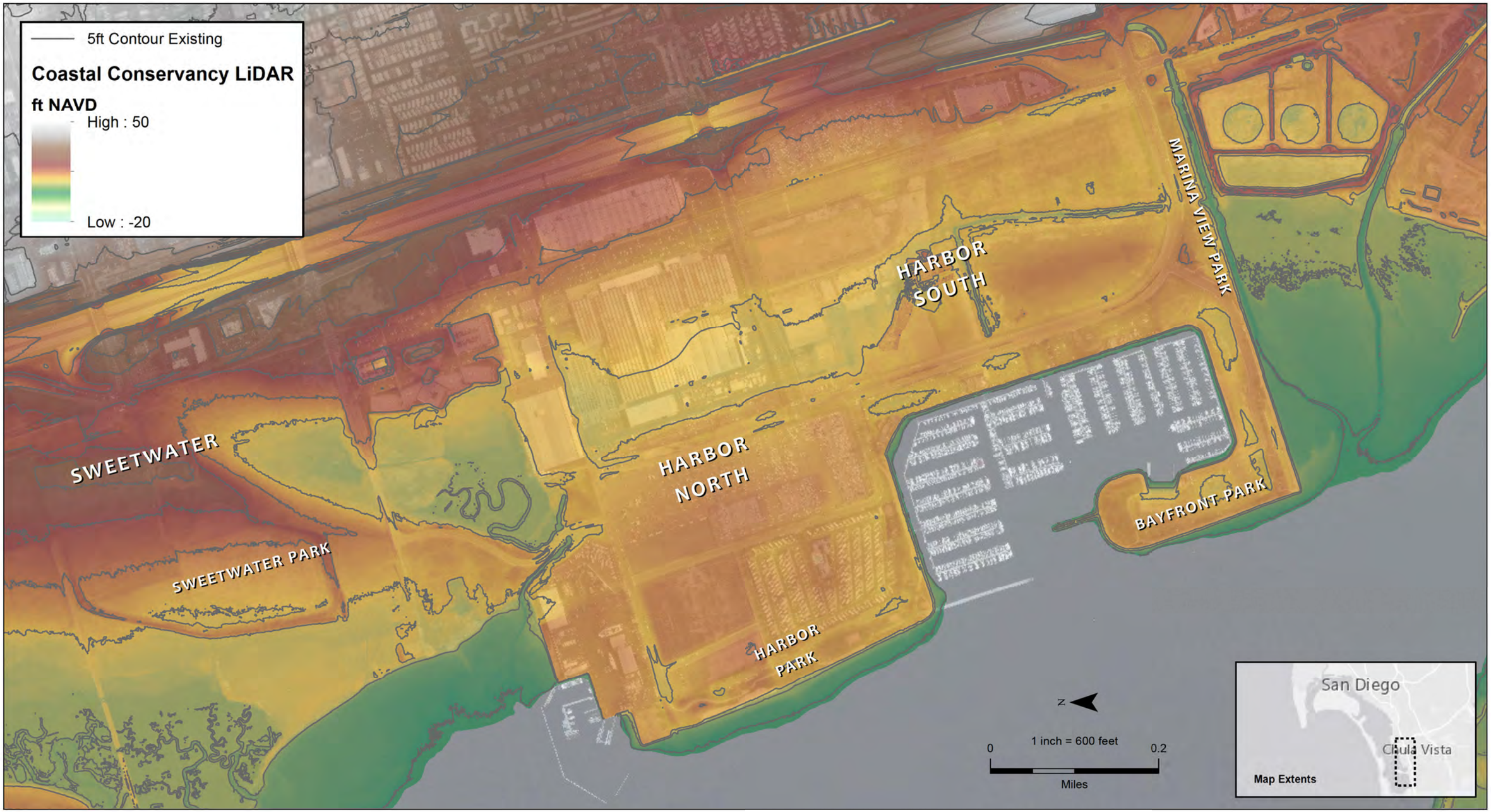
SECTION 3
Data Gathering

Topographic, wind, and water level data were gathered as part of this study and were used as inputs for wind wave and wave runup modeling. Details on the datasets used are described in this section. Where possible, long-term data sets were used because they allow more accurate statistical representations of extreme events.

3.1 Existing and Proposed Topography

The topography used in this analysis was composed of multiple topographic and bathymetric data sources. Existing topography was taken from the 2009-2011 California Coastal Conservancy LiDAR data (Figure 3-1). This regional LiDAR data set provides coverage of the entire CVB project and was used as the base for creating the composite topography. The LiDAR has a resolution of about 3.3 feet, and does not extend offshore below about the -1 foot NAVD contour. Bathymetric data from NOAA National Geophysical Data Center was added in areas lower than the LiDAR extent. The approximately 30-foot resolution bathymetry surface was published in 2012. The upland LiDAR data was supplemented with two topographic surveys made available from Rick Engineering. These surveys were performed for the CVB project design and provide more detailed and up to date topography than the LiDAR data. These surveys cover the Otay and Harbor District areas. Conceptual grading plan surfaces for Harbor Park were also available and used in this analysis. The extents of the topographic and bathymetric data used for this analysis are shown in Figure 3-2.

Six 1-dimensional (1D) profiles were taken through the proposed design for Harbor Park. These profiles were used to evaluate wave runup. The locations of these profiles are shown in Figure 3-3. A revetment height of 13.5 to 14.0 ft NAVD is being considered as part of the design of Harbor Park.



SOURCE: California Coastal ConservancyTopoBathy 2009-2011, ESRI; ESA 2015; NOAA 2015
Document Path: U:\GIS-PWA\GISPWA\140803_ChulaVistaBayfront\Fig3-1_Existing Topography.mxd

Chula Vista Bayfront Sea-Level Analysis . 150388.00

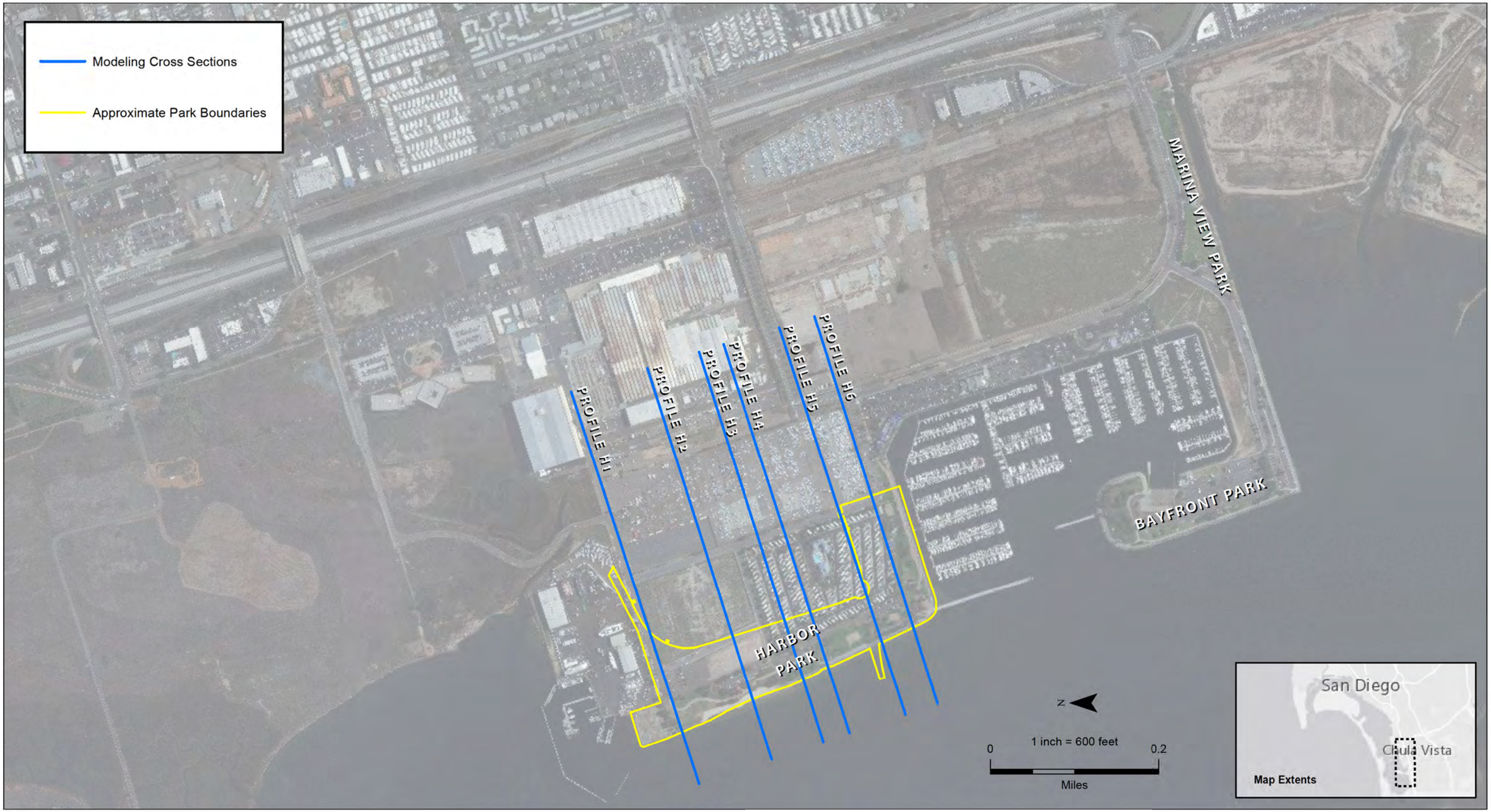
Figure 3-1
Existing Topography

SOURCE: California Coastal ConservancyTopoBathy 2009-2011, ESRI; ESA 2015; NOAA 2015
Document Path: U:\GIS-PWA\GISPWA\140803_ChulaVistaBayfront\Fig3-2_TopographyBathymetryDataSources.mxd

Chula Vista Bayfront Sea-Level Analysis . 150388.00

Figure 3-2

Topography/Bathymetry Data Sources



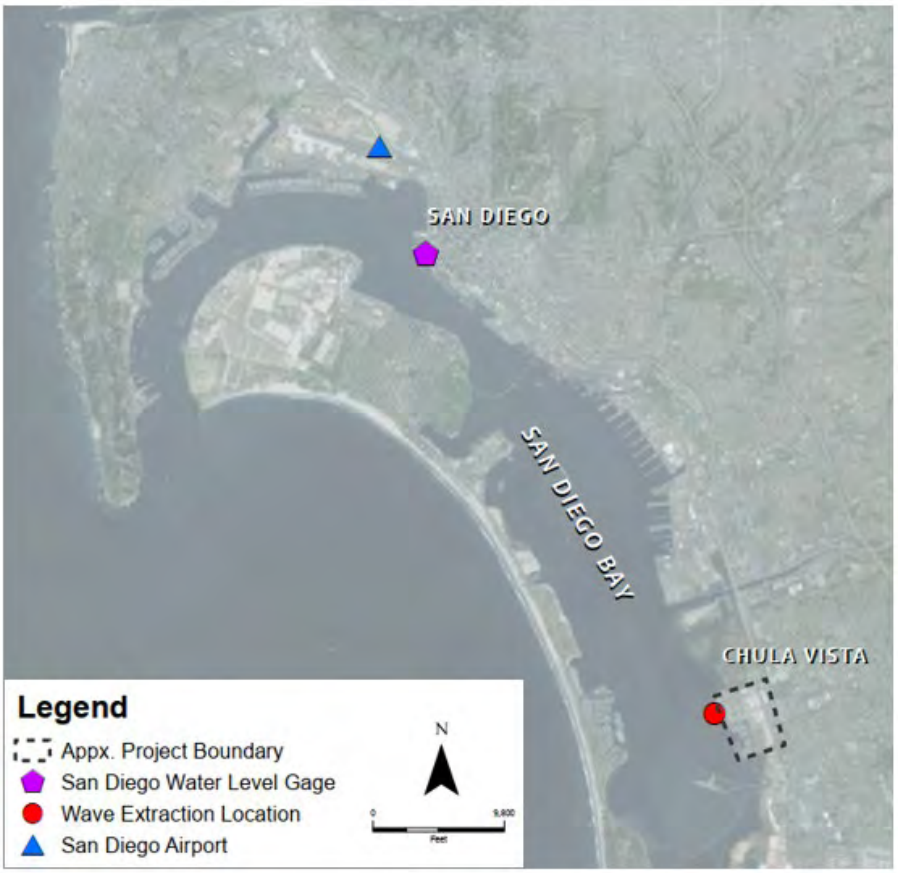
SOURCE: California Coastal ConservancyTopoBathy 2009-2011, ESRI; ESA 2015; NOAA 2015
Document Path: U:\GIS-PWA\GISPWA\140803_ChulaVistaBayfront\Fig3-3 ModelingCrossSection.mxd

Chula Vista Bayfront Sea-Level Analysis . 150388.00

Figure 3-3
Modeling Cross-Sections

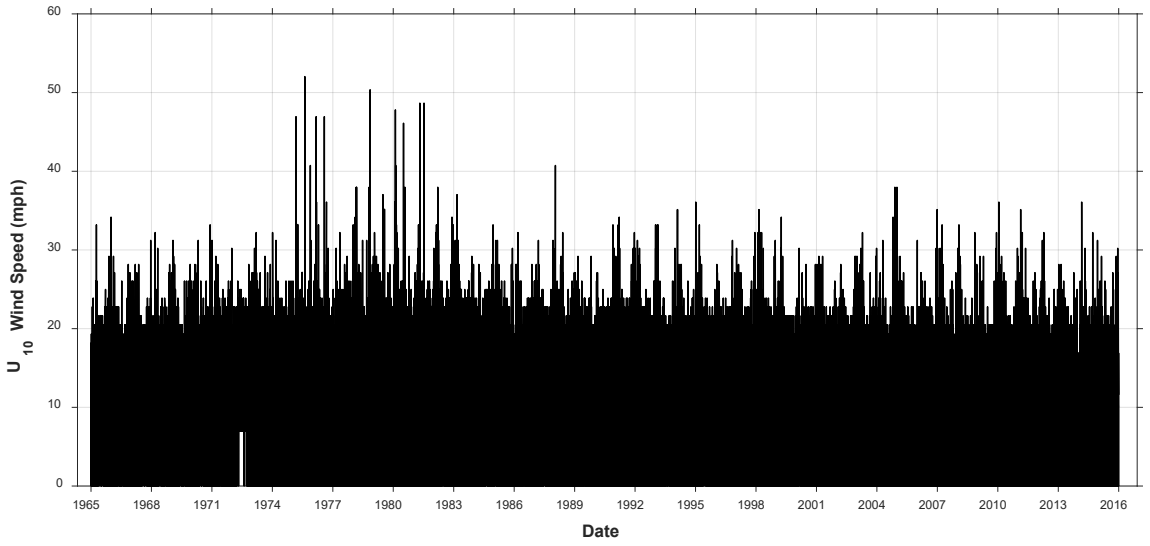
3.2 Wind Data

The wind station with the longest data record near the site is located at the San Diego Lindberg International Airport, approximately 9 miles northwest of the Harbor District (Figure 3-4). Wind data was downloaded from the Lindberg station from 1965 through 2015. The raw data was evaluated and questionable values were removed. Data was adjusted to a standardized height of 33 feet (~10 m) and to a duration of 2 min and corrected from wind over land to wind over water according to Resio and Vincent (1977) and USACE (2006). Figure 3-5 shows the corrected wind time series.



Chula Vista Sea-Level Rise Analysis / D150388.01

Figure 3-4
Data Locations



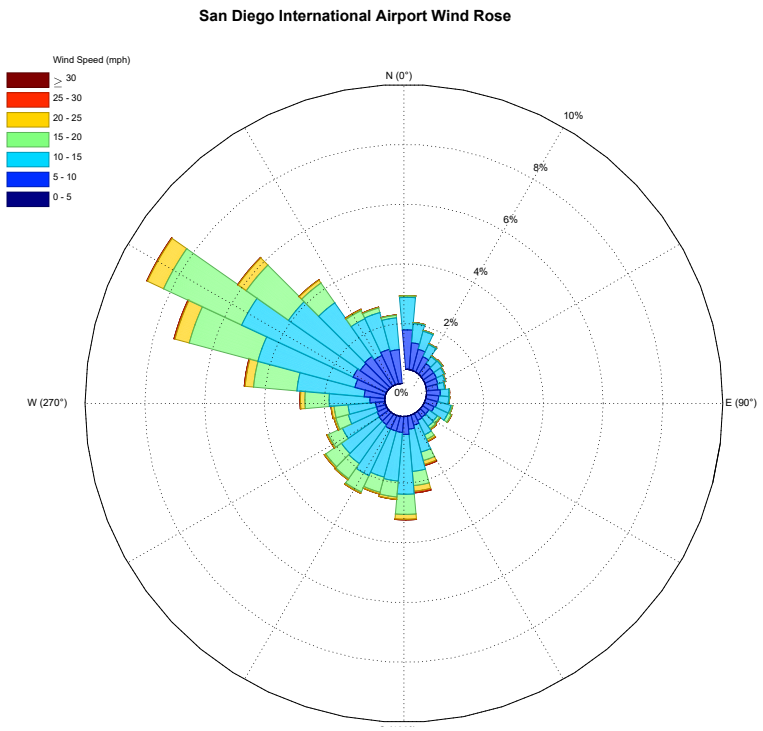
Chula Vista Sea-Level Rise Analysis / D150388.01

SOURCE: NOAA 2016
NOTES: 10-meter, 2-minute adjusted wind speeds

Figure 3-5
Wind Time Series Data from San Diego International Airport, 1965-2016

A summary of recorded high winds at San Diego Bay since the 1870s to 1980s is shown in Table 3-1 (City of Newport Beach 2014). The wind data from the San Diego Airport Station (Figure 3-4) shows wind extreme events to be on the same order of magnitude as the recorded events shown in Table 3-1. Several extreme events happened between the mid-1970s and early 1980s with a maximum observed speed of approximately 52 mph. Table 3-1 shows maximum reported wind speeds up to 57 mph. Typically, annual maximum sustained wind speeds exceed 30 mph.

Figure 3-6 shows the wind directional distribution recorded at the San Diego Airport. The figure shows that winds from the northwest are the most common and can be fairly strong, however strong winds (> 25 mph) are also observed from the south and southwest. Winds are considerably smaller and less frequent from the 330 to 150 degrees. Based on the existing data and reported historic wind observations, the wind was categorized into wind speed and direction classes for input into the numerical wind-wave model to represent the range of likely wind speeds and directions at San Diego Bay.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: San Diego International Airport Weather Station

Figure 3-6
Wind Rose San Diego International Airport

TABLE 3-1
HISTORIC EXTREME WIND CONDITIONS

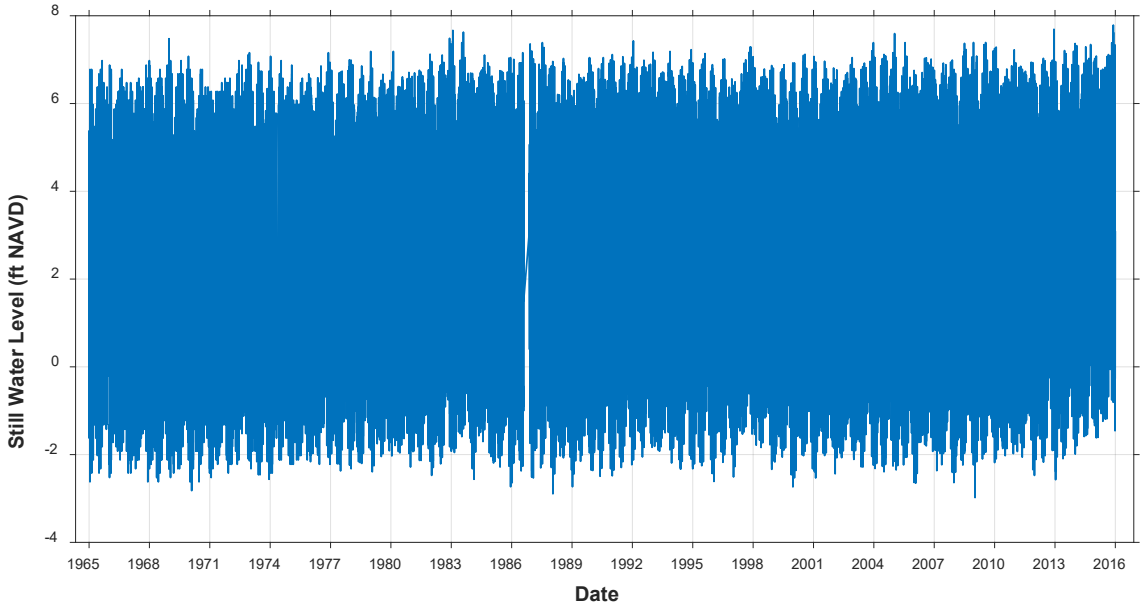
August 11-12, 1873	Tropical storm with strong winds hits San Diego, damaging roofs and felling trees.
January 27, 1916	Strong winds measured in San Diego, with peak winds at 54 mph; maximum gust to 62 mph, and average wind speeds for the day of 26.2 mph.
January 10, 1918	Strong offshore winds; skies full of dust, with visibility limited to 300 yards. At noon, visibility was only a few miles. Peak wind of 31 mph reported in San Diego at 6:38 am
May 23, 1932	Strong winds and low humidity; 12 serious brush fires, blackening nearly 2,000 acres in San Diego Count. The biggest fire was in Spring Valley.
April 13, 1956	Strong storm-related winds hit Chula Vista causing roof damage to 60 homes and one school. Trees uprooted, TV antennas toppled and windows shattered. Flying glass injures 2. Fish sucked out of San Diego Bay and deposited on the ground. Possible tornado.
February 10-11, 1973	Strong storm-related winds clocked at 57 mph in Riverside, 46 mph in Newport Beach. More than 200 trees uprooted in the community of Pacific Beach in San Diego County alone.
September 10, 1976	Hurricane Kathleen brought to the SW the highest sustained winds associated with an eastern Pacific tropical cyclone; sustained winds of 57 mph at Yuma, Arizona.
November 30 – December 1, 1982	Widespread strong winds associated with a big storm result in 1.6 million homes without power.
March 1, 1985	Strong storm winds struck San Diego County toppling trees and antennas, and causing numerous power outages.
February 23-24, 1987	Storm winds to 50 mph in Mt. Laguna; gusts to 34 mph in San Diego
March 15, 1987	Widespread strong storm winds; winds of 25-35 mph sustained all day, gusts to 40 mph in San Diego. Result in power outages all over the San Diego metropolitan area; motor homes toppled in the desert; light standard fell over onto cars in Coronado; boats flipped over in harbors; a 22-foot boat turned over at Mission Beach jetty; Catalina cruise ships delayed, stranding 1,200 tourists there.
November 18, 1987	Strong Pacific storm brought gale-force winds along the coast with winds exceeding 40 mph; downed trees and caused power outages.
December 12-13, 1987	Strong Santa Ana winds in San Bernardino, with 60-80 mph gusts there. 38- mph winds recorded in San Diego. 80 power poles blown down within ½- mile stretch in Fontana and Rancho Cucamonga; downed tree limbs damaged cars, homes and gardens; 1 injured when tree fell on truck; power poles and freeway signs damaged; parked helicopter blown down a hillside in Altadena; trees downed and power outages in San Diego County. In Spring Valley, 1 dead when eucalyptus tree fell on truck.
January 17, 1988	Major Pacific storm produced 64-mph gusts in San Diego, with the highest wind on record at Lindbergh Field. Trees uprooted in San Diego; boats damaged in San Diego harbor; apartment windows ripped out in Imperial Beach, where damage was estimated at $1 million. San Diego Zoo closed for first time in 72 years due to damage; kelp beds damaged
January 21-22, 1988	Strong offshore winds following major Pacific storm with gusts to 80 mph at the Grapevine, 60 mph in Ontario, and 80 mph in San Diego County. Power poles, road signs and big rigs knocked down in the Inland Empire. In San Diego County, 6 injured; roofs blown off houses, trees toppled, and crops destroyed. 20 buildings damaged or destroyed at Viejas; avocado and flower crops destroyed at Fallbrook and Encinitas, respectively, with 5 greenhouses damaged in Encinitas.
May 29, 1988	Gale-force winds hit coastline; gusts to 60 mph in the mountains; 45 mph at LAX; 40 mph in San Diego. Power outages; brush fires started; hang glider crashed and killed.

SOURCE: City of Newport Beach 2014.

3.4 Water Level Data

Water level records (SWL) for the project site were obtained from the San Diego Tide Station (NOAA NOS# 9410170) from 1965 to 2015 (Figure 3-7). While the gage has been collecting data from 1906 to present, the data analyzed was limited to the years for which wind data was available. Elevations were downloaded in NAVD. Tidal datums from this gage are shown in Table 3-2. The greater diurnal tide range at the gage is approximately 5.72 ft.

The USGS collected tide data within the Sweetwater Marsh from September 23, 2011 to October 6, 2014 (~3 years) at two gages (Takekawa et al 2013). The gages were surveyed into NAVD with RTK GPS at the time of deployment and water levels were corrected for local barometric pressure from a barometric logger. The gages were located within marsh channels and dried out at low tides. ESA calculated tidal datums from the USGS data, which are shown in Table 3-2. Since low water was not captured by the gages, the low tide datums are not included. Additionally, during data downloading, the gages were removed and then re-installed, and it is likely that the location of the gages shifted slightly.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: NOAA 2016

Figure 3-7
Still Water Level Time Series

TABLE 3-2
OBSERVED WATER LEVELS IN SAN DIEGO BAY

Tidal Datum		San Diego (NOAA, Station 9410170)	Sweetwater Marsh (USGS)
Highest Observed (11/25/2015)		7.79	
Highest Observed (12/13/2012)		7.74 (8:12 am)	7.8 (9:24 am)
Highest Astronomical Tide	HAT	7.3	
Mean Higher High Water	MHHW	5.29	5.1
Mean High Water	MHW	4.56	4.5
Mean Tide Level	MTL	2.53	
Mean Sea Level	MSL	2.51	
Diurnal Tide Level	DTL	2.43	
Mean Low Water	MLW	0.51	
North American Vertical Datum	NAVD	0	
Mean Lower Low Water	MLLW	-0.43	
Lowest Astronomical Tide	LAT	-2.54	
Lowest Observed		-3.52	

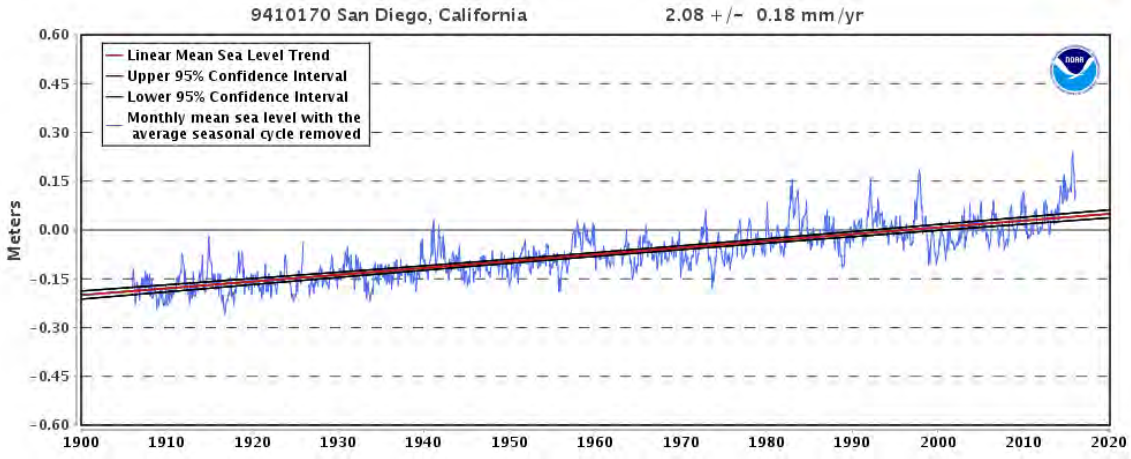
The longer-term NOAA data is expected to provide more accurate tidal datums. Note that the highest observed water level at the NOAA gage on 11/25/2015 occurred after the water level was downloaded for this study. The previous highest observed water level on 12/13/2012 was recorded at both the NOAA gage and the USGS Sweetwater Marsh gage. The higher water level at the USGS Sweetwater Marsh gage of 7.8 ft NAVD may account for some tidal amplification between the NOAA San Diego gage and the Chula Vista Bayfront.

