South Bay Salt Pond Restoration Project

Figure 2-18. Alviso Pond A16 Phase 1 Recreation Actions

M4
Mud Slough
A21
A20
A19
Coyote Creek
A14
A15
A17
A18
A13
A16
A12

See program alternatives B & C (Figures 2-5b & 2-7b) for additional future recreation and public access features.

Proposed Phase 1 interpretive station along existing trail at Pond A16

See Figure 2-17 for Phase 1 restoration at Pond A16

See Figure 2-19

Environmental Education Center

Proposed Phase 1 raised viewing platform and interpretive station overlooking managed Pond A16

Artesian Slough

All proposed features will be accessible.

Project Area

Habitat Features
- Managed Pond
- Tidal Habitat

Trail Features
- Existing Trail

Existing Bay Trail
(Association of Bay Area Governments)
- Spine Trail

Bike Trails
- Cyclists and Pedestrians
- Cyclist Lane or Signed Roads

Existing Recreation Facilities
- Environmental Education Center

Proposed Recreation Facilities
- Interpretive Station
- Viewing Platform
- Viewpoint

N

0 1,000 2,000 3,000 Feet

0 300 600 900 Meters

Map datum and projection: NAD83, UTM Zone 10N
Map data: San Francisco Estuary Institute (habitats, bay shoreline, aqueduct); EDAW (project boundary); Cargill (ponds, buildings); Bay Area Open Space Council (highways).
Map by: EDAW
Map date: March, 2007

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South Bay Salt Pond Restoration Project

Alviso – Pond A16 Viewing Platform and Interpretive Station

Figure 2-19

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March 2007

South Bay Salt Pond Restoration Project

Fig 2-20. Alviso Bay Trail Phase 1 Actions

See program alternatives B & C (Figures 2-5b & 2-7b) for additional future recreation and public access features.

See Figure 2-15 for Phase 1 restoration at Pond A6.

Proposed 2.5 mile multi-use Bay Trail spine from City of Sunnyvale Treatment Plant staging area to south side of Stevens Creek Levee connection to Mountain View Bay Trail spine as shown. To be relocated in place when flood control levee is constructed.

Access from existing Bay Trail spine here via new gate in cooperation with NASA at Moffett Field

All proposed features will be accessible.

A6
A3N
A2W
AB1
A2E
AB2
A5
A3W
Guadalupe Slough
Mountain View Shoreline Park
Stevens Creek Nature Study Area
Moffett Field
Sunnyvale Treatment Ponds

Project Area

Habitat Features
- Managed Pond
- Tidal Habitat

Trail Features
- Existing Trail
- Proposed Year-Round Trail
- Proposed Seasonal Trail

Existing Bay Trail
(Association of Bay Area Governments)
- Spine Trail
- Spur Trail

Bike Trails
- Cyclists and Pedestrians
- Cyclist Lane or Signed Roads

N

0 1,000 2,000 3,000 Feet

0 300 600 900 Meters

Map datum and projection: NAD83, UTM Zone 10N
Map data: San Francisco Estuary Institute (habitats, bay shoreline, aqueduct); EDAW (project boundary); Cargill (ponds, buildings); Bay Area Open Space Council (highways).
Map by: EDAW
Map date: March, 2007

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The proposed viewing platform and interpretive stations at Pond A16 would be accessible from the existing levee along the south edge of Pond A16 and Artesian (Mallard) Slough levee trail network that currently encircles the pond. These stations would be located at strategic locations along this existing trail network to provide visitors with unique viewing, birding and educational opportunities to learn about the transformation of Pond A16 as a managed pond. The Pond A16 viewing platform would be installed at the southern edge of Pond A16, close to the existing boardwalk from the Refuge EEC to allow visitors relatively close access to this station. Figure 2-19 shows a sketch of this location. The platform would be raised up to 5 ft above the existing grade of the levee as may be needed to allow visitors to overlook the managed pond restoration in Pond A16 and would be constructed of steel and recycled wood with ramps and railings as needed. An interpretive station would be incorporated into the design of the viewing platform. The other interpretive station would be located on the eastern edge of Pond A16 in a central location, approximately 1.4 miles from the existing boardwalk. The interpretive station layout in this location would be adjacent to the existing trail and allow for additional interpretive information to augment what is being planned for the other Pond A16 location.

The interpretive stations at Alviso would follow the prototype to be used at Eden Landing including a viewing portal, educational symbols and storyboard and would be constructed with a combination of wood and steel materials. See Figure 2-13 for an example of the interpretive station. These recreational features would be accessed from the existing staging area at the Refuge EEC.

The 2.25-mile Stevens Creek to Sunnyvale Bay Trail Spine would be an integral spine connection in Association of Bay Area Government's (ABAG) Bay Trail project, a partially constructed 400-mile recreational "ring around the Bay." It would be located at the southern boundaries of the pond complex, between the northwestern tip of the Stevens Creek Nature Study Area and the southwestern corner of the City of Sunnyvale WPCP adjacent to Moffett Federal Airfield on one side and a large expanse of managed ponds and tidal marsh on Bay side.

The spine trail is defined by ABAG as the main alignment that would provide a continuous recreational corridor around the Bay. The spine trail would be designed in accordance with ABAG Bay Trail Design Guidelines that require a two-way, multi-use trail 10 to 12 ft in width and paved with asphalt, with 2-ft shoulders on either side. The proposed trail would provide year-round access for pedestrians and bicyclists and other users and would meet California Department of Transportation (Caltrans) Class 1 bikeway standards. Trail design would need to be coordinated and compatible with future tidal wetland restoration work within the Stevens Creek Shoreline Nature Study Area and the Moffett Federal Airfield Site 25 remediation project.

In the longer term, this alignment would include a flood protection levee so the Bay Trail would then be retrofitted and incorporated in the design of the levee. As this may take many years, this segment of Bay Trail would be opened for immediate access to this part of the Project Area, utilizing the existing levee and would not be paved or meet the Caltrans Class I bikeway standards but would provide a key connection for many users until a more permanent segment can be constructed.

2.5.4 Ravenswood Pond Complex

Phase 1 actions in the Ravenswood pond complex would include reconfigured managed pond restoration and recreation and public access actions at Pond SF2.

Phase 1 No Action

Pond SF2

In the absence of a Phase 1 action at Pond SF2, USFWS would operate and maintain the pond in a manner similar to that described in the ISP (Life Science! 2003), although ongoing O&M activities would be scaled back based on available funding (see Section 1.4.4 and Figure 3, Appendix B). Water control structures would be installed along the bayfront levee between Pond SF2 and the Bay as described in the ISP. Pond SF2 would operate as a managed pond in isolation by exchanging water directly with the Bay.

The levees surrounding Pond SF2 would be maintained or repaired upon failure to continue providing some level of flood protection; however, the existing pond levee is not designed as a levee that provides flood protection and is expected to overtop during extreme events. Continued operation of Pond SF2 as a managed pond is not expected to affect PG&E access to the existing PG&E towers.

Cargill currently uses an existing pipe that runs through Pond SF2 from an existing siphon between Ponds SF2 and R2 to Cargill's transbay pipeline beginning at the bayfront levee. This pipe is buried along the northwest edge of the pond in the shoulder of the existing bike trail and levee and daylights at the northeast corner of the pond before connecting to the transbay pipeline. The transbay pipeline connects the Redwood City salt ponds to Cargill's Newark plant. Cargill expects to decommission the West Bay salt ponds and these pipes in the future. Once Cargill's operations are decommissioned, the existing siphon would be abandoned in place or reconfigured to provide flow between Pond SF2 and Ravenswood Slough.

No new public access or recreational facilities would be constructed under this alternative. An existing recreational trail is located between SR 84 and Pond SF2 and along Pond SF2's bayfront levee. The recreational trail between SR 84 and Pond SF2 would likely remain under this alternative; however, overtopping and erosion along the bayfront levee would diminish the integrity of this portion of the existing recreational trail, thereby reducing the existing public access and recreational value.

