US Army Corps of Engineers®

Oakland Harbor Turning Basins Widening

Revised Draft Integrated Feasibility Report and Environmental Assessment

APPENDIX A6a:

Cultural Resources Inventory

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Appendices

ACRONYMS

-42-Foot Project	-42-Foot Channel Dredging Project
-50-Foot Project	-50-Foot Oakland Harbor Navigation Project
ACHP	Advisory Council on Historic Preservation
APE	area of potential effects
bgs	below ground surface
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Register of Historic Resources
FISC	Fleet Industrial Supply Center
HAER	Historic American Engineering Record
IHTB	Inner Harbor Turning Basin
JRP	JRP Historical Consulting
LSA	LSA Associates, Inc.
MLLW	mean lower low water
NAHC	Native American Heritage Commission
NAS	Naval Air Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OHP	Office of Historic Preservation
OHTB	Outer Harbor Turning Basin
Port	Port of Oakland
SHPO	State Historic Preservation Officer
SLC	State Lands Commission
SLF	Sacred Lands File
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
YBM	Young Bay Mud

Chapter 1 Introduction

The United States Army Corps of Engineers (USACE), as the federal lead agency, and the Port of Oakland (Port), as the nonfederal sponsor, are conducting the Oakland Harbor Turning Basins Widening Navigation Study. The purpose of the study is to determine whether there is a technically feasible, economically justifiable, and environmentally acceptable recommendation for federal participation in performing marine navigation improvements to the constructed 50- -Foot Oakland Harbor Navigation Project (50- -Foot Project) that would allow larger vessels to conduct a safe and efficient turning maneuver at two distinct locations in Oakland Harbor. The 50- -Foot Project, completed circa 2009, was designed to accommodate a ship with a capacity of 6,500 twenty-foot equivalent units, a 1,139 -foot overall length, a 140 -foot beam, and a 48 -foot draft. Vessels currently calling on Oakland are longer, wider, and deeper than the design vessel used in the 50- -Foot Project.

In 2018, USACE completed a Section 216 Initial Appraisal Report,[1] which concluded that marine navigation inefficiencies in Oakland Harbor are caused by width limitations in the turning basins, not by depth limitations nor by landside capacity. The current fleet exceeds the maximum dimensions of the constructed 50- -Foot Project; the resulting inefficiencies are projected to persist into the future because the average vessel size and the frequency of larger vessels serving the Port are expected to increase.

This Cultural Resources Inventory Report discusses cultural resources (i.e., archaeological and historic architecture/built environment resources) present in the project area and is intended to support the preparation of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documentation for the study by USACE and the Port, respectively.

1.1 Project Location

The Port, further referred to as Oakland Harbor, is on the eastern side of San Francisco Bay (Figure 1-1). It includes the Entrance Channel, the Outer Harbor Channel and its Outer Harbor Turning Basin (OHTB), and the Inner Harbor Channel and its Inner Harbor Turning Basin (IHTB). The Outer Harbor Channel is immediately south of the San Francisco-Oakland Bay Bridge and is maintained to a depth of -50 feet mean lower low water (MLLW). The Outer Harbor Channel and OHTB serve the TraPac and Ben E. Nutter operating marine terminals, and Berths 20 through 24. The Outer Harbor Channel also serves Berth 10, a dredged material rehandling site at the eastern end of the Outer Harbor. The Inner Harbor Channel is also maintained to -50 feet MLLW. The Inner Harbor Channel and IHTB serve the Oakland International Container Terminal, Matson Terminal, and Schnitzer Steel Terminal.

[1] Section 216 of the 1970 River and Harbor and Flood Control Act authorizes investigations for modification of completed projects or their operation when they are found advisable due to significantly changed physical or economic conditions, and for improving the quality of the environment in the overall public interest.

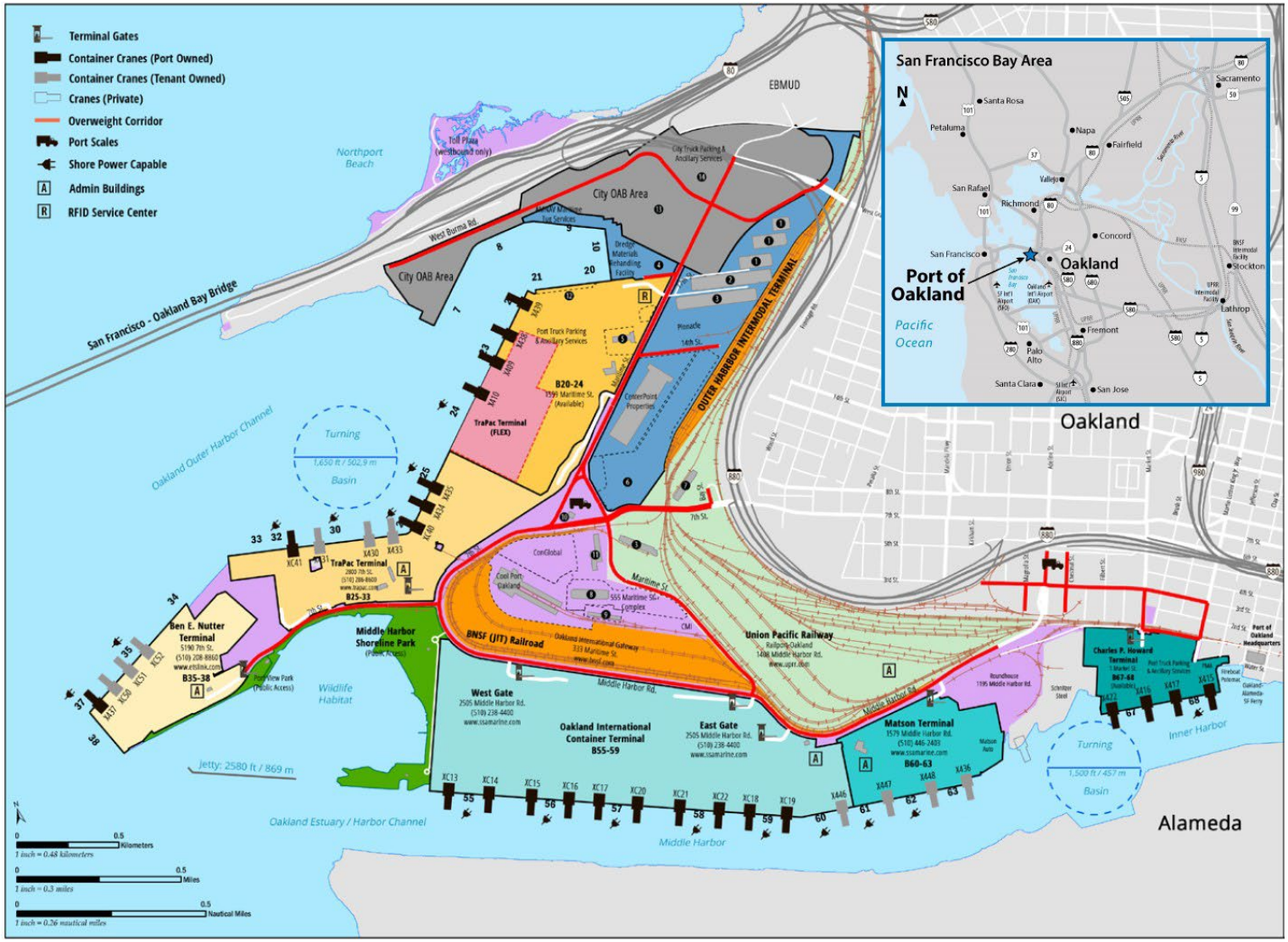

Figure 1-1 Current Port of Oakland Navigation Features

1.2 Description of Project Alternatives

Four project alternatives are under consideration:

1. No Action/No Project
2. Expansion of IHTB Only
3. Expansion of OHTB Only
4. Expansion of IHTB and OHTB

The alternative to expand both the IHTB and OHTB is being considered with two variations: one with diesel-powered dredges and one with electric-powered dredges. The IHTB Only and OHTB Only alternatives would use diesel-powered dredges.

1.2.1 No Action/No Project Alternative

Under NEPA, a No Action Alternative is analyzed as a benchmark to compare the magnitude of the potential environmental effects caused by the action alternatives. Under this alternative, the two turning basins would each remain at their existing dimensions; associated limitations, delays, safety issues, and inefficiencies in vessel maneuvering would continue indefinitely.

1.3 Expansion of Inner Harbor Turning Basin Only Alternative

The Expansion of IHTB Only Alternative consists of widening the existing IHTB from 1,500 feet to 1,834 feet with a depth of -50 feet MLLW, consistent with the existing depth of the IHTB. In addition to in-water work to widen the IHTB, land would be impacted in two locations: Howard Terminal and private property along the Alameda shoreline (Figure 1-2).

Construction activities at Howard Terminal (in the northeastern corner of the widened IHTB on Figure 1-2) include removal of asphalt and concrete pavement, installation of new bulkhead, removal of piles, and excavation of landside soil between the new bulkhead and existing rock dike. The construction of the new bulkhead includes installing steel sheet piles; steel pipe piles; and/or pre-cast, pre-stressed concrete piles through vibratory or impact pile driving methods. Ten percent of the total piles are assumed to be installed through the aquatic environment. Subsequently, batter piles would be installed, additional material would be dredged, and rock would be removed. Following installation of the new bulkhead wall and batter piles, dredging, and rock removal, rock would be installed for slope protection in the front of the new bulkhead wall. A typical rock slope protection section is shown on Figure 1-3.

Construction activities at the Alameda site (in the southeastern portion of the widened IHTB on Figure 1-2) would require partial demolition of two existing buildings, estimated to impact five warehouse bays. Like Howard Terminal, Alameda improvements include removal of asphalt and concrete pavement, installation of new bulkhead, removal of piles, and excavation of landside soil between the new and existing bulkhead. The construction of the new bulkhead includes installing steel sheet piles; steel pipe piles; and/or pre-cast, pre-stressed concrete piles through vibratory or impact pile driving methods. Ten percent of the total piles are assumed to be installed through the aquatic environment. Subsequently, batter piles would be installed and the existing bulkhead

would be removed, followed by dredging of material and removal of rock. Following installation of the new bulkhead wall and batter piles, dredging, and rock removal, rock would be installed for slope protection in the front of the new bulkhead wall. A typical rock section is shown on Figure 1-3.