SECTION 4
Still Water Level Analysis

The SWL record from the NOAA San Diego tide gage described in Section 3 was analyzed using a time series approach and an extreme value approach to determine future typical and extreme water levels. The methods and results of this analysis are described below.

4.1 SWL Time Series

Linear, mean sea level trends at the San Diego tide gage have been calculated by NOAA between 1906 and 2015. The trend shows an increase in sea level of approximately 2.08 ± 0.18 mm/year. The available tidal data was used to develop a tide time series that was corrected (normalized) for historic sea-level rise. To normalize for present day flood risk, the trend in historic water level data was removed according to this absolute sea-level rise rate (Figure 4-1). Water levels in the past were increased by the historic sea-level rise rate multiplied by the number of years before the present. By raising the historic elevations, de-trending accounts for the consequence of historic conditions occurring at present day mean sea level conditions.



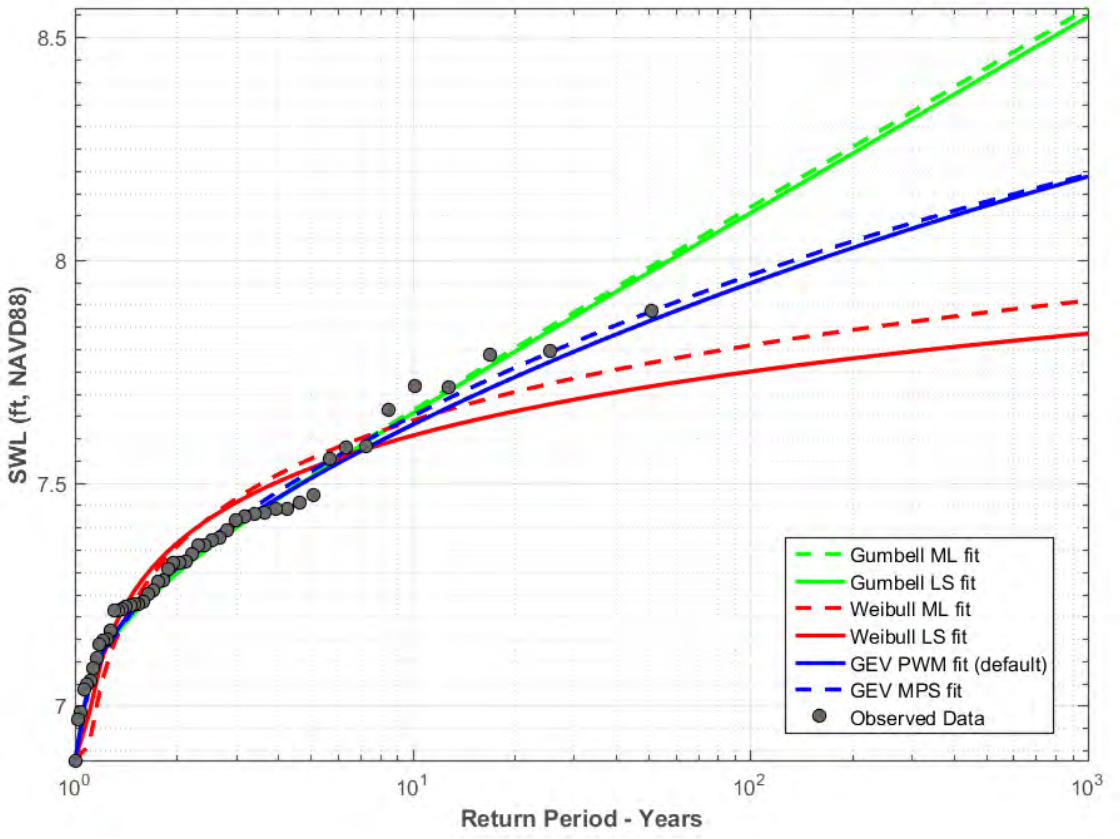
Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: NOAA 2015

Figure 4-1
Monthly Mean Sea Level (Tidal Datum) Trend from 1906 to 2014 at San Diego Tide Station

4.2 SWL Extreme Analysis

An extreme-value analysis of 51 years of recorded water levels from 1965 to 2015 was conducted based on the de-trended tide data at the San Diego tide station (Section 4.1). From the de-trended time series, the maximum SWL elevation from each year was obtained and fit to a Gumbel, Weibull, and the General Extreme Value Distribution (GEV) as shown graphically in Figure 4-2. Several distributions were examined in order to find the best distribution for the data set. In this case, the Gumbel distribution provided the best fit to the majority of the extreme data points, and was the most conservative distribution. Table 4-1 summarizes the extreme SWLs obtained from the Gumbel distribution and shows the projected extreme SWL with the different sea-level rise scenarios described in Section 2.1.3.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: NOAA, ESA
NOTES:
ML = Maximum Likelihood Method
LS = Least Squares Method
GEV = Generalized Extreme Value
PWM = Probability-Weighted Moment
MPS = Maximum Product of Spacings

Figure 4-2
Still Water Level Extreme Value Analysis

TABLE 4-1
EXTREME SWL ELEVATIONS IN FEET NAVD

Return Period (Years)	Present	2025 – 2030 (0.7 ft SLR)	2040 – 2055 (1.4 ft SLR)	2060 – 2080 (2.6 ft SLR)	2080 – 2120 (4.5 ft SLR)
1	6.9	7.6	8.3	9.5	11.4
5	7.5	8.2	8.9	10.1	12
10	7.7	8.4	9.1	10.3	12.2
20	7.8	8.5	9.2	10.4	12.3
50	8.0	8.7	9.4	10.6	12.5
100	8.1	8.8	9.5	10.7	12.6

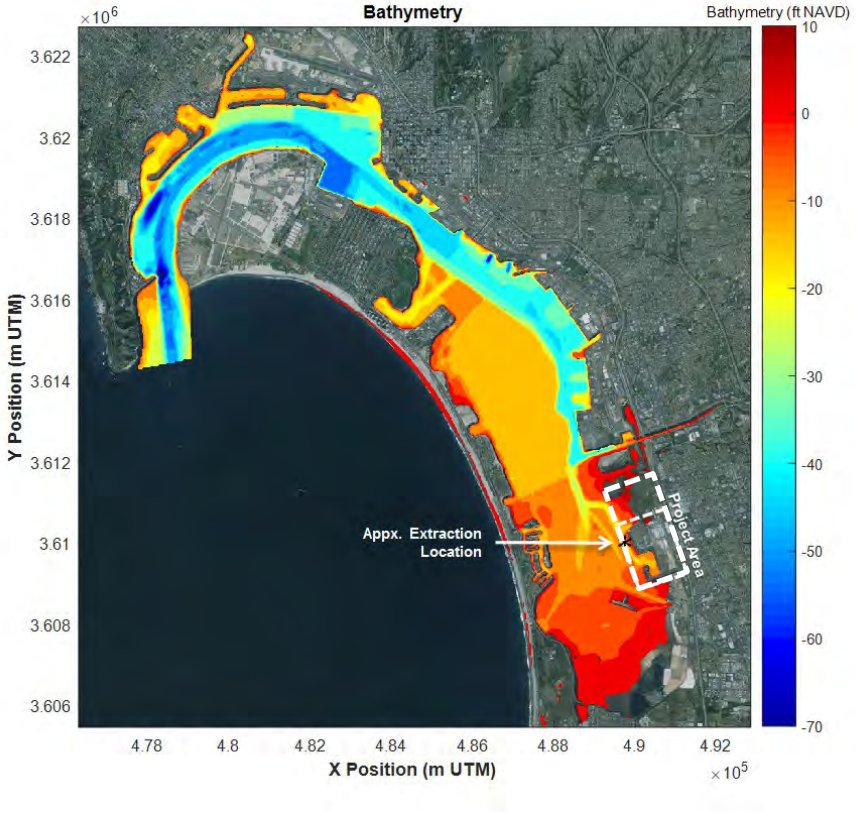
SECTION 5
Wind, Wave, and Wave Runup Analyses

5.1 Wind Setup

Wind setup is the potential effect of wind forcing or "pushing" and "piling up" bay water against the CVB, causing a local increase in the SWL. Wind setups of between 0.1 ft for a 25 mph wind speed and 0.4 ft for a 50 mph wind were approximately estimated for winds blowing from the northwest over the longest fetch across the bay. Wind setup was not explicitly included in the TWL analysis (Section 6); however, this estimate of wind setup provides an indication of the potential uncertainty in the analysis results.

5.2 Wave Parameter Time Series

To model the wave conditions near the site, ESA applied the industry-standard Simulating Waves Nearshore (SWAN) model. This 2-dimensional model predicts waves likely to occur in response to wind speed, wind direction, water level, shoreline geometry, and bathymetry. The relevant wave processes which are included in the SWAN model include wave generation, refraction, shoaling, and breaking. The SWAN model was implemented using the Delft3D modeling suite (Deltares 2014). The modeling was accomplished by developing a large-scale computation grid and a smaller, nested grid. To create the SWAN grids, ESA used a previously developed large-scale 40 m x 40 m grid for the entire San Diego Bay (Figure 5-1).

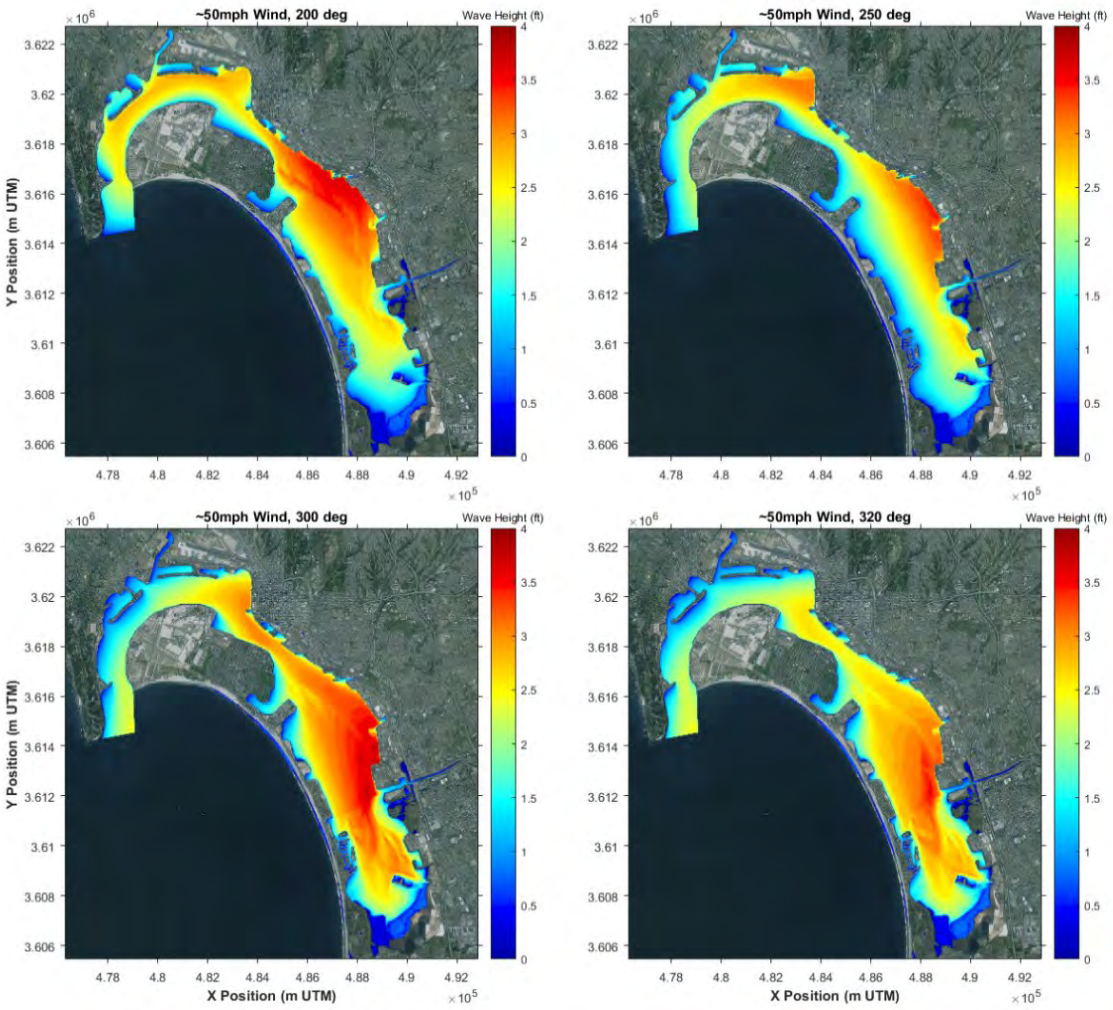


Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 5-1
SWAN Domain and Bathymetry

Figure 5-2 and 5-3 shows wave heights obtained from the SWAN model for different wind directions under extreme wind conditions (~50 mph) for the entire domain (Figure 5-3), and at the project site (Figure 5-3). The top left plot shows wind waves generated across a southwesterly fetch of 200 degrees, and the top right plot shows winds generated along a fetch perpendicular to the project (250 degrees). Both of these events generate relatively small waves near the project site, with the most wave exposure occurring to the north of the CVB (< 3-foot wave heights). The lower left figure shows waves generated along the most common fetch direction of 300 degrees, while the bottom right figure shows the longest fetch direction of 320 degrees. Both of these two events generated larger waves near the site (~3.5 feet in height), with the 300-degree fetch direction generating the largest waves offshore of the CVB.

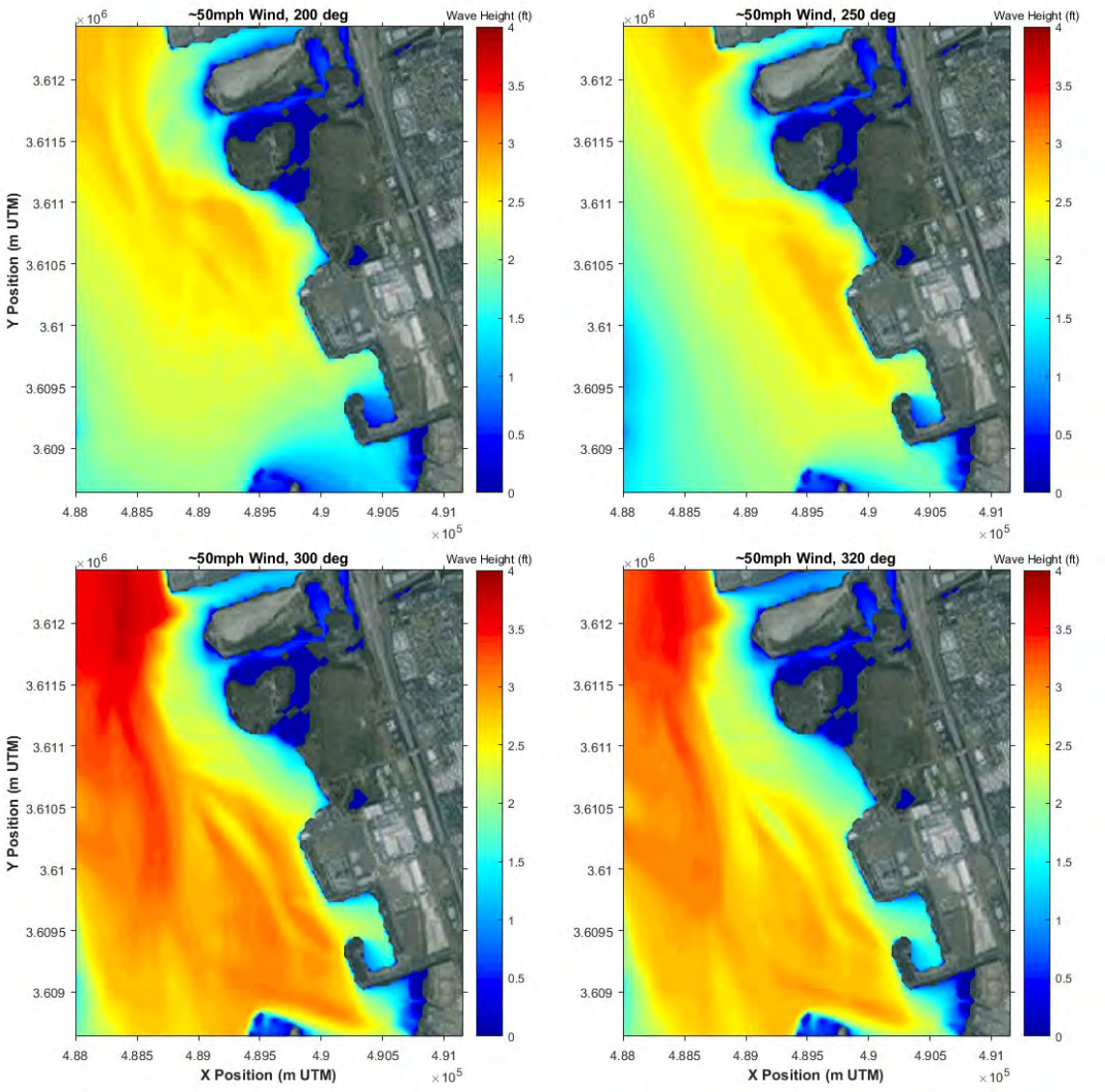


Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 5-2

Wave Heights for a Southwesterly Fetch (top left), a Fetch Perpendicular to Project (top right), Most Common Fetch (bottom left), and Longest Fetch (bottom right)

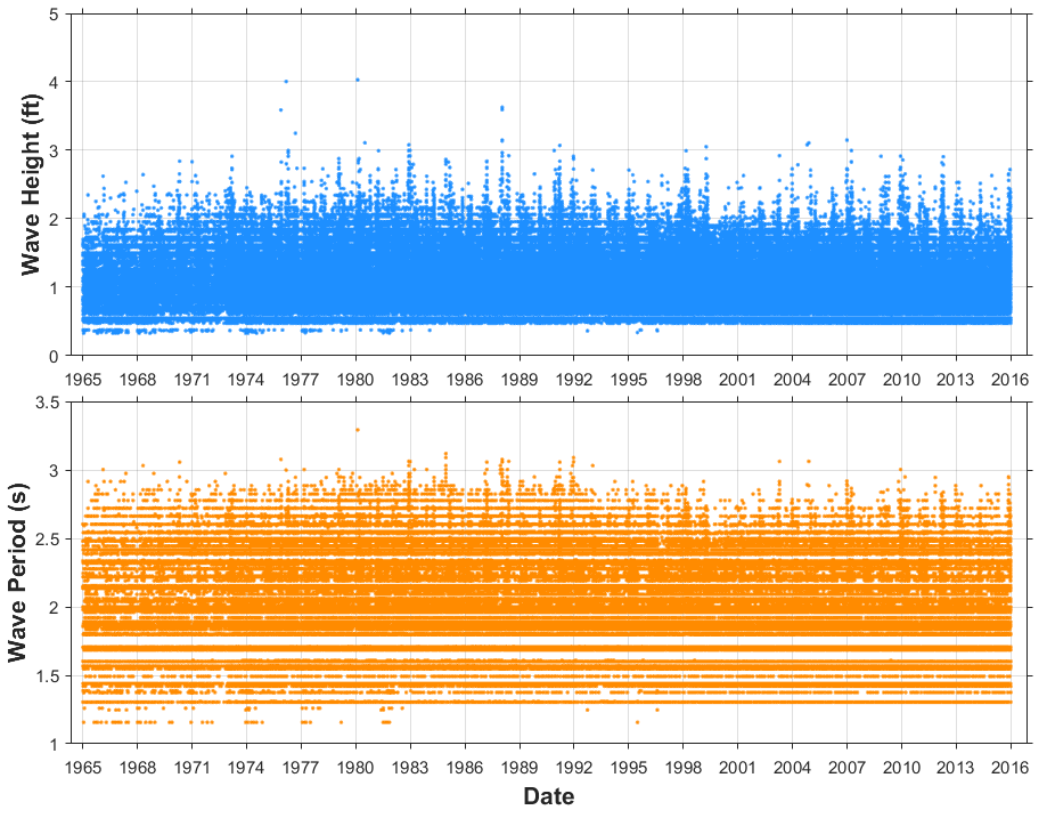


Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 5-3
Nearshore Wave Heights for a Southwesterly Fetch (top left), a Fetch Perpendicular to Project (top right), Most Common Fetch (bottom left), and Longest Fetch (bottom right)

The predicted wave parameters were then used to create a look-up table that relates wind velocity and direction with wave parameters (wave height, period, and direction) at the site. These look-up tables were used to create nearshore wave parameters time series (Figure 5-4) based on the recorded wind speed and direction time series. The use of a look-up table reduces computational demand (Garrity et al. 2007), facilitating hourly computations of wave runup.

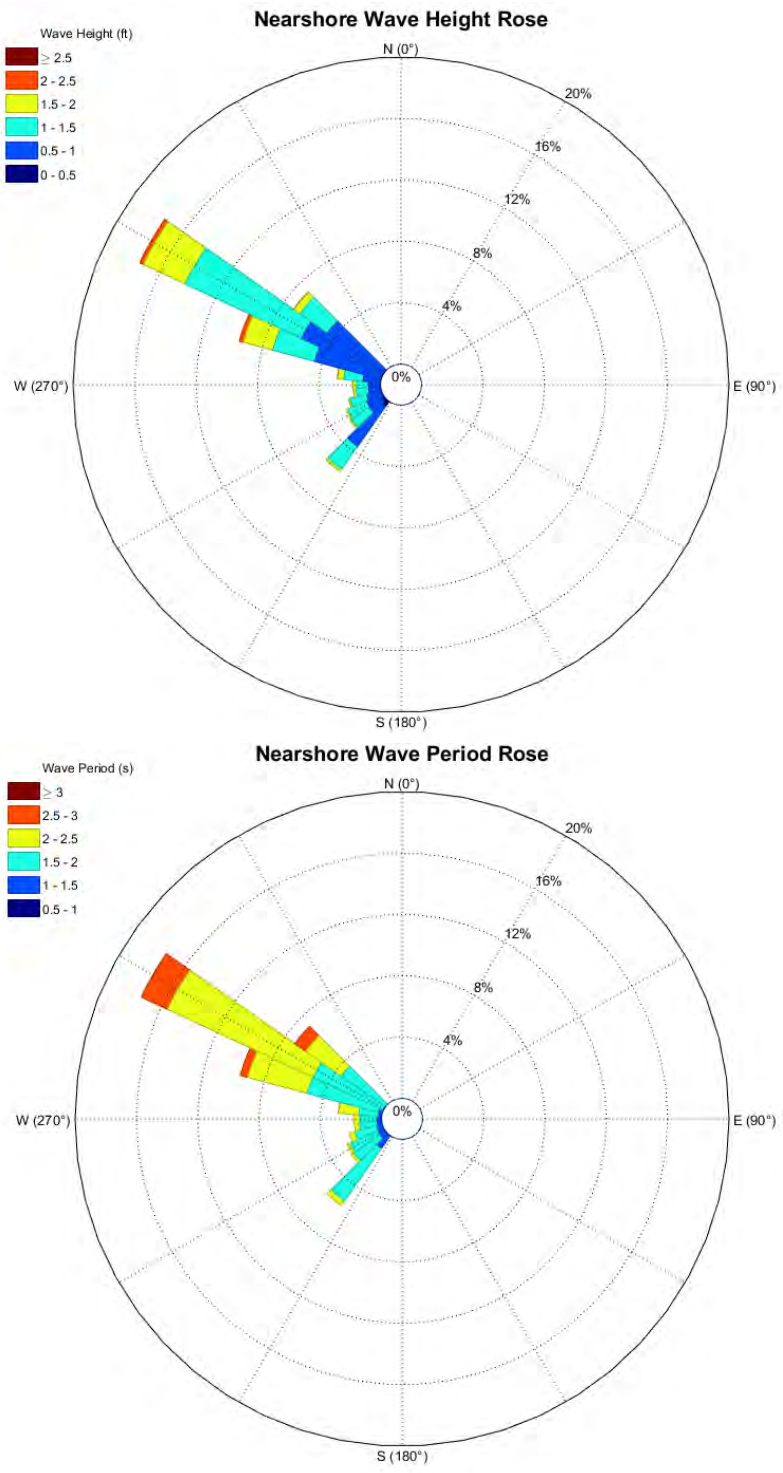


Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 5-4
Wave Height (H_{mo}) and Wave Period (T_p) Time Series at the Model Extraction Location

The wave height and wave period time series generated from the lookup tables are shown in Figure 5-4. Figure 5-5 shows the directional wave height distribution from the wave hindcast modeling. Maximum wave heights since 1965 were generally less than 3 feet, and met or exceeded 4 feet only twice throughout the entire record. Wind waves were typically largest and most common from the west-northwest, which has the longest fetch, though high waves from southwesterly winds were also hindcast. Wave periods were typically very short, with most wave periods estimated to be less than 3 seconds. A limited number of waves had periods reaching up to 3.3 seconds.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

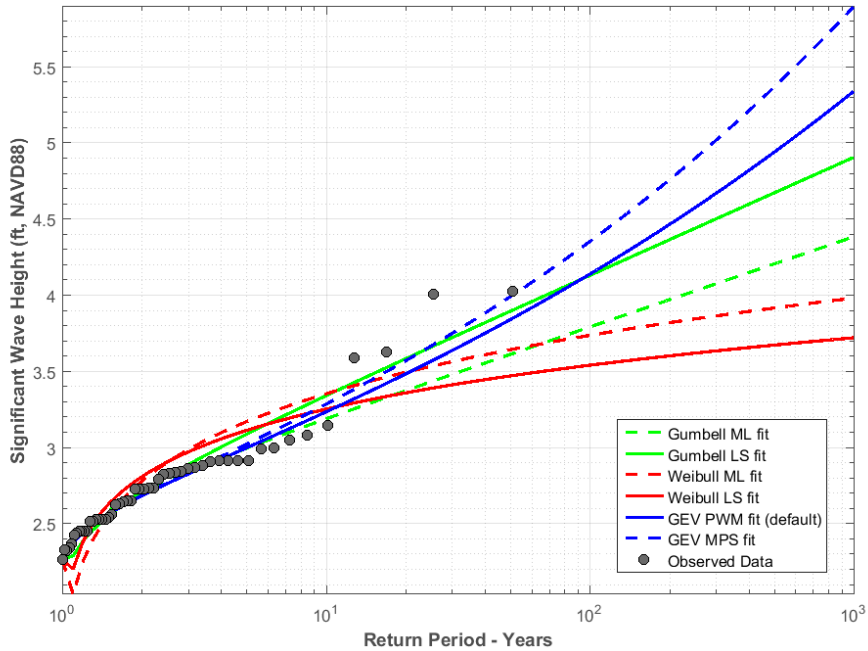
Figure 5-5
Nearshore Wave Rose at the Model Extraction Location

5.3 Extreme Wave Height Analysis

An extreme value analysis was conducted on the estimated wave height time series from 1965 through 2015. A maximum wave height value for each year was found and fit to Gumbel, Weibull, and GEV distribution, as shown graphically in Figure 5-6. The GEV Maximum Product of Spacings (MPS) distribution shows the best fit for the data. Table 5-1 summarizes the return periods and annual probabilities from the GEV distribution. The 100-year (or 1% annual chance) significant wave height is estimated to be 4.1 feet, based on the 52-year record of wave hindcast data.

