

**INCIDENTAL HARASSMENT AUTHORIZATION APPLICATION
FOR THE SAN FRANCISCO BAY AREA WATER EMERGENCY
TRANSPORTATION AUTHORITY CENTRAL BAY OPERATIONS
AND MAINTENANCE FACILITY PROJECT**

SUBMITTED TO:

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Acronyms and Abbreviations

ADA	American Disability Act
BA	biological assessment
BCDC	Bay Conservation and Development Commission
Caltrans	California Department of Transportation
CBC	California Building Code
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cy	cubic yards
EFS	Essential Facilities Standards
EOC	Emergency Operations Center
ESA	federal Endangered Species Act
HDPE	high density polyethylene
mcy	million cubic yards
MLLW	lower low water
NFPA	National Fire Protection Association
NMFS	National Marine Fisheries Service
OCC	Operations Control Center
SEL	sound exposure level
SPCC	Spill Prevention, Control and Countermeasures
square feet	SF
UHMW	ultra high molecular weight
USACE	United States Army Corps of Engineers
USC	U.S. Government Code
WETA	San Francisco Bay Area Water Emergency Transportation Authority's

Chapter 1

Description of the Activity

A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals.

Introduction

WETA proposes to construct a Central Bay Operations and Maintenance Facility (Project) to serve as the central San Francisco Bay base for WETA's ferry fleet, Operations Control Center (OCC), and Emergency Operations Center (EOC).

This Incidental Harassment Authorization (IHA) request has been prepared because the Project will occur in marine waters that support marine mammals. The 1972 Marine Mammal Protection Act (MMPA) prohibits the taking of marine mammals, which is defined as to "harass, hunt, capture or kill, or attempt to harass, hunt, capture or kill," except under certain situations. Section 101(a)(5)(D) allows for the issuance of an IHA, provided an activity results in negligible impacts on marine mammals and would not adversely affect subsistence use of these animals.

The timing, duration and specific activities (i.e. pile driving) associated with the Project may result in the incidental taking by acoustical harassment (Level B take) of marine mammals protected under the MMPA. WETA is requesting an IHA from the National Marine Fisheries Service (NMFS) for two marine mammal species (harbor seal and California sea lion) that may occur in the vicinity of the Project.

Project Purpose and Need

The Project would provide maintenance services such as fueling, engine oil changes, concession supply, and light repair work for WETA ferry boats operating in the central San Francisco Bay. In addition, the Project would be the location for operational activities of WETA, including day-to-day management and oversight of services, crew, and facilities. In the event of a regional disaster, the facility would also function as an emergency operations center, serving passengers and sustaining water transit service for emergency response and recovery.

Project Setting and Land Use

The Project site is located southeast of the intersection of West Hornet Avenue and Ferry Point Road near Pier 3 in the City of Alameda (Figure 1). The Project site is within the Alameda Naval Air Station (NAS) Base Realignment and Closure (BRAC) area, now known as Alameda Point (Figure 2). The former Alameda NAS, which was closed in 1997, occupied roughly 1,700 acres of land and roughly 1,000 acres of water. The project site is owned by the City of Alameda and was leased to the United States Navy as part of the NAS.

The Project site includes approximately 21,500 square feet (0.5 acre) of landside space and approximately three acres of waterside space in San Francisco Bay. The Project site is designated as Mixed Use Planned Development District (MX) and is zoned General Industrial District (M-2) by the City of Alameda.

A small-boat floating marina with a landside building for maintenance and a snack bar was constructed on the site by the Navy in the mid-1950s. The facility was used to house and maintain small recreational boats for base residents. It was in operation until the base was closed and the small building was demolished a few years later. Portions of the marina are still in place.

The landside portion of the Project site is nearly flat, asphalt-paved, and crossed by a nonfunctioning railroad spur line. Elevation is approximately 6 to 10 feet above mean sea level (msl). The Project site is bounded on the east by the San Francisco Bay Trail (Bay Trail) and an undeveloped park, and on the north by a paved open area and West Hornet Avenue (presently not a public right of way), which is defined by curbs and pavement stripes. Pier 3 lies to the west of the site along with the USS Hornet, a functioning museum and designated national historic landmark. The U.S Department of Transportation Maritime Administration (MARAD) leases the property west and north of the site, including a landside building and several piers from the City of Alameda. A concrete seawall delineates the southern edge of the landside portion; the seawall is tilted and cracked, and riprap and broken concrete span the area between the seawall and the water.

The overwater coverage of the existing structures at the site is approximately 20,220 square feet. There are approximately 35 existing concrete piles in the water surrounded by debris and the deteriorated remains of the earlier floating marina mentioned above, all of which would be removed for the proposed construction (Photo Page 1).

Project Description

The proposed facilities, including construction limits, layout and design of the Project are presented in Figures 2-5. The following sections provide a more detailed description of the proposed landside and waterside structures, and construction activities associated with the Project.

Landside Facility

The proposed landside building would be a four-story, approximately 29,150-square-foot structure designed to Essential Facilities Standards (EFS) in accordance with the California Building Code (CBC). The building would provide maintenance functions and storage for vessel spare parts, office and meeting space for WETA's OCC, EOC, crew facilities, and concession support. Figure 4 (Site Plan) presents the layout of the landside maintenance and operations facility.

An existing unimproved (on street) portion of the Bay Trail runs along the undeveloped park east of the Project site and stops at West Hornet Avenue; the designated off-street portion of the Bay Trail connects directly north of the Project site on Main Street (San Francisco Bay Trail, 2010). In consultation with the Bay Conservation and Development Commission (BCDC), the Project proposes extension of the Bay Trail and related improvements to improve connectivity and public access to users of the Bay Trail around the Alameda Point.