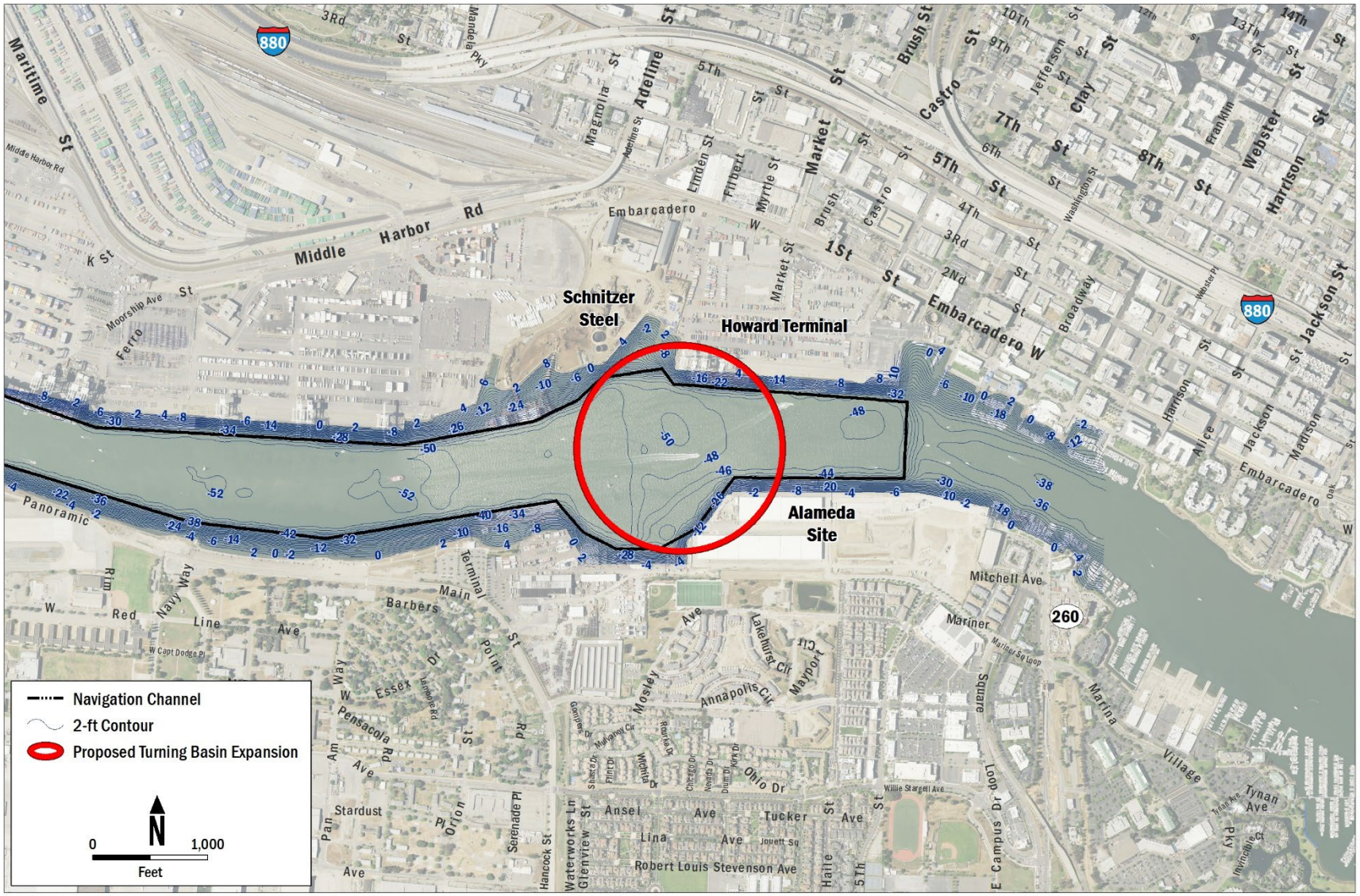

Figure 1-2 Proposed Expansion of Inner Harbor Turning Basin

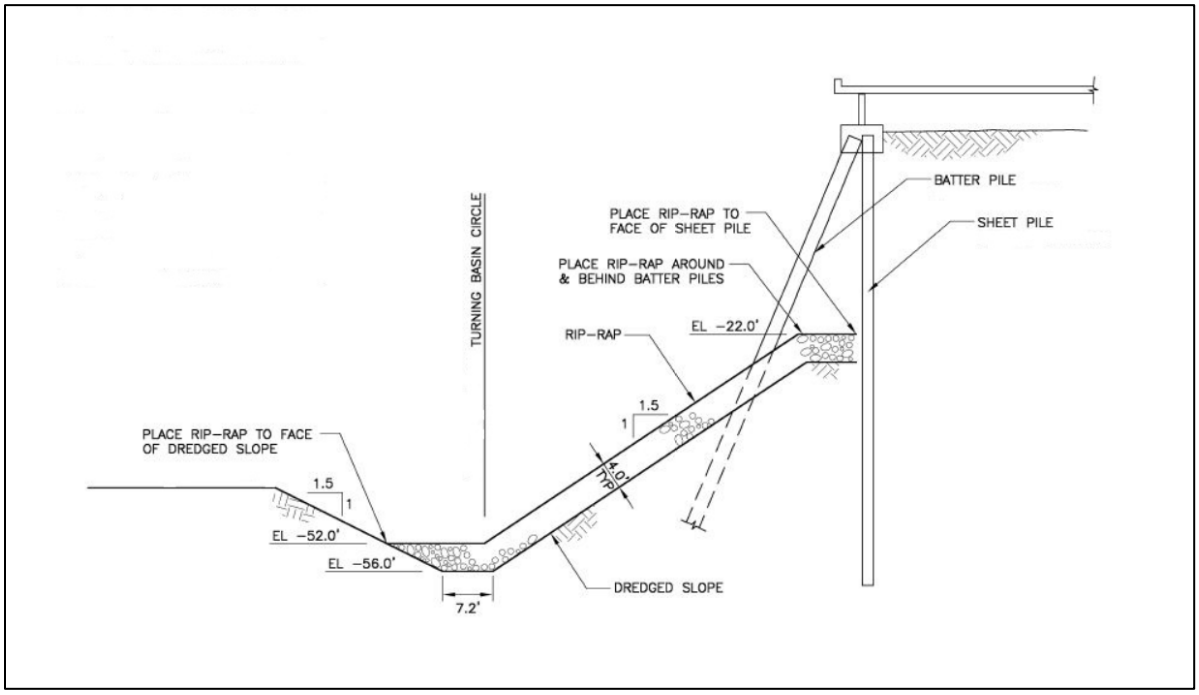

Figure 1-3 Preliminary Bulkhead Wall Cross-Section

An approximately 300- to 400 -foot long, in-water retaining structure may be required between the northwestern portion of the IHTB footprint and Schnitzer Steel property. Construction would include installation of steel sheet piles; steel pipe piles; and/or pre-cast, pre-stressed concrete piles by vibratory or impact pile driving methods, likely through the aquatic environment. Batter piles and rock would be installed through the water column to stabilize the structure.

For the Howard Terminal and Alameda sites, landside excavation of soils would occur to a depth of approximately -5 feet MLLW, which is approximately 15 feet below existing ground surface elevations.

For both sites, existing piles of up to 125 feet in length will be extracted. The depth of new disturbance for sheet pile/bulkhead installation is 70 feet (the length of a sheet pile) below ground surface (bgs) whether on developed area at Howard Terminal and Alameda or within the inundated sediments of the channel. Dredging of existing Inner Harbor sediments—that is, the areas currently considered submerged lands—would also be required. A total area of approximately 800,100 square feet would be impacted by dredging and landside construction activities for the IHTB widening.

Construction staging, including a construction trailer; equipment and construction materials storage; and material stockpiles, would occur at within the developed area at Howard Terminal and the Alameda property immediately adjacent to or close to the excavation areas.

1.4 Expansion of Outer Harbor Turning Basin Only Alternative

The Expansion of OHTB Only Alternative consists of widening the existing OHTB from 1,650 to 1,965 feet. The proposed expanded OHTB relative to the current limits of the navigation channel is shown on Figure 1-4. This alternative involves dredging material to widen the basin to a depth of -50 feet MLLW, consistent with the existing depth of the OHTB. In addition, for the portion of the expanded OHTB outside of the existing federal channel limits, there would be a 3:1 side slope for a distance of approximately 150 feet to transition from the turning basin depth of -50 feet MLLW to the adjacent sea floor. There are no upland impacts under the proposed footprint of the expanded OHTB Only Alternative. The impacted area is approximately 1,005,000 square feet. Construction staging would occur at Berth 10, at the eastern end of the Outer Harbor.

1.5 Expansion of the Inner and Outer Harbor Turning Basins Alternative

Under this alternative, both the IHTB and OHTB would be widened. The proposed improvements and construction methods for each turning basin would be the same as those described for the individual turning basin expansion alternatives.

Electric Dredging Variation

A variation of this alternative is being considered that would involve the use of an electric-powered barge-mounted clamshell/excavator dredge instead of a diesel-powered dredge. Under this variation, the installation of electric infrastructure is required in the Outer Harbor prior to dredging the Outer Harbor. The power provided at this location would be designed and designated for dredging use only to widen OHTB.

To support electrical dredging for widening the OHTB without using an existing outlet currently used for plugging in container ships which has voltage compatibility issues, electrical switchgear would be added near Berth 26 at the Outer Harbor. The electrical switchgear would be installed adjacent to the nearest existing substation, Substation SS-C-57, approximately 270 feet southeast of the water's edge at Berth 26 (Figure 1-4).

Construction activities would include excavating an approximate 150 foot-long, 2- foot-wide by 4- -foot-deep trench for new conduits that run from the new switchgear to existing utility vaults and Substation SS-C-57; and backfilling this trench with controlled density fill and base rock before repaving with asphalt concrete. If an existing concrete slab at the site was not suitable for the placement of the switchgear, excavation would be conducted for a new concrete foundation. Excavation would also be required for the placement of bollards and fencing along the perimeter of the switchgear.

1.6 Area of Potential Effects

The area of potential effects (APE) is defined as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties,

