

3.7 Cultural Resources

This section of the Final Environmental Impact Statement/Report (referred to throughout as the Final EIS/R) characterizes the existing cultural resources within the Phase 2 project area and analyzes whether implementation of the project would cause a substantial adverse effect on cultural resources. The information presented is based on a review of existing cultural resources within the area and other pertinent federal, state, and local regulations, which are presented in Section 3.7.2, Regulatory Setting. Section 3.7.1, Physical Setting, is included to establish the origin and environmental and cultural context of the resources. Using this information as context, an analysis of the cultural-resources-related environmental impacts of the project is presented for each alternative in Section 3.7.3, Environmental Impacts and Mitigation Measures. The program-level mitigation measures described in Chapter 2, Alternatives, would be implemented as part of the project. Therefore, this section only includes additional, project-level mitigation measures, as needed.

3.7.1 Physical Setting

The South Bay, including the Phase 2 South Bay Salt Pond (SBSP) Restoration Project area, is in portions of San Mateo, Santa Clara, and Alameda Counties and comprises approximately 50,000 acres of shoreline mudflats and marshes as well as low hills and valleys ranging from sea level to approximately 25 feet (8 meters) above mean sea level in elevation. The Phase 2 project area is depicted on three United States Geological Survey (USGS) 7.5-minute topographical quadrangle maps: Palo Alto, Milpitas, and Mountain View (Figure 3.7-1). Vegetation within the project areas consists of marsh species, including cordgrasses, pickleweeds, and other salt-tolerant plant species.

Methodology

Background research, in the form of a record search performed by the Northwest Information Center (NWIC) of the California Historical Resources Information System in Rohnert Park, CA, was conducted in September 2013 (NWIC file 13-0330). As defined by Mitigation Measure 3.8-1 of the 2007 South Bay Salt Pond Restoration Project Programmatic EIS/R (2007 EIS/R) (discussed in Chapter 2, Alternatives), new record searches shall be performed for specific projects within the SBSP Restoration Project area where the previous record search is more than 5 years old. The previous record search for the 2007 EIS/R was conducted in 2006. The updated record search covered the Area of Potential Effect (APE) for the Phase 2 SBSP Restoration Project and a ¼-mile search radius to establish a context for the Phase 2 APE. The APE includes the entirety of all ponds affected by the Phase 2 activities. The United States Fish and Wildlife Service (USFWS) is conducting ongoing Section 106 consultation with the California State Historic Preservation Officer (SHPO) for the Phase 2 project.

In addition to the record search, in October and November 2013, URS cultural resource specialists visited portions of the APE that were not previously surveyed and inventoried and revisited the locations of some previously recorded resources to determine whether such resources were still extant. The results of previous surveys—conducted in 2006 and 2007 by USFWS archaeologists and architectural historians for the 2007 EIS/R (2007 EIS/R; Speulda-Drews and Valentine 2007a, 2007b) and 2008 by Basin Research Associates for the Interim Feasibility Study—were also relied on to establish existing conditions.

The purpose of the NWIC search was to determine the location and nature of previously recorded cultural resources within the Phase 2 APE and assess whether cultural resource inventory surveys had been previously conducted within the APE. In addition, the record search and associated background documentary review provides the context for cultural resources in the Phase 2 SBSP Restoration project area.

The NWIC search included examination of information resources such as:

- Office of Historic Preservation Historic Property Directory;
- California Inventory (1996);
- California Historic Landmarks (1996);
- National Register of Historic Places (2000 and updates);
- California Points of Historical Interest (1992 and updates);
- Santa Clara County Heritage Inventory (1975 and 1979); and
- Historic maps.

The NWIC reported that there are four previously recorded cultural resources within the Phase 2 APE (Table 3.7-1). A more detailed description of the various resources may be found in the discussion of the individual pond complexes below. The NWIC also had records of nine cultural resources reports that documented surveys covering portions of the APE (Table 3.7-2). Most of these inventories focused on the southern boundaries of the Mountain View and Ravenswood pond clusters, where the ponds front the modern shoreline, and on the southeastern edge of the A8 pond cluster, near the historic town of Alviso.

Table 3.7-1 Previously Recorded Cultural Resources within the Phase 2 APE

POND CLUSTER	RECORDED RESOURCES	
	PREHISTORIC	HISTORIC-ERA
Alviso-Island Ponds (Ponds A19, A20, and A21)	1	1
Alviso-Mountain View Ponds (Ponds A1 and A2W and Charleston Slough)	0	1
Alviso-A8 Ponds (Ponds A8 and A8S)	0	1
Ravenswood Ponds (Ponds R3, R4, R5, and S5)	0	0

Table 3.7-2 Previous Cultural Resource Inventories within the Phase 2 APE

POND CLUSTER	NUMBER OF INVENTORIES
Alviso-Island Ponds (Ponds A19, A20, and A21)	2
Alviso-Mountain View Ponds (Ponds A1 and A2W and Charleston Slough)	1
Alviso-A8 Ponds (Ponds A8 and A8S)	5
Ravenswood Ponds (Ponds R3, R4, R5, and S5)	1

In addition to the resources and inventory studies reported by the NWIC, the Alviso and Ravenswood pond complexes have been recorded as part of the USFWS's ongoing consultation with the SHPO to resolve adverse effects for the broader SBSP Restoration Project (Speulda-Drews and Valentine 2007a, 2007b). As a part of this recordation, many of the accessible portions of the levees within each pond complex were surveyed. Figure 3.7-2 depicts those areas previously surveyed for the SBSP Restoration Project and those areas surveyed subsequently for the Phase 2 actions.

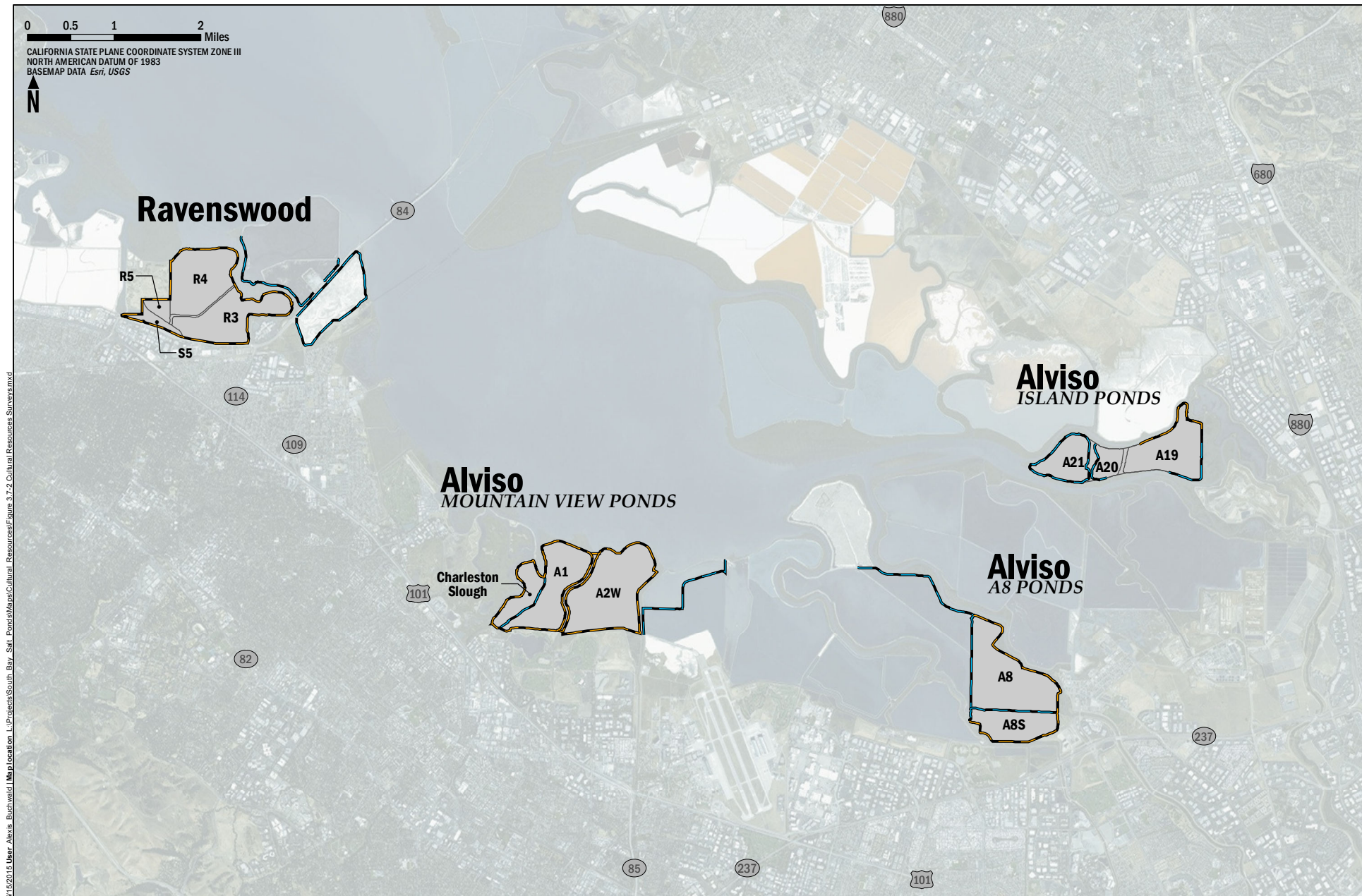
Regional Setting

The 2007 EIS/R contains a thorough explanation of the prehistoric setting, history of archaeological research in the region, ethnographic setting, and historic setting—including the Spanish and Mexican periods, the Gold Rush, and subsequent American development of the South Bay. Although these broad-context statements are useful in understanding the broader historic context of the project area, much of the information is not directly relevant to the specific resources identified within the Phase 2 APE. Brief summaries of the historic contexts are included below, with more attention given to those topics that have direct relevance to an understanding of the resources within the Phase 2 APE. For a more general discussion of the cultural resources setting of the project area, please refer to Section 3.8 of the 2007 EIS/R.