Marine Facility

The proposed marine facility would have an overwater coverage of approximately 14,970 square feet (0.34 acre) and would provide berthing slips for up to 12 vessels, with limited berthing capacity for vessels in transit. Each berthing slip will be supplied by fresh water, wash water, sanitary sewer, shore power and fire suppression systems. Four of the slips will also have connections for refueling and two of these four will also have oil and bilge connections. The floating docks will also provide access for the loading and off-loading of sundries, waste removal, and the installation of parts and equipment required for regular maintenance service. Although no regular passenger loading is anticipated at this site, berths would be capable of loading and unloading passengers in the event of an emergency. The marine facility would also provide diver platforms for underwater inspections, one boom reel assembly for spill containment along with a 25-foot skiff, and one crane for IBA replacement.

The vessel types held at the facility would include small crew boats, and ferry vessels with propeller propulsion and 1,000- to 1,750-gallon fuel tanks on each side. The facility would typically operate from 5 a.m. to 11 p.m., with 80% utilization (i.e., 80% of the time, the vessels would be moored for servicing and layover).

The berthing facility would include a system of ramps and platforms to facilitate access between the gangway and the vessel doors and to allow access to the floating dock for line handling and servicing the vessel. The facility-wide deck elevation would be at a level that would allow direct access to the optimum number for boats serviced at the facility. To accommodate other boats that do not align with the deck elevation, adjustable portable platforms would be provided to allow access between shore and boat, and would be suitable for relocation as needed.

Berthing Floats

The berthing floats would consist of compartmented concrete pontoons approximately 120 feet by 10 feet in dimension. The float length was determined to be the minimum necessary for access to both the forward and aft loading doors, and for efficient service of the vessels. The berthing floats would include vertical strake¹ fenders and appropriate mooring fittings for safe docking and holding of the vessels. The floats would be outfitted with fire protection and life safety devices as required by the City of Alameda.

All floats would have approximately 2 feet of freeboard and an elevated steel walkway at approximately 7 feet above waterline with a utility chase below the walkway. The head walk and finger floats would be approximately 8 feet wide. All systems would be modular and compatible with other WETA facilities (i.e., finger float connections, utility layout, material, sizes, etc.).

Gangway

The gangway would be an aluminum structure approximately 90 feet long by 8 feet wide, with a nonskid walking surface. The gangway walking surface would be grated, if determined to be feasible with intended uses. The gangway would have a maximum one vertical to eight horizontal (1V: 8H)

¹ A strake is a single continuous line of planking or metal plating extending on a vessel's hull from stem to stern.

slope over the majority of the tidal range in order to satisfy American Disability Act (ADA) rules for gangways.

A pier apron supported on driven steel piles would be constructed to provide a connection between the gangway and landside facility. A protective coating² may be added to the steel piles. If used, the coating would be of an inert material that would not leach into the aquatic environment. The apron deck and substructure would be a combination of cast-in-place and precast concrete.

The gangway and the pier apron would be protected from accidental ferry impact by steel fender pile with protective wrapping (high density polyethylene [HDPE] or ultra-high molecular weight [UHMW]) or plastic pipe pile approximately 18–30 inches in diameter.

Fueling Facility

The fuel storage facility would be contained below grade in vaults upland of the existing seawall. The facility would consist of up to four vaulted underground storage tanks with a combined capacity of up to 48,000 gallons. Multiple vaults and tanks are used to provide system redundancy and layout efficiency. The fuel tanks would be National Fire Protection Association (NFPA) approved and installed in buried concrete vaults that would be equipped with vapor and liquid detection systems as well as a fire suppression system. Systems would be provided to recover liquid from the vault.

Utilities

Water, sanitary sewer, and electrical public utility connections are available on West Hornet Avenue adjacent to the Project site. Buried utility lines would pass underground through the site and would be suspended beneath the fixed concrete pier. Berthing floats would connect with shoreside utilities by flexible lines attached to the gangway. A pump on the float system would discharge sanitary sewer effluent from the floating system into the landside system.

Stormwater Drainage

An existing 12-inch concrete storm drain line crosses the east end of the site (running north to south) with an outfall in the rock slope at the south side of the site. This pipe collects stormwater from areas north of the site. The storm drain line will be rerouted to the east around the Project area with a new outfall installed approximately 100 feet east of its present location. Site runoff would be treated by oil-water separators and treatment vaults (if needed) in accordance with applicable stormwater regulations before discharge from the site.

Site Access

Terrestrial access to the Project site would be provided by West Hornet Avenue. Public access would be restricted; the site would be fully secured with an 8-foot-tall vertical picket fence. The proposed fencing/concrete wall would be in compliance with US Coast Guard (per the Vessel Security Plan required by Marine Transportation Security Act of 2002; 33 CFR 104) and WETA requirements. The

² Protective coating documentation would be submitted to NMFS and the San Francisco RWQCB for approval prior to use.

Vessel Security Plan requires security measures for employee access and for delivery of vessel stores and bunkers for facilities with boats certified for more than 150 passengers.

During both construction and operation of the Project, all vessels would travel the same channel used by the MARAD fleet to access Alameda Point. The channel begins just west of the proposed WETA facility and proceeds approximately 1 mile northwest to San Francisco Bay.

Construction Sequence

The Project includes the construction of a landside building, a marine facility (pier with associated berthing floats, and gangways) and a fuel storage facility. The following sections provide a more detailed description of these facilities and associated utilities. Construction of the Project would require 50 to 100 workers for the duration of the Project. At any given time, roughly 30 to 50 workers would be on the site.