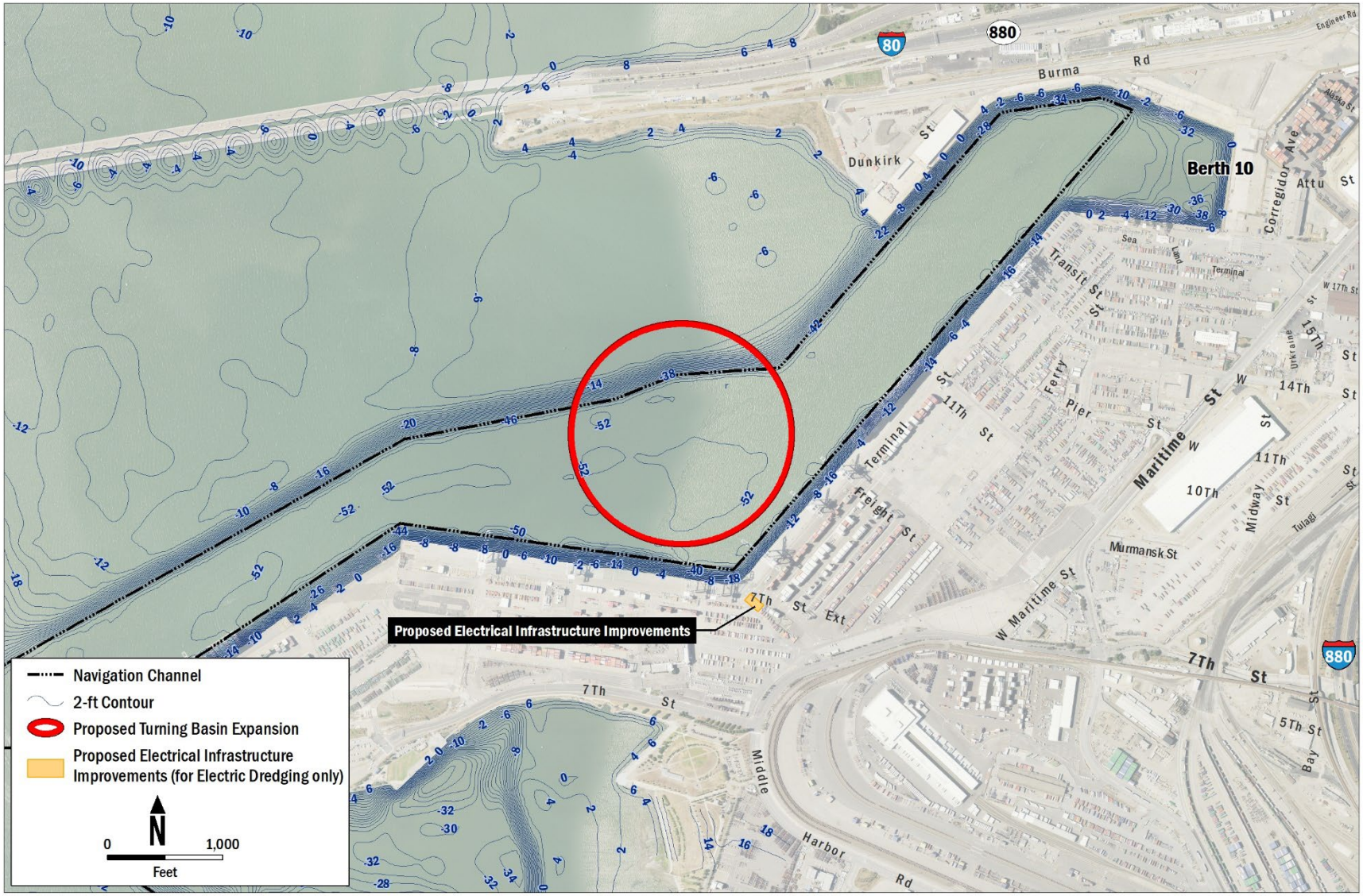

Figure 1-4 Proposed Expansion of Outer Harbor Turning Basin

if any such properties exist" (Title 36, Section 800.16[b] of the Code of Federal Regulations [CFR] [36 CFR 800.16(b)]). The APE for the current undertaking as it pertains to both archaeological and historic architectural resources comprises all areas of the proposed project where project implementation could have direct impacts to cultural resources, should there be any present.

1.6.1 Horizontal Area of Potential Effect

To delineate the horizontal extent of the APE for the proposed undertaking, USACE in consultation with the Port used the boundaries of the entire area that could experience physical disturbance as a result of project implementation. The APE addresses only direct effects within the limit of construction because the proposed undertaking would not introduce new features that could result in effects to the setting of neighboring historic resources known to occur in the vicinity of the Port. The APE for this undertaking thus comprises the proposed construction footprints for the IHTB and OHTB, inclusive of the electric dredging variation. Construction staging would occur in developed areas adjacent to the proposed construction areas at Howard Terminal and the Alameda site, and at Berth 10. Because no ground disturbance is proposed at these staging areas, they are not considered to be part of the APE. Similarly, existing roads would be used to provide ingress and egress to the project area. Accordingly, the roads to be used are likewise not included in the APE defined for the project. Figure 1-5 is a United States Geological Survey (USGS)-based map depicting both the IHTB and OHTB, showing the limits of construction that comprises the APE for the proposed project (please also refer to Figure 1-2 and Figure 1-3, which depict the construction limits in aerial-based imagery).

1.6.2 Vertical Area of Potential Effect

As implementation of the proposed project has the potential to impact buried and/or submerged archaeological resources, the vertical extent of the APE must also be defined. As determined from the construction details provided in Sections 1.3 and 1.4 above, for both sites, existing piles of up to 125 feet in length will be extracted. The new bulkhead walls for the Inner Harbor Turning Basin would require installation of sheet piles 70 feet in length. The expansion of both the IHTB and OHTB include excavation and dredging of the expansion areas to a depth of -50 feet MLLW, consistent with the depth of the existing turning basins, which equates to roughly 45 feet or less of actual sediment dredging in presently inundated areas. The maximum depth of the vertical APE for the current undertaking is 70 feet below existing current surface whether that be in the currently developed areas at Howard Terminal and Alameda or the inundated sediments of the channel, which corresponds to the installation of sheet piles for constructing the new bulkhead walls for the IHTB.

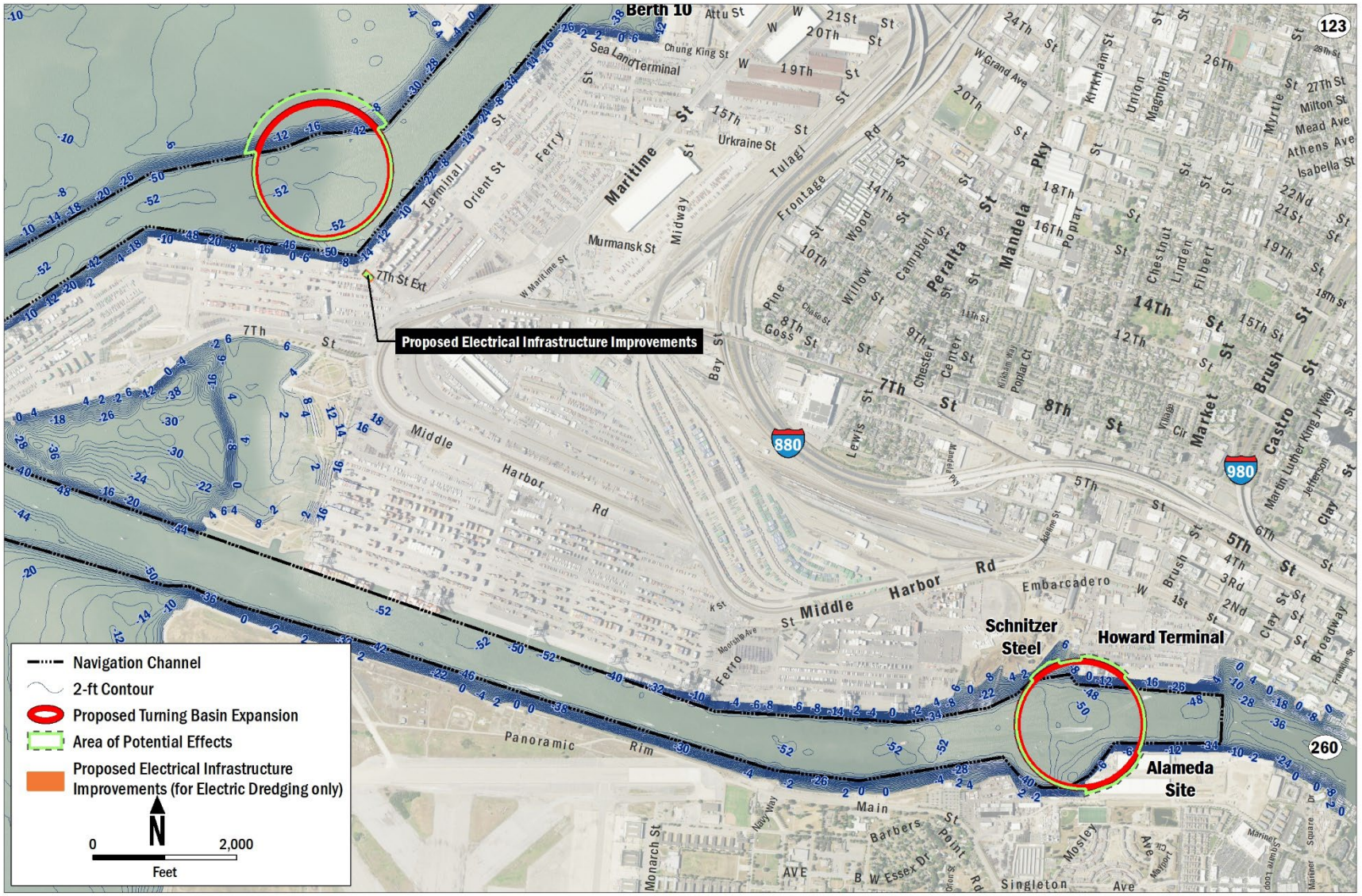

Figure 1-5 Area of Potential Effects

Chapter 2 Regulatory Setting

Cultural resources are typically buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Numerous laws, regulations, and statutes, on both the federal and state levels, seek to protect and target the management of cultural resources.

2.1 Federal Regulations

2.1.1 National Historic Preservation Act

The National Historic Preservation Act (NHPA) (16 United States Code [USC] 470 et seq.) declares federal policy to protect historic sites and values, in cooperation with other nations, states, and local governments. Subsequent amendments designated the State Historic Preservation Officer (SHPO) as the individual responsible for administering state-level programs. The act also created the President's Advisory Council on Historic Preservation (ACHP). Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the ACHP a reasonable opportunity to comment on those undertakings. Federal agencies are required by statute to "take into account" the effects of their actions and undertakings on "historic properties." A historic property is the federal term that refers to cultural resources (e.g., prehistoric or historical archaeological sites, maritime historical resources including shipwrecks, buildings, and structures on the shore or in the water, and cultural artifacts) that are 50 or more years old, possess integrity, and meet the criteria of the National Register of Historic Places (NRHP). The NRHP eligibility criteria are found at 36 CFR Section 60.4. A lead federal agency is responsible for project compliance with Section 106 of the NHPA and its implementing regulations, set forth by the ACHP at 36 CFR Part 800.

2.1.2 Submerged Lands Act

The Submerged Lands Act established state jurisdiction over offshore lands within 3 miles of shore (or 3 marine leagues for Texas and the Gulf Coast of Florida). The act did reaffirm the federal claim to the Outer Continental Shelf, which consists of those submerged lands seaward of state jurisdiction. However, the act limited states' claims to the submerged lands inside the landward boundary of the Outer Continental Shelf. Several federal courts rejected, for various reasons, state positions on historic preservation laws that pertained to shipwrecks within this 3-mile zone. Judicial conclusions from cases involving the Submerged Lands Act were inconsistent, yet shipwrecks in state waters were still at risk from damage and destruction. These circumstances provided the momentum for the passage of the Abandoned Shipwreck Act, which largely superseded the Submerged Lands Act.

2.1.3 Abandoned Shipwreck Act

The Abandoned Shipwreck Act (43 USC 2101–2106) is a federal legislative act, but does protect shipwrecks found in state waters. The Abandoned Shipwreck Act also

states that the laws of salvage and finds do not apply to abandoned shipwrecks protected by the act. Under the Abandoned Shipwreck Act, the United States asserts title to abandoned shipwrecks in state waters that are either:

- Embedded in state-submerged lands;
- Embedded in the coralline formations protected by a state on submerged lands; or
- Resting on state-submerged lands and are either included in or determined eligible for the NRHP.

The Abandoned Shipwreck Act also has a provision for the simultaneous transfer, by the federal government, of title for those abandoned shipwrecks to the state(s) in whose waters the wrecks are located.

2.1.4 American Indian Religious Freedom Act

The American Indian Religious Freedom Act (42 USC 1996, et seq.), regulated under 43 CFR 7, has been established to protect religious practices, ethnic heritage sites, and land uses of Native Americans. The Act makes it a policy to protect and preserve for American Indians, Eskimos, Aleuts, and Native Hawaiians their inherent right of freedom to believe, express, and exercise their traditional religions. The Act allows them access to sites, use and possession of sacred objects, and freedom to worship through ceremonial and traditional rights. It further directs various federal departments, agencies, and other instrumentalities responsible for administering relevant laws to evaluate their policies and procedures in consultation with Native American traditional religious leaders to determine changes necessary to protect and preserve Native American cultural and religious practices.

2.2 State Regulations

In California, cultural resources include archaeological and historical objects, sites and districts; historic buildings and structures; cultural landscapes; and sites and resources of concern to local Native American and other ethnic groups. Compliance procedures are set forth in CEQA, California Public Resources Code (PRC) Sections 15064.5 and 15126.4. The primary applicable state laws and codes are presented below.

