Appendix C

Marine Biological Resources Assessment

12-026-01

BASELINE EELGRASS SURVEY AND MARINE BIOLOGICAL RESOURCES ASSESSMENT FOR THE BACK BAY LANDING PROJECT NEWPORT BEACH, CALIFORNIA

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BASELINE EELGRASS SURVEY AND MARINE BIOLOGICAL RESOURCES ASSESSMENT FOR BACK BAY LANDING NEWPORT BEACH, CALIFORNIA

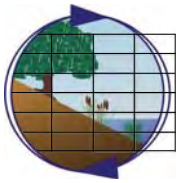
Merkel & Associates, Inc.
July 2013

INTRODUCTION AND PROJECT DESCRIPTION

The Back Bay Landing project is proposed to be an integrated, mixed-use waterfront village on approximately seven acres located adjacent to the Upper Newport Bay in the City of Newport Beach, California (Figure 1). The site is bounded by East Coast Highway and Newport Harbor on the south and west, Bayside Drive to the south, the Newport Back Bay channel to the west, and Bayside Village Mobile Home Park to the southeast. It also includes vacant land under the Coast Highway Bridge and continues in a southwesterly direction along the edge of Newport Harbor. Existing uses on site include storage space for RV's and small boats on trailers, as well as parking and restrooms for the Bayside Marina. The property also includes Pearson's Port Fish Market, kayak and SUP rentals & launch area, and a narrow strip of land east of Bayside Village Mobile Home Park and abutting the western edge of Newport Dunes, currently used for 45 public storage units and marina/ Bayside Village guest parking spaces.

The proposed project involves land use amendments to provide the legislative framework for a future integrated, mixed-use waterfront project implementing the current CM (marine commercial) designations on the site, while allowing for residential uses. While the future mixed-use development of the site is still in the planning phase, it is anticipated that project elements will include visitor-serving recreational and marine commercial retail, office, marine office, boat services, marine services, a coastal viewing tower, enclosed dry stack boat storage, and a vertical and horizontal mix of multi-family residential over retail and multi-family residential flats. The project will also include a new entry to the Bayside Marina and an enhanced bay front boardwalk/bulkhead wall that will wrap around the Bayside Village Mobile Home Park. This new entry will improve public access and connect the project site to Newport Dunes, providing trail connectivity along the waterfront (Figure 2). The adjacent submerged fee-owned lands of Newport Bay stretching to the De Anza Bayside Marsh Peninsula are not part of the proposed project.

In support of existing and future development, including bay front access, Merkel & Associates, Inc. (M&A) has been retained to conduct an assessment of the marine biological resources in the vicinity of the project site, and to prepare marine resource environmental impact analyses for the Back Bay Landing project. The results of this survey will be utilized to prepare the biological resource sections of a California Environmental Quality Act (CEQA) environmental review document. This document provides the factual basis for project impact assessments supporting CEQA analyses and project permitting. The data and analyses provided in this document were developed by numerous sources. The project description information and conceptual seawall/bulkhead drawings utilized for this analysis have been provided by PCR and their project engineers. The Wetland Delineation report was conducted by Anchor QEA (2012). M&A completed on-site biological investigations and the baseline eelgrass survey.



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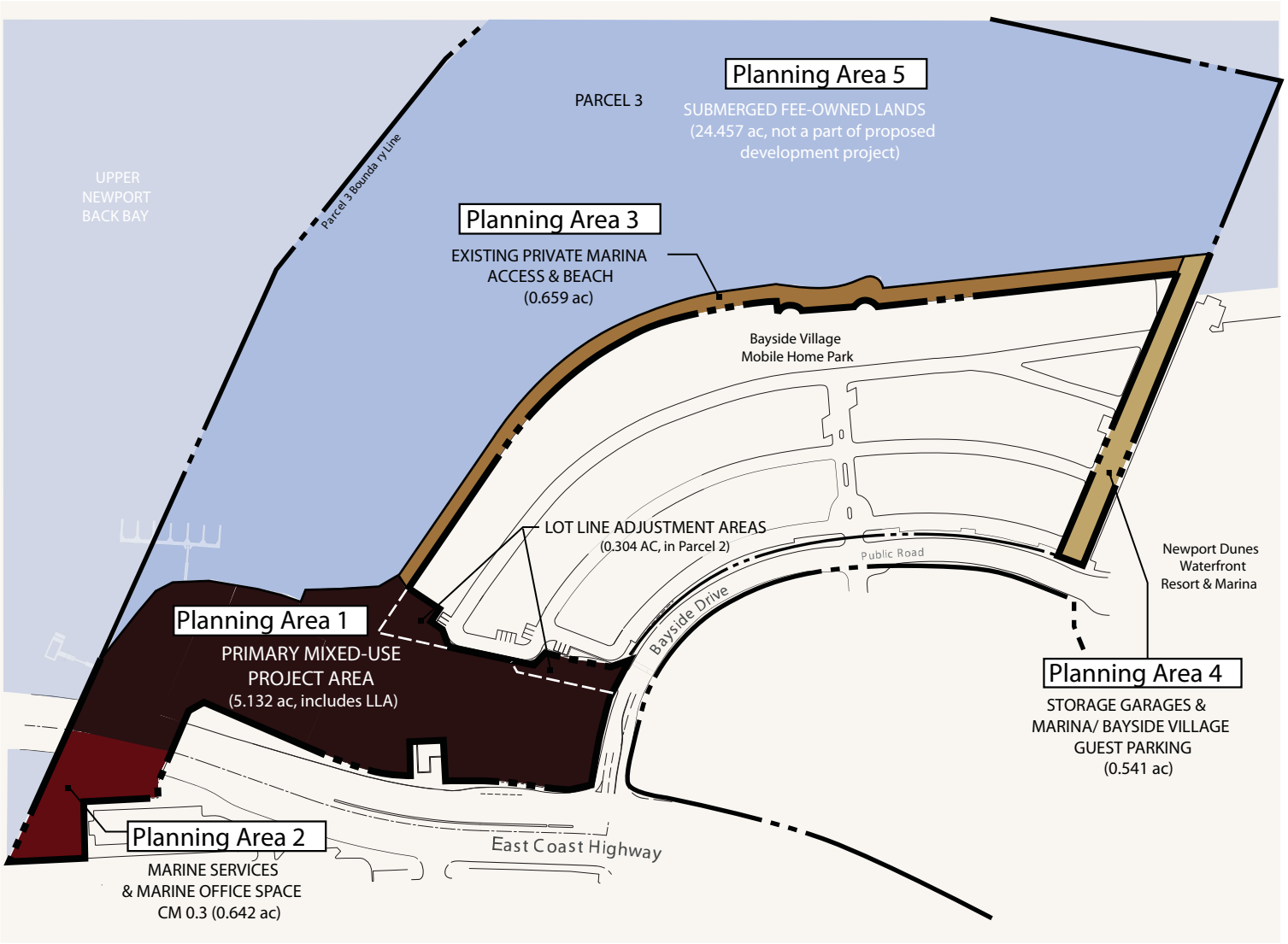
Project Vicinity Map
Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 1



Source: Templeton Planning Group

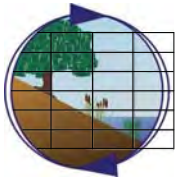
EXHIBIT 3
PLANNING AREAS

Parcel 3 includes five distinct planning areas.

Parcel 3 Summary

P. A.	Description	Acres
1	Primary Mixed-Use Project Area* (North of CH centerline)	5.132 ac
2	Marine Service & Office Space CM 0.3 (South of CH centerline)	0.642 ac
3	Existing Private Marina Access & Beach	0.659 ac
4	Storage Garages & Marina/ Bayside Village Guest Parking	0.541 ac
5	Submerged Fee-Owned Lands (Area includes De Anza Bayside Marsh Peninsula & Gravel)	24.457 ac
	Parcel 3 Total Area*	31.431 ac

*Includes 0.304 ac LLA from Parcel 2



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Back Bay Landing Project Site and Elements
Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 2

PROJECT REGULATORY REQUIREMENTS

The proposed project will be required to comply with the following regulatory requirements:

- **Southern California Eelgrass Mitigation Policy (SCEMP)**. The SCEMP (NMFS 1991, revision 11) is administered by the United State Fish & Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Game (CDFG) in order to determine impacts to eelgrass (*Zostera marina*) resources. Compliance with the SCEMP includes completion of pre- and post-construction eelgrass surveys, determination of impacts, and if required, development and implementation of a mitigation planting plan to offset impacts.

- ***Caulerpa* Control Protocol (CCP)**. The CCP calls for performance of a survey for *Caulerpa* before any bottom-disturbing activities. A *Caulerpa* algae survey will be conducted prior to construction activities to comply with permit applications for United States Army Corps of Engineers (ACOE), Section 404 of the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act, and with the requirements of Section 305(b)(2) of the Magnuson-Stevens Act. If this species is found, then the 2008 *Caulerpa* Control Protocol (or the most recent version available from NMFS) for the eradication of *Caulerpa* will be implemented to remove this species from the project area.

- **The Magnuson-Stevens Act (MSA)**. The MSA requires federal agencies to consult with NOAA Fisheries Service when any activity proposed to be permitted, funded, or undertaken by a federal agency may have adverse affects on designated Essential Fish Habitat (EFH). Compliance includes completion of an EFH survey and report prior to project construction.

ENVIRONMENTAL ANALYSIS

REGULATORY SETTING

Federal Regulations

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987, and better known as the CWA, is the major federal legislation governing water quality. The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include: 1) all navigable waters (including all waters subject to the ebb and flow of the tide); 2) all interstate waters and wetlands; 3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; 4) all impoundments of waters mentioned above; 5) all tributaries to waters mentioned above; 6) the territorial seas; and 7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below:

- Section 303 requires states to develop water quality standards for inland surface and ocean waters and submit to the U.S. Environmental Protection Agency (EPA) for approval. Under Section 303(d), the state is required to list waters that do not meet water quality standards and to develop action plans, called total maximum daily loads, to improve water quality.
- Section 304 provides for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective Regional Water Quality Control Board (RWQCB). A Section 401 permit from the San Diego RWQCB would be required for the Proposed Project if a Section 404 permit were required.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. The NPDES program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.
- Section 404 provides for issuance of dredge/fill permits by the ACOE. Permits typically include conditions to minimize impacts on water quality. Common conditions include: 1) ACOE review and approval of sediment quality analysis before dredging, 2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and 3) requiring compensation for loss of waters of the United States. The areas of the Project site that occur below mean higher high water (MHHW) would be subject to regulation under Section 404.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act (R&H), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under R&H Section 10, the AOCE is authorized to permit structures in navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the Newport coastline requires ACOE approval through the Section 10 permit process. When reviewing applications for Section 10 permits, the ACOE consults with the USFWS or NMFS for compliance with the ESA when a project may affect a federally listed species.

Endangered Species Act

The Endangered Species Act (ESA) protects plants and wildlife that are listed as endangered or threatened by the USFWS and NMFS. ESA Section 9 prohibits the taking of endangered wildlife, where taking is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under ESA Section 7, agencies are required to consult with the USFWS or NMFS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency

determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency informally consults with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency formally consults to ensure full compliance with the ESA.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 was established to promote domestic and commercial fishing under sound conservation and management principles. National Marine Fisheries Service (NMFS), as a branch of the National Oceanic and Atmospheric Administration (NOAA), implements the act via eight regional fisheries management councils (FMCs). The FMCs in turn prepare and implement fishery management plans (FMPs) in accordance with local conditions. The Pacific FMC is responsible for the Pacific region, in which the Project site is located. The FMPs also establish EFH for the species they manage and require consultation with NMFS for actions that may adversely affect EFH. Following receipt of an EFH, NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures will be incorporated into the final project.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA) prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The USFWS and NMFS administer the MMPA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits take of nearly all native birds. Under the MBTA, take means only to kill, directly harm, or destroy individuals, eggs, or nests, or to otherwise cause failure of an ongoing nesting effort. Permits are available under the MBTA through the USFWS, and authorization for potential take under the MBTA is addressed as part of the ESA Section 7 consultation process.