Phase 1 Restoration Actions

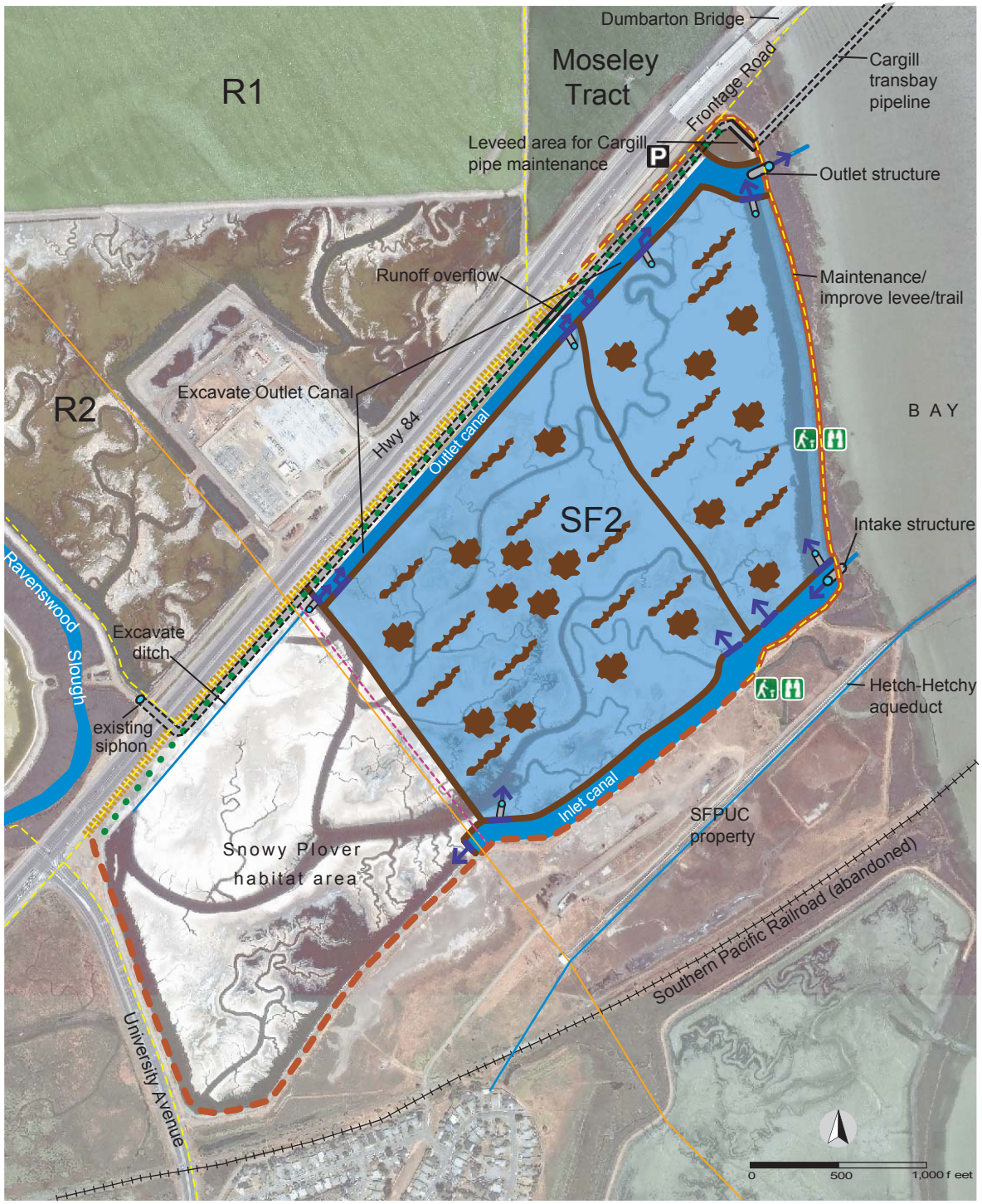
Pond SF2

Introduction. The central and eastern parts of Ravenswood Pond SF2 would be reconfigured to create islands for nesting birds and shallow water habitat for shorebird foraging throughout the year (Figure 2-21). The western part of Pond SF2 would be managed to provide snowy plover habitat similar to existing conditions (*i.e.*, salt panne). As specified in the Adaptive Management Plan (see Section 2.3 and Appendix D of this EIS/R) and the Phase 1 action at Alviso Pond A16, the Pond SF2 restoration would test bird use for different island configurations as an applied study. The Pond SF2 restoration would also

South Bay Salt Pond Restoration Project

figure 2-21

Ravenswood Pond SF2 Phase 1 Action Restoration Plan



- Earth berm
- Existing levee, to remain
- Levee/trail maintenance improvement
- Existing high ground
- Plantings
- Pilot channel
- Typical flow direction
- Pond intake/outlet water control structure (culverts with gates)
- Cell intake/outlet water control structures:
  - Weir
  - Culvert with weir
- Existing above ground pipe, to remain
- Existing buried pipe, to remain
- Railroad
- Existing trails[1]
- Existing parking[1]
- Interpretive station[1]
- Viewing platform[1]
- PG&E overhead power transmission line
- Existing PG&E boardwalk
- Nesting island- linear (25)
- Nesting island- circular (25)

[1]See EIS/R Figure 2-22 for public access and recreation features.

Figure by Philip Williams & Associates
Figure Date: 11-08-07

PWA

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test restoration techniques for vegetation management, predator management, and water quality management as part of the Adaptive Management Plan. Recreation and public access features for the Pond SF2 restoration are described in the Ravenswood Recreation and Public Access Actions section below.

Restoration Plan. Three cells would be created within Ravenswood Pond SF2 (Figure 2-21). The central and eastern cells would be reconfigured to create islands for nesting birds and shallow water habitat for shorebird foraging. The restoration plan for these cells would be similar to the restoration plan for Pond A16 described in Section 2.5.2 above. Nesting islands would be constructed in these two cells. Water levels in these cells would be managed to provide optimal depths for shorebird foraging. The western cell would be managed for snowy plover salt panne habitat. The pond bed in the western cell would remain dry during the summer nesting season and provide nesting habitat for snowy plovers. Water levels and flows in the remnant tidal channels and borrow ditches would be managed to provide foraging habitat. Water control structures would be used to manage water levels and flows in each cell. Water would flow into and out of Pond SF2 through new water control structures located in the eastern levee between Pond SF2 and the Bay. Circulation through Pond SF2 would be managed to meet water quality targets.

Nesting islands. As at Pond A16, nesting islands would be constructed in the two eastern cells by grading the bottom of Pond SF2. These islands are expected to be used for nesting by Forster's terns, American avocets, Caspian terns, black-necked stilts, and snowy plovers. Different island shapes and densities would be created to replicate the Pond A16 applied study (see the Pond A16 Adaptive Management section in Section 2.5.2). The islands would be located at least 300 ft (90 m) from the pond levees to provide a buffer between nesting birds and both mammalian predators and human activity on the levee. The islands would also be located at least 600 ft (180 m) from any focal areas for human use, such as viewing platforms and benches. Further description of the nesting islands is included in the Pond A16 Restoration Plan description in Section 2.5.2. Nesting islands would not be constructed in the western snowy plover salt panne habitat area.

Berms. Cells would be created in Pond SF2 by constructing low "check" berms around the cells, ranging in height from approximately 2 to 6 ft (0.6 to 2 m). The berms would be constructed by excavating fill material on-site. The average pond bottom elevation is approximately 5.2 ft NAVD (1.6 m NAVD), which is approximately 2.1 ft (0.64 m) below MHHW and midway between MTL and MHHW. Pond bottom elevations vary by approximately 0.5 ft (0.15 m) and slope toward the southwest corner of the pond. Berms would be placed to allow water levels to vary between different cells, creating two cells with similar shallow water depths over the sloping pond bottom, and allowing the western snowy plover salt panne habitat area to remain dry during the nesting season. The berms and cells in Pond SF2 would also facilitate circulation through the elongated pond. Water depths in the two eastern cells would be managed as at Pond A16, ranging from approximately 2 inches (0.05 m) to 1 ft (0.3 m) to provide foraging habitat for smaller and larger shorebirds.

