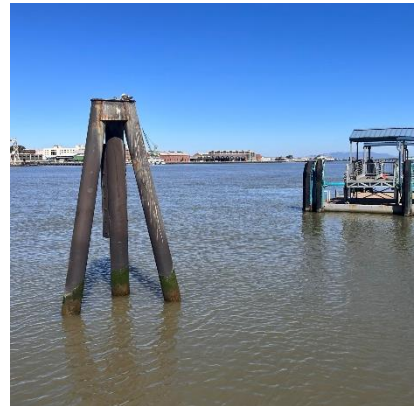




Biological Resources Technical Report

WETA Vallejo Ferry Terminal Reconfiguration Project

Vallejo, Solano County, California



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List of Acronyms and Abbreviations

AMM	Avoidance and Minimization Measure
APN	Accessor's Parcel Number
Bay Trail	San Francisco Bay Trail
BCC	USFWS Birds of Conservation Concern
BCDC	San Francisco Bay Conservation and Development Commission
BGEPA	Bald and Golden Eagle Protection Act
BRTR	Biological Resources Technical Report
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CPRC	California Public Resources Code
CSRL	California Soils Resource Lab
CWA	Clean Water Act
dB	Decibels
DMMO	Dredged Material Management Office
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
FE	Federal Endangered
FT	Federal Threatened
HCP	Habitat Conservation Plan
HTL	High tide line
Inventory	California Native Plant Society Rare Plant Inventory
MM	Mitigation Measure
MHW	Mean high water
MLLW	Mean lower low water
MMPA	Marine Mammal Protection Act
NCCP	Natural Community Conservation Plan
NETR	National Environmental Title Research
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPPA	California Native Plant Protection Act
NRCS	Natural Resource Conservation Service
OHWM	Ordinary High Water Mark
PTS	Post-Traumatic Stress
Rank	California Rare Plant Ranks
RHA	Rivers and Harbors Act
RMS	Root mean square
RWQCB	Regional Water Quality Control Board
SC	State Candidate



SEL	Sound exposure level
SFEI	San Francisco Estuary Institute
SSC	Species of Special Concern
ST	State Threatened
SWRCB	State Water Resources Control Board
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WETA	San Francisco Bay Area Water Emergency Transportation Authority
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Resources Technical Report (BRTR) evaluates existing biological resources, potential impacts, and mitigation measures (if required) for the proposed San Francisco Bay Area Water Emergency Transportation Authority (WETA) Vallejo Ferry Terminal Reconfiguration Project (proposed Project) located in the City of Vallejo, Solano County, California (Appendix A – Figure 1). The proposed Project involves replacing an existing ferry terminal and associated gangway system with a new ferry terminal system to reduce the required frequency of dredging. Three proposed Project Alternatives are considered and assessed in this BRTR and are described below.

1.1 Overview and Purpose

WRA, Inc. (WRA) has prepared this BRTR to provide an assessment of biological resources within the proposed Project Area and immediate vicinity. The purpose of WRA's assessment was to develop and gather information on sensitive land cover types and special-status plant and wildlife species to support an evaluation of the proposed Project under the California Environmental Quality Act (CEQA). This report describes the results of the site visit, which assessed the proposed Project Area for (1) the presence of sensitive land cover types, special-status plant species, and special-status wildlife species, (2) the potential for the site to support special-status plant and wildlife species. Based on the results of the site assessment, potential impacts to sensitive land cover types and special-status species resulting from the proposed Project were evaluated. If the project has the potential to result in significant impacts to these biological resources, measures to avoid, minimize, or mitigate for those significant impacts are described.

A BRTR provides general information on the presence, or potential presence, of sensitive species and habitats. Additional focused studies (such as protocol level species surveys or a wetland delineation) may be required to support regulatory permit applications or to implement mitigation measures included in this report. This assessment is based on information available at the time of the study and on-site conditions that were observed on the dates the site was visited. Conclusions are based on currently available information used in combination with the professional judgement of the biologists completing this study.

1.2 Proposed Project Description

The proposed Project would remove and replace an existing gangway, passenger float, and piles associated with the WETA Vallejo Ferry Terminal with a new reconfigured gangway, passenger float, and piles.

1.2.1 Proposed Project Location and Setting

The proposed Project is located at 289 Mare Island Way in the City of Vallejo, Solano County, California (See Figure 1 –Location). The 10.06-acre Project Area includes all areas where the existing ferry terminal is located, where the proposed Project would occur, as well as all potential staging and access routes that may be utilized during proposed Project implementation and includes all or part of the following Assessor's Parcel Numbers (APNs):

- 0055-170-040
- 0055-170-050
- 0055-170-060

- 0055-170-400
- 0055-160-600

Specifically, the proposed Project Area includes a portion of Mare Island Strait within the Napa River, a section of the San Francisco Bay Trail (Bay Trail), and adjacent paved and developed areas. Immediately north of the proposed Project Area is a ferry ticket office building, operated by WETA, and the Mare Island Brewing Company. To the south is a vacant structure located at 285 Mare Island Way. To the east is Mare Island Way, a four-lane road that runs parallel to the Mare Island Strait. Representative photos of the proposed Project Area are provided in Appendix D.

According to the City of Vallejo General Plan 2040 (City of Vallejo 2017) the proposed Project Area and its vicinity is designated as Parks, Recreation, and Open Space and is zoned as Waterfront Mixed-Use (City of Vallejo 2023).

1.2.2 Purpose and Need

The purpose of the proposed Project is to reconfigure the location of WETA's Vallejo Ferry Terminal to reduce the need to perform maintenance dredging to keep the ferry terminal operational and to make ferry berthing safer and more efficient, reducing passenger queuing time and reducing costs associated with the ferry terminal's maintenance while upholding WETA standards. Currently, the basin in which the existing ferry terminal is located requires regular dredging (every two to three years) to remove build-up siltation caused by river currents from the Napa River. While depths in the Mare Island Strait remain relatively constant, the shape of the basin in which the ferry terminal is located functions as a sediment trap.

The proposed Project would extend the existing ferry terminal further away from shore and out of the existing basin to an area where sediment accumulation levels are relatively constant, thereby reducing or eliminating the need for future maintenance dredging. With implementation of the proposed Project, maintenance dredging may not be required for two or more decades following.

1.2.3 Proposed Project Alternatives

Three layouts were assessed for the relocation of the existing ferry terminal, which are as follows:

- Proposed Project (preferred configuration): This layout extends the existing ferry terminal further offshore and adds extra length to the passenger access gangway leading to the terminal.
- Configuration Option 1: This layout relocates the existing ferry terminal outside of the basin, with an access point at the southwest corner of the basin.
- Configuration Option 2: This layout relocates the existing ferry terminal outside of the basin with an access point at the northwest corner of the basin.

The analysis in this document is focused on the proposed Project which has a relatively larger footprint (9,630 square feet) than the Configuration options 1 & 2 (8,013 square feet). Due to the similarities between the configurations, the impact analysis provided herein also encompasses Configuration Options 1 & 2.

The proposed Project includes a four-section gangway extending from the existing ferry terminal access point and adds additional length to the passenger access gangways leading to the

terminal. This action will provide more space for passenger queuing than the existing configuration, which will help to manage and organize lines during passenger loading and unloading. The proposed Project will provide vessel berthing on both sides of the ferry landing float. The float will provide berthing in a direction parallel to the current of Mare Island Strait for quicker docking procedures and greater efficiency overall.

The Project plans provided in Appendix B depict the layout of the proposed Project alongside the other configurations options of the ferry terminal. Configuration Options 1 and 2 propose access from outside of the basin in the southwest and northwest corners respectively and feature a three-section gangway “dog-leg” design to situate pedestrian access to the ferry; All three configurations were configured to use both sides of the float for loading and unloading during regular activities.

Table 1. Summary of Project Elements for the Proposed Project and Alternative Configuration Options

PROPOSED PROJECT ELEMENT	DIMENSION	QUANTITY		
		<i>Proposed Project</i>	<i>Configuration Option #1</i>	<i>Configuration Option #2</i>
Passenger Float	134.5 feet x 42 feet	1	1	1
Gangway	11 feet x 90 feet	3	3	3
	11 feet x 50 feet	1	0	0
Gangway Support Dolphin	17 feet x 5 feet with two, 36-inch-diameter pipe pilings	3	2	2
	17 feet x 17 feet with four, 36-inch-diameter pipe pilings	1	1	1
Navigation Light Piles	12-inch-diameter piling	4	8	8
Float Anchor Pile	36-inch-diameter piling encased in protective pile keeper	5	5	5
Monopile	36-inch-diameter piling with donut fender	3	4	4

1.2.4 Existing Ferry Terminal Demolition

Implementation of the proposed Project would involve the removal of all structures associated with the existing ferry terminal including:

- One gangway;
- Two gangway support pilings;
- One concrete pad and two associated piles which connecting the existing gangway to the shore;

- Two steel dolphins, each composed of two steel 16-inch-diameter pilings and one 18-inch diameter piling;
- One passenger float;
- Float anchor chains; and
- Four anchor piles used to support the existing passenger float.

Existing Structures to be removed by the proposed Project are also summarized in Table 2, below. Together, the structures that would be removed by the proposed Project amount to approximately 4,990 square feet of overwater structures within tidal waters of the Mare Island Strait of the Napa River. The proposed Project may also include the removal of existing pilings elsewhere within the Napa River to compensate for the new pilings the proposed Project will be adding.

Table 2. Existing Structures to be Removed by the Proposed Project

EXISTING STRUCTURES TO BE REMOVED	DIMENSION	MATERIAL	QUANTITY
Passenger Float	134.5 feet x 42 feet	Various	1
Gangway	11 feet x 90 feet	Steel	1
Gangway Support Dolphin	Approx. 17 x 3 feet concrete pad with two 24-inch-diameter pipe piles.	Steel	2
Float Anchor Piles	W18x211 H-piles	Steel	2
	W16x177 H-piles	Steel	2
Float Anchor Chains	1.25-inch stud link chain, 426 linear feet (total)	Steel	4
Monopiles	18-inch-diameter pipe pile*	Steel	2
	16-inch-diameter pipe pile*	Steel	4
	HP14x177 H-piles	Steel	4

*Each existing dolphin (pile cluster) is composed of one, 18-inch-diameter and two, 16-inch-diameter steel pipe piles.

1.2.5 Temporary Ferry Terminal Configuration

To allow WETA to continue to provide ferry service during construction, a temporary ferry terminal would be installed prior to implementation of the proposed Project. The temporary ferry terminal would be installed along the shoreline, approximately 300 to 400 feet south of the existing ferry terminal basin. The temporary ferry terminal would be the same or similar to the temporary ferry terminal constructed during past maintenance dredging efforts and would involve the temporary installation of one gangway, approximately 11 feet wide and 90 feet long, an approximately 5,649-square-foot passenger terminal, and six, 24-inch-diameter steel pilings.

1.2.6 Construction Methods

Construction is anticipated to take between four and six weeks and is scheduled to begin in Summer 2024. Implementation of the proposed Project is expected to require the operation of the following equipment within the Mare Island Strait of the Napa River:

- One barge for holding construction-related debris;
- One barge equipped with a crane, a clamshell bucket, a vibratory pile driver and an impact pile driver; and
- Tugboats.

In addition, the proposed Project is expected to require use of the following landside equipment for site preparation, minor demolition, ground improvements, and/or utility installation or reconfiguration:

- Small backhoe;
- Bulldozer/Bobcat;
- Crane; and
- Trucks for material delivery, hauling, and construction support.

All construction-related debris will be collected on a barge and disposed of in accordance with the Construction Waste Manage Plan prepared for the proposed Project, including components of the existing ferry terminal to be removed by the proposed Project. All noise-generating construction activities would be limited to between 7:00 AM and 6:00 PM and would primarily occur on weekdays, but may also occur on weekends.

ACCESS AND STAGING

Most proposed Project components would be fabricated off-site and brought on-site via a barge. As such, most construction equipment and materials would be anchored in the Mare Island Strait, with some limited access and staging occurring on land. Construction personnel would use a portion of Lot B, located on Mare Island Way approximately 0.1-mile northeast of the existing ferry terminal. Construction routes and staging areas would not impede local roadways. Implementation of the proposed Project may require occasional brief interruptions to the Bay Trail, such as for the installation of the new gangway access gate but would not result in any closures to this segment of the Bay Trail.

PILE REMOVAL AND INSTALLATION

During demolition of the existing ferry terminal and any compensatory pile removal that may be included in the proposed Project, existing piles would be removed by pulling the pile using a vibratory or impact hammer. All new piles would also be installed using a vibratory or impact hammer.

DREDGING

Implementation of the proposed Project may require an additional dredging episode to ensure vessels required to construct the proposed Project have sufficient access to the proposed Project Area. If needed, this additional dredging episode is expected to include the same dredging footprint as that dredged by WETA to keep the existing ferry terminal operational. In addition, the proposed Project may need to dredge the area where the temporary ferry terminal would be

located. All dredging areas would be dredged to a depth of -15 feet mean lower low water (MLLW), consistent with WETA's past maintenance dredging episodes within the proposed Project Area. Dredging would be performed using a mechanical (i.e., clamshell) dredge.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential proposed Project impacts. Table 1 shows the correlation between these regulations and each Biological Resources question in the Environmental Checklist Form (Appendix G) of the CEQA guidelines.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA provides protections for particular vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW) and aquatic features protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFW 2023a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2023b). Natural communities are ranked 1 through 5 in the CNDDDB based on NatureServe's (2020) methodology, with those communities ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act and Section 21083.4 of California Public Resources Code (CPRC).

Waters of the United States, Including Wetlands: The Corps regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments,

and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code [USC] 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWRCB and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFG). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream,” which includes creeks and rivers, is defined in the CCR as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). The term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline: Enacted in 1965, the McAtteer-Petris Act (California Government Code Section 66600 *et seq.*) established the San Francisco Bay Conservation and Development Commission (BCDC) as a state agency charged with preparing a plan for the long-term use of the Bay. BCDC has several areas of jurisdiction, including San Francisco Bay (including sloughs and marshlands lying between mean high tide and 5 feet above mean sea level) and a shoreline band consisting of all territory located between the shoreline of the Bay and a line 100 feet landward of and parallel with the shoreline (California Government Code 66610). Any person or governmental agency wishing to place fill, to extract materials, or to make any substantial

change in use of any water, land, or structure within BCDC jurisdiction must secure a permit from BCDC.

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as "listed species"). "proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. "Take" under the ESA is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federal-listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species." Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGF 2050 et seq.) prohibits the take of any plant and animal species that the CFGC determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species that are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species. This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW

has listed 64 “rare” or “endangered” plant species, and prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats. The Federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald eagle [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Marine Mammals. The Marine Mammal Protection Act (MMPA) was enacted in 1972 and protects all marine mammals within the territorial boundaries of the United States from take. The definition of “take” in the MMPA is the same as that under the FESA. The law is administered by the NMFS, who may issue permits for incidental take and importation of marine mammals in certain circumstances.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA. To address additional species protections afforded under CEQA, CDFW has developed a list of special species as “a general term that refers to all of the taxa the CNDDDB is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2023a) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Plans and Policies

City of Vallejo General Plan 2040. The General Plan contains policies pertaining to the following biological resources categories that are relevant to the proposed Project Area:

- Wetlands, streams, riparian, and aquatic areas
 - Action NBE-1.1F: Conduct surveys, assess project impacts, determine protective measures for sensitive resources.
 - Action NBE-1.1G: No net loss in aquatic feature acreage or habitat value
 - Action NBE-1.2D: Continue requiring environmental review for development project to achieve no net loss of sensitive habitat acreage, value, and functions.
- Wildlife Surveys
 - Action NBE-1.1F: Conduct surveys, assess project impacts, determine protective measures for sensitive resources
 - Action NBE-1.2C: Nesting bird protection
 - Action NBE-1.2D: Continue requiring environmental review for development project to achieve no net loss of sensitive habitat acreage, value, and functions
- Wildlife Corridors
 - Action NBE-1.1B: Continue participation in regional programs, including the Solano Multispecies HCP/NCCP

3.0 ASSESSMENT METHODOLOGY

On July 25, 2023, a WRA biologist visited the proposed Project Area to map vegetation, aquatic features, and other land cover types; document plant and wildlife species present; and evaluate on-site habitat for the potential to support special-status species as defined by CEQA. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive land cover types and special-status species, including:

- Soil Survey of Solano County, California (USDA 2023)
- Mare Island 7.5-minute U.S. Geological Survey (USGS) quadrangle (USGS 2023)
- Contemporary aerial photographs (Google Earth 2023)
- Historical aerial photographs (NETR 2023)
- National Wetlands Inventory (USFWS 2023a)
- California Aquatic Resources Inventory (SFEI 2023)
- CNDDDB (CDFW 2023b)
- California Native Plant Society (CNPS) Inventory (CNPS 2023a)
- Consortium of California Herbaria (CCH1 2023, CCH2 2023)
- USFWS Information for Planning and Consultation (USFWS 2023b)
- eBird Online Database (eBird 2023)

- California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2023b)
- California Natural Community List (CDFW 2023a)
- Database searches (i.e., CNDDDB, CNPS) for special-status species focused on the Mare Island, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, Petaluma Point, and Sears Point USGS 7.5-minute quadrangles.
- Bay wide eelgrass survey and assessment (BCDC 2020).

Following the remote assessment, WRA biologists completed a field review over the course of two hours to document: (1) land cover types (e.g., vegetation communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic land cover types (e.g., wetlands) are present, and (4) if special-status species are present¹.

3.1 Aquatic Communities and Other Land Cover Types

During the site visit, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic features, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys.

3.1.1 Vegetation Communities

In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List (CDFW 2023a) and A Manual of California Vegetation, Online Edition (CNPS 2023b). These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled [S1/G1], imperiled [S2/G2], or vulnerable [S3/G3]) (CDFW 2023a), were evaluated as sensitive as part of this evaluation.

3.1.2 Aquatic Features and Jurisdictional Boundaries

The proposed Project Area was reviewed for the presence of wetlands and other aquatic resources according to the methods described in the *Corps Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (Corps 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. Aquatic communities which are mapped in the NMFS

¹ Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 5.2 if the site assessment would constitute a formal or protocol-level species survey.

EFH Mapper (NMFS 2023b) or otherwise meet criteria for designation as EFH are indicated as such in the community description below in Section **Error! Reference source not found.**. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

ARMY CORPS AND REGIONAL WATER QUALITY CONTROL BOARD JURISDICTIONAL BOUNDARY

In tidal areas, the upper extent of the Corps/RWQCB jurisdiction is mapped up to the high tide line (HTL). The high tide line in the proposed Project Area was determined based on the elevation of the highest predicted tides at the closest National Oceanic and Atmospheric Administration (NOAA) tide station (Davis Point, 9415141). The HTL is shown on Figure 2 (Appendix A) and represents the limit to areas evaluated for this BRTR as aquatic habitats.

BCDC JURISDICTIONAL BOUNDARY

BCDC's jurisdictional boundaries include (a) BCDC's "Bay Jurisdiction", which in this location includes all tidally influenced areas below the elevation of mean high water (MHW), and (b) BCDC's "Shoreline Band" jurisdiction, which includes areas of the shoreline within 100 feet of MHW. The Davis Point NOAA tide station is used to determine the locations of these limits.

3.2 Special-status Species

3.2.1 General Assessment

Potential occurrence of special-status species in the proposed Project Area was evaluated by first determining which special-status species occur in the vicinity through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visit based on physical and biological conditions of the site as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the proposed Project Area was then determined according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site in the recent past.

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present, and an evaluation of critical habitat elements is provided as part of the species discussions below.

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2020). Additionally, aerial imagery (Google Earth 2020) for the local area was referenced to assess if local core habitat areas were present within, or connected to the proposed Project Area. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

4.0 ECOLOGICAL SETTING

The approximately 10.06-acre proposed Project Area is located in the City of Vallejo, Solano County, California and contains a portion of the Mare Island Strait of the Napa River. A description of soils and topography, climate and hydrology, and land use is provided in the sections below.

4.1 Soils and Topography

The overall topography of the proposed Project Area is flat with elevations ranging from approximately 0 to 10 feet above sea level. According to the *Soil Survey of Solano County* (USDA 1977), the proposed Project Area is underlain by 1 soil mapping unit: Made Land. The parent soil series of this mapping unit is summarized below.

Made Land: This series consists of mine spoil or earthy fill and is situated on toeslopes at elevations ranging from 0 to 2,500 feet (USDA 2023). These soils are not considered hydric. Made Land underlays all of the developed area within the proposed Project Area.