TABLE 5-1
EXTREME WAVE HEIGHT (FT)

Return Period (Years)	Annual probability of occurrence	GEV
1	100%	2.3
5	20%	3.0
10	10%	3.2
20	5%	3.5
50	2%	3.8
100	1%	4.1



Chula Vista Sea-Level Rise Analysis / D150388,01

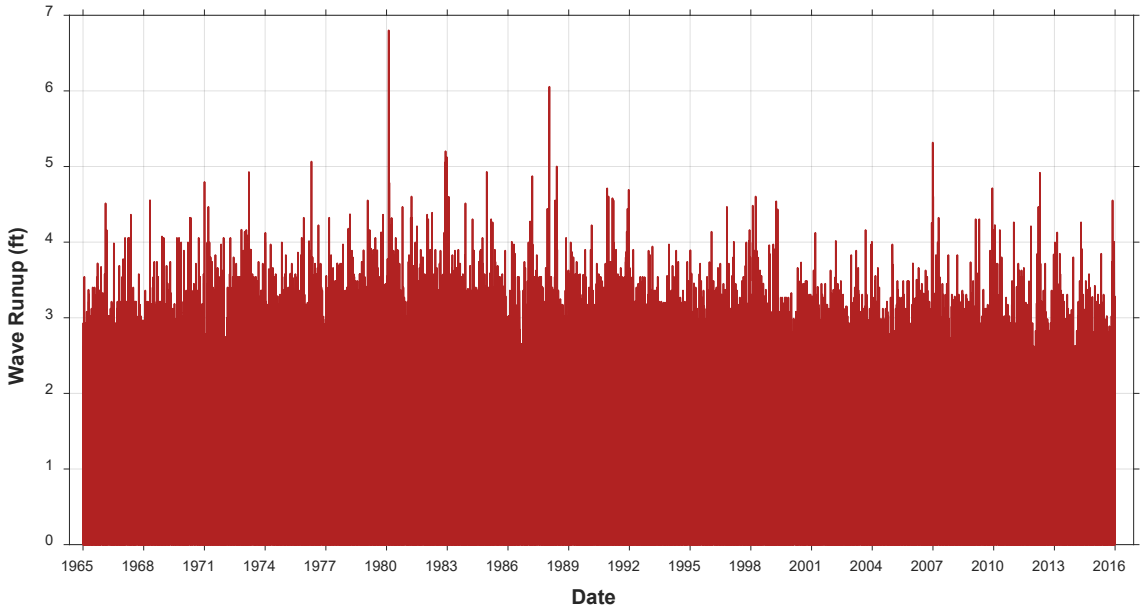
SOURCE: ESA
NOTES:
ML = Maximum Likelihood Method
LS = Least Squares Method
GEV = Generalized Extreme Value
PWM = Probability-Weighted Moment
MPS = Maximum Product of Spacings

Figure 5-6
Wave Height Extreme Value Analysis

5.4 Wave Runup Time Series

Wave runup along the CVB was modeled using the estimated wave parameter time series (Section 5.2) and the still water level time series (Section 4.1) applied along simplified shoreline profiles. The simplified profiles were based on the local beach slope at the intersection of the hourly water level and the bathymetric profile. For medium slopes, the Direct Integration Method (DIM) was used to calculate hourly wave runup (FEMA 2005). For steep slopes, the TAW method was used (TAW 2002) to estimate the runup. An estimation of setup due to waves was included in the runup time series for both methods. Figure 5-7 shows the wave runup time series calculated for this study.

The use of simplified slopes is computationally much simpler than computing runup on the complex natural shore profiles, but is also less accurate. TWLs estimated using simplified slopes are typically higher than TWLs calculated using actual profiles because the simplified slope is projected vertically above the actual shoreline profile elevations to simulate the potential wave runup and TWL at the shoreline. However, the simplified computations allow creation of a 52-year time series, thereby improving the statistical certainty of the extreme high values.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 5-7
Wave Runup Time Series

SECTION 6
Total Water Level Analyses

TWL is the elevation of the computed wave runup height (described in Section 5.4) added to the SWL elevation (Section 4.1). ESA computed a TWL time series at the site and applied an extreme value analysis to calculate a 100-year TWL scenario. Wave and water level pairs, called "events", which would result in the 100-year TWL scenario were then selected. These events are selected for use in the "scenario analysis" using detailed shore profiles, as explained in Section 7.

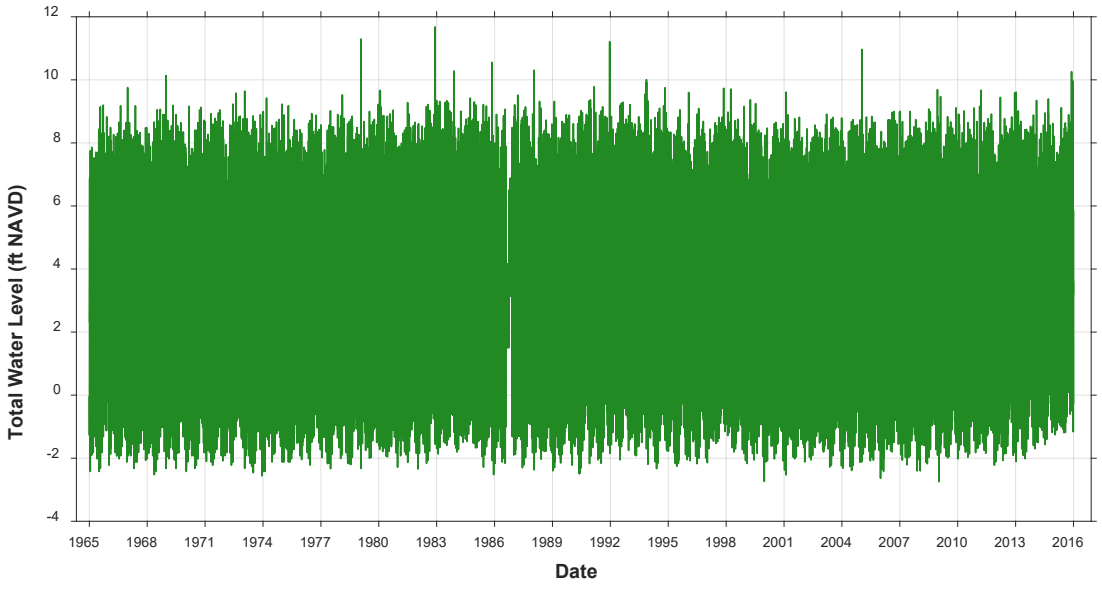
6.1 TWL Time Series

TWL is estimated by combining the water levels near the site and coincident wave runup on the shore, according to the following relationship:

$$[1] \qquad TWL(t) = SWL(t) + Run\ Up(t) + sea\text{-}level\ rise(t)$$

Where t is time.

Figure 6-1 shows the TWL time series for the CVB.



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA

Figure 6-1
Total Water Level Time Series

6.2 Extreme TWL Analysis

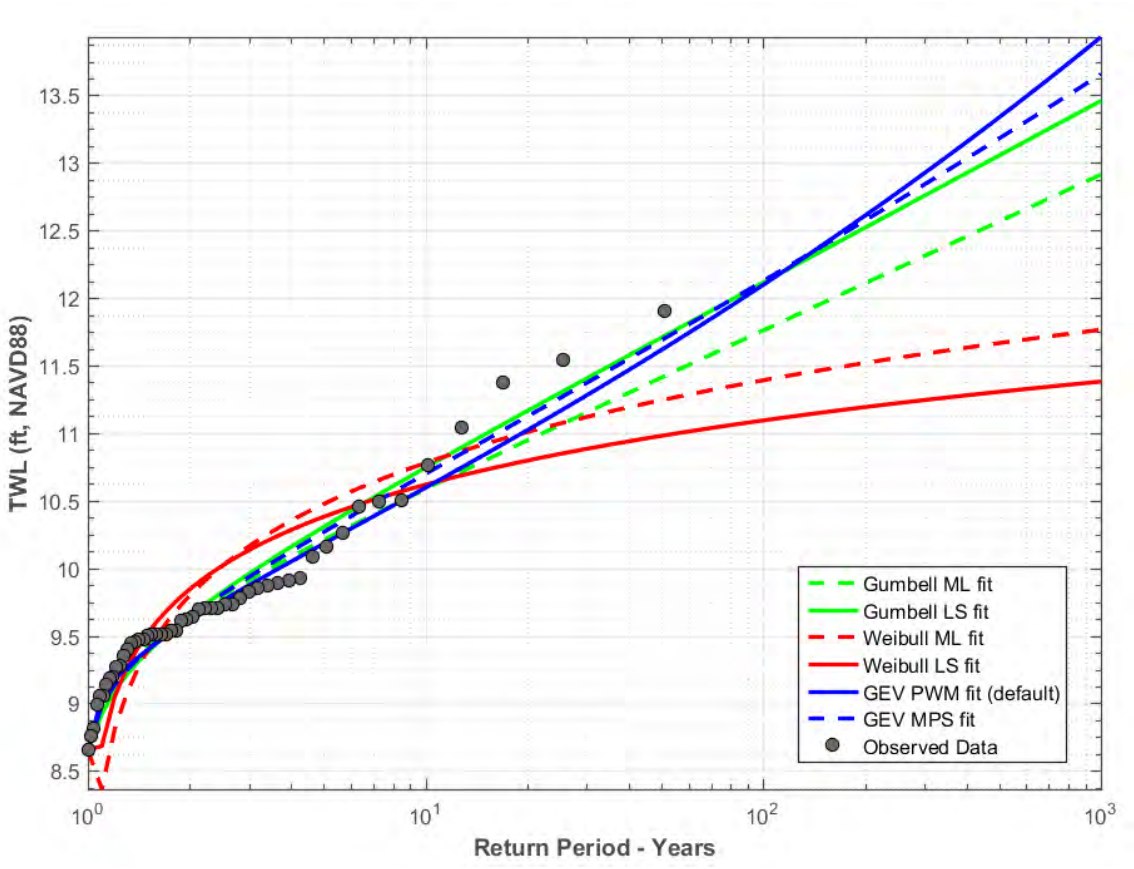
An extreme analysis of TWL instead of only the SWL is evaluated because high winds and high water levels are partly, but not completely dependent. Since coastal flooding results from both high water levels and large waves, the joint occurrence of these two parameters is also important. However, joint-occurrence statistics (e.g. how often a particular wave height is exceeded for a given water level) are not well defined, and the probability of a corresponding flood elevation is not directly defined by the probability of the parameters (Garrity et al. 2007). Hence, the TWL time series is analyzed, thereby incorporating implicitly the joint probability of simultaneous water level, waves, and the non-linear processes resulting in wave runup.

The analysis was conducted on the estimated TWL time series by fitting the 52-year TWL time series to a Gumbel, Weibull, and GEV distribution, as shown graphically in Figure 6-2. The GEV MPS distribution shows the best fit to the majority of the extreme data points. Table 6-1 summarizes the return values and annual probabilities of the TWL time series for the GEV fit. The results show a present-day 100-year TWL of 12.1 feet.

TABLE 6-1
EXTREME TWL ELEVATIONS

Return Period (Years)	Annual probability of occurrence	GEV (ft)
1	**100%**	8.7
5	**20%**	10.3
10	**10%**	10.7
20	**5%**	11.1
50	**2%**	11.7
100	**1%**	12.1

DATUM: NAVD88 FT



Chula Vista Sea-Level Rise Analysis / D150388,01

SOURCE: ESA
NOTES:
ML = Maximum Likelihood Method
LS = Least Squares Method
GEV = Generalized Extreme Value
PWM = Probability-Weighted Moment
MPS = Maximum Product of Spacings

Figure 6-2
Total Water Level Extreme Value Analysis

SECTION 7
Coastal Inundation Modeling

7.1 Selection of Events

The approximate 100-year TWL values computed with the extreme value distribution are extrapolations from the synthetic 52-year runup time series. Statistically, a 100-year scenario is expected to be exceeded about once in 100 years (or it has a 1% annual chance of occurrence). Therefore, it is not likely that the 100-year event has occurred in the 52-years of record, so the water levels and waves that force the 100-year TWL are not known. Different combinations of water level and wind wave pairs were evaluated to identify the pairs that would result in the 100-year TWLs.

Two scenarios were estimated to represent the 100-year TWL:

1. 100-year SWL with the 1-year wave height yielding roughly the 100-year TWL
2. 100-year wave height with the 1-year SWL yielding roughly the 100-year TWL

Note that a 100-year SWL event coincident with a 100-year wave height event was not considered, as this event would generate a TWL greater than a 100-year TWL scenario and would, therefore, be associated with a TWL or flood scenario that is more extreme than a 100-year storm event.

Details on the two selected events, including the 1-year wave heights, wave periods, and still water levels, are shown in Table 7-1 for present conditions (e.g., without sea-level rise).

TABLE 7-1
EVENTS FOR THE APPROXIMATE 100-YEAR TWL AT THE SHORELINE

Events	SWL (ft, NAVD88)	H_{mo} (ft)	Tp (s)
100-Year SWL + Wave Height = 100-Year TWL	8.1	2.5	3
100-Year Wave Height + SWL = 100-Year TWL	6.9	4.1	3

Once the extreme values calculated using the simplified slope are known, the simultaneous water level and wave "events" that cause them can be applied in more accurate computations using real, complex shore profiles or 2-dimensional bathymetry and topography and advanced numerical models that take into account complex wave process that occurs on the nearshore zone. This "hybrid" method was established to balance the need for statistical confidence and accuracy for

flood studies along the Pacific coast of the US (FEMA, 2005; Garrity et al. 2007). Once the events have been selected, they can be applied for a wide range of shore profiles and treatments with maximum efficiency and confidence.

7.2 Harbor Park Analysis

For Harbor Park, the full complex shore profiles, rather than simplified slopes, were used to compute more accurate TWLs. The events defined in Table 7-1 were analyzed with the sea-level rise scenarios described in Section 2.2.

7.2.1 Coastal Inundation Modeling

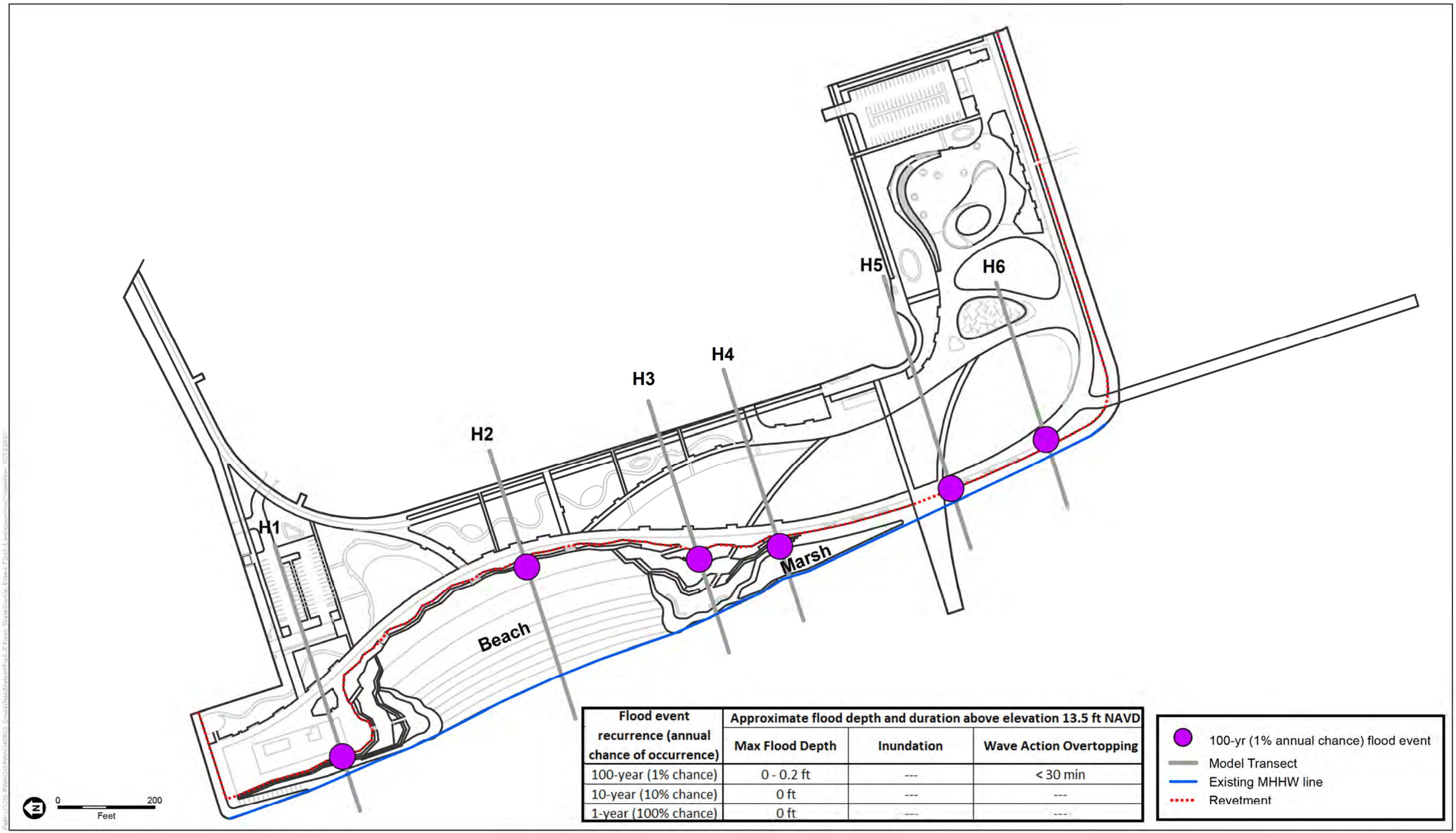
A process-based model for the nearshore and coast called XBeach (Roelving et al. 2009) was applied in 1D to estimate the wave runup, the peak water level, the landward extent of flooding, and the flood duration. XBeach models waves non-hydrostatically to resolve wave by wave flow and surface elevations variations as waves collide with the shoreline. This approach captures the relevant swash zone processes, including wave interactions with steep slopes, dynamic setup, and complex bathymetry. The use of a storm response model like XBeach allows a quantitative estimate of a complex process such as the peak wave runup, overtopping flow, and velocity.

The selected sea-level rise scenarios described in Section 2.2 were modeled on the profiles shown in Figure 3-3 in combination with the events presented in Table 7-1. The model was run to simulate a five-hour storm starting 2 feet below the defined peak SWL shown in Table 7-1, reaching the peak at the third hour and finishing 2 feet below the peak water level.

7.2.2 TWL at Harbor Park

The detailed estimates of TWL and inland extents of flooding for the 100-year TWL event at present conditions (e.g., without sea-level rise) and under the different sea-level rise projections described in Section 2.2 are tabulated in Table 7-2 and shown in Figure 7-1.

The inland extent of flooding is the most landward extent of inundation during a coastal flood. The distances reported are measured from the present location/extent of MHHW (5.29 feet NAVD) along the six profiles shown in Figure 3-3. Inland extents were measured based on the topography described in Section 3.1. Note that the distances reported represent the flooding of shoreline areas from wave effects. The areas where there is a measured inland extent are along the transects through the beach, steps down to the shore, and the constructed wetland, where the inland extent would be expected to increase due to the design of the park. Low-lying areas landward of these distances, which are not addressed by this study, may be inundated by the SWL. Also, note that the TWL reported in Table 7-2 corresponds to the TWL at the inland extent of flooding. This TWL represents the water level that would be observed at the landward edge of flooding for each scenario.



Flood event recurrence (annual chance of occurrence)	Approximate flood depth and duration above elevation 13.5 ft NAVD		
	Max Flood Depth	Inundation	Wave Action Overtopping
100-year (1% chance)	0 - 0.2 ft	---	< 30 min
10-year (10% chance)	0 ft	---	---
1-year (100% chance)	0 ft	---	---

- 100-yr (1% annual chance) flood event
- Model Transect
- Existing MHHW line
- Revetment

SOURCE: Schematic design from Petersen Studio
NOTE: 4.5 ft of sea-level rise is projected in 2080 (medium-high risk scenario) to 2120 (low risk scenario) per CA Coastal Commission (2018) and Ocean Protection Council (2018)

ESA

Chula Vista Harbor Park Sea-Level Analysis

Figure 7-1
Flood (Wave Runup) Extent with 4.5 ft of Sea-Level Rise with a 13.5 ft NAVD Revetment

TABLE 7-2
BEACH RESULTS FOR MAXIMUM 100-YEAR TWL (FT NAVD) AT THE INLAND EXTENT OF FLOODING AND THE INLAND EXTENT (FT)[1] FOR EACH PROFILE

	Present		0.7 ft of SLR (2025-2030)		1.4 ft of SLR (2040-2055)		2.6 ft of SLR (2060-2080)		4.5 ft of SLR (2080-2120)	
Profile	**TWL**	**Inland Extent[1]**	**TWL**	**Inland Extent**	**TWL**	**Inland Extent**	**TWL**	**Inland Extent**	**TWL**	**Inland Extent**
H1	9.6	--	9.8	--	10.7	--	12.0	--	13.5	--
H2	8.6	13	9.2	57	9.8	97	11.1	185	13.6	208
H3	9.0	31	9.4	48	10	54	11.3	87	13.0	117
H4	9.9	61	10.1	64	10.9	66	11.7	71	13.6	77
H5	10	--	10.6	--	11.3	--	12.5	--	13.7	--
H6	9.2	--	9.8	--	10.6	--	12.0	--	13.6	1

1. Inland extent inundation is measured from present MHHW (blue line in Figure 7-1) to the inland extent of the flooding along the profile (purple dots in Figure 7-1). Cells without a value indicate no inland flooding.

SECTION 8
Vulnerability Assessment

With 4.5 ft of sea-level rise, which is projected between 2080 – 2120 (medium-high to low-risk aversion scenario), there is only minor flooding at the edge of the 13.5 ft NAVD proposed revetment in Harbor Park during a 100-year event and no flooding for the 10-year and 1-year events (Table 8-1). Therefore, the 13.5 ft NAVD revetment elevation is expected to be resilient to flooding with 4.5 ft of sea-level rise.

TABLE 8-1

FLOOD DEPTH AND DURATION ABOVE A 13.5 FT NAVD REVETMENT UNDER 4.5 FT OF SEA-LEVEL RISE

Flood event recurrence (annual chance of occurrence)	Max Flood Depth	Flood Duration
100-year (1% chance)	0.0 – 0.5 ft	< 0.5 hrs
10-year (10% chance)	0.0 ft	0 hrs
1-year (100% chance)	0.0 ft	0 hrs

The proposed beach at Harbor Park is expected to migrate inland and erode at the bay-ward edge with sea-level rise, unless an adaptation strategy, such as beach nourishment, is implemented.

SECTION 9
Potential Adaptation Measures

This study identifies potential adaptation measures to reduce the vulnerability of the proposed park improvements to flooding in the future with sea-level rise. These potential adaptation measures are described at a conceptual planning-level of detail to identify possible future options for adaptation. The implementation of actual adaptation measures in the future will be based on monitoring of sea-level rise and flood risk and more detailed project-level planning and design of adaptation measures. Any actual adaptation measures may differ from those identified below.

As discussed in Section 8 above, the proposed Harbor Park improvements include raising the revetment from an average height of 11 ft to 13.5 to 14.0 ft NAVD. At this elevation, the park is vulnerable to minor flooding along the revetment during a 100-year storm event, which is considered an extreme event, in the 2080 – 2120 time frame (with 4.5 ft of sea-level rise). For a 13.5 ft revetment, adaptation to reduce flooding may be necessary between 2070 and 2100. The economic life of the Harbor Park's three small park support buildings is estimated to be 50 years, and it is anticipated that these buildings may be raised or relocated (if needed) in the 2080-2120 timeframe. Adaptation could also include raising the revetment by several feet, preparing certain areas to be resilient to flooding (e.g., salt-water-tolerant planting palette), or removing structures or infrastructure from potential flood areas as sea levels rise. Harbor Park's shoreline improvements are being designed to accommodate future raising of the revetment.

Additionally, as discussed in Section 8, the proposed beach at Harbor Park is expected to erode with sea-level rise if no action is taken. The project proposes regular nourishment to maintain the beach. Continued beach nourishment could act as an adaptation strategy to provide flood protection for the areas behind the beach.

SECTION 10
Summary and Conclusions

Proposed development on Port tidelands is required to provide a site-specific hazard assessment addressing the potential for flooding and/or damage from natural forces including, but not limited to, tidal action, waves, and storm surge. Consistent with this policy, the CVB Harbor Park Sea-Level Rise Analysis and resulting conclusions do not set a standard and/or precedent for assessment and/or hazard response elsewhere on Port tidelands.

In summary, per Section 8, the flood vulnerability of the proposed CVB Harbor Park improvements is as follows:

1) Not vulnerable to 100-year storm flooding under:
    a) Current conditions, and
    b) 2060 – 2080 sea-level rise projection of 2.6 ft of sea-level rise.
2) Vulnerable along the edge of the revetment to 100-year storm flooding under 2080 – 2100 sea-level rise projection of 4.5 ft of sea-level rise.
3) Vulnerable to erosion along the beach without regular nourishment, which is planned as part of the project.

In conclusion, the proposed Harbor Park improvements with the raised revetment elevation at 13.5 to 14.0 ft NAVD are not expected to be flooded by the 100-year storm event scenario until 2080 with sea-level rise approaching 4.5 ft. Without adaptation, some flooding along the revetment could occur in the 2080 – 2100 time frame with 4.5 ft of sea-level rise; however, this level of flood risk could likely be accommodated and, therefore, represents an acceptable level of risk. Beyond 4.5 ft of sea-level rise, flooding would increase and potential adaptation measures may be needed, such as raising the revetment.

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Attachment C

0' 25' 50' 100' 200'

N

PETERSEN STUDIO
LANDSCAPE ARCHITECTURE | PLANNING
133 KEARNY STREET SUITE 303 SAN FRANCISCO, CA 94108

NOTE:
THIS DRAWING MAY BE A REDUCED SCALE PRINT OF THE ORIGINAL DRAWING. UTILIZE GRAPHIC SCALES TO VERIFY IF DRAWING IS A REDUCTION, AND ADJUST SCALES ACCORDINGLY TO THE GRAPHIC SCALES SHOWN.