Water Management. The current water management plan for the Pond SF2 restoration includes features to allow management flexibility and design redundancy. Using adaptive management, different water management approaches would be tested at Pond SF2 to assess the effectiveness of providing optimal

shallow water habitat and meeting water quality objectives (see the Pond SF2 Adaptive Management section below). Subsequent design phases of the Project would refine the specific type, number, size, and location of water control structures, berms, and other features.

Water would flow between Pond SF2 and the Bay through two sets of new water control structures, such as several 24-inch or 48-inch culverts with adjustable tide gates. During high tides, water would flow into Pond SF2 through the intake structure located in the southern portion of the bayfront levee. Water would flow out of Pond SF2 during low tides through the outlet structure located in the northern portion of the bayfront levee. In addition, the Pond SF2 restoration may include a pump to periodically supplement gravity flows through the intake water control structure, if monitoring and adaptive management indicate that a pump is required to meet water quality objectives. A pump may be necessary because the elevation of Pond SF2 is high relative to tide levels and may limit inflow by gravity.

Within Pond SF2, intake and outlet canals would be created to convey flow into and out of individual cells as at Pond A16. The canals would be located along the northwest edge of the pond and the southeast edge of the pond in portions of the deep existing borrow ditch. The canal along the southeast edge of the pond would be used as the intake canal and the canal along the northwest edge of the pond would be used as the outlet canal; however, Pond SF2 would be designed so that the flow direction could be reversed to allow for management flexibility. A portion of the pond bed along the northwest edge of the pond would be excavated to create an outlet canal because there is not a borrow ditch in this location. Water control structures, such as flashboard weirs, would be installed in the berms to regulate flow into and out of the cells.

Water would be circulated through the two eastern cells in Pond SF2 at rates sufficient to meet water quality objectives. As at Pond A16, the water quality objectives for Pond SF2 would be to maintain adequate DO levels, salinity, and pH in the cells and at the outlet structure. To test water management approaches within the Adaptive Management Plan, flows would be varied to assess the effects on DO levels and bird prey (see Pond SF2 Adaptive Management section below). Flow through one of the cells could be modified without affecting the management of the other cell. Similarly, one cell could be completely drained of water for vegetation management (see Adaptive Management section below) while the other cell continues to provide shallow water habitat for shorebird foraging. Alternatively, water levels in Pond SF2 could be periodically raised to inundate the edges of the nesting islands as a vegetation management technique. Raising water levels to inundate the islands would also inundate the berms and water control structures and reduce the area of shallow water habitat.

The outlet canal could be used as a mixing basin if needed to meet water quality targets at the outlet structure. The outlet water control structures would be adjusted to allow Bay water to flow into the outlet canal, diluting the outflow before releasing it to the Bay.

Water levels and flows in the remnant tidal channels and ditches in the western cell would be managed for snowy plover foraging habitat. Flows into and out of this cell may be limited to maintain moderate to high salinity foraging habitat. A ditch would be excavated along the northwest edge of the cell to act as a moat and deter human access into the snowy plover salt panne habitat area. The ditch may also improve water circulation. New channels may be excavated in other locations to connect the existing remnant channels

and ditches and improve circulation. The western cell would be periodically or seasonally inundated for vegetation management and/or to manage the area for alternate bird use or habitat goals outside of the nesting season. Water levels would be similar to, or lower than, those described in the ISP.

For typical operations, target average water depths in the two eastern cells would be approximately 6 inches (15 cm), with some deeper and shallower areas and muted-tidal fluctuations of up to approximately 6 inches. The typical operation and periodic or seasonal management of Pond SF2 would not substantially increase winter-time water levels in Pond SF2 relative to Cargill or proposed ISP operations (Life Science! 2003).

Levees. The existing bayfront managed pond levee would be resurfaced and raised and/or widened to improve the public access trail (see Recreation and Public Access section below) and to maintain this portion of the managed pond levee (see Section 2.5.6). The existing levee around the rest of Pond SF2 would remain as is.

Revegetation. The northwest perimeter of Pond SF2, along the slope between the trail and the outlet canal, would be actively revegetated to provide habitat and an additional buffer from anthropogenic disturbance from the trail and the adjacent highway. Revegetation would also increase the aesthetic value of the trail experience. This transitional zone would be actively planted with species such as pickleweed (*Salicornia virginica*), alkali heath (*Frankenia salina*), salt grass (*Distichlis spicata*), big saltbush (*Atriplex lentiformis*) and marsh gumplant (*Grindelia stricta* var. *angustifolia*). Measures would be taken to favor the growth of native species and limit the competitive advantage of invasive species, such as peppergrass (*Lepidium latifolium*) and fennel (*Foeniculum vulgare*), which could otherwise thrive. These measures could include amending the soils or other steps. Establishing native vegetation in this area would also reduce the potential seed source of the non-native invasive species, which is important for the long-term vegetation maintenance of the constructed nesting islands within Pond SF2.

Infrastructure. The existing 36-inch siphon between Ponds SF2 and R2 would remain. Cargill currently uses a pipe that runs through Pond SF2 from the siphon to Cargill's transbay pipeline beginning at the bayfront levee. This pipe is buried along the northwest edge of the pond in the shoulder of the existing bike trail and levee and daylights at the northeast corner of the pond before connecting to the transbay pipeline. The transbay pipeline connects the Redwood City plant ponds to Cargill's Newark plant. Cargill will construct a new berm to separate the northeast corner of the pond, creating a bermed area for Cargill to perform maintenance on their pipe. Cargill expects to eventually decommission the Redwood City plant ponds and the transbay pipeline. Once Cargill's operations are decommissioned, the existing siphon may be reconfigured to provide flow between Pond SF2 and Ravenswood Slough.

The existing PG&E power towers and most of the existing boardwalk would be located within the western cell, where the pond bed would remain dry during the nesting season as it does under existing conditions. Up to 400 linear ft of the existing PG&E boardwalk may be modified to allow continued access across the proposed canal and ditch at the ends of the existing boardwalk within Pond SF2. Modifications may include raising, replacing, removing, and/or installing new sections of the boardwalk. Specifications for PG&E boardwalk modifications would be refined in the design phase in coordination with PG&E.

Adaptive Management. Adaptive management for the Phase 1 action at Pond SF2 would include the same applied studies and restoration techniques as Pond A16, as specified in the Adaptive Management Plan (see Section 2.3 and Appendix D of this EIS/R).

Applied studies. The applied studies at Pond SF2 to test how island density and shape; vegetation types, density, and distribution; and human activity effect bird nesting use and reproductive success would replicate the applied study described for Pond A16 (see the Pond A16 Adaptive Management section in Section 2.5.2).

Restoration Techniques. The effectiveness of management approaches to control vegetation encroachment on the nesting islands and shallow water foraging areas and to control mammalian and avian predation of shorebirds would be tested as at Alviso Pond A16 (see the Pond A16 Adaptive Management section in Section 2.5.3).

*Restoration Monitoring***.** Restoration monitoring would be performed to evaluate restoration performance and inform adaptive management, including the applied studies and restoration techniques. Restoration monitoring at Pond SF2 would be identical to restoration monitoring at Pond A16, which is described in the Pond A16 Adaptive Management section in Section 2.5.3. O&M inspections are discussed in the Operations and Maintenance section in Section 2.5.6.