4.2 Climate and Hydrology

The proposed Project Area is located in the coastal region of Vallejo in Solano County. The average monthly maximum temperature in the area is 70 degrees Fahrenheit, while the average monthly minimum temperature is 45 degrees Fahrenheit. Predominantly, precipitation falls as rainfall between November and March with an annual average precipitation of 22 inches.

The local watershed is San Pablo Bay Estuaries (HUC 12: 180500020801) and the regional watershed is San Pablo Bay (HUC 8: 18050002). The proposed Project Area is located in the lower portion of the San Pablo Bay Estuaries on the Napa River watershed downstream from the Napa-Sonoma Marsh. There is one blue-line stream in the proposed Project Area: the Mare Island Strait of the Napa River (USGS 2023). The open water found within the proposed Project Area is classified as estuarine and marine deepwater (USFWS 2023) subtidal habitat (CARI; SFEI 2023). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land Use

The majority of the proposed Project Area consists of tidal open water within the Mare Island Strait of the Napa River, and developed lands composed of paved areas used to support a segment of the Bay Trail. Existing vegetation is composed entirely of landscaped areas, devoid of any naturally vegetated areas or native plants. Detailed land cover type descriptions are included in Section 5.1 below. Surrounding land uses include roadways and parking structures and lots (Google Earth 2023). Historically, the proposed Project Area has included parking lots, roadways, and structures similar to the condition today (NETR 2023).

5.0 ASSESSMENT RESULTS

5.1 Land Cover

WRA observed two land cover types within the proposed Project Area: developed/landscaped and open water. Land cover types within the proposed Project Area are illustrated in Appendix A – Figure 2. The open water land cover type is considered sensitive while the developed/landscaped land cover type is not considered sensitive.

Table 3. Land Cover Types

COMMUNITY/LAND COVERS	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN PROPOSED PROJECT AREA
TERRESTRIAL / COMMUNITY LAND COVER			
Developed/Landscaped	None	None	5.75
AQUATIC RESOURCES			
Open Water	Yes	None	4.31

5.1.1 Terrestrial Land Cover

Developed Area (no vegetation alliance). CDFW Rank: None. The proposed Project Area largely consists of developed infrastructure such as gangways, paved walkways, and roads associated with the current ferry system and adjacent segment of the Bay Trail. Vegetation within the developed areas consists of maintained lawns and ornamental plantings. This community is not considered sensitive by Solano County, CDFW, or any other regulatory entity.

5.1.2 Aquatic Resources

Open Water (no vegetation alliance). CDFW Rank: None. All waters within the proposed Project Area are subtidal or intertidal and are part of the Mare Island Strait of the Napa River. Open

water comprises the majority of the proposed Project Area (4.31 acres/43%) and is mapped as all areas below the mean high water (MHW) elevation. Open waters potentially support several habitat types for special-status species, discussed further below. Open waters are considered sensitive under CEQA.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a review of the resource databases listed in Section 3.0, 71 special-status plant species have been documented in the vicinity of the proposed Project Area. All these species have no potential or are unlikely to occur within the proposed Project Area for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the proposed Project Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the proposed Project Area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the proposed Project Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the proposed Project Area;
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the proposed Project Area;
- The proposed Project Area is geographically isolated (e.g., below elevation, coastal environ) from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) of the proposed Project Area were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, development) has degraded the localized habitat necessary to support the special-status plant species.

The entirety of the proposed Project Area is either developed land, subject to substantial historic soil disturbance, or is open water. Within the open water areas, the presence of a vertical seawall prevents suitable intertidal and transition zone habitats from forming to support wetland plant species. These conditions are not suitable for special-status plant species.

5.2.2 Special-status Wildlife

Based upon a review of the resource databases listed in Section 3.0, 65 special-status wildlife species have been documented in the vicinity of the proposed Project Area. Of these, most have no potential or are unlikely to occur in the proposed Project Area based on a lack of habitat features such as:

- Vernal pools
- Tidal marsh areas
- Old growth redwood or fir forest
- Serpentine soils to support host plants

- Tall cliffs or rocky outcrops
- Sandy beaches or alkaline flats
- Presence of specific host plants
- Caves, mine shafts, or abandoned buildings

The absence of such habitat features eliminates components critical to the survival or movement of most special-status species found in the vicinity of the proposed Project. For instance, salt-marsh harvest mouse (*Reithrodontomys raviventris*) and California Ridgway’s rail (*Rallus obsoletus*) are known to occur in the Napa-Sonoma Marsh, approximately 5 miles upstream of the proposed Project Area; however, suitable tidal marsh habitat is absent from both the proposed Project Area and its immediate vicinity, precluding tidal marsh species like these from occurring within the proposed Project Area. The developed nature of uplands within and surrounding the proposed Project Area also eliminates upland species-specific habitats such as: sandy beaches, wetlands, sand dunes or grasslands, which are required for other special-status species known to occur in the vicinity of the proposed Project, such as California least tern (*Sternula antillarum browni*) and California red-legged frog (*Rana draytonii*).

A total of nine special-status fish and marine mammal species have potential to occur within the proposed Project Area. These species are named in Table 4 and are discussed in greater detail below.

Table 4. Potential Special-Status Wildlife

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE PROPOSED PROJECT AREA
FORMALLY LISTED WILDLIFE (FESA, CESA)			
<i>Oncorhynchus mykiss irideus</i>	Steelhead – central CA coast DPS	FT	High Potential. This species is known to spawn within the Napa River and its tributaries, so it would occur within the Mare Island Strait seasonally when migrating to and from spawning grounds upstream.
<i>Oncorhynchus mykiss irideus</i>	Steelhead – central valley DPS	FT	Moderate Potential. This species spawns within rivers in the central valley; however, adults and juveniles may stray into the Mare Island Strait when migrating to and from natal streams.
<i>Oncorhynchus tshawytscha</i>	Chinook salmon - Central Valley spring-run ESU	FT, ST	Moderate Potential. This species spawns within headwater streams in the Sacramento River; however, this species has been known to stray into the Mare Island Strait seasonally as it migrates to and from natal streams.
<i>Oncorhynchus tshawytscha</i>	Chinook salmon – Sacramento winter-run ESU	FE, SE, RP	Moderate Potential. This species spawns within the Sacramento River; however, this species may stray into the Mare Island Strait seasonally as it migrates to and from natal streams.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE PROPOSED PROJECT AREA
<i>Hypomesus transpacificus</i>	Delta smelt	FT, SE, RP	Moderate Potential. This species is known to occur within the Mare Island Strait during extremely wet winters when individuals are able to move from Suisun Bay into the Napa River.
<i>Acipenser medirostris</i>	green sturgeon, southern Distinct Population Segment	FT, SSC	High Potential. This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.
<i>Spirinchus thaleichthys</i>	longfin smelt	FC, ST, SSC, RP	High Potential. This species is known to occur within the Mare Island Strait and has been observed within 0.25 mile of the proposed Project Area.
OTHER SPECIAL-STATUS WILDLIFE (CEQA, OTHER)			
Fish			
<i>Acipenser transmontanus</i>	White sturgeon	SSC	High Potential. This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.
<i>Oncorhynchus tshawytscha</i>	Chinook salmon - central valley fall/late fall-run ESU	SSC, RP	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams.
<i>Entosphenus (=Lampetra) tridentatus</i>	Pacific lamprey	SSC	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams
<i>Lampetra ayresi</i>	River lamprey	SSC	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	SSC, RP	High Potential. This species is known to occur within the Mare Island Strait seasonally.
Marine Mammals			
<i>Phoca vitulina</i>	Harbor seal	MMPA	Moderate Potential. This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.
<i>Zalophus californianus</i>	California sea lion	MMPA	Moderate Potential. This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.

SPECIAL-STATUS FISH WITH POTENTIAL TO OCCUR IN THE PROPOSED PROJECT AREA

Steelhead - Central California Coast DPS (*Oncorhynchus mykiss irideus*), Federal Threatened.

The Central California Coast DPS includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for two or three years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. Central California Coast DPS steelhead are documented to spawn within the Napa River and its tributaries (Koehler and Blank 2010). Juvenile steelhead must travel through the Mare Island Strait and through the proposed Project Area when migrating to the ocean. Adult steelhead must pass through the area when returning to spawning grounds. This species would only be present in the proposed Project Area seasonally during the migration period.

Steelhead - Central Valley DPS (*Oncorhynchus mykiss*), Federal Threatened. The Central Valley DPS includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. During the winter or early spring the spawning fish reach suitable gravel riffles (shallow areas with gravel or cobble substrate) in the upper sections of streams and dig their redds. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. When steelhead spawn they nearly always return to the stream in which they were hatched. At that time they may weigh from two to twelve pounds or more. This DPS of steelhead only spawns and rears within inland rivers of the Central Valley; however, due to the close proximity of the proposed Project Area to San Pablo Bay this species could occur seasonally for short periods when individuals migrating to natal streams in the fall and winter, or when migrating to the ocean in spring stray into the Mare Island Strait.

Chinook salmon - Central Valley Spring-run ESU (*Oncorhynchus tshawytscha*), Federal Threatened, State Threatened. The Central Valley Spring-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries. Chinook salmon are anadromous (adults migrate from a marine environment into the freshwater streams and rivers of their birth) and semelparous (spawn only once and then die). Spring-run chinook salmon enter the Sacramento River between February and June. They move upstream and enter tributary streams from February through July, peaking in May-June. These fish migrate into the headwaters, hold in pools until they spawn, starting as early as mid-August and ending in mid-October, peaking in September. They are fairly faithful to the home streams in which they were spawned, using visual and chemical cues to locate these streams. While migrating and holding in the river, spring chinook do not feed, relying instead on stored body fat reserves for maintenance and gonadal maturation. Eggs are laid in large depressions (redds) hollowed out in gravel beds. Some fish remain in the stream until the following October and emigrate as "yearlings", usually with the onset of storms starting in October through the following March,

peaking in November–December. Large pools with cold water are essential over-summering habitat for this species.

Within the Mare Island Strait there are no spawning or freshwater rearing locations that are known to support this species. However, individuals may stray into the Mare Island Strait seasonally when migrating to natal streams in the spring, or when migrating to the ocean in late fall with the first rains.

Chinook salmon - Sacramento River Winter-run ESU (*Oncorhynchus tshawytscha*), Federal Endangered, State Endangered. The ESU includes all naturally spawned populations of winter-run chinook salmon in the Sacramento River and its tributaries in California, as well as two artificial propagation programs: winter run chinook from the Livingston Stone National Fish Hatchery, and winter run chinook in a captive broodstock program maintained at Livingston Stone hatchery and the University of California Bodega Marine Laboratory. Winter-run chinook salmon are unique because they spawn during summer months when air temperatures usually approach their yearly maximum. As a result, these salmon require stream reaches with cold water sources that will protect embryos and juveniles from the warm ambient conditions in summer. Winter-run chinook salmon are primarily restricted to the mainstem Sacramento River.

Within the Mare Island Strait there are no spawning or freshwater rearing locations that are known to support this species. However, individuals may stray into the Mare Island Strait seasonally when migrating to natal streams in the spring, or when migrating to the ocean in late fall with the first rains.

Delta smelt (*Hypomesus transpacificus*), Federal Endangered, State Threatened. Delta Smelt are a pelagic (live in the open water column away from the bottom) and euryhaline species (tolerant of a wide salinity range) found in brackish water. They are found only in the Sacramento–San Joaquin Estuary and as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far as San Pablo Bay. During the late winter to early summer, delta smelt migrate to freshwater to spawn. Larvae hatch between 10 to 14 days, are planktonic (float with the water currents), and are washed downstream until they reach areas near the entrapment zone where salt and freshwater mix. Delta smelt are fast growing and short-lived with most of the growth within the first seven to nine months of life. Most smelt die after spawning in the early spring although a few survive to a second year. Delta smelt feed entirely on small crustaceans (zooplankton).

Delta smelt are largely restricted to the Sacramento Delta proper, as well as the eastern portions of Suisun Bay; however, during large storm events when freshwater extends through the Carquinez Strait and into the greater portions of San Pablo Bay this species may either be washed downstream or migrate into the Napa River where a small number of fish have been documented; however, in areas around the proposed Project Area this species is not known to spawn, rear or forage unless moving through the vicinity after being washed downstream during very intense winter storms which connect the Napa River with Suisun Bay creating suitable low salinity conditions.

Green sturgeon (*Acipenser medirostris*), Federal Threatened, CDFW Species of Special Concern. Green sturgeon is generally found in marine waters from the Bering Sea to Ensenada, Mexico; however, spawning populations have been found only in medium-sized rivers from the Sacramento–San Joaquin system north. Spawning occurs in the Sacramento River between March

and June; it may extend slightly longer, into July, in the Klamath River. Water temperature during spawning is likely 50° to 70°F. Spawning occurs in deep, fast water. The fertilized eggs are slightly adhesive and hatch after four to 12 days. Larvae stay close to the bottom and appear to rear primarily in rivers well upstream of estuaries. Young sturgeon (8 inches) feed primarily on small crustaceans such as amphipods and opossum shrimp. As they develop, they take a wider variety of benthic invertebrates, including various species of clams, crabs, and shrimp. Larger green sturgeon diet includes fishes.

This species spawns only within the Sacramento and Feather Rivers; however, migrating individuals may pass through the proposed Project Area in route to the ocean, and juveniles may spend several years rearing within San Francisco Bay, thus foraging juveniles are considered present throughout the year. Additionally, individuals have been documented at nearby operations in the recent past (WRA 2022).

Longfin smelt (*Spirinchus thaleichthys*), Federal Candidate, State Threatened, CDFW Species of Special Concern. Longfin Smelt is a pelagic, estuarine fish that ranges from Monterey Bay northward to Hinchinbrook Island, Prince William Sound Alaska. As this species matures in the fall, adults found throughout the San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning is believed to take place in freshwater. In April and May, juveniles are believed to migrate downstream to San Pablo Bay. Juveniles tend to inhabit the middle and lower portions of the water column. This species tends to be abundant near freshwater outflow, where higher-quality nursery habitat occurs and potential feeding opportunities are greater.

This species spawns within the Napa River and is often observed within the Mare Island Strait (WRA 2022). Longfin smelt must pass through the proposed Project Area on their way to the San Pablo Bay from their spawning grounds. They are considered seasonally present during the migration periods in winter and spring.

White sturgeon (*Acipenser transmontanus*), CDFW Species of Special Concern. This sturgeon is found in most estuaries along the Pacific coast and are known to the San Francisco Bay Estuary. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. White sturgeon typically spawn in May through June. The diet consists of crustaceans, mollusks, and some fish. White sturgeon spawn only within large rivers of the Sacramento Valley and not within the Napa River or in the local vicinity. Juveniles, however, may be present and forage within the surrounding Bay waters year-round.

Chinook salmon - Central Valley Fall/late fall-run ESU (*Oncorhynchus tshawytscha*), NMFS Species of Concern, CDFG Species of Special Concern. The Central Valley Fall/late fall-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries. Late-fall run Chinook salmon are morphologically similar to spring-run chinook. They are large salmonids, reaching 75-100 cm SL and weighing up to 9-10 kg or more. The great majority of late-fall Chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February and March, although it may extend into April in some years. Eggs are laid in large depressions (redds) hollowed out in gravel beds. The embryos hatch following a three- to four-month incubation period and the alevins (sac-fry) remain in the gravel for another two to three weeks. Once their yolk sac is absorbed, the fry emerge and begin feeding on aquatic insects. All

fry have emerged by early June. The juveniles hold in the river for nearly a year before moving out to sea the following December through March. Once in the ocean, salmon are largely piscivorous and grow rapidly. The specific habitat requirements of late-fall chinook have not been determined, but they are presumably similar to other Chinook salmon runs and fall within the range of the physical and chemical characteristics of the Sacramento River above Red Bluff.

The Napa River is a natal stream for fall-run chinook salmon, while late-fall runs are limited to spawning within the main-stem of the Sacramento River or its more northern tributaries. There are no spawning or freshwater rearing streams within or immediately surrounding the proposed Project Area. This species would be expected to occur seasonally for short periods when migrating to natal streams in the fall as adults, or when migrating to the ocean in spring as juveniles or fry.

Pacific lamprey (*Entosphenus [=Lampetra] tridentatus*), Species of Special Concern. This anadromous lamprey is found along the entire California coast with regularity until becoming disjunct south of San Luis Obispo County with the exception of regular runs to the Santa Clara River (UCDAVIS 2016). With the exception of land-locked populations, this species spends the predatory phase of its life in the ocean, feeding off the bodily fluids of a variety of fish. This species is usually concentrated near the mouths of their spawning streams because its prey is most abundant in coastal areas (Moyle 2002). Adults move up into spawning streams between early March and late June. After hatching, ammocetes are washed downstream, where they burrow into soft substrates and filter feed. Five to seven years later, ammocetes undergo metamorphosis into the predatory phase of their life cycle and out-migrate to the ocean as adults.

The Napa River is a natal stream for this species (CalFish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species occurs seasonally for short periods when migrating to natal streams as adults or when migrating to the ocean as microphthalmia.

River lamprey (*Lampetra ayresi*), CDFW Species of Special Concern. River lampreys prey upon a variety of fishes in the 10-30 cm TL size range, but the most common prey seem to be herring and salmon. Unlike other species of lamprey in California, river lampreys typically attach to the back of the host fish, above the lateral line, where they feed on muscle tissue. Little is known about habitat requirements in California, but presumably, the adults need clean, gravelly riffles in permanent streams for spawning, while the ammocetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high, and temperatures do not exceed 25°C. Adults migrate back into fresh water in the fall and spawn during the winter or spring months in small tributary streams.

The Napa River is a natal stream for this species (CalFish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species occurs seasonally for short periods when migrating to natal streams as adults or when migrating to the ocean as microphthalmia.

Sacramento splittail (*Pogonichthys macrolepidotus*), CDFW Species of Special Concern. Splittail are primarily freshwater fish that have been found mostly in slow-moving sections of rivers and sloughs, and in the Delta and Suisun Marsh they seemed to congregate in dead-end sloughs (Moyle et al. 1982, Daniels and Moyle 1983). Splittail are benthic foragers that feed extensively

on opossum shrimp (*Neomysis mercedis*); however, detrital material typically makes up a high percentage of their stomach contents. They will feed opportunistically on earthworms, clams, insect larvae, and other invertebrates. They are preyed upon by striped bass and other predatory fishes. Splittail apparently require flooded vegetation for spawning and as foraging areas for young, hence are found in habitat subject to periodic flooding during the breeding season (Caywood 1974).

The Napa River is a natal stream for this species (CalFish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species has also been documented within the Mare Island Strait (WRA 2022). This species may occur seasonally when foraging or moving between suitable habitats during high flow events in winter and spring when salinities are suitable.

SPECIAL-STATUS MARINE MAMMALS WITH POTENTIAL TO OCCUR

California sea lion (*Zalophus californianus*), MMPA. California sea lions are found from Vancouver Island, British Columbia to the southern tip of Baja California in Mexico. They breed mainly on offshore islands, ranging from southern California's Channel Islands south to Mexico, although a few pups have been born on Año Nuevo and the Farallon Islands on the central Californian coast (TMMC 2023). Sandy beaches are preferred for haul out sites, although in California they haul out on marina docks as well as jetties and buoys (TMMC 2023).

Pacific harbor seal (*Phoca vitulina richardsi*), MMPA. Harbor seals are fairly common, non-migratory pinnipeds inhabiting coastal and estuarine waters from Alaska to Baja California, Mexico. They are a year-round resident in the San Francisco Bay Area (Kopec 1999). They haul out on rocks, reefs, and beaches, and feed in marine, estuarine, and occasionally fresh waters (TMMC 2023). Harbor seals have been consistently observed hauled out on three adjacent inaccessible beach/inshore rock areas east of Point Conception in 2012 and 2013.

Pacific harbor seal and California sea lion are both commonly found throughout much of San Francisco Bay, though they are less common in areas with more freshwater influence, such the proposed Project Area and vicinity. Harbor Seals use open water for feeding and travelling, and terrestrial substrates such as beaches or small rocky islands adjacent to water for hauling out (resting). A haul-out site is generally considered a rookery if there are pups present at the site. Harbor seals in San Francisco Bay also tend strongly towards use of established haul-out areas, as opposed to hauling out in new areas (Kopec 1999). There are no beaches to haul out on and no known rookery sites within the proposed Project Area or in the immediate vicinity; however, both species may be present opportunistically when foraging for fish in waters of the proposed Project Area especially when adult salmonids migrate through the region in fall and winter or when following herring schools which return to San Francisco Bay in the winter.

5.3 Critical Habitat and Essential Fish Habitat

5.3.1 Critical Habitat

A review of the background literature showed that the proposed Project Area is located within or adjacent to critical habitat for two special-status fish species (NMFS 2023a):

- Central California Coast DPS Steelhead
- Southern DPS green sturgeon
- SRWR Critical Habitat

Because the proposed Project Area is within a bay or estuary, the extent of critical habitat is defined as being up to the high tide line (HTL; see Figure 2). Delta smelt critical habitat is present near the proposed Project Area but ends east of the Carquinez Bridge approximately 3 miles southeast of the proposed Project Area.