California Native American Graves Protection and Repatriation Act (2001). In the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010-8030), broad provisions are made for the protection of Native American cultural resources. The Act sets the state policy to ensure that all California Native American human remains and cultural items are treated with due respect and dignity. The Act also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California. Likewise, the Act outlines the mechanism with which California Native American tribes not recognized by the federal government may file claims to human remains and cultural items held in agencies or museums.

California PRC, Section 5020. This California code created the California Historic Landmarks Committee in 1939. It authorizes the Department of Parks and Recreation to designate Registered Historical Landmarks and Registered Points of Historical Interest.

California PRC, Section 5097.9. PRC Section 5097.9 details procedures to be followed whenever Native American remains are discovered. It states that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution. It further states that no such agency or party shall cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine on public property, except on a clear and convincing showing that the public interest and necessity so require.

California PRC, Section 7050.5. Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, the PRC states that there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until the coroner of the county in which the human remains are discovered has determined the remains to be archaeological. If the coroner determines that the remains are not subject to his or her authority, and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact the Native American Heritage Commission (NAHC) by telephone within 24 hours.

California Health and Safety Code, Section 7051. Under this code, every person who removes any part of any human remains from any place where it has been interred, or from any place where it is deposited while awaiting interment or cremation, with intent to sell it or to dissect it, without authority of law, or written permission of the person or persons having the right to control the remains under Section 7100, or with malice or wantonness, has committed a public offense that is punishable by imprisonment in the state prison.

California Code of Regulations, Title 14, Section 4307. Under this state preservation law, no person shall remove, injure, deface, or destroy any object of paleontological, archaeological, or historical interest or value.

2.3 Significance Criteria

This report is intended to support USACE's NEPA compliance and to address their Section 106 obligations; and to serve the Port's requirements under CEQA. Accordingly, federal and state significance criteria as well as the conformity between these criteria are presented in the following sections.

2.3.1 Federal Significance Criteria

The four evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified at 36 CFR 60.4. These evaluation criteria, listed below, are used to assist in determining what properties should be considered for protection from destruction or impairment resulting from project-related activities (36 CFR 60.2).

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

a. Resources that are associated with events that have made a significant contribution to the broad patterns of our history; or
b. Resources that are associated with the lives of persons significant in our past; or
c. Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d. Resources that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

2.3.2 State Significance Criteria

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under PRC Sections 15064.5 and 15126.4, and the draft criteria regarding resource eligibility to the California Register of Historic Resources (CRHR).

Generally, under CEQA, a historical resource (these include built-environment historic and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR. These criteria are set forth in PRC Section 15064.5 and are defined as any resource that:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
b. Is associated with lives of persons important in our past;
c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
d. Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under California PRC Section 5097.98.

Impacts to “unique archaeological resources” are also considered under CEQA, as described under PRC Section 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

a. The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;

b. The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

c. The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

The lead agency shall first determine whether an archeological resource is an historical resource before evaluating the resource as a unique archaeological resource (CEQA Guidelines 15064.5 [c] [1]). A nonunique archaeological resource is an archaeological artifact, object, or site that does not meet the above criteria. Impacts to nonunique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

Under CEQA Section 15064.5, a project would potentially have significant impacts if it would cause substantial adverse change in the significance of one of the following:

a. A historical resource (i.e., a cultural resource eligible for the CRHR);

b. An archaeological resource (defined as a unique archaeological resource which does not meet CRHR criteria); or

c. Human remains (i.e., where the project would disturb or destroy burials).

A nonunique archaeological resource is given no further consideration, other than the simple recording of its existence, by the lead agency.

2.3.3 Conformity of Federal and State Evaluation Criteria

The criteria for eligibility for the CRHR are very similar to those that qualify a property for the NRHP, which is the significance assessment tool used under the NHPA. The criteria of the NRHP apply when a project has federal involvement.

A property that is eligible for the NRHP is also eligible to the CRHR. All potential impacts to significant resources under a federal agency must be assessed and addressed under the procedures of Section 106 of the NHPA, set forth at 36 CFR 800. All resources encountered during the project, with the exception of isolate artifacts and isolate features that appear to lack integrity or data potential, will be evaluated for significance in regard to Section 106.

Chapter 3 Environmental and Cultural Setting

Because cultural resources, both archaeological and historic architecture, are best identified and assessed in association with their natural and cultural contexts, brief discussions of the natural and cultural settings of the APE and surrounding area are provided below.

3.1 Natural Setting

The San Francisco Bay region consists of a varied landscape of estuaries, plains, rolling hills, and rugged ridge lands. Dominating the landscape is the Bay itself, a 50-mile-long inland chain of salt-water estuaries (Milliken 1995:14). The eastern shore of San Francisco Bay is bordered by a broad, sloping plain, broken by isolated hills and ridges (Wallace and Lathrap 1975:1-2). Widely separated valleys, containing small streams that normally flow at all seasons, cut across this plain in an east-west direction. The plain extends gently upward to the Oakland/Berkeley Hills, a prominent range 15 miles long and 10 miles wide (Wallace and Lathrap 1975:2).

The local climate is typified by clear summer days and mild, cool winters (Josselyn 1983:21). The climate, sometimes classified as Mediterranean, consists of two seasons. The rainy season extends from late October to mid-April, a period during which 94 percent of the annual precipitation falls (Josselyn 1983:21). The dry season is influenced by cool marine air along the coast, and hot, dry weather inland.

3.1.1 Paleoenvironment

Because the early Native Americans were dependent entirely on natural resources, their lifeways can be understood fully only with reference to the land and climate (Moratto 1984:2). During the prehistoric period, the Bay Area featured a mosaic of plant communities ranging from salt marsh to redwood forest to grassland to mixed-evergreen woodland (Moratto 1984:221). The East Bay plain was predominately grass covered, with patches of brush and coast live oak groves (Wallace and Lathrap 1975:2; Chavez 1989). Vegetation was most dense along the freshwater drainages, which supported yellow willow, California laurel, California buckeye, and coast live oaks (Wallace and Lathrap 1975; Chavez 1989).

San Francisco Bay, as we now know it, was formed during a period of relatively rapid sea-level rise (an average rate of 2 centimeters per year) between 9,000 and 6,000 B.C. (Stright 1990:451). After 4,000 B.C., when the sea-level rise slowed to a rate of 0.1 to 0.2 centimeters per year, marshes began to develop around the Bay. During this post-4,000 B.C. period, numerous shell middens were created as a result of human activity in the Bay Area (Stright 1990:451). Because of rising sea levels, many early sites may have been destroyed or may currently be submerged. The changing environment would have also played a role in shifts in subsistence through time (Bickel 1978; Moratto 1984).

A marked slowing in the rate of sea-level rise occurred approximately 6,000 B.C. (Bickel 1978:11; Josselyn 1983:6). Eventually, sedimentation rates exceeded the sea-level rise

and extensive intertidal mudflats developed (Bickel 1978:11; Josselyn 1983:6). Many of the marshlands surrounding the Bay were established no more than 3,000 years ago (Moratto 1984:221).

The growth of the marshes is of archaeological interest because most of the San Francisco Bay shell middens were near marshes (Nelson 1909; Bickel 1978). Marshes are particularly productive ecosystems. The area's prehistoric populations took advantage of this productivity by harvesting fish, shellfish, birds, and land mammals that live or feed in or near the marsh, as well as the marsh plants themselves (Bickel 1978:12).

The present-day tidal wetlands have been greatly impacted by anthropogenic influences, and we can now only infer how prehistoric marshes may have appeared (Josselyn 1983:6). The most dramatic changes occurred during the period of hydraulic mining for gold in the Sierra Nevada (1855-1884). Sediments resulting from the removal of overburden flowed into streams, and fine sediments reached Suisun and San Pablo Bays, causing widespread shoaling (Josselyn 1983:12). Prior to historic-period development described below, both the IHTB and OHTB were undeveloped marshlands (intertidal). The urbanization of the Bay Area in the post-World War II era has also encroached substantially on the remaining tidal wetlands.

3.2 Prehistoric Context

The first regional chronology for the Bay Area was established by R.K. Beardsley in 1948 (Beardsley, 1948, 1954a, 1954b). This scheme was originally devised for chronologically organizing sites from Central California, the Sacramento Delta, and the northern San Joaquin Valley (Lillard et al. 1939). Beardsley (1954a) refined this scheme, which became known as the Central California Taxonomic System (Moratto 1984). The system relies on identifying certain characteristics such as burial patterns (whether the body is flexed or extended), shell bead types, stone tools, and even where the sites tend to occur. These traits and characteristics are used to place a site in a specific time period. The system is still widely used by archaeologists, and organizes the archaeology of the region as follows:

- Paleoindian: earlier than 8,000 years ago
- Early Horizon: 8,000 to 2,500 years ago
- Middle Horizon: 2,500 to 1,100 years ago
- Late Horizon: 1,100 to 200 years ago
- Historic: 200 years ago, to modern times

Scholars have debated whether the Early Horizon inhabitants of the Central Valley were culturally related to inhabitants of San Francisco Bay, or if they developed independently (Bickel 1981; Gerow and Force 1968). The exact dynamics of cultural change and interchange between these two groups is still unclear.

It has been suggested that the Early Middle Horizon (4,500 to 2,500 years ago), now referred to as the Windmiller Pattern, is associated with an influx of peoples from outside of California who brought with them an adaptation to river-wetland environments (Moratto 1984:207). Typical Windmiller sites are often situated in riverine, marshland,

and valley floors, settings that offer a variety of plant and animal resources. These sites often contain burials that are extended ventrally and oriented to the west. Burial artifacts include a variety of fishing paraphernalia (net weights, spear points, and bone hooks) and large projectile points, as well as large and small mammal remains.

The subsequent Middle Horizon or Berkeley Pattern covers a period from 2,500 to 1,500 years ago in Northern California. This pattern overlaps somewhat with the Windmiller attributes at the beginning and with the late Prehistoric artifacts at the end. Berkeley Pattern sites are much more common and well documented; therefore, they are better understood than the Windmiller sites. The sites are distributed in more diverse environmental settings, although a riverine focus is common. As described by Allan et al. (1997:9), sites from this period include deeply stratified midden deposits containing large assemblages of milling and grinding stones for the processing of vegetal resources, as well as smaller, lighter projectile points. Further distinguishing traits from earlier patterns include artifacts such as slate pendants, steatite beads, stone tubes, and ear ornaments. A shift in burial patterning is also evident with variable directional orientation, flexed body positioning, and a general reduction in mortuary goods (Fredrickson 1973; Moratto 1984).

Fredrickson (1973) has defined the later prehistoric period, which ranges from 1,500 to 150 years ago, as the Augustine Pattern. The pattern is characterized by intensive hunting, fishing, and gathering, a focus on acorn processing, large population increases, intensified trade and exchange networks, more complex ceremonial and social attributes, and the practice of cremation in addition to flexed burials. As pointed out by Allan et al. (1997:9), certain artifacts also typify the pattern: bone awls for use in basketry manufacture, small notched and serrated projectile points, the introduction of the bow and arrow, occasional pottery, clay effigies, bone whistles, and stone pipes.

3.3 Ethnographic Context

Based on linguistic and archaeological evidence, it is believed that Penutian-speaking peoples entered the Bay Area from the Sacramento River Delta region, displacing or replacing speakers of Hokan stock languages of the Bay Area, such as Esselen (Kroeber 1925; Moratto 1984:552). The proto-Costanoan homeland was probably in the East Bay area, possibly in the Carquinez Straits vicinity (Moratto 1984:554).