Phase 1 Recreation and Public Access Actions

The recreational features proposed within and outside the Ravenswood pond complex would be managed by USFWS. The public access and recreation plan for the Phase 1 actions at the Ravenswood pond complex would occur in two principal locations near Pond SF2 and overlooking Pond R4 in Bayfront Park. Figures 2-22 and 2-23 show plans that highlight recreation and public access in these locations.

The Ravenswood pond complex is situated on either side of the Dumbarton Bridge and highly visible to passersby. This affords an opportunity to share information about the SBSP Restoration Project and attract visitors to explore the area. Signage would include the Project logo and present key messages about the SBSP Restoration Project as well as direct people to strategic access points. The public access plan for this area also includes rehabilitation of the existing Bay Trail spur along the bayside of Pond SF2 and the addition of two viewing platforms and interpretive stations along this trail that describe the restoration process of developing a managed pond as well as the relationship to the Bay and future tidal marsh restoration in this location. The trail follows an existing levee that would be rehabilitated to provide a width of 6 to 8 ft of compacted earth and allow multi-use excluding equestrians.

The viewing platforms would be raised above the existing grade of the levee trail to allow visitors a panorama view of the Bay and the large expanse of adjacent managed pond. Figure 2-24 shows a sketch of this area. Overall, the areas around Pond SF2 would be cleaned up and native vegetation would be strategically planted to visually enhance the SBSP Restoration Project Area and provide transitional plantings between the highway corridor and the adjacent restoration lands.

The viewing platform at Bayfront Park would be constructed in partnership with the City of Menlo Park and would be located at one of the highpoints in the Park that provides a great vantage point to view

Greco Island as it meets Pond R4. Currently the Park contains many trails but signage along existing trails would direct visitors to an at-grade viewing platform and interpretive station to describe the process of creating a functioning tidal marsh at Pond R4 such as is seen at Greco Island. The interpretive stations at the Ravenswood pond complex would follow the design prototype being used at the Eden Landing and Alviso pond complexes with a view portal, educational symbols and storyboarding, constructed of a combination of wood and steel and sized based on the site location.

2.5.5 Construction Methods

Introduction

Construction methods for both the Phase 1 restoration actions and recreation and public access actions are discussed below, followed by further discussion for each Phase 1 action.

Restoration Actions

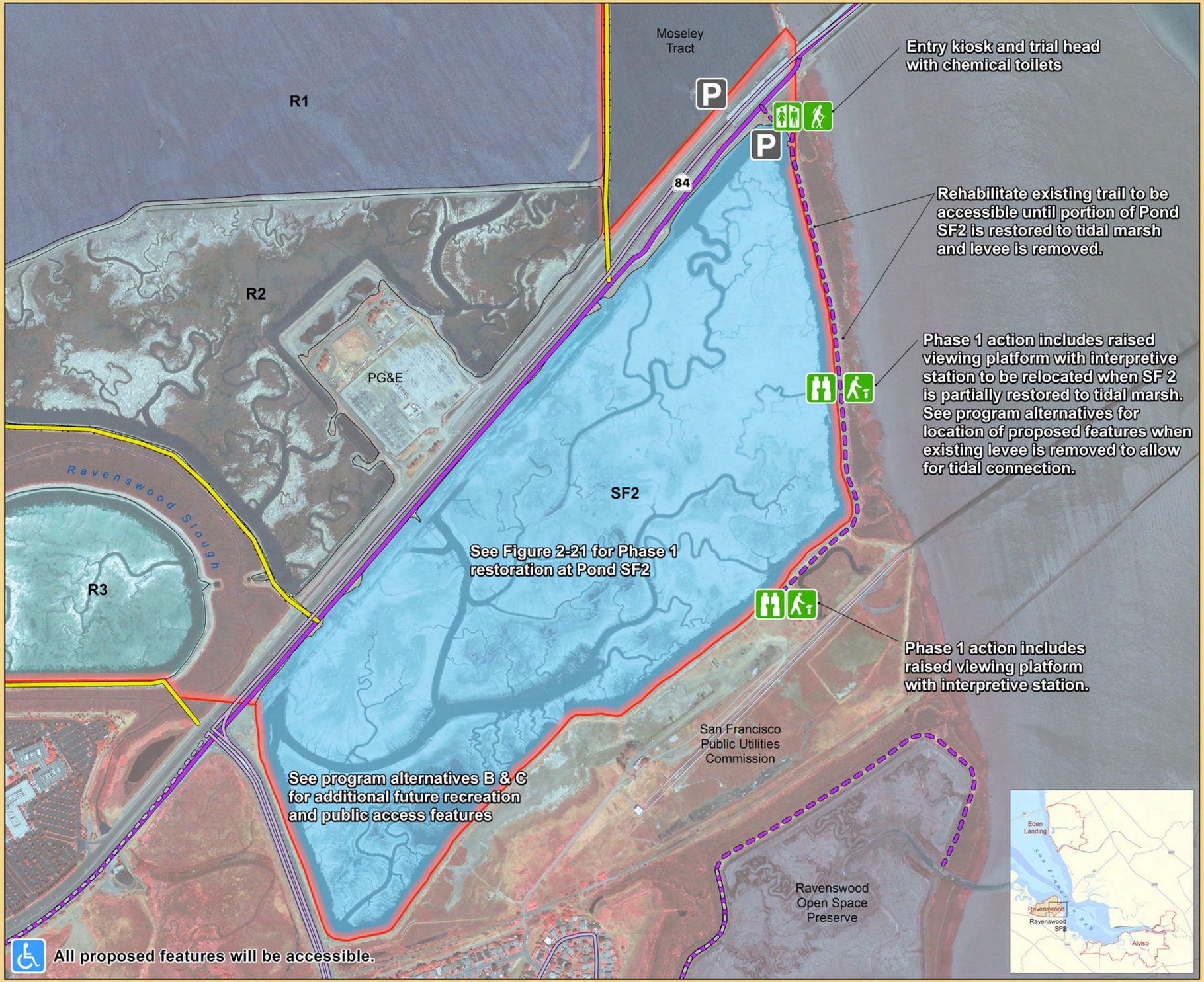
The Phase 1 restoration actions would be constructed using land-based and/or water-based equipment depending on the site, design, and contractor's preference (see Section 2.4.5 for a discussion of the equipment that would be used). If land-based equipment is used, the pond restoration site would be drained prior to and during construction and light, low pressure equipment and/or equipment on mats would be employed. Land based equipment is more likely to be used on pond perimeters near levees and berms, while water-based equipment is more likely to be used for construction in pond interiors. If water-based equipment is used, water levels in the restoration sites would be raised to provide sufficient depths for floating equipment.

The construction period and duration would be governed by both weather conditions and habitat windows for protected species. For example, if land-based equipment is used, construction may be limited to the dry season from May to October. Also, construction in certain areas would occur between August or September and January or February to avoid potential disturbance or impacts to birds during their breeding seasons, if specified by Project permits. Further discussion is included on each Phase 1 restoration action below, on the implementation schedule for the Phase 1 actions in Section 2.6, and on potential biological impacts due to construction activities in Section 3.6. Construction of each Phase 1 restoration is expected to last two to five months, as discussed below. If possible, construction would be accomplished in one season; however, if construction is not completed in one season due to the above constraints, construction would continue to completion in the following season and would require additional mobilization/demobilization.