State Regulations

California Coastal Act

The California Coastal Act (CCA) recognizes California ports, harbors, and coastline beaches as primary economic and coastal resources and as essential elements of the national maritime industry. Decisions to undertake specific development projects, where feasible, are to be based on consideration of alternative locations and designs to minimize any adverse environmental impacts. The CCA is implemented by the California Coastal Commission (CCC).

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission (Commission) to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of state-listed plants and animals. The CDFG also designates fully protected or protected species as those that may not be taken or possessed without a permit from the Commission and/or CDFG. Species designated as fully protected or protected may or may not be listed as endangered or threatened. When a species is both state- and federally listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination.

California Fish and Game Code

The FGC is implemented by the Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. The Commission is responsible, under the provisions of Sections 200–221, for regulating the take of fish and game, not including the taking, processing, or use of fish, mollusks, crustaceans, kelp, or other aquatic plants for commercial purposes. However, the Commission does regulate aspects of commercial fishing, including fish reduction; shellfish cultivation; take of herring, lobster, sea urchins, and abalone; kelp leases; lease of state water bottoms for oyster allotments; aquaculture operations; and other activities. These resource protection responsibilities involve the setting of seasons, bag and size limits, and methods and areas of take, as well as prescribing the terms and conditions under which permits or licenses may be issued or revoked by the CDFG. The Commission also oversees the establishment of wildlife areas and ecological reserves, regulates their use, and sets policy for the CDFG.

FGC Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. The CDFG is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. The CDFG oversees the management of marine species through several programs, some in coordination with NMFS and other agencies. The Southern California Eelgrass Mitigation Policy (SCEMP) is administered by the USFWS, NMFS, and CDFG. In addition, the CDFG jointly manages (with NMFS) the implementation of the CCP, which calls for performance of a survey for *Caulerpa* before any bottom-disturbing activities.

Local Plans and Regulations

Several general, master, and local plans provide guidelines for land and waterside uses within Newport Bay.

Newport Bay Local Coastal Program

The City of Newport Beach LCP is not certified; however, the City does have a certified Coastal Land Use Plan and is in the process of preparing an Implementation Plan. Since the City does not have jurisdiction to issue a Coastal Development Permit (CDP), the City reviews pending development projects for consistency with the City's General Plan, Coastal Land Use Plan and Zoning regulations before an applicant can file for a coastal development permit with the CCC.

Upper Newport Bay State Marine Conservation Area

While administered by a state agency (CDFG), the Upper Newport Bay State Marine Conservation Area (MCA) and its regulations are locally specific. The portion of the project site north of the PCH Bridge is within the Upper Newport Bay MCA. Take of all living marine resources is prohibited within the MCA. Maintenance dredging, habitat restoration, research and education programs, maintenance of artificial structures, and operation and maintenance of existing facilities inside the conservation area is allowed pursuant to any required federal, state and local permits.

ENVIRONMENTAL SETTING

Field Investigations and Analysis Methods

M&A staff, Robert C. Mooney, James L. Schacher, Kira Withy-Allen, and Rachel A. Woodfield, performed marine biological surveys of the marine environment adjacent to the Back Bay Landing project site between October 18, 2012 and October 30, 2012. Field investigations included a baseline eelgrass survey, an intertidal habitat and terrestrial vegetation survey, general avian surveys, and subtidal marine habitat surveys.

Baseline Eelgrass Survey

A baseline assessment of eelgrass resources was performed by collecting field data with an interferometric wide-swath sonar system operating at 468 kHz. The sonar was set to scan out to 35 meters (m) on both the starboard and port channels for a 70-m wide swath. Parallel survey tracklines were navigated through the project survey area until the entire survey footprint was covered. For the purposes of the baseline survey, the survey area included all submerged fee-owned lands within the project boundary and extending south under the East Coast Highway Bridge to capture the southern shoreline of the project site. Two reference sites were established for the eelgrass survey; the first was located within the basin delineated by the project site boundary and the constructed salt marsh peninsula, and the second was located outside of this basin in the main Newport Bay Channel. Adjacent tracklines were spaced to allow overlap such that the area directly beneath the sonar head (Nadir gap) was filled with valid data. Geographic positioning was provided via a dual-antenna GPS/compass receiver with better than 60-cm accuracy. The collected data were spatially corrected for vessel heave, pitch, and roll via an integrated vessel's motion sensor.

Following completion of the field survey, the digital sonar traces (backscatter data) were joined together into a single mosaic and geographically registered using the recorded navigational data. The registered sonar mosaic was then overlaid on an aerial image of the survey area and reviewed for accuracy. Eelgrass was then digitized by a geographic information systems (GIS) specialist who inspected the sonar mosaic and delineated the eelgrass boundary using ESRI ArcView GIS software.

Eelgrass density data were collected within the project survey areas to assess the density and health of eelgrass. Data were collected by randomly lowering a remotely operated vehicle (ROV) to the seafloor in areas where eelgrass occurred. Once on the bottom, the ROV's video camera was focused on an attached $1/16^{th}$ square meter quadrat. Eelgrass leaf-shoot densities were calculated by counting the numbers of leaf shoots within the sampled quadrats.

General Marine Resources Surveys

Subtidal marine surveys were completed by an M&A biologist using SCUBA to survey the shallow unvegetated subtidal habitats along the shoreline of the project survey area. Observed flora and fauna were recorded to the lowest possible taxonomic level in the field. Voucher specimens of some species were transported to the laboratory for identification and/or verification. For intertidal surveys, an M&A biologist walked along the beach shoreline at low tide. All birds and invertebrate fauna utilizing the site were recorded. Terrestrial vegetation was mapped on an aerial photograph and then provided to a GIS specialist for digitization using ESRI ArcView software.

Jurisdictional Wetlands Delineation

Section 404 of the CWA provides regulatory authority to the ACOE over the placement of dredged or fill material, including rock revetments and concrete bulkheads along with backfilled materials. A jurisdictional wetlands delineation was completed at the project site by Anchor QEA (2012). Results of the wetlands delineation are summarized below and the complete report has been included in this document as Appendix A.

Results

Physical Site Conditions

The Back Bay Landing study area consists of a shoreline dominated by hard structures including a bulkhead wall, two cement groins, concrete block riprap revetments, and scrap metal. There are two small areas of intertidal sand; one is adjacent to the marina parking lot and the other is a protected recreational area for the mobile home park. Nearshore subtidal habitat consists primarily of unvegetated mud bottom, with some vegetated habitat (eelgrass patches) scattered in the shallow areas. The northern portion of the study area is bounded by a constructed salt marsh peninsula, the De Anza Bayside Marsh Peninsula. The bottom slopes gently from the intertidal sand and bulkhead wall, increasing in depth to support a channel between the shoreline and the salt marsh peninsula. Tidal elevations within the study area extend from +7.1 MLLW elevation to a depth of approximately -8 feet MLLW within the basin and -16 feet MLLW under the East Coast Highway Bridge. Water visibility at the time of the survey was approximately 2 to 5 feet. The following section describes the habitat types present within the study area.

Baseline Eelgrass Survey

The baseline eelgrass survey conducted on October 18, 2012 determined eelgrass patches were located in the shallow water (less than -12 feet MLLW) at four locations: 1) near the north portion of the channel between the shore and the salt marsh peninsula, 2) offshore from docks at the center of the site, 3) in the shallow area between the Marina Parking Lot and the docks, and 4) offshore from the riprap near the channel at the southernmost area of the site (Figure 3a and 3b). Approximately 30 m² of eelgrass was observed close to shore by the Marina Parking Lot in the basin, and about 8.3 m² of eelgrass was located close to shore at the southernmost portion of the study area near the riprap (Figure 3a and 3b). The

*Eelgrass (*Zostera marina*) patch located near dock slips on the southwest side of the Bayside Village Mobile Home Park.*

eelgrass patches close to shore in the basin and channel ranged in size from less than 1 m^2 to 14 m^2.

Two reference sites were created since it is likely that variable environmental conditions occur inside of the project basin and outside of the basin in the main Newport Bay channel (at the southern end of the site). The basin eelgrass reference area encompassed approximately 16 m^2 of eelgrass within 4,706 m^2 of area located directly south of the constructed salt marsh peninsula. The channel eelgrass reference area encompassed approximately 206 m^2 of eelgrass within 2,758 m^2 of area located west

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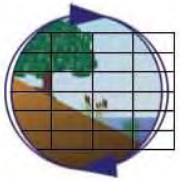

Marine Biological Resources Habitat Map
Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 3a

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Eelgrass Baseline Survey Results
Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 3b

Merkel & Associates, Inc.

of the salt marsh peninsula (Figure 3a and 3b). Both reference sites consisted of patchy, noncontiguous eelgrass beds. Eelgrass blades within the basin and near the channel were two to three feet in length.

Eelgrass vegetated habitats are an essential component of southern California's coastal marine environment. Eelgrass beds function as important habitat for a variety of invertebrate, fish, and avian species. For many species, eelgrass beds are an essential biological habitat component for at least a portion of their life cycle, providing resting and feeding sites along the Pacific Flyway for avian species, and nursery sites for numerous species of fish. No fish species were observed within the eelgrass patches during the survey, but typical eelgrass associates include pipefish (*Syngnathus* spp.), kelpfish (Family Clinidae), surfperch (Family Embiotocidae), round stingray (*Urobatis halleri*), as well as schooling silversides such as topsmelt (*Atherinops affinis*) and anchovy (*Anchoa* spp.).

Marine Resources

Subtidal Unvegetated Habitat

Subtidal unvegetated bottom consists of sands and silts mixed with shell hash that extends along south portion of site, near the marina parking lot.

Bare, silty mud occurs throughout most of the study area, with depths ranging up to -12 feet MLLW. The majority of the study area is considered to be shallow subtidal habitat, with soft bottom consisting of fine sands and silt, and some submerged debris (e.g. scraps of metal and concrete). The north portion of the study area consists of generally bare, soft sediment, while the south portion of the study area consists of sediment mixed with shell hash.

The only fish observed in subtidal unvegetated habitat were Round stingrays (*Urobatis halleri*) and juvenile barred sand bass (*Paralabrax nebulifer*. However, other demersal fish species including gobies (Family Gobiidae) are likely to utilize this habitat.

Rock debris supports native oysters, calcareous bryozoans and sponges (top). Pipe debris is surrounded by a calcareous bryozoan species and sponges (bottom). Two juvenile barred sand bass were observed in this habitat.

Invertebrates were sparse, although the mud had some signs of burrowing invertebrate activities, likely from bivalves (*Chione* spp., *Macoma* spp.), amphipods (*Grandidierella japonica*), bay ghost shrimp (*Callianassa californiensis*), burrowing anemones (*Harenactis attenuata*), and tube-dwelling anemones (*Pachycerianthus fimbriatus*). Other invertebrates occasionally observed included the opisthobranch *Navanax inermis*, bubble snail *Bulla gouldiana*, as well as calcareous bryozoans and soft bryozoans including the non-native *Zoobotryon verticillatum*. The occasional debris found on the bottom supported species more typical of hard substrates, including sponges (Phylum Porifera), invasive non-native tunicates (*Styela plicata* and *Botrylloides* spp.), and native oysters (*Ostrea lurida*).

Subtidal Vegetated Habitat

Subtidal vegetated habitat within the study area consisted of eelgrass. Results of the baseline eelgrass survey are included above.

Open Water

Topsmelt were observed in the water column during the survey. A fisheries monitoring program that was conducted in 2011 as part of the post-restoration monitoring for the Upper Newport Bay Ecosystem Restoration Project (M&A, *unpublished data*) includes a sampling station located near to the Back Bay Landing project site. Sampling conducted in the adjacent channel and shallow shoreline in 2012 found dominant fish species to include: Slough anchovy (*Anchoa delicatissima)*, round stingray, diamond turbot (*Hypsopsetta guttulata)*, kelp bass (*Paralabrax clathratus)*, California grunion (*Leuresthes tenuis)*, California halibut (*Paralichthys californicus)*, hornyhead turbot (*Pleuronichthys verticalis)*, California needlefish (*Strongylura exilus)*, shiner surfperch *(Cymatogaster aggregate*), spotfin croaker (*Roncador stearnsii)*, barred sand bass (*Paralabrax nebulifer)*, northern anchovy (*Engraulis mordax)*, spotted sand bass *(Paralabrax maculatofasciatus)*, yellowfin croaker (*Umbrina roncador*), bay blenny (*Hypsoblennius gentilis)*, bay pipefish (*Syngnathus leptorhyncus)*, cheekspot goby (*Ilypnus gilberti)*, and yellowfin goby *(Acanthogobius flavimanus)*. The occurrence of these species in open water is important to several species of piscivorous birds including pelicans, terns, loons, grebes, cormorants, and mergansers, which are known to forage in this area.