The proposed construction timeline would require approximately 16 months with no nighttime construction necessary. Duration of construction activities would overlap. Generally, site preparation, construction/reinforcement of the sea wall, and ground improvements would occur over 75 days; construction of the building would require 240 days; dredging and in-water work would be completed in 90 days; and the overwater work would occur over 225 days. All construction dredging and other in-water work activities including pile removal/installation and sea wall demolition/construction would occur between the period from August 1 to November 30.

The in-water portion of Project construction is scheduled to take place in August of 2015. All in-water construction activities will take place in the work window of August 1 – November 30.

Landside Facility

The major construction activities required for the proposed four-story, approximately 29,150-square-foot structure will include site preparation, demolition, ground improvement, sea wall construction, building construction, and utility installation. Construction equipment would include backhoes, excavators, haul trucks, track-mounted drilling rigs, concrete and gravel delivery trucks, a wheeled hydraulic crane, and delivery and support trucks. All equipment would be powered by diesel or gasoline.

The southern edge of the landside area is bounded by a deteriorated concrete seawall, which would be demolished as needed to allow construction of a new marginal apron supported on concrete pile. Removal of the seawall would require a land-based backhoe with pneumatic hammer, and would generate approximately 60–90 cy of concrete rubble. Removal would occur over 2 to 5 days and demolished concrete would require roughly 10–20 truckloads to be hauled off for processing as recycled aggregate material.

The existing abandoned segment of railroad line that crosses the length of the site would also be removed during site development.

Marine Facility

The proposed marine facility would have an overwater coverage of approximately 14,970 square feet (0.34 acre) and would provide berthing slips for up to 12 vessels. The major waterside construction activities required for the marine facility include dredging, marine pile installation, marine float installation, fixed apron construction, and marine utility and outfitting.

The Project would require dredging to the required navigable parameters (berthing area depth of 12 feet mean lower low water [MLLW]), resulting in approximately 26,700 cy of dredged material, plus an additional 2-foot overredge allowance resulting in additional 20,400 cy of dredged material (total permitted: 47,100 cy). Dredging equipment would likely include a diesel-powered clamshell (with 10 cy bucket), scow dump barge (2,500 cy capacity), tugboats (900 horsepower), and a survey boat.

The marine pile installation would require the use of a support and material barge, a barge-mounted pile driver, a support boat, and an occasional tug. The marine float installation would require workboats, an occasional tug, support barges, and barge-mounted cranes. The fixed apron construction would require workboats, a support barge, a barge-mounted crane, a wheeled crane, and support and haul trucks. Marine utility and outfitting would require a wheeled crane and support trucks.

Approximately 85 new piles, consisting of fixed apron supporting piles, guide piles at the floats, fender piles, freestanding dolphins, and piles supporting the shoreline fender panel would be driven in place by a diesel impact hammer with the exception of the plastic fender pile, which would be driven in place with a vibratory hammer (see Table 1). Details regarding the exact location and placement of the piles can be provided upon request.

Fueling Facility and Utilities

The fuel storage facility would be contained below grade in vaults upland of the existing seawall. The facility would consist of up to four vaulted underground storage tanks with a combined capacity of up to 48,000 gallons. The fuel tanks would be installed in buried concrete vaults that would be equipped with vapor and liquid detection systems as well as a fire suppression system. Systems would be provided to recover liquid from the vault.

Water, sanitary sewer, and electrical public utility connections are available on West Hornet Avenue adjacent to the Project site. Buried utility lines would pass underground through the site and would be suspended beneath the fixed concrete apron. Berthing floats would connect with shoreside utilities by flexible lines attached to the gangway. A pump on the float system would discharge sanitary sewer effluent from the floating system into the landside system.

Excavation would be required to install the underground vaults and utilities. For the utilities, the landside excavation would range from 2,500 to 7,500 cy, which will be disposed at an appropriate disposal site.

Stormwater Drainage

An existing 12-inch concrete storm drain line crosses the east end of the site (running north to south) with an outfall in the rock slope at the south side of the site. This pipe collects stormwater

from areas north of the site. The storm drain line will be rerouted to the east around the Project area with a new outfall installed approximately 100 feet east of its present location. Site runoff would be treated by oil-water separators and treatment vaults (if needed) in accordance with applicable stormwater regulations before discharge from the site.

Project Elements

The Project has three elements involving noise production that may impact marine mammals:

1. Removal of piles (35 existing concrete piles).
2. Installation of steel piles via impact hammer: 61 (twenty-six 30" epoxy coated steel guide piles for floats, eleven 24" piles for shoreline deck, sixteen 24" epoxy coated steel dolphin piles and eight 18" epoxy coated steel fender panel piles).
3. Vibratory hammer installation of plastic piles: 24 (18" plastic fender piles)

The total duration of all pile driving activity will be approximately 10 to 20 days. Each element is discussed below.

Pile Removal

Thirty-five (35) existing concrete piles will be removed attaching a choker to the pile and pulling. If necessary a vibrating extractor will be used. Once the contractor has an effective method in place it should take about 30 minutes to extract each pile. To remove all 35 existing piles, noise impacts associated with driving will occur over a period of 3 days, will be limited to daylight hours. As a vibrating extractor may be used, for the purposes of managing potential impacts to marine mammals, pile removal is treated using the same exclusion zones as vibratory hammer operations.

Pile Installation

The 30-inch diameter steel piles are the largest piles to be installed by this Project, and would produce the highest sound levels. To install all twenty-six 30-inch diameter piles, noise impacts associated with driving will occur over a period of six days, will be limited to daylight hours, and will not be continuous. A total of twenty-seven 24-inch steel piles (sixteen of which will be epoxy coated) will be installed for construction of the new ferry maintenance facility and the driving of these piles will occur over a period of 6 days, will be limited to daylight hours, and will not be continuous. Eight 18-inch epoxy coated steel piles will be installed by this Project and pile driving will persist over a single day, will be limited to daylight hours, and will not be continuous.