5.3.2 Essential Fish Habitat

A review of the background literature revealed that the proposed Project Area is located within EFH for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon.

- The Coastal Pelagic Fisheries Management Plan (PFMC 2021) is designed to protect habitat for migratory pelagic species such as Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), northern anchovy (*Engraulis mordax*), market squid (*Doryteuthis opalescens*), jack mackerel (*Trachurus symmetricus*) and various species of krill or euphausiids.
- The Groundfish Fisheries Management Plan (PFMC 2022a) is designed to protect habitat for approximately 80 species of fish, including various species of flatfish, rockfish, groundfish, and several species of sharks and skates.
- The Pacific Salmon Fisheries Management Plan (PFMC 2022b) is designed to protect habitat for commercially important salmonid species specifically Chinook and Coho salmon occur within the Project Area. While Coho salmon are extirpated from San Francisco Bay and its tributaries (NMFS 2012), Chinook Salmon would be seasonally present within waters surrounding the proposed Project Area.

Similar to critical habitat discussed above, waters of the proposed Project Area would be considered EFH up to the high tide line shown in Figure 2 (Appendix A).

5.4 Movement Corridors and Native Wildlife Nursery Sites

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier and Loe 1992; Soulé and Terbough 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2019).

The aquatic portions of the proposed Project Area function as a movement corridor for fish, including for the various special-status species discussed above. Salmonids for example will migrate through waters of the proposed Project Area typically in late-spring or early summer when migrating to the Pacific Ocean as smolts/juveniles. Adults then migrate through the proposed Project Area when returning to natal streams in late-fall or early winter. In the case of more regional species such as Delta or longfin smelt, they spawn in the Sacramento Delta and Suisun Bay, but make localized seasonal migrations to areas within San Francisco Bay. As such, the proposed Project Area is situated between two core habitat areas (i.e., the Bay/ocean and

freshwater spawning grounds) making it a migratory corridor. The proposed Project Area does not provide a migratory corridor for species other than fish, because it does not provide for substantial connectivity between two core habitat areas for other classes of plants or wildlife.

No eelgrass beds have been mapped within the proposed Project Area. Additionally, the proposed Project Area is routinely dredged so any plants that have a chance to establish would be destroyed in this effort. The entire shoreline of the proposed Project Area is hardened by a seawall. As such, the proposed Project Area does not function as a nursery site for fish species. The upland areas of the site are highly developed and do not contain rookery habitats for other species such as egrets, herons, or marine mammals.

6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or U.S. Fish and Wildlife Service;
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Because this report focuses on in-water elements of the proposed Project, the focus of the impacts and mitigation analysis is on Questions 1, 4, 5, and 6 above. Questions 2 and 3 have more bearing where projects occur on land. Elements of this proposed Project that would occur on land would affect areas that have been developed and historically disturbed, and so the potential biological resources impacts and mitigation is focused on open water areas. For the purposes of this analysis, a “substantial adverse effect” is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing

biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

7.0 IMPACTS AND MITIGATION EVALUATION

Using the CEQA analysis methodology outlined in Section 6.2 above, the following section describes potential significant impacts to sensitive resources within the proposed Project Area as well as suggested mitigation measures which are expected to reduce impacts to less than significant.

7.1 Special-Status Species

This section analyzes the proposed Project's potential impacts and mitigation for special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV (a):

Does the project have the potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service?

Potential impacts and mitigation for potentially significant impacts are discussed below for groups of species with relatively similar effects including fish, birds and marine mammals. As discussed above, the proposed Project occurs entirely in tidal waters and in shoreline areas that are developed or have a history of substantial disturbance from slope stabilization. Aquatic communities of the proposed Project Area do not have the potential to support special-status species plants; therefore, the analysis below focuses only on species with the potential to be present in aquatic areas. Potential impacts and mitigation for eelgrass and EFH are discussed in Section 7.2 (sensitive habitats).

7.1.1 General In-Water Construction Impacts

Some potential proposed Project impacts to special-status species from in-water work are applicable to all aquatic special-status species. This section reviews these impacts. Subsequent sections review potential impacts that apply differentially to special-status fish, birds, and marine mammals.

POTENTIAL IMPACT BIO-1: POTENTIAL INTRODUCTION OF INVASIVE SPECIES

San Francisco Bay is one of the busiest ports in the world with more than 7,000 container ships per year entering the Bay (Choksi 2009). One consequence of such a robust trade network is the introduction of non-native species which are often carried in ballast water of vessels or on ship hulls. If introduced non-native species establish in a new environment and cause harm to native species and habitats, they are considered “invasive species”. Introductions of invasive species to San Francisco Bay includes both fish and invertebrate species, which cause a variety of impacts to native fauna. Invasive species have a variety of deleterious effects from competing with or consuming native species (Moyle 2002), to decreasing pelagic productivity (Baumsteiger et al. 2017). As a result of this impact and considering the danger that invasive species pose to native species and ecosystems, the U.S. Court of Appeals for the Ninth Circuit ruled that the U.S. Environmental Protection Agency must regulate ship discharges, including ballast water discharges containing invasive species, that pollute U.S. waters under the Clean Water Act

(Choksi 2009). Further, Congress passed the Vessel Incidental Discharge Act, combining laws that regulate vessel discharge to help prevent the introduction of harmful species (Simmonds 2022).

Within aquatic environments, barges and boats used for construction are expected to be based in San Francisco Bay; therefore, vessels used to implement the proposed Project are not expected to introduce novel invasive species to San Francisco Bay. In addition, the reconfigured ferry terminal would be utilized by existing ferry vessels within WETA's fleet that operate exclusively within San Francisco Bay; however, the new structures installed by the proposed Project have potential to introduce novel invasive species to the area or contribute to the spread of existing invasive species within San Francisco Bay; therefore, the potential introduction of invasive species during construction and operations is a potentially significant impact to special-status fish and marine mammals. With implementation of Mitigation Measure BIO-1, potential impacts resulting from the introduction of invasive species would be less-than-significant.

MITIGATION MEASURE BIO-1: INVASIVE SPECIES MANAGEMENT

- Any in-water fill materials shall be new and not salvaged from areas outside of San Francisco Bay.
- Any pumps that may be needed during construction shall be cleaned and dried for at least 72 hours prior to being used on the proposed Project.

POTENTIAL IMPACT BIO-2: SPILLS AND DEBRIS

In-water construction would require the use of specialized mechanical equipment including vibratory or impact pile driving hammers, tugboats, cranes, floating barges, and dredging equipment. These larger pieces of equipment require generators or compressors to run equipment, which use a variety of petroleum and plant-based fuels or lubricants. If spilled, these fuels and lubricants can be toxic to aquatic ecosystems. Similarly, debris from construction or demolition of in-water structures may itself be contaminated with toxic lubricants or preservatives. Introduction of such materials could cause degradation to the aquatic environment, including special-status fish and marine mammals, which is a potentially significant impact under CEQA.

In addition, some elements of the proposed Project may also require cast-in-place concrete for above-water structures, such the caps to the dolphins which would connect the gangways. When implemented over water, cast-in-place concrete can result in unintentional spilling of concrete into the water column. The introduction of raw concrete into the water column can result in changes to pH levels that can adversely affect fish. At sufficiently high concentrations, raw concrete can lead to fish mortality; however, the amount of concrete that would be cast-in-place over the water within the proposed Project Area is not anticipated to be sufficient to result in significant impacts to fish, particularly given the volume of water present in the work area. Further, no cast-in-place concrete is proposed within the water column.

With implementation of Mitigation Measures BIO-2 through BIO-5, potential impacts from spills and debris would be less-than-significant.

MITIGATION MEASURE BIO-2: IN-WATER WORK WINDOW

All in-water work, including dredging, pile driving, and similar activities which require placing materials below the water's surface, shall be completed between August 1 and

November 30. Work may occur above the waterline year-round, including use of necessary in-water support vessels, so long as spill prevention measures are employed as described below. This in-water work window may be modified and extended if regulatory agencies determine during the permitting process that work outside of this window may occur without significant risk to fish.

MITIGATION MEASURE BIO-3: SPILL PREVENTION AND CONTROL

A spill prevention and control plan shall be developed and implemented for the proposed Project throughout all phases of construction. This plan shall, at minimum, include the following parameters to reduce potential effects from spills to less than significant levels:

- Identification of any hazardous materials used by the proposed Project.
- Storage locations and procedures for such materials.
- Spill prevention practices as well as BMPs employed for various activities.
- Requirements to inspect equipment daily such that it is maintained free of leaks.
- Spill kit location, cleanup, and notification procedures.

MITIGATION MEASURE BIO-4: ENVIRONMENTAL AWARENESS TRAINING

A proposed Project-specific environmental awareness training for construction personnel shall be conducted by a qualified biologist before commencement of construction activities and as needed when new personnel begin work on the proposed Project. The training shall inform all construction personnel about the presence of sensitive habitat types; potential for occurrence of special-status fish and wildlife species; the need to avoid damage to suitable habitat and species harm, injury, or mortality; measures to avoid and minimize impacts to species and associated habitats; the conditions of relevant regulatory permits, and the possible penalties for not complying with these requirements. The training may consist of a pre-recorded presentation to be played for new personnel, a script prepared by the biologist and given by construction personnel trained by the biologist, or training administered by on-site biological monitors. The training shall include:

- Applicable State and federal laws, environmental regulations, permit conditions, and penalties for non-compliance. A physical description of special-status species with potential to occur on or in the vicinity of the proposed Project Area, avoidance and mitigation measures, and protocol for encountering such species including communication chain.
- BMPs enacted for habitat protection and their location within the proposed Project Area, including the implementation of any Spill or Leak Prevention Programs.
- Contractors shall be required to sign documentation stating that they have read, agree to, and understand the required avoidance measures. If they do not understand, they shall withhold their signature until the designated biologist addresses their question. The contractor may not begin work until they have signed the documentation.

- Field identification of any proposed Project Area boundaries, egress points and routes to be used for work. Work shall not be conducted outside of the proposed Project Area.

A record of this training shall be maintained on the site during all proposed Project work and shall be made available to agencies upon request.

MITIGATION MEASURE BIO-5: DEBRIS

The proposed Project shall employ debris, dust, and garbage control measures to ensure disturbances to any upland areas and overwater work does not result in significant increases in turbidity or the placement of debris within tidal waters. These control measures shall include the following:

- A work skiff or similar craft may be used to corral any debris which accidentally falls into waters during demolition. Debris shall be retrieved immediately and shall not be allowed to drift away from the worksite.
- Where cast-in-place concrete is required in over-water areas, the contractor shall use water-tight forms and catchments that shall prevent concrete from falling into the water. Cast-in-place forms shall remain in place until concrete has completely cured and shall be removed using means that minimize dust and freshly cured concrete from falling into the water.
- Within upland areas, any disturbed soils shall be managed to prevent dust or silt laden runoff from becoming airborne or otherwise introduced to the aquatic environment.
- All personal construction-related refuse shall be collected in sealed containers and removed regularly.

POTENTIAL IMPACT BIO-3: DREDGING AND PILE-DRIVING RELATED TURBIDITY AND TOXIC MATERIALS

Natural fluctuations in turbidity occur daily within the greater San Francisco Bay. The naturally occurring light weight sediments that dominate the Bay and Sacramento-San Joaquin Delta are easily mobilized during strong summer winds and storm related high flows, causing extreme spikes in turbidity, which can vary by several hundred nephelometric turbidity units (NTUs) even within a single day (O'Connor 1991). Elevated turbidity can impair gill function in fish, reduce oxygen availability in the water column, decrease physiological capabilities, and increase stress in fish (Heath 1995, Bash and Berman 2001). While turbidity can impact sensitive life stages of fish (i.e., eggs or larval fish), elevated turbidity alone does not represent a uniform impact to fish species. Delta smelt distribution has been positively correlated with higher turbidity, which can help increase foraging efficiency and decrease predation threats (Sommer and Mejia 2013). Species present within the Bay and Delta are tolerant of these naturally occurring frequent large fluctuations in turbidity.

In-water work necessary to implement the proposed Project, such as pile removal, pile installation, and dredging, are expected to mobilize sediments which may contribute to increased water turbidity. Turbidity from pile removal and driving is likely to be limited to a small area (approximately 150 to 200 feet of each pile) and typically dissipates within one hour or is swept away and diluted by tidal exchange (USFWS 2013). Thus, turbidity from pile driving activities is expected to be less than significant; however, turbidity associated with mechanical dredging

typically spreads further due to the volume of bottom substrates disturbed. Studies of turbidity in San Francisco Bay showed that turbidity may spread up to 600 feet from the point of disturbance but diminishes to background levels within one tidal cycle for singular events (Corps 2015). The actual distance suspended sediment caused by the proposed Project would move is dependent upon multiple factors (i.e., tide, river outflows, wind condition, etc.) but the previous studies provide a guide under which we can determine potential effects.

Turbidity caused by the proposed Project may result in areas such as the shallow water habitat between the existing ferry terminal and the seawall to be temporarily unsuitable for fish.

Recent sediment characterization sampling and analysis testing within the proposed Project Area found no elevated levels of metal or chemicals known to be harmful to aquatic ecosystems with the exception of Arsenic, which slightly exceeded background levels for San Francisco Bay (Foth 2023). However, this recent testing did not assess any samples around the proposed temporary ferry terminal location where additional dredging may be required as part of the proposed Project. Previous testing of nearshore sediments within the existing ferry terminal basin were found to contain elevated levels of polychlorinated biphenyls (PCBs) (MEC 1996); therefore, the sediments under the proposed temporary ferry terminal location have potential to contain excess levels of PCBs or other toxins. As such, dredging within this area has potential to expose aquatic species to toxins, which could result in significant impact. These impacts are considered potentially significant to special-status fish and marine mammals under CEQA. With implementation of Mitigation Measures BIO-6, below, impacts resulting from the release of toxic materials during dredging would be less-than-significant.

MITIGATION MEASURE BIO-6: DREDGING

- Prior to dredging, sediment testing shall be performed to determine whether elevated levels of any contaminant may be present within the dredging area. The results of this test shall be submitted to the Dredged Material Management Office (DMMO) for review of the sediment contents, and for approval of sediment disposal methods or reuse suitability.
 - Materials shall only be dredged and disposed of in accordance with procedures approved by the DMMO.
 - If concentrations are too high for beneficial reuse in upland restoration, or other standard dredge material disposal method, materials may be hauled to an approved hazardous waste disposal facility.
- Dredging shall be limited to the specified areas, depths, and quantities.
- No overflow or decant water shall be discharged from any barge at any time.
- During transportation from the dredging site to the disposal site, no dredged material shall be permitted to overflow, leak, or spill from barges, bins or dump scows.

With the implementation of Mitigation Measures BIO-2 through BIO-5, and Mitigation Measure BIO-6, effects from dredging will be less than significant with mitigation incorporated.

7.1.2 Special-Status Fish

Seven formally listed species, as well as five other special-status fish species are known to occur within the Mare Island Strait of the Napa River. Formally listed species include Central California Coast steelhead, Central Valley steelhead, Spring-run Chinook, Winter-run Chinook, Southern Distinct Population Segment green sturgeon, longfin smelt, and Delta smelt. Special-status species which have not been formally listed include Fall/late-Fall run Chinook salmon, Pacific lamprey, river lamprey, Sacramento splittail and white sturgeon. All of these species make seasonal migrations through the proposed Project Area and spend some portion of the year in the proposed Project Area vicinity; however, no spawning habitats are known for any of these species within the proposed Project Area.

The special-status fish species listed above have potential to occur in association with the open water portion of the proposed Project Area. Many of the species are only present seasonally when salinity conditions are appropriate or during migration periods. Species that are expected to be seasonally present include all of the salmonids (all species of steelhead and Chinook salmon), lamprey, and smelts. Other species may forage within the waters of the proposed Project Area year-round including green and white sturgeon, as well as Sacramento splittail.

Impacts to fish may occur in a variety of ways from a single construction related activity. For example, an impact or vibratory hammer would be needed to set and drive structural components such as piles to support proposed Project structures. Pile driving causes in-water sounds which can affect fish both physically and behaviorally. Construction equipment for such work may require the use of hydraulically operated mechanical equipment which has potential to introduce toxic substances (i.e., fuel or hydraulic fluid) to the aquatic environment. Construction operations in general also have the potential to introduce debris and refuse associated with work to surrounding waters. Equipment and materials for such work are also highly specialized and may need to be brought in from other locations. The relocation of equipment may introduce non-native species of fish, or invertebrates, to the work area if proper procedures are not followed for decontamination. Most of these potential impacts affect a variety of species and are therefore discussed above and mitigated to a level that is less than significant by Mitigation Measures BIO-1 through BIO-7. Additional potential impacts to special-status fish species resulting from pile driving and dredging activities are discussed in more detail below.

POTENTIAL IMPACT BIO-4: UNDERWATER NOISE AND PILE DRIVING IMPACTS TO SPECIAL-STATUS FISH

Pile driving produces underwater noise, which manifests as pressure waves in the aquatic environment. The louder the noise, the more pressure is present in the waves. High pressure sound waves in the aquatic environment can result in damage to fishes' internal organs. The NMFS has established thresholds based upon the size of the fishes under consideration for the onset of physical injury and adverse behavioral effects. Those thresholds, measured in decibels (dB), are listed below in Table 5 (NMFS 2018). Because Delta smelt and longfin smelt are known to occur within the proposed Project Area at certain times of the year, especially during their seasonal migrations and longfin smelt may also occur at times outside of winter migrations, the more conservative 183 dB sound exposure level (SEL) threshold is the effective criteria for hydroacoustic effects analysis for the proposed Project. Behavioral modification is based on the root mean square (RMS) and is considered standard for all species. The RMS of 150 dB represents the zone where fish may be affected behaviorally but not physically harmed; however, it should be noted that in busy ports and bays such as San Pablo Bay, background underwater

noise is frequently measured at or above 150 dB under baseline conditions, therefore the baseline noise conditions are frequently at or above the standard thresholds for behavioral effects (Caltrans 2020).

Table 5. Fish Impact Criteria

EFFECT	METRIC	FISH MASS (GRAMS)	THRESHOLD
Onset of physical injury	Peak pressure	N/A	206 dB (re: 1 μPa)
	Accumulated SEL	≥ 2 g	187 dB (re: 1μPa ² ·sec)
		< 2 g	183 dB (re: 1μPa ² ·sec)
Adverse behavioral effects	RMS	N/A	150 dB (re: 1 μPa)

There are two primary styles in pile driving, vibratory and impact hammer driving. These styles of pile driving have different potentials for effect and are described below.

Vibratory Pile Driving

Vibratory pile driving uses hydraulically powered, oscillating counterbalance weights to vibrate an object (i.e., pile) at high speed. The vibration mobilizes the earth beneath and around the pile causing the surrounding earth to liquify. Once mobilized, the weight of the hammer pushes the pile downward. Vibratory hammers do not “strike” a pile and as such have lower peak sound pressure than impact hammers, but also require more prolonged use as they drive piles slower. Even with prolonged use, vibratory hammers do not approach the peak or cumulative sound exposure thresholds that would cause injury or death to fish (Caltrans 2020). Because of the low level of effect, resource agencies generally agree that vibratory pile driving results in reduced adverse effects on fish and is therefore the preferred driving methodology. This reduced level of effect is also why agencies have not identified any peak or cumulative injury thresholds for vibratory pile driving to fish (Caltrans 2020). With the lower level of effect, use of a vibratory hammer is often employed as an avoidance and minimization measure (AMM) to reduce the overall number of strikes necessary to drive piles on a project. For this proposed Project, removing any existing piles, or initially placing and driving new piles will be preferentially performed with a vibratory hammer to decrease the proposed Project’s acoustic effect on the aquatic environment.

The limiting factors to driving with a vibratory hammer are seating depth and pile size. Small diameter piles (e.g., 18–24-inch steel pipe piles) or sheetpiles may be able to be fully driven using a vibratory hammer when substrates are soft (i.e., silty and low in clay); however, the presence of geotechnical conditions such as clay hardpans, especially when driving large diameter steel pipe piles to moderate depths, a vibratory hammer may not have sufficient energy to install the pile fully (Caltrans 2020). Once a vibratory hammer reaches refusal, an impact hammer is often necessary to complete the installation to drive piles to specified depths for structural integrity. Additionally, vibratory pile driving is often not able to achieve engineering criteria required to support design structural loads, and impact driving is necessary in these cases for “final seating” of the pile.