Intertidal riprap habitat is located near the south end of the site.

Intertidal Riprap Revetment

The shoreline near the southern portion of the project site (south of Planning Area 2) is armored with concrete block riprap revetment within intertidal elevations and extending down to roughly -2 feet MLLW where it transitions to vegetated and unvegetated subtidal habitat. The intertidal riprap is generally inhabited by organisms belonging to gastropod snails and limpets, as well as arthropods including the lined shore crab (*Pachygrapsus crassipes*) and barnacles (*Chthamalus* spp., *Balanus* sp.).

Intertidal Sand

The habitat north of the rip rap area (i.e., within Planning Area 2) consists of intertidal sand. Several avian species were observed foraging in this area. Species observed included willet (*Catoptrophurus semipalmatus*), rock dove (*Columba livia*), black-bellied plover (*Pluvialis squatarola*), and marbled godwit **(***Limosa fedoa***)**. Flora was absent within the intertidal sand habitat.

Bulkhead Walls and Cement Groins

The shoreline along Planning Area 3 is lined with a bulkhead wall and a sandy beach that is protected by two cement groins that extend perpendicular to the sand. The cement groins reach from intertidal depths to approximately -3 feet MLLW.

*Cement groin located near intertidal sand at the north end of the site. Native oyster (*Ostrea lurida*), limpets, native mussels (*Mytilus edulis*), and barnacles (Cirripedia) were observed.*

The bulkhead wall and groins provide habitat for an assemblage of organisms known as the fouling community. The organisms observed at the site included non-native Japanese oysters (*Crassostrea gigas*), native oysters (*Ostrea lurida*), native bay mussels (*Mytilus edulis*), barnacles, and limpets.

Pilings

Dock pilings occur throughout the study area, offshore of the sandy beach and bulkhead wall in Planning Area 3. Submerged bridge pilings associated with the former East Coast Highway Bridge alignment are located within the Newport Bay Channel to the west of Planning Area 2. Pilings also provide habitat for the fouling community. This community attracts schooling fish, which feed on the attached invertebrates and algae, and obtain refuge from predation (Glasby 1999). The species present and the overall complexity of the fouling community on pilings are dependent upon a number of factors including tidal elevation and inundation time, light availability, wave exposure, and size and shape of the pilings themselves (Connell and Glasby 1999, Connell 2001). While several studies indicate that man-made marinas do not support the same complexity of organisms as do natural reefs, it is apparent that pier pilings in coastal marinas do provide habitat value for fouling communities and associated fish assemblages (Clynick 2008).

Pilings typically support a variety of sessile, or sedentary, invertebrate species. At the highest tidal elevations, the pilings are generally dominated by barnacles (*Chthamalus* spp., *Balanus* sp.). At lower tidal elevations, invertebrates may include the native oyster (*Ostrea lurida*), non-native oyster (*Crassostrea gigas*), sponges (Phylum Porifera), multiple species of tunicates including *Styela clava*, *Ciona* spp., and *Botrylloides* sp., hard and soft bryozoans, including the widespread invasive *Zoobotryon verticillatum*, and feather duster worms (Family Sabellidae). Mobile invertebrates associated with the pilings may include scale worms (Family Polynoidae) and brittle stars (Class Ophiuroidea). Fish species that typically associate with pilings include kelpfish (*Heterostichus rostratus)*, topsmelt (*A. affinis)*, barred sand bass (*P. nebulifer)*, and California scorpionfish (*Scorpaena guttata*). The California scorpionfish is managed by the National Marine Fisheries Service under the Pacific Groundfish Fishery Management Plans (NMFS 1998).

Patches of Pacific pickleweed and western marsh rosemary are located along the intertidal sand bayfront.

Algal species associated with the piling community may include green algae (*Ulva* sp.), coralline red algae (*Corallina* spp.), and brown algae including *Dictyota flabellate*.

Jurisdictional Wetland Delineation

The wetland delineation completed by Anchor QEA (2012) revealed the presence of several small patches of southern coastal salt marsh vegetation, consisting of Pacific pickleweed (*Sarcocornia pacifica*) and western marsh rosemary (*Limonium californicum*), along the boundary between the intertidal sand and the marina parking lot. Presence of hydric soils was confirmed through prominent shallow redox concentrations. Hydrology was confirmed through tidal elevation. No other wetland vegetation was observed within the study area.

Sensitive Species

Species identified as protected, rare, sensitive, threatened or endangered by the USFWS, NMFS, or CDFG, that may be expected in the project area at various times include three bird species and two marine mammals (Table 1). None of these species was observed within the project area at the time of the current survey effort. However, it is anticipated that California brown pelicans (*Pelecanus occidentalis californicus*) and double crested cormorants (*Phalacrocorax auritus*) loaf on docks and forage in waters adjacent to the project area. California least terns (*Sternula antillarum browni*) may forage within the project area; however, they do not nest within the project area. There are four least tern nesting areas in Orange County, including Upper Newport Bay, Bolsa Chica Ecological Reserve, Huntington State Beach, and Seal Beach National Wildlife Refuge. The least tern nesting colony in closest proximity to the project site is located on an island in the uppermost Newport Bay area. This nesting island is over 2 miles (3.35 km) to the northeast of the project site. A survey conducted by CDFG in 2011determined that six breeding pairs of California Least Terns produced six nests in Upper Newport Bay, but these nests did not produce fledglings (CDFG 2012). Harbor seals (*Phoca vitulina*) and sea lions (*Zalophus californianus californianus)* do not breed within the project area but forage throughout Newport Bay and are observed in the bay year round. Both species are most common near the mouth at the south end of the bay, decreasing in occurrence towards the wetland habitat in the northern portions of the bay where the project site is located.

Table 1. Protected Species Observed or Expected to Occur within the Study Area

Common Name	Scientific Name	Status	Occurrence at Project Site
California Brown Pelican	*Pelecanus occidentalis californicus*	CDFG FP	Likely
Double-crested Cormorant	*Phalacrocorax auritus*	CDFG WL	Likely
California Least Tern	*Sternula antillarum browni*	SE, FE	Likely*
Harbor Seal	*Phoca vitulina*	MMPA	Uncommon
California Sea Lion	*Zalophus californianus californianus*	MMPA	Uncommon

SE – State Endangered; **FE**- Federally Endangered; **FT** – Federally Threatened; **CDFG SSC**- CDFG Species of Special Concern; **CDFG-FP** – CDFG Fully Protected Species; **CDFG-WL**- CDFG Watch List; **MMPA** – species protected by the Marine Mammal Protection Act

*Least terns are a migratory species found in the area from approximately April 1 – September 15 of each year.

PROJECT IMPACTS

The proposed action for which this biological resources assessment has been prepared is primarily a land use amendment. While project elements (e.g. mixed commercial and residential development, coastal boardwalk, etc.) have been identified, project plans and engineering have not progressed to a level sufficient to completely analyze impacts associated with this development. Specifically, construction methods and potential for discharges into adjacent jurisdictional waters are currently unknown; however, it is anticipated that a limited portion of the waterfront in Planning Area 1 would require future dredging and shoring to allow for the construction of a water inlet for boat launching and retrieval from the adjacent marina. For the purposes of this report, the assumption has been made that no bay fill or coverage would occur as part of future project construction (only limited dredging and shoring). However, the exact design and location of the proposed bulkhead wall and water inlet has not been finalized, nor have the construction methods and types of equipment to be utilized. The following analysis provides a range of potential impacts and mitigation measures. However, it will be necessary to revisit the assumptions regarding project activities and potential impacts within jurisdictional waters at the time when detailed plans and specifications become available in order to determine whether proposed mitigation measures are appropriate.

Bay Fill and Bay Coverage

The proposed project would not result in an increase of bay fill or bay coverage. The new bulkhead wall is proposed to be placed above the highest high tide line in uplands.

Marine Resource Impacts

The following section describes impacts of proposed project elements on specific marine resources that occur within the project area.

Subtidal Unvegetated Habitat

The bulkhead wall is proposed to be placed above the highest high tide and would not result in a direct fill or coverage of subtidal unvegetated communities. However, it is possible that the placement of the bulkhead could increase shading of habitat immediately adjacent to the wall. Such shading could cause a reduction of primary productivity of planktonic and scattered benthic algal communities in the shadow of the bulkhead. The degree of shading, if any, cannot be quantified as the bulkhead design is conceptual at this time. It is anticipated that any minor reduction in primary productivity could be offset by the increased area of soft bottom habitat created by construction of the water inlet for the dry-stack boat storage/service facility.

Subtidal Vegetated Habitat

Several patches of eelgrass occur adjacent to the shoreline within the proposed project area (Figure 3b). Since the bulkhead wall is proposed to be placed above the highest high tide, there are no direct impacts anticipated to eelgrass. However, there is potential risk of eelgrass damage during construction, either through increased turbidity associated with the construction work (from sediment or water runoff from adjacent upland construction, particularly bulkhead construction along the waterfront), from dredging associated with construction of the boat storage/service facility water inlet, or from accidental damage by equipment grounding or through vessel maneuvering (should water based equipment be utilized at any time). Appropriate construction measures may include

marking eelgrass beds, minimizing turbidity and runoff through implementation of an approved storm water pollution prevention plan (SPWPP), and restriction of contractor activities to avoid damage by equipment grounding or propeller wash.

Open Water

The proposed project would result in no increase in bay surface area coverage over open water habitat. It would, however, result in the potential construction of a water inlet for the proposed dry-stack boat storage and service facility in Planning Area 1, which would increase open water surface area on and near the site. Therefore, there would be no direct adverse impact to foraging habitat available for piscivorous avian species. However, the proposed project may have temporary impacts to water quality during construction. Temporary effects may include localized increases in turbidity and sedimentation. This elevated turbidity could potentially affect the local foraging success of piscivorous avian species. These impacts are considered to be potentially significant; however, implementation of BMP's and an approved SWPPP should be used to control the distribution of elevated turbidity in the water column adjacent to the work area. Given the short-term nature of construction, and containment of turbidity using BMPs, the temporary impacts to open water would be reduced to less than significant. BMPs and mitigation options for potential impacts to Open Water are described in detail in the "Mitigation" section below.

Intertidal Riprap Revetment

Although the project is currently in the conceptual planning stages, it is assumed that the project would not result in permanent loss of riprap substrate, since the only riprap area is located south and offshore of the project site (adjacent to Planning Area 2).

The riprap revetments consist of loosely placed concrete blocks with some crevices and structural complexity. However, most of the riprap revetment is above the Mean High Tide line, and few organisms were observed utilizing the space during the recent field studies. Because of the relatively low quality habitat function of the existing riprap, and the fact that future construction activities would not directly physically affect the riprap, impacts to intertidal riprap revetments are not considered to be significant.

Intertidal Sand

Birds were the primary fauna observed on the intertidal sand area. No permanent impacts to intertidal sand are anticipated, with the exception of a limited portion of the bayfront area in Planning Area 1, which would be subject to dredging for the creation of a water inlet for the dry-stack boat storage and service facility. Other than the permanent loss of intertidal sand habitat in this location, no other direct impacts would occur as the proposed bulkhead wall would be constructed entirely outside the intertidal zone. Temporary impacts may include disturbance of loafing or foraging birds and reduced foraging area during project construction. However, Newport Bay provides additional intertidal sand and mudflat foraging habitat in nearby areas and it is anticipated that birds would utilize these alternative locations during project construction. Other potential impacts include sediment or water runoff from land based construction; these would be mitigated through implementation of project BMPs and an approved SWPPP. As a result, any construction-related impacts to marine avian species are considered to be less than significant.