Geomorphic Setting

This brief discussion of soils and geologic units provides a context for both archaeological materials, which have been influenced by geomorphic changes in the Bay Area over the past ca. 13,500 years (roughly the time that humans have occupied California), and paleontological resources (fossils, etc.), which are subsumed under the cultural resources discipline by the California Environmental Quality Act (CEQA). For a more complete analysis of the geologic setting, see Section 3.4, Geology, Soils, and Seismicity. The soils underlying the Phase 2 APE consist of youngest bay mud over semi-consolidated alluvial deposits (Witter et al. 2006). The bay mud ranges from 4 to 23 feet thick within the APE (AMEC 2009). The bay mud within the APE was most likely deposited in the last approximately 4,000 years, as sea levels stabilized and sedimentation at the bay margin began to keep pace with sea-level rise. The bay mud is overlain by Quaternary alluvial sediments of variable lithology, which represent the historic ground surface during the late Pleistocene and early Holocene, prior to inundation of San Francisco Bay (Bay).

The entire southern rim of San Francisco Bay has been heavily used since humans entered the region. Rising sea levels and concomitant sedimentation likely have buried older prehistoric sites. Gold Rush-era placer mining resulted in the deposition of hundreds of cubic meters of sediment around the Bay, likely burying additional prehistoric and early historic sites along the Bay's edge. Agriculture, the salt industry, and other bayshore development have contributed to the destruction or obscuration of evidence of human use.



Phase 2 Survey (URS) Phase 2 Project Area
Previous survey (USFWS)

Prehistoric Setting

Prehistoric use of the bayshore has been clearly identified, but the density of occupation and use have most likely been underestimated because so many sites have been obscured by the processes noted above. Semi-systematic documentation of the most visible prehistoric resources did not begin until the early twentieth century, by which time it was noted that many mound and shellmound sites had already been damaged or destroyed (Nelson 1909). Prehistoric sites generally cluster in the vicinity of a water source or other relatively obvious resources such as food collection areas (e.g., oak trees) or tool stone deposits. However, being able to predict likely site locations does not mean that they have all been found. Rather, it is assumed that many sites will never be found unless a construction project of some type accidentally uncovers them.

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (11,500 to 6,000 B.C.). Their social units are thought to have been small and highly mobile. Known sites have been identified in the contexts of ancient pluvial lake shores and coastlines, as evidenced by such characteristic hunting implements as fluted projectile points and chipped stone crescent forms. Few archaeological sites have been found in the Bay Area that date to the Paleo-Indian or the ensuing Lower Archaic (6,000 to 3,000 B.C.) periods. The lack of sites from earlier periods may be because of high sedimentation rates (inundation of the bay by the Pacific Ocean and the associated alluvial deposition), leaving the earliest sites deeply buried and inaccessible.

During the Middle Archaic Period (3,000 to 500 B.C.) the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways, including the establishment of the first shellmound sites along the Bay shore. The current body of archaeological evidence indicates that the mounds served multiple purposes as residential places, ceremonial locations, and burial sites with many diverse and complex aspects.

The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (500 B.C. to A.D. 700). Exchange systems become more complex and formalized and evidence of regular, sustained trade between groups was seen for the first time. Several technological and social changes characterized the Emergent Period (A.D. 700 to 1800). The bow and arrow were introduced, ultimately replacing the dart and atlatl. Territorial boundaries between groups became well established. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (A.D. 1500 to 1800), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, increasing quantities of goods moved greater distances, and vocational specialists arose to govern various aspects of production and exchange.

Ethnographic Setting

At the time of European contact, the Phase 2 SBSP Restoration Project area and its vicinity were occupied by Costanoan, also known as Ohlone, tribal groups. For a discussion of the lifeways and history of these groups, please refer to the 2007 EIS/R.

Historic Setting

In addition to the historic context developed for the 2007 EIS/R, a very in-depth history of the South Bay salt works has been developed in a separate document: *Historic Context of the South Bay Salt Pond Restoration Project* which was an appendix to the 2007 EIS/R (EDAW 2005). The report focuses on the conversion of the salt marshes and development of salt ponds, the rise of the salt industry, and the types of features and structures associated with this industry. Given that most of the identified historic-era resources in the APE are associated with this history, portions of that context are included in the following sections. However, for a more complete discussion of the historic context, please refer to the EDAW 2005 document, available online: <http://www.southbayrestoration.org/documents/permit-related/Historic%20Salt%20AppendixD.pdf>

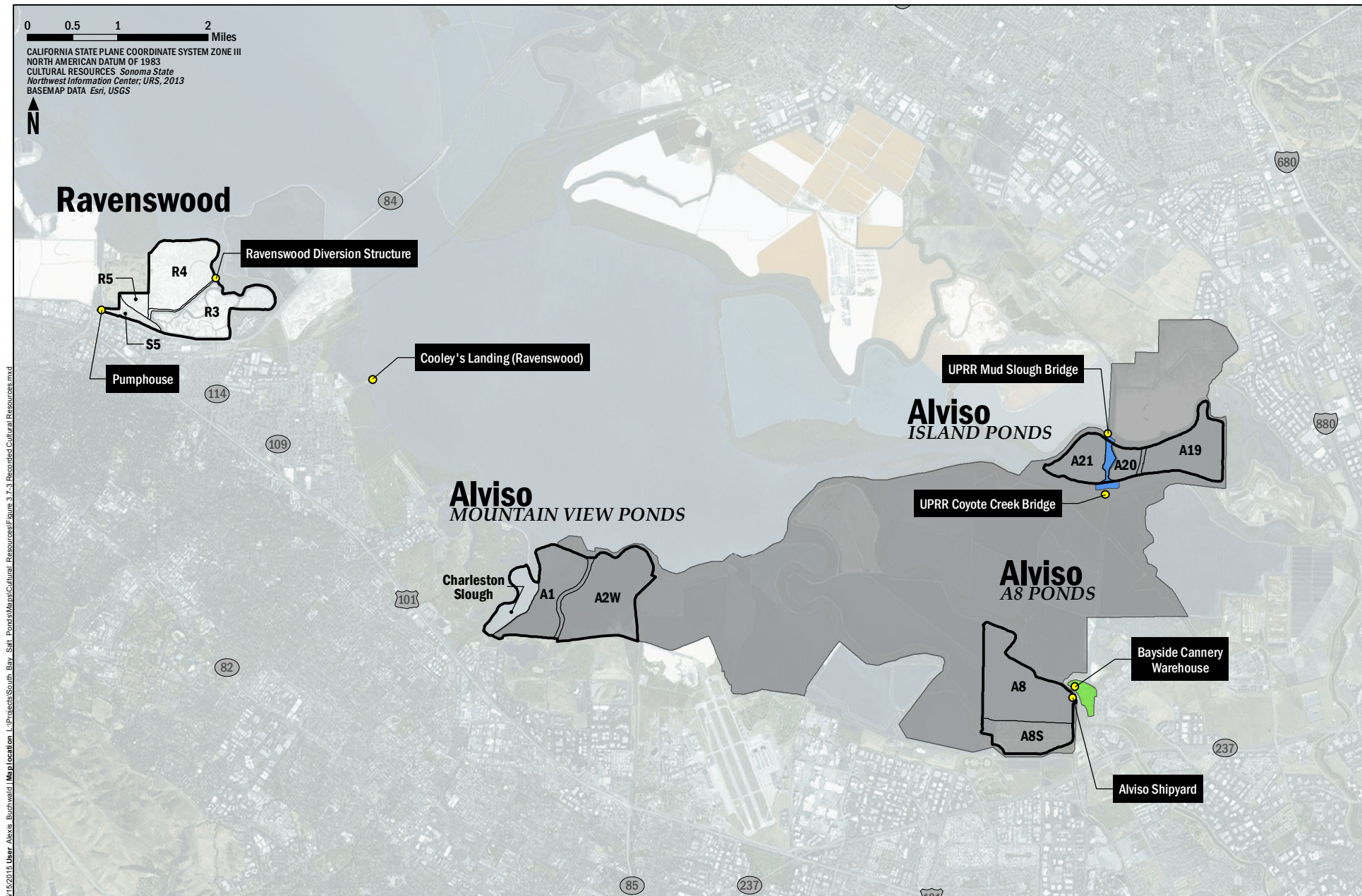
Spanish and Mexican Periods

Soon after the establishment of Mission San Francisco de Asís by Juan Bautista de Anza in San Francisco in 1776, Jose Joaquin Moraga and Fray Tomas de la Pena set out to establish Mission Santa Clara de Asís along the Guadalupe River (Payne 1987). The Santa Clara Valley was a prime location for a mission because of its mild winters and long growing season for crops. The first mass at the Mission Santa Clara de Asís was held on January 12, 1777 (Payne 1987). Another three missions were built in the Santa Clara Valley: Santa Cruz (1791), San Jose (1797), and San Juan Bautista (1797). The missions were self-sustaining, raising a variety of grains and crops as well as sheep and cattle. Each mission also had its own shipping port to expedite the trading and selling of goods.