Impact Hammer Pile Driving

An impact hammer operates by using a sliding hammer head to strike a pile, causing the downward force of the head to drive the pile, similarly to the way a handheld hammer strikes and drives a nail. This method creates a pulse of sound that propagates through the pile, spreading outward into the aquatic environment. As shown in **Error! Reference source not found.**, peak, cumulative and RMS sound pressure levels all have different thresholds and types of effect. The “peak” is the highest value of the measured sound and may cause injury to fish exposed to instantaneous peak levels at or above 206 dB. Driving piles requires multiple strikes from the hammer, therefore there is also a cumulative effect of all strikes. In this case, cumulative exposure can cause injuries to fish at slightly lower decibel levels depending on the size of the fish. For fish less than 2 grams, the cumulative sound exposure level is 183 dB, while fish over 2 grams have a threshold of 187 dB. The distance at which these thresholds are reached vary based on the size and type of pile, number of strikes required, as well as the depth of water, and hammer size.

The proposed Project expects to be able to perform most pile driving using a vibratory hammer as summarized in Table 6, below; however, use of an impact hammer may be necessary to complete pile installation. The proposed Project would require the removal of existing piles and the installation of new piles as summarized in Tables 1 and 2, above. A summary of Project pile driving activities, including the number of anticipated piles to be installed per day and the duration of pile driving, is provided in Table 6, below.

Table 6. Pile-driving Activities for the Proposed Project

NEW STRUCTURE	PILE TYPE	PILE LOCATION	DURATION/ESTIMATED BLOWS PER PILE ¹	PILES PER DAY
Gangway, Dolphin, New Standard WETA Float, Monopiles	36-inch steel pipe	In Water	120 minutes vibrate and 450 strikes	4
Monopiles (Marker Piles)	12-inch steel piles	In Water	120 minutes vibrate or 450 strikes	4

¹ Impact driving assumes about 15 minutes of driving with a total of about 450 strikes per pile.

The prediction of sound levels from pile-driving activities proposed for this Project relies on data collected from the vicinity of this site and other sites with similar conditions. These predicted values were compiled in a report prepared by Illingworth and Rodkin for the proposed Project (Illingworth and Rodkin 2024) and are provided in Table 7. The values in Table 7 represent sound levels measured at 10 meters (33 feet) from the piles for conditions similar to those that would be present during this Project.

Table 7. Reference Sound Measurements used for Acoustic Modeling

DRIVING METHOD	PILE TYPE	PILE SIZE (INCHES)	SOUND PRESSURE LEVEL (dB at 10 meters)						REFERENCE DATA
			UNATTENUATED			ATTENUATED ^a			
			PEAK	RMS	SEL	PEAK	RMS	SEL	
Impact	Steel pipe	12	199	179	169	194	174	164	Based on 14-in steel pipe levels in Caltrans 2020. Note there is a lack of representative data for 12-in steel piles.
Impact	Steel pipe	36	211	193	183	201	183	173	Caltrans 2020 as recommended by NMFS (see 88 FR 56595).
Vibratory	Steel pipe	12	171	155	155	<5 dB attenuation expected from vibrated piles			13-in steel piles measured at Mad River Slough, Arcata, CA due to lack of data for vibrated 12-in piles.
Vibratory	Steel pipe	36	200	168	168	<5 dB attenuation expected from vibrated piles			Anchorage Port Modernization Program – Test Pile Program (POA 2016)
^a Attenuated condition assumes minimum 5-dB lower sounds for 12-inch piles. For 36-inch piles, a conservative estimate of 10-dB attenuation is assumed.									

Table 7 summarizes the sound levels for unattenuated and attenuated piles at 10 meters (33 feet) which can be used to model effects for this Project. Sound attenuation levels include a 5 dB reduction for 12-inch piles, and a 10 dB reduction for 36-inch piles. The 10 dB reduction for 36-inch piles is based on measurements collected from the Project Area during previous work on the facility.

Pile driving measurements taken in 2015 for pile driving work on the current gangway recorded a range of noise levels during impact hammer driving of 36-inch steel piles. Sounds ranged between 172 to 205 dB peak, 149 to 183 dB RMS, and 139 to 171 dB SEL. All driving in 2015 utilized a bubble curtain. These levels indicate an attenuation of up to 30 dB provided by the bubble curtain when compared to unattenuated levels. To comply with NMFS recommendations for estimating bubble curtain performance, Illingworth and Rodkin (2024) applied a conservative 10 dB attenuation to avoid under predicting potential impacts.

Based on the information provided above, Illingworth and Rodkin (2024) calculated distances to various acoustic thresholds which are shown below in Table 8. Because sound propagation in the vicinity of the proposed Project is constrained by contours in the Mare Island Strait, sound is expected to only propagate up and down the channel for a certain distance. Therefore, Illingworth and Rodkin’s assessment of distance for noise impact from this Project was limited to 3,280 meters north (upstream) and 5,600 meters south (downstream) under worst-case conditions.

Table 8. Distance to Adopted Fish Thresholds for All Piles

DRIVING METHOD	PILE TYPE	PILE SIZE (INCHES)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	DISTANCE TO FISH THRESHOLDS (meters)			
						PEAK 206 dB	RMS 150 dB	CUMULATIVE SEL	
								187 dB	183 dB
Impact	Steel pipe	12	4	450	No	- ¹	858	93	173
Impact	Steel pipe	12	4	450	Yes	- ¹	398	43	80
Impact	Steel pipe	36	4	450	No	22	3,280 / 5,600 ³	801	1,480
Impact	Steel pipe	36	4	450	Yes	- ¹	1,585	173	319
Vibratory	Steel pipe	12	4	120	No	- ²	22	- ²	- ²
Vibratory	Steel pipe	36	4	120	No	- ²	159	- ²	- ²

1. Threshold distance does not extend past 10 meters.
 2. These impact criteria do not apply to vibratory driving.
 3. These are the maximum distances upstream/downstream sound can travel from the Project.

As presented in Table 8, attenuated pile driving distances are substantially less than unattenuated driving when using an impact hammer. As such, if the Project were to drive piles with an impact hammer and no attenuation was used, effects could extend substantially further, causing disruptions to fish behavior, as well as potentially causing injury throughout much of the Mare Island Channel.

Implementation of Mitigation Measure BIO-2, above, requires all in-water work be limited to August 1 through November 30. By limiting pile driving to this work window, the proposed Project will minimize the possibility that fish are present when work occurs, thus most special-status fish species are not likely to be affected by work during this period. In addition, noise produced by the proposed Project which might behaviorally affect fish would not be likely to impede important stages of migrations as fish pass through the Mare Island Strait en route to natal streams or to the Pacific Ocean. During the in-water work window, more sensitive life stages (i.e., eggs, larvae, or very small juveniles) are also not present, further reducing effects on these sensitive life stages.

Because most fish species are likely to be absent except during migratory periods, working during the recommended in-water work window would reduce impacts to most species; however, adherence to this window alone would not be sufficient to reduce effects of pile driving to all special-status species of fish as some may occur year-round; therefore, pile driving may have significant impacts to fish unless mitigation measures are incorporated. To reduce potential impacts to fish to a less-than-significant level, in addition to Mitigation Measures BIO-1 through BIO-7, the following measures shall be implemented during any in-water work:

MITIGATION MEASURE BIO-7: PILE DRIVING

Prior to initiation of construction, WETA shall consult with regulatory agencies with jurisdiction over the proposed Project activities, such as CDFW, NMFS, and USFWS to obtain any necessary permits and shall follow all requirements of those permits. If permit requirements conflict with requirements below, the permit requirements shall take precedence.

The following measures shall be implemented during the driving of all piles to reduce any effects from pile driving to less than significant levels:

- In water work shall be limited August 1 – November 30 as indicated in Mitigation Measure BIO-2 unless otherwise approved by regulatory agencies.
- Any wildlife encountered within the work area shall be allowed to leave the area unharmed.

The following measures shall also be included for times when work involves driving steel piles.

- To the extent possible, pile driving of steel piles shall be conducted with a vibratory hammer.
- If use of an impact hammer is necessary, the following additional measures shall be employed:
 - A bubble curtain shall be deployed around each steel pile during installation.
 - Use of a slow start (gradually increasing energy and frequency) at the start of driving, or after a cessation of driving for more than 1 hour.
 - Underwater sound monitoring shall be performed during pile driving activities. Sound monitoring shall be completed for a minimum of 5% of each pile size and type utilized during construction to verify consistency with sound measurements of similar pile types and sizes documented for other projects. If sound measurements exceed those taken from similar pile types and sizes for other projects, additional sound attenuation measures, enhanced bubble curtains, or limiting pile strikes shall be implemented, and sound measurements shall be tested again to achieve sound levels similar to other projects.

With implementation of Mitigation Measures BIO-1 through BIO-8, impacts to fish from in water construction would be less than significant.

POTENTIAL IMPACT BIO-5: SHADING

Overwater structures can alter underwater light conditions and result in a decrease in photosynthesis of diatoms, benthic algae, eelgrass, and other aquatic organisms. This decrease in primary productivity can then lead to a decrease in prey items for fish at higher trophic levels (Nightingale and Simenstad 2001). Additionally, invertebrates, fish, and aquatic plant occurrences under such structures have been found to be limited when compared to unshaded and vegetated habitat (Nightingale and Simenstad 2001, Thayer et al. 1984).

Light conditions under the existing passenger float and gangway system are such that no light can penetrate the surface at any point. The proposed Project would increase the extent of overwater shading compared to the existing condition; the net increase in overwater shading varies among the three proposed Project Configurations as summarized in Table 9, below.

Table 9. Anticipated Shading Impacts of Each proposed Project layout configuration

	OVERWATER COVERAGE AREA (square feet)	NET DIFFERENCE FROM EXISTING (square feet)
Existing Structure	4,990	-
CONFIGURATIONS		
Proposed Project	9,645	+ 4,665 (+ 93%)
Configuration Option 1	8,013	+ 3,023 (+ 61%)
Configuration Option 2	8,014	+ 3,024 (+ 61%)

While all three proposed Project Configurations would expand shading over what are currently open waters, the benthic communities which would be shaded are also currently dredged and maintained to provide ferry terminal access and berthing. Both existing and proposed shaded areas are therefore already frequently disturbed to facilitate safe berthing of ferries. As such, no aquatic vegetation is present that would be affected by the change in shade conditions.

Further, waters of the Mare Island Strait are tidal, with currents regularly reaching 2.0 knots during the peak in tidal exchange (NOAA 2023). At these current speeds, we estimate that any primary producers which drift under the dock during tidal exchange would be temporarily shaded for approximately 30–60 seconds as waters pass beneath the dock. Therefore, the expansion of overwater shading that would result from the proposed Project would not result in prolonged shading of any primary producers. In addition, the purpose of the proposed Project is to reduce the frequency with which maintenance dredging is required in the area, which would reduce the rate of disturbance to the benthos, likely resulting in net benefits to primary producers within the proposed Project Area over time. Therefore, overwater shading on primary producers and benthic communities would be less than significant.

POTENTIAL IMPACT BIO-6: FISH ENTRAINMENT DURING DREDGING

The proposed Project may dredge material from within the existing ferry terminal basin and adjacent to the proposed temporary ferry terminal location to ensure vessels required to implement the proposed Project are able to access the proposed Project Area. Dredging has the potential to entrain fish during the process of collecting bottom sediments. Life stages which are immobile, such as eggs and larvae, are most susceptible to dredging and are more likely to be entrained due to their inability to self-relocate (Wenger et al. 2017); however, as stated above, there are no spawning beds for any species present within the proposed Project Area as it does not include freshwater streams or substrates required for any of the anadromous species. In addition, through implementation of Mitigation Measure BIO-2, in-water work would be limited to occur between August 1 and November 30 when most species are absent. If fish are present, they are fully mobile juveniles or adults which are able to avoid areas of disturbance associated with dredging. Further, dredging would be limited to using clamshell or mechanical dredging

which is far less likely to entrain fish than suction or hopper dredging (Reine 1998). Clamshell dredging is often used as the preferred alternative due to the lower likelihood of entrainment.

The combination of adherence to in-water work windows (Mitigation Measure BIO-2) and the use of mechanical dredging methods would reduce the potential for entrainment of special-status fish species during dredging to a level that is less than significant; therefore, implementation of Mitigation Measures BIO-1 through BIO-6 would reduce effects of dredging on fish to less than significant levels.

CRITICAL HABITAT

Critical habitat within this portion of San Pablo Bay is present for Sacramento River winter-run Chinook salmon, Central California Coast steelhead, and southern DPS green sturgeon. For all three species, the proposed Project Area functions as an estuarine corridor, the primary function being to promote movement of species from freshwater spawning areas to the Pacific Ocean and back.

The proposed Project would not create an aquatic trap, or barrier that might impede fish movement. The proposed Project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped. As such, the new structures proposed by the proposed Project do not represent a significant barrier that would cause a cessation to movement or significant delay for migrating fish; therefore, impacts would be less than significant. Other potential impacts to critical habitat for these species are mitigated through the implementation of Mitigation Measures BIO-1 through BIO-9.

7.1.3 Special-Status Bird Species

The proposed Project has the potential to impact native nesting birds. No special-status birds are likely to nest within the fully developed shoreline or on the existing ferry terminal due to the highly modified and developed nature of the active ferry terminal. These features do not contain specialized habitats such as salt marsh or sandy shoals which might support special-status nesting birds found in the vicinity; however, non-special-status nesting birds protected by the Migratory Bird treaty Act as well as the California Fish and Game Code may nest on or near these structures and be affected by construction related activities if construction occurs during the nesting season. Non-special-status birds may vary in size and species from small passerines such as black phoebe (*Sayornis nigricans*) to larger and more charismatic raptors such as osprey (*Pandion haliaetus*). All such species could be affected similarly through noise, vibratory, or visual disturbance, and have similar nesting bird survey protocols to identify nesting locations; therefore, these species are addressed collectively below.

POTENTIAL IMPACT BIO-7: NESTING BIRDS

Non-special-status birds may nest on buildings, structures, or within limited landscaped vegetation within the proposed Project Area between February 1 and August 31. proposed Project activities during this time may directly remove or destroy active nests or may indirectly cause nest abandonment through audible, vibratory, and/or visual disturbances. Loss of active nests due to activities of the proposed Project would be considered a significant impact under CEQA.

To reduce potential impacts to nesting birds to a less-than-significant level, the following measures shall be implemented:

MITIGATION MEASURE BIO-8: NESTING BIRDS

If construction is initiated outside of the nesting season, between September 1 and January 31, birds are unlikely to be nesting and work would not result in significant impacts to nesting birds; however, should work be initiated during the nesting season (February 1 to August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist no more than 14 days prior to the start of construction activities. The survey shall cover all areas within 500 feet of planned construction activities. Should an active nest be identified, a high visibility “No disturbance” buffer shall be established by the qualified biologist within the upland areas. Work within aquatic areas shall be provided a map outlining the buffer but due to the need to maintain an open, navigable waterway, buoys, signs, or similar temporary structures shall not be placed in the water to denote the buffer. The buffer distance shall be based upon the species and location of the nest, potential for construction noise, vibration, visual disturbance, or other disruptive metrics to reach and affect nesting.

The buffer shall be maintained until it can be verified by a qualified biologist that the nestlings have fledged, or the nest has failed. Should construction activities cease for 14 or more consecutive days during the nesting season (February 1 – August 31), an additional nesting bird survey shall be conducted prior to resuming construction.

With implementation of Mitigation Measure BIO-9, impacts to nesting birds would be less than significant with mitigation incorporated.

7.1.4 Marine Mammals

Marine mammals are known to occur within San Pablo Bay and the Mare Island Channel including harbor seals (*Phoca vitulina*) and California sea lion (*Zalophus californianus*). Both species are known to occur in the vicinity of the Project Area primarily when migrating through the waters of the proposed Project Area or the adjacent Carquinez Strait during seasonal periods, often following returning salmon, or when foraging for other fish species. No islands or sandy beaches are present within the proposed Project Area or immediately adjacent that might support haul-outs, colony basking sites or breeding grounds for marine mammals. The shoreline surrounding the proposed Project is heavily developed with seawalls, making it unsuitable for use by basking or hauled-out marine mammals. Most commonly, marine mammals are observed in this area foraging or moving through open waters in route to other locations where haul-outs, rookeries or similar sites of aggregation are known. Given the lack of suitable haul-out locations, and no known colony locations, a small number of individual marine mammals may be present while moving through or foraging within the proposed Project Area. Potential impacts to marine mammals in addition to Impacts BIO-1 through BIO-4 (potential impacts which may affect all species) are discussed in more detail below.

POTENTIAL IMPACT BIO-8: NOISE IMPACTS TO MARINE MAMMALS

Similar to fish, marine mammals can be injured if sounds produced by construction-related activities surpass certain thresholds. Injury to marine mammals from noise relates primarily to hearing damage or loss, and the thresholds for injury differ from those established for fish. The

NMFS thresholds for Post-Traumatic Stress (PTS) onset of pinnipeds vary by group and by the type of sound (peak vs cumulative; impulsive vs non-impulsive). The values established by NMFS for injury to marine mammals from pile driving are provided in the table below. Different pile driving methods produce different types of sounds (impulsive sounds [i.e., impact hammers] versus non-impulsive sounds [i.e., vibratory hammers]), and so they have different potentials for effect (NMFS 2018).

The marine mammals most likely to occur in the proposed Project Area are harbor seals and California sea lions. The sound levels at which PTS onset begins are presented in Table 10, below.

Table 10. NMFS Threshold Criteria for Select Marine Mammals

SPECIES	UNDERWATER NOISE THRESHOLDS (dB)				
	VIBRATORY PILE-DRIVING DISTURBANCE THRESHOLD (LEVEL B HARASSMENT)	IMPACT PILE-DRIVING DISTURBANCE THRESHOLD (LEVEL B HARASSMENT)	MARINE MAMMAL HEARING GROUP	PTS SEL _{cum} THRESHOLD	
				PEAK – dB re 1 μPa	SEL _{cum} – dB re 1 μPa ² -sec
				IMPULSIVE (IMPACT PILE DRIVING)	NON-IMPULSIVE (VIBRATORY PILE DRIVING)
Pinnipeds	120 dB RMS	160 dB RMS	Phocid	218 dB Peak 185 dB SEL _{cum}	201 dB SEL _{cum}
			Otariid	232 dB Peak 203 dB SEL _{cum}	219 dB SEL _{cum}

To determine if pile driving has the potential to surpass these thresholds, NMFS has developed a calculator which allows biologists to model the distance at which thresholds for pinnipeds and other wildlife may be met or exceeded (NMFS 2022). Calculations require the same reference data which are presented above in Table 7. Based on the hydroacoustic analysis performed by Illingworth and Rodkin (2024) for the proposed Project, even small steel piles have the potential to exceed onset PTS thresholds noted for pinnipeds as shown in Table 11, below.

Table 11. Distance to the Adopted Marine Mammal Thresholds for Different Pile-Driving Activities

DRIVING METHOD	PILE TYPE	PILE SIZE (inches)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	Level A Injury Zone. Using SEL _{cum} Threshold (meters)		Level B Harassment Zone (meters)
						Phocid	Otariid	
Impact	Steel pipe	12	4	450	No	92	- ¹	185
Impact	Steel pipe	12	4	450	Yes	43	- ¹	86
Impact	Steel pipe	36	4	450	No	791	58	1,585
Impact	Steel pipe	36	4	450	Yes	170	12	342
Vibratory	Steel pipe	12	4	120	No	- ¹	- ¹	2,154

DRIVING METHOD	PILE TYPE	PILE SIZE (inches)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	Level A Injury Zone. Using SEL _{cum} Threshold (meters)		Level B Harassment Zone (meters)
						Phocid	Otariid	
Vibratory	Steel pipe	36	4	120	No	49	- ¹	3,280 / 5,600 ³
1. Threshold distance does not extend past 10 meters.								

Without incorporation of mitigation measures, sounds produced from pile driving could cause behavioral changes or may result in the onset of PTS for marine mammals. These impacts would be considered significant under CEQA.

MITIGATION MEASURE BIO-9: MARINE MAMMALS

In addition to implementation of Mitigation Measure BIO-8: Pile Driving, the project shall implement the following measures to reduce impacts to marine mammals from in-water construction.

- During all construction work where materials are being actively placed below the water line, a marine mammal monitor shall be present to observe and document marine mammal presence.
- During pile driving, if a marine mammal is within the buffer distance identified in by the hydroacoustic analysis performed by Illingworth and Rodkin for the proposed Project (see Table 12, above), or within distances approved by NMFS based on future updated construction drawings and contractor input, the marine mammal monitor shall inform the construction crew and work shall temporarily halt until the animal has passed outside of the disturbance buffer.