Pilings

The proposed project would result in no change to the existing dock or former bridge pilings, and no impacts are anticipated. However, best management practices should be employed to prevent any construction-related turbidity in adjacent waters.

Jurisdictional Wetlands Impacts

Figures 4a and 4b provide results of the wetland delineation, including boundaries for regulatory jurisdiction. Under Section 404, the ACOE regulatory boundary is the highest high tide plus any adjacent wetlands. In Newport Bay, the highest high tide is+7.86 feet MLLW (Newport Datum). The wetland delineation study determined that since the placement of the proposed bulkhead wall would be at 7.86 feet MLLW, the project would avoid impacts to wetlands defined by Section 404 of the CWA (Anchor QEA 2012). However, the construction of the water inlet for the proposed dry-stack boat storage and service facility in Planning Area 1 would result in direct impacts to wetlands (Upper Newport Bay) through dredging and shoring activities. As noted above, the proposed project has not been defined to a level of specificity such that it is possible to evaluate the extent and severity of impacts to wetlands in the project area. A subsequent wetland delineation will be required, as discussed under "Mitigation" below, once a specific development proposal is brought forth that identifies the specific impacts of the project and prescribes measures to address impacts to wetlands. Mitigation requiring a project-specific jurisdictional delineation for future on-site development, as well as permit conditions required by affected resource agencies, would ensure that impacts to wetlands associated with future development would be less than significant.

Sensitive Species Impacts

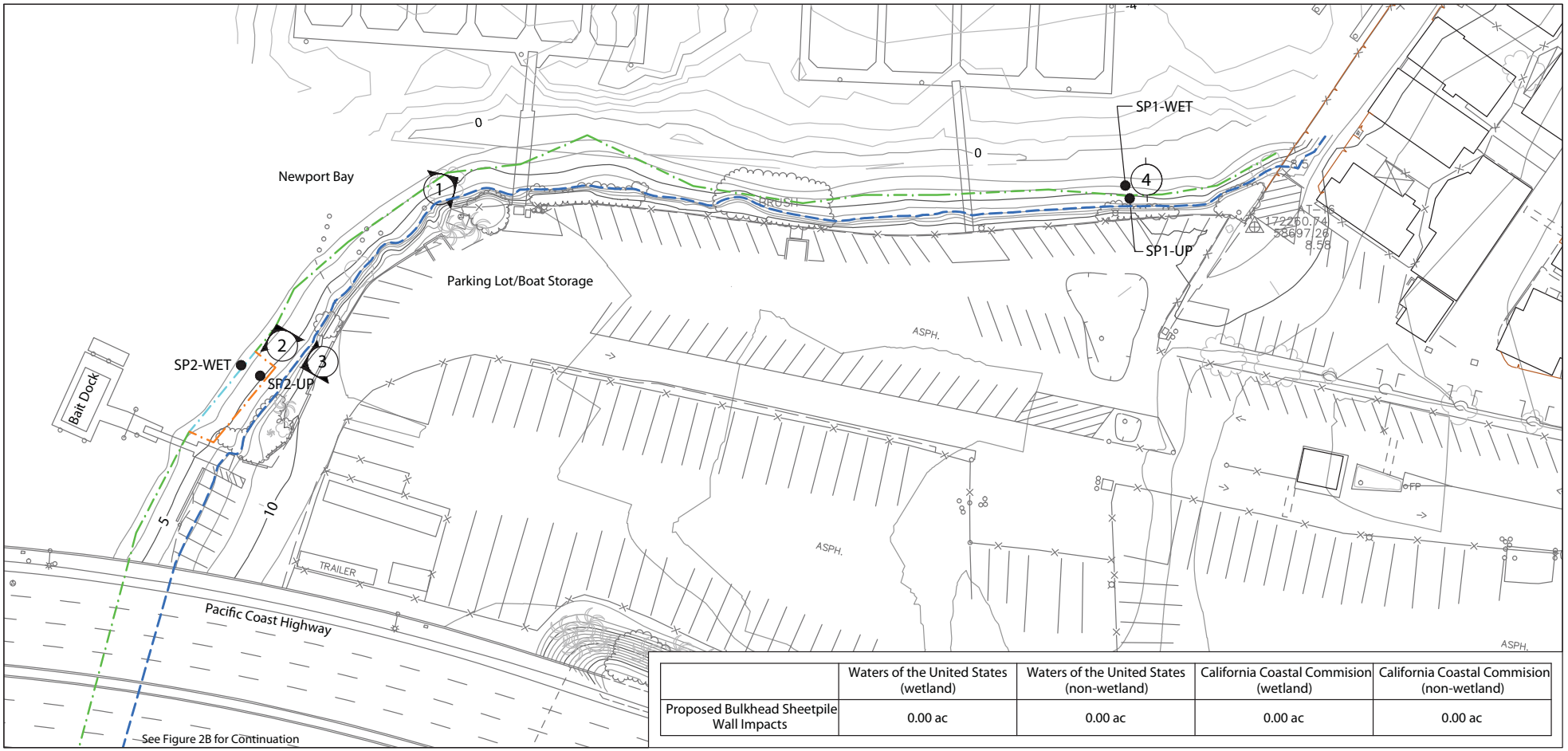
There were no sensitive species observed within the study area during the field surveys. The project site does not feature unique or rare habitats whose alteration would significantly impact sensitive species in the area. A discussion of the likelihood of the sensitive species presented in Table 1 to occur and/or be impacted by the project is discussed below.

Birds

Sensitive bird species that could potentially occur in the project site are the California brown pelican, double-crested cormorant, and California least tern. The brown pelican is commonly observed in the bay and is found in small numbers along the Upper Newport Bay Ecological Reserve. No large roosting aggregations occur in the project area. There should be no permanent loss of open water habitat, but turbidity may be temporarily increased during construction, which could potentially reduce the forage efficacy of this species. However, the available open water habitat within the rest of Newport Bay and in the nearshore coastal waters would provide ample alternative foraging opportunities. Noise associated with the construction of the bulkhead wall could potentially disturb pelicans foraging immediately adjacent to the site; however, if disturbed individuals would likely relocate to available loafing and foraging areas available outside the project area. This species has been delisted from its prior federal and state endangered species status. Brown pelicans do not breed on the mainland California coast; therefore, the project would not have an impact on nesting activities. Based on these factors, impacts of the proposed project on California brown pelican are not considered to be significant.

During its breeding season, April 1 – September 15, the endangered California least tern is observed in Newport Bay. California least terns may forage within the project area; however, they do not nest

within the project area. There are four nesting areas in Orange County, including Upper Newport Bay, Bolsa Chica Ecological Reserve, Huntington State Beach, and Seal Beach National Wildlife Refuge. The least tern nesting colony in closest proximity to the project site is located in Upper Newport Bay on an island in the uppermost Newport Bay area. This nesting island is over two miles



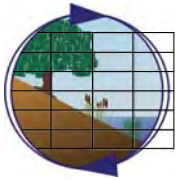
	Waters of the United States (wetland)	Waters of the United States (non-wetland)	California Coastal Commision (wetland)	California Coastal Commision (non-wetland)
Proposed Bulkhead Sheetpile Wall Impacts	0.00 ac	0.00 ac	0.00 ac	0.00 ac

SOURCE: Bathymetric survey from Atlas Engineering Company, dated August 12, 2009.
Topographic survey from Fuscoe Engineering, dated July 15, 2009.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83.
VERTICAL DATUM: NAVD88.

NOTE: The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 6.9 feet (7.1 feet above MLLW) in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

LEGEND:
- Wetlands - USACE and CCC Joint Jurisdiction
- Wetlands - USACE Jurisdiction
- Wetlands - CCC Jurisdiction
- Proposed Bulkhead Sheetpile Wall Location (6.9 Ft, 7.1 Ft MLLW)
- (1) Photograph Location and Direction (See Appendix C for Photographs)

0 50
Scale in Feet

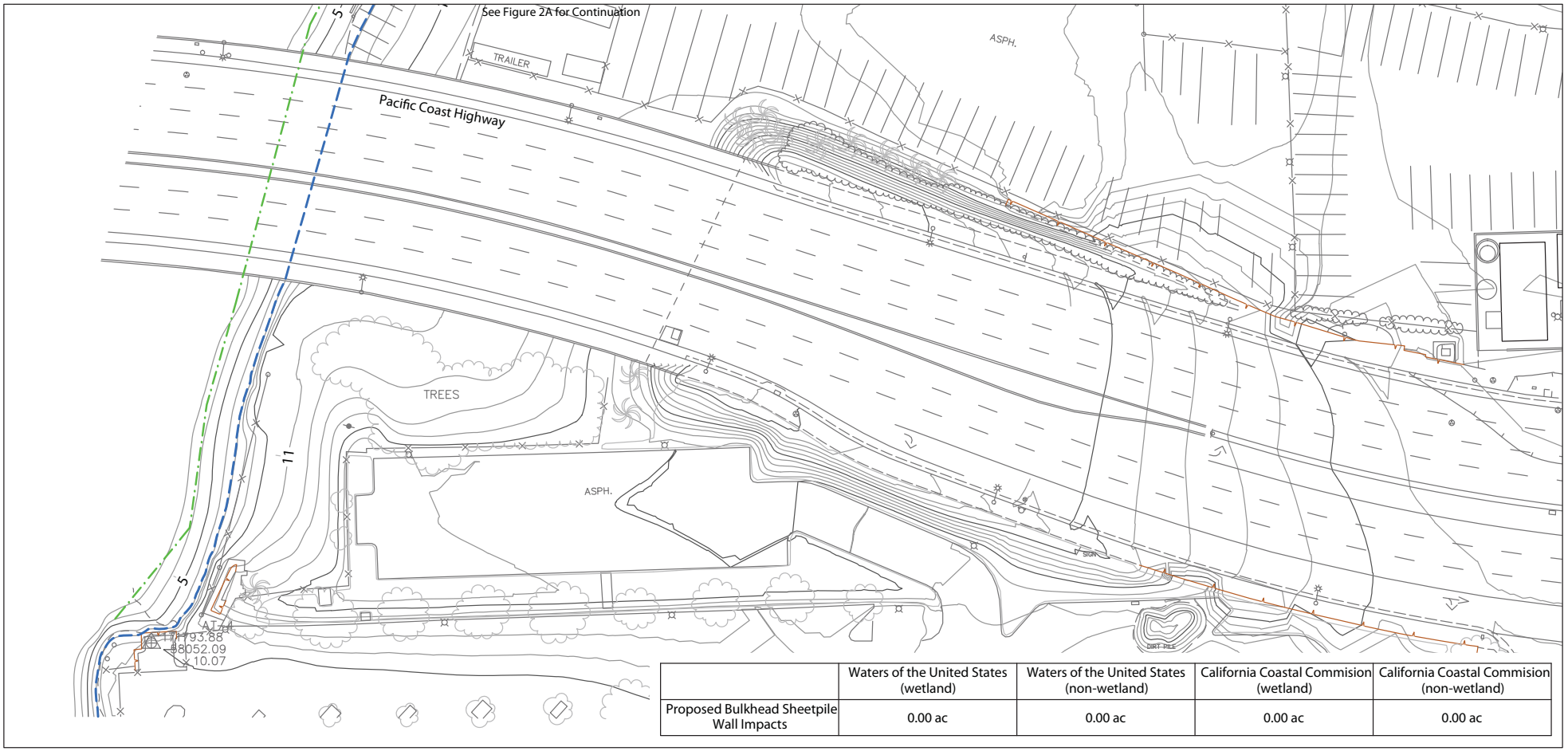


N W E S

Wetland Delineation Map (Anchor QEA 2012)

Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 4a



	Waters of the United States (wetland)	Waters of the United States (non-wetland)	California Coastal Commision (wetland)	California Coastal Commision (non-wetland)
Proposed Bulkhead Sheetpile Wall Impacts	0.00 ac	0.00 ac	0.00 ac	0.00 ac

SOURCE: Bathymetric survey from Atlas Engineering Company, dated August 12, 2009.
Topographic survey from Fuscoe Engineering, dated July 15, 2009.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83.
VERTICAL DATUM: NAVD88.