By around 1500 B.C., Costanoans occupied most of the eastern shore of San Francisco Bay, presumably displacing or assimilating older Esselen language speakers as they advanced (Moratto 1984:554). Moratto (1984:207) indicates that the Berkeley Pattern, including the components previously assigned to the Middle Horizon, is attributable to the emergence of the Costanoan peoples.

The project area is situated within the *Chochenyo* territory of the Costanoan Indians. Costanoan is not a native term, but rather is derived from the Spanish word *Costanos*, meaning coast people (Kroeber 1925:462). The term Ohlone is preferred by tribal groups representing the area.

The basic unit of the Ohlone political organization was the tribelet, consisting of one or more socially linked villages and smaller settlements within a recognized territory

(Moratto 1984:225). Principal villages were established at ecotones; that is, junctures of two or more biotic communities (e.g., oak woodland – bayshore marsh) (Moratto 1984:225).

Subsistence activities emphasized gathering berries, greens, and bulbs; harvesting seeds and nuts—of which acorn was the most important; hunting for elk, deer, pronghorn, and smaller animals; collecting shellfish; and taking varied fishes in stream, bay, lagoon, and open coastal waters (Moratto 1984:225).

The population and traditional lifeways of the Ohlone were severely affected by the influences of the Spanish colonists and the Mission system. As the result of enforced missionization, disease, and direct assault, by 1800, few if any Ohlone remained on the land or subsisted in native lifeways; in fact, native population had declined in some areas by as much as 90 percent.

3.4 Historic Context

3.4.1 The Spanish Period

Spanish explorers first sighted San Francisco Bay in 1769, and a Spanish supply ship entered it in 1775. The first settlers—Spanish soldiers and missionaries—arrived in the Bay Area in 1776. The native Ohlone culture was radically transformed when European settlers moved into northern California, instituting the mission system and exposing the native population to diseases to which they had no immunity. Mission San Francisco de Asis (Mission Dolores) was founded in 1776, and still remains across the Bay, approximately 7 miles southwest of the APE. The Mission drew native people from the entire Bay Area, and Mission records indicate that the native Huchiun moved to the Mission from 1787 until 1805 (Archaeological/Historical Consultants 1993; Minor 2000; LSA 2011).

By the 1820s, the Bay Area had a Spanish fort, town, and five missions in the region. During this period, large tracts of land were granted to individuals for cattle ranches. The hide and tallow trade were the main economic activity in California during this time. Following the dissolution of the mission system in 1834, native people in the Bay Area moved to ranchos, where they worked as manual laborers. In 1820, the King of Spain granted Don Luis Maria Peralta the Rancho San Antonio (also known as the Peralta Grant), which comprised approximately 44,800 acres, and all of the present-day cities of Oakland, Piedmont, Berkeley, Emeryville, Alameda, Albany, and part of San Leandro (Archaeological/Historical Consultants 1993; Minor 2000; LSA 2011).

3.4.2 The Mexican Period

Following Mexico's independence from Spain in 1821, the hide and tallow trade continued to be a dominant industry in the Bay Area and throughout California. Peralta's land grant was confirmed after Mexico's independence from Spain in 1822, and the title would be honored again when California entered the Union in 1848. The Peralta family and other, smaller ranchers raised cattle along the hills and grasslands, and shipped hides and tallow from the Bay. Before Don Luis Peralta died, he divided his vast estate

among his four surviving sons. Antonio Maria Peralta received all of Alameda and much of Oakland (Archaeological/Historical Consultants 1993; Minor 2000).

3.4.3 American Period

In 1850, Colonel Henry S. Fitch attempted to make the first purchase of land that would become Oakland; a year later, William Worthington Chipman and Gideon Aughinbaugh purchased from Antonio Peralta the 160-acre "Encinal" on the peninsula of what is now the island of Alameda. The township of Oakland was incorporated in 1852, following settlement by squatters in 1849–1850 on lands that were part of the Peralta family's Rancho San Antonio. During the 1850s and 1860s, Oakland developed as a small residential and industrial center. According to the 1860 United States Census, the population of Oakland had reached 1,543, and 10 years later the national census reported 10,500 residents (Bagwell 1982:41–42).

Oakland's development during this period was aided by its ability to provide goods and services to San Francisco, and by its proximity to natural resources (Douglass 2004:31). The creation of new and more extensive transportation networks, which delivered those goods and services to San Francisco and beyond, was central to the area's development. In 1863, a wharf was constructed at the foot of 7th Street to provide ferry service to San Francisco. That same year, a daily rail service was built along 7th Street, connecting downtown Oakland to the ferry terminal (Bagwell 1982:47). The Encinal train station was built in 1864; by 1869, Oakland was the western terminus for the first transcontinental railway (Hoover and Kyle 2002). The Alameda pier was built in 1884, providing a transportation connection for rails to ferries. The Central and Southern Pacific railroads merged in 1894, leading the pier to become known as the Alameda Mole.[2] During the 1890s, streetcars gradually replaced horsecars, and new transit routes allowed residents to more easily travel between the communities of Oakland, Alameda, Berkeley, and Fruitvale (Rice et al. 2002:251).

With the completion of the Bay Bridge in 1936 and the increasing reliance on automobiles for routine transportation needs, suburbs expanded, leading to land use changes across the East Bay. West Oakland became a center of the African American community in the twentieth century, particularly because "red-lining" practices limited access to rental properties and home ownership east of Grove Street (now Martin Luther King Boulevard) (Baker 2015:10). The post-war period brought additional changes through expansive freeway construction, which resulted in the demolition of buildings and isolation of some neighborhoods (Douglass 2004:46).

3.4.4 Site-Specific History

Prior to the historic-era, both the IHTB and OHTB were undeveloped marshlands (intertidal). Following passage of the Rivers and Harbors Act of 1873, USACE began the planning of improvements in what was to ultimately become Oakland Harbor. The Act authorized improvements to San Antonio Creek, including deepening the channel

[2] Historically, the term "mole" was used in the San Francisco Bay Area to refer to the combined structure of a causeway and wooden pier or trestle upon which railroad tracks were extended into the Bay to link railroads with the ferry system.

leading to the Oakland Estuary and the Brooklyn Basin. USACE's first project was to build parallel "training walls," running 750 to 1,000 feet apart, to direct (i.e., train) the tides in such a way as to scour the bottom of the newly created channel. USACE determined through tidal flow studies that the natural tidal action would deepen the channel to 12 or 14 feet below low tide within 1 or 2 years. USACE also proposed improvements at the mouth of San Leandro Bay to direct the ebb tide to drain through the new channel (JRP 1996: 6).

Construction of the two training walls commenced in 1875. By July 1876, the northern training wall was 9,400 feet in length; the southern train wall was slightly longer, at 10,806 feet Construction of the walls continued through 1878, at which time USACE determined them to be complete. The channel had not, however, experienced the degree of scouring that had been anticipated, and USACE recommended raising the height of the walls (JRP 1996:6).

According to JRP (1996), construction was interrupted during the late 1870s due to a land-ownership dispute between the federal government and the State of California. In 1881, the disagreement had been settled and construction was allowed to resume. By July of 1881, about half of the northern training wall had been raised to the high-water mark and about half of the southern training wall had been raised to 5 feet above low water (just below the high-water level). The work continued through 1888, raising the walls to 9 feet above low water, which USACE believed to be at least 1 feet above the highest springtime level (JRP 1996: 6).

USACE continued construction of the training walls into the 1890s, further raising and ultimately finishing them in dry-laid masonry. Construction of the training walls appears to have been completed by 1896. The first infill behind the walls was the construction of the railroad moles. The Southern Pacific Railroad built a mole on the Alameda side in the late 19th century; the Western Pacific Railroad built their mole behind the northern training wall in the mid-1910s. The two cities and some private parties gradually filled in (i.e., reclaimed) land behind the moles. By the late 1930s, some minor infill existed on both sides, with more in Alameda than in Oakland. During the late 1930s and early 1940s, the Army and Navy filled in thousands of acres behind the two training walls, creating the land in Alameda for both Naval Air Station (NAS) Alameda and the Fleet Industrial Supply Center (FISC). The training walls ultimately established the boundaries for the future development of the area, including what was to become Alameda to the south of the channel; and the Western Pacific Railroad rail yards (now Union Pacific Railroad), the Naval Supply Center, and the Oakland Army Base on the Oakland (north) side of the channel. In time, the tidelands and waterways south of the Alameda Training Wall and north of the Oakland Training Wall would be infilled, and this infill obscured from view the surfaces of the two training walls (JRP 1996: 7-8).

Chapter 4 Identification of Cultural Resources

A number of tasks were completed to identify cultural resources in the APE. These included a records search, Native American consultation, and a windshield reconnaissance of the APE delineated for the undertaking. The marine components of the APE were analyzed using the database of shipwrecks maintained by the California State Lands Commission (SLC), in concert with the results of previously conducted geophysical surveys.

4.1 Records Search

A cultural resources records search was conducted by AECOM Senior Archaeologist and Historian Karin G. Beck at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, on June 30, 2021 (File No. 202678) (Appendix A). The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and studies for Alameda County. Site records and previous studies were accessed for the APE and a 0.5-mile radius in the USGS *Oakland West* 7.5-minute quadrangles. The following references also were reviewed:

- National Register of Historic Places (NRHP) (NPS 2021)
- California Register of Historical Resources (CRHR) (OHP 2021)
- *Five Views: An Ethnic Historic Site Survey for California* (OHP 1988)
- California State Historical Landmarks (OHP 1996)
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976)
- California Points of Historical Interest (OHP 1992)
- Built Environment Resources Directory (OHP 2020)
- Handbook of the North American Indians: Costanoan (Levy 1978)
- USGS 15-minute *San Francisco, California* Topographic Map (1895, 1915, 1947)
- USGS 7.5-minute Oakland West, California Topographic Maps (USGS 1949)
- Historic Aerial Photographs, Oakland and Alameda (University of California, Santa Barbara 1931, 1939, 1965)

No historic properties occur in the Outer Harbor portion of the APE. The records search did reveal that the Carnation Mill and Elevator (P-01-011758) was recorded (Basin Research 1998; Corbett and Hardy 1988) onshore, just south of the OHTB APE. This resource was found to be ineligible for inclusion in the NRHP/CRHR and has since been razed and replaced by modern container cranes.

The records search also revealed that the entirety of the terrestrial portions of the IHTB APE, Howard Terminal and the FISC/Bay Ship & Yacht parcel in Alameda, have been

previously inventoried for cultural resources. Two FISC warehouses located on the Alameda side of the IHTB APE were determined to be ineligible for listing on the NRHP by JRP (1996) during their assessment of the Alameda Annex and Facility of the Fleet and Industrial Supply Center, Oakland. In 1996, the California Office of Historic Preservation concurred that the two FISC warehouses at the Alameda Annex and Facility were ineligible for listing in the NRHP (Widell 1996).

For implementation of the -50- Foot Project, a portion of the northern of the two FISC warehouses was demolished to allow for that earlier expansion of the IHTB. Subsequent to the -50- Foot Project, both FISC structures have been subjected to additional demolition efforts in support of local (i.e., Alameda County) projects.