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN	04/26/2019
100% SCHEMATIC DESIGN	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

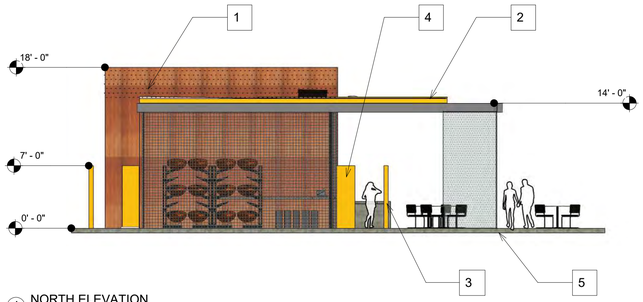
DESIGNED: PETERSEN
DRAWN: MM/RG
CHECKED: JP

CHULA VISTA, CALIFORNIA

ILLUSTRATIVE PLAN

HARBOR PARK

DATE 04/24/2020
A/E NO. L004
SHEET 9 OF 54
DRAWING NO. CV-2019-01
REV.



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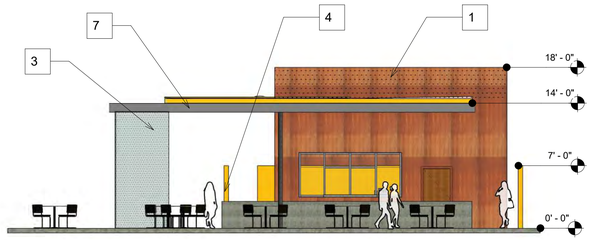
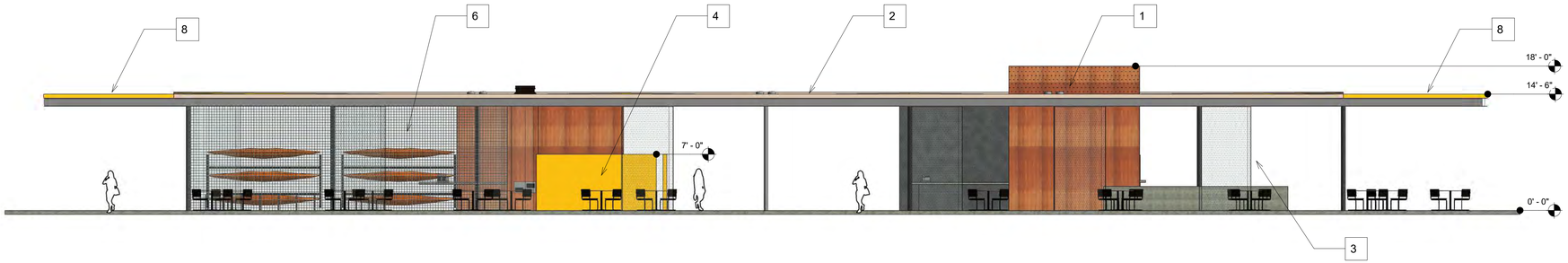
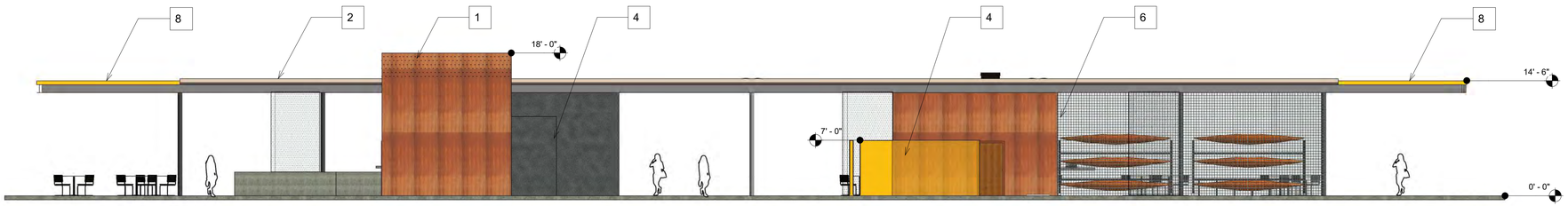
1/8" = 1'-0"



2 SOUTH ELEVATION
1/8" = 1'-0"



3 WEST ELEVATION
1/8" = 1'-0"

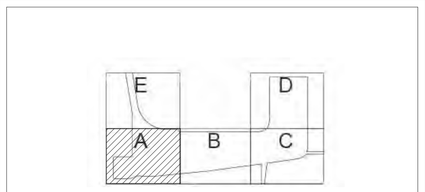


4 EAST ELEVATION
1/8" = 1'-0"

NOTES

1. WEATHERED STEEL WALL PANEL
2. SOLID ROOF MEMBRANE HIGH SRI INDEX TAN COLOR
3. STRUCTURAL GLASS WITH FRIT PATTERN
4. POLYCARBONATE PANEL, PRIVACY SCREEN
5. CONCRETE FLOOR
6. WOVEN MESH WALL PANEL
7. STRUCTURAL STEEL FRAMING
8. FRP MEMBRANE

KEYMAP



0 8 16 24

SCALE: 1/8": 1' - 0"

N E S W

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100% SCHEMATIC DESIGN

RECORD DRAWING
REVIEWED BY:
PROJECT MANAGER/ENGINEER
DATE:

NOTE:
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SPEC NO. -	WBS NO. -	50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
REFERENCES -		100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020
PROJECT ENGINEER -			
CONTRACTOR -			
CONSTRUCTION STARTED -			
CONSTRUCTION COMPLETED -			
COST -	INSPECTOR -	REVISIONS	DATE / APPROVED

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED
DRAWN DH
CHECKED BM

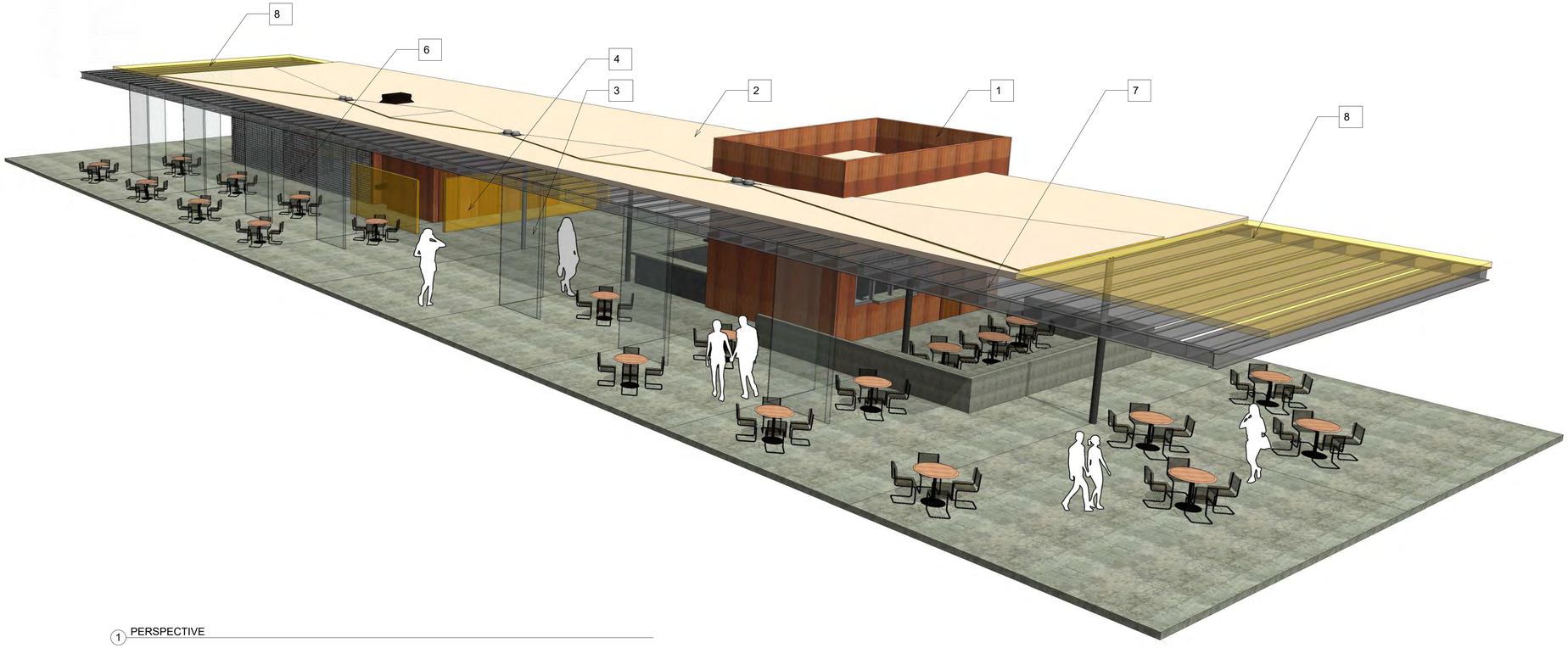
NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

CHULA VISTA, CALIFORNIA

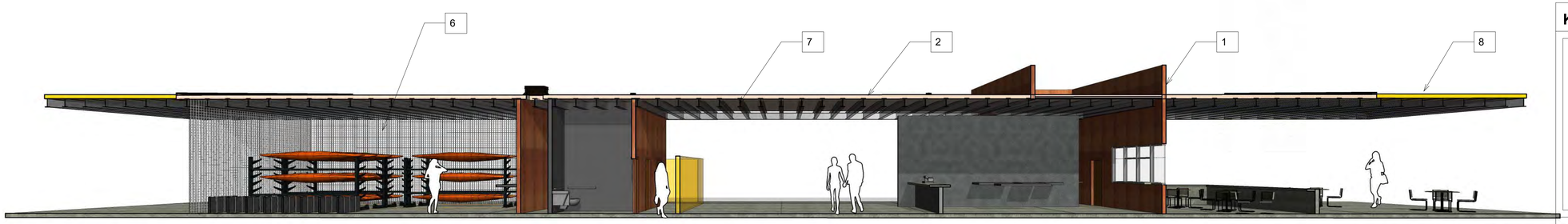
ELEVATIONS

CVB - HARBOR PARK

DATE 4/24/2020 9:52:41 AM
A/E NO. A1-300
SHEET 42 OF 54
DRAWING CV-2019-01
REV. -



1 PERSPECTIVE

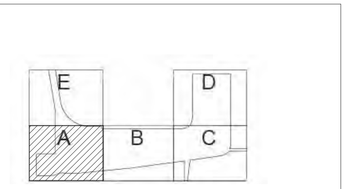


2 SECTION PERSPECTIVE

NOTES

1. WEATHERED STEEL WALL PANEL
2. SOLID ROOF MEMBRANE HIGH SRI INDEX TAN COLOR
3. STRUCTURAL GLASS WITH FRIT PATTERN
4. POLYCARBONATE PANEL, PRIVACY SCREEN
5. CONCRETE FLOOR
6. WOVEN MESH WALL PANEL
7. STRUCTURAL STEEL FRAMING

KEYMAP



SCALE: N/A

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REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED:
DRAWN: DH
CHECKED: BM

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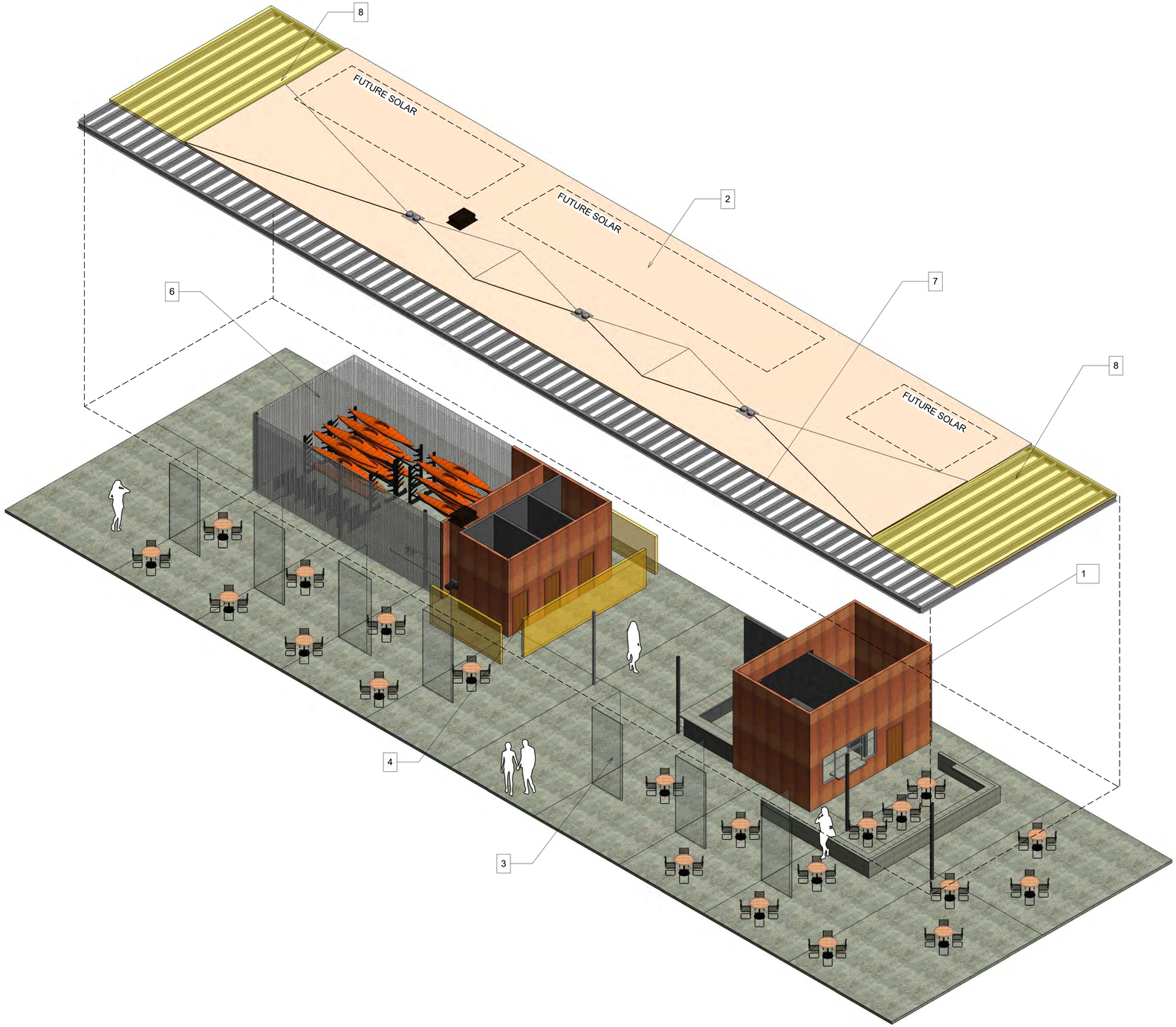
CHULA VISTA, CALIFORNIA

PERSPECTIVE

CVB - HARBOR PARK

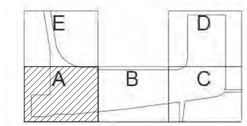
DATE: 4/24/2020 9:52:58 AM
A/E JOB NO.: A1-900
SHEET NO.: 43 OF 54
DRAWING NO.: CV-2019-01
REV.: -



NOTES

1. WEATHERED STEEL
2. SOLID ROOF MEMBRANE HIGH SRI INDEX TAN COLOR
3. STRUCTURAL GLASS WITH FRIT PATTERN
4. POLYCARBONATE PANEL
5. CONCRETE FLOOR
6. WOVEN MESH WALL
7. SUNLIGHT CONTROL
8. FRP TRELLIS

KEYMAP



SCALE: N/A

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CONSTRUCTION COMPLETED: -
COST: - INSPECTOR: -

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

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DESIGNED:
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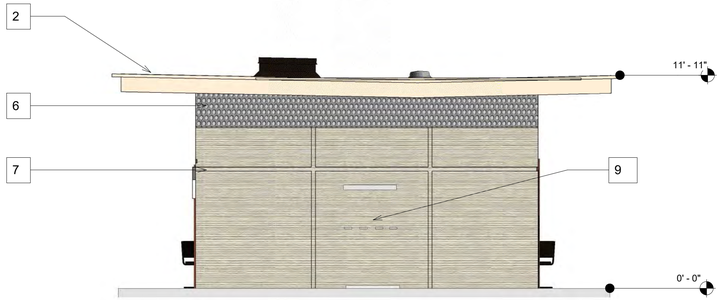
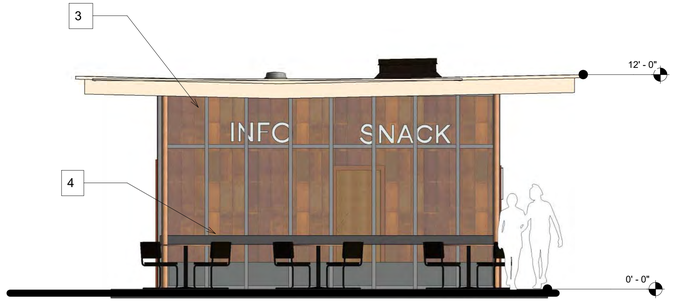
PERSPECTIVE

CVB - HARBOR PARK

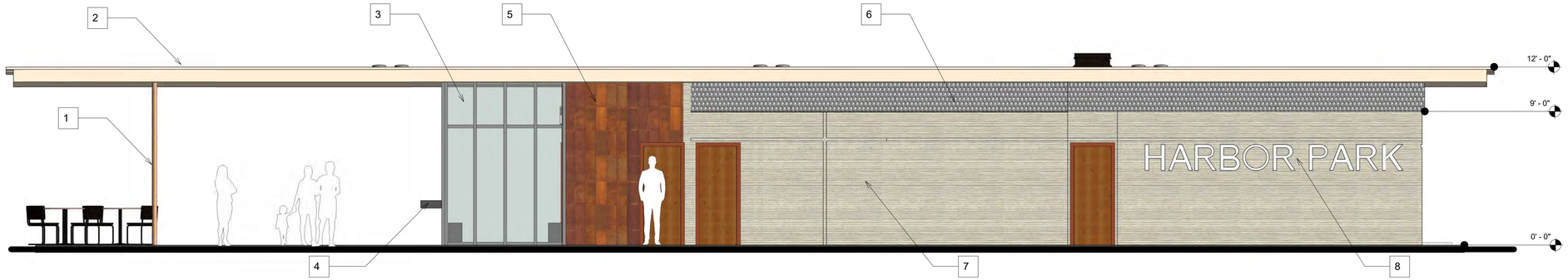
DATE: 4/24/2020 9:53:10 AM
A/E JOB NO.: A1-901
SHEET: 44 OF 54
DRAWING NO.: CV-2019-01
REV.: -



1 NORTH ELEVATION
1/4" = 1'-0"



2 SOUTH ELEVATION
1/4" = 1'-0"



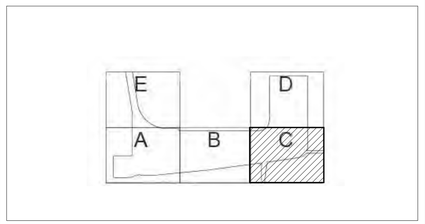
3 EAST ELEVATION
1/4" = 1'-0"

4 WEST ELEVATION
1/4" = 1'-0"

NOTES

1. STRUCTURAL STEEL COLUMN
2. SOLID ROOF MEMBRANE HIGH SRI INDEX TAN COLOR
3. GLASS WITH FRIT PATTERN
4. SERVICE COUNTER
5. WEATHERED STEEL WALL PANEL
6. PERFORATED SCREEN PANEL FOR NATURAL VENTILATION
7. CAST IN PLACE CONCRETE WITH INTEGRAL COLOR
8. HARBOR PARK SIGNAGE FULL CUT OUT STAINLESS STEEL LETTERS WITH SANDOFF
9. OUTSIDE SHOWER
10. DRINKING FOUNTAIN

KEYMAP



0 4 8 12

SCALE: 1/4": 1' - 0"

N E S W

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SPEC NO. -	WBS NO. -
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PROJECT ENGINEER -	
CONTRACTOR -	
CONSTRUCTION STARTED -	
CONSTRUCTION COMPLETED -	
COST -	INSPECTOR -

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

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CHECKED BM

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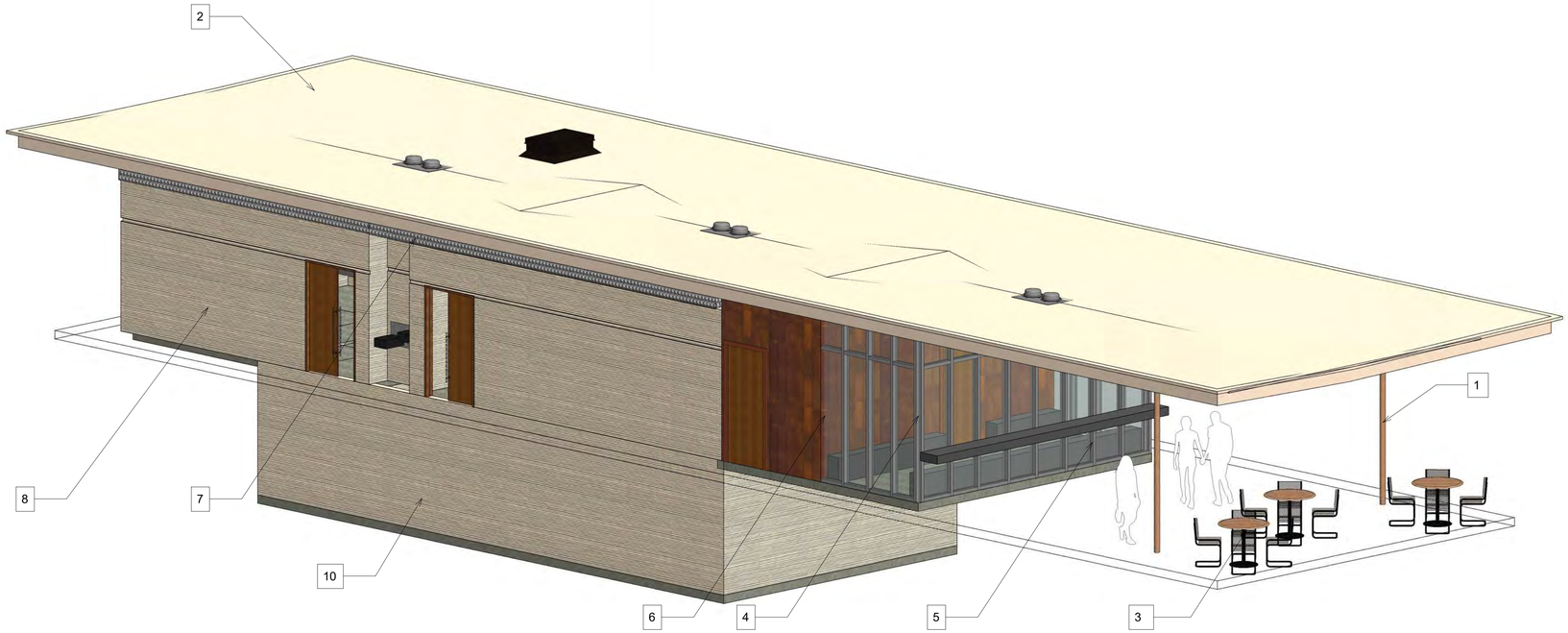
CHULA VISTA, CALIFORNIA

ELEVATIONS

CVB - HARBOR PARK

DATE 4/24/2020 9:45:54 AM
A/E NO. A2-300
SHEET 47 OF 54
DRAWING CV-2019-01
REV. -



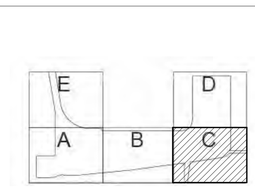
1 PERSPECTIVE VIEW

2 SECTION PERSPECTIVE

NOTES

1. STRUCTURAL STEEL COLUMN
2. SOLID ROOF MEMBRANE HIGH SRI INDEX TAN COLOR
3. MOVABLE TABLE
4. STOREFRONT GLASS WITH FRIT PATTERN
5. SERVICE COUNTER
6. WEATHERED STEEL WALL PANEL
7. METAL PERFORATED SCREEN PANEL FOR NATURAL VENTILATION
8. CAST IN PLACE CONCRETE WITH INTEGRAL COLOR
9. HARBOR PARK SIGNAGE FULL CUT OUT STAINLESS STEEL LETTERS WITH STAND OFF
10. WATER FEATURE PUMP ROOM

KEYMAP



SCALE: N/A

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CONSTRUCTION COMPLETED -
COST - INSPECTOR -

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50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED:
DRAWN: Author
CHECKED: Checker

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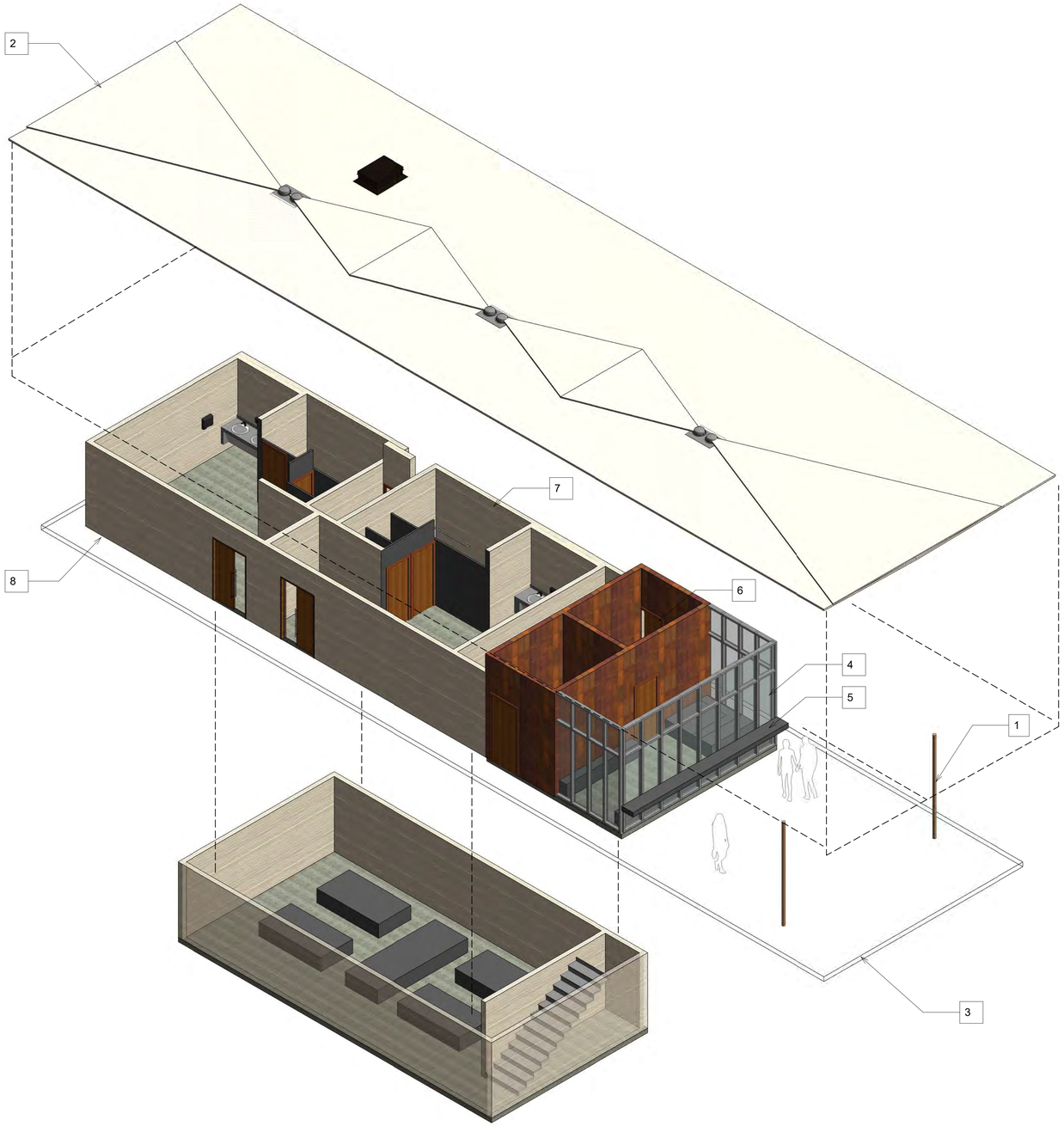
CHULA VISTA, CALIFORNIA