NOTE: The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 6.9 feet (7.1 feet above MLLW) in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

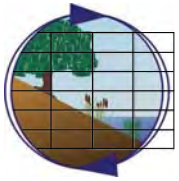
LEGEND:

Wetlands - USACE and CCC Joint Jurisdiction

Proposed Bulkhead Sheetpile Wall Location (6.9 Ft, 7.1 Ft MLLW)

1 Photograph Location and Direction (See Appendix C for Photographs)

0 50
Scale in Feet



N
W E
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Wetland Delineation Map (Anchor QEA 2012)

Marine Biological Resource Assessment
Back Bay Landing Project - Newport Beach, CA

Figure 4b

Merkel & Associates, Inc.

(3.35 km) to the northeast of the project site. When nesting sites are in close proximity to construction sites, temporary increases in turbidity during project construction could disturb the foraging ability of least terns. However, the nesting site is located at a great enough distance from the nesting sites that no impact to least terns is expected.

The double-crested cormorant could experience minor foraging-related impacts due to short-term project-related turbidity. However, ample adjacent foraging area in Newport Bay would lessen this impact below significance. By the same rationale, other marine avian species that likely frequent the project site would also not experience permanent loss of loafing, nesting, or roosting habitat as a result of the proposed project, and the availability of open water for foraging throughout the bay would minimize the impact of temporary construction activities within the project area. Loafing and foraging birds typically avoid areas of extreme activity. During project construction it is anticipated that birds will seek other foraging areas and loafing areas within Newport Bay. The bay provides ample equally-suited open water and intertidal sand and mudflat foraging habitat and dock piling structures for loafing that may be utilized during the construction period. As a result, any construction-related impacts to other marine avian species are considered to be less than significant.

Reptiles

Green turtles (*Chelonia mydas*) and Hawksbill turtles (*Eretmochelys imbricate*) are protected marine reptile species that have been observed in other regions of Orange County, but they do not occur within Newport Bay. Since it would be very rare for turtles to enter the waters of Upper Newport Bay, no impacts to marine reptiles are anticipated.

Mammals

Harbor seals and California sea lions are observed commonly in Lower Newport Bay and less commonly in the upper portions of the bay, where the project site is located. There are no established haul-out, foraging, or breeding areas used by these or other marine mammals within the project area or vicinity, although individuals may make occasional transient use of the area. Construction is anticipated to be of a short duration and would be almost entirely land-based, with the exception of dredging and shoring activities associated with the construction of a water inlet for the dry-stack boat storage/service facility in Planning Area 1. Marine mammals would be expected to leave the site for adjacent waters if disturbed by project-related construction and dredging/shoring work; thus, it is not expected that any long-term harm would occur to marine mammals. It should be noted that dredging for the existing Bayside Village Marina occurs periodically on an ongoing basis to maintain the marina, and as such future dredging associated with the proposed project would not introduce new hazards or potential adverse effects to marine mammals associated with dredging. However, the Marine Mammal Protection Act prohibits "take" of marine mammals. The definition of take under the Act, like that of the Endangered Species Act, includes "harassment". For this reason, a potentially significant impact to marine mammals could occur if animals are disturbed during construction activities, even if they are not harmed by the activities. Potential impacts to marine mammals would be reduced to less than significant with mitigation incorporated.

MITIGATION

MARINE RESOURCE MITIGATION

Subtidal Vegetated Communities

Should discharge into jurisdictional water occur as an element of project construction, the following measures would be required to mitigate potential impacts to eelgrass to a less than significant level:

1) Prior to construction, the boundaries of the eelgrass beds, located nearshore of the Back Bay Landing site, shall be staked with ridged PVC markers or self-centering buoys visible at all tide heights. The contractor shall protect, replace and maintain the markers/buoys as needed to ensure that they remain in place and properly stake the boundaries of the eelgrass beds until the District certifies that all construction activities are complete.
2) During shoreline work, eelgrass shall be protected by silt curtains deployed above the eelgrass and below the shoreline work area.
3) The project shall conform to the requirements of the SCEMP (NMFS 1991, revision 11).

In accordance with the requirements of the SCEMP, a pre-construction eelgrass survey shall be completed by a qualified biologist within 60 days prior to initiation of demolition or construction activities at the site. This survey shall include both area and density characterization of the beds. A post-construction survey shall be performed by a qualified biologist within 30 days following project completion to quantify any unanticipated losses to eelgrass habitat. Impacts shall then be determined from a comparison of pre- and post-construction survey results. Impacts to eelgrass, if any, would require mitigation as defined in the SCEMP, but at a minimum would require replacement of eelgrass at a 1.2:1 ratio. If required following the post-construction survey, a mitigation planting plan shall be developed, approved by the District and NMFS, and implemented to offset losses to eelgrass.

At such time that a specific development proposal is submitted to the City, a survey for the invasive seaweed *Caulerpa taxifolia*, shall be prepared by a certified *Caulerpa* surveyor not more than 90 days prior to the initiation of construction. Project-specific measures recommended by the *Caulerpa* surveyor and other City requirements regarding *Caulerpa* shall be implemented as necessary as part of future construction activities.

Open Water

To mitigate potentially significant impacts to water quality to a less than significant level the following measures would apply:

1) The Project shall conform to the approved storm water pollution prevention plan (SWPPP) and shall incorporate construction-related erosion/sediment control Best Management Practices as detailed in the Project Plans. These include: installation and maintenance of an erosion/sediment barrier, covering stockpiled material prior to rain events, maintenance of equipment to prevent runoff of grease and oil into adjacent waters, and providing equipment and staff as required to repair and/or implement erosion/sediment control measures.

Should project equipment or construction be anticipated to result in discharges into jurisdictional waters the following would apply:

1) During shoreline work, a turbidity curtain shall be deployed above the water line and below the shoreline work area.

2)

SENSITIVE SPECIES MITIGATION

Birds

There are no significant impacts to least terns anticipated since the nearest nesting sites are over two miles from the project site. However, since least terns are known to forage in the area, the following precautions should be taken to reduce potential impacts to a less than significant level:

1) If construction schedule overlaps with the least tern breeding season of April 1 – September 15, a qualified biologist shall conduct daily monitoring within 500 feet of construction activities. The contractor shall delay commencing work if terns are present and actively foraging (e.g. searching and diving) within the work area. Should adverse impacts to terns occur (e.g. agitation or startling during foraging activities), construction shall cease until least terns have left the project site.

Mammals

To mitigate potential impacts to marine mammals to a less than significant level, the following construction measures are recommended.

1) During construction activities, a qualified biologist shall conduct daily monitoring within 500 feet of construction activities such as dredging or other in-water work. The contractor shall halt work if any observations of marine mammals are made. Work shall not re-commence until a qualified biologist determines that the mammal(s) have left the area.
2) If in-water construction vessel traffic is needed, the vessels shall not exceed existing ambient speed for the area.

Wetlands

In order to mitigate impacts to jurisdictional wetlands associated with dredging and shoring for the proposed dry-stack boat storage/service facility, a project-specific wetlands delineation shall be prepared for future on-site development, once a specific project proposal has been brought forth. The wetland delineation shall identify project-specific wetlands impacts and provide mitigation measures to reduce such impacts consistent with applicable guidance from respective resource agencies.

CONCLUSIONS

With best management practices and mitigation measures incorporated, the proposed project should avoid any permanent impacts to wetland and marine resources. Any potential impacts are anticipated to occur during construction and to be of a short-term, temporary nature. Given the limited nature of the bulkhead wall placement out of the ACOE jurisdiction, avoidance of eelgrass habitat, and the general lack of other high value habitat resources in the project area, impacts associated with the bulkhead construction are not considered to be significant.

No impacts to eelgrass habitat are anticipated; however, potential significant impacts may occur as a result of avoidable construction damage. Suspension of sediments or runoff associated with construction can increase light attenuation through the water column and, therefore, affects the

productivity of eelgrass. Further, if marine vessels are utilized for the project, maneuvering or grounding may damage eelgrass through direct bottom contact or propeller scouring. As a result, an eelgrass impact assessment monitoring is recommended. Any impacts to eelgrass that occur would be subject to the mitigation provisions of the SCEMP, requiring a replacement of eelgrass habitat at a 1.2:1 mitigation ratio.

Sensitive species that may be affected include California brown pelican, California least tern, double-crested cormorant, and California sea lion and harbor seal. Construction period effects to California least tern and both marine mammals are potentially significant and may be mitigated to a less than significant level by incorporation of construction period measures to monitor for sensitive species presence, delay construction activities if species are noted in the project area, control turbidity, and allowing animals to leave the area if activities cause substantive stresses.

In addition to local approvals, the project would require state and federal approvals. These include issuance of a CDP by the California Coastal Commission (as the City does not yet have an approved Local Coastal Program). The project may or may not require issuance of a combined R&H Section 10 and a Section 404 Permit under the CWA by the ACOE, and issuance of a Section 401 Water Quality Certification by the RWQCB, depending upon details of project elements and methods of construction. If any ACOE permit is required, then processing of these approvals may also require compliance with the EFH consultation requirements of the Magnuson-Stevens Fisheries Conservation and Management Act, the SCEMP, and section 106 of the National Historic Preservation Act.

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APPENDIX A
WETLAND DELINEATION REPORT

WETLAND DELINEATION REPORT
BACK BAY LANDING DEVELOPMENT PLAN

Prepared for

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November 2012

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1 INTRODUCTION

This Wetland Delineation Report presents a delineation of the landward extents of waters of the United States subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE) and wetlands as defined by the USACE and California Coastal Commission (CCC) in the subject area. This delineation is intended to support early design considerations for the Back Bay Landing Development Plan and is subject to review and approval by the USACE, CCC, and Regional Water Quality Control Board (RWQCB).

This report describes methods used in the field investigation and Anchor QEA, L.P.'s findings. A description of the study area is included in Section 2. Summaries of the findings of the wetland delineation are included in Section 3. A summary of data collected at each sampling plot during the wetland delineation is presented in tables in Appendix A and in the field data forms in Appendix B. Photographs of the study area are included in Appendix C.

1.1 Review of Existing Information

To identify natural resources in the study area, Anchor QEA ecologists reviewed the following sources of information to support field observations:

- *Natural Resource Conservation Service Web Soil Survey* (USDA 2012a)
- *National Hydric Soil List* (USDA 2012b)
- *USFWS Wetlands Mapper for National Wetlands Inventory Map Information* (USFWS 2012)
- *DeAnza Peninsula Marina Feasibility Study – Biological Resources Assessment and Evaluation* (MBC 1985)

2 STUDY AREA DESCRIPTION

The study area is located on a peninsula in Upper Newport Bay in Newport Beach, Orange County, California (Township 6 South, Range 10 West, Section 27; Figure 1). Land use within the study area includes a parking lot and boat storage yard in the uplands fronting the beach to the west. The beach supports a bait dock and two T-shaped marinas, which are part of the Bayside Mobile Home Park and Marina. Pacific Coast Highway traverses east to west over a bridge through the southern half of the study area.

The peninsula is located at the westerly, seaward end of Upper Newport Bay and was once a portion of a continuous salt marsh habitat extending northerly from what is now the Bayside Mobile Home Park and Marina. The existing bay between the spit and the mainland to the south was dredged in the 1950s to provide a site for the marina. It appears that dredge spoils were deposited on four portions of the remaining marshland, including the connecting neck, parking lot and boat trailer storage yard at the east end of the study area, high knolls, and the terminus of the spit downbay (MBC 1985).

2.1 Topography

In 2009, Fuscoe Engineering conducted a topographic survey of the study area, revealing slopes from the parking lot and boat storage yard to the west. An approximately 3- to 4-foot slope separates the beach from the parking lot and boat storage yard. A bathymetric survey of the beach was conducted by Atlas Engineering Company in 2009.

2.2 Soils

The *Natural Resource Conservation Service Web Soil Survey* (USDA 2012a) identifies two soil series in the location of the study area: Open Water and Beaches. The Beaches soil series is identified as hydric under in the *National Hydric Soil List* (USDA 2012b). Sample plot soil profiles are described in Section 3.2. A summary of soils data collected at each sample plot is presented in the tables in Appendix A and in the field data forms in Appendix B.