Construction access and water control are two key considerations in salt pond restoration construction. It is likely that the selected construction contractor(s) would be allowed to select methods to deal with these issues within general parameters established by the owners and their engineers. In particular, the weight bearing capacity of the pond bottoms may not be sufficient to support land-based construction equipment without extraordinary effort, such as constructing temporary berms for equipment to access the pond interior. Water control would be necessary to drain the site for land-based equipment and maintain depth

South Bay Salt Pond Restoration Project

Fig 2-22. Ravenswood SF2 Phase 1 Recreation Actions



Project Area

Habitat Features

Managed Pond

Tidal Habitat

Trail Features

Existing Trail

Existing Bay Trail
(Association of Bay Area Governments)

Spine Trail

Spur Trail

Bike Trails

Cyclists and Pedestrians

Cyclist Lane or Signed Roads

Existing Recreation Facilities

Parking

Proposed Recreation Facilities

Chemical Toilet

Trail Head

Interpretive Station

Viewing Platform

N

0 500 1,000 1,500 Feet

0 150 300 450 Meters

Map datum and projection: NAD83, UTM Zone 10N
Map data: San Francisco Estuary Institute (habitats, bay shoreline, aqueduct); EDAW (project boundary); Cargill (ponds, buildings); Bay Area Open Space Council (highways).
Map by: EDAW
Map date: November, 2007

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South Bay Salt Pond Restoration Project

Fig 2-23. Ravenswood Bayfront Park Phase 1 Actions

See program alternatives B & C (Figures 2-5c & 2-7c) for additional future recreation and public access features

Phase 1 Action includes viewing platform and interpretive station at northeast corner of Bayfront Park overlooking bay and restoration at Ravenswood ponds in cooperation with City of Menlo Park (see Figure 2-24)

Don Edwards San Francisco Bay National Wildlife Refuge

Greco Island

Flood Slough

Ravenswood Slough

R1

R2

R3

R4

R5

S5

SF2

PG & E

San Francisco Public Utilities Commission

Bayfront Park Recreation Area

See Figure 2-24

See Figure 2-22 for public access Phase 1 actions at SF2

See Figure 2-21 for Phase 1 restoration at Pond SF2

84

All proposed features will be accessible.

Project Area

Habitat Features
- Managed Pond
- Tidal Habitat

Trail Features
- Existing Trail
- Proposed Year-Round Trail

Existing Bay Trail
(Association of Bay Area Governments)
- Spine Trail
- Spur Trail

Bike Trails
(Valley Transportation Authority & MTC)
- Cyclists and Pedestrians
- Cyclist Lane or Signed Roads

Existing Recreation Facilities
- Parking
- Historic Feature

Proposed Recreation Facilities
- Interpretive Station
- Viewing Platform
- Viewpoint

N

0 1,000 2,000 3,000 Feet

0 300 600 900 Meters

Map datum and projection: NAD83, UTM Zone 10N
Map data: San Francisco Estuary Institute (habitats, bay shoreline, aqueduct); EDAW (project boundary); Cargill (ponds, buildings); Bay Area Open Space Council (highways).
Map by: EDAW
Map date: November, 2007

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South Bay Salt Pond Restoration Project

Ravenswood – Bayfront Park Viewing Platform and Interpretive Station

Figure 2-24

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for floating equipment. Water control may be accomplished using water control structures and tidal exchange and/or with pumps.

Mobilization/demobilization of equipment would take place over a period of approximately two to three days or more at the beginning and end of the Project. Land-based construction equipment could include an excavator, a front end loader, a bulldozer, a forklift, a vibratory roller, a dump truck, and a water truck. The water truck would be used for dust control on the site. Water-based equipment could include small barges for access and hauling earth, and hydraulic or bucket dredges. One or two diesel-powered barges with long reach excavators or cranes outfitted with clamshell buckets, and two to three small boats for maneuvering the barges, checking grades and ferrying personnel and equipment could be used. Ancillary equipment that may be used include a diesel generator, water pump and a piledriver. In some instances, using either land or water-based equipment, a crane may be brought on-site for specific tasks, and a piledriver may be necessary during the construction of certain structures. Dewatering and sheet piling may be necessary during the construction of water control structures. Dredge-locks or coffer dams may be constructed using earth levees or sheet piling to allow access for water-based equipment within a site. Restrictions would be specified for the operation and transport of larger equipment, such as cranes and excavators, near power lines to avoid contact with the lines.

Construction at each Phase 1 action restoration site would be performed by at least one construction worker team, typically consisting of five to ten people. More people per team and/or more teams may be required if construction timelines demand that work proceed simultaneously at multiple locations within a site. It is assumed that each worker would drive their own vehicle to the site each day. Access to each site is described below. Access within the pond complexes would be along existing maintenance routes and public access roads. Heavy vehicles would avoid crossing water control structures in the levees if the vehicle exceeds the weight bearing capacity of the structure. If this is not possible, engineer approved precautions would be taken to avoid damaging the structure.

It is assumed that all fill material would be reused on site, therefore fill is not expected to be brought in or hauled offsite. Occasional delivery of supplies and materials would be necessary, such as for piping, water control gates, lumber, and fuel. It is assumed that a water truck would refill three to five times per day, necessitating a drive offsite. It may be possible to refill with brackish water from on site. Approximately two to four deliveries on average of materials would be made per week for the duration of construction activity. Equipment would be refueled once per day. A staging area may temporarily be constructed at or near each Phase 1 action restoration site for activities such as fueling and equipment storage.

Recreation and Public Access Actions

Construction of the recreation and public access components would consist of construction of trails, viewing platforms, interpretive stations and a boat launch. Trail construction activity would consist of grading and surfacing improvements as may be necessary to allow for ADA compliance. Paving trails would not be necessary however existing earthen surfaces may have to be augmented with decomposed granite or gravel to ensure a firm and stable surface. Depending on the length of trail, construction activity could be one to seven days.

A boat launch facility for the launching of kayaks and small boats would require the building of a ramp for trailer access that would also be constructed with a gravel surface for stability. Equipment required might include a backhoe or excavator, compaction equipment and a dump truck for movement of fill and gravel as may be needed. Construction would take three to five days for each Phase 1 action.

Interpretive and directional signage would be placed at strategic locations as part of the Phase 1 actions. Equipment required for construction would comprise small, Bobcat-sized equipment, a backhoe or front-end loader, and a dump truck. Viewing platforms would be constructed of recycled plastic, wood and or steel materials as may be needed for long term durability and ease of maintenance. These would be largely assembled in-place using a backhoe or excavator and hand tools. Platform construction would take three to five days each. Interpretive stations may be built on-site, or may be prefabricated structures. Assembly/installation would require a backhoe or excavator and hand tools and take one to three days per station. Construction of recreation and public access elements would be the same for all complexes.

Eden Landing Complex

Restoration Actions

Ponds E8A, E9, and E8X. Access to the E8A/E9 site for both workers and equipment would likely be via a combination of Union City Boulevard, Bettencourt Way, Whipple Road, Horner Street, and Veasy Street. Water based access would be through Mt. Eden Creek, OAC, and/or the tidal marsh fringing San Francisco Bay. The total amount of disturbed ground is estimated as 70 acres. Restoration construction is expected to last three to five months. As required by permits, the timing of construction (construction window) would avoid impacts to special-status species, such as California clapper rails and snowy plovers, and other sensitive species, including nesting birds such as terns, avocets, and stilts.

Ponds E12 and E13. Access to the Pond E12/13 site for both workers and equipment would be either off SR 92 to the Clawiter Road exit just east of the San Mateo Bridge or from 880 to the Industrial Parkway exit, proceeding west on Industrial to Arden then Clawiter to the Reserve gate. Water-based access would be through Mt. Eden Creek if the creek depth allows for the equipment draft. This may limit access. There is an existing brine pump at Pond E12/13 that was used by Cargill. The pump is an electric 10,000 gpm pump and is estimated to be rated at 25 horsepower (hp). The total amount of disturbed ground is estimated as 60 acres. Restoration construction is expected to last three to five months. As required by permits, the construction window would avoid impacts to special-status species, such as snowy plovers, and other sensitive species, including nesting birds such as terns, avocets, and stilts.

Alviso Pond Complex

Restoration Actions

Pond A6. Access to the A6 site for both workers and equipment would be off of SR 237 via a combination of North First, Hope, Mill, Gold, and Elizabeth Streets. Water based access would be through Coyote Creek, Alviso Slough, and/or Guadalupe Slough. The total amount of disturbed ground is estimated as 40 acres. Restoration construction is expected to last two to four months. As required by permits, the construction window would avoid impacts to special-status and sensitive species, such as

California clapper rails. Restrictions would be specified for the operation and transport of larger equipment, such as cranes and excavators, near the PG&E power transmission lines to avoid contact with the lines.