Mexico achieved independence from Spain in 1821, and in 1822 California was declared a territory of the Mexican republic. In 1834, the Mexican government secularized the missions and divided their land holdings into ranchos; portions of several ranchos are in the project area. Ranchos within or adjacent to the Phase 2 APE are Agua Caliente (Alviso-Island Ponds) in Alameda County; Pastoria de las Borregas, and Rincon de San Francisquito (Alviso-Mountain View Ponds) in Santa Clara County; and Rincon de los Esteros (Alviso-A8 Ponds) and Rancho de las Pulgas (Ravenswood Ponds) in San Mateo County (Beck and Haase 1974). During this time, Americans also began migrating to Alta California, and tensions rose as the new settlers began to occupy the rancho lands. The Mexican War of 1846 ended with the signing of the Treaty of Guadalupe Hidalgo in February 1848 and the cession of California to the United States.

American Period Industry and Transportation

Before 1860, the main forms of transportation throughout the San Francisco Bay region were boat and stagecoach. A maritime transportation network grew up around the economy of the Bay Area to facilitate the movement of agricultural products. The Port of Alviso was one of the earliest ports in the Bay Area. By 1861, a steamboat company and four sail companies operated out of Alviso. Other shipping centers developed in the Bay Area, including a minor port at Ravenswood, southeast and outside of the Phase 2 Ravenswood pond cluster APE (Figure 3.7-3).



- Cultural Resources Discussed in Text
- Alviso Historic District
- Alviso Salt Works Historic Landscape
- Drawbridge
- Phase 2 Project Area

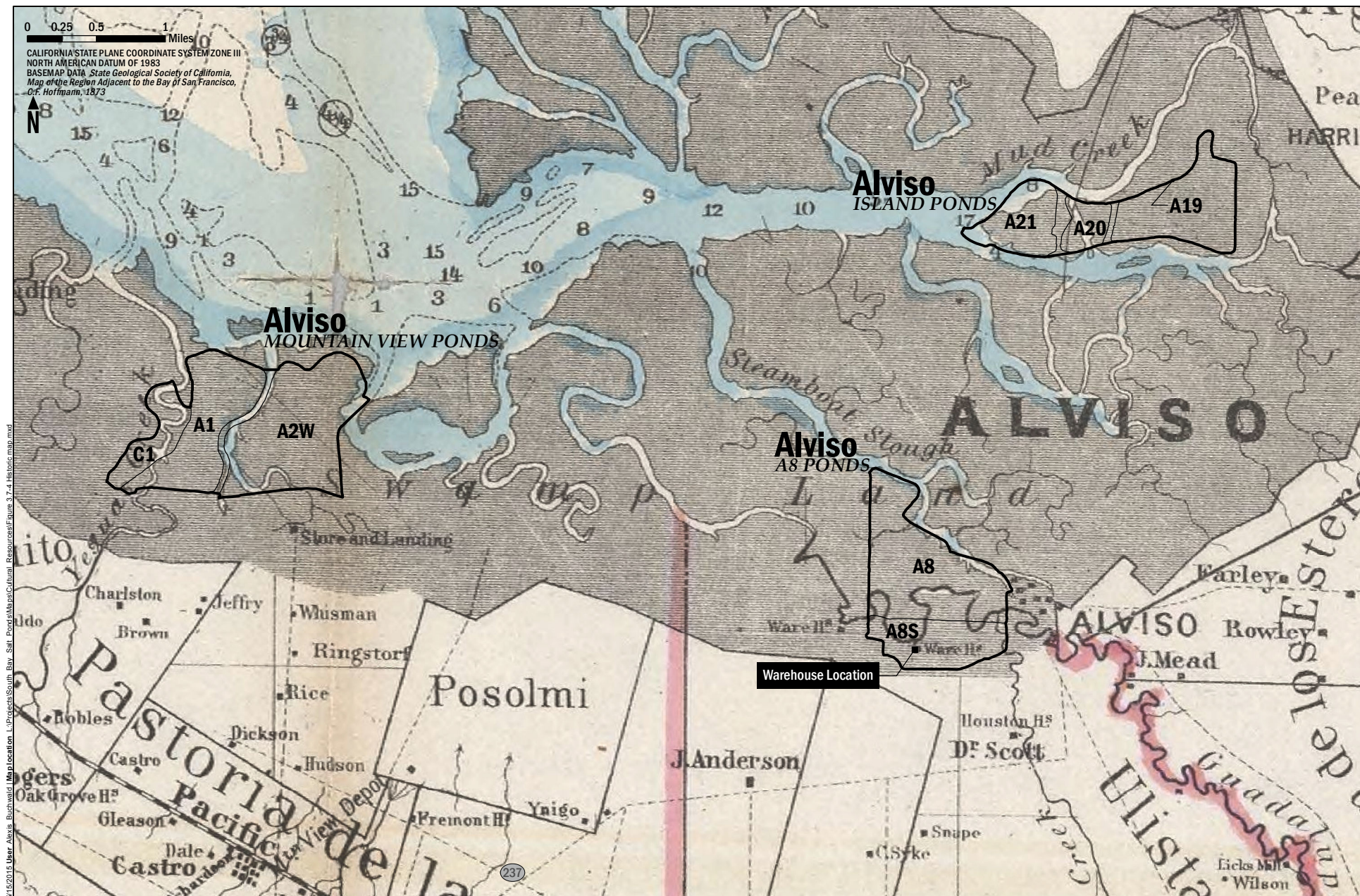
The most obvious evidence of human occupation in the project area is the various salt works structures and remnants, ditches and levees, the salt ponds themselves, and the detritus (historic and modern) that has collected around them. The Phase 2 SBSP Restoration Project area is clearly part of a larger, contiguous complex that lines almost the entire southern rim of San Francisco Bay. The Alviso Salt Works was determined to retain sufficient integrity to be considered a cultural landscape, as defined by the National Park Service (NPS), and to meet the eligibility criteria for listing to the National Register of Historic Places (NRHP) (and, by extension, to the California Register of Historical Resources [CRHR]) (see the definition of a cultural landscape in Section 3.7.2, Regulatory Setting).

The first construction of levees to create artificial salt ponds in the Bay Area was completed by John Johnson in 1853 (Watt 2005). San Francisco Bay, with its natural tidal marshlands, was a prime environment to be modified for the mining of salt. By the late nineteenth century, most of the East Bay shoreline south of San Lorenzo Creek had been converted to salt ponds. In 1901, the Leslie Salt Refining Company was established; later it would grow to become the largest salt-producing company in San Francisco. For a complete discussion of the evolution of the salt industry in the South Bay and associated features of this industry on the landscape, see the EDAW 2005 report referenced earlier in this section (<http://www.southbayrestoration.org/documents/permit-related/Historic%20Salt%20AppendixD.pdf>).

Three particular historic locations present within or adjacent to the Phase 2 pond clusters are discussed briefly below to provide context for the recorded resources associated with the pond clusters.

Alviso. Originally known as Embarcadero de Santa Clara, Alviso is located along the outlet of the Guadalupe River into the Bay and directly east of the Phase 2 Alviso A8 pond cluster (Figure 3.7-4). The Embarcadero de Santa Clara was one of the principal landings for Mission Santa Clara and was a prosperous shipping port, sending hides, tallow, grains, and redwood to San Francisco. The port at Alviso was established in 1840 within the land grant and served the increasing trade coming up the Guadalupe River and surrounding sloughs. The increase in trade was partially a result of the development of the mercury mines at New Almaden in response to the use of mercury to help separate gold from its matrix in the gold fields.

In 1849 the community of Alviso was laid out and the plan was for Alviso to become a large, active shipping and commercial center. In 1850, regular steamboat service between San Francisco and Alviso was established. During the 1850s, Alviso became the major north-south passenger and freight link between San Francisco and the South Bay. From the dock, a stagecoach would take travelers to San Jose. The economic importance of Alviso led to the development of docks, warehouses, and homes. In 1852, Alviso incorporated and became one of the first cities in California. However, in 1864, the new San Francisco-San Jose Railroad (now Southern Pacific Railroad) bypassed Alviso and the town began to decline. In 1876, the South Pacific Coast Railroad was built and did stop in Alviso, but residents and business owners resisted the construction of a depot, because they blamed the railroad for the town's downfall.