2.3 Hydrology

The typical elevation of the bulk of the peninsula ranges from 0.5 to 2.5 feet above mean lower low water (MLLW) and is subject to regular tidal inundation. The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 7.1 feet above MLLW in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

Sample plot hydrology is described in Section 3.2. A summary of hydrology data collected at each sampling plot is presented in the tables in Appendix A and in the field data forms in Appendix B.

2.4 Plant Communities

The *USFWS Wetlands Mapper for National Wetlands Inventory Map Information* identifies estuarine and marine deepwater wetland habitat within the study area (USFWS 2012). The surface of the marina parking lot and RV and trailer boat dry storage area are largely devoid of vegetation. Mostly adventive grasses and ruderals form a weedy lawn-like setting in the dry storage area. A scattering of grasses and forbs rims the margin of the parking lot. Marsh intertidal and some transition zone strand vegetation are found on the slopes and beach.

Wetland and upland vegetation in the study area is described in Sections 3.2. A summary of vegetation data collected in the study area and at each sampling plot is presented in the tables in Appendix A and in the field data forms in Appendix B.

3 WETLAND DELINEATION FINDINGS

On April 16, 2012, from 11:00 AM to 3:00 PM, Anchor QEA ecologists performed a delineation of waters of the United States and wetlands as defined by the USACE and CCC in the subject area. Tidal conditions on the day of the delineation include:

- 0117 1.21 feet low tide at
- 0705 high tide at 4.34 feet
- 1325 low tide at 0.19 feet
- 1947 high tide at 4.74 feet

For purposes of determining the present extent of USACE and CCC jurisdictions, GPS coordinates were taken using a Trimble GeoXT Pocket PC at intervals along the beach. Data were then transferred from the field unit to a computer, post-processed, and delineated. A complete description of the delineation results is provided in Section 3.2 and shown on Figure 2. A summary of vegetation, soils, and hydrology data collected at each sampling plot is presented in the tables in Appendix A and in the field data forms in Appendix B.

3.1 Wetland Delineation Methods

This section describes the methodology used to perform the wetland delineation, including the review of existing information and field investigation procedures. These methods are consistent with current Federal and State agency requirements for performing wetland delineations.

This wetland delineation was conducted according to the methods defined in:

- *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (USACE 2008)

Soil colors were classified by their numerical description, as identified on a Munsell Soil Color Chart (Munsell 1994). The USACE defines wetlands as: "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and

that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (USACE 1987). Similarly, Section 30121 of the California Coastal Act defines wetlands as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." However, a more specific definition is provided in Section 13577 (b)(1) of the California Code of Regulations:

> ... land where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats.

The method for delineating wetlands is based on the presence of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Hydrophytic vegetation is "the macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or of sufficient duration to exert a controlling influence on the plant species present" (USACE 1987). The National Technical Committee for Hydric Soils defines a hydric soil as a "soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA 1994). Data collection methods for each of these parameters are described in the following subsections.

Four sample plots were sampled at the study area to determine boundaries of USACE and CCC jurisdictions; upland and wetland plots were excavated in both the northern and southern extents of the study area (Figure 2). The interval and quantity of the sample plots were determined in the field once a general understanding of site and soil conditions was understood. Sample plots are identified numerically as wetland or upland plots (SP1-Wet

and SP1-Up). Vegetation, soils, and hydrology information were collected at each of the plots and recorded on field data sheets. A summary of sample plot data presented tables in Appendix A and in the field data forms in Appendix B. Wetland boundaries were determined based upon plot data and visual observation of the study area.

3.1.1 Vegetation

Plant species occurring in each plot were recorded on field data sheets, one data sheet per plot (Appendix B). Percent cover was estimated in the plot for each plant species and dominant species were determined. At each plot, trees within a 30-foot radius, shrubs within a 15-foot radius, and emergents within a 3-foot radius from the center of the plot were identified and recorded on a data sheet. A plant indicator status, designated by the U.S. Fish and Wildlife Service (USFWS; Reed 1988; USDA 2012c), was assigned to each species, and a determination was made as to whether the vegetation in the plot was hydrophytic. To meet the hydrophytic parameter, more than 50 percent of the dominant species must have an indicator of obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Table 1 shows the wetland indicator status categories.

Table 1
Wetland Plant Indicator Status Categories

Indicator Status	Description
OBL	Plant species occur almost always in wetlands (estimated probability greater than 99 percent) under natural conditions.
FACW	Plant species usually occur in wetlands (estimated probability 67 to 99 percent) but occasionally found in non-wetlands.
FAC	Plant species equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66 percent).
FACU	Plant species usually occur in non-wetlands (estimated probability 67 to 99 percent) but occasionally found in wetlands.
UPL	Plant species occur almost always in non-wetlands (estimated probability greater than 99 percent) under natural conditions.

Notes:
FACU = facultative upland
UPL = obligate upland

3.1.2 Soils

Soils were sampled in each plot and evaluated for hydric soil indicators. Soil pits were dug to a depth of 20 inches or greater. Hydric soil indicators include low soil matrix chroma, gleying, and redoximorphic or redox features. Redox features are spots of contrasting color occurring within the soil matrix (the predominant soil color). Gleyed soils are predominantly bluish, greenish, or grayish in color. Soils having a chroma of 2 (with redox features) or less (with or without redox features) are positive indicators of hydric soils (USACE 1987, 2008).

3.1.3 Hydrology

Wetland hydrology was evaluated at each plot to "provide evidence that the site has a *continuing* wetland hydrologic regime and that hydric soils and hyrdophytic vegetation are not relicts of a past hydrologic regime" (USACE 2008). Field observations of saturation and inundation and other indicators of wetland hydrology, such as drift deposits (debris rack lines) and high tide lines in wetlands, were recorded.

3.1.4 Other Data Sources

Reviews of existing information were conducted to identify potential wetlands or site characteristics indicative of wetlands in the study area. The sources of information reviewed to support field observations are identified in Section 1.1.

3.2 Wetland Delineation Results

The landward extents of waters of the United States and wetlands as defined by the USACE and CCC were delineated in the study area. Delineation results are shown on Figure 2. A summary of vegetation, soils, and hydrology data collected at each sample plot is presented in the tables in Appendix A and in the field data forms in Appendix B.

3.2.1 Vegetation

From the toe of the slope waterward, several disjunct populations of pickleweed (*Salicornia* sp.) and sea lavender (*Limonium californicum*) were observed that generally followed the high tide line as evident by the proximity to the debris rack line (high tide during the

delineation at approximately 4.5 feet), with a few populations that extended more landward and closer to the slope. The landward populations appeared distressed based on lack of vigor when compared to the more waterward populations, likely as a result of a lack of sufficient hydrology. The northern terminus of the study area also included an isolated patch of salt grass (*Distichlis spicata*). The slope, in general, was dominated by non-native vegetation predominantly Hottentrot fig (*Carpobrotus edulis*). Several planted and potted ornamental species were identified near the entrance to the bait dock.

Species observed in the two wetland plots were comprised entirely of pickleweed and algae mat satisfying the dominance test and prevalence index requirements.

3.2.2 Soils

Four soil pits were excavated in the study area to facilitate delineation of the wetland boundaries; two in locations that appeared to be uplands and two in areas that appeared to be wetlands. The two upland soil pits exhibited the same soil profiles; similarly the two wetland pits exhibited the same soil profiles. The profile for the wetland plots (SP1-Wet and SP2-Wet) consisted of brown (10 YR 5/3) sandy soil to the depth of around 4 inches and then gray (10 YR 5/1) sandy silt with strong brown (7.5 YR 4/6) prominent redox concentrations from approximately 4 to 8 inches. Between 8 and 20 inches, the soil profile transitioned to greenish grey (gley 1, 5/10Y) sand. The profile for upland soil pits (SP1-Up and SP2-Up) included monotypic brown (10 YR 5/3) sandy soil to the depth of around 12 inches and then grayish brown 10 YR 5/2 with strong brown (7.5 YR 4/6) oxidized channels to 20 inches. The upland soil pits did not exhibit indication of wetland soils based on the depth at which redox concentrations were observed (i.e., greater than 6 inches from the soil surface). The two wetland soil pits satisfied the requirements of hydric soils present in the project area as evident by a 4-inch-thick low chroma layer within 6 inches of the soil surface with prominent redox concentrations.

3.2.3 Hydrology

Hydrology at the site is predominantly dependent on tidal fluctuations, with occasional precipitation and runoff from the parking lot and boat storage yard. At the time of the survey, the tide was low, limiting the observed indicators of hydrology to saturation, and

drift deposits defining the limits of the high tide line for that particular day. In the upland plots, indicators of wetland hydrology were not observed; however, it is assumed that at extreme high tides, indicators of inundation would be observed at the elevation defining the tidal patterns for that particular day.

3.2.4 Summary

Data were collected at four sample plots: SP1-Wet, SP1-Up, SP2-Wet, and SP2-Up (Appendices A and B). The wetland plots contained hydrophytic vegetation, indicators of wetland hydrology, and hydric soils. Upland plot SP1-Up did not exhibit indicators of hydrophytic vegetation, hydric soils, or hydrology. Upland plot SP2-Up exhibited hydrophytic vegetation but lacked evidence of hydrology and hydric soils.

3.3 Discussion

The landward extent of USACE jurisdictional wetlands (three parameter) and wetlands as defined by the CCC (one parameter) were coincident through the majority of the study area with the exception of a small area immediately north of the ramp to the bait dock. At this location, small patches of pickleweed extended landward of the USACE jurisdictional wetlands, where hydric soils and hydrology were lacking. From the bait dock ramp to the south, a relic concrete boat launch ramp existed that precluded the presence of any wetlands. From the south side of the relic concrete boat launch (where the Pacific Coast Highway bridge traverses the study area) to the southern terminus of the study area, the beach is devoid of vegetation, likely a result of lack of sufficient sunlight. To delineate the extent of the USACE and CCC jurisdictional wetlands, several soil plugs were collected approximately every 25 to 30 feet to verify that hydric soil conditions were present and consistent with what was observed in the SP1 and SP2 wetland soil pits. Anchor QEA ecologists made qualitative evaluations of these soil plugs in the field but did not prepare data sheets for them. The qualitative observations were used along with the presence of hydrophytic vegetation and indicators of hydrology in the field to inform the placement of the GPS unit for collection of survey points.

Very recently, the USACE indicated in Back Bay their jurisdiction under Section 404 of the Clean Water Act extends to +7.1 feet MLLW, which is landward of the limits of the wetlands delineated as part of this investigation (Figure 2).

3.4 Impacts

Impacts are being evaluated for planning purposes only and are intended to support the client in design considerations of the proposed project for legislative approval. Additionally, a functional assessment of impacts to Waters of United States (wetlands and non-wetlands) has not been completed. Future project implementation would include constructing a bulkhead sheetpile wall at approximately 7.1 feet MLLW, with backfill on the landward, upslope side as depicted on Figures 2 and 3. Potential impacts have been quantified and distinguished between each agency's jurisdiction and between wetlands and non-wetlands. As a result of positioning the wall at approximately 7.1 feet MLLW, the project has been designed to avoid impacts under Section 404 of the Clean Water Act.

Table 2
Potential Impacts to Jurisdictional Resources

	Waters of the United States (wetland)	Waters of the United States (non-wetland)	California Coastal Commission (wetland)	California Coastal Commission (non-wetland)
Proposed Bulkhead Sheetpile Wall	0.0 acre	0.00 acre	0.00 acre	0. 00 acre

3.5 Wetland Delineation and Typing Limitations

Wetland identification is an inexact science and differences of professional opinion often occur between trained individuals. Final determinations for wetland boundaries and typing concurrence or adjustment needs are the responsibility of the regulating resource agency. Wetlands are, by definition, transitional areas; their boundaries can be altered by changes in hydrology or land use. In addition, the definition of jurisdictional wetlands may change. If a physical change occurs in the basin or 3 years pass before the proposed project is undertaken, another wetland survey should be conducted. The results and conclusions expressed in this report represent Anchor QEA's professional judgment based on the information available. No other warranty, expressed or implied, is made.