The Project also proposes to install 24 plastic piles which are 18-inches in diameter. A vibratory hammer will be used to install these plastic piles. Sound pressure waves resulting from the driving of plastic piles are different than those of steel piles. In comparison to steel, pressure levels produced from plastic piles hit with a hammer are lesser extremes in overpressure and underpressure in the sound waveform. Vibratory hammers produce SPLs which are considerably lower than impact hammers. The Project's installation of plastic piles (18-inches diameter) with a vibratory hammer is less likely to produce sound that would result in injury or mortality of marine

mammals but specific data on vibratory hammer sound levels for driving plastic piles could not be located.³

Sound Levels

Sound levels associated with impact and vibratory hammer activities are found on Table 1.

For the Central Bay Operations and Maintenance Facility Project, WETA proposes to use an impact hammer to install steel piles and a vibratory hammer to install plastic piles. As distance from the pile increases, sound attenuation from transmission loss reduces sound pressure levels and the potential harmful effects also decrease. Disturbance and noise associated with construction at the pile driving site may also startle marine mammals and result in dispersion from the action area. NMFS assumes a 160 dB root-mean-square pressure (RMS) threshold for behavioral responses from impulse sound (impact hammer) and 120 dB RMS threshold for behavioral responses from continuous sound (vibratory hammer) is appropriate for determining effects on marine mammals.

For the Central Bay Operations and Maintenance Facility, WETA proposes to use a bubble curtain to attenuate underwater sound levels during installation of all steel piles driven by impact hammer (bubble curtains are not proposed for use with vibratory hammers). Based on the use of a bubble curtain and pile sizes proposed for this Project, the assessment of acoustic impacts presented in this assessment assumes an estimated reduction of 10 dB in sound pressure for impact pile driving. Although reductions as high as 20 dB have been measured, as a general rule, sound reductions of greater than 10 dB with attenuation systems cannot be reliably predicted (Caltrans 2009).

Encapsulating the piles with an air bubble curtain would not require dewatering of the site. Bubble curtains reduce the radiation of sound from the pile into the water by making the sound pass through a "curtain" of low-density air bubbles. Hydroacoustic monitoring has shown that air bubble curtains can decrease the overall level of SPLs in the adjacent water column and decrease the extent to which the adverse sound-related impacts occur.

Worst-case sound levels for pile removal are assumed to occur during potential use of a vibrating excavator and to be similar to that related to vibratory hammer pile installation. Similar to proposed vibratory hammer operations, no bubble curtain is proposed during pile removal.

³ As a point of information, the NMFS BO for the project concludes that installation of plastic piles using a vibratory hammer is not likely to result in take of listed fish species.

Chapter 2

Dates, Duration, and Region of Activity

The date(s) and duration of such activity and the specific geographical region where it will occur.

Dates

Due to NMFS in-water work timing restrictions to protect ESA-listed salmonids, all construction dredging and other in-water work activities including pile removal/installation and sea wall demolition/construction would occur between the period from August 1 to November 30.

The in-water portion of Project construction is scheduled to commence in August of 2015. All in-water construction activities will take place in the work window of August 1 – November 30.

Duration

Construction of the Project would require approximately 16 months with no nighttime construction necessary. Duration of construction activities would overlap. Generally, site preparation, construction of the sea wall, and ground improvements would occur over 75 days; construction of the building would require 240 days; dredging and in-water work would be completed in 90 days; and the overwater work would occur over 225 days.

For the Project, where structural piles in the water would be driven in place by a diesel impact hammer, each pile would require approximately 450-600 hammer strikes to put each pile in place. This is an estimated number of strikes required as limited geotechnical explorations at the site have been performed and the required structural capacity of the piles is yet to be determined. It is estimated that 3 to 12 piles would be driven per day during in-water pile driving operations, with an actual drive time for each pile ranging from 10 to 30 minutes per pile, assuming the hammer operates continuously.

A total of 61 steel piles ranging from 18 inches to 30 inches would be driven by an impact hammer.

The plastic fender pile would likely be driven in place with a vibratory hammer and would not create significant underwater noise. It would require 15-30 minutes of vibration to put each plastic pile in place.

For pile removal, once the contractor has an effective method in place, it should take approximately 30 minutes to extract each pile.

Region of Activity

The Project site is within the Alameda Naval Air Station (NAS) Base Realignment and Closure (BRAC) area, now known as Alameda Point.

Species and Numbers of Marine Mammals in Area

The species and numbers of marine mammals likely to be found within the activity area.

Section 3.0 has been combined with Section 4.0 for ease of reading. Section 3.0 requires a discussion of the species and numbers of marine mammals in the area. Section 4.0 requires a discussion of the status and distribution of the stock(s) and specifically:

A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities.

Each requested topic in Section 4.0 (status, distribution, and seasonal distribution [if known]) has been addressed in Section 3.0 to avoid referencing similar information between chapters.

Species Present

Only two species of marine mammal are known to occur in the study area, harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californicus californianus*). Other marine mammals less commonly observed in the San Francisco Bay (and far less likely to occur in the study area) include gray whale (*Eschrichtius robustus*), humpback whale (*Megaptera noveangliae*), harbor porpoise (*Phocoena phocoena*), northern elephant seal (*Mirounga angustirostris*), Steller sea lion (*Eumetopius jubatus*), and northern fur seal (*Callorhinus ursinus*).

Of the two pinniped species that are likely to occur within the study area, harbor seals are the most numerous and the only one documented to breed on one of the adjacent breakwaters (westernmost tip of Breakwater Island, see discussion below).