Pond A8. Access to the A8 site for both workers and equipment would be off of SR 237 via a combination of North First, Hope, Mill, Gold, and Elizabeth Streets. Water based access would be through Coyote Creek, Alviso Slough, and/or Guadalupe Slough. The total amount of disturbed ground is estimated as one acre. Restoration construction is expected to last two to four months. As required by permits, the construction window would avoid impacts to special-status species, such as snowy plovers and other sensitive species, including nesting birds such as terns, avocets, and stilts.

Pond A16. Access to the Pond A16 site for both workers and equipment would be via Zanker Road off of SR 237. Water based access would be through Coyote Creek and Artesian Slough. The total amount of disturbed ground is estimated as 100 acres. Restoration construction is expected to last three to five months. As required by permits, the construction window would avoid impacts to special-status species and other sensitive species, including nesting birds such as terns, avocets, and stilts.

Ravenswood Pond Complex

Restoration Actions

Pond SF2. Access to the Pond SF2 site for both workers and equipment would be off of SR 84. Water based access would be through San Francisco Bay. The total amount of disturbed ground is estimated as 100 acres. Owing to the high site grades precluding floating equipment, and soft soils, earth embankments may be required to construct internal site features. Restoration construction is expected to last three to five months. As required by permits, the construction window would avoid impacts to special-status species, such as snowy plovers, and other sensitive species, including nesting birds such as terns, avocets, and stilts. Restrictions would be specified for the operation and transport of larger equipment, such as cranes and excavators, near the PG&E power transmission lines to avoid contact with the lines.

2.5.6 Operations and Maintenance

Introduction

O&M activities for the Phase 1 actions would be performed periodically for the reconfigured managed pond restorations, and less frequently for the tidal habitat restorations. O&M for the reconfigured managed ponds and tidal habitat restorations are discussed generally below, followed by additional discussion for each Phase 1 restoration action. Both reconfigured managed ponds and tidal habitat restoration actions would include maintenance activities to clean up trash and vandalism as needed. Please refer to Section 2.4.5, for a discussion of the O&M activities covered by Corps Permit #19009S98 at the pond complexes.

Refuge and CDFG staff or their contractors would use trucks to access the Phase 1 action restoration sites via existing maintenance roads on the levees to perform O&M activities. Boats may be used to access the

canals, water control structures, and nesting islands in the reconfigured managed ponds and tidal habitat restoration features. Maintenance may require the use of land-based and/or water-based construction equipment as described in the Construction Methods section above.

Adaptive management approaches are discussed in the Adaptive Management sections for each Phase 1 action; monitoring related to adaptive management is discussed in the Restoration Monitoring sections for each Phase 1. More detailed O&M Plans would be developed for each Phase 1 action by the Refuge and CDFG.

Reconfigured Managed Ponds

For the Phase 1 action reconfigured managed pond restorations (Eden Landing Ponds E12 and E13, Alviso Pond A16, and Ravenswood Pond SF2), periodic inspection and maintenance of restoration infrastructure – such as water control structures, managed pond levees and berms, canals, and islands – would be required to ensure that the ponds are operating as intended. More frequent inspection and maintenance of habitat conditions in the ponds, such as water levels and water quality (including salinity and DO), would be necessary to ensure that the ponds are providing the appropriate environment for the target species. Water levels and flows in the reconfigured managed ponds would be controlled by adjusting the gate settings at culverts and by adding or removing flashboard risers at weirs. Routine monitoring of water levels would be necessary to ensure that the ponds are providing the appropriate habitat for desired species. Regular monitoring of water quality would also be necessary to ensure that target water quality parameters are met both inside the pond and in discharges. If water levels or water quality targets are not met, changes in the operation of water control structures may be necessary.

Routine inspection of water control structures in reconfigured managed ponds would be necessary to ensure that they are functioning properly. Inspection of water control structures and canals for debris or trash obstructions would be necessary to maintain desired flows. If obstructions are found during inspection, it may be necessary to remove the obstructions either manually or mechanically to maintain flows. Routine inspection of the managed pond levees, trails and internal berms for unintentional breaching and erosion would also be necessary. If unintentional breaching or erosion occurs, the berm or levee would be repaired as needed to maintain pond operations, prevent potential tidal inundation of adjacent managed ponds, and to maintain public access along the trails. Nesting islands would also need to be periodically examined for erosion.

Portable pumps, such as diesel-powered pumps, may be used occasionally for O&M activities, such as supplementing gravity flows through the water control structures or dewatering cells or canals for maintenance.

Tidal Habitat Restorations

The Phase 1 action tidal habitat restorations (Eden Landing Ponds E8A, E9, and E8X and Alviso Pond A6) would create sustainable habitats that require minimal ongoing active management or maintenance. However, periodic inspection and maintenance of restoration features, such as ditch blocks, would be required to ensure that the restoration is operating as intended. Routine inspection of ditch blocks for

unintentional channel bypassing or erosion would be necessary, particularly following storm events. If bypassing or erosion occurs, maintenance of the ditch block may be performed to prevent unintended channel formation. Also, non-native *Spartina* would be controlled using mechanical methods and/or herbicides.

Recreation and Public Access Actions

O&M at Eden Landing would be a cooperative effort between CDFG and another entity such as the EBRPD. Currently, outside the SBSP Restoration Project Area these two agencies are partnering to build a staging area and a portion of the Bay Trail spine within the ELER. The exact type and level of management agreement that would be used is not known at this time. At the Alviso and Ravenswood pond complexes, O&M activities would be conducted by USFWS in partnership with other entities such as the City of Menlo Park at Bayfront Park. For the Bay Trail spine adjacent to Moffett Federal Airfield, an agreement with NASA related to operations may be necessary due to security issues with segments of this trail and its proximity to their facilities. Longer-term public access improvements at Alviso, near the City of Sunnyvale WPCP would require an agreement with Cargill (or any subsequent land owner) to have access over the existing road that leads to Guadalupe Slough. The trail connection and viewing platform at Pond A8 would require an agreement with the City of San Jose as it intersects with the "Legacy" property which would ultimately be developed and the City may secure easements for public access. Also, viewing platforms and trail connections in and around the City of Mountain View would require agreement between Mountain View and USFWS. Projects in the vicinity of Alviso would be coordinated with the City of San Jose, community of Alviso, SCVWD and County of Santa Clara Department of Parks and Recreation. As the Refuge has been functioning adjacent to these communities for many years, these new projects would further develop existing management relationships that are already in place. These projects would be an enhancement to the adjacent communities and should provide positive economic and public relations.

Throughout the Project Area, there may be other special agreements for partnering and funding of public access and recreation features. These would benefit a large population and entities such as the Bay Trail project and Coastal Conservancy may contribute funding, as well as others. Operational agreements would need to be specific to ensure that long-term functionality and a high quality visitor experience is maintained. Maintenance of public access and recreation features would include trail grooming, although this would not require a lot of repeated annual labor, it would need to be done to ensure that trail surfaces are kept safe and accessible for all types of users. Fencing that would be placed along trail edges as a "symbol" that visitors should not stray off of the designated corridor may need periodic repair; however, the design of these features would be done to reduce maintenance as much as possible.

There would be a need for trash removal along trails and more intensely at staging areas and trailheads. It is possible that trash containers would not be provided to promote the "carry in-carry out" concept; however, this would get abused from time to time and would require clean-up. The viewing platforms and interpretive stations would be designed to minimize maintenance utilizing durable and sustainable materials as much as possible to prevent degradation and the need for repeated maintenance. These would need to be checked periodically for defacement of interpretive boards and other potential

vandalism. Many of the sites would be gated and only open from dawn to dusk so this would assist in preventing extensive vandalism. Partnering with user groups and other volunteers would extend the ability of agency staff to manage the public access components of the Project Area. A long-term volunteer program could be put into place to augment those that currently exist.