4 REFERENCES

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FIGURES

L:\AutoCAD Project Files\090603-01 Back Bay Landing\090603-01-RP-005-VMAP.dwg Figure 3

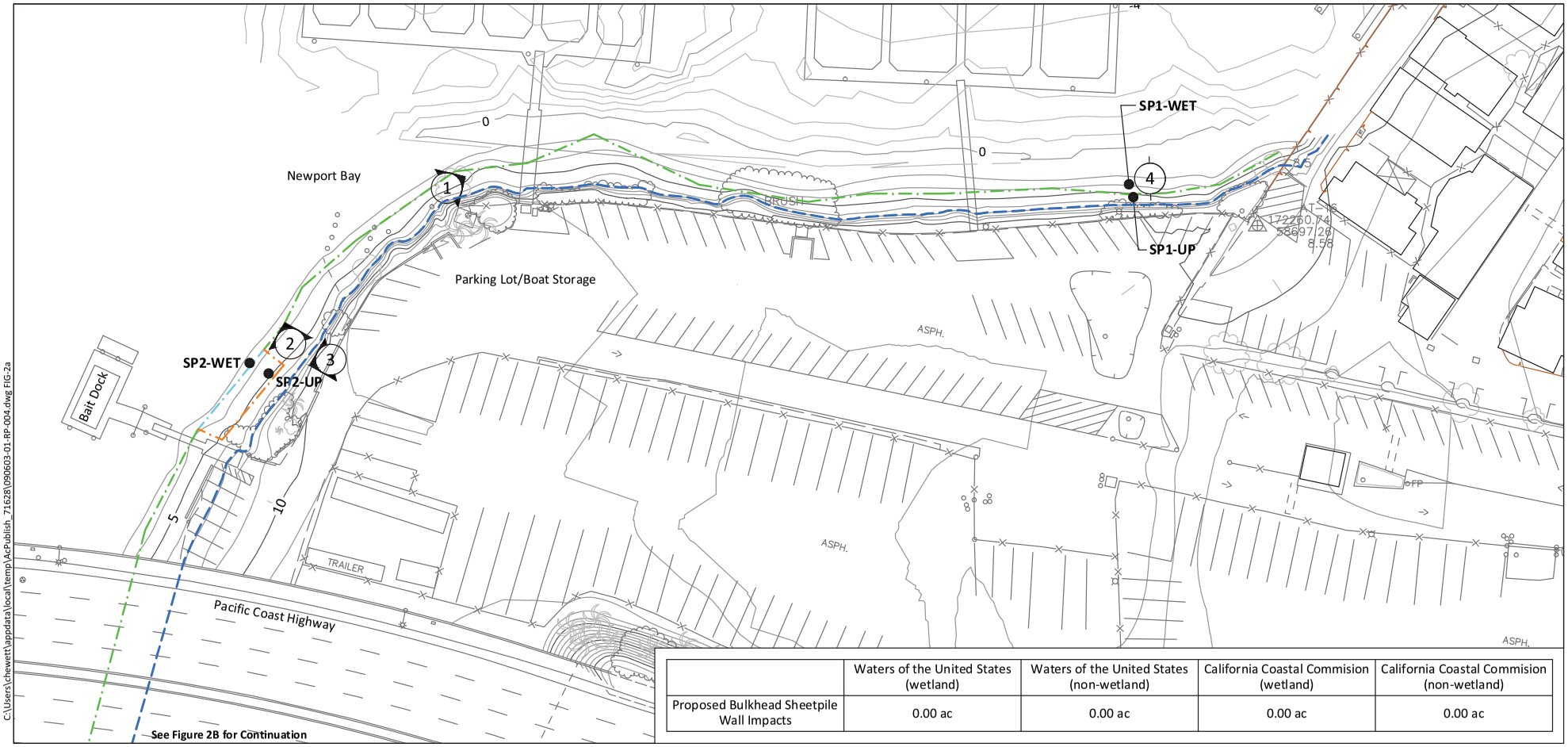
Apr 24, 2012 4:23pm ghowell

SOURCE: Drawing prepared from USGS data.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

0 3000
Scale in Feet

ANCHOR QEA

Figure 1
Vicinity Map
Back Bay Landing Development Plan



	Waters of the United States (wetland)	Waters of the United States (non-wetland)	California Coastal Commision (wetland)	California Coastal Commision (non-wetland)
Proposed Bulkhead Sheetpile Wall Impacts	0.00 ac	0.00 ac	0.00 ac	0.00 ac

SOURCE: Bathymetric survey from Atlas Engineering Company, dated August 12, 2009.
Topographic survey from Fuscoe Engineering, dated July 15, 2009.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83.
VERTICAL DATUM: NAVD88.

NOTE: The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 6.9 feet (7.1 feet above MLLW) in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

LEGEND:

- Wetlands - USACE and CCC Joint Jurisdiction
- Wetlands - USACE Jurisdiction
- Wetlands - CCC Jurisdiction
- Proposed Bulkhead Sheetpile Wall Location (6.9 Ft, 7.1 Ft MLLW)
- 1 Photograph Location and Direction (See Appendix C for Photographs)

0 50
Scale in Feet

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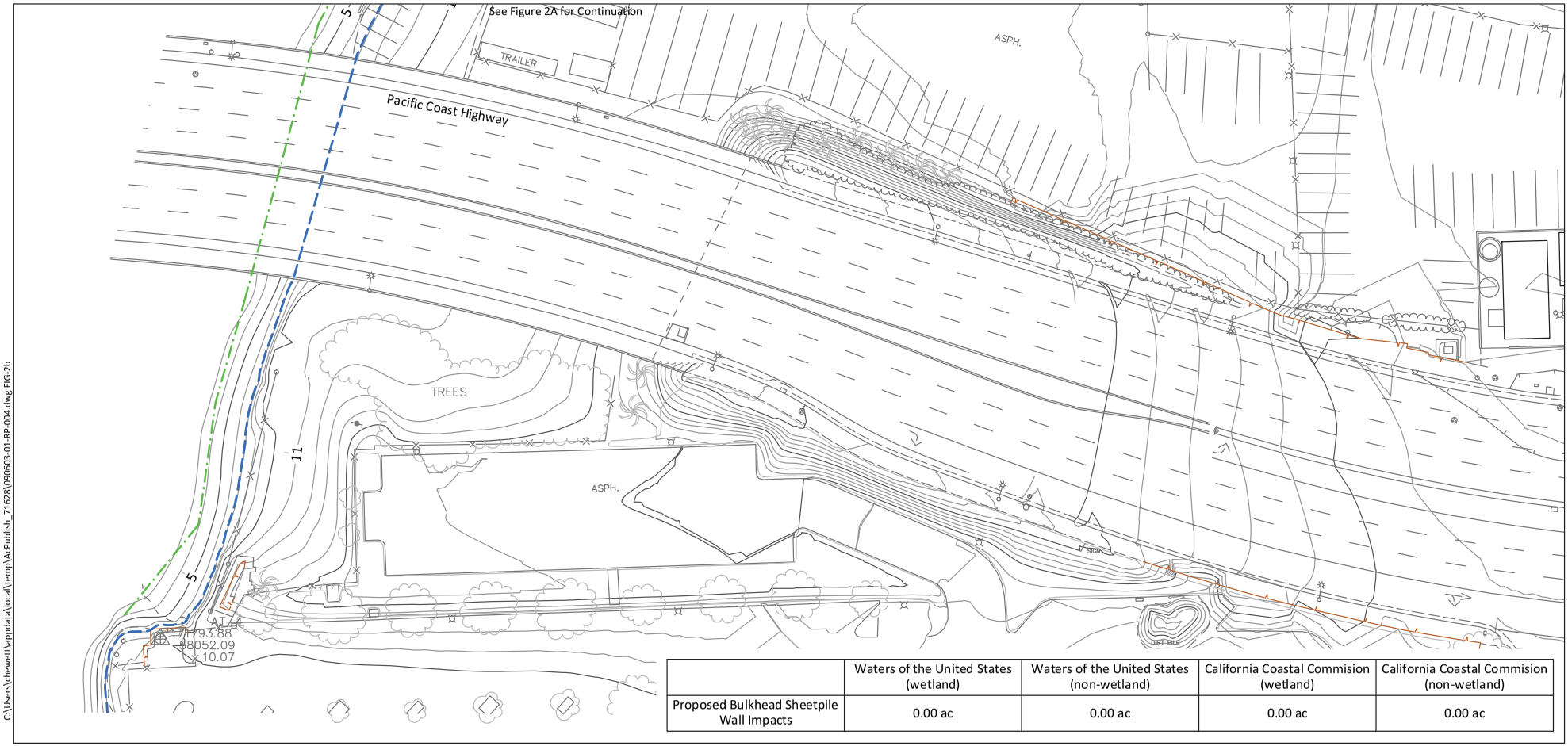
ANCHOR QEA

Figure 2A
Wetland Delineation Results
Back Bay Landing Development Plan



	Waters of the United States (wetland)	Waters of the United States (non-wetland)	California Coastal Commision (wetland)	California Coastal Commision (non-wetland)
Proposed Bulkhead Sheetpile Wall Impacts	0.00 ac	0.00 ac	0.00 ac	0.00 ac

SOURCE: Bathymetric survey from Atlas Engineering Company, dated August 12, 2009.
Topographic survey from Fuscoe Engineering, dated July 15, 2009.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83.
VERTICAL DATUM: NAVD88.

NOTE: The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 6.9 feet (7.1 feet above MLLW) in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

LEGEND:

Wetlands - USACE and CCC Joint Jurisdiction

Proposed Bulkhead Sheetpile Wall Location (6.9 Ft, 7.1 Ft MLLW)

1 Photograph Location and Direction (See Appendix C for Photographs)

0 50
Scale in Feet

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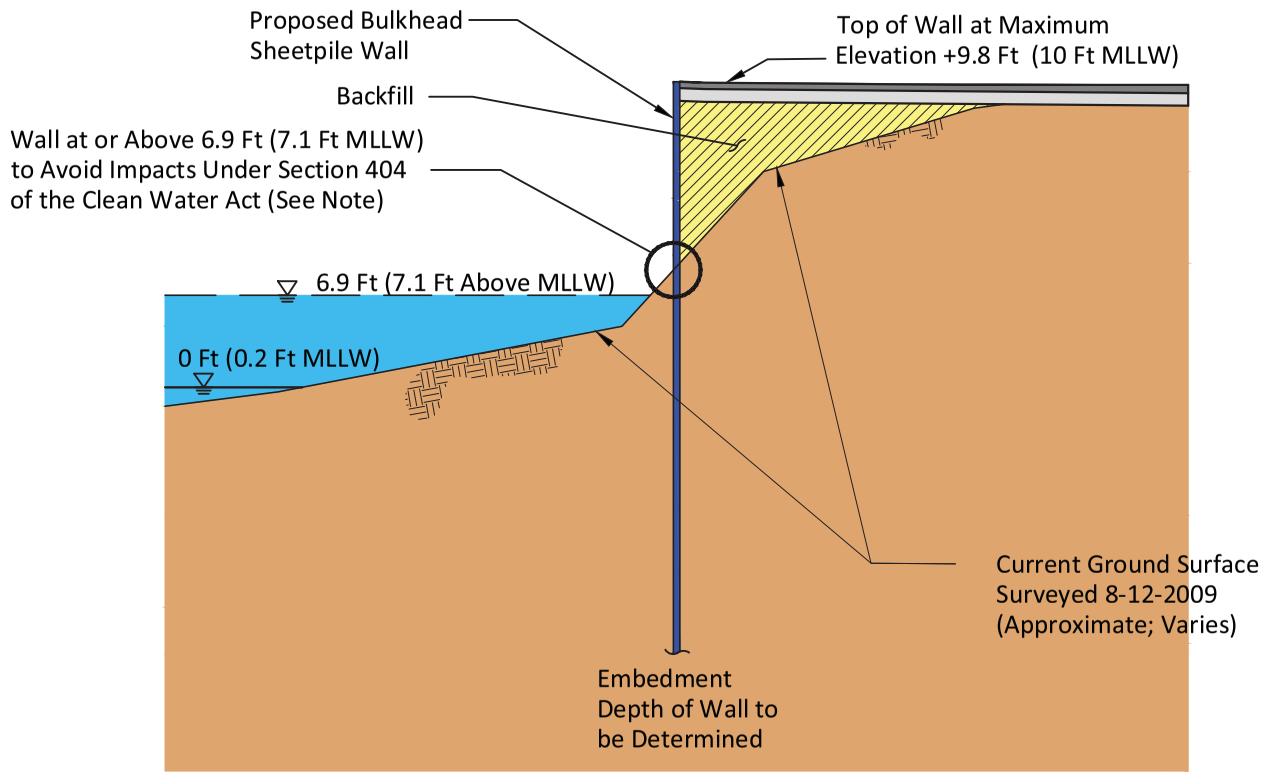
Nov 06, 2012 4:07pm chewett

ANCHOR QEA

Figure 2B
Wetland Delineation Results
Back Bay Landing Development Plan



VERTICAL DATUM: NAVD88

NOT TO SCALE

NOTE: The USACE has indicated that the limit of its jurisdiction under Section 404 of the Clean Water Act is 6.9 feet (7.1 feet above MLLW) in addition to any adjacent wetlands (Stephen Estes, USACE, pers. comm.).