There is a riprap breakwater (referred to as “Long Breakwater”) that starts at the Alameda shoreline southeast of the proposed facility, then proceeds southward for approximately 700 feet, and then westward for approximately 4,800 feet. This breakwater is accessible from the shoreline. There is a small 180-foot gap between the first breakwater and Breakwater Island, which is referred to as “Breakwater Gap”. Breakwater Island consists of a riprap breakwater approximately 2,800 feet in length that is on a southeast to northwest orientations. Breakwater Island is not accessible from the shoreline. No vegetation is found at the breakwaters.

Harbor seals use the westernmost tip of Breakwater Island as a haul-out site and forage in the Breakwater Gap area. The tip is approximately 1 mile west of the Project site. Although it is not considered a primary haul-out site for San Francisco Bay, Breakwater Island is reportedly the only haul-out site in the central Bay that is accessible to seals throughout the full tidal range. Aerial surveys of seal haul-outs conducted in 1995-97 and incidental counts made during summer tern foraging studies conducted in 1984-93 usually counted fewer than 10 seals present at any one time. There is some evidence that more harbor seals have been using the westernmost tip of Breakwater Island in recent years, or that it is more important as a winter haul-out. Seventy-three seals were

counted on Breakwater Island in January 1997, and 20 were observed hauled-out on April 4, 1998. A small pup was observed during May 1997; however, site characteristics are not ideal for the island to be a major pupping area (USFWS 1998).

Harbor seals have also been using an abandoned small craft marina dock located at the Project site since sometime after closure of the NAS for haulout purposes. This dock was previously connected to land, which may have decreased its desirability for use by seals due to access by people, dogs, and other animals. The dock has been deteriorating over time since it is not maintained. In 2010, the portion connecting the floating dock to land broke off and sank, leaving remnant parts of the floating dock isolated from land. Since 2010, additional remnant parts of the marina have also been lost (see Photo Page 1 for photos over time). At present, seals have been observed by local residents hauling out on the portion of the dock that is furthest from shore.

The abandoned dock, including both the remnant floating elements as well as the sunken elements would be removed by the Project and replaced with the new docking structures.

California sea lions have not been documented utilizing the breakwaters, though it is anticipated that they would use the same limited structures available that are known to be used by harbor seals.

Chapter 4 Status and Distribution of Affected Species or Stocks

A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities.

This section has been combined with Section 3.0. Each required topic (status, distribution, and seasonally distribution) has been addressed in Section 3.0 for ease of finding relevant information.

Chapter 5

Type of Incidental Take Authorization Requested

The type of incidental taking authorization that is being requested (i.e., takes by harassment only, takes by harassment, injury and/or death), and the method of incidental taking.

Under Section 101 (a)(5)(D) of the MMPA, WETA requests an IHA from August 1, 2015, through November 30, 2016 for Level B incidental take (behavioral harassment) of the marine mammals described within this application. Specifically, the requested authorization is for incidental harassment of any marine mammal that might enter the 120 dB Zone of Influence (ZOI) during active pile driving activity.

Noise, vibrations, and other physical disturbances can harass marine mammals. The range of effects potentially includes behavioral changes, physiological stress, physical injury (including hearing loss), and mortality.

Based on proposed construction activities, the effects of noise marine mammals would be primarily limited to avoidance behavior in response to movements, vibrations, and noise caused by construction personnel and equipment operating in or adjacent to the San Francisco Bay. Pile driving would be required for the construction of the berthing floats and gangways. The scheduled pile-driving activities discussed in this application will occur between August 1, and November 30 of 2015.

Potential exposure to pile driving sounds would be minimized by conducting all in-water pile driving activities between August 1 and November 30.

While there is no formal agreement on the thresholds that should be used to evaluate the potential for adverse behavioral effects from underwater pile driving noise, NMFS and USFWS generally use 160/120 dB RMS (impact hammer/vibratory hammer) as the threshold for behavioral effects on marine mammals.

NMFS developed a spreadsheet that estimates the distance at which pile driving sound attenuates to threshold levels (i.e., maximum distance from the source that pile driving sounds would exceed the injury and behavioral threshold levels). This spreadsheet, based on the practical spreading loss model, requires estimates of the peak, SEL, and root-mean-square quantity (RMS) sound pressure levels generated by proposed pile driving activities and an assumed rate of attenuation⁴.

For the Project, where structural piles in the water would be driven in place by a diesel impact hammer, each pile would require approximately 350–450 hammer strikes to put each pile in place. This is an estimated number of strikes required as limited geotechnical explorations at the site have been performed and the required structural capacity of the piles is yet to be determined.

⁴ Refer to Caltrans (2009) for a detailed discussion of the model, sound metrics, and computations.

It is estimated that 3 to 12 piles would be driven per day during in-water impact hammer pile driving operations, with an actual drive time for each pile ranging from 10 to 30 minutes per pile, assuming the impact hammer operates continuously. A total of 61 steel piles ranging from 18 inches to 30 inches would be driven by an impact hammer.

The plastic fender pile would likely be driven in place with a vibratory hammer and would not create significant underwater noise. It would require 15-30 minutes of vibration to put each plastic pile in place.

Pile removal would take approximately 30 minutes per pile and take place over 3 days, approximating to 10 – 12 piles per day.

Number of Marine Mammals that May Be Affected

By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in [Section 5], and the number of times such takings by each type of taking are likely to occur.

Only two species of marine mammal, harbor seals and California sea lions, are anticipated to enter the Level B acoustical harassment zone of influence. Only harbor seals and California sea lions are expected to forage and haul out in the Project ZOI with any frequency and could be exposed multiple times during a Project.