Phase 2 Project Area

A minor industrial resurgence occurred in the town in 1906, when Thomas Foon Chew opened the Bayside Canning Company (Kyle 2002). By 1921, the Bayside Canning Company was the third largest in the United States. The Bayside Canning Company was Alviso's most successful operation, and it employed hundreds of workers, many of whom lived in company-owned housing nearby. The cannery slowed production during the Great Depression and Chew passed away in 1931. In 1936, the cannery closed for good.

Numerous early attempts to reclaim tidal lands around Alviso, including portions of the A8 pond cluster, between the 1890s and 1910s apparently failed. All evidence points to the area being used primarily for duck hunting, fishing, and boating until the 1920s. The Alviso Salt Company, which operated on land that extended from Alviso west to Mayfield Slough, and the Arden Salt Company, which operated on land that extended east and north from Alviso up toward Dumbarton point, appear to have built levees, developed salt ponds, and harvested salt from these lands during the 1920s; many of the levees we still see in the Alviso pond complex today were most likely constructed by 1929. Arden acquired Alviso Salt in that same year, including its plant near the town of Alviso, which had only been used for 1 year. Leslie Salt became the sole operator in the Alviso pond complex after 1936 (Watt 2005). Alongside these salt works, a small World War II naval shipyard was operated by the Woolridge Manufacturing Company on the eastern edge of the A8 Ponds, but was demolished soon after the war.

Drawbridge. The town of Drawbridge is in the Alviso-Island pond cluster on Station Island, between Ponds A20 and A21 (Figure 3.7-3). In 1876, the bankrupt Santa Clara Valley Railroad was purchased and expanded to connect Newark and Santa Cruz to the existing line between Alviso, San Jose, and Santa Clara (Dewey 1989). The new South Pacific Coast Railroad was an important influence on the development of the South Bay, including Drawbridge. When construction of the railroad bridge over Coyote Creek was completed in 1876, a one-room cabin was left for the company's bridge tender, and that cabin became the beginning of Drawbridge. Drawbridge, as an area with an abundance of waterfowl, fish, and shellfish, was an attraction to sportsmen. Numerous duck hunter's cabins were built, the first of which was the Gordon Gun Club in 1880. In 1894, the first residence was built on the island, and in 1897 the railroad officially named the stop "Drawbridge." In 1902, the Sprung Hotel opened and Drawbridge "developed a reputation as a sporting town outside the law, with gambling, drinking and prostitution" (Morrow 1986). Hunter's Home, another hotel, was on the south side of the island. Drawbridge reached its peak in popularity in the 1920s. By 1926, there were 90 cabins, assorted outhouses, sheds, catwalks, boat houses, and water towers and five passenger trains each day. Electricity arrived on the island in 1931, though the only phone was in the railroad station. There was no school, library, post office, city hall, police station, or firehouse. The homes were set on pilings above the marsh and catwalks led from each house to the bed of the railroad track (Morrow 1986).

Residents of Drawbridge continued to occupy their homes until the late 1930s and early 1940s. The deterioration of the natural surroundings and wildlife, along with the growth of San Jose and Newark, contributed to the decline of the settlement. Abandonment and diking of the slough also contributed to the town's decline. By 1939, Mud Slough was navigable only by Coast Guard and USGS boats (Morrow 1986). The diking of several of the surrounding marshes by Leslie Salt effectively cut off access to Drawbridge. After that, the only way to access the town was by way of the railroad tracks. Drawbridge became home to only a handful of people, as most homes were abandoned and duck hunting clubs closed. Vandalism and arson increased in the 1960s and by 1979, the last resident moved away from Drawbridge.

As discussed in the 2007 EIS/R, although no buildings in Drawbridge have been formally evaluated for the NRHP or the CRHR, it appears that the integrity of the remaining architectural elements may not rise

to a level that would make them eligible for the NRHP or the CRHR. In 1978, a student crew from the Department of Anthropology, California State University, Hayward, completed a survey of the town and documented the town's history (Morrow 1978). In 1984, a dissertation was completed on the town, including an analysis of its architecture (Morrow 1984).

Ravenswood. Ravenswood was established in 1849 by Isaiah Woods, who led a group of investors that constructed the first buildings and a wharf at the end of Bay Road, in present-day East Palo Alto. The subdivision was the first planned community in San Mateo County and was sited along the proposed route of a new railroad line by the Pacific and Atlantic Railroad Company. The pier constructed by Woods and his partners was an attempt to establish the new town as a commercial port that would rival San Francisco. However, their plans were never realized, as the promised railroad was never constructed (Baxter, Allen, and Hylkema 2007). In 1867, Lester Cooley, who found his initial success delivering water from his well in San Francisco, purchased the unused and apparently dilapidated wharf at Ravenswood and over 400 acres of bayfront property. Cooley repaired the pier, which then became known as Cooley's Landing. The pier began to serve as a loading point for shipping grain and other goods to San Francisco. One locally made commodity was bricks that were manufactured by Hunter, Shackleford and Company, established in 1874. Due in part to its new-found status as a manufactory and shipping port, Ravenswood prospered and became part of Menlo Park when it was incorporated in 1874 (Baxter, Allen, and Hylkema 2007). The Phase 2 Ravenswood pond cluster is approximately 1 mile northwest of the original site of Ravenswood and is not associated with the early history described above. The Ravenswood pond cluster began to be developed for salt production by during the 1910's, after salt works developed in other portions of the South Bay. After other smaller local salt companies (e.g., West Shore Salt Company and Redwood City Salt Company) were consolidated under Leslie Salt (Speulda-Drews and Valentine 2009), Leslie Salt continued to develop the Ravenswood ponds into the 1940's.

Project Setting

Alviso Ponds

The three Phase 2 pond clusters in the Alviso pond complex—the Island Ponds, the Mountain View Ponds, and the A8 Ponds—are all part of the larger Alviso Salt Works Historic Landscape. Cultural resources and identification efforts for each cluster are discussed individually below. The larger Alviso pond complex, to which the Phase 2 clusters are contributing elements, was evaluated by USFWS for NRHP eligibility as a historic salt works landscape.

It was determined that the complex retains sufficient integrity and that it meets

“eligibility standards at the local level Under Criterion A [association with significant events] because it is associated with the twentieth century period of industrialization when one operator created a vast network of evaporation ponds. The large exterior levees and vast ponds are a signature of the Alviso Unit solar salt landscape. The Alviso Salt Works is a good example of the solar salt industry during the zenith of industrialization.” (Speulda-Drews and Valentine 2007a:6)

The SHPO concurred with this determination of eligibility in 2010 (OHP 2010:2).

Numerous smaller cultural features, such as hunting blinds, landings, and piers were also identified by USFWS during surveys of the Alviso pond complex in 2007. The SHPO determined that these smaller features lacked integrity and were considered non-contributing elements of the historic landscape.

Island Ponds. Two previously recorded cultural resources are within the APE for the Phase 2 Island pond cluster. The former town of Drawbridge (see discussion above) has been designated as primary number P-01-003291. The first official recordation of the town occurred in 1974; at that time, it was noted that all of the buildings had been abandoned except for nine hunting shacks. Drawbridge was subsequently documented more thoroughly as part of a dissertation (Morrow 1984). More recently, the town site was included in the 2007 USFWS surveys for the Alviso Salt Works historic district (Speulda-Drews and Valentine 2007a). In the 2007 EIS/R, it was concluded that the town has been slowly sinking into the marsh and that many of the buildings have been burned or vandalized or have collapsed. Drawbridge is listed on the OHP Historic Property Data File under status code 7R (identified in reconnaissance-level survey, but not evaluated for NRHP or CRHR eligibility).

The second cultural resource within the APE for the Phase 2 Island pond cluster is CA-ALA-338 (P-01-002057). This resource was recorded in 1980 as the remnants of a prehistoric shell midden site, observable in the levee of Pond A19. At the time, the site was recorded as being extensively disturbed and consisting of shell (clam, oyster, mussel, and California horn shell) with limited charcoal; no other cultural constituents were observed. The recorded site location was revisited by URS archaeologists in September 2013 (Rehor 2013). Although a variety of shell was observed on the levee, as previously described, there is no indication that this shell has been culturally modified (e.g., heat affected, crushed). Most of the shell observed was either whole or very large fragments. There was no indication of charcoal, midden soil, lithic debitage, or rock of any kind. No obvious cultural constituents were present, save for the man-made levee itself. The levee is constructed of gray bay mud, excavated from the adjacent salt pond, and includes very large thick salt concretions that were also dug up and redeposited with the Bay Mud. It appears that any shell present on or within the levee was naturally occurring in the Bay Mud and redeposited as part of the levee construction. It is very unlikely that a prehistoric archaeological site is present in this location. Examination of the original 1909 Nelson map of Bay Area shellmounds shows that he plotted mound #338 (CA-MNT-338) several thousand feet east of the location of Pond A19, and outside of the Phase 2 APE.