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Figure 3
Conceptual Bulkhead Sheetpile Wall
Back Bay Landing Development Plan

APPENDIX A
SAMPLE PLOT SUMMARY DATA

Table A-1
Plant Species Observed During the Investigation

Scientific Name	Common Name	Indicator Status[1]
Trees		
Acacia sp.	Blackwood tree	
Myoporum lateum	Coastal myoporum	None
Pinus sp.	Pine tree	None
Washingtonia robusta	Mexican fan palm	None
Shrubs		
Atriplex canescens	Four-winged saltbrush	FACU
Crassula sp.	Jade	None
Yucca sp.	Yucca	None
Grass, Herbaceous, and Ferns		
Anagallis arvensis	Scarlet pimpernell	FAC
Aveena barbata	Slender wild oats	None
Bromus mollis	Soft chess	None
Bromus rubens	Red brome	NI
Carpobrotus edulis	Hottentrot fig	None
Conyza Canadensis	Tall horseweed	FAC
Distichilis spicata	Salt grass	FACW
Erodium cicutarium	Red-stem filaree	None
Hedera helix	English ivy	None
Hordeum vulgare	Common barley	None
Hypochaeris glabra	Slender catsear	None
Limonium californicum	Sea lavender	OBL
Melilotus sp.	Sweet clover	None
Mesembryanthemum crystallinum	Crystalline ice plant	None
Oxalis pes-caprae	Bermuda buttercup	None
Salicornia virginca	Pickleweed	OBL
Salsola tragus	Russian thistle	FACU
Sonchus oleraceus	Common sowthistle	NI

Notes:

1 These categories, referred to as the "wetland indicator status" (from the wettest to driest habitats) are as follows: obligate wetland (OBL) plants, facultative wetland (FACW) plants, facultative (FAC) plants, facultative upland (FACU) plants, and obligate upland (UPL) plants.

Table A-2

Summary of Wetland Sample Plot Vegetation Data

Sample Plot	Scientific Name	Common Name	Indicator Status[1]	Cover (percent)
SP1-Wet	*Salicornia virginca*	Pickleweed	OBL	80
		Algal mat		5
SP1-Up	*Aveena barbata*	Slender wild oats	None	5
	Carpobrotus edulis	Hottentrot fig	None	80
SP2-Wet	*Salicornia virginca*	Pickleweed	OBL	80
		Algal mat		5
SP2-Up	*Salicornia virginca*	Pickleweed	OBL	50
	Carpobrotus edulis	Hottentrot fig	None	50

Notes:

1 These categories, referred to as the "wetland indicator status" (from the wettest to driest habitats) are as follows: OBL plants, FACW plants, FAC plants, FACU plants, and UPL plants.

Table A-3

Summary of Wetland Sample Plot Hydrology Data

Sample Plot	Hydrology
SP1-Wet	Saturation at surface
SP1-Up	No saturation
SP2-Wet	Saturation at surface
SP2-Up	No saturation

Table A-4

Summary of Wetland Sample Plot Soils Data

Sample Plot	Soil Horizon (inches)	Matrix Color	Redox Color	Redox Abundance (percent)	Texture
SP1-Wet	0 to 4	10YR 5/3	None	None	Sand
	4 to 8	10YR 5/1	7.5YR 4/6	10%	Sandy silt
	8 to 20	Gley 1 5/10Y	None	None	Sand
SP1-Up	0 to 12	10YR 3/3	None	None	Sand
	12 to 20	10YR 5/2	7.5YR 4/6	None	Sand
SP2-Wet	0 to 4	10YR 5/3	None	None	Sand
	4 to 8	10YR 5/1	7.5YR 4/6	10%	Sandy silt
	8 to 20	Gley 1 5/10Y	None	None	Sand
SP2-Up	0 to 12	10YR 3/3	None	None	Sand
	12 to 20	10YR 5/2	7.5YR 4/6	None	Sand

Table A-5

Summary of Wetland Sample Plot Data and Wetland Determination

Sample Plot	Vegetation	Soils	Hydrology	Determination
SP1-Wet	Hydrophytic	Hydric	Positive	USACE/CCC Wetland
SP1-Up	Non-hydrophytic	Non-hydric	Negative	USACE/CCC Upland
SP2-Wet	Hydrophytic	Hydric	Positive	USACE/CCC Wetland
SP2-Up	Hydrophytic	Non-hydric	Negative	USACE Upland, CCC Wetland

APPENDIX B
FIELD DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Back Bay | City/County: Newport Beach/Orange | Sampling Date: April 16, 2012

Applicant/Owner: DeAnza Bayside Marina | State: CA | Sampling Point: SP1-Wet

Investigator(s): Adam Gale and Joe Pursley | Section, Township, Range: 27, 6S, 10W

Landform (hillslope, terrace, etc.): Beach | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): C | Lat: 33.617688° | Long: -117.903242° | Datum: MLLW at 0 feet

Soil Map Unit Name: Beach and Open Water | NWI classification: Estuarine and Marine Deepwater

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Sample plot located on beach near debris rack line.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:15 foot radius)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:3 foot radius)			
1. *Salicornia virginica*	80	yes	OBL
2. *Algae Matt*	5	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 15	% Cover of Biotic Crust	____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	2	x1 = 2
FACW species	____	x2 = ____
FAC species	____	x3 = ____
FACU species	____	x4 = ____
UPL species	____	x5 = ____
Column Totals:	2 (A)	2 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: Back Bay

SOIL

Sampling Point: SP1-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sand	
4-8	10YR 5/1	90	7.5YR 4/6	10	Depletion	Pore Lining	Sandy Silt	
8-20	Gley1 5/10Y	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Low chroma layer within 6 inches of the soil surface comprising approximately 90% of the matrix with prominent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Tidal data provided in report.

Remarks: Tidally influenced. Sample taken between 11 - 1500; Tidal conditions on the day of the delineation include: 1:17 low tide at 1.21 feet; 7:05 high tide at 4.34 feet; 13:25 low tide at 0.19 feet; and 19:47 high tide at 4.74 feet

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Back Bay | City/County: Newport Beach/Orange | Sampling Date: April 16, 2012

Applicant/Owner: DeAnza Bayside Marina | State: CA | Sampling Point: SP1-Up

Investigator(s): Adam Gale and Joe Pursley | Section, Township, Range: 27, 6S, 10W

Landform (hillslope, terrace, etc.): Beach | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): C | Lat: 33.617688° | Long: -117.903242° | Datum: MLLW at 0 feet

Soil Map Unit Name: Beach and Open Water | NWI classification: Estuarine and Marine Deepwater

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Sample plot located on beach near debris rack line.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:15 foot radius)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:3 foot radius)			
1. *Carpobrotus edulis*	80	yes	NO
2. *Aveena barbata*	5	yes	NO
3.			
4.			
5.			
6.			
7.			
8.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 15	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	2	x5 =	10
Column Totals:	2 (A)		10 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Back Bay

SOIL

Sampling Point: SP1-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					Sand	
12-20	10YR 5/2	90	7.5YR 4/6	3	Depletion	Pore Lining	Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Low chroma layer within not within 6 inches of the soil surface..

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Tidal data provided in report.

Remarks: Tidally influenced. Sample taken between 11 - 1500; Tidal conditions on the day of the delineation include: 1:17 low tide at 1.21 feet; 7:05 high tide at 4.34 feet; 13:25 low tide at 0.19 feet; and 19:47 high tide at 4.74 feet. Potential for inundation or saturation during extreme tidal conditions.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Back Bay | City/County: Newport Beach/Orange | Sampling Date: April 16, 2012

Applicant/Owner: DeAnza Bayside Marina | State: CA | Sampling Point: SP2-Wet

Investigator(s): Adam Gale and Joe Pursley | Section, Township, Range: 27, 6S, 10W

Landform (hillslope, terrace, etc.): Beach | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): C | Lat: 33.617688° | Long: -117.903242° | Datum: MLLW at 0 feet

Soil Map Unit Name: Beach and Open Water | NWI classification: Estuarine and Marine Deepwater

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Sample plot located on beach near debris rack line.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:15 foot radius)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:3 foot radius)			
1. *Salicornia virginica*	80	yes	OBL
2. *Algae Matt*	5	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 15	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	2	x1 = 2
FACW species	____	x2 = ____
FAC species	____	x3 = ____
FACU species	____	x4 = ____
UPL species	____	x5 = ____
Column Totals:	2 (A)	2 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: Back Bay

SOIL

Sampling Point: SP2-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sand	
4-8	10YR 5/1	90	7.5YR 4/6	10	Depletion	Pore Lining	Sandy Silt	
8-20	Gley1 5/10Y	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Low chroma layer within 6 inches of the soil surface comprising approximately 90% of the matrix with prominent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Tidal data provided in report.

Remarks: Tidally influenced. Sample taken between 11 - 1500; Tidal conditions on the day of the delineation include: 1:17 low tide at 1.21 feet; 7:05 high tide at 4.34 feet; 13:25 low tide at 0.19 feet; and 19:47 high tide at 4.74 feet

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Back Bay | City/County: Newport Beach/Orange | Sampling Date: April 16, 2012

Applicant/Owner: DeAnza Bayside Marina | State: CA | Sampling Point: SP2-Up

Investigator(s): Adam Gale and Joe Pursley | Section, Township, Range: 27, 6S, 10W

Landform (hillslope, terrace, etc.): Beach | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): C | Lat: 33.617688° | Long: -117.903242° | Datum: MLLW at 0 feet

Soil Map Unit Name: Beach and Open Water | NWI classification: Estuarine and Marine Deepwater

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Sample plot located on beach near debris rack line.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:15 foot radius)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size:3 foot radius)			
1. *Carpobrotus edulis*	50	yes	NO
2. *Salicornia virginca*	50	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 15	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	1	x1 = 1
FACW species		x2 =
FAC species		x3 =
FACU species		x4 =
UPL species	1	x5 = 5
Column Totals:	2 (A)	6 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: Back Bay

SOIL

Sampling Point: SP2-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					Sand	
12-20	10YR 5/2	90	7.5YR 4/6	3	Depletion	Pore Lining	Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Low chroma layer within not within 6 inches of the soil surface..

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Tidal data provided in report.

Remarks: Tidally influenced. Sample taken between 11 - 1500; Tidal conditions on the day of the delineation include: 1:17 low tide at 1.21 feet; 7:05 high tide at 4.34 feet; 13:25 low tide at 0.19 feet; and 19:47 high tide at 4.74 feet. Potential for inundation or saturation during extreme tidal conditions.

APPENDIX C
STUDY AREA PHOTOGRAPHS

Photograph 1. Looking north, patches of pickleweed and sea lavender.

Photograph 2. Looking northwest from top of slope.

Photograph 3. Looking southwest towards Pacific Coast Highway, bait dock, and patches of pickleweed, including a patch extending landward towards the iceplant.

Photograph 4. SP1-Wet with redox concentrations observed from 4 to 8 inches.