Estimated Duration of Pile Removal and Pile Driving

As discussed in Section 2.0, Dates, Duration, and Region of Activity, a worst-case scenario for the Project assumes that up to ten days may be required to install the new piles (Table 1). The maximum total number of hours of pile-driving activity is about 60 hours (maximum of 6 hours of active pile removal/driving for a construction day) over 10 days. Pile removal may take a total of 17.5 hours over three days.

The actual number of hours is expected to be less.

Estimated Zones of Influence

The distances to the NMFS thresholds for Level B (harassment) take for vibratory and impact pile installation were estimated and presented in Table 1. The Project ZOI was calculated from these distances.

- **Vibratory driving of plastic piles:** The distance to the 120 dB contour Level B acoustical harassment threshold due to vibratory pile driving of plastic piles for the Project extends a maximum of 2,154 meters. The ZOI from the project site out to the tip of Breakwater Island will be monitored during construction to estimate actual harassment take of marine mammals. This calculation is based on vibratory pile driving of 12-inch steel piles, not 18-inch plastic piles, and thus likely overstates the actual level of impact for vibratory driving of plastic piles.
- **Impact-driving of steel piles:** The distance to the 160 dB contour Level B acoustical harassment threshold due to impact pile driving for the Project extends a maximum of 1,000 meters without an attenuation system and 215 meters with an attenuation system.
- **Since WETA has committed to attenuation using a bubble curtain during impact pile driving during the ESA Section 7 process to minimize impacts to listed ESA fish species, the ZOI for marine mammals are the attenuated ZOI distance noted above. The attenuated ZOI will be monitored during construction to estimate actual harassment take of marine mammals.**
- **Pile removal noise is assumed to be similar to a vibratory hammer due to the potential use for a vibrating extractor. Thus, the ZOI is assumed to be the same a vibratory pile driving described above.**

Estimated Incidental Takes

Incidental take is estimated for each species by estimating the likelihood of a marine mammal being present within a ZOI during active pile driving. Expected marine mammal presence is determined by past observations and general abundance near the Project during the construction window. Typically, potential take is estimated by multiplying the area of the ZOI by the local animal density. This provides an estimate of the number of animals that might occupy the ZOI at any given moment. The maximum number of harbor seals observed along the closest breakwater ranges from 10-20 individuals. Observational data on California sea lions are not available; therefore the number of harbor seals will be used to estimate impacts.

Habitat for marine mammals includes the entire marine area enclosed by the breakwaters near the Project site as well as the haul-out site at the westernmost end of Breakwater Island. After removal of the abandoned marina structures at the site, which will be done prior to pile driving, the nearest marine mammal haulout will be at the westernmost end of Breakwater Island, which is approximately 1 mile feet from the Project construction site. Thus, the most likely individuals affected by pile driving would be harbor seals or sea lions foraging inside the breakwater near the Project site. While unlikely that 10 to 20 individuals would be present inside the ZOI at any one time given the distance from the nearest haul site, as a worst-case, this analysis assumes up to 20 individuals might be present.

For the Project, the total number of pile driving hours is estimated to not exceed 60 hours over 10 days. For the exposure estimate, it will be conservatively assumed that the highest count of harbor seals observed, and will be foraging within the ZOI and be exposed multiple times during the Project.

The calculation for marine mammal exposures is estimated by:

Exposure estimate = $N * (10 \text{ days of pile driving activity} + 3 \text{ days of pile removal})$, where:

$N = \# \text{ of animals (20)}$

Exposure estimate = $20 \text{ animals} * 13 \text{ days} = 260$

Therefore, WETA is requesting authorization for Level B acoustical harassment of up to 260 harbor seals and 260 California sea lions due to pile driving.

It is assumed that this number will include multiple harassments of the same individual(s).

Chapter 7

Anticipated Impact on Species or Stocks

The anticipated impact of the activity upon the species or stock of marine mammals.

The harbor seal population in California is approximately 30,196 individuals (Carretta et al. 2011). This application requests incidental taking by Level B acoustical harassment of up to 200 harbor seals. Although the estimate assumes multiple take of a few individuals (not single takes of 200 individuals) the requested number of takes represents 0.66 % of the California stock.

The Pacific stock California sea lion population is approximately 296,750 individuals (Carretta et al. 2011). This application requests incidental taking by Level B acoustical harassment of up to 200 California sea lions. Although the estimate assumes multiple take of a few individuals (not single takes of 200 individuals) the requested number of takes represents 0.07 % of the Pacific stock.

If incidental takes occurs it is only expected to result in short-term changes in behavior and potential temporary hearing threshold shift (TTS). These takes would be unlikely to have any impact on stock recruitment or survival and therefore, would have a negligible impact on the U.S. stock.

Chapter 8 Anticipated Impact on Subsistence

The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses.

There are no known subsistence uses of harbor seals or seal lions in the Project area. No impacts on the availability of the species or stocks to the Pacific Northwest treaty tribes are expected as a result of the Project.

Chapter 9

Anticipated Impact on Habitat

The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat.

Construction activities will have temporary impacts on marine mammal habitat associated with increases in-air noise and in-water sound pressure levels from pile removal and driving. Other potential temporary changes are water quality (primarily through increases in turbidity levels) and prey species distribution. Best management practices (BMPs) and minimization practices used by WETA to minimize potential environmental effects from Project activities are outlined in Section 11, Mitigation Measures.

Anticipated Impact of Loss or Modification of Habitat

The anticipated impact of the project or modification of the habitat on the marine mammal populations involved.

The Project is not expected to result in a significant permanent loss or modification of habitat for marine mammals or their food sources. The most likely effects on marine mammal habitat for the Project are temporary, short duration in-water noise, prey (fish) disturbance, and water quality effects. The direct loss of habitat available to marine mammals during construction due to noise, water quality impacts and construction activity is expected to be minimal. These temporary impacts have been discussed in detail in Section 9, Anticipated Impact on Habitat.