In addition to the two previously identified cultural resources within the APE for the Phase 2 Island pond cluster, two previously recorded resources are directly adjacent to the APE and, as such, are briefly discussed here. These two resources are the railroad bridge across Mud Slough, just north of Drawbridge and the APE, and the railroad bridge across Coyote Creek (P-01-010205), just south of Drawbridge and the APE (Figure 3.7-3). Both of these bridges are swing bridges, which allow for boat traffic, and both have been previously evaluated for eligibility to the NRHP. In 1987, the Union Pacific Railroad (UPRR) bridge over Mud Slough was determined to have a high degree of historic integrity but was recommended as ineligible based on a lack of direct association with historic events or people and because it does not represent a distinctive type or form of construction (Snyder 1987). Since that evaluation, the bridge has undergone major renovations, including removal of the original shack that housed the bridges motor, and lacks the integrity that it had in 1987. The UPRR bridge over Coyote Creek was similarly determined to lack integrity or association, having been completely replaced in 1905, 1948, and 1998 (Hill 1998); and is listed on the OHP Historic Property Data File under status code 6Y (determined ineligible for the NRHP by consensus through Section 106 process, but not evaluated for CRHP or local listing).

Mountain View Ponds. The APE for the Phase 2 Mountain View pond cluster does not contain any known cultural resources. The entire western levee of Pond A1 was subject to pedestrian survey as part of the USFWS landscape investigation (Speulda-Drews and Valentine 2007a). During that survey, at least 13 hunting blinds (nine in Pond A1 and four in Pond A2W), two boat launches (all in Pond A1), and three

water control structures (all in Pond A1) were recorded. As discussed above, all of these were considered to lack integrity, were non-contributing elements of the historic salt works landscape, and were not considered historical resources or historic properties.

The remainder of the accessible portions of the Mountain View ponds within the Phase 2 APE were subject to pedestrian survey by URS cultural resource personnel in November 2013 (Figure 3.7-2). These accessible portions included additions to the APE since definition of the Programmatic APE, including portions of Charleston Slough. USFWS is consulting with the SHPO on these Phase 2 APE modifications. No additional cultural resources were identified during the Phase 2 pedestrian surveys or background research.

A8 Ponds. Site CA-SCL-810H is on the eastern edge of Pond A8, along Alviso Slough. The site consists of the disturbed remnants of a historic ship-building facility at the Port of Alviso, which operated during World War II (see discussion above). Most of the building materials appear to have been salvaged after the facility closed. Concrete crane footings and floors, piers, and a boat ramp still remain. Large amounts of modern concrete rubble cover the remaining portions of the site. Effects to this resource were addressed under the Phase 1 actions in the 2007 EIS/R. Previous analysis of the site in the 2007 EIS/R found that the site had lost the integrity that would make it eligible for listing to the NRHP or CRHR.

In addition to the one previously identified resource (CA-SCL-810H), an 1873 historic map of the area depicts a “warehouse” along a minor slough in the southern portion of Pond A8S (Figure 3.7-4). No evidence of this warehouse has been identified in previous studies. The majority of the levees surrounding and between the A8 Ponds have been subjected to previous pedestrian surveys (Guedon 1998; Speulda-Drews and Valentine 2007a; Woodward-Clyde 1998). The remainder of the accessible portions of the A8 Ponds in the Phase 2 APE was subject to pedestrian survey by URS cultural resource personnel in November 2013 (Figure 3.7-2). No cultural resources were identified.

Ravenswood Ponds

The APE for the Phase 2 Ravenswood pond cluster does not contain any known cultural resources. Only a portion of the southern levee, fronting the Bayfront Expressway, was subject to previous cultural resources investigations (Kaptain 2009). All accessible portions of the Ravenswood Ponds within the Phase 2 APE were subject to pedestrian survey by URS cultural resource personnel in November 2013 (Figure 3.7-2). These portions included additions to the APE since definition of the Programmatic APE, including small portions of the Bayfront Canal and Flood Slough. USFWS is consulting with the SHPO on these Phase 2 APE modifications.

The larger Ravenswood pond complex, of which the Phase 2 pond cluster is a significant portion, was evaluated by USFWS for NRHP eligibility as a historic salt works landscape. It was determined that the pond complex lacks integrity and “does not convey a strong association with the salt industry, thus it does not meet the NRHP eligibility criteria for determination as a historic property” (Speulda-Drews and Valentine 2007b:11). The SHPO concurred with this finding in 2010 (OHP 2010:2).

As shown on Figure 3.7-5 (Photos 1 and 2), two built environment resources were identified during field surveys for the Phase 2 activities. These two resources were a small pumphouse at the western edge of Pond S5 and a large water diversion and pump structure at the head of the All-American Canal (AAC), between Ponds R3 and R4.

Figure 3.7-5 Ravenswood Ponds Built Resources**Photo 1. North and west elevation of Pond S5 pumphouse****Photo 2. Ravenswood diversion structure (view to northwest)**

The Pond S5 pumphouse is a circa 1940s structure made of dimensional lumber, clad in lap siding, and set on pilings. Aerial photographs indicate that the structure was built between 1943 and 1948. The materials and function of the structure have been modified over time. Extensive modern repairs, inconsistent with the original materials, are evident, including a new composite roof. The pump and the

motor housed in the structure were removed, rebuilt, and reinstalled about 12 years ago. The pump station was originally installed to move pickle brines from Pond S5 into the Redwood City Plant Site pickle ponds. The structure now serves as a telecommunication station, with a repeater on the building to communicate with other Cargill field pumps. As such, the structure appears to lack integrity. Given the utilitarian nature of the structure, it does not represent a unique style or work of a master. The only potential significance of the pumphouse would be its association with a larger historic salt works landscape. Given that the Ravenswood unit has been determined to be not eligible as a historic landscape or historic property (as discussed above), the pumphouse would not be eligible as a contributing resource. Therefore, it does not appear to be eligible to the NRHP or CRHR.

The large AAC water diversion and pump structure was originally built early in the development of the Ravenswood salt works to move water and brine between the canal and Ponds R3 and R4. The diversion structure consists of two wooden sluice boxes to transfer water between the ponds and canal, associated hand-turned control gates, and a large platform on creosote pilings fitted with a newer electric pump and steel pipeline. As with the pumphouse discussed above, maintenance and modified use have caused changes in the materials and appearance of the structure. As with the pumphouse, the structure does not appear to represent a unique style of construction or work of a master and would only be potentially eligible for the NRHP or CRHR as a contributing element of a larger historic landscape. As such, the AAC diversion and pump structure does not appear eligible.

3.7.2 Regulatory Setting

A number of federal, state, regional, and local regulations have been established to protect cultural resources and preserve them for future generations. In California, the two most applicable sets of legislation include Section 106 of the National Historic Preservation Act (NHPA) (Section 106), and CEQA.

Federal Regulations

Section 106 requires federal agencies to take into consideration the potential effects of proposed undertakings on historic properties, and to allow the Advisory Council on Historic Preservation the opportunity to comment on a proposed undertaking. Historic properties are cultural resources listed on or considered eligible for inclusion in the NRHP. The regulations implementing Section 106¹ are promulgated by the Secretary of the Interior, as codified in Title 36 Code of Federal Regulations (CFR) Part 800.

Section 106 requirements apply to properties both on the NRHP and not formally determined eligible but that are considered to meet the eligibility requirements (may include situations where SHPO arrives at a consensus regarding a historic property). This consensus may be reached through the provisions of a Programmatic Agreement or other such document or may result from case-by-case consultation. The NHPA authorizes the Secretary of the Interior to maintain and expand a National Register of districts, sites, buildings, structures and objects of significance in American history, architecture, archaeology, engineering and culture. A property may be listed in the NRHP if it meets criteria for evaluation as defined in 36 CFR 60.4:

¹ Documents that include the full text of Section 106 and guidance on working with its provisions may be found at <http://www.achp.gov/work106.html>.

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. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- b. That are associated with the lives of persons significant in our past; or
- c. 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. That have yielded, or may be likely to yield, information important in prehistory or history.

There is also a requirement for an APE map, as described in Section 106 and codified in Title 36 CFR 800.4(a)(1). USFWS submitted a letter to the SHPO on July 16, 2004, requesting confirmation of the APE map for the SBSP Restoration Project. The APE map designates the SBSP Restoration Project boundary, as shown on Figure 1-2 of the 2007 EIS/R, as the Project's APE. The SHPO sent a letter to USFWS dated November 19, 2004, indicating that the agency concurred with USFWS's determination of the project's APE.

The Section 106 review process occurs in four steps: initiation of the process; identification of historic properties; assessment of adverse effects; and resolution of adverse effects. Public involvement, particularly from Native Americans, is strongly encouraged during each of these steps.

Cultural Landscapes

As discussed above, the SBSP Restoration Project area is a heavily modified environment that has been evaluated as a historic cultural landscape, representative of the late-nineteenth- and early-twentieth-century development of industrial salt production along the south San Francisco Bay shore. Project goals to reestablish tidally influenced salt marsh are intended to change the existing landscape, in direct contradiction to the many years of human-made modifications. To properly document, assess, and evaluate cultural landscapes, USFWS uses the NPS guidelines. These guidelines provide standards for undertaking a cultural landscape analysis, including procedures for identifying, evaluating, and managing cultural landscapes in the United States.