With implementation of Mitigation Measure BIO-8 and Mitigation Measure BIO-11, impacts to marine mammals would be less than significant with mitigation incorporated.

POTENTIAL IMPACT BIO-9: SHIP TRAFFIC IMPACTS TO MARINE MAMMALS

The proposed Project occurs within the Mare Island Strait of the Napa River in an area that already supports existing ferry traffic as well as larger ships that utilize the Mare Island Dry Docks on the opposite side of the river, adjacent to the proposed Project Area.

The proposed Project would not result in an overall increase in vessel traffic within the Napa River. WETA would continue to operate the new structure as a ferry terminal servicing its ferry route in a manner similar to the current operations with a similar number of ferries per day, thus maintaining baseline conditions. Therefore, implementation of the proposed Project would not result in significant impacts to marine mammals from ship traffic compared to the existing condition.

7.2 Sensitive Natural Communities and Land Cover Types

This section addresses the question:

b) Does the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or U.S. Fish and Wildlife Service;

The proposed Project Area is located within EFH for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types (e.g., rocky reefs), vegetation (e.g., eelgrass beds), or complex structures such as oyster beds. Most benthic substrates consist of silt and mudflat within the proposed Project Area. These areas are typically low-productivity areas which are more commonly traversed by migratory species. The absence of any reefs, freshwater streams, eelgrass beds, or similar complex habitat features make this area important primarily as a migratory corridor, allowing EFH species to move from place to place. As discussed with regard to critical habitat (above) and in Section 7.4 (below), the proposed Project is not anticipated to have a significant impact on migratory corridors.

7.3 Aquatic Resources

This section analyzes the proposed Project's potential impacts and mitigation for wetlands and other areas presumed or determined to be within the jurisdiction of the Corps or BCDC in reference to the significance threshold outlined in CEQA Appendix G, Part IV (c):

c) Does the Project have the potential to have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

The nature of the proposed Project means that it will need to affect open waters of San Francisco Bay. As described above, the proposed Project would expand overwater cover by approximately 2,565 to 3,780 square feet (see Table 8, above). However, as discussed above, shading effects resulting from the proposed Project are expected to be less-than-significant. In addition, in-water work would result in the following potentially significant impacts discussed above for special-status species:

- **Potential Impact BIO-1:** Potential Introduction of Invasive Species
- **Potential Impact BIO-2:** Spills and Debris
- **Potential Impact BIO-3:** Dredging and Pile-Driving Related Turbidity and Toxic Materials

These impacts are mitigated to a level of less than significant by Mitigation Measures BIO-1 through BIO-6. In addition, installation of piles in aquatic areas does not have a substantial adverse effect on the continued water resources function of a water body, as demonstrated by the fact that the Corps does not regulate piles as fill under the Clean Water Act (see 33CFR328.3); therefore, the installation of piles themselves is a less-than-significant impact. Potential impacts to aquatic resources from the installation of piles are associated with the overwater structures that they support. Therefore, with implementation of Mitigation Measures BIO-1 through BIO-6, impacts to aquatic resources would be less-than-significant.

7.4 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the proposed Project's potential impacts and mitigation for habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV (d):

d) Does the Project have the potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

As noted above in Section 5.2.2, special-status fish are known to migrate through the waters of the proposed Project Area when making seasonal movements between core habitat areas (e.g., natal streams or the Pacific Ocean). Maintaining the ability of these species to migrate between core habitat areas is necessary for the continuation of these species and maintenance of the wildlife corridor which connects them.

The proposed Project Area does not support rookery sites, or colonial nesting sites for species such as monarch butterflies, egrets, herons, or marine mammals therefore no such nursery sites will be affected. No eelgrass beds occur within the proposed Project Area which could have functioned as a nursery site for fish species which can spawn and rear within eelgrass. The proposed Project Area lies along the migratory route for salmonids when moving from natal streams in the Central Valley, and the Pacific Ocean, as such it also functions as a migratory corridor for fish. If construction were to occur at times of year when larval fish were present, or when migratory events for fish were occurring, construction activities may have the potential to impact such events, which would be considered a significant impact under CEQA.

However, Mitigation Measure BIO-2 will restrict any in water work to a period between August 1 and November 30, which is outside the period when salmonids or other anadromous species typically migrate to the ocean, or when they return to natal streams. Thus, implementation of Mitigation Measure BIO-2 reduces impacts to migratory corridors to **less-than-significant levels**. Further, by timing in-water construction activities later in the summer and fall, this is outside of the time when larval or fry life-stages of fish are present; therefore, with implementation of Mitigation Measure BIO-2, all in-water construction would occur outside of the times when sensitive life stages are present. Implementing additional Mitigation Measures BIO-1 through BIO-10 (excluding Mitigation Measure BIO-9 for nesting Birds) also reduces the potential impacts to fish during critical periods by maintaining habitat quality such that, when fish do return, there are not toxic conditions present that might deleteriously affect them.

Additionally, the proposed Project would not create an aquatic net, trap, or barrier that might impede fish movement. The proposed Project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped behind an impermeable barrier. As such the new structures do not represent a significant barrier that would cause a cessation to movement, disorientation, or significant delay for migrating fish. Any immediate effects to migration or natal sites from construction are largely avoided through the use of the in-water work window, while all remaining mitigation measures reduce potential indirect effects that might alter habitat suitability later in time. As such implementation of Mitigation Measures BIO-1 through BIO-9 will reduce any effects to nursery sites or migratory corridors to less than significant levels.

7.5 Local Policies and Ordinances

This section analyzes the proposed Project's potential impacts and mitigation based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV (e):

e) Does the Project have the potential to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

The proposed Project is located in the City of Vallejo. City of Vallejo General Plan Policies NBE-1.1, NBE-1.2, NBE-1.3, NBE-1.4, and NBE-1.6 are directly and indirectly related to biological resources in the proposed Project Area. The proposed Project is consistent with these local policies and ordinances both through design and through mitigation measures to protect environmental resources described above and required as part of the proposed Project; therefore, there is **no impact** to the function of any local policies or ordinances.

7.6 Habitat Conservation Plans

This section analyzes the proposed Project's potential impacts and mitigation based on conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV (f):

f) Does the Project have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Currently the only Habitat Conservation Plan (HCP) which overlaps with the proposed Project Area is the Solano Multispecies HCP. This HCP is overseen by the Solano County Water Agency (LSA 2012). The proposed Project Area for this proposed Project is already developed and occurs within the Impaired Open Water Habitats projected for the Solano Multispecies HCP. Napa River is also not one of the proposed aquatic areas or drainages ranked as a priority for conservation. Lastly, the majority of the Solano HCP focuses on uplands and streams, less so than open waters of the Bay; therefore, the proposed Project occurs in an area that is projected as part of the urban expansion boundary and does not conflict with the provisions of the Solano HCP as it largely covers developed open waters which are not marked for conservation within the proposed Project Area and there is **no impact** to the function of the Solano County Multispecies HCP.

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APPENDIX A. FIGURES



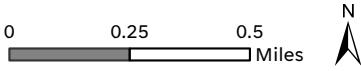


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Sources: National Geographic, WRA | Prepared By: kobylarz, 12/29/2023

Figure 1. Project Area Vicinity

WETA Vallejo Ferry Terminal
 Reconfiguration Project
 Vallejo, Solano County, California



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Figure 2. Land Cover Types within the Project Area



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APPENDIX B. PROPOSED PROJECT PLANS



SAN FRANCISCO BAY AREA WATER EMERGENCY TRANSPORTATION AUTHORITY

VALLEJO FERRY TERMINAL RECONFIGURATION OPTIONS

SAN FRANCISCO BAY AREA
WATER EMERGENCY TRANSPORTATION AUTHORITY

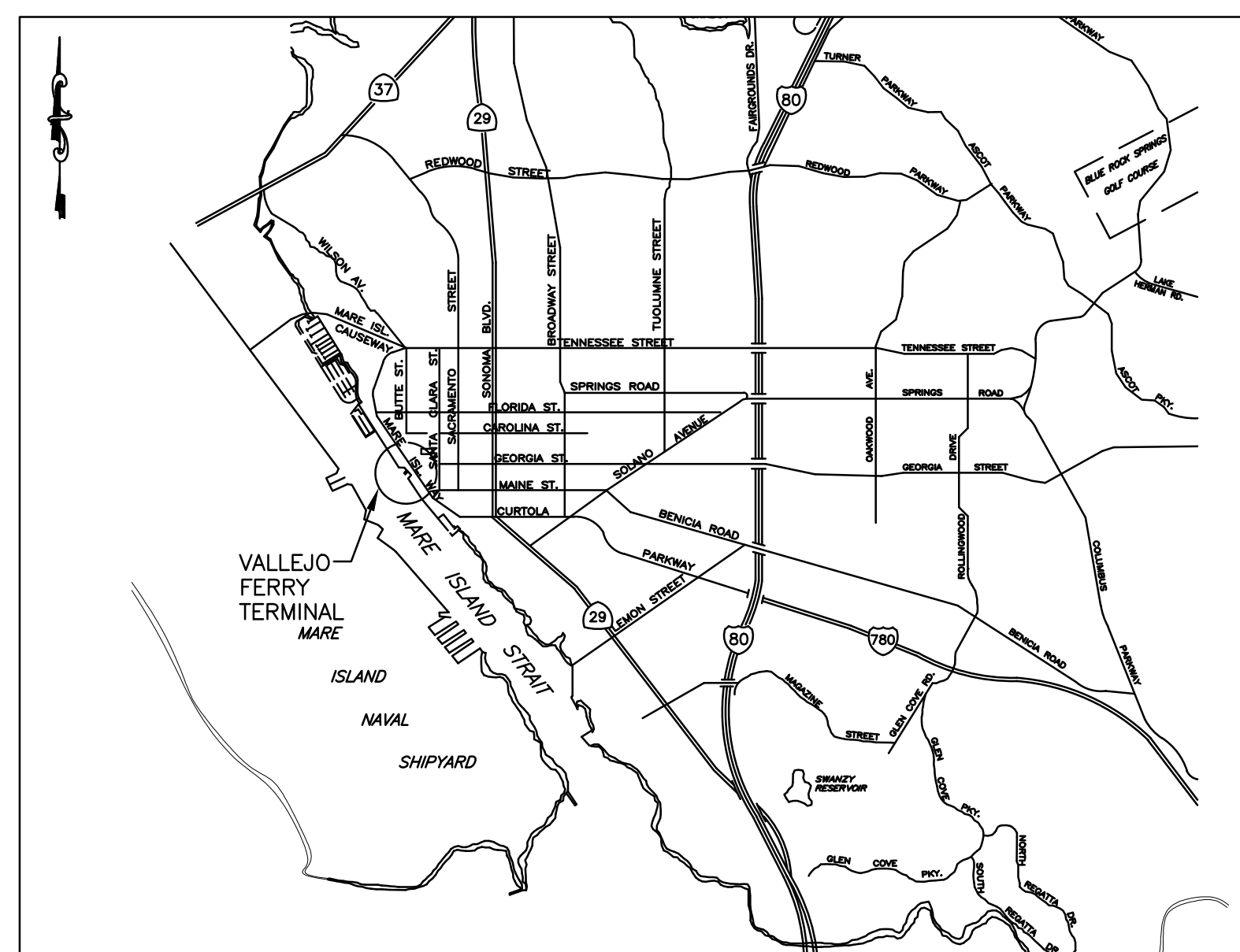


Prepared by:
Foth & Van Dyke, LLC

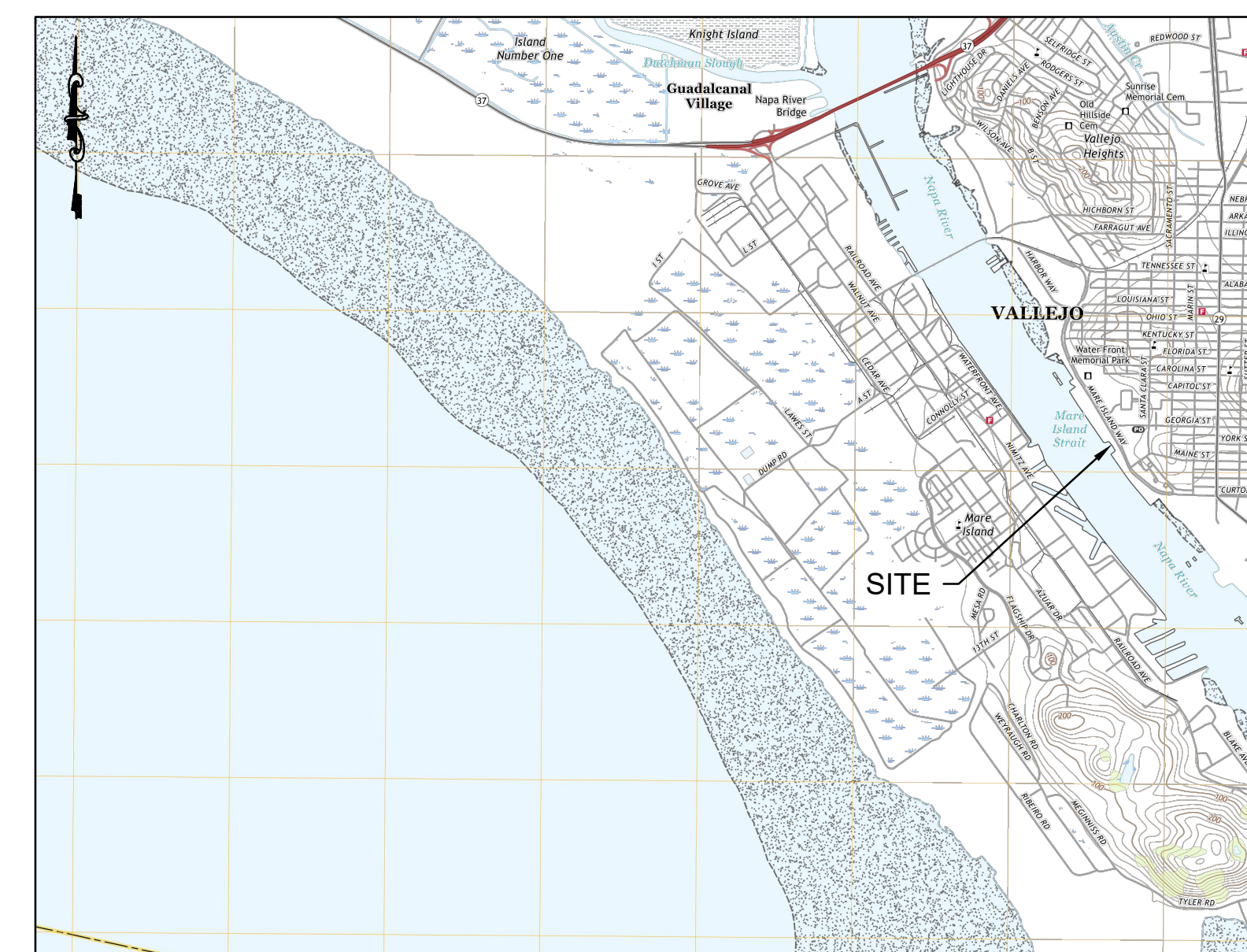


DRAWING INDEX

SHEET NUMBER	TITLE
1	COVER SHEET
2	EXISTING CONDITIONS AND DEMOLITION SITE PLAN
3	EXISTING CONDITIONS SECTION AND DETAILS
4	OPTION 1: SITE PLAN w/ EXISTING TEMPORARY LANDING ORIENTATION
5	OPTION 1: PROFILE VIEWS
6	OPTION 2: SITE PLAN w/ EXISTING TEMPORARY LANDING ORIENTATION
7	OPTION 2: PROFILE VIEWS
8	OPTION 3: SITE PLAN w/ EXISTING TEMPORARY LANDING ORIENTATION



VICINITY MAP



LOCATION MAP

SHEET TITLE
COVER SHEET

SHEET NUMBER
1

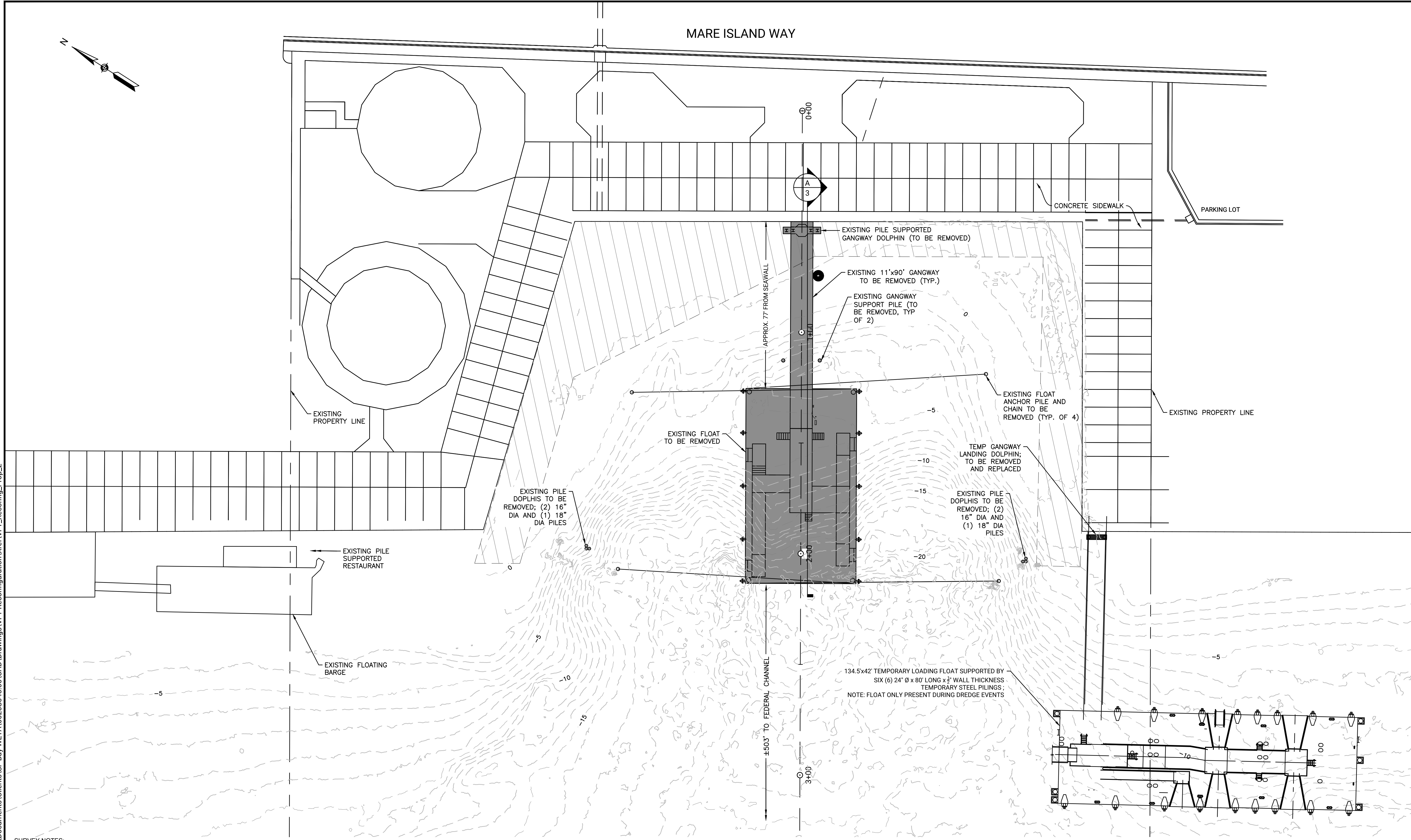
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WETA
VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS**

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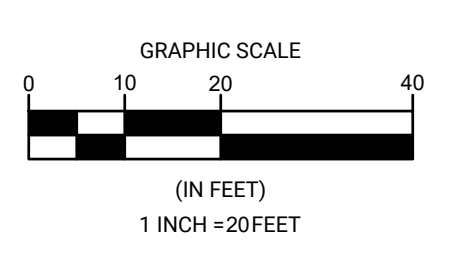
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BY	DATE	

**EXISTING
CONDITIONS AND
DEMOLITION SITE
PLAN**

ISSUANCE:	DRAFT
PROJECT NO:	20S045.00
SHEET NUMBER	2



- SURVEY NOTES:**
1. THE BATHYMETRIC DATA SHOWN ON THIS PLAN WAS GATHERED ON JANUARY 9, 2023 BY BAY MARINE SERVICES (NOVATO, CA).
 2. COORDINATES ARE BASED ON NAD 83 STATE PLANE ZONE III CALIFORNIA COORDINATE GRID.
 3. SECTIONS AND CONTOURS ARE BASED ON 2X2 AVERAGE VALUE DATA SET.
 4. BENCHMARK / RTK TIDES: TIDES ARE RECORDED USING RTK TIDES IN HYPACK. ELEVATIONS FROM ELLIPSOID TO ORTHOMETRIC NAVD88 USE GEOID 12A.
 5. RTK CORRECTIONS FOR THIS SURVEY PROVIDED BY KEYNET - VRS (GEOID 12A).
 6. BENCHMARK IS REFERENCED IN THE USACE RED BOOK AS THE VERTICAL CONTROL POINT FOR MARE ISLAND STRAIT AS MONUMENT GROTTO (EL. + 8.9' MLLW) REFERENCED TO NAVD88 DATUM AND WAS NOT INDEPENDENTLY VERIFIED.
 7. THE INFORMATION ON THIS PLAN REPRESENTS THE RESULTS OF HYDROGRAPHIC SURVEYS PERFORMED ON THE DATES SHOWN AND CAN ONLY BE CONSIDERED AS INDICATING THE SEABED CONDITIONS AT THAT TIME. INTERPOLATED INFORMATION FROM BETWEEN RUNS IS NOT GUARANTEED. SHOALS, OBSTRUCTIONS, OR OTHER DIFFERING CONDITIONS MAY EXIST BETWEEN THESE RUNS. NO SURVEYS WERE CONDUCTED TO LOCATED CHANNEL LIMITS, EASEMENTS, PROPERTY LINES, UTILITIES, GEOTECHNICAL FEATURES, SHORELINES, STRUCTURES, HABITATS OR ANY OTHER FEATURES RELATING TO THE PROJECT SITE, NOR DOES FOTH WARRANT THE EXISTENCE OR LOCATION OF SAID FEATURES.
 8. POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, DISCLOSURE, OR REPRODUCTION OF THE INFORMATION CONTAINED HEREIN, IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF FOTH & VAN DYKE AND ASSOCIATES, LLC.