Chapter 11

Mitigation Measures

The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Harbor seals and California sea lions, both protected by the MMPA, could be affected by construction in terms of removal of the abandoned dock, dredging and pile-driving activities as well during operations as vessel traffic, particularly near Breakwater Island. Pile driving activities pose the greatest potential to aquatic wildlife including fish and marine mammals.

During the California Environmental Quality Act environmental review process as well as during the ESA Section 7 consultation with NMFS concerning listed fish species, WETA developed a number of relevant avoidance and minimization measure to reduce potential harm to fish and wildlife species, including marine mammals.

Relevant Avoidance and Minimization Measures from the NMFS Biological Opinion:

- All in-water construction and dredging will be limited to the period between July 31 and November 30.
- A Stormwater Pollution Prevention Plan (SWPPP) will be prepared and include best management practices to address the potential discharge of pollutants, and ensure the proper handling of materials.
- A Spill Prevention, Control and Countermeasures (SPCC) Plan will be prepared and specify restrictions and procedures for fuel storage location, fueling activities, and equipment maintenance.
- Monitoring of turbidity will be performed during dredging at a distance of approximately 500 feet. If turbidity levels exceed San Francisco Bay Basin Plan Standards, operational controls or silt curtains may be used.
- During the driving of all steel piles with an impact hammer, a bubble curtain will be used to attenuate sound levels. Underwater sound levels will be monitored and results will be used real time to maximize the effectiveness of the bubble curtain. A hydroacoustic monitoring plan will be prepared and submitted to NMFS for review and approval prior to the initiation of construction.
- Following the completion of dredging, WETA will conduct “z-layer” sediment sampling to assess conditions on the newly exposed Bay bottom. If sediments contain bioaccumulative contaminants above certain thresholds (e.g., specified in the Project’s biological assessment), further actions will be pursued to prevent exposure to aquatic organisms.
- A 500-foot access corridor has been established to protect wildlife along shoreline at the adjacent Alameda National Wildlife Refuge. All construction, maintenance and ferry vessels will utilize this access corridor and adhere to a maximum 5-mile-per-hour speed limit.

Relevant Terms and Conditions from the NMFS Biological Opinion:

- Prior to the initiation of construction, WETA shall develop and submit to NMFS for review a hydroacoustic monitoring plan that includes underwater sound measurements at various distances and depths from pile driving operations;
- WETA shall make available to NMFS data from the hydroacoustic monitoring program on a real-time basis (i.e., daily monitoring data should be accessible to NMFS upon request).
- WETA shall allow any NMFS employee(s) or any other person(s) designated by NMFS, to accompany field personnel to visit the Project sites during construction activities described in this opinion.

Relevant measures developed during the CEQA process (modifications for IHA application noted in *italics*)

Measure BIO-1: Minimize Harassment to Marine Mammals during Dredging and Pile Driving Activities (CEQA Measure BIO-1) and *Pile Removal Activities*:

- Work would occur only during daylight hours (7 a.m. to 7 p.m.) so that marine mammals are visible at all times during dredging and pile driving/*removal* activities.
- A qualified biological monitor would visually survey the area 1 day prior to the start of dredging or pile driving/*removing* activities to establish a baseline.
- A safe zone would be enforced during dredging and pile driving/*removal* operations. A marine mammal monitor would survey the area prior to the startup of dredging or pile *removal*/driving equipment.
- Installation *or removal* would not begin until no marine mammals are sighted within a designated "safe zone" for at least 15 minutes prior to the initiation of the activity. For dredging or pile driving activities, the proposed safety zone would be a radius of 1,000 feet from the dredging or pile driving/*removal* location or distance at which the noise would be below 180 dB.
- Once activities begin, work would continue until completed. Between pile driving *or pile removal* of different piles, the monitor would again confirm that the safety zone is clear of marine mammals.
- The construction contractor would establish daily "soft-start" or "ramp-up" procedures for pile-driving *and pile removal* activities. This technique would be used at the beginning of each piling installation *or removal* to allow any marine mammal that may be in the area to leave before pile-driving activities reach full energy. For pile driving, the contractor would provide an initial three strikes at reduced energy (40%), followed by a 1-minute waiting period, then subsequent 3-strike sets.

BIO-2: Use Recommended Access Channel and Boat Speeds from the Draft Alameda National Wildlife Refuge Comprehensive Conservation Plan to avoid Disruption to Seal Haul-Outs and Bird Nesting and Roosting

The draft Conservation Plan for the Alameda National Wildlife Refuge includes a recommended 500-foot access corridor for all vessel traffic and a maximum 5 mile per hour speed limit to keep vessels well away from the shoreline of the main portion of the Refuge as well as from

Breakwater Island, in order to protect bird species and marine mammals from disruption. All construction and maintenance vessels and all ferry boats shall utilize this access corridor and shall, under all non-emergency situations, not approach any closer than 750 feet to the shorelines of the proposed Refuge and Breakwater Island.

Chapter 12

Arctic Subsistence Uses, Plan of Cooperation

Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a plan of cooperation or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses. A plan must include the following:

- (i) A statement that the applicant has notified and provided the affected subsistence community with a draft plan of cooperation;*
- (ii) A schedule for meeting with the affected subsistence communities to discuss proposed activities and to resolve potential conflicts regarding any aspects of either the operation or the plan of cooperation;*
- (iii) A description of what measures the applicant has taken an/or will take to ensure that proposed activities will not interfere with subsistence whaling or sealing; and*
- (iv) What plans the applicant has to continue to meet with the affected communities, both prior to and while conducting activity, to resolve conflicts and to notify the communities of any changes in the operation.*

This section is not applicable. The proposed activities will take place in the State of California, specifically in the San Francisco Bay. No activities will take place in or near a traditional Arctic subsistence hunting area.