The South Bay Salt Pond Restoration Project Historic Context Report (EDAW 2005) was used in conjunction with an evaluation framework developed in consultation with the SHPO to determine the significant features of the solar salt industry landscape. As discussed above, the determination was made that the Alviso Salt Works ponds, as a whole, constitute a Historic Landscape with the primary contributing elements being the ponds themselves, whereas the Ravenswood Salt Works ponds do not constitute a Historic Landscape. The SHPO has concurred with a finding of adverse effect on the Alviso Salt Works Historic Landscape, which is considered a historic property under Section 106, and Historic American Landscape Survey (HALS) documentation has been undertaken as mitigation for effects to this historic landscape. For a more complete description of NPS guidelines and definitions with regards to cultural landscapes, please refer to the 2007 EIS/R.

State Regulations

California Environmental Quality Act

CEQA offers directives regarding impacts on historical resources, unique archaeological resources, and unique paleontological resources. CEQA states generally that if implementation of a project would result in significant environmental impacts, then public agencies should determine whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives. This general mandate applies equally to significant environmental effects related to certain cultural resources.

Only significant cultural resources (e.g., “historical resources” and “unique archaeological resources”) need to be addressed. The CEQA Guidelines (AEP 2014) define a “historical resource” as, among other things, “a resource listed or eligible for listing on the CRHR (CEQA Guidelines, Section 15064.5, subd. (a)(1); see also Public Resources Code Sections 5024.1, 21084.1). A historical resource may be eligible for inclusion on the CRHR, as determined by the State Historical Resources Commission or the lead agency, if the resource:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage; or
- (2) Is associated with the lives of persons important in our past; or
- (3) 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
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

A resource is presumed to constitute a “historical resource” if it is included in a “local register of historical resources” unless “the preponderance of evidence demonstrates that it is not historically or culturally significant” (CEQA Guidelines, Section 15064.5, subd. (a)(2)). In addition, the CEQA Guidelines requires consideration of unique archaeological sites (Section 15064.5). (See also Public Resources Code Section 21083.2.) A “unique archaeological resource” is defined as: “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 any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.” (Section 21083.2(h))

If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archaeological resource as outlined in the Public Resource Code (Section 21083.2), it is entitled to special protection or attention under CEQA. Treatment options under Section 21083.2 of CEQA include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation.

CEQA also requires assessment of impacts to paleontological resources. Although CEQA does not define what “a unique paleontological resource or site” is, the definition of a unique archaeological resource described above is considered equally applicable to recognizing a unique paleontological resource. CEQA Section 15064.5 (a)(3)(D), which indicates “generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history,” provides additional guidance.

Public Resources Code Section 15064.5(e) of the state CEQA Guidelines requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, Section 15064.5(d) of the CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans as identified by the NAHC and directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Under California’s Public Resources Code (Section 6316), title to all abandoned shipwrecks, abandoned archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is under the jurisdiction of the California State Lands Commission. The Commission would be consulted with if any cultural resources are discovered on State lands during construction. Further, the final disposition of archaeological, historical, and paleontological resources recovered on State lands under the Commission’s jurisdiction must also be approved by the Commission.

Regional/Local Regulations

Due to the large, multi-county, multi-municipality nature of the SBSP Restoration Project, there are naturally many individual county and city plans and policies that apply to cultural resources. They all generally encourage preservation and protection of cultural resources when practicable.

Alviso Pond Complex

City of Fremont. The City of Fremont General Plan (City of Fremont 2003) includes the following relevant cultural resources goals, policies, and implementation measures:

Fundamental Goal 13: Vital connections between the history and heritage of the community and everyday life.

Policy LU 7.3: The City shall identify and designate historic buildings and archaeological sites outside of the identified Historic Overlay district. It is the intent of the City to require, where feasible, the preservation or Primary Historic Resources, as identified in the General Plan. It is the policy of the City of Fremont to protect, enhance, perpetuate and use structures, sites and areas which are reminders of past eras, events, and persons important in local, State, or National history. Resources which provide significant examples of architectural styles of the past and are unique and irreplaceable assets to the community should be protected to provide for the present and future generations examples of physical surroundings in which past generations lived. The public health, safety and welfare of the community require the prevention of needless destruction and impairment, and promotion of the economic utilization of such structures, site and areas.

City of San Jose. The City of San Jose 2020 General Plan (City of San Jose 2004) includes the following relevant cultural resources goals and policies (because only relevant policies are included here, numbering is non-sequential):

Historic, Archaeological and Cultural Resources Goal:

Preservation of historically and archaeologically significant structures, sites, districts and artifacts in order to promote a greater sense of historic awareness and community identity and to enhance the quality of urban living.

Historic, Archaeological and Cultural Resources Policies:

- Policy 1: Because historically or archaeologically significant sites, structures and districts are irreplaceable resources, their preservation should be a key consideration in the development review process.
- Policy 4: Areas with a concentration of historically and/or architecturally significant sites or structures should be considered for preservation through the creation of Historic Preservation Districts.
- Policy 5: New development in proximity to designated historic landmark structures and sites should be designed to be compatible with the character of the designated historic resource. In particular, development proposals located within the Areas of Historic Sensitivity designation should be reviewed for such design sensitivity.
- Policy 7: Structures of historic, cultural or architectural merit which are proposed for demolition because of public improvement projects should be considered for relocation as a means of preservation. Relocation within the same neighborhood, to another compatible neighborhood or to the San José Historical Museum should be encouraged.
- Policy 8: For proposed development sites which have been identified as archaeologically sensitive, the City should require investigation during the planning process in order to determine whether valuable archaeological remains may be affected by the project and should also require that appropriate mitigation measures be incorporated into the project design.
- Policy 9: Recognizing that Native American burials may be encountered at unexpected locations, the City should impose a requirement on all development permits and tentative subdivision maps that upon discovery of such burials during construction, development activity will cease until professional archaeological examination and reburial in an appropriate manner is accomplished.
- Policy 10: Heritage trees should be maintained and protected in a healthy state. The heritage tree list, identifying trees of special significance to the community, should be periodically updated.

County of Santa Clara. The County of Santa Clara General Plan (County of Santa Clara 1994) includes the following relevant cultural resources strategies, policies, and implementation measures:

C-RC 49

Cultural heritage resources within Santa Clara County should be preserved, restored wherever possible, and commemorated as appropriate for their scientific, cultural, historic and place values.

Strategy #2:

Prevent or Minimize Adverse Impacts on Heritage Resources

C-RC 52

Prevention of unnecessary losses to heritage resources should be ensured as much as possible through adequate ordinances, regulations, and standard review procedures. Mitigation efforts, such as relocation of the resource, should be employed where feasible when projects will have significant adverse impact upon heritage resources.

Strategy #3:

Restore, Enhance and Commemorate Resources

C-RC 54

Heritage resources should be restored, enhanced, and commemorated as appropriate to the value and significance of the resource.

City of Sunnyvale. The City of Sunnyvale General Plan (City of Sunnyvale 1995) includes the following relevant cultural resources goals, policies, and implementation measures:

Heritage Preservation Sub-Element

- | | |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Goal 6.3B | To enhance, preserve and protect Sunnyvale's heritage, including natural features, the built environment and significant artifacts. |
| Policy 6.3B.1 | Preserve existing landmarks and cultural resources and their environmental settings. |
| Policy 6.3B.4 | Identify and work to resolve conflicts between the preservation of heritage resources and alternative land uses. |
| Policy 6.3B.5 | Seek out, catalog and evaluate heritage resources which may be significant. |
| Policy 6.3B.10 | Archeological resources should be preserved whenever possible. |

City of Mountain View. In the City of Mountain View 1992 General Plan (City of Mountain View 1992), the Environmental Management chapter includes the following relevant cultural resources strategies, policies, and implementation measures:

- Goal J: Identify and preserve the city's archaeological resources.
- Policy 27. Improve awareness of the city's archaeological resources.

Ravenswood Pond Complex

City of Menlo Park. The Open Space and Conservation Element of the Menlo Park General Plan (City of Menlo Park 1973) provides the following relevant cultural resources goal and policy. The City of Menlo Park General Plan Policy Document (City of Menlo Park 1994) does not include an update of this information associated with cultural resources.

Open Space and Conservation Goal #8: To preserve historic buildings, objects, and sites of historic and cultural significance.

Open Space and Conservation Policy #6: Protect conservation and scenic areas, historic and cultural sites from deterioration or destruction by vandalism, private actions or public actions.

County of San Mateo. The County of San Mateo General Plan (County of San Mateo 1986) is largely focused on the identification, preservation, and rehabilitation of historic structures, but includes the following general cultural resources strategies, policies, and implementation measures:

- 5.10 Encourage cooperative educational programs by educational and historic groups.
- 5.11 a. Identify high priority resources in the comprehensive inventory and apply for their designation as State Point of Historic Interest, State Historical Landmark, or inclusion in the National Register of Historic Places. b. Establish historic districts for areas which include concentrations of historic resources found in the comprehensive inventory.
- 5.12 Encourage the rehabilitation and recycling of historic structures.
- 5.14 Recommend State and/or national register status for significant archaeological/paleontological sites.