VERTICAL DATUM
 1. PROJECT ELEVATION BASED ON MLLW
 2. PROJECT CONTROL POINT:

ELEVATION	DESCRIPTION
8.9' MLLW	MONUMENT GROTTO

HORIZONTAL DATUM
 PROJECT COORDINATES ARE BASED ON THE CALIFORNIA STATE PLANE COORDINATE SYSTEM NAD 1983, ZONE 3

SURVEY NOTES:
 SURVEY DATE: 01/09/2023
 SURVEYOR: K. TWEED, BAY MARINE SERVICES
 TRANS./FATH: RESON 8125H NOVATEL SPAN IMU
 WEATHER COND: CALM, CLEAR, 55°, MOSTLY CLOUDY
 PROJECT DATUM: MLLW
 COOR. SYSTEM: NAD 83 SP III
 DATA REDUCTION: AVERAGE
 BENCHMARK: "GROTTO" EL. 8.9' MLLW

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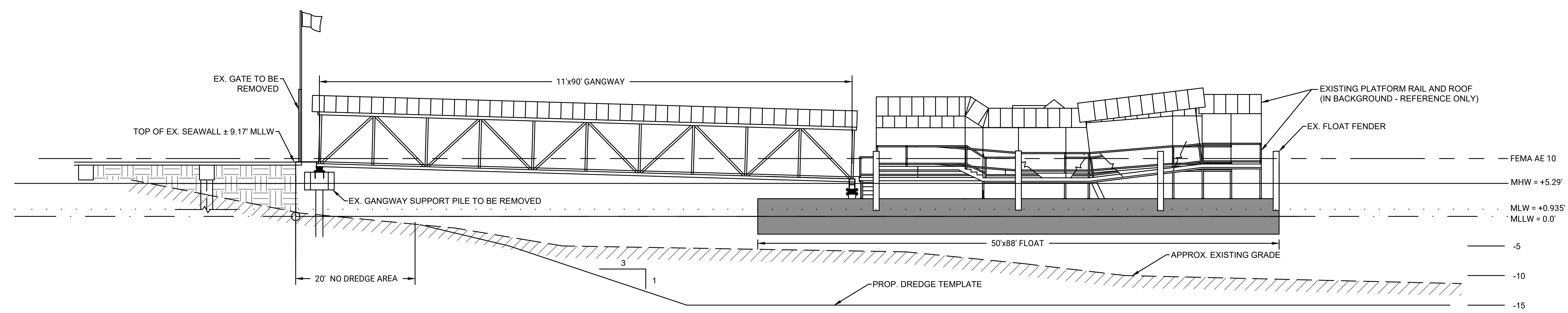
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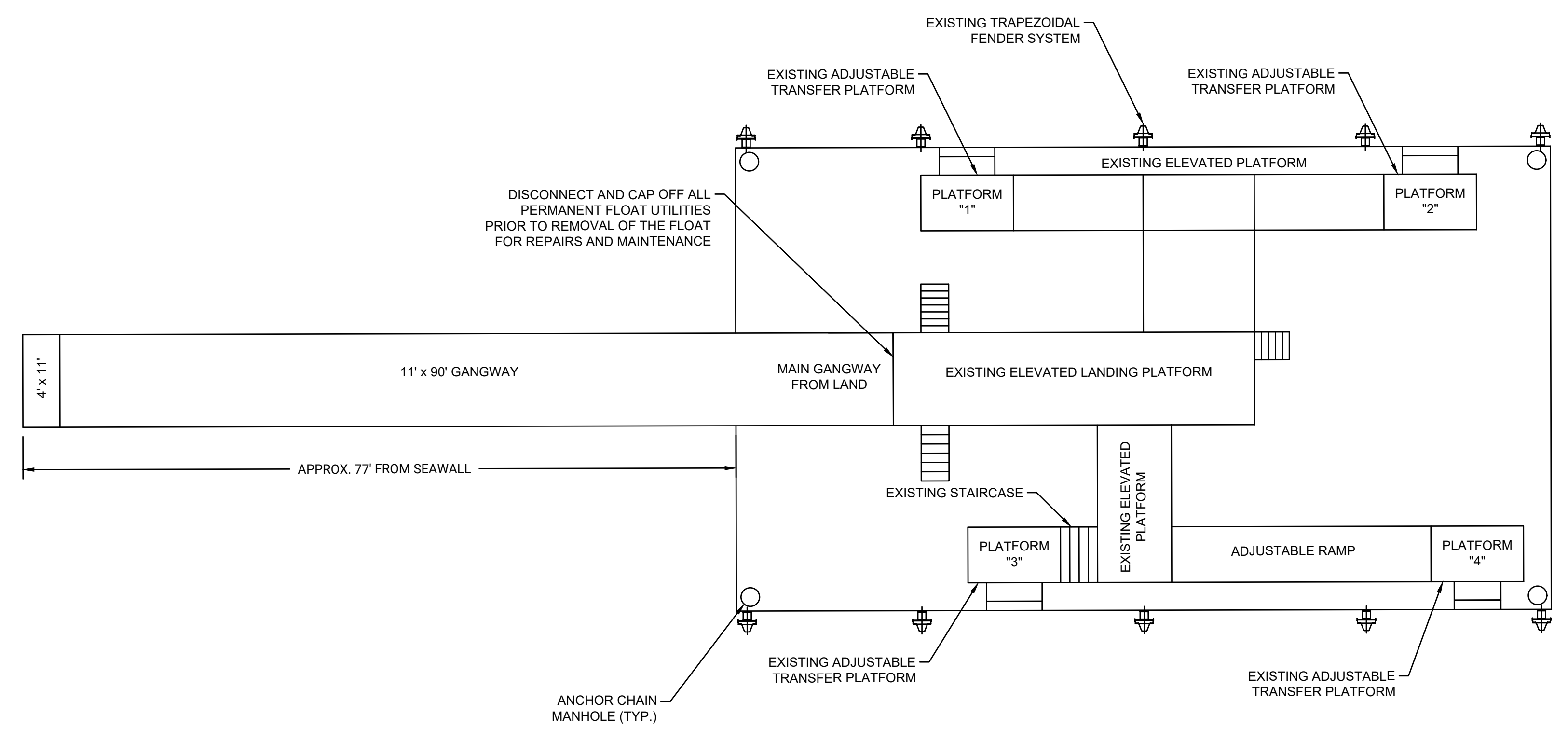
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EXISTING CONDITIONS SECTION & DETAILS

ISSUANCE:
DRAFT

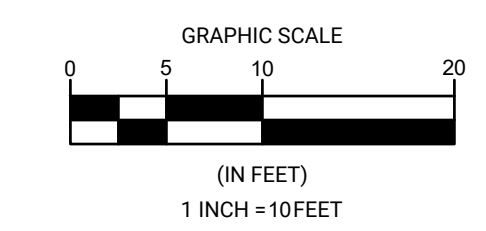
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A
3 PROFILE A: EXISTING CONDITIONS
 SCALE 1" = 10'



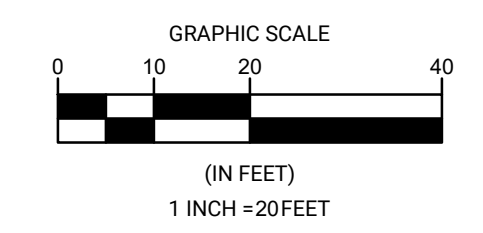
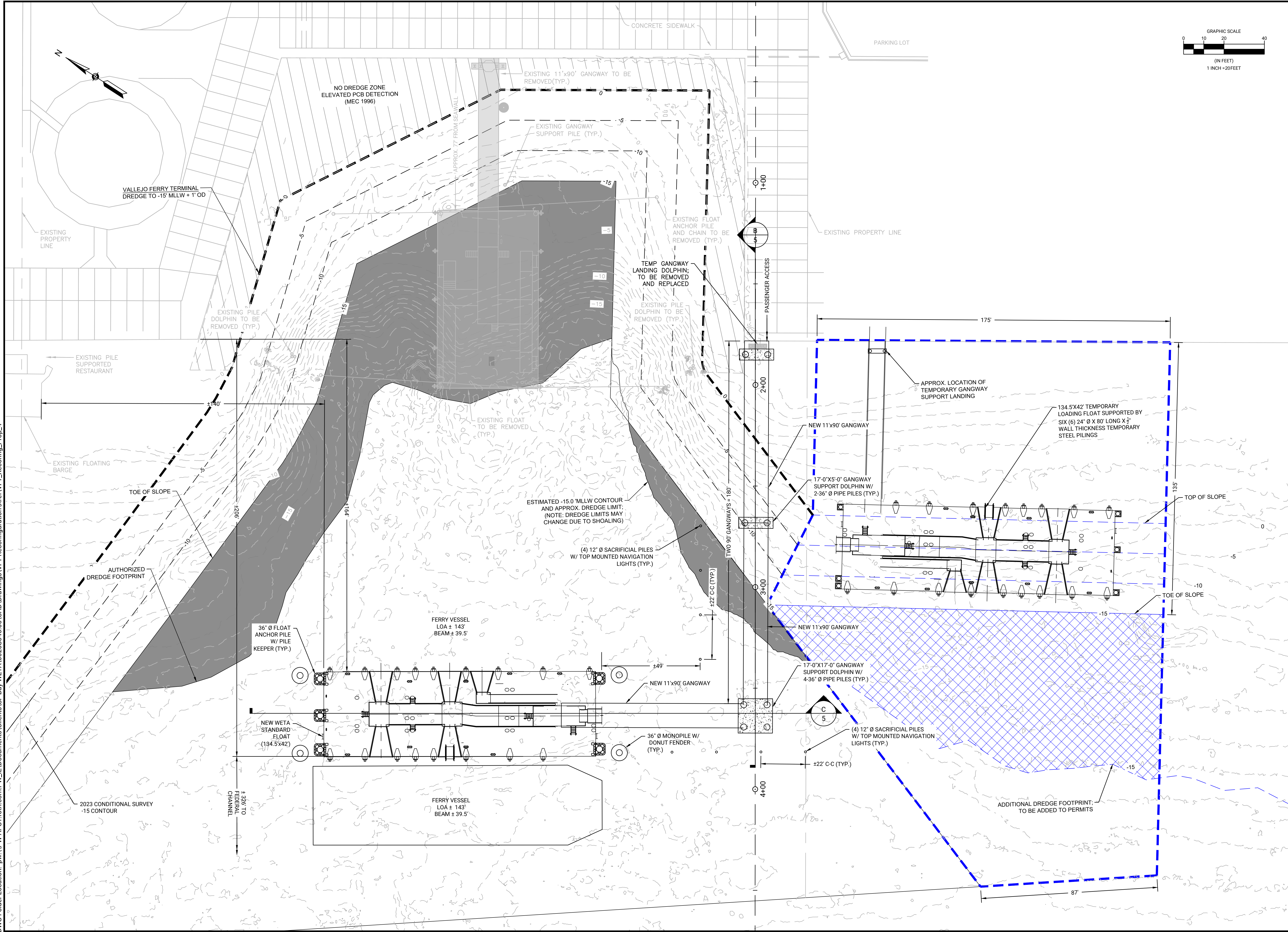
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**SAN FRANCISCO BAY AREA
 WETA
 VALLEJO FERRY TERMINAL
 RECONFIGURATION OPTIONS**

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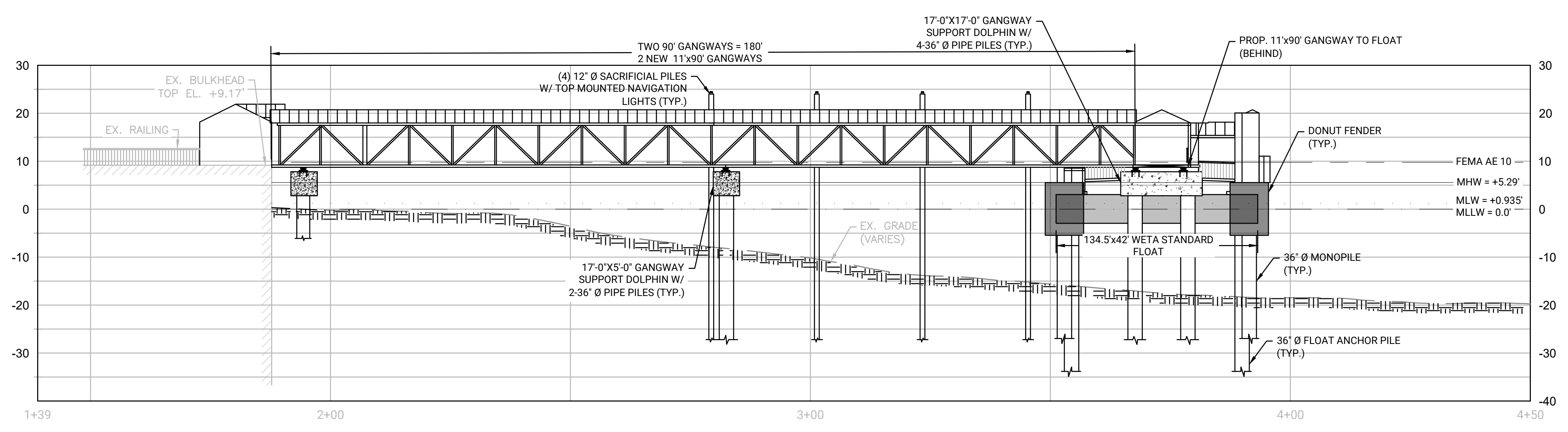
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 EXISTING TEMP.
 LANDING
 ORIENTATION**

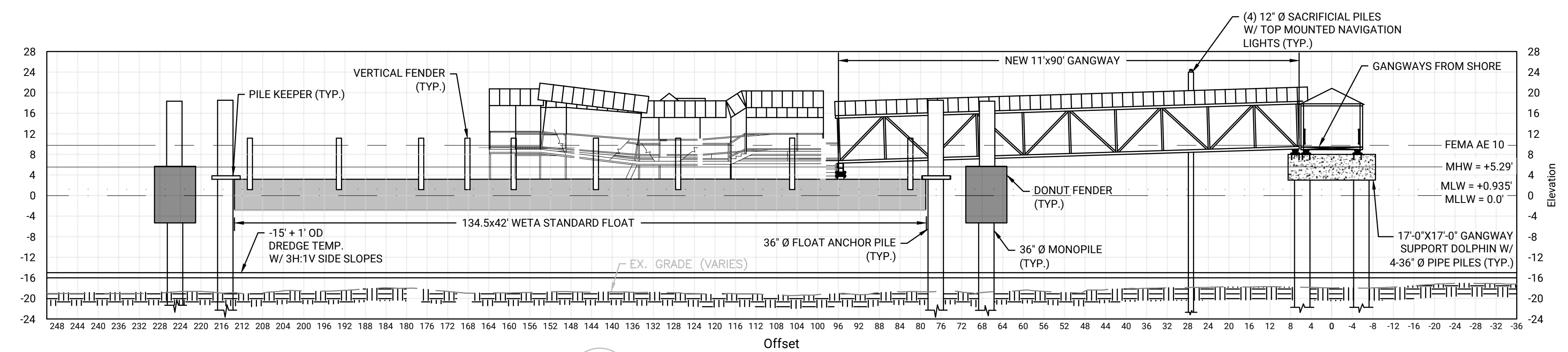
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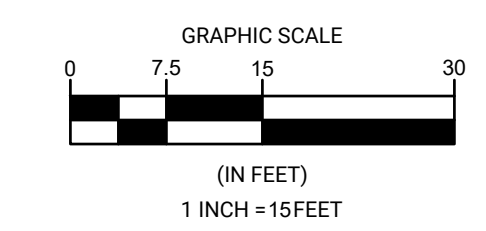
**SAN FRANCISCO BAY AREA
WETA
VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS**



B
5 PROFILE H: OPTION 1
SCALE 1" = 15'



C
5 PROFILE I: OPTION 1
SCALE 1" = 15'



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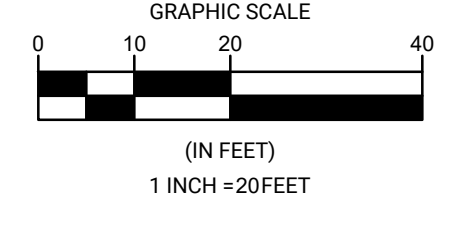
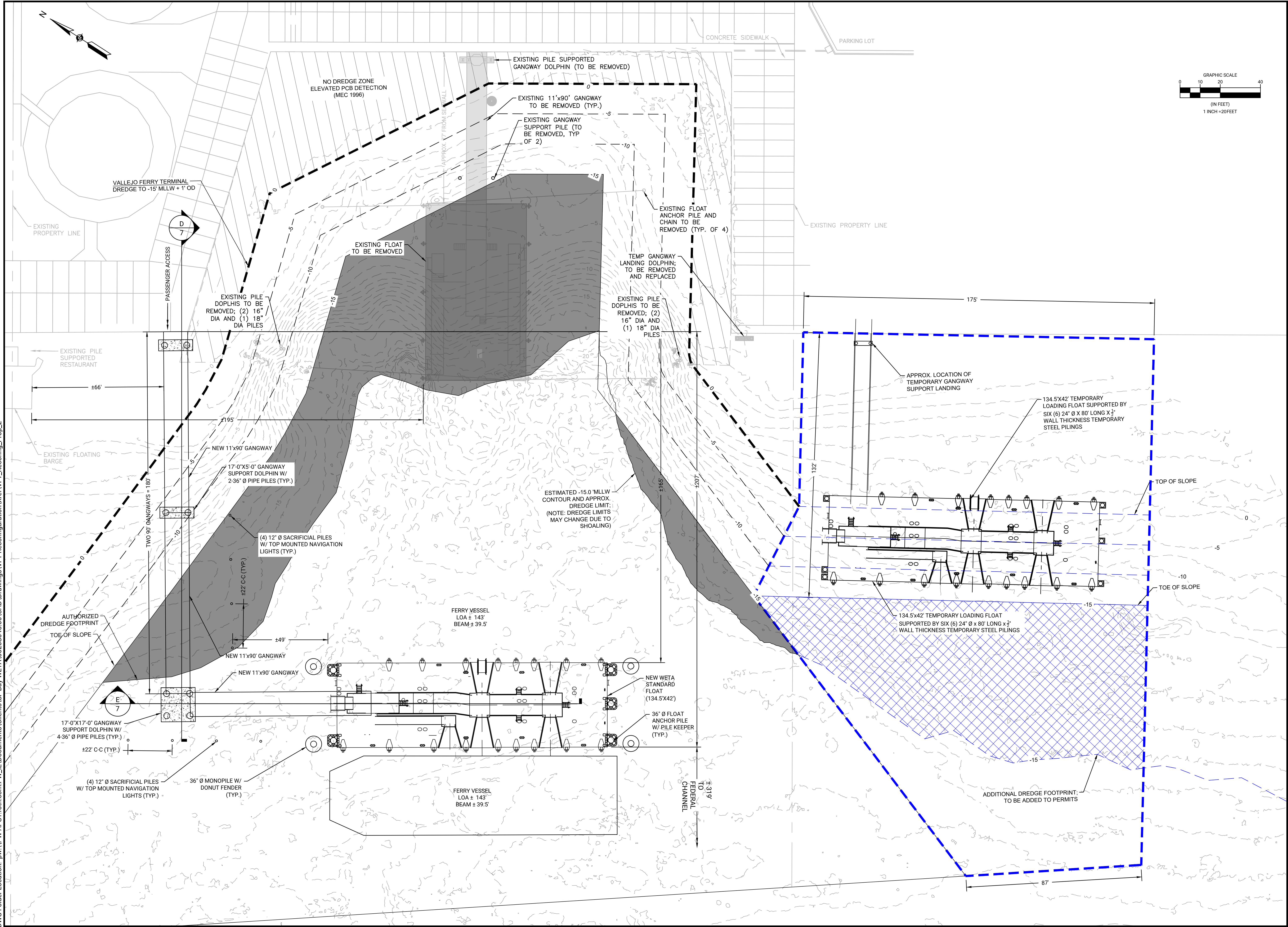
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PROFILE VIEWS**