Eden Landing Pond Complex

Restoration Actions

Ponds E8A, E9 and E8X. The Ponds E8A, E9, and E8X tidal habitat restoration would create sustainable habitats that require minimal ongoing active management or maintenance as discussed in the Introduction section above. Routine inspection of ditch blocks and the managed pond levee separating Ponds E9 and E14 for unintentional overtopping, bypassing or erosion would be necessary, particularly following storm events. If overtopping, bypassing or erosion occurs, maintenance of the ditch block or levee may be required to prevent unplanned hydraulic connections.

Ponds E12 and E13. The Ponds E12 and E13 reconfigured managed pond restoration would require periodic O&M as discussed in the Introduction section above. The existing brine pump would be operated to supplement flows into Ponds E12 and E13 and manage water levels and salinity in the ponds as needed. This pump may be operated on a regular basis during the dry season, depending on the water management technique (see the Ponds E12 and E13 Adaptive Management section in Section 2.5.2 and Appendix G (Eden Landing Ponds E12 and E13 Water and Salt Balance Modeling). The pump is an electric 10,000 gpm pump and is estimated to be rated at 25 horse-power. In addition, a portable pump may be used occasionally as described in the Introduction section above.

The pump forebay for the brine pump may need to be dredged if sedimentation in the forebay substantially decreases the storage volume. Frequent maintenance dredging is not expected to be necessary, with dredging possibly occurring approximately once per decade. Material dredged from the forebay could be used to maintain levees, berms, or nesting islands as needed.

Techniques for water and salinity management and vegetation management are addressed in the Ponds E12 and E13 Adaptive Management section (see Section 2.5.2).

Alviso Pond Complex

Restoration Actions

Pond A6. The Pond A6 tidal habitat restoration would create sustainable habitats that require minimal ongoing active management or maintenance as discussed in the Introduction section above. However, periodic inspection and maintenance of restoration features, such as ditch blocks and the wave-break berm, and the levee between Pond A6 and Ponds A5 and A7 would be required to ensure that the restoration is operating as intended. The wave-break berm would be regularly checked for erosion. Maintenance of the wave-break berm may be performed if damage is extensive enough to inhibit its ability to break wind-waves. The levee between Pond A6 and Ponds A5 and A7 would also be regularly checked for erosion. This levee may be repaired to prevent unintentional breaching, preserve

maintenance access on the levee, and preserve management of Ponds A5 and A7 for flood storage. Techniques for water management, vegetation management, and predator management are addressed in the Pond A16 Adaptive Management section in Section 2.5.3.

Pond A8. Implementation of Phase 1 action at Pond A8 would restore reversible muted tidal action to create shallow subtidal habitat. During the wet season (approximately November through May), muted tidal exchange could be stopped to maintain existing levels of flood storage capacity. Flashboard risers would be installed to close the notch in the levee between Pond A8 and Alviso Slough and stop muted tidal action. During this winter period, the water control structures at Ponds A5 and A7 and the two-way structure through the internal levee would be operated similar to baseline conditions. Over time, seasonal operation may cease if increase in channel conveyance along Alviso Slough is demonstrated to fully compensate for losses of flood storage.

Water levels within the pond and the exchange of water between the pond and tributary inflows would be controlled through adjustments to the gate settings at culverts and the installation/removal of flashboard risers at weirs. Frequent inspection and maintenance of water levels within the pond and annual inspection of Alviso Slough would be necessary to ensure that the appropriate amount of tidal connectivity is achieved so that scouring occurs in Alviso Slough.

Regular inspection of the Pond A12 perimeter levee between along Alviso Slough would be carried out to confirm projections of slough widening and assess whether or not the observed loss of fringing marsh threatens levee integrity. If slough widening were determined to be of concern, the Pond A8 notch would be reduced in width by closing one or more of its bays. Levee inspection would occur on an annual basis and after major rainfall or extreme tidal events.

Pond A16. The Pond A16 reconfigured managed pond restoration would require periodic O&M as discussed in the Introduction section above. Techniques for water management, vegetation management, and predator management are addressed in the Pond A16 Adaptive Management section (see Section 2.5.3).

Ravenswood Pond complex

Restoration Actions

Pond SF2. The Pond SF2 reconfigured managed pond restoration would require periodic O&M as discussed in the Introduction section above. Approaches for water management, vegetation management, and predator management are addressed in the Pond SF2 Adaptive Management section (see Section 2.5.4). The existing bayfront managed pond levee around Pond SF2 provides some level of flood protection, but is not designed as a levee that provides flood protection and is expected to overtop in extreme events. The bayfront levee would be repaired as needed to maintain the existing level of flood protection and the public access trail. In future phases of the Project, this levee would be breached to restore the outer portion of Pond SF2 to tidal action.

2.6 Future Actions and Long-Term Uncertainties

2.6.1 Future Actions

Future phases of the South Bay Salt Pond Restoration Project would integrate habitat restoration and management with flood protection and wildlife-compatible public access, which is the mission of the Project. Future actions would be based, in part, on the evaluation of adaptive management information collected in previous phases. Information collected in Phase 1 from monitoring and applied studies on bird response to management, MeHg, and public access-wildlife interactions would be instrumental in determining the extent and location of future tidal restoration and public access features.

Ultimately, future actions would be determined by evaluating this information in light of a number of decision criteria. Many of these criteria would be the same as those used in developing Phase 1, which were:

- Availability of funding;
- Likelihood of success;
- Ease of implementation;
- Visibility and accessibility;
- Opportunities for adaptive management;
- Value in building Project support; and
- Certainty of investment.

For actions after Phase 1, the same criteria would be applicable, but others would be relevant as well, including the following:

Readiness to Proceed

This criterion is similar to ease of implementation. It would favor actions for which the particular implementing agency is most timely in completing the necessary planning and design. This criterion would not outweigh certain others, particularly those described below.

Ability to Utilize Results from Earlier Applied Studies and Other New Knowledge

This criterion would favor projects that would be developed specifically to utilize the results of earlier applied studies, either to apply new design concepts based on earlier results or to develop new information to add to the knowledge base from earlier results. Also, it would take into account any other new knowledge that becomes available to the Project.

Dependency on Precedent Actions

Some actions cannot be implemented until specific precedent actions occur. A good example is that many ponds cannot be opened to unrestricted tidal action until a suitable levee that provides flood

protection is constructed. In fact, after Phase 1, there are few opportunities to open ponds to unrestricted tidal action without precedent flood protection actions.

Dependency on Adaptive Management Progress

The basic layout of tidal and pond habitats in Alternatives B and C presumes a progressive conversion of ponds to tidal habitats over time. The two alternatives are laid out to represent a continuum: a gradual progression over time from a 50:50 ratio of tidal habitat to managed pond (Alternative B), to a 90:10 ratio (Alternative C) provided that monitoring results confirm that the Project Objectives are being achieved. The implicit assumption in this construct is that ponds that are managed ponds under Alternative C would not be converted to tidal action until after:

- the 50:50 mix of tidal and pond habitats under Alternative B is achieved, and
- monitoring has confirmed that further conversion of ponds to unrestricted tidal action is acceptable.