PERSPECTIVE

CVB - HARBOR PARK

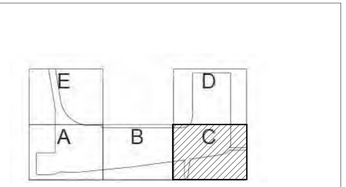
DATE: 4/24/2020 9:46:03 AM
A/E NO.: A2-900
SHEET: 48 OF 54
DRAWING: CV-2019-01
REV.: -



NOTES

1. COLUMN
2. SOLID ROOF MEMBRANE
3. SERVICE TABLE
4. GLASS WITH FRIT PATTERN
5. SERVICE COUNTER
6. WEATHERED STEEL
7. PERFORATED SCREEN
8. CIP CONCRETE

KEYMAP



SCALE: N/A

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SPECNO: -	WBS NO: -	50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
REFERENCES: -		100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020
PROJECT ENGINEER: -			
CONTRACTOR: -			
CONSTRUCTION STARTED: -			
CONSTRUCTION COMPLETED: -			
COST: -	INSPECTOR: -	REVISIONS	DATE / APPROVED

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED:
DRAWN: Author
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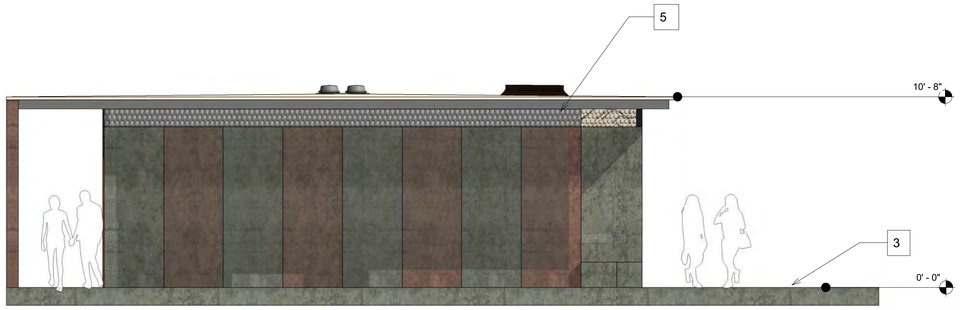
PERSPECTIVE

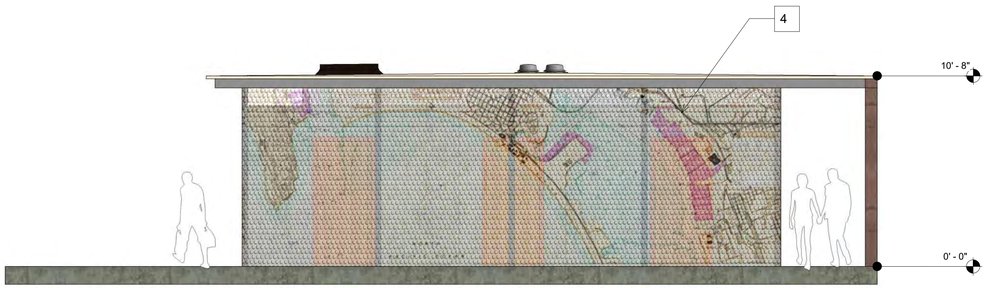
CVB - HARBOR PARK

DATE: 4/24/2020 9:46:06 AM
A/E JOB NO: A2-901
SHEET: 49 OF 54
DRAWING NO: CV-2019-01
REV: -

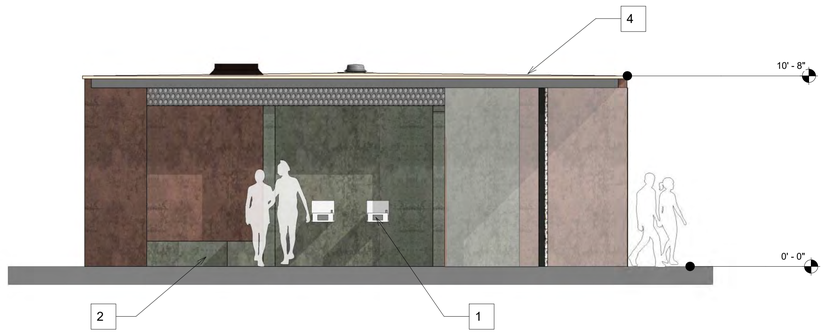


1 NORTH ELEVATION
1/4" = 1'-0"

2 EAST ELEVATION
1/4" = 1'-0"



3 SOUTH ELEVATION
1/4" = 1'-0"

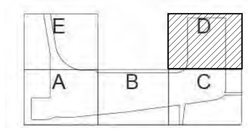


4 WEST ELEVATION
1/4" = 1'-0"

NOTES

1. DRINKING FOUNTAIN
2. BENCH
3. CONCRETE FLOOR
4. ALUMINUM PERFORATED SCREEN WALL WITH STRUCTURAL STEEL FRAMING
5. CONCRETE WALL WITH INTEGRAL COLOR

KEYMAP



0 4 8 12

SCALE: 1/4" = 1' - 0"

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LICENSED ARCHITECT RALPH J. ROSSI III REN 3-31-17 STATE OF CALIFORNIA

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CONSTRUCTION COMPLETED -
COST - INSPECTOR -

REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED
DRAWN Author
CHECKED Checker

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CHULA VISTA, CALIFORNIA

ELEVATIONS

CVB - HARBOR PARK

DATE 4/24/2020 9:48:21 AM
A/E NO. A3-300
SHEET 52 OF 54
DRAWING CV-2019-01
REV. -

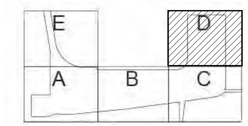
1 PERSPECTIVE

2 SECTION PERSPECTIVE

NOTES

1. DRINKING FOUNTAIN
2. BENCH
3. CONCRETE PAVING
4. ALUMINUM PERFORATED SCREEN WALL
5. CONCRETE WALL WITH INTEGRAL COLOR

KEYMAP



SCALE: N/A

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RALPH J. ROSENBERG — LICENSED ARCHITECT — REN 3-29-17 — STATE OF CALIFORNIA

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100% SCHEMATIC DESIGN

RECORD DRAWING

REVIEWED BY:

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CONSTRUCTION COMPLETED -
COST - INSPECTOR -

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50% SCHEMATIC DESIGN SUBMITTAL	05/31/2019
100% SCHEMATIC DESIGN SUBMITTAL	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED:
DRAWN: Author
CHECKED: Checker

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PERSPECTIVE

CVB - HARBOR PARK

DATE 4/24/2020 9:48:42 AM
A/E NO. A3-900
SHEET 53 OF 54
DRAWING NO. CV-2019-01
REV. -

PLANTING SCHEDULE

KEY	BOTANICAL NAME / "COMMON NAME"	SIZE	SPACING	EXPECTED HEIGHT	EXPECTED SPREAD	WATER PER WUCOLS	DETAIL	NOTES
LAWN REINFORCED								
LR	90/10 Tall Fescue by Delta Bluegrass	60,000 Sq. Ft.		2" mowing height				Reinforced Turf Lawn
LAWN UNREINFORCED								
LU	90/10 Tall Fescue by Delta Bluegrass	90,000 Sq. Ft.		2" mowing height				Unreinforced Turf Lawn
ORNAMENTAL GARDEN TYPE 1 OPTIONS								
OG1	*Festuca mairei* Atlas Fescue			2-3'	2-3'	low		
	Pennisetum orientale 'Karley Rose' Karley Rose Oriental Fountain Grass			3-4'	3-4'	low		
	Lygeum spartum False Esparto Grass			2-3'	2-3'	low		
	Muhlenbergia dubia Pine Muhly			2-3'	2-3'	low		
ORNAMENTAL GARDEN TYPE 2 OPTIONS								
OG2	*Rosmarinus 'Lockwood De Forest'* Lockwood De Forest Rosemary			2'	6-8'	low		
	Baccharis pilularis 'Pigeon Pt.' Dwarf Coyote Brush			2-3'	6-8'	low		
	Santolina rosmarinifolia Green Santolina			1-2'	1-2'	low		
	Eriogonum fasciculatum 'Dana Point' Dana Point Buckwheat			2'	4'	very low		
	Eriogonum grande var. rubescens Red Buckwheat			2-3'	2-3'	very low		
	Salvia 'Marine Blue' Marine Blue Sage			2-3'	2-3'	low		
	Lantana 'New Gold' New Gold Lantana			1-2'	2-5'	very low		
	Penstemon spectabilis Showy Penstemon			3-4'	3-4'	low		
ORNAMENTAL GARDEN TYPE 3 OPTIONS								
OG3	*Epilobium canum 'Catalina'* Catalina Fuchsia			2-3'	3'	very low		
	Salvia 'Celestial Blue' Purple Sage			3-4'	3-6'	very low		
	Salvia gregii 'Furman's Red' Furman's Red Autumn Sage			2-3'	2-3'	low		
	Westringia fruticosa 'Mundi' Mundi Coast Rosemary			1-2'	4-6'	low		
	Festuca mairei Atlas Fescue			2-3'	2-3'	low		
	Encelia californica Coast Sunflower			3'	5'	very low		
	Perovskia 'Little Spire' Compact Russian Sage			2-3'	2-3'	low		
	Galvezia speciosa Island Bush Snapdragon			3'	5'	low		

PLANTING SCHEDULE

KEY	BOTANICAL NAME / "COMMON NAME"	SIZE	SPACING	EXPECTED HEIGHT	EXPECTED SPREAD	WATER PER WUCOLS	DETAIL	NOTES
ORNAMENTAL GARDEN TYPE 4 OPTIONS								
OG4	*Epilobium canum 'Catalina'* Catalina Fuchsia			2-3'	3'	very low		
	Festuca mairei Atlas Fescue			2-3'	2-3'	low		
	Agave attenuata Foxtail Agave			3-4'	4-7'	low		
	Senecio vitalis Narrow-Leaf Chalksticks			1-2'	3-5'	low		
	Grevillea 'Superb' Superb Grevillea			3-5'	3-5'	low		
	Calandrinia spectabilis Rock Purslane			1-2'	2-3'	low		
	Hesperaloe parviflora 'Yellow' Yellow Flowering Texas Yucca			4-5'	1-2'	very low		
	Sphaeralcea ambigua Desert Mallow			2-3'	2-3'	low		
SHORELINE ROCK GARDEN OPTIONS								
SG	*Pennisetum orientale 'Karley Rose'* Karley Rose Oriental Fountain Grass			3-4'	3-4'	low		
	Festuca mairei Atlas Fescue			2-3'	2-3'	low		
	Calandrinia spectabilis Rock Purslane			1-2'	2-3'	low		
	Senecio vitalis Narrow-Leaf Chalksticks			1-2'	3-5'	low		
	Hesperaloe parviflora Red Yucca			3-4'	3'	very low		
	Aloe 'ANDora' Safari Orange Aloe			2-3'	3-4'	low		
	Dudleya brittonii Giant Chalk Dudleya			1'	1.5'	very low		
	Agave attenuata Foxtail Agave			3-4'	4-7'	low		
BIORETENTION GARDEN OPTIONS								
BG	*Juncus patens* California Grey Rush			2'	2'	low		
	Muhlenbergia rigens Deer Grass			3-5'	3-5'	low		
	Sporobolus airoides Alkalai Sacaton			3-4'	2-3'	low		
	Epilobium canum 'Catalina' Catalina Fuchsia			2-3'	3'	very low		
	Oenothera elata ssp. hookeri Hooker's Evening Primrose			3-5'	3'	low		
MARSH								
MA	*Juncus acutus ssp. leopoldii* Spiny Rush			2-4'	3-5'	moderate		
	Salicornia pacifica Pickleweed			1-2'	1-2'	unknown		

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REVISIONS	DATE / APPROVED
50% SCHEMATIC DESIGN	04/26/2019
100% SCHEMATIC DESIGN	04/24/2020

PORT of SAN DIEGO
Waterfront of Opportunity

DESIGNED PETERSEN
DRAWN MM/RG
CHECKED JP

CHULA VISTA, CALIFORNIA

PLANTING SCHEDULE

HARBOR PARK

DATE 04/24/2020
A/E NO. L601
SHEET 29 OF 54
DRAWING NO. CV-2019-01
REV.

MATCHLINE AREA E
MATCHLINE AREA A

ROW

SIDEWALK

BIKE PATH

GARDEN ROOM

GARDEN ROOM

MARINE GROUP BOAT WORKS

SERV ENCL

NORTH PARKING

BEACH LAWN

GATE 1

MGBW ENTRY

IMPROVED MGBW FENCE OVER PARK RETAINING WALL

BMP 732 SF

PROMENADE

UPPER BEACH

DRY BEACH

GARDEN ROOM

RENTAL

CAFE

TERRACED HEADLAND

INTERTIDAL BEACH

NORTH RAMP

MATCHLINE AREA A
MATCHLINE AREA B

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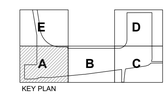
TREE PLANTING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PRIMARY SHADE TREE		SHORELINE TREE
	PLAZA SHADE TREE		PALM TREE
	LAWN & GARDEN SHADE TREE		'H' STREET PALM TREE
	ACCENT TREE		'E' STREET TREE
	PLAY AREA TREE		PARKING TREE

GROUNDCOVER PLANTING LEGEND

DESCRIPTION	DESCRIPTION
LAWN REINFORCED	ORNAMENTAL GARDEN TYPE 3
LAWN UNREINFORCED	ORNAMENTAL GARDEN TYPE 4
ORNAMENTAL GARDEN TYPE 1	SHORELINE ROCK GARDEN
ORNAMENTAL GARDEN TYPE 2	BIORETENTION GARDEN
	MARSH



KEY PLAN

0' 15' 30' 60'

N

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133 KEARNY STREET SUITE 303 SAN FRANCISCO, CA 94108

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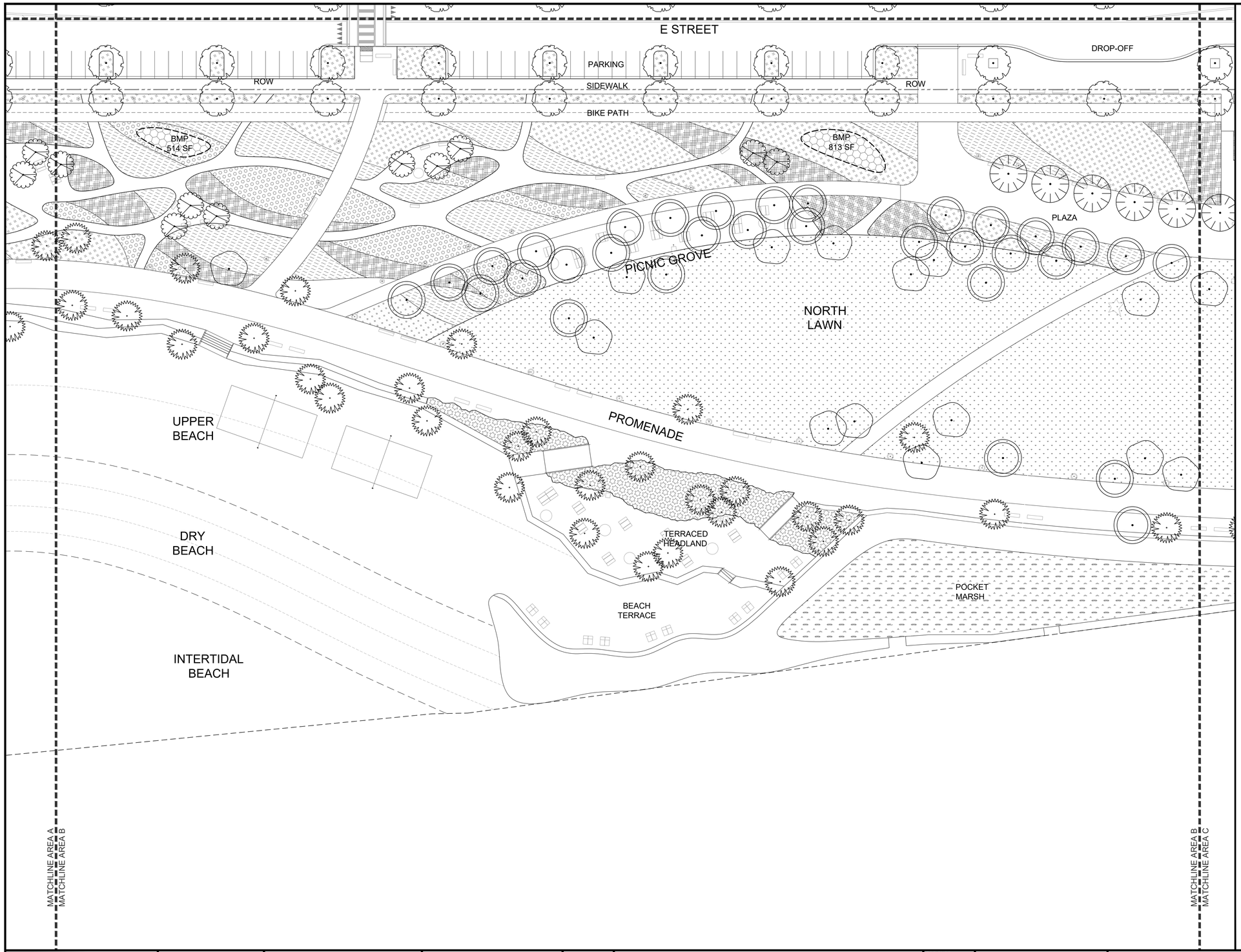
CHULA VISTA, CALIFORNIA

PLANTING PLAN AREA A

HARBOR PARK

DATE 04/24/2020
A/E NO. L602
SHEET 30 OF 54
DRAWING NO. CV-2019-01
REV.



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TREE PLANTING LEGEND

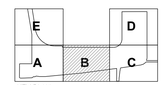
SYMBOL	DESCRIPTION
	PRIMARY SHADE TREE
	PLAZA SHADE TREE
	LAWN & GARDEN SHADE TREE
	ACCENT TREE
	PLAY AREA TREE

SYMBOL	DESCRIPTION
	SHORELINE TREE
	PALM TREE
	'H' STREET PALM TREE
	'E' STREET TREE
	PARKING TREE

GROUNDCOVER PLANTING LEGEND

DESCRIPTION
LAWN REINFORCED
LAWN UNREINFORCED
ORNAMENTAL GARDEN TYPE 1
ORNAMENTAL GARDEN TYPE 2

DESCRIPTION
ORNAMENTAL GARDEN TYPE 3
ORNAMENTAL GARDEN TYPE 4
SHORELINE ROCK GARDEN
BIORETENTION GARDEN
MARSH



KEY PLAN

0' 15' 30' 60'

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PORT of SAN DIEGO
Waterfront of Opportunity

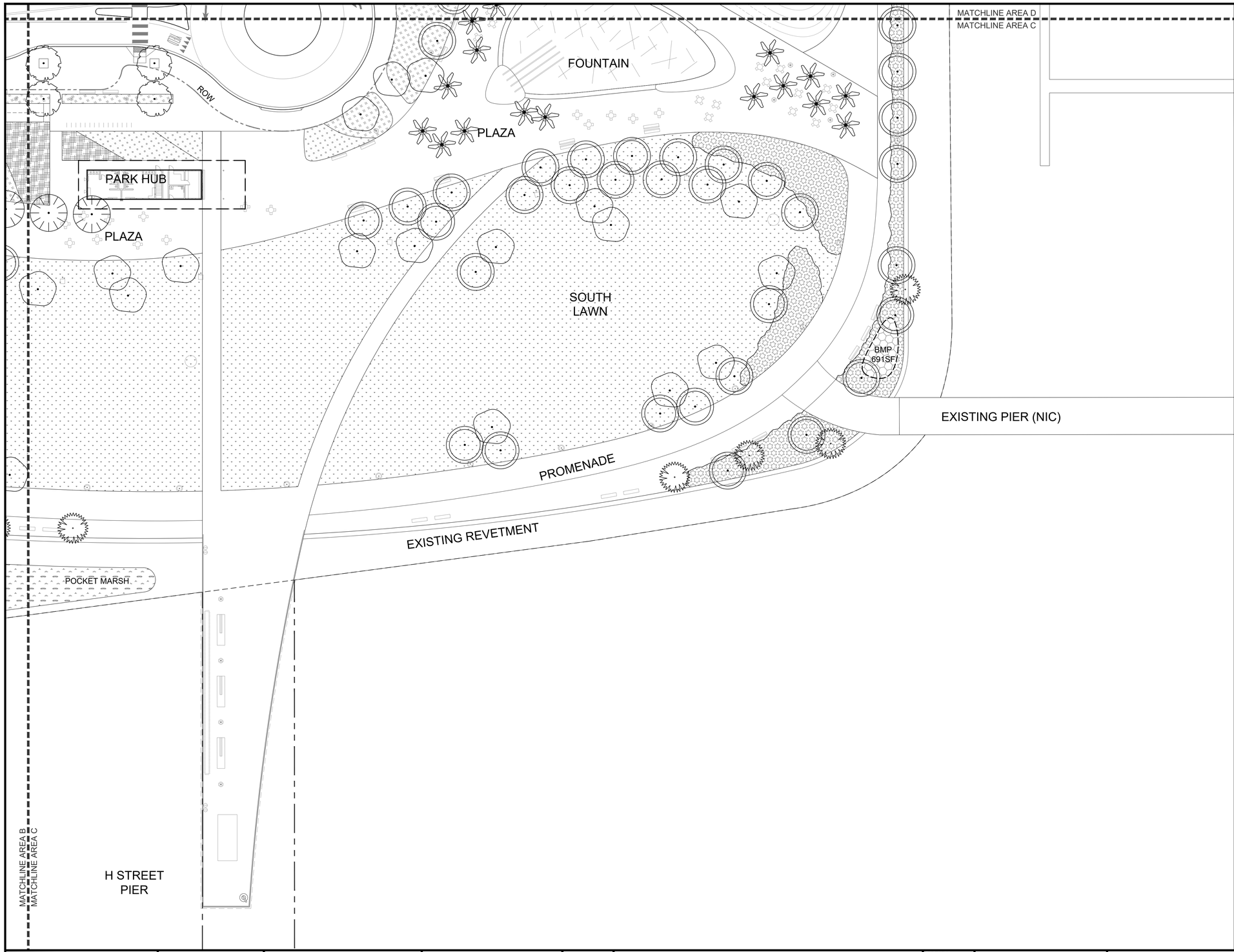
DESIGNED PETERSEN
DRAWN MM/RG
CHECKED JP

CHULA VISTA, CALIFORNIA

PLANTING PLAN AREA B

HARBOR PARK

DATE 04/24/2020
A/E NO. L603
SHEET 31 OF 54
DRAWING NO. CV-2019-01
REV.



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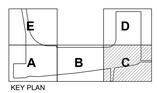
TREE PLANTING LEGEND

SYMBOL	DESCRIPTION
	PRIMARY SHADE TREE
	PLAZA SHADE TREE
	LAWN & GARDEN SHADE TREE
	ACCENT TREE
	PLAY AREA TREE

SYMBOL	DESCRIPTION
	SHORELINE TREE
	PALM TREE
	'H' STREET PALM TREE
	'E' STREET TREE
	PARKING TREE

GROUNDCOVER PLANTING LEGEND

DESCRIPTION	DESCRIPTION
LAWN REINFORCED	ORNAMENTAL GARDEN TYPE 3
LAWN UNREINFORCED	ORNAMENTAL GARDEN TYPE 4
ORNAMENTAL GARDEN TYPE 1	SHORELINE ROCK GARDEN
ORNAMENTAL GARDEN TYPE 2	BIORETENTION GARDEN
	MARSH



KEY PLAN

0' 15' 30' 60'

N

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PORT of SAN DIEGO
Waterfront of Opportunity

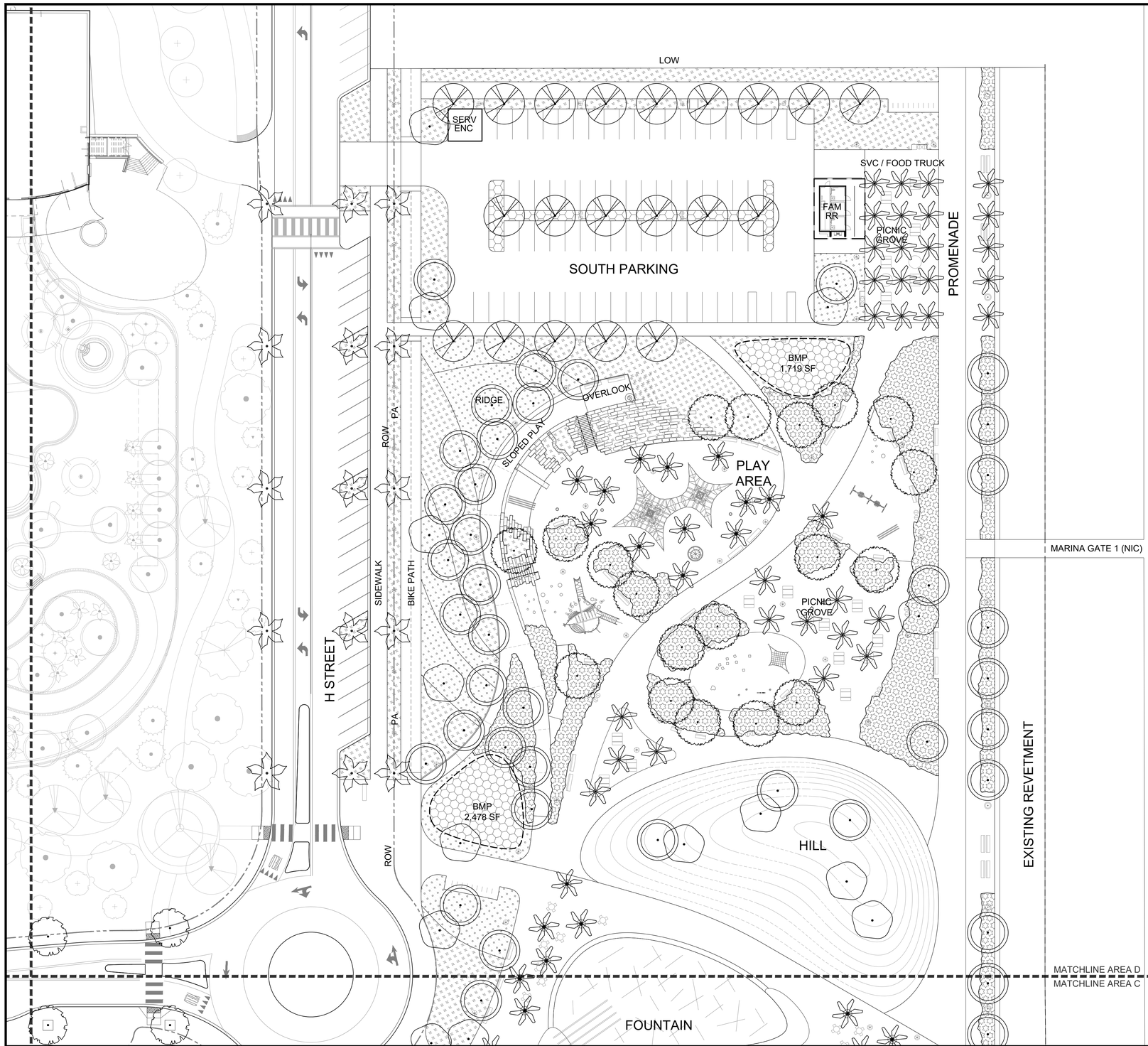
DESIGNED PETERSEN
DRAWN MM/RG
CHECKED JP

CHULA VISTA, CALIFORNIA

PLANTING PLAN AREA C

HARBOR PARK

DATE 04/24/2020
A/E NO. L604
SHEET 32 OF 54
DRAWING NO. CV-2019-01
REV.