ISSUANCE:
DRAFT

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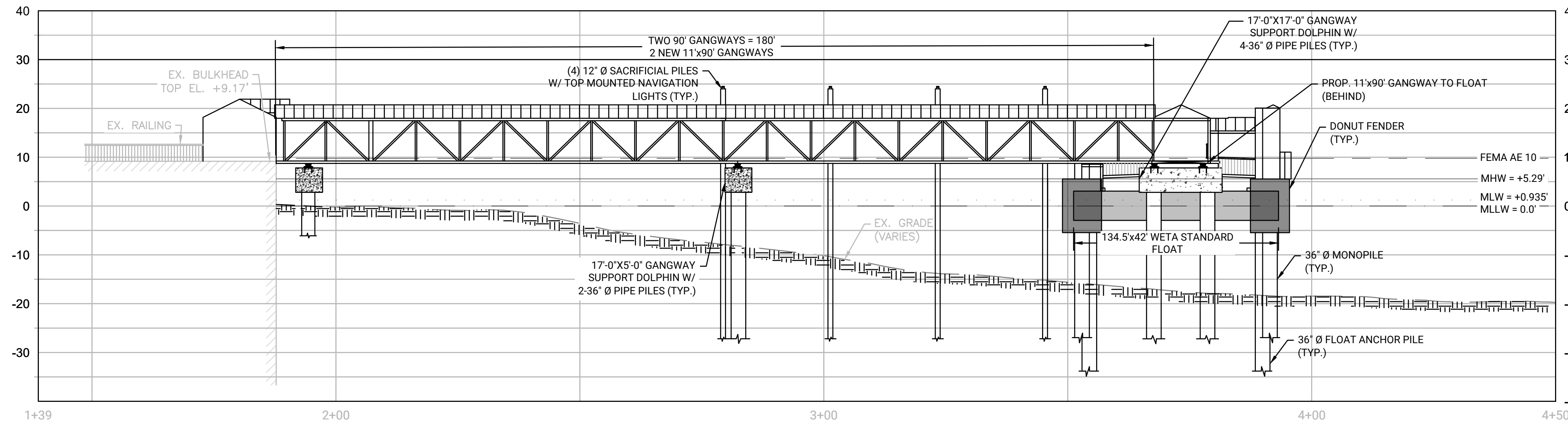
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 WETA
 VALLEJO FERRY TERMINAL
 RECONFIGURATION OPTIONS**

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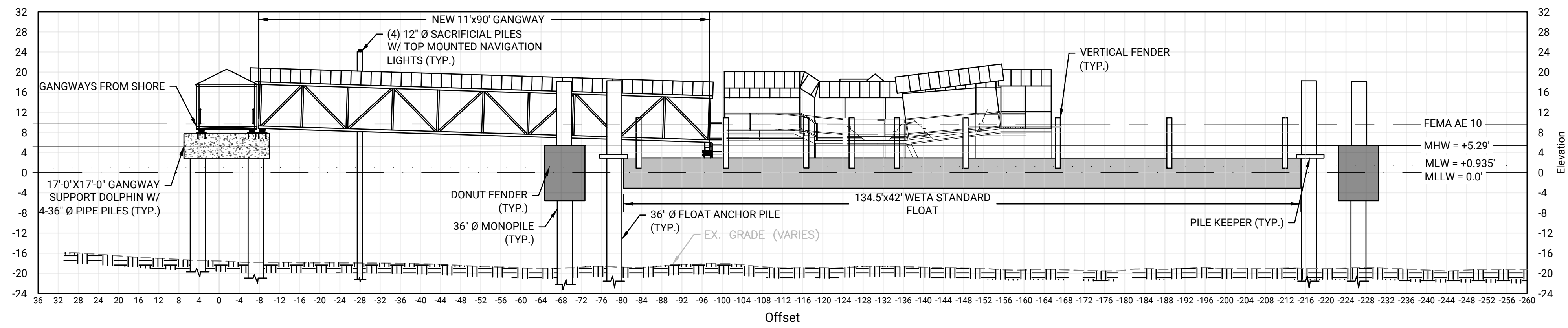
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 LANDING
 ORIENTATION**

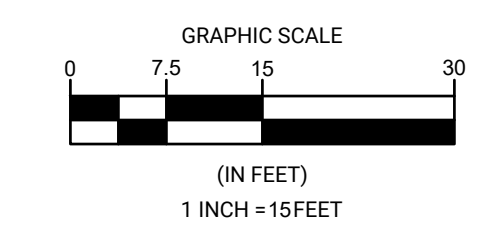
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D PROFILE D: OPTION 2
7 SCALE 1" = 15'



E PROFILE E: OPTION 2
7 SCALE 1" = 15'



SAN FRANCISCO BAY AREA
WETA
VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

NO.	BY	DATE	DESCRIPTION

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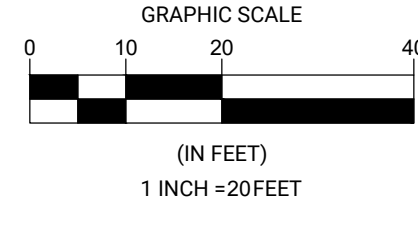
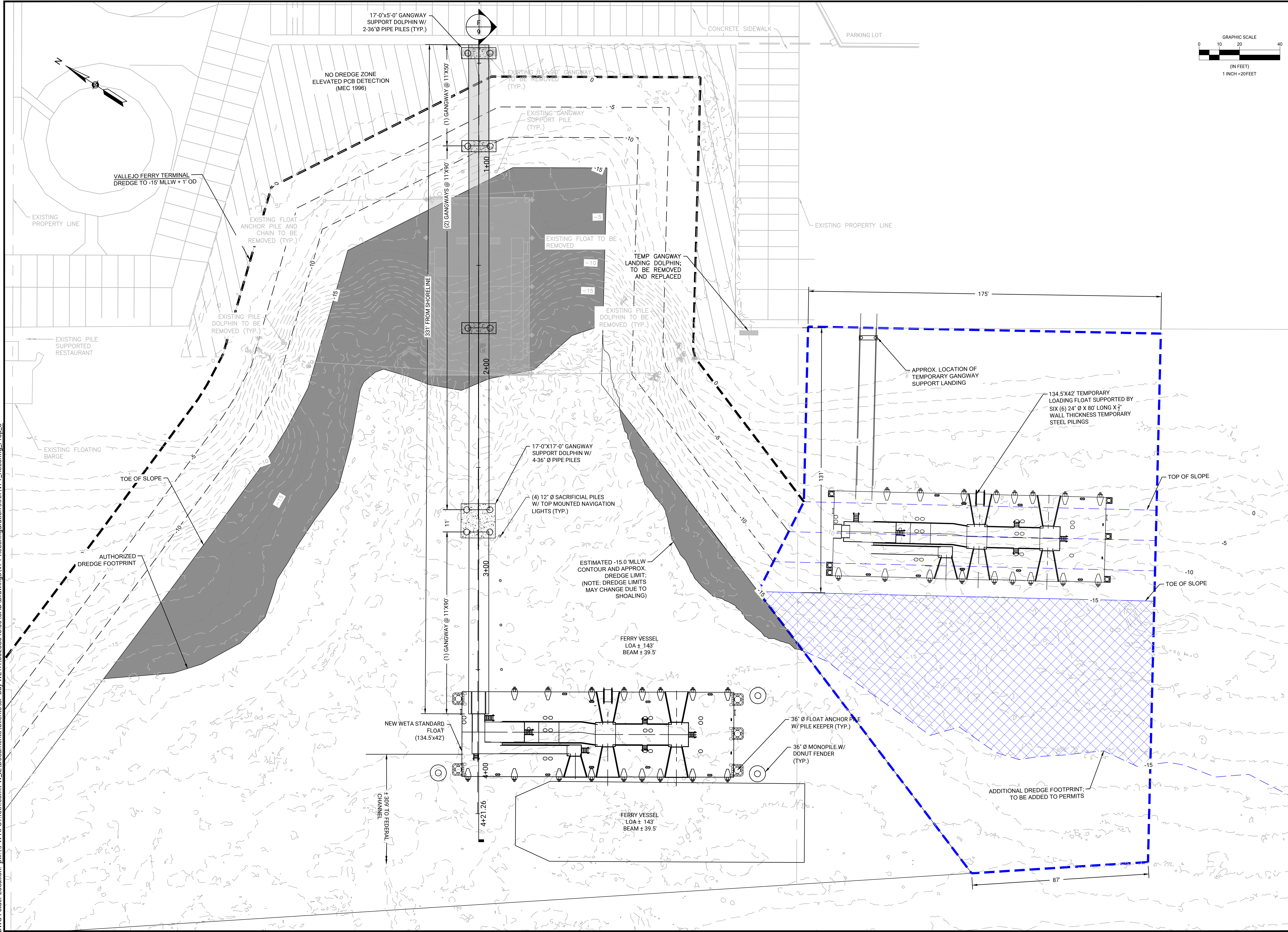
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ISSUANCE:
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**SAN FRANCISCO BAY AREA
 WETA
 VALLEJO FERRY TERMINAL
 RECONFIGURATION OPTIONS**

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3				
4				

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**OPTION 3:
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 LANDING
 ORIENTATION**

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APPENDIX C. SITE PHOTOGRAPHS





Photo 1: The boundary between the developed and open water land cover types within the Study Area. Photo taken on July 25, 2023 facing southeast.



Photo 2: Paved walkways which make up the developed/landscaped portion of the Study Area. Photo taken on July 25, 2023 facing east towards Mare Island Way.



Photo 3: Open water makes up a majority of the Study Area. Photo taken on July 25, 2023 facing south towards San Pablo Bay.

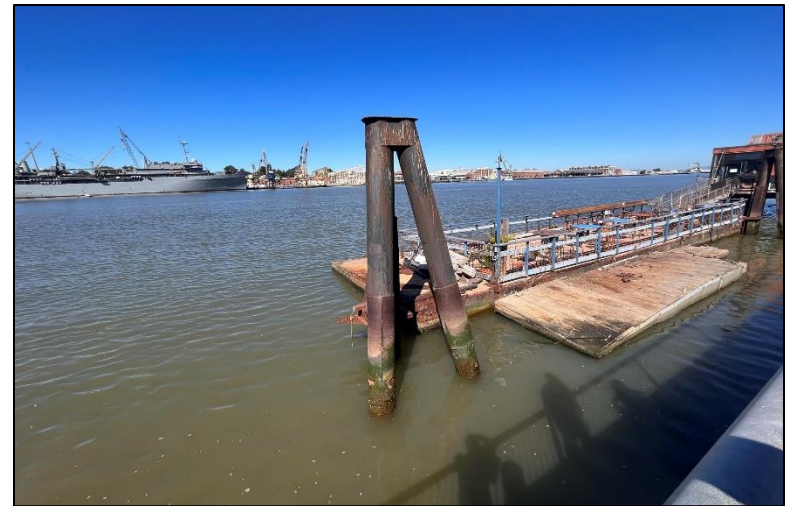


Photo 4: Existing ferry terminal infrastructure. Photo taken on July 25, 2023 facing west towards the Napa River.



Photo 5: The developed/landscaped land cover type is made up of ornamental plant species in addition to paved walk ways. Photo taken on July 25, 2023 facing east towards Mare Island Way.



Photo 6: Existing ferry terminal infrastructure. Photo taken on July 25, 2023 facing southeast.

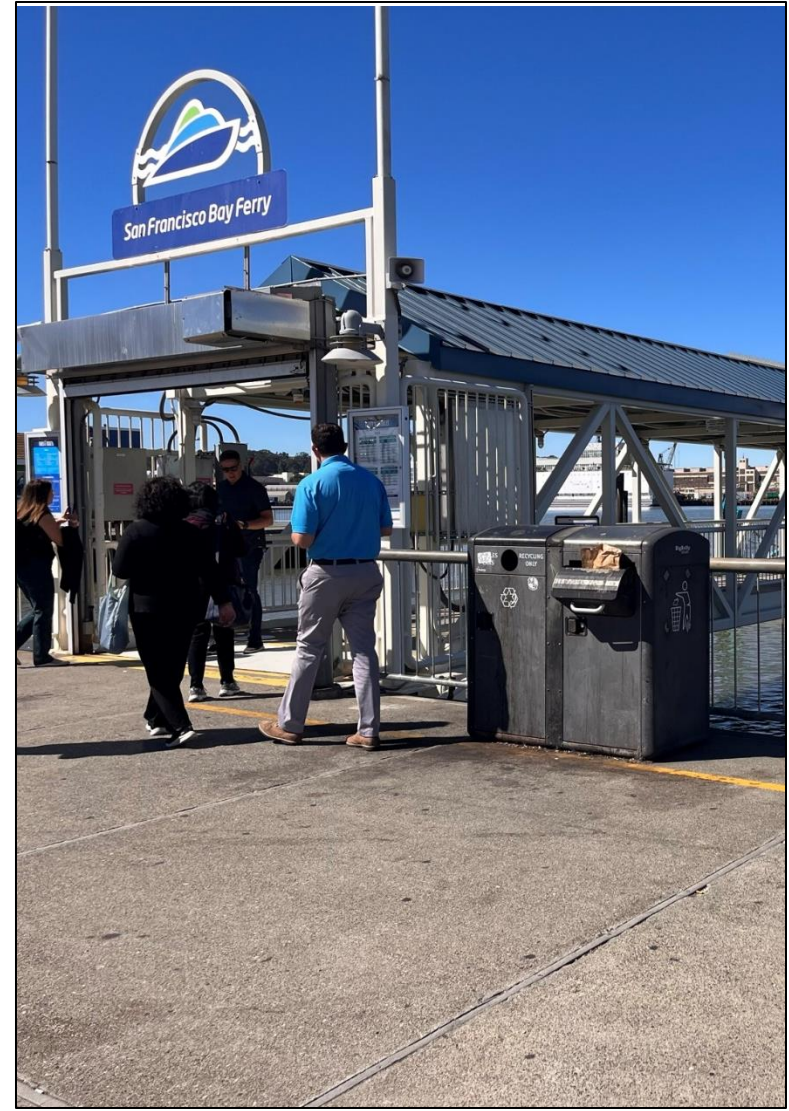


Photo 7: Existing ferry terminal infrastructure and walkways. Photo taken on July 25, 2023 facing southwest.