According to the records search materials, Corbett and Hardy (1988) did identify the Todd-United Engineering Company Shipyard Historic District (P-01-003218; Historic Resource Inventory #4501-0325-9999) in the Alameda portion of the IHTB APE. The Todd-United Engineering Company Shipyard Historic District is the only historic property that has been identified within the undertaking's entire APE; however, as described below the extent of the resource in the current APE is no longer extant having been demolished for the previous -50-Foot Project.

P-01-003218, Todd-United Engineering Company Shipyard Historic District.[3] This resource in Alameda was first recorded by Corbett and Hardy (1988) and later evaluated as a historic district by Basin Research (1998). Subsequently, USACE provided a recommendation to California's SHPO, indicating that the resource was eligible for listing in the NRHP (Thompson 1998). The Todd-United Engineering Company Shipyard (at the time of recording) consisted of 27 structures that occupied almost 50 acres at the northern end of Main Street along the Oakland Estuary (Inner Harbor). Most of the structures dated from 1941 through 1948, when the shipyard was established. Four of the buildings were built in 1911 for the Southern Pacific Company's electric car shops, and five were built after 1948. It should be noted herein that none of the elements of this resource remain in the current APE. A review of the documentation and evaluation of the resource by Corbett (2001), Corbett and Hardy (1988), and Basin Research (1998) indicates that the only contributing elements of the district previously located in the current APE were East Pier, also known as Pier 4, and the ill-defined "Wet Basin" an area of open water to west of non-contributing Pier 2. These researchers reported that the East Pier was partly demolished for the Port's 42- -Foot Channel Dredging Project (-42-Foot Project). Physical inspection of the area, along with a review of current aerial imagery, reveals that none of East Pier remains (Figure 4-1). The remainder of the East Pier was evidently to be demolished during implementation of the -50 -Foot Project (Port of Oakland 1999:4). The Wet Basin was also evidently to be destroyed by the -50-Foot Project (Port of Oakland 1999:4). The East Pier and Wet Basin are no longer extant and thus none of the previously identified Todd-United Engineering Company Shipyard Historic District occurs in the current APE.

[3] This resource is referred to as both Todd Shipyard and United Engineering Company Shipyard as well as various combinations thereof (e.g., Corbett 2001 vs Corbett and Hardy 1988). To avoid confusion, the name Todd-United Engineering Company Shipyard is used herein.

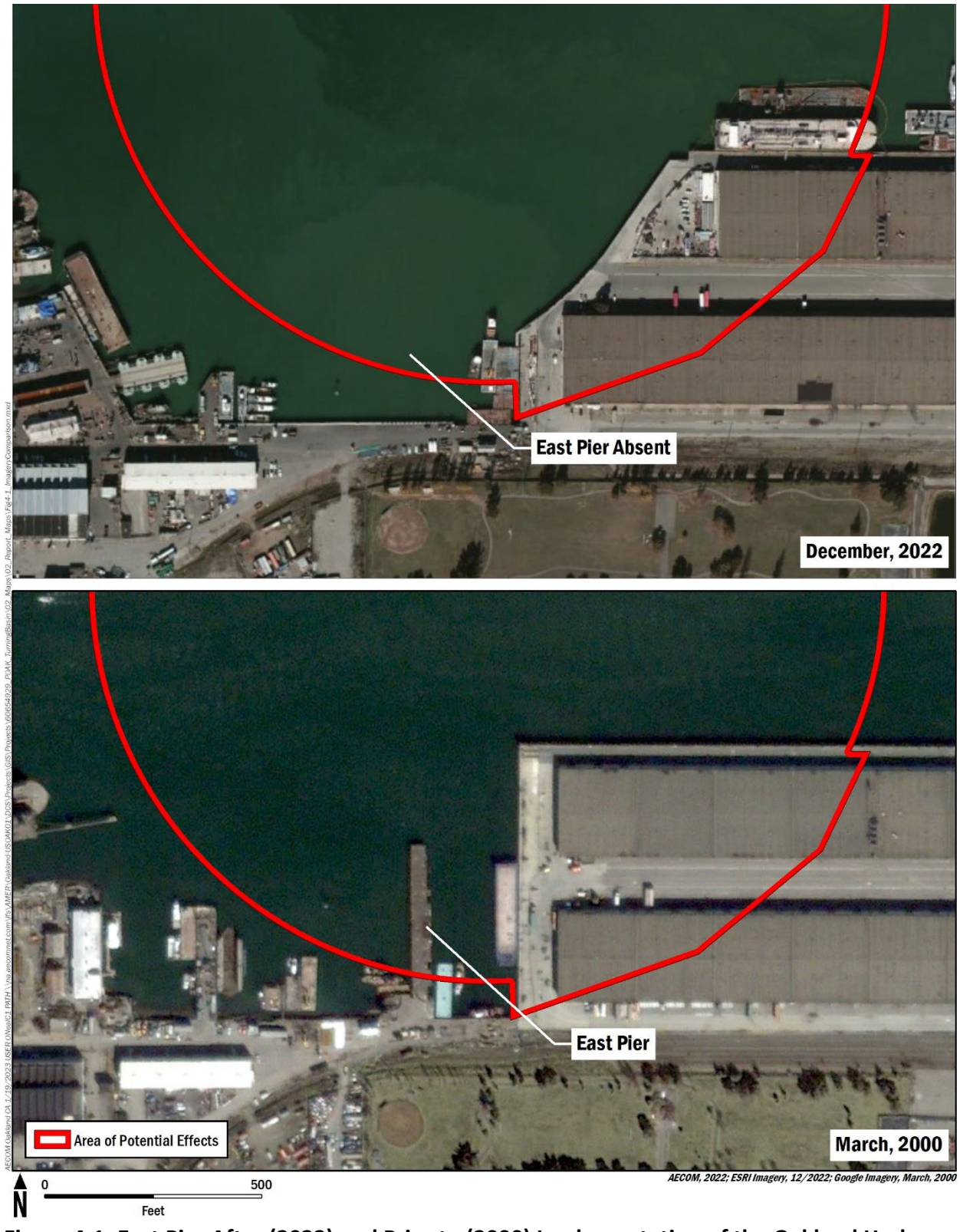

Figure 4-1: East Pier After (2022) and Prior to (2000) Implementation of the Oakland Harbor Navigation Improvement (-50-Foot Project)

There are nine additional historic resources in the general vicinity, but none occur in the APE delineated for the undertaking. These include:

- Oakland Harbor Training Walls and Federal Channel;
- Naval Supply Center Oakland Historic District;
- Oakland Army Base Historic District;
- Southern Pacific West Oakland Shops Historic District;
- NAS Alameda Historic District on NAS Alameda;
- Southern Pacific Railroad Industrial Landscape Historic District in Oakland;
- Main Shop Building of the Todd Shipyard (individually eligible);
- USS Potomac; and
- Crane X422 – Howard Terminal.

Please note that dispute exists on the significance of Crane X422, as discussed in the recent Waterfront Ballpark District at Howard Terminal Environmental Impact Report (City of Oakland 2021). The final significance of the potential historic resource is, however, not an issue for the current undertaking because Crane X422 is mobile (i.e., on rails); the current undertaking does not include the removal or demolition of the structure, and it is assumed herein that it will remain at Howard Terminal.

In addition to the record search at the NWIC, a review of the shipwreck databases maintained by the SLC (http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp) was conducted, given that the majority of the APE occurs in currently inundated sediments. The SLC shipwreck database reveals that three vessels are reported to have gone down within 0.5 mile of the portion of the APE delineated for the IHTB, all plotted by SLC at same location to the east, near what is now Jack London Square (Figure 4-2). As can be seen on Figure 4-2, none occur in the APE defined for the project.

In addition to the NWIC records search and the SLC shipwreck database review, USACE and the Port supplied a large number of documents to AECOM during completion of this inventory effort. These included other environmental documents, cultural resources reports, and technical data that could provide insight regarding the potential for cultural resources to occur in the APE.

Of particular importance were the results of geophysical surveys across the current APE that were completed in support of previous Port projects. These data included a report by Pelagos Corporation (1993). Pelagos implemented a geophysical survey, including the deployment of a sub-bottom profiler across the OHTB and IHTB. Several anomalies were identified in the IHTB, including a depression in the sediments where the former drydocks once occurred at what is now Howard Terminal; pipeline crossings; and the San Antonio Aquiclude[4] (Pelagos 1993: Plate TB-5), none of which are suspected archaeological resources. It should be noted that the depression in sediments from the former drydocks identified by Pelagos (1993) occurred prior to implementation of the -50-Foot Project. Subsequent to Pelagos' geophysical survey, the entire area was

[4] A geological term for an impermeable strata underlying or overlying an aquifer.

thoroughly dredged, owing to contamination of the sediments from the previous dry dock activities.

AECOM was also supplied with the results of a more recently completed geophysical survey conducted to identify lost shipping containers in the Outer Harbor. As seen on Figure 4-3, nearly

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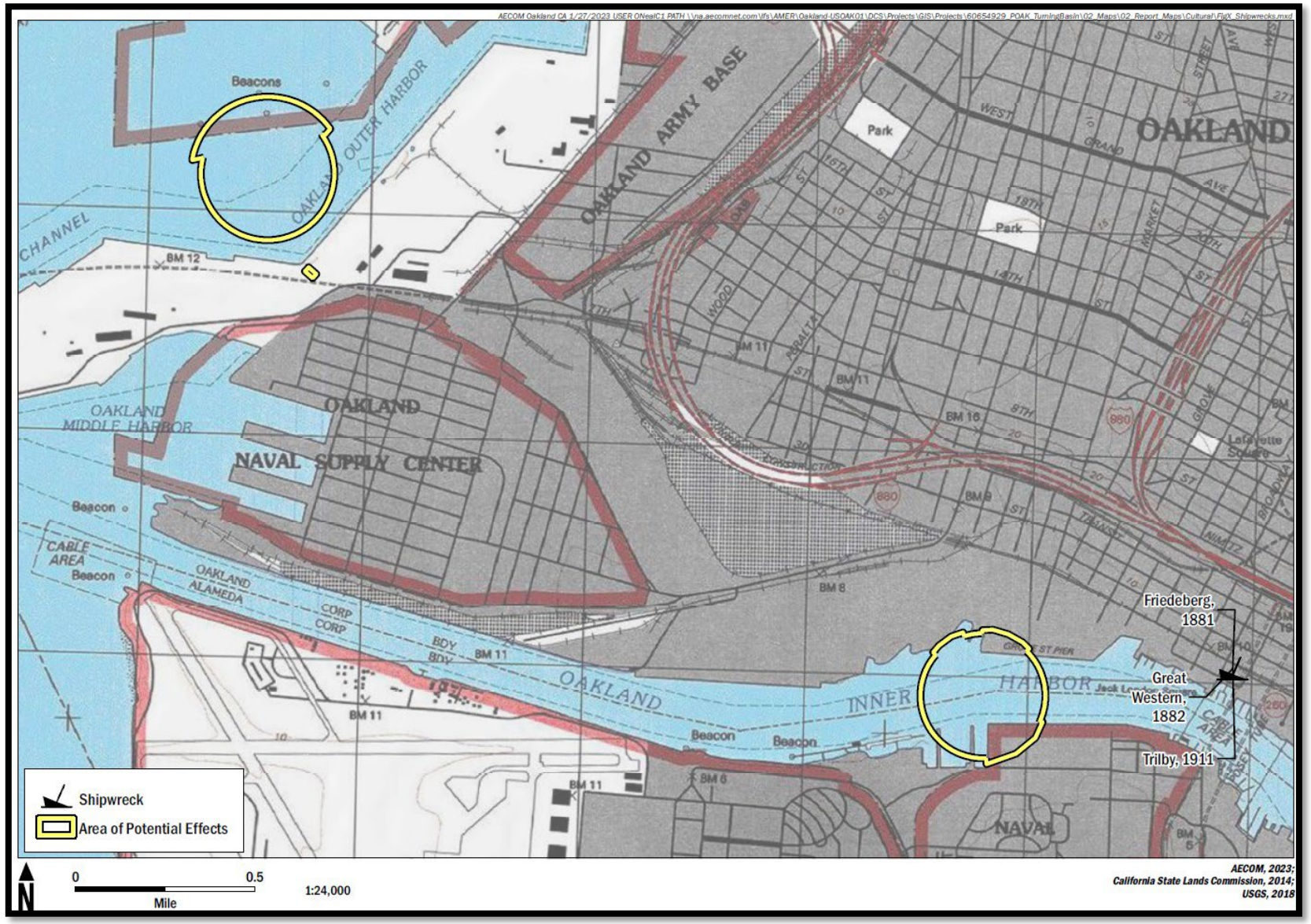