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TREE PLANTING LEGEND

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	PLAZA SHADE TREE
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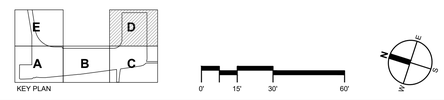
	ACCENT TREE
	PLAY AREA TREE

SYMBOL	DESCRIPTION
	SHORELINE TREE
	PALM TREE
	'H' STREET PALM TREE
	'E' STREET TREE
	PARKING TREE

GROUNDCOVER PLANTING LEGEND

DESCRIPTION
LAWN REINFORCED
LAWN UNREINFORCED
ORNAMENTAL GARDEN TYPE 1
ORNAMENTAL GARDEN TYPE 2

DESCRIPTION
ORNAMENTAL GARDEN TYPE 3
ORNAMENTAL GARDEN TYPE 4
SHORELINE ROCK GARDEN
BIORETENTION GARDEN
MARSH



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PORT of SAN DIEGO
Waterfront of Opportunity

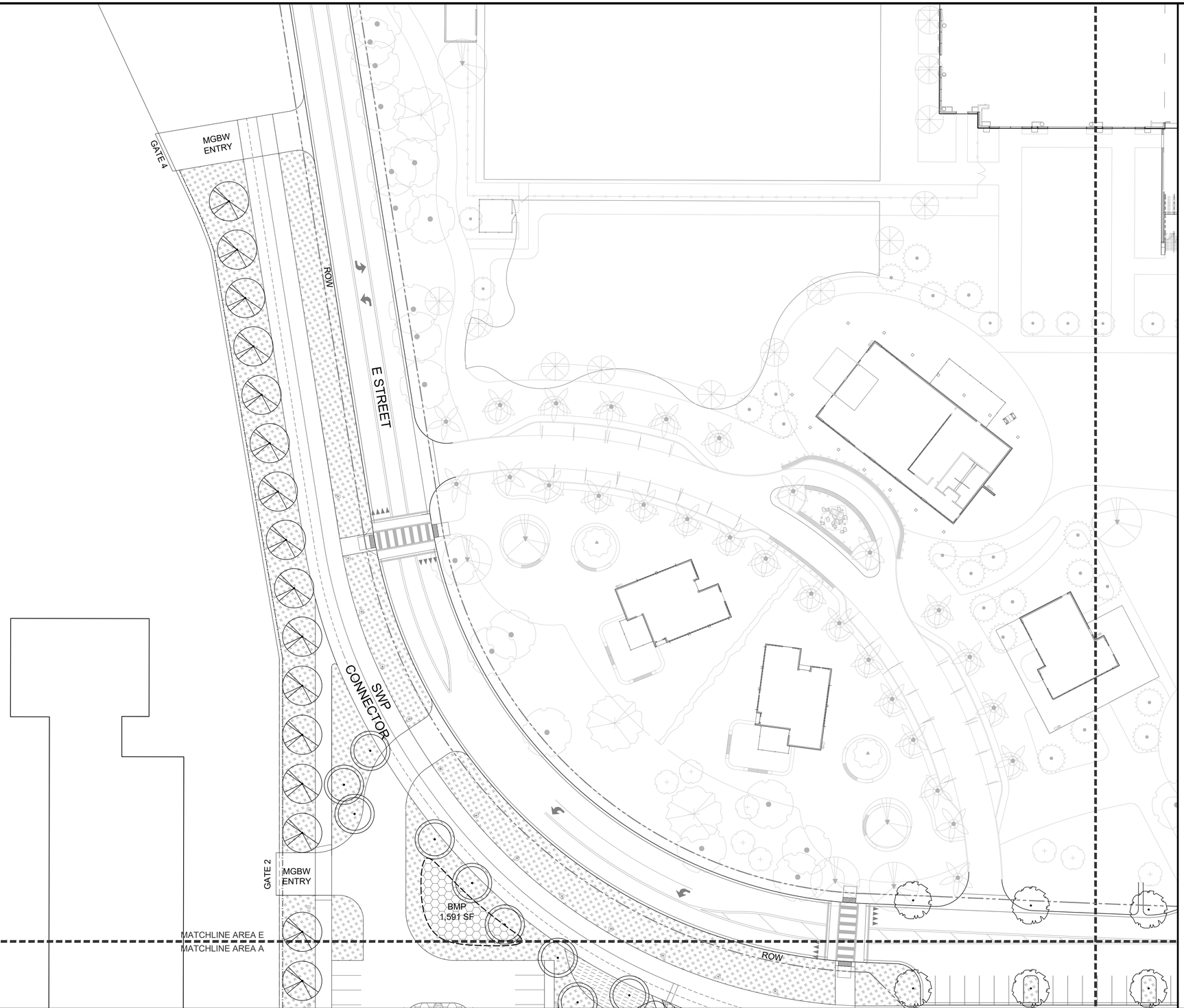
DESIGNED PETERSEN
DRAWN MM/RG
CHECKED JP

CHULA VISTA, CALIFORNIA

PLANTING PLAN AREA D

HARBOR PARK

DATE 04/24/2020
A/E NO. L605
SHEET 33 OF 54
DRAWING NO. CV-2019-01
REV.



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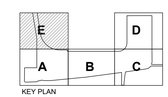
	PLAY AREA TREE		PARKING TREE

GROUNDCOVER PLANTING LEGEND

DESCRIPTION	DESCRIPTION
LAWN REINFORCED	ORNAMENTAL GARDEN TYPE 3
LAWN UNREINFORCED	ORNAMENTAL GARDEN TYPE 4
ORNAMENTAL GARDEN TYPE 1	SHORELINE ROCK GARDEN
ORNAMENTAL GARDEN TYPE 2	BIORETENTION GARDEN
	MARSH



KEY PLAN

0' 15' 30' 60'

N W S

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LANDSCAPE ARCHITECTURE | PLANNING
133 KEARNY STREET SUITE 303 SAN FRANCISCO, CA 94108

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CHULA VISTA, CALIFORNIA

PLANTING PLAN AREA E

HARBOR PARK

DATE 04/24/2020
A/E NO. L606
SHEET 34 OF 54
DRAWING NO. CV-2019-01
REV.

ESA 50 YEARS 1969-2019

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

esassoc.com

memorandum

date	April 2, 2020
to	Chris Langdon, KTU+A
cc	Jacob Petersen, Petersen Studio
from	Nick Garrity, PE, and Pablo Quiroga
subject	Beach Nourishment Maintenance for the Chula Vista Bayfront Harbor Park Project

Summary and Conclusions

During Phase 1 of the project, sand from the Harbor Park Beach would be transported by wind waves and currents towards the south. Sand would accumulate along the shoreline at the toe of the revetment to the south and in a shoal at the north end of the Chula Vista marina beneath the fishing pier that extends south from the revetment. For Phase 2 of the project, a new pier is proposed at H Street between Harbor Park and the marina. The new proposed H Street pier could be designed to trap sand that could, in turn, be placed back at the site.

As a result, after construction, the beach will require periodic maintenance. A beach maintenance plan and subsequent beach monitoring of the site is recommended to manage the beach sediment and to inform subsequent nourishment events.

We expect that the beach will require nourishment intervals between 2-5 years to maintain the beach for public access and prevent progressive shoreline erosion and recession, depending on the environmental conditions, sediment availability, and the definition of the thresholds that will trigger a beach nourishment event. Based on the concept design, we expect that each event will require between 2,000 to 6,000 cubic yards (cy). We estimate that the cost per event will be between $65,000[1] to $390,000[2] (Importing sand). We estimate that the cumulative total cost of the beach nourishment over 20 years will be between approximately $910,000 to $1,820,000 (2020

[1] Low end, based on backpassing sand by excavating sand that drifts to areas to south and placing the excavated sand back on the beach. Assumes 2,000 cy of sand placement.

[2] High end based on importing sand and assumes 6,000 cy of sand placement.

dollars) depending on whether sand is backpassed or imported, with a corresponding average annual cost of approximately $45,000 to $91,000.

Beach Nourishment Source Material

The source of the beach material used for nourishment will define the methods and tools to replenish the beach. The sand source may be either “external source materials” that are imported to the site or “local source material” that is backpassed from areas to the south.

External Source

The external source of material will require some form of hauling to the site either by land (trucks) or sea (barge). Hauling sand to the beach will generally increase the cost and will require a more significant mobilization of equipment and partial closing of the park and the beach.

External sources of sand would most likely come from inland sources such as quarries, which can provide quality sand from inland deposits. Importing sand from inland requires transportation with trucks, and it may need to be transported from remote locations. Note that sand may be available from quarries such as those in the Sorrento Valley area of the City of San Diego, which are located approximately 25 miles from the site. The placement of this material will require trucks and other construction equipment to drive across and along the beach. Construction may require closing parts of the park and the beach during the placement of the material.

Other potential sources of sand include dredged material from harbors and marinas and lagoon restoration projects. The advantage of this material is the low cost if it is appropriate material and available from nearby sources. Dredge material needs to be carefully examined both in terms of grain size and pollutants. The operation usually requires placement of the material with a barge. Dredge materials from within San Diego Bay are likely to be too fine grained to be appropriate for use on the Harbor Park beach; however, it is possible that local sources of dredge material could become available. Offshore sand deposits could also be potentially excavated and placed at the site; however, this is unlikely to be a practical option for Harbor Park.

Local Source – Sand Backpassing

Sand backpassing would involve excavating sand that drifts to the south, loading the sand into trucks, and transporting and placing the sand back on the Harbor Park beach. In Phase 1, sand that accumulates in front of the

revetment toe to the south and in the shoal at the north end of the marina would be excavated. Construction equipment could drive from the Harbor Park beach along the shoreline to the south at low tide, excavate sand, and move it back to Harbor Park. Equipment could also excavate sand that accumulates in the north end of the marina on the east side of the fishing pier. This may involve construction equipment accessing and operating on the promenade on the top of the revetment. Excavated sand could trucked along the toe of the revetment or on the promenade, and/or roads to Harbor Park beach. Construction equipment may need to operate from the shoal.

In future phases, if the H Street pier is designed to trap sand , sand could be excavated from the north side of the H street pier and transported along the shoreline back to the Harbor Park beach. Trucks would place sand on the Harbor Park beach. Construction equipment could be used to spread the sand and re-contour the beach. The placement could also be accomplished by building a beach berm allowing the waves and currents to redistribute the sand.

Note that:

- Compared to importing sand for beach nourishment, backpassing sand would reduce the demand of imported sand sources, costs, and the amount of sand placed into the littoral system between the Harbor Park beach and the marina. Backpassing sand could also reduce the potential effects of sand accumulation on eelgrass habitat along the shoreline south of the site between the beach and at the marina.
- Designing and installing the H Street pier to trap sand would reduce the amount of sand moving to the marina.
- Backpassing sand from the H Street pier would be a shorter haul route along the beach for construction equipment and may, therefore, be cost-effective even for low to moderate sand volumes.

Cost Estimate

ESA's shoreline sand transport assessment done shows that the total potential Longshore Sediment Transport (LST) for the proposed beach would be approximately 1,000 to 3,280 cy/year from North to South. It is expected that the potential LST will be reduced by 60% to 80% once the existing lower beach orientation evolves and aligns with the improved upper beach. Further reduction of the LST could be achieved by using coarser material on the lower beach and the refinement of the beach geometry and design. Cost estimates here are shown as preliminary and are based on a concept beach design.

For the purposes of establishing preliminary cost estimates for beach nourishment, conservatively high values are used. The conceptual design of the beach considers placing about 6,000 cy on the wet intertidal beach, which is

the beach that is exposed frequently to tides and waves.. Based on this volume and the estimated LST rates, the wet intertidal beach will be eroded in a period of 2 to 5 years. Table 1 shows the cost estimates of a single beach nourishment event using external material or sand backpassing. Nourishment events are expected to be needed every 2 to 5 years, depending on the erosion rate during those years. The cost estimate considers a low-end sand placement volume estimate of 2,000 cy to a high-end volume of 6,000 cy. Note that the conceptual-level cost estimates in this memorandum are laoded costs (i.e., costs include direct and indirect costs that a contractor would typically charge), include a 30% contingency, and are in 2020 dollars.

TABLE 1
COST ESTIMATE PER EVENT[1]

Method	Volume (CY)	Unit Price ($/CY)	Total (USD)	Total With 30% Contingency
External Beach Material - Haul	2,000-6,000	50	$100,000 - $300,000	$130,000 - $390,000
Sand Backpassing[1]	2,000-6.000	25	$50,000 - $150,000	$65,000 - $195,000

1. Nourishment events are expected to be needed every 2 to 5 years.
2. Sand backpassing does not include the cost of installing and designing the H Street pier to trap sand.

Table 2 shows the average cost estimate of beach nourishment, assuming an average volume of sand of 4,000 cy per event, with maintenance events occurring every 3 to 4 years for a total of 7 events during the next 20 years. These estimates do not consider the maintenance of the dry beach due to loss of material during extreme events or loss of material on the upper beach due to wind erosion.

TABLE 2
AVERAGE COST ESTIMATE

Cost Estimate[1,2]	External Beach Material - Haul (USD)	Sand Backpassing (USD)
Cost Over 20-Years	1,820,000	910,000
Average Cost Per Year	91,000	45,500
Cost per Event	260,000	130,000

1. Cost estimates are based on 7 events in 20 years and a volume of 4,000 cy (i.e., an intermediate volume for the estimated 2,000-6,000 cy range).
2. The cost estimates include a contingency of 30%.

These costs are intended to provide an approximation of total project costs appropriate for the conceptual level of design. These cost estimates are considered to be approximately -30% to +50% accurate, and include a 30% contingency to account for project uncertainties (such as final design refinements, permitting restrictions, fuel

prices, material availability, and bidding climate). The specified material may not be as readily available as another material option. The Port, at their discretion, may substitute materials that are available at a lower cost, with the understanding that the present cost benefit may affect the future project performance and life cycle. These estimates are subject to refinement and revisions as the design is developed in future stages, which is outside of the scope of this memo. Estimated costs are presented in 2020 dollars, and would need to be adjusted to account for price escalation for implementation in future years. This opinion of probable maintenance cost is based on ESA's previous experience and bid prices from similar projects. Please note that in providing opinions of probable costs, ESA has no control over the actual costs at the time of construction. The actual cost of construction may be impacted by the availability of construction equipment and crews and fluctuation of supply prices at the time the work is bid. ESA makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bids or actual costs.

Beach Nourishment Triggers

Triggers for beach nourishment event at the site could be defined by different thresholds and expectations. If erosion on the lower beach is something that is accepted, the time between beach nourishment events could be extended. Another beach nourishment trigger could be the volume of sand that the proposed H Street pier or the existing Chula Vista Marina fishing pier south of the site can retain without potentially having an effect on the existing eelgrass. At that point, the material at the pier and/or marina would need to be backpassed to the beach.

Beach Monitoring

Monitoring post-construction is recommended to evaluate project performance, to assess whether triggers or thresholds for nourishment are reached, to inform the frequency and scale of future nourishment projects, and to identify any remedial actions that may be desired. This program could include seasonal or annual beach surveys, monitoring of eelgrass, comparing survey results to established thresholds for maintenance, and a maintenance nourishment design.

Wind Transport

Beach sand at the upper beach is expected to remain in place. However, wind or Aeolian transport could be significant. ESA recommends further assessment the potential of Aeolian transport in subsequent phases of design.

Merkel & Associates, Inc.
5434 Ruffin Road, San Diego, CA 92123
Tel: 858/560-5465 • Fax: 858/560-7779
e-mail: associates@merkelinc.com

December 31, 2019
M&A # 15-016-06

Mr. Chris Langdon
KTUA
3916 Normal Street
San Diego, CA 92103

Re: Potential Impacts to Eelgrass from the Chula Vista Bayfront Harbor Park Project

Dear Mr. Langdon,

Merkel & Associates, Inc. (M&A) has prepared this letter in support of the Chula Vista Bayfront Harbor Park Project. The purpose of this letter is to identify potential impacts to eelgrass (*Zostera marina*) that could result from implementation of the proposed project and recommend measures to avoid, minimize, and/or mitigate potential significant impacts consistent with applicable federal, state, and local regulations including the California Environmental Quality Act (CEQA) and the Final Environmental Impact Report for the Bayfront Master Plan (Dudek 2010).

Project Description

The proposed project is located within the Harbor District of the Chula Vista Bayfront Master Plan (CVBMP) in the City of Chula Vista, California (Figure 1). It spans across approximately 25 acres between the Marine Group Boat Works to the north and the Chula Vista Marina to the south and is bound to the west by the open waters of San Diego Bay. The project proposes to redevelop the existing area to include a waterfront promenade, multi-use lawn, improved beach, terraced headlands, beach lawn, north promontory, H Street pier, urban plaza, interactive fountain, hill, family play area, and southeast picnic grove. The project also includes associated uses and utilities including landscape improvements via installation of gardens and lawn areas; park support buildings including fixed locations for food service, restrooms, beach/boat rental including construction of a non-motorized boat launch; park lighting; park furnishings including various types of seating, signage and wayfinding; interpretive programming; sea level rise and design; grading and cut/fill balance; utility improvements; drainage improvements; and pedestrian and bicycle improvements.

Existing Bay/Eelgrass Conditions

San Diego Bay is a naturally shallow water embayment that has been dredged to accommodate various navigational uses including both intermediate depth recreational boating as well as deep commercial and military harbor needs. The resulting bathymetric distribution within San Diego Bay exhibits a broad depth distribution curve, with natural bay depths occurring over much of the area less than -6 feet mean lower low water (MLLW) and deeper dredged harbor extending to much deeper depths. Within the biological survey area for the proposed project, eelgrass generally occurs where subtidal shallow flats are located adjacent to the dredged/navigable waters; the elevation within which the eelgrass grows to upper elevations of ranges from approximately +2 (at extremes warranting separate discussion) with 0 feet MLLW to -8 feet MLLW being the typical range and deviations to depths below -15 feet being very rare (M&A 2018a). The greatest proportion of available habitat that is occupied by eelgrass occurs between approximately -2 and -4 feet MLLW.

M&A #15-016-06

Biological Resources Map

Chula Vista Bayfront - Harbor Park Project

Figure 1

Merkel & Associates, Inc.

Along the Harbor Park shoreline (Chula Vista Bayside Park), eelgrass typically extends shoreward to approximately 0 feet MLLW and extends bayward to the margins of the adjacent navigation channel access to the Chula Vista Marina. At times, eelgrass occurs in perched scour pools along the shoreline at elevations slightly above +1 foot. These pools form as a result of reflected energy off of eroded beach scarps and exist intermittently as troughs on the lower shore. Their formation and degree of persistence is dictated by a number of factors including storm magnitude, frequency, and timing relative to tidal stages, the shape of the beach at the time of storms, and the available sediment in the system that will ultimately be available to backfill the pools and bring them back to fully draining conditions. The pools that are developed above 0 feet typically aid in sheltering plants from desiccation stress, but expose plants to increased thermal stress during low tides. At the lower margin a diminished light environment and steep slopes descending into the maintained navigation channel limit eelgrass. Eelgrass at the channel margin extends to variable depths of approximately -8 to -10 feet MLLW where channel margins exhibit a more gradual slope.

At the northern end of the shoreline, eelgrass terminates at the entrance channel into the South Bay Boatyard and wraps inside the boatyard along a narrow plateau that was a mitigation area for maintenance dredging damage within the yard that was conducted several years ago. At the southern end of the shoreline, eelgrass extends along the margins of an actively building littoral shoal. The bed is wider on the bayward side of the shoal and is very narrow on the inside of the shoal located within the Chula Vista Marina basin, behind the pendant seawall panels. This shoal is the terminal shoal that receives sand from littoral drift along the shoreline reach between the South Bay Boatyard and the Chula Vista Marina Basin.

Transported sand within this short cell is fully derived from erosion of this shoreline and the transport is nearly exclusively driven by short-period wind waves. The degree of sediment transport is generally determined by the availability of sediment from nourishment events and scarp erosion. In addition, because the transport mechanism is through short-period waves rather than deeper swell, sediment transport is limited in its off-shore transport vectors and much more defined by long-shore transport. Exception to the long-shore versus off-shore transport of sediment is found in storm drains discharging to the beach face. Where these drains occur sand is transported across the beach and deposited at the water's edge by storm water flows. As a result, such drains lead to development of sediment deltas that often run over eelgrass present at the shoreline margin. One of these features is located off the street drains from Bayside Parkway. Low and infrequent flows, limited littoral sand, and a relatively low discharge elevation limit the impact of this drain on eelgrass, however the drain accounts for the principal offshore movement of sand.

Sand delta formed by Bayside Parkway drain discharge illustrating variable conditions through time.

The shoreline of the Harbor Park supports approximately 2,000 feet of west facing shoreline. The northern and southern portions are armored with riprap revetment, while an approximately 500 foot wide gap of unarmored shoreline with an erosion scarp at the mid elevations of the shoreline where a low elevation intertidal beach supporting gravel and rock rubble occurs below the scarp and a rilled soil slope occurs above the scarp. Silty sandflat extends further bayward from the small sand beach.

The existing beach, identified by the approximate 500-foot gap of revetment has historically experienced erosion and sediment loss. In an effort to stabilize the area, the Port District most recently implemented a beach stabilization project in 2016. The stabilization project included cutting the eroded bank back to a flatter, more stable slope and protecting the entire 500-foot length with a three-foot-thick blanket of buried rounded-river cobble and sand. The cobble blanket was covered with a veneer of beach sand. Several trees that had to be removed to accommodate the slope excavation were replaced, and picnic tables and benches were relocated within the park. The project design included approximately 6,900 cubic yards (cu yd) of excavation to flatten the slope and placement of 4,270 cu yd of cobble (approximately 6-inch diameter) and 1,830 cu yd of sand veneer fill to stabilize the beach.. As documented within the Sea-Level Rise Analysis for the Chula Vista Sweetwater and Harbor Parks (ESA 2019b), winds from the northwest are most common. Thus, the displaced sand migrates laterally along the shoreline and deposits just inside the marina on the outside and inside of the existing fishing pier where a shoal has formed. The bayfront beach continues to erode as anticipated; however, the stabilization project has functioned as intended and continues to provide a slope that allows safer public access than existed prior to the stabilization Annual sand loss and transport rates are discussed in a separate coastal processes memorandum (ESA 2019a). As noted earlier in this memorandum, the nature of wind waves that transport sand tend to limit bayward spread of the beach sand and sediment is transported only within the shallow margins of the shoreline. This means that little sediment moves outward from the beach. As a result, wave generated beach erosion on this shoreline segment typically does not result in eelgrass burial by sand bayward of the beach, while storm drain discharges can have such an influence. Rather, sand transport long-shore ultimately can have an adverse effect on eelgrass at the southwestern tip of the Chula Vista Bayfront where sand accumulates in a terminal shoal.

As existing beach erosion occurs, the Port conducts maintenance on an irregular and as-needed basis. This action augments the beach and would be expected to result in pulses of increased transport of sand towards the terminal shoal immediately following each nourishment event. The present beach condition and the recurrent as-needed nourishment actions are considered to be the baselines against which eelgrass impacts are evaluated for the Harbor Park project actions.

Project Impacts, Mitigation, and/or Recommendations

Potential impacts to eelgrass as a result of major storm drain improvements have previously been evaluated within a separate document in support of the North Harbor District Improvements project (M&A 2018b). Under this prior effort, recommendations were made, and adopted, to collect drainage from areas that presently discharge over the west facing beach and flats and redirect this drainage to discharge through the revetment to the north and south of the beach, thereby reducing the impetus for sand transport vertically down the beach to the eelgrass. The minor parkland drainage conveyances consisting of 4 to 6 inch drains from turfed and landscaped area were not addressed in this prior storm drain improvements assessment. While these drains

are of minimal scale and do not result in the magnitude of bayward sand movement as the street drains, it is recommended that the Harbor Park project similarly consolidate and relocate drains into the proposed storm drain collectors or similarly discharge through the revetment north and south of the beach and flats where discharge would always discharge directly into water as opposed to crossing intertidal flats. Further opportunities to infiltrate parkland storm waters to reduce discharge flow rates, improve water quality, and expand storm water discharge paths should also be evaluated. Because the larger storm drain discharges of concern were addressed in the prior document, no additional discussion of storm water drainage is included here.

The primary Harbor Park elements that could result in impacts to eelgrass include the construction, maintenance, and use of the improved beach, the construction and over-water presence of the H Street Pier, and the operations of a non-motorized boat launch facility.

Harbor Park Beach Impacts

Under the Harbor Park project, an improved high beach would be constructed within the same frontage as the current eroding beach. The improved beach is proposed to be constructed above the existing mean high water (MHW) line to create a perched beach that extends into the upper intertidal zones and continues into supratidal elevations. The beach has been described as consisting of a "Lower Beach" and an "Upper Beach". The Lower Beach (above MHW but below approximately +8 feet MLLW) would be subject to tides and wave energy. This beach would be composed of a layer of imported, clean course sand underlain with a layer of scour protection cobble. The Upper Beach (above +8 feet MLLW) would be above the wave reach of all but extremely infrequent storm events coupled with extreme tides. This beach would be composed of finer sand.

Construction of the Harbor Park Beach would avoid direct disturbance to the existing eelgrass due to the work being limited to areas above the MHW that is presently found on the face of a steep erosion scarp. This area is well above and well away from the upper margin of the fringing eelgrass beds to the west of the lower margin of the proposed beach. From north to south, the approximate distance from the MHW line to the eelgrass is approximately 120, 144, and 198 feet.

Although construction of the beach is not expected to result in direct impacts to eelgrass, based on ESA's (2019a) memorandum regarding shoreline sand transport assessment and conceptual beach design for the Chula Vista Bayfront Harbor Park Project, it is anticipated that post construction, wave action could result in displacement of an average of approximately 1,000 cu yd of sand per year that is extracted from the beach by waves and transported by waves down the beach. Based on the prevailing northwest winds the displaced sand is expected migrate laterally along the shoreline towards the terminal shoal at the Chula Vista Marina as discussed previously. Sand would not be expected to substantively travel offshore towards the eelgrass beds. Absent construction of features/structures to trap the sand migration along the shoreline, it is anticipated that any displaced sand will continue to accumulate at the existing shoal and will result in exacerbated eelgrass burial in this area.