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APPENDIX D. SPECIAL-STATUS SPECIES POTENTIAL TABLE

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Appendix D. Potential for Special-Status Plant and Wildlife Species to Occur within the proposed Project Area. List Compiled from the California Department of Fish and Wildlife Natural Diversity Database (CDFW 2024), U.S. Fish and Wildlife Service Information for Planning and Consultation Species Lists (USFWS 2024), and California Native Plant Society Rare Plant Inventory (CNPS 2024) search of the Mare Island, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, Petaluma Point, and Sears Point U.S. Geological Survey 7.5' quadrangles.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
PLANTS				
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 165 to 6560 feet (50 to 2000 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	Rank 1B.2	Cismontane woodland, coastal bluff scrub, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
California androsace <i>Androsace elongata</i> ssp. <i>acuta</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coast rockcress <i>Arabis blepharophylla</i>	Rank 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 10 to 3610 feet (3 to 1100 meters). Blooms Feb-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
pallid manzanita <i>Arctostaphylos pallida</i>	FT, SE, Rank 1B.1	Broadleafed upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, coastal scrub. Elevation ranges from 605 to 1525 feet (185 to 465 meters). Blooms Dec-Mar.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Carlotta Hall's lace fern <i>Aspidotis carlotta-halliae</i>	Rank 4.2	Chaparral, cismontane woodland. Elevation ranges from 330 to 4595 feet (100 to 1400 meters). Blooms Jan-Dec.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 5 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 150 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Sonoma sunshine <i>Blennosperma bakeri</i>	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 35 to 360 feet (10 to 110 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
big tarplant <i>Blepharizonia plumosa</i>	Rank 1B.1	Valley and foothill grassland. Elevation ranges from 100 to 1655 feet (30 to 505 meters). Blooms Jul-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
serpentine reed grass <i>Calamagrostis ophitidis</i>	Rank 4.3	Chaparral (openings, often north-facing slopes), lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Elevation ranges from 295 to 3495 feet (90 to 1065 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Mt. Diablo fairy-lantern <i>Calochortus pulchellus</i>	Rank 1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 100 to 2755 feet (30 to 840 meters). Blooms Apr-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon mariposa-lily <i>Calochortus tiburonensis</i>	FT, ST, Rank 1B.1	Valley and foothill grassland (serpentine). Elevation ranges from 165 to 490 feet (50 to 150 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape. Additionally, this species only occurs within a limited range on Ring Mountain.	No further action is necessary for this species.
Oakland star-tulip <i>Calochortus umbellatus</i>	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 330 to 2295 feet (100 to 700 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coastal bluff morning-glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i>	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest. Elevation ranges from 0 to 345 feet (0 to 105 meters). Blooms (Mar)Apr-Sep.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lyngbye's sedge <i>Carex lyngbyei</i>	Rank 2B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species because it has been developed.	No further action is necessary for this species.
Tiburon paintbrush <i>Castilleja affinis</i> var. <i>neglecta</i>	FE, ST, Rank 1B.2	Valley and foothill grassland (serpentine). Elevation ranges from 195 to 1310 feet (60 to 400 meters). Blooms Apr-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape and does not contain serpentine soils.	No further action is necessary for this species.
johnny-nip <i>Castilleja ambigua</i> var. <i>ambigua</i>	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools (margins). Elevation ranges from 0 to 1425 feet (0 to 435 meters). Blooms Mar-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 755 feet (0 to 230 meters). Blooms May-Oct(Nov).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	Rank 1B.2	Chaparral, coastal prairie, marshes and swamps (coastal salt), meadows and seeps, valley and foothill grassland (vernally mesic). Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Point Reyes salty bird's-beak <i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
soft salty bird's-beak <i>Chloropyron molle</i> ssp. <i>molle</i>	FE, SR, Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Jun-Nov.	Unlikely. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
Bolander's water-hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	Rank 2B.1	Marshes and swamps (brackish, coastal, freshwater). Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Jul-Sep.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Franciscan thistle <i>Cirsium andrewsii</i>	Rank 1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms Mar-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
serpentine collomia <i>Collomia diversifolia</i>	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 655 to 1970 feet (200 to 600 meters). Blooms May-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western leatherwood <i>Dirca occidentalis</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
dwarf downingia <i>Downingia pusilla</i>	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 5 to 1460 feet (1 to 445 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
small spikerush <i>Eleocharis parvula</i>	Rank 4.3	Marshes and swamps. Elevation ranges from 5 to 9910 feet (1 to 3020 meters). Blooms (Apr)Jun-Aug(Sep).	Unlikely. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
streamside daisy <i>Erigeron biolettii</i>	Rank 3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest. Elevation ranges from 100 to 3610 feet (30 to 1100 meters). Blooms Jun-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms May-Sep.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Jepson's coyote-thistle <i>Eryngium jepsonii</i>	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 10 to 985 feet (3 to 300 meters). Blooms Apr-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
cut-leaved monkeyflower <i>Erythranthe laciniata</i>	Rank 4.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest. Elevation ranges from 1610 to 8695 feet (490 to 2650 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bare monkeyflower <i>Erythranthe nudata</i>	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 655 to 2295 feet (200 to 700 meters). Blooms May-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
San Joaquin spearscale <i>Extriplex joaquinana</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 5 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
minute pocket moss <i>Fissidens pauperculus</i>	Rank 1B.2	North coast coniferous forest (damp coastal soil). Elevation ranges from 35 to 3360 feet (10 to 1024 meters). Blooms .	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
fragrant fritillary <i>Fritillaria liliacea</i>	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 10 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Diablo helianthella <i>Helianthella castanea</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 195 to 4265 feet (60 to 1300 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
hogwallow starfish <i>Hesperovax caulescens</i>	Rank 4.2	Valley and foothill grassland (mesic clay), vernal pools (shallow). Elevation ranges from 0 to 1655 feet (0 to 505 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Marin western flax <i>Hesperolinon congestum</i>	FT, ST, Rank 1B.1	Chaparral, valley and foothill grassland. Elevation ranges from 15 to 1215 feet (5 to 370 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Loma Prieta hoita <i>Hoita strobilina</i>	Rank 1B.1	Chaparral, cismontane woodland, riparian woodland. Elevation ranges from 100 to 2820 feet (30 to 860 meters). Blooms May-Jul(Aug-Oct).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Santa Cruz tarplant <i>Holocarpha macradenia</i>	FT, SE, Rank 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 35 to 720 feet (10 to 220 meters). Blooms Jun-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coast iris <i>Iris longipetala</i>	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May(Jun).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Carquinez goldenbush <i>Isocoma arguta</i>	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 5 to 65 feet (1 to 20 meters). Blooms Aug-Dec.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Southern California black walnut <i>Juglans californica</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland. Elevation ranges from 165 to 2955 feet (50 to 900 meters). Blooms Mar-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Rank 1B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 15 feet (0 to 5 meters). Blooms May-Jul(Aug-Sep).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
legenere <i>Legenere limosa</i>	Rank 1B.1	Vernal pools. Elevation ranges from 5 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
bristly leptosiphon <i>Leptosiphon aureus</i>	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
large-flowered leptosiphon <i>Leptosiphon grandiflorus</i>	Rank 4.2	Cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 15 to 4005 feet (5 to 1220 meters). Blooms Apr-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
woolly-headed lessingia <i>Lessingia hololeuca</i>	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 50 to 1000 feet (15 to 305 meters). Blooms Jun-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Mason's lilaepsis <i>Lilaepsis masonii</i>	SR, Rank 1B.1	Marshes and swamps (brackish, freshwater), riparian scrub. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Nov.	Unlikely. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Oregon meconella <i>Meconella oregana</i>	Rank 1B.1	Coastal prairie, coastal scrub. Elevation ranges from 820 to 2035 feet (250 to 620 meters). Blooms Mar-Apr.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
San Antonio Hills monardella <i>Monardella antonina</i> ssp. <i>antonina</i>	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1050 to 3280 feet (320 to 1000 meters). Blooms Jun-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 15 to 5710 feet (5 to 1740 meters). Blooms Apr-Jul.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
white-rayed pentachaeta <i>Pentachaeta bellidiflora</i>	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland (often serpentine). Elevation ranges from 115 to 2035 feet (35 to 620 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Michael's rein orchid <i>Piperia michaelii</i>	Rank 4.2	Chaparral, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal scrub, lower montane coniferous forest. Elevation ranges from 10 to 3000 feet (3 to 915 meters). Blooms Apr-Aug.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
hairless popcornflower <i>Plagiobothrys glaber</i>	Rank 1A	Marshes and swamps (coastal salt), meadows and seeps (alkaline). Elevation ranges from 50 to 590 feet (15 to 180 meters). Blooms Mar-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Marin knotweed <i>Polygonum marinense</i>	Rank 3.1	Marshes and swamps (brackish, coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms (Apr)May-Aug(Oct).	Unlikely. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 50 to 1540 feet (15 to 470 meters). Blooms Feb-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
chaparral ragwort <i>Senecio aphanactis</i>	Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 50 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
long-styled sand-spurrey <i>Spergularia macrotheca</i> var. <i>longistyla</i>	Rank 1B.2	Marshes and swamps, meadows and seeps. Elevation ranges from 0 to 835 feet (0 to 255 meters). Blooms Feb-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Santa Cruz microseris <i>Stebbinsoseris decipiens</i>	Rank 1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 35 to 1640 feet (10 to 500 meters). Blooms Apr-May.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon jewelflower <i>Streptanthus glandulosus</i> ssp. <i>niger</i>	FE, SE, Rank 1B.1	Valley and foothill grassland (serpentine). Elevation ranges from 100 to 490 feet (30 to 150 meters). Blooms May-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California seablite <i>Suaeda californica</i>	FE, Rank 1B.1	Marshes and swamps (coastal salt). Elevation ranges from 0 to 50 feet (0 to 15 meters). Blooms Jul-Oct.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Suisun Marsh aster <i>Symphotrichum lentum</i>	Rank 1B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms (Apr)May-Nov.	Unlikely. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
two-fork clover <i>Trifolium amoenum</i>	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 15 to 1360 feet (5 to 415 meters). Blooms Apr-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
saline clover <i>Trifolium hydrophilum</i>	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
coastal triquetrella <i>Triquetrella californica</i>	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 35 to 330 feet (10 to 100 meters). Blooms .	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
oval-leaved viburnum <i>Viburnum ellipticum</i>	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 705 to 4595 feet (215 to 1400 meters). Blooms May-Jun.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
WILDLIFE				
MAMMALS				
Mountain lion <i>Puma concolor</i>	SC	Ranging from Chile to British Columbia, and adapting to virtually any habitat that contains its primary prey sources of deer and other large mammals. Widespread, yet uncommon in much of its range, and rarely seen.	No Potential. The proposed Project Area is within a developed corridor that does not support deer or large mammals or this species to prey upon.	No further action is necessary for this species.
ringtail (ring-tailed cat) <i>Bassariscus astutus</i>	CFP	Widely distributed throughout most of California; absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. elevation. Typically uses cliffs or large trees for shelter.	No Potential. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	No Potential. The proposed Project Area does not contain grasslands with populations of burrowing mammals to support this species.	No further action is necessary for this species.
big free-tailed bat <i>Nyctinomops macrotis</i>	SSC, WBWG med-high	Occurs rarely in low-lying arid areas. Requires high cliffs or rocky outcrops for roosting sites.	No Potential. The proposed Project Area does not contain cliffs or rocky outcrops required for this species to roost.	No further action is necessary for this species.
California sea lion <i>Zalophus californianus</i>	MMPA	Range from central Mexico to British Columbia, Canada. Feeds on various fish and squid. Primary breeding range is from the Channel Islands in California to Southern Mexico.	Moderate Potential. This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
harbor porpoise <i>Phocoena phocoena</i>	MMPA	Inhabits temperate and subarctic waters in California from Morro Bay north. Found in bays, estuaries, harbors, and fjords. Occurs in San Francisco Bay, primarily north of the Golden Gate Bridge.	Unlikely. This species is known to occur in the vicinity of the Golden Gate Bridge but largely restricts its distribution to fully marine salinities closer to the Pacific Ocean.	No further action is necessary for this species.
harbor seal <i>Phoca vitulina</i>	MMPA	Broadly distributed in coastal areas of the northern hemisphere. Most significant haul-out site in south San Francisco Bay is at Mowry Slough. Pups are born in March and April in Northern California.	Moderate Potential. This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
hoary bat <i>Lasiurus cinereus</i>	WBWG Medium	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	No Potential. No forest habitat is present within the proposed Project Area to support roosting by this species.	No further action is necessary for this species.
pallid bat <i>Antrozous pallidus</i>	SSC, WBWG High	Found in a variety of habitats ranging from grasslands to mixed forests, favoring open and dry, rocky areas. Roost sites include crevices in rock outcrops and cliffs, caves, mines, and also hollow trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No Potential. There are no suitable roosting structures for this species within the proposed Project Area.	No further action is necessary for this species.
salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE, CFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	No Potential. No saltmarsh wetland habitat is present within the proposed Project Area to support this species.	No further action is necessary for this species.
salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6 to 8 feet above sea level where abundant driftwood is scattered among <i>Salicornia</i> .	No Potential. The proposed Project Area does not contain saltmarsh which is required to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	No Potential. No forest or chaparral habitat is present within the proposed Project Area to support this species.	No further action is necessary for this species.
San Pablo vole <i>Microtus californicus sanpabloensis</i>	SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges and herbs. Forms a network of runways leading from the burrow.	No Potential. Uplands within the proposed Project Area are entirely developed as part of the Vallejo waterfront. No salt marsh habitat is present to support this species.	No further action is necessary for this species.
silver-haired bat <i>Lasionycteris noctivagans.</i>	WBWG Medium	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	No Potential. No forest habitat is present within the proposed Project Area to support roosting by this species.	No further action is necessary for this species.
Suisun shrew <i>Sorex ornatus sinuosus</i>	SSC	Tidal marshes of the northern shores of San Pablo and Suisun Bays. Require dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	No Potential. The proposed Project Area does not contain saltmarsh which is required to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC, WBWG High	Associated with a wide variety of habitats from deserts to higher-elevation mixed and coniferous forests. Females form maternity colonies in buildings, caves and mines, and males roost singly or in small groups. Foraging typically occurs at edge habitats near wooded areas, e.g. along streams.	No Potential. There are no abandoned buildings, caves, or mines within the proposed Project Area for this species to roost within.	No further action is necessary for this species.
BIRDS				
Alameda song sparrow <i>Melospiza melodia pusillula</i>	BCC, SSC	Year-round resident of salt marshes bordering the south arm of San Francisco Bay. Inhabits primarily pickleweed marshes; nests placed in marsh vegetation, typically shrubs such as gumplant.	No Potential. This species is known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
American peregrine falcon <i>Falco peregrinus anatum</i>	FD, SD, CFP, BCC	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	Unlikely. The proposed Project Area does not contain high cliffs required to support nesting by this species. The species may be observed flying over or foraging over the aquatic portions of the proposed Project Area.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bald eagle <i>Haliaeetus leucocephalus</i>	FD, SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	No Potential. The proposed Project Area and surrounding vicinity is composed of developed uplands. There are no large trees to support nesting by this species.	No further action is necessary for this species.
bank swallow <i>Riparia riparia</i>	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	No Potential. This species is only known to occur on large vertical rock faces and cliffs which are not present within the proposed Project Area.	No further action is necessary for this species.
black-crowned night heron <i>Nycticorax nycticorax</i>	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	No Potential. Colonial roosting by this species is not known to occur within the proposed Project Area. Large trees are absent which might support a roost of this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
burrowing owl <i>Athene cunicularia</i>	SSC, BCC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	No Potential. The proposed Project Area is comprised of fully developed uplands or aquatic habitats. The proposed Project Area does not contain burrowing mammals or burrow surrogates to support nesting. Grasslands that support foraging by owls are also absent.	No further action is necessary for this species.
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within 4 inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	No Potential. This species is only known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species within or adjacent to the proposed Project Area.	No further action is necessary for this species.
California Ridgway's (clapper) rail <i>Rallus obsoletus obsoletus</i>	FE, SE, CFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on molluscs and crustaceans.	No Potential. This species is only known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species within or adjacent to the proposed Project Area.	No further action is necessary for this species.
golden eagle <i>Aquila chrysaetos</i>	BCC, CFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	No Potential. The proposed Project Area does not contain high cliffs capable of supporting nesting by this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
great blue heron <i>Ardea herodias</i>	none (breeding sites protected by CDFW); CDF sensitive	Year-round resident. Nests colonially or semi-colonially in tall trees and on cliffs, also sequestered terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	No Potential. Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.
great egret <i>Ardea alba</i>	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	No Potential. Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.
northern harrier <i>Circus hudsonius (cyaneus)</i>	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	No Potential. There is no open fields, marsh or similar open areas with dense vegetation within the proposed Project Area for this species to nest or forage.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Samuels (San Pablo) song sparrow <i>Melospiza melodia samuelis</i>	BCC, SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	No Potential. There are no tidal marshes within the proposed Project Area to support this species.	No further action is necessary for this species.
San Francisco common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC, SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No Potential. This species is only known to occur in marsh habitats or densely vegetated riparian areas adjacent to water. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
short-eared owl <i>Asio flammeus</i>	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	No Potential. The proposed Project Area does not contain marsh or grasslands to support nesting by this species.	No further action is necessary for this species.
snowy egret <i>Egretta thula</i>	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees, at times in sequestered beds of dense tules. Rookery sites usually situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Unlikely. Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	BCC, SSC	Year-round resident of brackish-water marshes along Suisun Bay. Inhabits cattails, tules, bulrushes and other emergent vegetation, including pickleweed. Nests typically placed in shrubs.	No Potential. This species is known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present within or adjacent to the proposed Project Area to support this species.	No further action is necessary for this species.
Swainson's hawk <i>Buteo swainsoni</i>	ST, BCC	Summer resident in California's Central Valley. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	No Potential. The proposed Project Area is comprised of fully developed uplands and aquatic habitats with no tall trees to support nesting. There are no fields or grasslands to support foraging by the species.	No further action is necessary for this species.
tricolored blackbird <i>Agelaius tricolor</i>	ST, SSC, BCC, RP	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	No Potential. The proposed Project Area does not contain freshwater ponds or freshwater marsh habitats required to support nesting by this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western snowy plover <i>Charadrius nivosus (alexandrines) nivosus</i>	FT, SSC, BCC, RP	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	No Potential. The proposed Project Area does not contain any sandy beaches that this species requires to nest.	No further action is necessary for this species.
white-tailed kite <i>Elanus leucurus</i>	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	No Potential. The proposed Project Area is comprised of fully developed uplands and aquatic habitats with no trees within grasslands to support nesting. There are no fields or grasslands to support foraging by the species.	No further action is necessary for this species.
yellow rail <i>Coturnicops noveboracensis</i>	BCC, SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No Potential. The proposed Project Area does not contain freshwater marshes that this species requires.	No further action is necessary for this species.
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	No Potential. This species is only known to occur in marsh habitats. Shorelines are composed entirely of rip-rap and developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
REPTILES & AMPHIBIANS				

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT, ST	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses and small mammal burrows provide basking and refuge.	No Potential. The proposed Project Area is outside of the known range for this species.	No further action is necessary for this species.
California red-legged frog <i>Rana draytonii</i>	FT, SSC, RP	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	No Potential. The proposed Project Area does not contain freshwater features to support any life stage of this species. Surrounding uplands are also developed with the Vallejo waterfront which preclude access by this species even if it were to occur in the vicinity.	No further action is necessary for this species.
foothill yellow-legged frog <i>Rana boylei</i>	FC, SE, SSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	No Potential. The proposed Project Area does not contain freshwater streams to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Pacific (western) pond turtle <i>Actinemys marmorata</i>	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	No Potential. The shoreline of the proposed Project Area is entirely developed and devoid of any undeveloped areas that may be suitable for nesting. Further the aquatic portions of the proposed Project Area are comprised of brackish and tidal bays which are not suitable for this species.	No further action is necessary for this species.
FISH				
Coho salmon - central CA coast ESU <i>Oncorhynchus kisutch</i>	FE, SE	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen	No Potential. This species is considered extirpated from San Francisco Bay and its tributaries (NMFS 2012).	No further action is necessary for this species.
Chinook salmon - central valley fall/late fall-run ESU <i>Oncorhynchus tshawytscha</i>	SSC	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i>	FT, ST	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	Moderate Potential. This species spawns within headwater streams in the Sacramento River; however, this species has been known to stray into the Mare Island Strait seasonally as it migrates to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
Chinook salmon – Sacramento winter-run ESU <i>Oncorhynchus tshawytscha</i>	FE, SE, RP, NMFS	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	Moderate Potential. This species spawns within the Sacramento River; however, this species may stray into the Mare Island Strait seasonally as it migrates to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
Delta smelt <i>Hypomesus transpacificus</i>	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	Moderate Potential. This species is known to occur within the Mare Island Strait during extremely wet winters when individuals are able to move from Suisun Bay into the Napa River.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
eulachon – Southern DPS <i>Thaleichthys pacificus</i>	FT, SSC	Found in Klamath River, Mad River, Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand and woody debris.	No Potential. The proposed Project Area is outside of the range of this species.	No further action is necessary for this species.
green sturgeon, southern Distinct Population Segment <i>Acipenser medirostris</i>	FT, SSC	Spawn in the Sacramento River and the Feather River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	High Potential. This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
longfin smelt <i>Spirinchus thaleichthys</i>	FC, ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	High Potential. This species is known to occur within the Mare Island Strait seasonally.	See Section 5.2.2 for further discussion concerning this species.
Pacific lamprey <i>Entosphenus (=Lampetra) tridentatus</i>	SSC	Spawns between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
river lamprey <i>Lampetra ayresi</i>	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, Ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 degrees C.	High Potential. This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams	See Section 5.2.2 for further discussion concerning this species.
Sacramento perch <i>Archoplites interruptus</i>	SSC, RP	(Only within native range) Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerate wide range of physio-chemical water conditions.	Unlikely. This species is known to occur within sloughs and slow backwater areas. The proposed Project Area is comprised of swift waters which continually exchange through the Carquinez Strait. Such areas are too turbulent for the species.	No further action is necessary for this species.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	SSC, RP	Formerly endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young. A freshwater species, but tolerant of moderate salinity (10-18 parts per thousand).	High Potential. This species is known to occur within the Mare Island Strait seasonally.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
steelhead - central CA coast DPS <i>Oncorhynchus mykiss irideus</i>	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	High Potential. This species is known to spawn within the Napa River and its tributaries, so it would occur within the Mare Island Strait seasonally when migrating to and from spawning grounds upstream.	See Section 5.2.2 for further discussion concerning this species.
steelhead - central valley DPS <i>Oncorhynchus mykiss irideus</i>	FT	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	High Potential. This species spawns within rivers in the central valley, however adults and juveniles may stray into the Mare Island Strait when migrating to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
white sturgeon <i>Acipenser transmontanus</i>	SSC	Found in most estuaries along the Pacific coast. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. Spawn May through June.	High Potential. This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
INVERTEBRATES				

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California freshwater shrimp <i>Syncaris pacifica</i>	FE, SE, RP	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	No Potential. The proposed Project Area does not contain freshwater streams which are required by the species.	No further action is necessary for this species.
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>	FE	Two populations in San Bruno Mountain and the Cordelia Hills are recognized. Host plant is <i>Viola pedunculata</i> , which is found on serpentine soils. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	No Potential. The proposed Project Area does not contain serpentine grasslands that are required to support host plants for this species.	No further action is necessary for this species.
Crotch bumblebee <i>Bombus crotchii</i>	SC	Range largely restricted to California, favoring grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground.	No Potential. The proposed Project Area is comprised of fully developed uplands or aquatic habitats. There is no undeveloped upland habitat present to support nests or nectar sources required by this species.	No further action is necessary for this species.
monarch butterfly <i>Danaus plexippus</i>	none (winter roosts protected by CDFW)	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	No Potential. There are no tree groves within the proposed Project Area that could support winter roosts of this species. Fully developed uplands within the proposed Project Area also preclude the potential presence of nectar plants for the species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT, RP	Occurs only in the central valley of California, in association with blue elderberry (<i>Sambucus</i> spp.). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	No Potential. The proposed Project Area does not contain elderberry host plants required to support this species.	No further action is necessary for this species.
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT, RP	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	No Potential. There are no vernal pools within the proposed Project Area to support this species.	No further action is necessary for this species.
western bumble bee <i>Bombus occidentalis</i>	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2015). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	No Potential. The proposed Project Area is outside of the current distribution of this species.	No further action is necessary for this species.
HABITATS				
Steelhead, Central California Coast Distinct Population Segment	Critical Habitat	Critical habitat for this species was designated under 70 FR 52487.	Present. Critical habitat for this species is present within the Napa River.	See Section 5.3 for further discussion of this specific habitat.
Green sturgeon, southern Distinct Population Segment	Critical Habitat	Critical habitat for this species was designated under 74 FR 52300.	Present. Critical habitat for this species is present within aquatic portions of the proposed Project Area up to the high tide line.	See Section 5.3 for further discussion of this specific habitat.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Delta smelt	Critical Habitat	Critical habitat for this species was designated under 59 FR 65256.	Absent. Critical habitat for this species extends to the Carquinez Bridge but does not extend into the Napa River.	No further action is necessary for this habitat.
Coastal Pelagic	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Coastal Pelagic Species Fishery Management Plan (PFMC 2019)	Present. Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.
Groundfish	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Groundfish Fisheries Management Plan (PFMC 2022a)	Present. Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.
Salmon (Chinook and Coho)	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Coastal Pelagic Species Fishery Management Plan (PFMC 2022b)	Present. Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.

- FE: Federal Endangered
- FT: Federal Threatened
- SE: State Endangered
- ST: State Threatened
- SR: State Rare
- Rank 1A: Plants presumed extinct in California
- Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
- Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere
- Rank 3: Plants about which we need more information – a review list
- Rank 4: Plants of limited distribution – a watch list

Potential for Occurrence:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent

to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Absent. Species or habitat is not present has not been recorded on the site recently.