3.7.3 Environmental Impacts and Mitigation Measures

Overview

This section describes environmental impacts and mitigation measures related to cultural resources. It includes a discussion of the criteria used to determine the significance of impacts. This discussion includes consideration of resources under NHPA and CEQA, but without offering the confusion of using two sets of similar terminology. The impacts and mitigation measures below are generally discussed using CEQA language such as “significant impacts” rather than “adverse effects.” Potential impacts are characterized by evaluating direct, indirect, short-term (temporary), and long-term effects. Impact evaluations for the Action Alternatives are assessed based on the existing conditions described in Section 3.7.1, Physical Setting, and not the proposed conditions that would occur under the No Action Alternative.² This approach is consistent with CEQA, which requires that project impacts be evaluated against existing conditions. In this case, the No Action Alternative represents no change from current management direction or level of management intensity provided in the Adaptive Management Plan (AMP) and other Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) management documents and practices.

As a reminder, cultural resources may be historic or prehistoric. The word “historic” may be a temporal reference, or it may signify the importance of a resource from either the historic or prehistoric era. A “historical resource,” as defined by CEQA, is a site that is eligible or potentially eligible for listing on the CRHR. For example, a resource that dates to the historic-era does not inherently mean that it has the significance to qualify as a historical resource (CEQA) or historic property (NHPA). The reader must follow the context of the discussion to understand which use of the word is being made.

² “No Action Alternative” is the NEPA term. It corresponds to the CEQA term “No Project Alternative.” This Final EIS/R uses No Action throughout.

Significance Criteria

NHPA

Under NHPA, if it is determined that historic properties may be affected by an undertaking, the agency proceeds with the Section 106 process, assessing adverse effects (called significant impacts under CEQA). The definition of adverse effects is found in Section 800.5(a)(1) of the regulations of NHPA. The definition of adverse effects states:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with The Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This significance criterion is discussed below in Phase 2 Impact 3.7-2, which addressees the potential disturbance of the historic salt ponds and associated structures, which may be considered a significant cultural landscape within the Phase 2 project.

CEQA

According to the CEQA Guidelines, an impact to a cultural resource is considered significant if implementation of the proposed project or alternatives under consideration would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Disturb any human remains, including those interred outside of formal cemeteries.

The CEQA Guidelines (California Code of Regulations Section 15064.5) define “substantial adverse change” as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings. The significance criteria listed above are included in Impact 3.7-1, which addresses the potential disturbance of known or unknown cultural resources located within the Phase 2 project ponds, and in Impact 3.7-2, which addresses the potential disturbance of the historic salt ponds and associated structures that may be considered a significant cultural landscape within the Phase 2 project ponds.

As explained in Section 3.1.2, although both the CEQ Regulations for Implementing NEPA (CEQ 2015b) and the CEQA Guidelines (AEP 2014) were considered during the impact analysis, impacts identified in this Final EIS/R are characterized using CEQA terminology.

Program-Level Evaluation Summary

Three programmatic-level alternatives were considered and evaluated in the 2007 EIS/R: the No Action Alternative (Programmatic Alternative A); the Managed Pond Emphasis (Programmatic Alternative B); and the Tidal Marsh Emphasis (Programmatic Alternative C). Programmatic Alternative C was selected and is the alternative implemented under the Phase 1 restoration actions completed to date. Therefore, a summary of the impacts for Programmatic Alternative C from the 2007 EIS/R is provided below.

Under Programmatic Alternative C, the 2007 EIS/R concluded that impacts to unanticipated cultural resources would be less than significant with implementation of Mitigation Measure 3.8-1 (discussed in Chapter 2, Alternatives) and that impacts to the historic salt ponds cultural landscape would be less than significant with implementation of Mitigation Measure 3.8-2 (discussed in Chapter 2).

As discussed above, since completion of the 2007 EIS/R, implementation of Mitigation Measure 3.8-2 has consisted of surveys and determinations of eligibility for the Alviso Salt Works Historic Landscape and the Eden Landing Salt Works Historic Landscape, and the Ravenswood salt works was determined to not constitute a historic resource. Mitigation for impacts to the Alviso and Eden Landing landscapes was codified in the *Memorandum of Agreement between the U.S. Fish & Wildlife Service and the California State Historic Preservation Officer, Regarding the South Bay Salt Pond Restoration Project, Including Restoration of Former Industrial Salt Ponds to Tidal Salt Marsh and Other Wetland Habitats, Including the Former Salt Works Sites within the Alviso Unit on the Don Edwards San Francisco Bay National Wildlife Refuge and California Department of Fish and Game's Eden Landing Ecological Reserve; Alameda and Santa Clara Counties, California* (MOA) (USFWS 2012). Execution of the MOA constitutes completion of the Section 106 process. All stipulations of the MOA, including survey and

recording, have been completed, except for stipulation IIB—which consists of public interpretation that would be included as part of Phase 2—and ongoing monitoring stipulations that will occur during each phase of the SBSP Restoration Project.

Although impact evaluation to paleontological resources was not directly addressed in the 2007 EIS/R, such an analysis was not considered necessary due to the nature of sediments within the project's vertical APE and the lack of potential for impacts. As described above in "Geomorphic Setting," the project area is underlain by late Holocene bay mud. Project impacts would be focused on the built-up levees themselves, with some minimal excavation into underlying sediments (channels, etc.). Impacts would be confined to historic-era fill or the underlying bay mud, with no potential for harboring unique paleontological resources. As such, there is no need for additional consideration of paleontological impacts.

Project-Level Evaluation

Phase 2 Impact 3.7-1: Potential disturbance of known or unknown cultural resources.

The scale and scope of the SBSP Restoration Project area necessarily means that there is a wide range of known and unknown cultural resources that may be disturbed by some aspect of individual restoration activities. Because so many of these resources are probably obscured, they may only be encountered during project-related earthmoving activities. Accidental discoveries made during construction may be unavoidable; however, as emphasized in the NHPA, CEQA, and local plans and policies, wherever practicable, preservation of cultural resources is preferred over additional damage and/or data recovery.

Alviso-Island Ponds

Alternative Island A (No Action). Only limited operation and maintenance (O&M) activities would occur under Alternative Island A (the No Action Alternative). The USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, so Alternative A would not adversely affect historical resources.

Alternative Island A Level of Significance: No Impact

Alternative Island B. CA-ALA-338, a previously recorded site assumed to be the remnant of a Nelson (1909) shellmound, was mapped in 1980 as being in the northwest corner of Pond A19, near a proposed breach location. However, as described above in "Project Setting" for the Alviso-Island Ponds, the location was revisited during surveys for this project, and it appears that the site was erroneously recorded in 1980. The shellmound mapped by Nelson was several thousand feet east of Pond A19 and outside of the Phase 2 APE. No evidence for the site was encountered during project surveys.

The historic-era town of Drawbridge (P-01-003291) is located on Station Island between Pond A21 and A20. No direct or indirect effects would occur to Station Island, the levees surrounding it, or the bridges at either end of Drawbridge as a result of Alternative Island B. Increased sedimentation and connectivity between Pond A20 and A19 would not cause substantial adverse change to the historic-era resources of Drawbridge.

No potential disturbance to known cultural resources would occur as a result of the Alternative Island B. However, there is the potential that previously undocumented cultural resources are present below the surface, including buried resources related to Drawbridge or CA-ALA-338, which were not evident

during survey. Since **SBSP Mitigation Measure 3.8-1** (described in Chapter 2 of this document) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Island B Level of Significance: Less than Significant

Alternative Island C. As discussed above for Alternative Island B, no potential disturbance to known cultural resources would occur as a result of Alternative Island C. However, there is the potential that previously undocumented cultural resources are present below the surface, including buried resources related to Drawbridge or CA-ALA-338, which were not evident during survey. Since **SBSP Mitigation Measure 3.8-1** (described in Chapter 2 of this document) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Island C Level of Significance: Less than Significant

Alviso-Mountain View Ponds

Alternative Mountain View A (No Action). Only limited O&M activities would occur under Alternative Mountain View A (the No Action Alternative). The USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect historical resources.

Alternative Mountain View A Level of Significance: No Impact

Alternative Mountain View B. Aside from the ponds themselves, which are part of the Alviso Salt Works Historic Landscape (discussed below under SBSP Phase 2 Impact 3.7-2), no cultural resources have been identified through background research or primary field surveys within the Mountain View pond cluster. As such, no potential disturbance to known cultural resources would occur as a result of Alternative Mountain View B. However, there is the potential that previously undocumented cultural resources are present below the surface, that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Mountain View B Level of Significance: Less than Significant

Alternative Mountain View C. As discussed for Alternative Mountain View B, no potential disturbance to known cultural resources would occur as a result of Alternative Mountain View C. However, there is the potential that previously undocumented cultural resources are present below the surface, that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative: Mountain View C Level of Significance: Less than Significant

Alviso-A8 Ponds

Alternative A8 A (No Action). Only limited O&M activities would occur under Alternative A8 A (the No Action Alternative). USFWS would continue to operate and maintain the ponds in accordance with the

AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect historical resources.