However, losses of sand from the proposed construction of the Upper Beach (i.e, a beach above approximately MHW)is expected to be reduced when compared to the existing beach. The proposed beach is expected to reduce sand transport because the proposed beach provides the

opportunity to align the beach with the dominant wind wave direction so that the wind waves will predominantly move sand onto the beach rather than to the south. Furthermore, the proposed beach will be set back farther inland between constructed headlands, which is also expected to reduce the existing rate of sediment transport to the south from the higher elevations of the beach.Note that the extent of beach loss from the Lower Beach of the Harbor Park Beach will be contingent upon the degree to which the existing beach face below the eroded scarp is renourished. On-going renourishment of the existing beach is expected to result in reduced loss of Harbor Park beach sand to the littoral cell, while cessation of the existing beach nourishment would exacerbate losses of Harbor Park beach sand.

While both the existing beach nourishment activities and the future Harbor Park Lower Beach erosion would be expected to contribute to the building of the terminal shoal and over-run of eelgrass, the existing nourishment activities would dramatically reduce Harbor Park beach loss, but at the expense of much higher rates of sediment transport to the shoal. It is recommended that consideration be given to implementation of a maintenance program that reclaims sand from the terminal shoal, or one that traps sand along the beach prior to reaching the terminal shoal so that it may be recollected and placed back at the erosion scarps. This would require disruption of sediment transport path via groin features, or disruption of transport wave energy such that sand deposits in areas along the beach prior to reaching the terminal shoal where eelgrass overrun occurs. This may be possible through the design of the H Street Pier to serve both as over water access and as a physical or energy break in the littoral cell.

Another impact to eelgrass that may occur as a result of the beach, would be increased eelgrass damage associated with greater pedestrian access into the beds at the beach. In general, eelgrass suffers little damage from beach use activities. Damage can be exacerbated in soft sediments as opposed to sandy sediments. However, public use also diminishes in eelgrass beds located in soft sediment environments, such as off of the Chula Vista Bayfront. In general, pedestrian beach access into eelgrass beds is not a major factor influencing eelgrass distribution. This is based on examination of many examples of eelgrass within high intensity beach use environments such as within Mission Bay Park, Glorietta Bay Park, and Coronado Tidelands Park.

<u>H Street Pier Impacts</u>

As outlined within the CVBMP, the H Street pier was planned to consist of an approximate 600-foot long and 60 foot wide pier. Although this may be conducted at some point in the future, the pier proposed as part of the current project extends outward from the shoreline by only approximately 240 feet and tapers down in width from 60 feet to approximately 40 feet wide at its terminal end. The soffit of the proposed pier is expected to be at approximately 12 to 12.5 feet MLLW with the deck height being at an approximate elevation of 14 feet MLLW. The railings of the pier would be open cable or mesh to minimize view obstructions. The pier would be aligned in a predominantly east-west alignment. The terminal end of the pier would be over intertidal eelgrass shallower than -2 feet MLLW. The end of the pier would also be approximately 150 feet from the deeper Chula Vista Marina navigation channel.

The typical means of assessing impacts to eelgrass from pier construction is to assume a vertically cast shadow over the eelgrass below the pier and then evaluate potential for pier construction and pier operational impacts. This has been the approach taken for the present pier; however there are

many factors that suggest impacts may vary subtly from the estimates provided so final impacts would need to be determined through pre-construction and post-construction surveys, including two years of annual post-construction surveys to address developing effects of the pier on eelgrass habitat.

The proposed pier would extend over approximately 0.06 acres of eelgrass. If, in the future, the pier is expanded to the full scale contemplated within the CVBMP it would overlap approximately 0.27 acers of eelgrass. Because the proposed pier would terminate in very shallow eelgrass beds and has a moderate clearance above the water, it is expected that eelgrass will extend under the southern margins of the pier and will similarly extend under the western margins of the pier. Conversely, shading on the northern margins of the pier would be expected to extend slightly away from the pier's vertical projection. Given the penetration of light expected on the south and west of the pier, the narrow pier profile that will limit the shallow width to the north of the pier, and the high elevation of the eelgrass beds that will favor persistence of eelgrass under diffuse light in the shadow of the north side of the pier, it is expected that the ultimate eelgrass loss from shading may fall short of the vertical projection estimate.

In addition to shading effects of the pier, it is expected that localized scouring around pier piles may occur as a result of wind waves. This may either result in eelgrass losses or gains, depending upon elevation of scouring. In addition the pier may result in sediment trapping that may affect long-shore transport of sand along the beach. This effect of the pier can be positive in that it would aid accumulation of sand that may be recaptured and moved back to the beach before it reaches the terminal shoal where it would bury eelgrass. Consideration should be given to enhancing this function of the pier by either including features in the design that trap sediment or break wave energy and contribute to local sediment accumulation (e.g., short landing peninsula for the pier, groin to north of the pier, pendant wall plate under the pier, dense piles near shore, or cross members or floating log-boom under the near shore segment of the pier). However, if the sand accumulated at the pier is not ultimately harvested and replaced updrift, it will eventually build outward and into the eelgrass beds at the end of the pier, thereby defeating the purpose of this trapping feature. As a result, the pier should not be modified to trap transported sand, unless maintenance of the beach sediment transport is to be diligently undertaken, as needed.

Construction of the pier, whether from land or water would be expected to result in impacts to eelgrass as a result of temporary fills or trestle construction from the shoreline, or barge access from the water. Because of the very shallow waters within which the pier would be constructed, some degree of initial temporary eelgrass impact would be expected to occur. Given that the deepest water in which piles would be driven is still at intertidal elevations, it is recommended that pier construction be conducted from land by construction of a temporary fill peninsula, use of crane mats, or erection of a temporary trestle to complete work. This would minimize the risk of damage to eelgrass beds associated with water access and would allow the impact level to be more effectively predicted. Further, it is recommended that access be taken along the northern margin of the pier as this area is the most likely to be adversely influenced by future shading effects. If construction were performed from a 40 foot wide temporarily constructed trestle or temporary fill peninsula erected parallel to the north side of the proposed pier, the temporary construction eelgrass impacts would be estimated to be approximately equivalent to the shading impact from the pier and it would substantively overlap the area expected to be affected by shading. With the

inclusion of the temporary impacts, eelgrass effects of the proposed pier would be expected to rise to as much as 0.12 acre of eelgrass impact. This remains well below the contemplated 0.27 acre of impact associated with full pier scale build-out. It should be noted, however, that the full length pier construction would require relocation of the navigation channel to the secondary channel locate further from shore. This relocation of the channel would result in much more substantial impacts to eelgrass than contemplated in association with the pier extension itself. While it is not clear precisely what extent of channel widening would be required to move the channel to accommodate the full pier length, the minimum dredging required to connect the secondary channel to the access to the Chula Vista Marina inlet would total approximately 9 acres. If the channel were widened to the same width as the present navigation channel eelgrass impacts would be raised to approximately 30 acres. However, a full analysis is not possible without greater detail as to how this channel would be reconfigured to support navigation needs

Non-motorized Boat Ramp

Construction of the non-motorized boat ramp at the north end of the project would avoid direct impacts to eelgrass by construction above the MHW line. However, it is possible that use of the area by park guests could damage eelgrass resources in the area as a result of tramping of the beds. Typically, such effects are not substantial in areas affected by non-motorized vessels. However, under extreme use, beds may suffer diminished density and sometimes minor gap formation.

In general, eelgrass damage associated with non-motorized vessel launching is generally minimal and comparable to pedestrian beach use discussed previously. However, it should be noted that this is not always clear because such uses are often mixed within beach landing locations used by motorized dinghies and intensive beach landing by propeller driven dinghies can result in significant eelgrass damage. Perhaps the best surrogates for exploring the difference between the proposed non-motorized landings and dinghy landing can be seen by comparing the conditions at Glorietta Bay Park with the Coronado Boathouse where non-motorized vessels are launched over the beach, and the dinghy landing at Coronado Tidelands Park, where eelgrass within the shallow cove has been damaged by transit scaring from small outboards and trolling motors on dinghies servicing the Coronado Roadstead Moorings. In both cases, extensive vessel launching occurs across the eelgrass beds, however, only where motorized vessels are used, does substantial damage occur.

Impact Determination and Mitigation

The ultimate determination of impacts is to be made through application of the CEMP standards of assessment calling for the use of pre-construction to post-construction comparisons of eelgrass within an Area of Potential Effect (APE) to evaluate change in bed area and density in comparison with natural variations exhibited by reference beds. In some cases, impacts may be expected to evolve through time and not be manifested immediately following construction. This is the case for shading effects, projects with substantive operational changes, or changes that may fundamentally influence physical or biological conditions supporting eelgrass. In such cases, the CEMP contemplates an extended impact assessment period of two years post-construction during which impacts will be assessed to determine if they expand from the initial project impacts. Should impacts attributable to the project expand, these are included in the project impact total.

All impacts to eelgrass are considered to be significant and would require mitigation to reduce the impact to less than significant. BIO-1 has been included in this document to establish a habitat

based compensatory mitigation measure to address impacts to eelgrass as a result of the proposed Harbor Park development and reiterates measures incorporated into the CVBMP.

BIO-1: Corresponds to CVBMP MM# 4.8-8 and Development Policy 25.2:
Mitigation of any impacts to eelgrass would be conducted in accordance with the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014). Eelgrass impacts are presently estimated to total 0.12 acres including temporary and permanent impacts, treated the same under the CEMP. Final impacts will be determined based on pre- and post-construction monitoring in accordance with the CEMP. Under this policy any eelgrass impacts would require successful mitigation at a 1.2:1 replacement ratio through transplant of a minimum ratio of 1.38:1. However, should mitigation be derived from existing established mitigation banks, the applicable ratio would be 1:1 for any impacts.

If you have any questions or need additional information pertaining to this document, please do not hesitate to contact me at kmerkel@merkelinc.com or (858) 560-5465.

Sincerely,

Keith W. Merkel
Principal Consultant

Literature Cited

Dudek 2010. 2010 May. Final Environmental Impact Report for the Chula Vista Bayfront Master Plan. UPD #83356-EIR-658, SCH #2005081077. Prepared for the San Diego Unified Port District. Inclusive of the Mitigation Monitoring and Reporting Program (MMRP). Available from: https://www.portofsandiego.org/chula-vista-bayfront-master-plan.html

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_____. 2018b. North Harbor District Improvements at Chula Vista Bayfront, Draft Biological Impact Analysis Report. 59pp + Appendices.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Michelle Chan, Senior Planner, San Diego Unified Port District
From:	Dennis Pascua, Transportation Services Manager
Subject:	Trip Generation Analysis for Harbor Park Beach Construction Grading and Maintenance
Date:	June 10, 2020
cc:	Carey Fernandes, Dudek Iulia Roman, Dudek
Attachments:	Attachment 1, Figure 3-3, Proposed Project Districts (from FEIR) Attachment 2, Figure 3-8A, Proposed Project Parcel Plan and Development Phases (from the FEIR) Attachment 3, Proposed Revised Project Conceptual Site Plan

The following memorandum presents a trip generation analysis of the currently proposed beach construction and maintenance components of Harbor Park, specifically located in Parcels HP-1 (Signature Park) and HP-3A (Shoreline Promenade), to the overall proposed grading quantities of the Harbor District as analyzed in the *Final Environmental Impact Report for the Chula Vista Bayfront Master Plan* (FEIR, April 2010).

The Harbor Park site component of the Chula Vista Bayfront Master Plan (Master Plan) consists of the parcels HP-1, H-8 (Signature Park), HP-3A, and H-28 (H Street Pier), directly to the south of the proposed extension of E Street, which would be developed as part of the RHCC Phase IA improvements. Parcels HP-1 and H-8 would be developed as the proposed park; HP-3A would be developed as a portion of the Shoreline Promenade; and H-28 would be developed as the H Street Pier.

The total acreage of Harbor Park would remain at 26.8 acres as originally analyzed in the FEIR, with Parcel HP-1 and HP-8 at 18.0 acres, Parcel HP-3A at 8.4 acres, and Parcel HP-28 at 0.4 acres. Trip generation estimates for these parcels were based on their acreages. The trip generation estimates and the subsequent traffic analyses for the permanent operations of the Harbor Park parcels would also remain unchanged from the FEIR as parcel acreages would remain unchanged. Based on the Master Plan Phase I and Phase II operational trip generation estimates in the FEIR, the parcels within Harbor Park would generate a total of approximately 962 daily trips, 122, AM peak hour trips, and 86 PM peak hour trips. Therefore, the findings of the transportation impacts related to the permanent operations of the Harbor Park parcels would remain consistent with the FEIR.

Background

The Master Plan proposes development within three districts: Sweetwater District, Harbor District, and Otay District. The proposed Harbor Park is located within the Harbor District, and its area is shown in the attached Figure 3-3, Proposed Project Districts, from the FEIR. Furthermore, the location of the proposed improved beach area, within Parcels HP-1 (Signature Park) and HP-3A (Shoreline Promenade) of Harbor District, are shown in Attachment 2, Figure 3-8A, Proposed Project Parcel Plan and Development Phases, from the FEIR.

Per the FEIR, mass grading of the site in the Sweetwater and Harbor Districts would be required. Most of the existing streets would be removed to allow for grading of the new parcels and construction of new streets and utilities. The Sweetwater District and the majority of the Harbor District would be graded during Phase I (of the Master Plan). Those parcels not graded in Phase I would be graded in Phase III. No grading would occur in Phase IV. The resulting volume of import for the Master Plan would be 681,000 cubic yards. Table 1 lists the grading quantities required for the Master Plan, which includes all districts. As shown in Table 1, Harbor District would require approximately 437,000 CY of imported materials to the site.

Table 1. Chula Vista Bayfront Master Plan Grading Quantities

District	Cut	Fill	(Import)/Export
Sweetwater District	203,000 CY	115,000 CY	88,000 CY export
Harbor District	73,000 CY	510,000 CY	(437,000 CY) import
Otay District	55,000 CY	387,000 CY	(332,000 CY) import
TOTAL	**331,000 CY**	**1,012,000 CY**	**(681,000 CY) import**

Source: Table 3-7, Proposed Project Grading Quantities (cubic yards), FEIR for the Chula Vista Bayfront Master Plan, April 2010.

Project Description

The proposed improved beach area of this analysis is shown in the Attachment 3, Proposed Revised Project Conceptual Site Plan. The proposed beach construction and maintenance of Harbor Park contains the following components:

- **Construction of Beach**: requires approximately 19,410 cubic yards (CY) of sand veneer imported to the site. This is a one-time, temporary construction-related activity.
- **Beach Maintenance**: requires nourishment and would involve between 2,000 to 6,000 CY of fill movement. This is an on-going operations and maintenance (O&M) activity that would occur in intervals of 2 to 5 years. A portion of this material might be "backpassed" from the shoreline to the south.

Trip Generation

The following trip generation analysis will compare the trip generation estimates of the proposed improved (temporary) beach construction component, and the proposed (O&M) beach maintenance component to the overall proposed grading quantities of the Harbor District (net 437,000 CY), and determine whether the current proposed construction and maintenance components would be consistent with the FEIR.

Methodology

Worker trip generation estimates for the beach construction and O&M components were based on California Emissions Estimator Model (CalEEMod), version 2016.3.2 (air quality model) defaults, which were derived based on site acreage. Consistent with the default URBEMIS Model, version 9.2.2 assumptions in the FEIR, each haul truck for soil import and export was assumed to have a capacity of 20 CY. The number of days of grading activity for the Harbor District is based on data from the air quality analysis in the FEIR, while the number of days of grading for the beach construction and O&M activities are based on information provided by the Port. Based on the

CalEEMod and URBEMIS defaults, and data from the FEIR and provided by the District, the following numbers of construction workers and trucks would be generated by the Harbor District, the proposed Harbor Park improved beach construction, and the proposed Harbor Park beach maintenance:

Harbor District

- 437,000 CY ÷ 20 CY trucks (per FEIR) = 21,850 trucks
- 21,850 trucks ÷ 260 days of grading = 85 trucks per day
- 50 construction workers per day (per FEIR)

Beach Construction

- 19,410 CY ÷ 20 CY trucks = 971 trucks
- 971 trucks ÷ 45 days of grading = 22 trucks per day (based on average of 30-60 days of grading)
- 15 workers per day (per CalEEMod for an approximately 3 acre work area)

Beach Maintenance

- 2,000 to 6,000 CY ÷ 20 CY trucks (per FEIR) = 100 to 300 trucks (average of 200 trucks)
- 200trucks ÷ 8 days of grading = 25 trucks per day (based on average of 4-12 days of grading)
- 8 workers per day (assumed to be approximately one-half of beach construction effort)

Trip Generation Estimates

Based on the numbers of trucks and construction workers calculated above for the grading activities for the Harbor District and, the Harbor Park beach construction and beach maintenance components, weekday daily, and AM and PM peak hour trip generation estimates were determined. To be conservative, an 8-hour workday was assumed where all construction workers would arrive to the site during the AM peak hour, and conversely, all construction workers would leave the site during the PM peak hour. In addition, a passenger-car equivalence (PCE) factor was applied to the truck volumes, where one truck is equivalent to 2.5 passenger-cars.

Harbor District

Table 2 presents the trip generation estimates for the grading activity proposed for the entire Harbor District. As shown in the table, the grading associated with 437,000 CY of material would generate approximately 270 daily trips, 72 AM peak hour trips (61 inbound and 11 outbound), and 72 PM peak hour trips (11 inbound and 61 outbound). With the application of a PCE factor for trucks, approximately 525 daily PCE trips, 106 AM PCE peak hour trips (78 inbound and 28 outbound), and 106 PM PCE peak hour trips (28 inbound and 78 outbound), would be generated.

Table 2. Harbor District Construction Grading Trip Generation

Trip Generator	Size/Units (per day)	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
HARBOR DISTRICT CONSTRUCTION GRADING								
Workers	50 workers	100	50	0	50	0	50	50
Trucks	85 trucks	170	11	11	22	11	11	22
Total		**270**	**61**	**11**	**72**	**11**	**61**	**72**
HARBOR DISTRICT CONSTRUCTION GRADING (in passenger-car equivalence – PCE)								
Workers (1.0 PCE)	50 workers	100	50	0	50	0	50	50
Trucks (2.5 PCE)	85 trucks	425	28	28	56	28	28	56
Total (in PCE)		**525**	**78**	**28**	**106**	**28**	**78**	**106**

Source: Dudek and District, June 2020.

Improved Beach Construction

Table 3 presents the trip generation estimates for the grading activity proposed for the one-time (temporary) improved beach construction of Harbor Park. As shown in the table, the grading associated with 19,410 CY of material would generate approximately 74 daily trips, 20 AM peak hour trips (18 inbound and 2 outbound), and 20 PM peak hour trips (2 inbound and 18 outbound). With the application of a PCE factor for trucks, approximately 140 daily PCE trips, 28 AM PCE peak hour trips (23 inbound and 5 outbound), and 28 PM PCE peak hour trips (5 inbound and 23 outbound), would be generated. This level of activity represents approximately 26%-27% of the grading activity proposed for the entire Harbor District.

Table 3. Improved Beach Construction Grading Trip Generation

Trip Generator	Size/Units (per day)	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
BEACH CONSTRUCTION GRADING								
Workers	15 workers	30	15	0	15	0	15	15
Trucks	22 trucks	44	3	2	5	2	3	5
Total		**74**	**18**	**2**	**20**	**2**	**18**	**20**
BEACH CONSTRUCTION GRADING (in passenger-car equivalence – PCE)								
Workers (1.0 PCE)	15 workers	30	15	0	15	0	15	15
Trucks (2.5 PCE)	22 trucks	110	8	5	13	5	8	13
Total (in PCE)		**140**	**23**	**5**	**28**	**5**	**23**	**28**
Percent of Harbor District Construction Grading		***27%***			***26%***			***26%***

Source: Dudek and District, June 2020.

Beach Maintenance

Table 4 presents the trip generation estimates for the grading activity proposed for the periodic (2-5 years) beach maintenance of Harbor Park. As shown in the table, the grading associated with the average 2,000 CY to 6,000 CY of material would generate an average of 66 daily trips, 14 AM peak hour trips (11 inbound and 3 outbound), and

14 PM peak hour trips (3 inbound and 11 outbound). With the application of a PCE factor for trucks, approximately 141 daily PCE trips, 24 AM PCE peak hour trips (16 inbound and 8 outbound), and 24 PM PCE peak hour trips (8 inbound and 16 outbound), would be generated. This level of activity represents approximately 23%-27% of the grading activity proposed for the entire Harbor District.

Table 4. Beach Maintenance Trip Generation

Trip Generator	Size/Units (per day)	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
BEACH MAINTENANCE (2-5 year intervals)								
Workers	8 workers	16	8	0	8	0	8	8
Trucks	25 trucks	50	3	3	6	3	3	6
Total		**66**	**11**	**3**	**14**	**3**	**11**	**14**
BEACH MAINTENANCE (2-5 year intervals) (in passenger-car equivalence – PCE)								
Workers (1.0 PCE)	8 workers	16	8	0	8	0	8	8
Trucks (2.5 PCE)	25 trucks	125	8	8	16	8	8	16
Total (in PCE)		**141**	**16**	**8**	**24**	**8**	**16**	**24**
Percent of Harbor District Construction Grading		***27%***			***23%***			***23%***

Source: Dudek and District, June 2020.

Conclusion

Based on the grading information provided in the FEIR and provided from District staff, the trip generation estimates for the grading activity proposed for the one-time (temporary) improved beach construction of Harbor Park would be approximately 74 daily trips, 20 AM peak hour trips (18 inbound and 2 outbound), and 20 PM peak hour trips (2 inbound and 18 outbound). With the application of a PCE factor for trucks, approximately 140 daily PCE trips, 28 AM PCE peak hour trips (23 inbound and 5 outbound), and 28 PM PCE peak hour trips (5 inbound and 23 outbound), would be generated.

Based on the grading information for the O&M beach maintenance activity, the trip generation estimates would be 66 daily trips, 14 AM peak hour trips (11 inbound and 3 outbound), and 14 PM peak hour trips (3 inbound and 11 outbound). With the application of a PCE factor for trucks, approximately 141 daily PCE trips, 24 AM PCE peak hour trips (16 inbound and 8 outbound), and 24 PM PCE peak hour trips (8 inbound and 16 outbound), would be generated.

These levels of activity represents approximately 23%-27% of the grading activity proposed for the entire Harbor District as analyzed in the FEIR, and is therefore considered to be consistent with the impacts disclosed in the FEIR.

Furthermore, the trip generation estimates and the subsequent traffic analyses for the permanent operations of the Harbor Park parcels would also remain unchanged from the FEIR as parcel acreages would remain unchanged. Based on the Master Plan Phase I and Phase II operational trip generation estimates in the FEIR, the parcels within Harbor Park would generate a total of approximately 962 daily trips, 122, AM peak hour trips, and 86 PM peak hour trips. Therefore, the findings of the transportation impacts related to the permanent operations of the Harbor Park parcels would remain consistent with the FEIR.

Attachment 1

Figure 3-3, Proposed Project Districts (from FEIR)

Attachment 2

Figure 3-8A, Proposed Project Parcel Plan and Development Phases (from the FEIR)

Attachment 3

Proposed Revised Project Conceptual Site Plan

Results indicate that the potential net LST rate under current conditions is 1,140 to 3,980 cubic yards per year (cy/yr) on average from north to south. Note that the ranges in the estimated LST rates in this memo are based on using a range of different LST equations and account for the variability in the wave climate and uncertainties inherent in estimating LST. These ranges are typical for sediment transport calculations. Uncertainties in estimating LST include the effects of wave breaking and turbulence, the mechanics of sediment suspension and deposition of beach material, and the limitations of analysis methods to represent the complexity of physical sediment transport processes.

For comparison, the Port of San Diego's Shoreline Stabilization at Bayside Park (described further below) implemented in 2016 placed approximately 1,830 cy of sand (and 4,270 cy of cobble) on the existing beach. (Note quantities are based on ESA's estimates for the project design). Most of the sand, which was placed over the cobble as a veneer, has migrated away from the existing beach as anticipated. Thus, about 1,800 cy of sand has likely been transported to the south within the last 4 years. This estimate of the actual rate of sediment transport accounts for the supply of sand, which is limited by the amount placed over the cobble in 2016. The estimated potential and actual rates of longshore transport for existing conditions agree reasonably well given the uncertainties in estimating the sand transport rates and available sediment supply.

ESA also analyzed the beach orientation angle that would result in the lowest potential LST and therefore a more stable beach. ESA estimates that a beach angle rotated by 40 degrees clockwise from the existing beach orientation would result in the lowest rate of potential LST. In nature, coastlines with a natural or artificial headland exhibit a curved shoreline geometry. The curved shape result from LST processes. Waves approaching a shoreline at an angle move sediment in the down-drift direction along the "down-wave" section of the shoreline. This shape as been observed on natural beaches between headlands to be stable over time. ESA therefore proposes that the Harbor Park beach design orient the improved beach 40 degrees clockwise from the existing shoreline as shown in Figure 1 to reduce the rate of LST.

An improved beach with this orientation will be aligned with the dominant wind wave direction. This alignment will retain more sand on the beach than the existing beach orientation because the net transport of sediment moving south will be significantly reduced. Note that a sand beach would be expected to naturally evolve to this orientation in response to erosion and sand transport. ESA, therefore, proposes constructing the beach improvements with this orientation as a more stable equilibrium condition that is more self-sustaining with the dominant wind wave direction.

FIGURE 1: SCHEMATIC BEACH CONFIGURATION
HARBOR PARK

SOURCE: ESA and Petersen Studio

ESA

N

0' 50' 100'
SCALE: 1" = 100'

The design of the Harbor Park beach will be refined in future phases of the project. ESA understands that the Port's initial direction is that beach grading and construction should be limited to landward of the line defined by the toe of the existing revetments to the north (at approximately 4 feet NAVD) and south of the existing beach (at approximately 6 feet NAVD). Following this direction, the lower portion of the beach bayward of this line will maintain its current orientation and rate of LST. ESA proposes rotating the orientation of the upper portion of beach landward of this line as discussed above. LST for high tide levels at the improved beach is therefore expected to be reduced compared to existing conditions. ESA estimates that rotating the upper portion of the beach will reduce the existing potential longshore transport rate by approximately 55% to 80% on the upper beach (i.e., above 4 feet NAVD). Potential sand transport below the grading limit (i.e., below 4 ft NAVD) will remain the same unless or until the lower beach erodes to align with the upper beach, which would reduce sediment transport to the south. Accounting for the fact that the project would not change the alignment of the lower beach, ESA estimates that the total potential net longshore sediment transport for the proposed beach would be approximately 1,000 to 3,280 cy/yr post-construction, which is a 13% to 18% reduction from existing conditions. Overtime, the lower beach orientation could evolve to align with the improved upper beach and at that point, the estimated LST potential would be reduced by approximately 60% to 80% from existing conditions on average.

Future phases of the beach design will need to further consider the existing cobble placed in 2016. The conceptual grading of the beach shown in Figure 1 would remove some of the buried cobble, but leave a portion of the cobble. The removed and remaining cobble could be repurposed as labeled in Figure 1. The remaining cobble could help to retain sand landward of the cobble and limit sand transport along the cobble face of the beach.