Figure 4-2 Shipwrecks in Relation to Area of Potential Effects

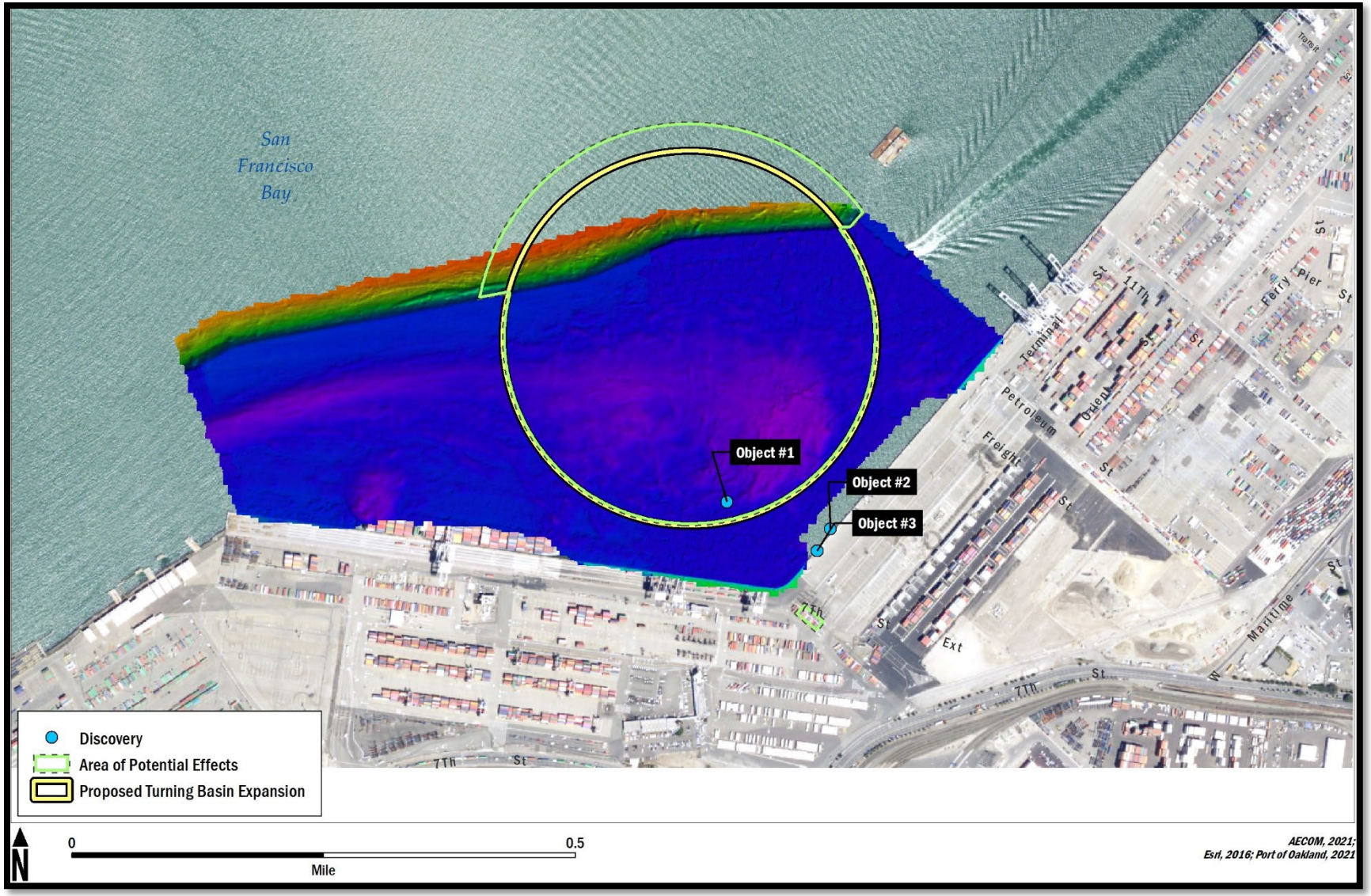

Figure 4-3 Geophysical Survey of the OHTB

the entire Outer Harbor portion of the APE was covered by this survey and the only anomalies identified were three of the lost containers (marked Objects #1, #2, and #3). The containers were recovered and removed from the Outer Harbor waterway.

Lastly, both the existing IHTB and the OHTB, as well as the shipping channels to each, are subject to annual maintenance dredging. Therefore, the likelihood that there are undiscovered and undisturbed (i.e., intact) cultural resources in the waters of the APE is low.

4.2 Native American Consultation

USACE and the Port initiated consultation efforts with the local Native American community on September 16, 2020, with a letter requesting participation in public meetings to discuss the project (Appendix A). These meetings, held virtually due to the current global COVID-19 pandemic, were held on October 8, 2020; May 4, 2021; August 17, 2021; and September 29, 2022, all being attended according to the logs kept by Kanyon Konsulting LLC – Cultural Representative of Indian Canyon Mutsun Band of Costanoan Ohlone People.

On June 22, 2021, AECOM, on behalf of USACE and the Port, electronically submitted a Sacred Lands File (SLF) and Native American Contacts List Request form to the California NAHC. The NAHC replied on July 15, 2021, providing both a list of Native American contacts as well as the results of the SLF review. The NAHC indicated that their review of the SLF was “positive” and identified the Amah Mutsun Tribal Band of Mission San Juan Bautista and the North Valley Yokuts as the parties to contact concerning this finding. The complete list of tribal groups identified by the NAHC is as follows:

- Amah Mutsun Tribal Band of Mission San Juan Bautista;
- Costanoan Rumsen Carmel Tribe;
- Indian Canyon Mutsun Band of Costanoan;
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area;
- North Valley Yokuts Tribe;
- The Ohlone Indian Tribe;
- Wuksache Indian Tribe/Eshom Valley Band; and
- The Confederated Villages of Lisjan.

On September 22 and 23, 2021, a second letter was sent out by USACE and the Port to all of the groups identified in the July 15, 2021, response from the NAHC, requesting any information these groups may have regarding properties, features, or materials in the project area and immediate vicinity that may be of concern to the local Native American community (Appendix A).

NAHC identified the Amah Mutsun Indian Tribe as having sacred lands near the study area. To date, one response was received from Kanyon Sayers-Roods, a representative of the Indian Canyon Mutsun Band of Ohlone. USACE is continuing consultation regarding the project.

4.3 Field Methods

On July 7, 2021, AECOM Senior Project Archaeologist Mark Hale conducted awindshield reconnaissance of the APE delineated for the undertaking. Such an approach was considered sufficient for identifying cultural resources because the entire terrestrial portion of the APE has been constructed on imported fill and is therefore unlikely to contain intact archaeological deposits predating these facilities. Furthermore, what little ground surface occurs in APE is obstructed by large expanses of pavement, and the remainder of the APE is continuously inundated with water. Lastly, as detailed in Section 4.1 above, the entire terrestrial portion of the APE has been subject to previous cultural resources inventory efforts. As such, the goal of this effort was not the identification of cultural resources but instead to confirm the presence of previously identified cultural resources in relation to the APE delineated for the current undertaking.

Chapter 5 Results

No new cultural resources, either archaeological or historic architecture, were identified in the APE delineated for the undertaking during completion of the windshield reconnaissance described above.

As described in Section 4.1, the only cultural resource previously identified in the APE is the Todd-United Engineering Company Shipyard Historic District (P-01-003218) in Alameda. According to the Department of Parks and Recreation form (DPR 523 Site Record Form) prepared by Basin Research (1998), which expanded on the earlier effort of Corbett and Hardy (1988) and was referenced in a letter between the USACE and SHPO (Thompson 1998), the Todd -United Engineering Company Shipyard historic district was found to be eligible for the NRHP pursuant to Criteria A and C because of its part in the transportation history of the San Francisco Bay Area from 1910 to 1963 (Basin Research 1998; Corbett and Hardy 1988). Owing to adverse effects to the historic district resulting from implementation of the Oakland Harbor Navigation Improvement (-50-Foot Project), a Historic American Engineering Record (HAER) was completed in accordance with a Memorandum of Understanding prepared for that undertaking (Corbett 2001).

Of the contributing elements of the Todd-United Engineering Company Shipyard Historic District originally identified, only the East Pier, also known as Pier 4, and the Wet Basin extended into the current APE. As noted by Corbett and Hardy (1988), a portion of the East Pier had been demolished as part of the Port's -42-Foot Project. Subsequent to Corbett and Hardy's original site investigation and recordation (1988), however, the remainder of East Pier was removed as part of the -50-Foot Project and the area of the Wet Basin was dredged to accommodate the expansion, as addressed in the aforementioned HAER (Corbett 2001), leaving no portion of the historic district in the current APE.

Prior to the -50-Foot Project (Figure 4-1), two piers can be seen extending from the shoreline into the APE. East Pier/Pier No. 4, the contributing element to the Todd-United Engineering Company Shipyard Historic District, is seen at the right and the noncontributing Pier No. 2 is seen at the left. Both the piers are absent by 2022. As per the Port's -50-Foot Project, both piers were to be removed with project implementation (Port of Oakland 1999:4). An HAER was prepared for the demolition of East Pier and other contributing elements of the historic district (Corbett 2001). These images also show the extent of the demolition that previously occurred to the ineligible northern FISC warehouse for the Port's -50-Foot project.

Chapter 6 Conclusions

6.1 Historic Architecture

As a result of the current cultural resources inventory effort, it has been determined that no historic structures that are NRHP and/or CRHR-listed or eligible to be listed occur in the APE for the current undertaking.

6.2 Archaeology

No archaeological resources, prehistoric or historic, were identified in the APE during completion of the current cultural resources inventory effort. As noted above, there appears to be a low potential for intact archaeological resources in the submerged portions of the APE owing to past practices, including the routine maintenance dredging that has occurred in both the OHTB and IHTB and connecting channels as well as construction of both the -42-Foot and -50-Foot Projects at the IHTB.