Chapter 13

Monitoring and Reporting Plan

The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding.

The applicant shall submit, annually, a post-construction compliance report prepared by the on-site biologist to the NMFS office within 90 calendar days after the 1-year IHA expires. This report shall detail the following:

1. Dates that construction occurred,
2. Pertinent information concerning the success of the Project in meeting the avoidance and minimization measures,
3. An explanation of failure to meet such measures, if any,
4. Known Project effects on marine mammals, if any,
5. Marine mammal sightings.
 - a. number of animals sighted within exclusion and harassment zones and actions taken,
 - b. animal behavior and behavior change,
 - c. animals' age (pup, juvenile, adult),
 - d. environmental condition such as weather, visibility, sea state, etc.
6. Occurrences of incidental harassment, if any,
7. Documentation of employee environmental education,
8. Any other pertinent information.

Chapter 14

Coordinating Research to Reduce and Evaluate Incidental Take

Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

In-water noise generated by vibratory pile driving at the Project is the primary issue of concern relative to local marine mammals. WETA has conducted research on sound propagation from vibratory and impact hammers, and plans on continuing that research to provide data for projects.

Chapter 15

References

- Caltrans. 2009. Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Prepared for California Department of Transportation. Prepared by: ICF Jones & Stokes and Illingworth and Rodkin, Inc. Sacramento, CA.
- Carretta, James, Karin Forney, Erin Oleson, Karen Martien, Marcia Muto, Mark Lowry, Jay Barlow, Jason Baker, Brad Hanson, Deanna Lynch, Lilian Carswell, Robert L. Brownell Jr., Jooke Robbins, David Mattila, Katherine Ralls, and Marie Hill, U.S. Pacific Marine Mammal Stock Assessments: 2011. Available: <http://www.nmfs.noaa.gov/pr/pdfs/sars/po2011.pdf>
- Oestman, R.; Buehler, D.; Reyff, J.; Rodkin, R. (2009). Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Report by ICF Jones & Stokes and Illingworth and Rodkin Inc. pp 298.
- U.S. Fish and Wildlife Service (USFWS). 1998. Alameda National Wildlife Refuge Draft Comprehensive Conservation Plan. Available <http://library.fws.gov/CCPs/alameda_draft.htm>. San Francisco Bay Trail Project. 2010. Bay Trail Maps, East Bay Richmond to Hayward. Available: <http://www.baytrail.org/Maps/East_Bay.pdf >. Accessed: November 10, 2010.

Attachment 1
Figures

Attachment 2
Tables

Attachment 3
Photos

Attachment 4
Response to NMFS comments

1. Regarding the time frame, the IHA application states that the project is scheduled to take place starting August 1, 2014, but may not begin until August 1, 2015. If the project is to start August 1 this year, the time frame for process this IHA is very tight, but I think it's doable. However, an IHA can only cover a period of one-year activity. So if we issue the IHA this year that is valid between 8/1/2014 and 7/31/2015, and if the project is postponed to next year, then you will have to come back again for another IHA early next year. So if you know up-front when the project will start, that would minimize a lot of work.

Response: Project is now scheduled starting August 1, 2015 (relative to in-water work). Thus, the IHA requested is for 08/01/15 to 07/31/16.

2. A couple of places in the IHA application mentioned pile removal (p. 1-5, 4th paragraph, 2nd line from bottom, and p. 6-1, 1st paragraph under "Estimated Duration of Pile Driving"). However, pile removal (including the number of piles to be removed) was not discussed in detail in the IHA application. Typically we treat pile removal the same as vibratory pile driving.

Response: Pile removal is part of the project. Additional detail now included.

3. Concerning pile driving, do you expect at any given time there could be more than two hammers conducting pile driving? In such a case, safety and harassment zones need to be calculated to reflect the activities.

Response: Only one hammer would be operated at a time.

4. On page 3-1, 2nd paragraph under "Species Present", it mentioned that one harbor seal was observed to breed on one of the adjacent breakwaters. Does this consider that the breakwater also serves as a breeding site for harbor seal?

Response: Yes. The very westernmost tip of Breakwater Island is presumed to be a possible breeding site. The rest of the Breakwater Island and the other Breakwater Island are not breeding or haul-out habitat.

5. On page 5-1, it lists a reference by Caltrans (2009). Could you provide the full citation and reference?

Response: Citation and reference now provided in application.

6. On page 5-2, it provides the pile driving time for impact pile driving. What about vibratory pile driving?

Response: Vibratory pile driving will take 15 to 30 minutes per pile using the vibratory hammer. Application text updated with this information.

7. Regarding mitigation measures (p. 11-1 - 11-2), there should be mitigation measures for pinniped entering exclusion zone (190 dB). If the 190 dB zone does not exist as a result of using bubble curtain, please state so. Typical mitigation for animals entering exclusion zone include power-down and shut down pile driving hammer.

Response: As explained in the application, we propose to maintain an exclusion zone within the 180 dB contour and to shut down operations if marine mammals entering the zone. A 180 dB contour is more conservative than a 190 dB contour.

8. Reporting plan. Typically we request that post-project monitoring plan be submitted to NMFS within 90 days after the conclusion of the project, or within 90 days after the 1-year IHA expires. Monitoring report shall include marine mammal sightings, number of animals sighted within exclusion and harassment zones and actions taken, animal behavior and behavior change, animals' age (pup, juvenile, adult), environmental condition such as weather, visibility, sea state, etc.

Response: Monitoring and reporting requirements in the application updated per this comment.

9. Is there a NEPA in place by another agency?

Response: Yes. The Federal Transit Administration (FTA) issued a Categorical Exclusion on May 30, 2013.

10.