Alternative A8 A Level of Significance: No Impact

Alternative A8 B. CA-SCL-810H, a previously recorded site assumed to be the remnant of a small World War II shipbuilding operation is on the eastern edge of Pond A8, along Alviso Slough. Most of the building materials appear to have been salvaged after the facility closed. Concrete crane footings and floors, piers, and a portion of a boat ramp still remain. Large amounts of modern concrete rubble cover the remaining portions of the site. As discussed in the Phase 1 project-level evaluation in the 2007 EIS/R, CA-SCL-810H has been highly disturbed by the salvage of scrap metal after the yard closed and the deposition of urban concrete rubble in the latter half of the twentieth century. The site has lost the integrity that would make it eligible for listing to the NRHP or CRHR. Also, no Phase 2 activities are planned in the immediate vicinity of the site. As a result, impacts to CA-SCL-810H resulting from implementation of the Phase 2 actions would be less than significant.

No potential disturbance to known cultural resources would occur as a result of Alternative A8 B. However, there is the potential that previously undocumented cultural resources are present below the surface, including buried resources related to a warehouse identified on an 1873 map of the area (Figure 3.7-4), that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative A8 B Level of Significance: Less than Significant

Ravenswood Ponds

Alternative Ravenswood A (No Action). Only limited O&M activities would occur under Alternative Ravenswood A (the No Action Alternative). The USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. The outboard levees along Ponds R3 and R4 provide protection from tidal flows and would continue to be maintained as a component of the United States Army Corps of Engineers (USACE) 1995 O&M permit. No new activities would occur under Phase 2, and Alternative A would not adversely affect historical resources.

Alternative Ravenswood A Level of Significance: No Impact

Alternative Ravenswood B. No previously identified cultural resources are present within the Phase 2 Ravenswood APE. The Ravenswood pond complex was evaluated as a cultural landscape and determined by the SHPO to be not eligible for the NRHP and appears to lack sufficient integrity for CRHR eligibility as well. During pedestrian survey for the Phase 2 project, two built environment resources—a circa 1950s pump house at the western end of Pond S5 and a large control gate and diversion structure at the head of the AAC, which served as the primary water control structure for this pond cluster—were identified and recorded. Neither of these structures represents a unique or distinctive type of construction and would only be considered significant as contributing elements of a historic district or cultural landscape. Given that the Ravenswood Salt Works was determined to be ineligible as a historic property, these two structures are not considered significant. Furthermore, the proposed project activities would not directly impact these structures.

No potential disturbance to known cultural resources would occur as a result of Alternative Ravenswood B. However, there is the potential that previously undocumented cultural resources are present below the surface that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Ravenswood B Level of Significance: Less than Significant

Alternative Ravenswood C. As discussed for Alternative Ravenswood B, no potential disturbance to known cultural resources would occur as a result of Alternative Ravenswood C. However, there is the potential that previously undocumented cultural resources are present below the surface that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Ravenswood C Level of Significance: Less than Significant

Alternative Ravenswood D. As discussed for Alternative Ravenswood B, no potential disturbance to known cultural resources would occur as a result of Alternative Ravenswood D. However, there is the potential that previously undocumented cultural resources are present below the surface that were not evident during the survey. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Ravenswood D Level of Significance: Less than Significant

Phase 2 Impact 3.7-2: Potential disturbance of the historic salt ponds and associated structures which may be considered a significant cultural landscape.

Alviso-Island Ponds

Alternative Island A (No Action). Only limited O&M activities would occur under Alternative Island A (the No Action Alternative). USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect the historic landscape.

Alternative Island A Level of Significance: No Impact

Alternative Island B. As discussed in “Project Setting” and Previously Recorded Cultural Resources, the Alviso-Island Ponds are a contributing element of the Alviso Salt Works Historic Landscape, which has been determined by the SHPO to be a historic property and, therefore, is considered a historical resource under CEQA as well. The proposed Phase 2 project activities would cause substantial adverse change to the ponds and other landscape features that are contributing elements of the historic landscape. These impacts were previously identified in the 2007 EIS/R. Because **SBSP Mitigation Measure 3.8-1** (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant. The primary element of this mitigation measure is the determination of eligibility of the cultural landscapes and completion of HALS recordation for those pond complexes considered to be historic landscapes. The

HALS mitigation for the SBSP Restoration Project was codified in the MOA (USFWS 2012). The HALS recordation has since been completed by USFWS for the Alviso Salt Works (HALS CA-92), accepted by the NPS, and submitted to the SHPO and Library of Congress for curation. Given the execution of the MOA and associated treatment plan and mitigation measures, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Island B Level of Significance: Less than Significant

Alternative Island C. As discussed above for Alternative Island B, the Alviso unit has been determined to be a historic property by the SHPO and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Island C Level of Significance: Less than Significant

Alviso-Mountain View Ponds

Alternative Mountain View A (No Action). Only limited O&M activities would occur under Alternative Mountain View A (the No Action Alternative). USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect the historic landscape.

Alternative Mountain View A Level of Significance: No Impact

Alternative Mountain View B. The Mountain View Ponds are a contributing element of the Alviso Salt Works Historic Landscape. As described above for the Alviso-Island Ponds, the Alviso unit has been determined to be a historic property by the SHPO and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Mountain View B Level of Significance: Less than Significant

Alternative Mountain View C. As described for Alternative Mountain View B, the Alviso unit has been determined to be a historic property by the SHPO, and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Mountain View C Level of Significance: Less than Significant

Alviso-A8 Ponds

Alternative A8 A (No Action). Only limited O&M activities would occur under Alternative A8 A (the No Action Alternative). USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect the historic landscape.

Alternative A8 A Level of Significance: No Impact

Alternative A8 B. The Alviso-A8 Ponds are a contributing element of the Alviso Salt Works Historic Landscape. As described above for the Alviso-Island Ponds, the Alviso unit has been determined to be a historic property by the SHPO, and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative A8 B Level of Significance: Less than Significant

Ravenswood Ponds

Alternative Ravenswood A (No Action). Only limited O&M activities would occur under Alternative Ravenswood A (the No Action Alternative). USFWS would continue to operate and maintain the ponds in accordance with the AMP and other ongoing management practices that have been in place since the implementation of the Phase 1 actions. No new activities would occur under Phase 2, and Alternative A would not adversely affect the historic landscape.

Alternative Ravenswood A Level of Significance: No Impact

Alternative Ravenswood B. As discussed in the “Project Setting,” the Ravenswood pond complex has been determined by the SHPO to not constitute a historic landscape and is not eligible as a historic property under any criteria; also, the Ravenswood pond complex does not appear to be eligible for the CRHR. As such, the Ravenswood Phase 2 impacts would not adversely affect a significant cultural landscape.

Alternative Ravenswood B Level of Significance: Less than Significant

Alternative Ravenswood C. As discussed in Alternative Ravenswood B, the Ravenswood pond complex has been determined by the SHPO to not constitute a historic landscape and is not eligible as a historic property under any criteria; also, the Ravenswood pond complex does not appear to be eligible for the CRHR. As such, the Ravenswood Phase 2 impacts would not adversely affect a significant cultural landscape.

Alternative Ravenswood C Level of Significance: Less than Significant

Alternative Ravenswood D. As discussed in Alternative Ravenswood B, the Ravenswood pond complex has been determined by the SHPO to not constitute a historic landscape and is not eligible as a historic property under any criteria; also, the Ravenswood pond complex does not appear to be eligible for the CRHR. As such, the Ravenswood Phase 2 impacts would not adversely affect a significant cultural landscape.

Alternative Ravenswood D Level of Significance: Less than Significant

Impact Summary

The Phase 2 impacts to cultural resources and the levels of significance are summarized in Table 3.7-3. The levels of significance are those remaining after implementation of program-level mitigation measures, project-level design features, and the AMP and other Refuge management documents and practices. The cultural resources analysis required no project-level mitigation measures to reduce the impacts to a level that was less than significant.

Table 3.7-3 Phase 2 Summary of Impacts – Cultural Resources

IMPACT	ALTERNATIVE											
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD			
	A	B	C	A	B	C	A	B	A	B	C	D
Phase 2 Impact 3.7-1: Potential disturbance of known or unknown cultural resources.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS
Phase 2 Impact 3.7-2: Potential disturbance of the historic salt ponds and associated structures which may be considered a significant cultural landscape.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS
Notes: Alternative A at each pond cluster is the No Action Alternative (No Project Alternative under CEQA). LTS = Less than Significant NI = No Impact												

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3.7	Cultural Resources	3.7-1
3.7.1	Physical Setting	3.7-1
3.7.2	Regulatory Setting.....	3.7-16
3.7.3	Environmental Impacts and Mitigation Measures.....	3.7-22
Table 3.7-1	Previously Recorded Cultural Resources within the Phase 2 APE	3.7-3
Table 3.7-2	Previous Cultural Resource Inventories within the Phase 2 APE.....	3.7-3
Table 3.7-3	Phase 2 Summary of Impacts – Cultural Resources.....	3.7-31
Figure 3.7-1.	Project Area	3.7-2
Figure 3.7-2.	Cultural Resource Surveys	3.7-5
Figure 3.7-3.	Recorded Cultural Resources.....	3.7-8
Figure 3.7-4	Historic Map of Alviso Area	3.7-10
Figure 3.7-5	Ravenswood Ponds Built Resources	3.7-15