In conclusion, the improved Harbor Park beach is expected to adjust to an approximate equilibrium orientation aligned with the dominant wave direction of approximately 40 degrees clockwise to the existing shoreline. ESA proposes constructing the beach to this general orientation to reduce the rate of LST and the amount of sand nourishment needed to maintain the beach. This approach to orienting the improved beach, in combination with setting the beach back farther inland between constructed headlands, is expected to reduce the existing rate of sediment transport to the south.

The proposed project, with a beach orientation as described above, is expected to have a sand nourishment need of about approximately 1,000 cy/yr and a corresponding rate of LST to the south. Note this is based on the lower end of the range in the calculated potential transport rate to account for limited sand supply from the lower beach. Also note that this is a preliminary estimate and ESA recommends refining this estimate in subsequent phases of the project design. The rate of sand transport from the existing beach is expected to be higher than 1,000 cy/yr assuming that the Port performs sand nourishment to maintain the existing beach. (Note that the Port has not performed nourishment in the last 4 years and nourishment would, therefore, be expected soon.) While actual

rates of sand transport to the south will depend on a number of factors including future sand nourishment to maintain the beach, ESA's analysis indicates that the proposed Harbor Park beach is expected to have the potential to reduce sand transport to the south compared to existing or "no project" conditions.

ESA also performed an analysis of the landward indentation curvature of the beach between the hardened shoreline to the north and south. This analysis is based on published relationships (Silvester and Hsu 1997) that use geometry data for natural beaches between headlands, including beaches in embayment's. The beach geometry shown in Figure 1 is based on this analysis, with adjustments to integrate with the surrounding park features. The maximum landward indentation of the beach is around the minimum indentation predicted from the published relationship. Based on these relationships, there is a chance that the northern portion of the beach may tend to erode by about 10 to 20 feet to a deeper equilibrium indentation. The beach could be allowed to erode to this equilibrium or it sand could be placed to nourish and maintain the beach width. Maintaining a wider beach with a shallower indentation would likely result in a somewhat higher LST to the south than allowing the beach to persist with a deeper equilibrium indentation. This analysis of beach geometry and LST can be detailed in subsequent phases of detailed design to further develop and inform the beach design.

ESA recommends developing a monitoring and maintenance program for the proposed Harbor Park beach. This program would include seasonal or annual beach surveys, thresholds for maintenance, and a maintenance nourishment design. Note that backpassing sand by excavating sand from the shoal that forms in the Chula Vista Marina at the marina pier from sand transported to the south and placing the sand back on the Harbor Park beach is likely to be cost-effective and reduce impact of the shoal on eelgrass habitat. The proposed H street pier south of the beach could be designed to retain longshore migrating sand, which could also be backpassed. If the H Street pier were designed to retain sand, construction access for sand backpassing as beach maintenance could possibly be along the shoreline between the Harbor Park beach and the H Street pier. This construction access route would likely be more efficient than accessing the Chula Vista Marina, which could possibly reduce maintenance costs compared to back passing sand from the Chula Vista Marina. As discussed in Merkel & Associates, Inc.'s (2019) memorandum re: Potential Impacts to Eelgrass from the Chula Vista Bayfront Harbor Park Project, accumulation of sand could build out to the end of the H Street pier and impact eelgrass beds at the end of the pier if the accumulated sand was not back passed.

Longshore Sand Transport Analysis

Methodology

The potential LST was estimated using the 21-years (1995-2015) of nearshore wave hindcast records obtained for this study, the recorded water levels from the San Diego Bay Tide station (NOAA, ID. 9410170) and the shore normal angle of the existing beach and proposed beach alignment.

A two-dimensional wave model called Simulating Waves Nearshore (SWAN) was implemented at the project site to predict the wave conditions likely to occur in response to the wind speed, wind direction, water level and bathymetry. Based on an hourly wind data record from January 1st 1995 to December 31st, 2015 (21-years) from the San Diego Lindberg International Airport. Wave conditions were estimated using the SWAN model to obtain the 21-years record of wave time series at the site for the project site (Figure 2).

Figure 2. Data Locations

Figure 3 shows the directional wave height and wave period distribution from the SWAN model. Wind waves were typically largest and most common from the west-northwest, which has the longest fetch, though high waves from southwesterly winds were also hindcast. Wave periods were typically very short, with most wave periods estimated to be less than 3 seconds. A limited number of waves had periods reaching up to 3.3 seconds.

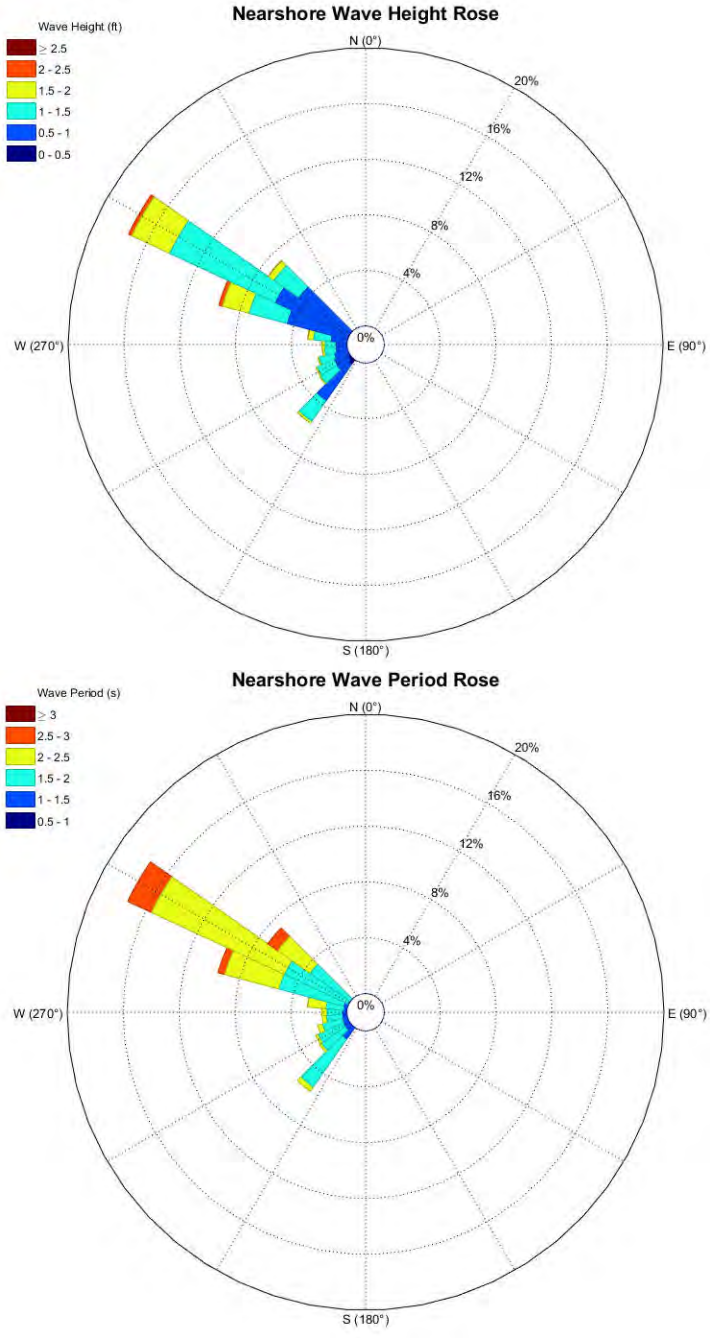

Figure 3. Nearshore Wave Height and Period Roses at the Wave Extraction Location

The rates of sediment transport vary with available supply, beach geometry (i.e., beach orientation and slope gradient), wave conditions (wave height, wave period and wave direction), sediment composition (e.g., sand grain size and cobble underlay), and maintenance nourishment regime, among other factors. To estimate sediment transport rates and directions at Chula Vista, ESA applied a range of standard empirical methods for offshore estimation (USACE 1984 and 2002) and nearshore formulas that are based on the estimation of wave breaking on

the beach (Kamphius 1991, Mil Homens and others 2013, and van Rijn 2014) to simulated the potential sediment transport at the site using the 21-year wave time series.

Potential Net Longshore Transport

Results are shown as average annual rates based on percent occurrence statistics, which tend to favor longer-term, lower average values. Storm induced transport rates can be much larger, and a particular annual rate can be affected greatly by a particular event. These rates are called potential because the actual transport rate can be lower if the supply of sediment is limited.

Using standard convention. Positive values are shown as wave power and sediment transport moving from North to South and negative values are shown as sediment transport moving from South to North. Kamphius equation (Kamphius 1991) is referred to as Kamp, the modified Kamphius equation (Mil-Homens, et al, 2013) is referred to as Kamp2 and van Rijn equation (van Rijn, 2014) is referred as van Rijin in the results. Offshore results presented in this study refers to the USACE offshore equations.

Present Conditions

Based on observations at the site before and after the beach stabilization project in late 2015, the net littoral drift (e.g., net sediment transport) at the project site and on adjacent beaches is generally from north to south. The offshore wave power time series is shown in Figure 4 (top). The annual wave power (bottom) shows that the main component of waves moves sediment from north to south (positive value) for all years of the 21-year record.

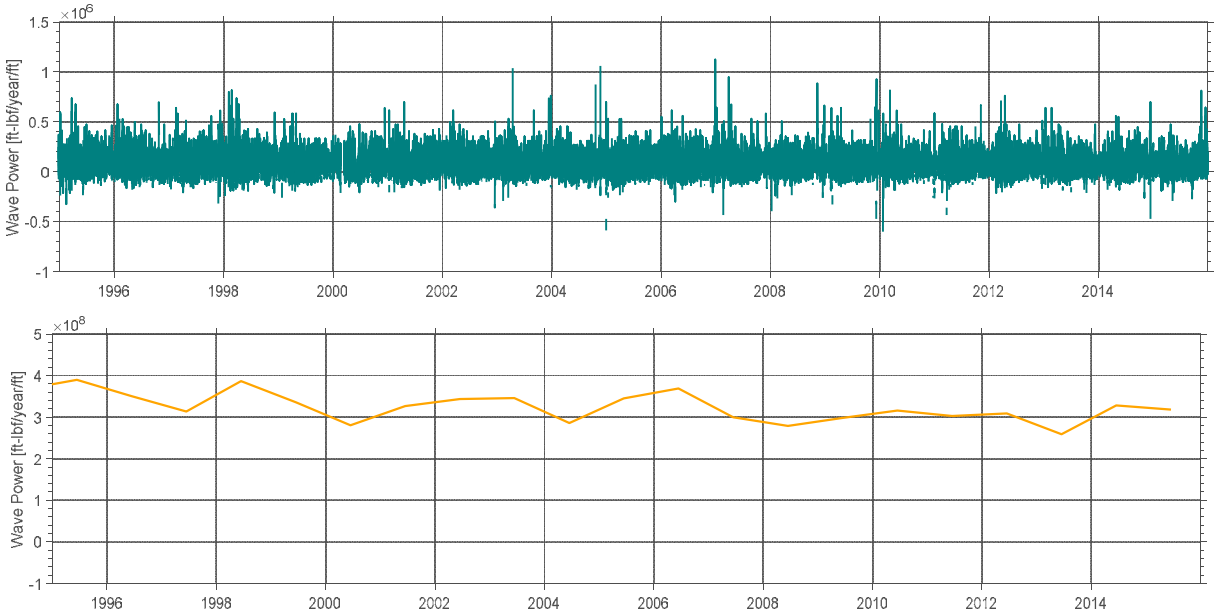

Figure 4. Longshore component of wave power at the site under present conditions. Top: hourly wave time series. Bottom annual net. Positive values indicate north to south longshore transport.

Figure 5 depicts the results of the sediment transport simulations and provides the average annual direction and magnitude of sediment transport for three different methods. Results show an average annual potential LST of 2,630 cy/yr.

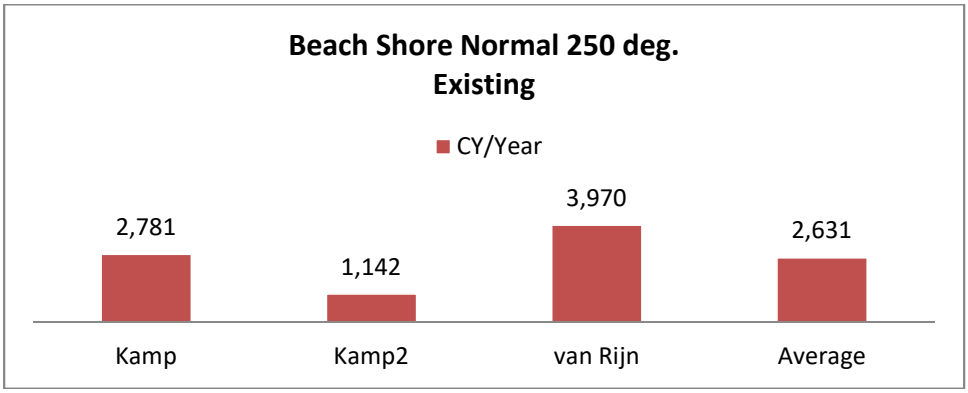

Figure 5. Potential Longshore Sediment Transport. Present Conditions.

Beach Design Alignment

Nearshore conditions are a function of several non-linear phenomena like wave-breaking. Therefore, the optimal shore-normal angle to reduce the longshore sediment transport to a minimum (e.g., equilibrium) was estimated using the offshore wave conditions and the offshore sediment transport equations. Figure 6, top shows the offshore potential sediment transport under existing conditions (beach shore-normal angle of 250 degrees clockwise from North) and several shore-normal angles from 275 degrees to 290 degrees. The 290-degree shore-normal is the angle when the sediment transport switches from north to south (positive) to south to north (negative).

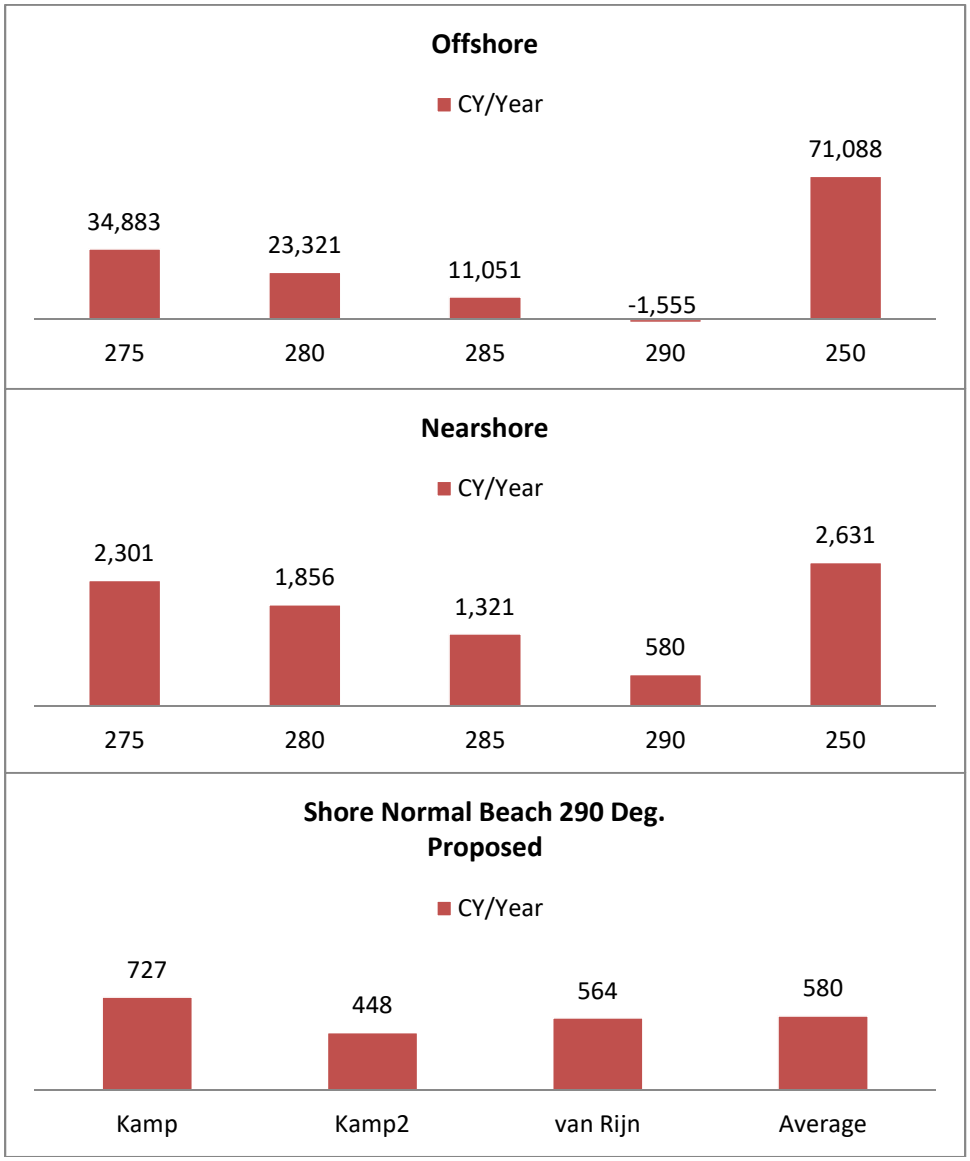

Figure 6. Potential Longshore Sediment Transport. Proposed Beach Realignment.

Using the 290 degree angle, ESA then estimated the LST nearshore (Figure 6, middle), which due to wave refraction and wave breaking show sediment transport moving at smaller values from north to south. Figure 6 (bottom) shows the different sediment transport equations estimates for a beach with a shore normal angle of 290 degrees with a potential net transport of 450 to 730 cy/yr. Figure 7 shows the longshore component of the wave power component using the shore normal of 290 degrees. The annual net longshore component of wave power (Figure 7, bottom) shows the wave power component close to zero and switching between north-south to south-north during the 21-year record.

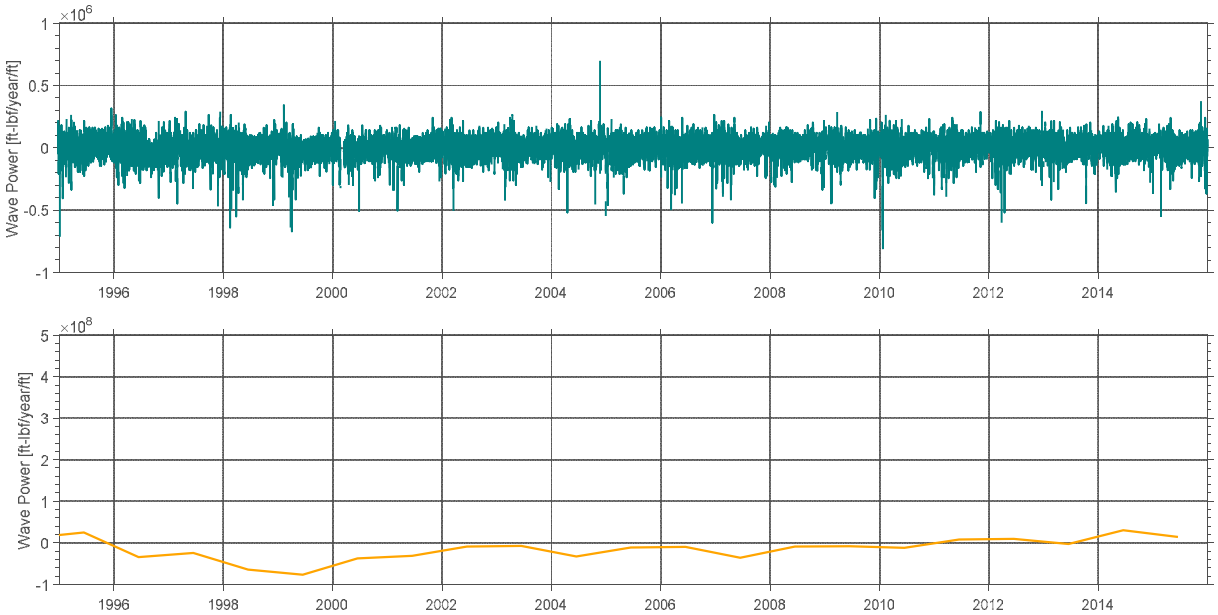

Figure 7. Longshore Component Wave Power at the Site for the optimal beach alignment. Top. Hourly time series, bottom. Annual net.

When comparing the potential LST above the limits of grading (above approximately 4 feet NAVD), the results show a significant reduction on LST (Figure 8) from 250 to 890 cy/year for existing conditions to 110 to 190 cy/year for proposed beach grading which reduces the existing LST by 57% to 79% on the upper beach.

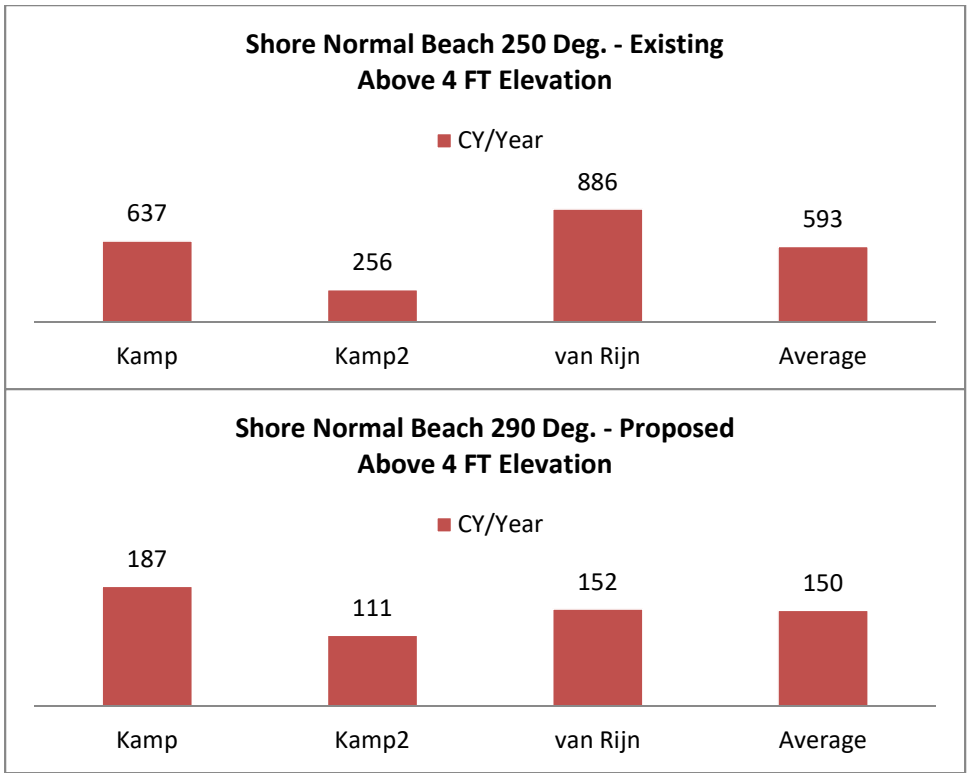

Figure 8. Potential Longshore Sediment Transport Above 4 Feet NAVD.

Table 1 summarizes the results and estimates the potential LST rate for the proposed conceptual design by adding the rates calculated for existing conditions below 4 feet NAVD to the rate calculated for the proposed beach alignment above 4 feet NAVD. These results show that the total potential net LST for the proposed beach would be approximately 1,000 to 3,280 cy/yr, which is a 13% to 18% reduction from existing conditions.

Table 1. Summary of estimated potential LST rates for the existing beach, modeled beach orientation reducing sand transport to the south, and the conceptual beach design.

	Total for Upper and Lower Beach (All Depths/Elevations)	**Upper Beach (Above 4 ft NAVD)**
Existing Beach (250 deg)	1140 to 3980 cy/yr	256 to 886 cy/yr
Modeled (290 deg)	450 to 730 cy/yr	111 to 187 cy/yr
Conceptual Beach Design (250 deg below 4 ft NAVD/ 290 deg above 4 ft NAVD)	995 to 3281 cy/yr	111 to 187 cy/yr
% Reduction from Existing Beach for Conceptual Beach Design	13% to 18%	57% to 79%

Existing Shoreline and Prior 2016 Emergency Stabilization Project

Along the Port of San Diego's Bayside Park in Chula Vista, approximately 500 feet of sandy shoreline defined by a 500' gap in the existing riprap shoreline revetment had experienced erosion due to high tides and wind waves during winter storms in the 2015-2016 El Niño year. The erosion created an unstable vertical scarp several feet high that was an unsafe condition for the public and threatened landward park facilities.

ESA developed an emergency shoreline stabilization design for Bayside Park (included in Attachment 1) that employed the concept of managed shoreline retreat. The project included cutting the eroded bank back to a flatter, more stable slope and protecting the entire 500-foot length with a three-foot-thick blanket of buried rounded-river cobble and sand. The cobble blanket was covered with a veneer of beach sand. Several trees that had to be removed to accommodate the slope excavation were replaced, and picnic tables and benches were relocated within the park. The project was implemented by the Port in January and February 2016.

As anticipated for the project design, placed sand appears to have migrated south since project implementation based on anecdotal observations. Re-nourishment of sand, which was also anticipated as a maintenance need for the design, has not been performed yet. A scarp has formed at the sand shoreline, exposing cobble as designed. The project is functioning as intended and continues to provide improved access and shoreline stabilization compared to pre-project conditions; however, the project is likely in need of sand re-nourishment for maintenance in the near future.

Conceptual Beach Design

The conceptual beach design (Figure 1) is based primarily on:

1. The Port's initial direction that beach grading and construction should be limited to landward of the line defined by the toe of the existing revetments to the north and south of the existing beach. The lower portion of the beach bayward of the existing revetment toe line will maintain its current orientation and rate of longshore transport.
2. Orienting the improved upper beach to be perpendicular to the dominant wind wave direction to reduce longshore sand transport. The MHHW line (5.2 ft NAVD) starting at the existing southern revetment would be oriented so that the beach is perpendicular to the dominant wind wave direction. The line down the beach perpendicular or "shore normal" to MHHW has a heading of 290 degrees from North.

At the northern portion of the beach, the shoreline would curve back to meet the north revetment. The conceptual grading shown in Figure 1 were developed based on a spiral bay geometry between headlands defined by Silvester and Hsu (1993, 1997) and the Coastal Engineering Manual (USACE 2002).

Grading the beach as shown in Figure 1 would remove some of the buried cobble placed for the shoreline stabilization project in 2016, but leave a portion of the cobble as shown and labeled in Figure 1. The remaining cobble could help to retain sand landward of the cobble. Future phases of the beach design will need to further consider the existing buried cobble placed.

The portion of the upper beach between elevation 5 and 8 ft NAVD, which would be subject to bay inundation and wave action, would have a slope of 16:1 (horizontal:vertical). The slope of the perched beach above 9 ft NAVD could slope from 50:1 in the steeper areas to 180:1 in the flatter areas. The perched beach would only be subject to inundation and wave action during extreme storms. The conceptual beach grading would create a flat intertidal beach between the existing revetment toe line or 4 ft NAVD contour and the 5 ft NAVD contour. This area would become a shallow sand bottom wading area at high tides.

A sand grain size of 0.75 to 1.25 mm is recommended as a larger sand grain size that will still feel like a sandy beach while reducing LST.

Future phases of the beach design will need to consider safety and signage for wading and swimming, beach conditions with future projected sea-level rise, and refinement of sand grain size, beach geometry, and beach maintenance schedule and expectations.

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