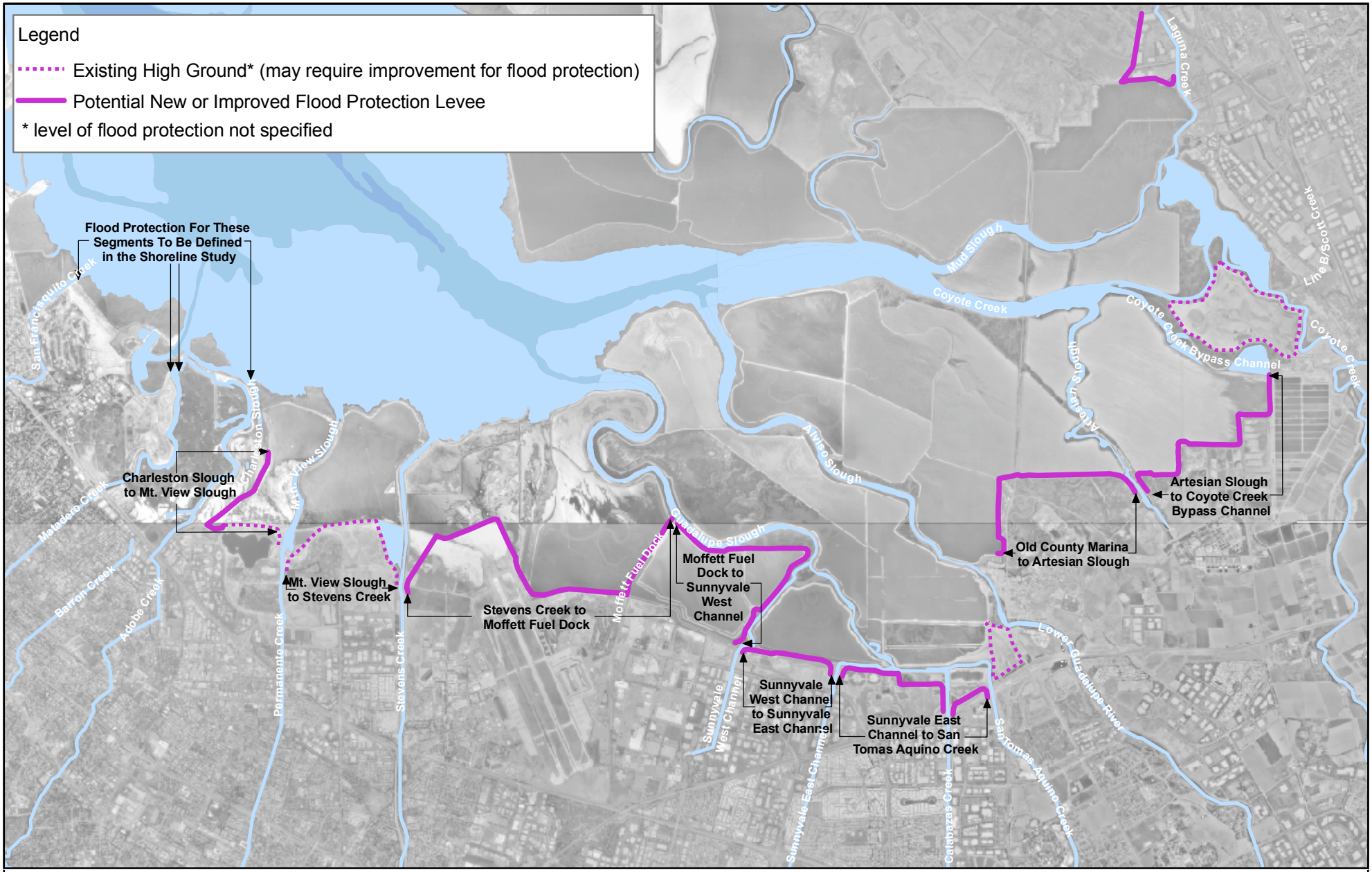
Flood Management Requirements

Many flood management actions proposed as part of the SBSP Restoration Project, such as levee construction, may wait for completion of the Water Resources Development Act (WRDA)-authorized South San Francisco Bay Shoreline Study. The Shoreline Study process will be used to determine the specific elements of one or more multi-objective projects that may be authorized for construction under WRDA. The advantage of the Shoreline Study process to the SBSP Restoration Project is that it will carry the analysis to project-level detail and may result in a substantial federal cost share for those elements contained within the WRDA-authorized project(s).

The Shoreline Study is not expected to be complete for several years. However, WRDA Section 104 provides for local sponsors of a Corps project to be given credit for early construction of flood damage reduction elements that are part of an ultimately authorized project. It does not provide similar crediting potential for restoration elements[1]. As a result the SBSP Restoration Project partners are evaluating candidate levee construction/improvement actions for early implementation in the Alviso pond complex by the SCVWD in cooperation with USFWS and the State of California. The value to the SBSP Restoration Project of early implementation in this manner is that it would improve basic flood protection for Silicon Valley and provide for necessary flood protection when coupled with further tidal habitat restoration actions. In fact, the opportunities for creating additional tidal habitats after Phase 1 are severely limited until adjacent levees that provide flood protection are constructed.

Figure 2-25 depicts the candidate levee actions in the Alviso pond complex being considered by the SCVWD and the state. One or more of the levee construction/improvement actions may be proposed for development and construction soon after Phase 1 of the SBSP Restoration Project is implemented. Environmental review of any actions proposed in this manner would be tiered off of the SBSP

[1] The Water Resources Development Act of 2007 was recently enacted which may amend these provisions for credit for early construction.



Source: USGS (background image and streams layer)

N

0 2,000 4,000 8,000 12,000 16,000 20,000 Feet

figure 2-25

South Bay Salt Pond Restoration Project

Potential Shoreline Study Early Implementation Projects

Proj. # 1750

Map by: PWA
Map date: August 23, 2007

Restoration Project programmatic EIS/EIR, and the actions would be developed to maximize the potential for crediting under WRDA. Specific factors to be considered by the SCVWD and the state in determining a project or projects to pursue include but are not limited to cost, degree of flood protection provided, acreage of restoration that is enabled by the levee construction/improvement, and ease of implementation.

For the Ravenswood pond complex, tidal habitat restoration would be closely linked to flood protection. In particular, the SR 84 approach from the west to the Dumbarton Bridge and the PG&E substation, as well as the Belle Haven neighborhood of Menlo Park, are potentially at risk from flooding if outboard levees are breached.

For the Eden Landing pond complex, the southern area (between OAC and the Alameda County Flood Control Channel) would be evaluated for a combined tidal habitat restoration and flood protection project led by the ACFCWCD.

Public Access Needs

Several public access projects are included in Phase 1 and additional actions, such as completion of Bay Trail spine segments, can proceed independently of changes in habitat. Many of the Bay Trail spine segments can and would be built when funds are available on existing or temporary levees that are ultimately proposed to be replaced with well-engineered levees that provide flood protection. When the levees that provide flood protection are constructed, it is the Project's intention that new and improved trail segments would be constructed on the levees, either on top of the levee or on a bench along one of the levee side slopes. Spur trails that go out into the habitat areas or loop around managed ponds would be considered for construction as habitat development occurs and as additional information becomes available regarding the compatibility of trail uses with species use of the developed habitats and based on information about public desire for such features.

Post Phase 1 Actions

The resulting application of these criteria would make implementation of actions in the future a varied mixture of activities at different times. A good example would be the set of actions following Phase 1. One may be the construction of a levee that provides flood protection in the Alviso area as described above, coupled with tidal restoration, another could be the development of an additional viewing area, and a third could be refinement of a Phase 1 applied study. These could be somewhat separated in time and space across the SBSP Restoration Project Area and be unrelated to each other, yet for other valid considerations they could be the most desirable set of actions to follow Phase 1.

Future actions are expected to open significant acreages of pond to tidal action in order to initiate development of significant areas of tidal habitat for clapper rail and salt marsh harvest mouse and to allow large-scale testing of sediment dynamics and supply questions. These goals argue for restoring tidal action to an entire slough complex. The location of these ponds would depend on results with respect to the factors listed above, as well as where flood protection work occurs. Possible locations include:

- Ponds along OAC in the Eden Landing pond complex;
- Ponds along Alviso Slough in the Alviso pond complex;

- Ponds along Guadalupe Slough in the Alviso pond complex; and
- Ponds along Ravenswood Slough in the Ravenswood pond complex.