The potential for undiscovered archaeological resources beneath the terrestrial portions of the APE for the IHTB likewise is low; all these areas are on reclaimed land, and past construction practices for the existing facilities at Howard Terminal and Alameda were fairly extensive in scale and disturbed the underlying sediments (all are constructed atop introduced fill). Furthermore, the SLC Shipwrecks Database does not indicate any prior shipwrecks in vicinity that could have become entombed during reclamation efforts. Although the potential for intact archaeological resources to occur submerged and/or buried in the APE is low, the presence of such previously unidentified archeological resources cannot be completely dismissed. Of the proposed construction elements outlined for the undertaking, it is the installation of sheet piles to depths of 70 feet bgs and the excavation of landside soils to approximately 62 feet bgs that have the greatest potential to encounter buried archaeological resources. Pile installation and some excavation would presumably extend through the imported fill, on through the soft marine sediments—presumably Young Bay Mud (YBM)—and into more competent material[5] that lies below, in this case presumably the Posey-Merritt Sands that occur in this vicinity.

These sand units are believed to be nonmarine sediments that were deposited prior to the inundation of San Francisco Bay. Posey Sand is typically deposited in broad channels, and Merritt Sand is deposited by wind action (e.g., sand dunes). Rehor has indicated (2008) that the greatest potential for buried prehistoric archaeological sites exists at the interface between the YBM and underlying strata (in this case, presumably, the Posey-Merritt sands), which represents the late-Holocene ground surface (i.e., pre-Bay inundation and sea-level stabilization). The YBM was too soft to support human habitation; it is therefore on these buried land surfaces (paleosols) that archaeological deposits could have developed and ultimately become buried during the sedimentation processes associated with rising sea levels.

[5] Competent material is defined as undisturbed natural material that will safely carry the foundation bearing pressures, as determined in the design of the structure being built.

Given that this interface, presumed herein to be between YBM and Posey-Merritt Sands, would be penetrated during the driving of sheet piles and a portion of the upland excavation, it is possible that an intact archaeological deposit could be inadvertently impacted. Therefore, ground-disturbing construction activities have the potential to adversely affect previously unknown archaeological resources, including those that may be NRHP and/or CRHR-eligible. That said, the presence of such deeply buried sites in the Bay Area are rare. Furthermore, no such sites have been identified in the project vicinity, including during completion of the previous 42-Foot or -50-Foot Projects.

Chapter 7 References

Allan, James M., C.D. Wills, and W. Self. 1997. Archaeological Survey, Testing and Date Recovery, West Antioch Creek Storm Drain Project, Contra Costa County, California. Report prepared for the City of Antioch, California.

Archaeological/Historical Consultants. 1993. Draft Technical Report, Archaeological and Historic Resources Reconnaissance, Airport Roadway Project, Oakland, Alameda County. On file at the Port of Oakland.

Baker, Suzanne. 2015. *Archaeological Survey Report Martin Luther King Jr. Way Streetscape Project, from West Grand Avenue to 40th Street, City of Oakland, Alameda County, California*. Prepared for Caltrans District 4, Oakland, California. Prepared by Archaeological/Historical Consultants, Oakland, California. Report (S-47078) on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Bagwell, Beth. 1982. *Oakland: The Story of a City*. Presidio Press, Oakland, California.

Basin Research. 1998. Department of Parks and Recreation 523 Series Forms for P-01-003218, Todd-United Engineering Company, Shipyard. On File: Northwest Information Center, Sonoma State University, Rohnert Park, California.

Beardsley, R.K. 1948. Culture Sequence in Central California Archaeology. *American Antiquity* 14(1):1-28.

Beardsley, R.K. 1954a. Temporal and Areal Relationships in California Archaeology: Part I. *Reports of the University of California Archaeological Survey* 24, Berkeley, California.

Beardsley, R.K. 1954b. Temporal and Areal Relationships in California Archaeology: Part II. *Reports of the University of California Archaeological Survey* 24, Berkeley, California.

Bickel, P.M. 1978. Changing Sea Levels along the California Coast. *Journal of California Anthropology* 5(1):6-20.

Bickel, Polly. 1981. San Francisco Bay Archaeology Ala 328, Ala 13, and Ala 12." *University of California Archaeological Research Facility Contributions* 43. Berkeley, California.

California Department of Parks and Recreation. 1976. California Inventory of Historic Resources. Available online at: http://ohp.parks.ca.gov/listedresources/. Accessed June 2021.

California Office of Historic Preservation (OHP). 1988. *Five Views: An Ethnic Historic Site Survey for California*. Available online at: http://www.nps.gov/parkhistory/online_books/5views/5views.htm Accessed June 2021.

OHP. 1992. California Points of Historical Interest. Available online at: https://ohp.parks.ca.gov/?page_id=21750. Accessed June 2021.

OHP. 1996. California State Historical Landmarks. Available online at: http://ohp.parks.ca.gov/default.asp?page_id=21387. Accessed June 2021.

OHP. 2020. Built Environment Resources Directory, Alameda County. Available online at: https://ohp.parks.ca.gov/?page_id=30338. Accessed August 2021.

OHP. 2021. California Historical Resources, Alameda County. Available online at: https://ohp.parks.ca.gov/ListedResources/?view=county&criteria=1. Accessed August 2021.

Chavez, David. 1989. Archaeological Recovery Program for the West Berkeley Site (CA-ALA-307), Sanitary Sewer Rehabilitation for Infiltration/Inflow Correction Projects, City of Berkeley, California (Subbasin 15-011), Clean Water Grant No. C-06-2967-110). S-11125 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

City of Oakland. 2021. Waterfront Ballpark District at Howard Terminal Draft Environmental Impact Report.

Corbett, Michael. 2001. Historic American Engineering Record for the United Engineering Company Shipyard, HAER No. CA-295 (Todd Shipyard, Southern Pacific Company UACR. West Alameda Yard), 2900 Main Street, Alameda, Alameda County, California. Prepared for the U.S. Army Corps of Engineers and the Port of Oakland.

Corbett, Michael, and Mary Hardy. 1988. Department of Parks and Recreation Historic Resources Inventory for P-01-003218, Todd-United Engineering Company, Shipyard. On File: Northwest Information Center, Sonoma State University, Rohnert Park, California.

Douglass, Robert. 2004. A Brief History of West Oakland. In *Putting the "There" There: Historical Archaeologies of West Oakland*, edited by Mary Praetzellis and Adrian Praetzellis, Anthropological Studies Center, Rohnert Park, California. pp. 31–46.

Fredrickson, David A. 1973. *Early Cultures of the North Coast Ranges, California*. Ph.D. Dissertation, University of California, Davis; Department of Anthropology.

Gerow, Bert A., and Roland W. Force. 1968. *An Analysis of the University Village Complex with a Reappraisal of Central California Archaeology*. Stanford University Press. Stanford, California.

Hoover, Mildred, and Douglas Kyle. 2002. *Historic Spots in California*. 5th ed. Stanford University Press, Stanford, California.

Josselyn, Michael. 1983. The Ecology of San Francisco Bay Tidal Marshes: A Community Profile. U.S. Fish and Wildlife Service, Division of Biological Service, Washington, D.C.

JRP Historical Consulting (JRP). 1996. Historical Context for Evaluating Buildings and Structures at the Alameda Facility and Alameda Annex, Alameda, Alameda County, California. Report prepared for Engineering Field Activity, West Naval Facilities, Engineering Command San Bruno, California.

Kroeber, A.L. 1925. *Handbook of the Indians of California.* Dover Publications, Inc., New York. Originally published by the Government Printing Office, Washington, in 1925 as *Bulletin 78* of the Bureau of American Ethnology of the Smithsonian Institution.

Levy, Richard. 1978. *Handbook of the North American Indians*: Costanoan. In Handbook of North American Indians, Volume 8: California. Heizer, Robert F., ed. Smithsonian Institution, Washington, DC.

Lillard, J.B., R.F. Heizer, and F. Fenenga. 1939. An Introduction to the Archaeology of Central California. *Sacramento Junior College, Department of Anthropology, Bulletin 1.*

LSA Associates, Inc. (LSA) 2011. Emerald Views Residential Development, Draft Environmental Impact Report. City of Oakland Website. Available online at: http://www2.oaklandnet.com/oakca/groups/ceda/documents/report/oak031421.pdf. Accessed November 2011.

Milliken, Randy. 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769-1810*. Ballena Press, Menlo Park, California.

Minor, Woodruff. 2000. *Pacific Gateway: An Illustrated History of the Port of Oakland. Oakland, California*: Port of Oakland.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, New York.

National Park Service (NPS). 2021. National Register of Historic Places Database, Alameda County. Available online at: https://www.nps.gov/subjects/nationalregister/database-research.htm. Accessed June 2021.

Nelson, N.C. 1909. Shellmounds of the San Francisco Bay Region. *University of California Publications in American Archaeology and Ethnology*. 7(4) 310-357. Berkeley.

Pelagos Corporation. 1993. Geophysical Investigation of Oakland Inner and Outer Harbors Turning Basin and Berthing Area, Oakland Harbor, California. Report prepared for Port of Oakland Environmental Department, Oakland, California. On file at the Port of Oakland.

Port of Oakland. 1999. Oakland Harbor Navigation Improvement (-50 Foot) Project. Revisions to the Final Environmental Impact Report. Prepared by the Port of Oakland, California.

Rehor, Jay. 2008. Cultural Resources Survey of Waste Management Units 10, 11, and 14, Golden Eagle Refinery, Martinez, California. URS Corporation. Prepared for Avon Remediation Team, 475 14th Street, Suite 400, Oakland.

Rice, Richard B., William A. Bullough, and Richard J. Orsi. 2002. *The Elusive Eden: A New History of California*. 3rd ed. McGraw-Hill, New York.

Stright, Melanie J. 1990. Archaeological Sites on the North American Continental Shelf. *Geological Society of America Centennial Special Volume 4.* Boulder, Colorado.

Thompson, Richard G. 1998. Letter from the Planning Branch of the United States Army Corps of Engineers, San Francisco District to Cherilyn Widell, State Historic Preservation Officer (California). Included in Appendix V in Oakland Harbor Navigation Improvement (-50-Foot) Project Volume V: Final Environmental Impact Statement/Environmental Impact Report, Appendices N through V, and Appendix X: Responses to Comments. U.S. Army Corps of Engineers, San Francisco District and Port of Oakland. April 30.

USACE (United States Army Corps of Engineers). 2018. Oakland Harbor Navigation Project, Section 216 Initial Appraisal Report. March.

United States Geological Survey(USGS). 1895. 15-minute *San Francisco, California* Topographic Map.

USGS. 1915. 15-minute *San Francisco, California* Topographic Map.

USGS. 1947. 15-minute *San Francisco, California* Topographic Map.

USGS. 1949. 7.5-minute Oakland West, California Topographic Maps.

University of California Santa Barbara. 1931. Historic Aerial Photographs, Oakland and Alameda.

University of California Santa Barbara. 1939. Historic Aerial Photographs, Oakland and Alameda.

University of California Santa Barbara. 1965. Historic Aerial Photographs, Oakland and Alameda.

Wallace, William J., and Donald W. Lathrap. 1975. West Berkeley (CA-ALA-307): A Culturally Stratified Shellmound on the East Shore of San Francisco Bay. *Contributions of the University of California Archaeological Research Facility* Number 29, Berkeley, California.

Widell, Cherilyn. 1996. Letter from the State Historic Preservation Officer, California Department of Parks and Recreation, to Louis S. Wall, Coordinator Cultural Resources Program Environmental Planning Branch, Department of the Navy, EFA West, Naval Facilities Engineering Command. Included in Appendix V in Oakland Harbor Navigation Improvement (-50-Foot) Project Volume V: Final Environmental Impact Statement/Environmental Impact Report, Appendices N through V, and Appendix X: Responses to Comments. U.S. Army Corps of Engineers, San Francisco District and Port of Oakland. July 31.

Appendix A Native American Consultation