ATTACHMENT 1

South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay

Final Environmental Impact Statement/ Report, Phase 2

Executive Summary | April 2016

Photo Credit: Cris Benton

U.S. Fish and Wildlife Service / California State Coastal Conservancy

Coastal Conservancy

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This document contains the Executive Summary for the South Bay Salt Pond Restoration Project's Phase 2 Final Environmental Impact Statement/Report (EIS/R). The entire Final EIS/R (Volume 1) and appendices (Volume 2) is included on the CD attached to the inside back cover of this document.

EXECUTIVE SUMMARY

S.1 Introduction

This Final Environmental Impact Statement/Environmental Impact Report (EIS/R) was prepared by the United States Fish and Wildlife Service (USFWS) and the California State Coastal Conservancy, partnering with the California Department of Fish and Wildlife (CDFW; formerly the California Department of Fish and Game, CDFG), Santa Clara Valley Water District (SCVWD), the City of Mountain View, the City of Redwood City, and others to evaluate the potential environmental impacts of the proposed South Bay Salt Pond (SBSP) Restoration Project, Phase 2.

S.1.1 SBSP Restoration Phase 2 Project

The SBSP Restoration Project is a multi-agency effort to restore tidal marsh habitat, reconfigure managed pond habitat, maintain or improve flood protection, and provide recreation opportunities and public access in 15,100 acres of former salt-evaporation ponds purchased from and donated by Cargill, Inc. in 2003. Immediately after the March 2003 acquisition, the landowners, CDFW and USWFS, implemented the Initial Stewardship Plan (ISP) (USFWS and CDFG 2003) which was designed to maintain open and unvegetated pond habitats with enough water circulation to prevent salt production and provide some habitat values. The longer-term planning effort, a 50-year programmatic level plan for restoration, flood protection, and public access that included a first phase of projects, is described in the 2007 EIR/S, which addressed the SBSP Restoration Project at both the program level and at the Phase 1 level. This longer-term planning was facilitated by the California State Coastal Conservancy and completed in January of 2009. It was through this planning process that the SBSP Restoration Project created the projects goals and objectives. These goals and objectives continue to guide the project to the present day.

SBSP Restoration Project Objectives

1. Create, restore, or enhance habitats of sufficient size, function, and appropriate structure to:
   - Promote restoration of native special-status plants and animals that depend on South San Francisco Bay habitat for all or part of their life cycles.
   - Maintain current migratory bird species that utilize existing salt ponds and associated structures such as levees.
   - Support increased abundance and diversity of native species in various South San Francisco Bay aquatic and terrestrial ecosystem components, including plants, invertebrates, fish, mammals, birds, reptiles and amphibians.
2. Maintain or improve existing levels of flood protection in the South Bay Area.
3. Provide public access and recreational opportunities compatible with wildlife and habitat goals.
4. Protect or improve existing levels of water and sediment quality in the South Bay, and take into account ecological risks caused by restoration.
5. Implement design and management measures to maintain or improve current levels of vector management, control predation on special status species, and manage the spread of nonnative invasive species.
6. Protect the services provided by existing infrastructure (e.g., power lines, railroads).

The SBSP Restoration Project's planning phase was completed in January 2009 with the publication of the Final 2007 Programmatic EIS/R. Phase 1 implementation began immediately and was completed in April 2016. It included the construction of 3,040 acres of tidal or muted tidal wetlands, 710 acres of enhanced managed pond, construction of habitat islands and improved levees, 7 miles of new public access and recreation trails, and other public access features. The selection and planning for Phase 2 projects started in 2010, continued with the 2015

Draft EIS/R, and proceeds with this Final EIS/R. The ponds that were not part of Phase 1, nor planned to be part of Phase 2, will continue to be actively managed according to the goals set forth in the ISP, an Adaptive Management Plan (AMP), and the 2007 EIS/R until further implementation planning and the appropriate adaptive management studies are completed.

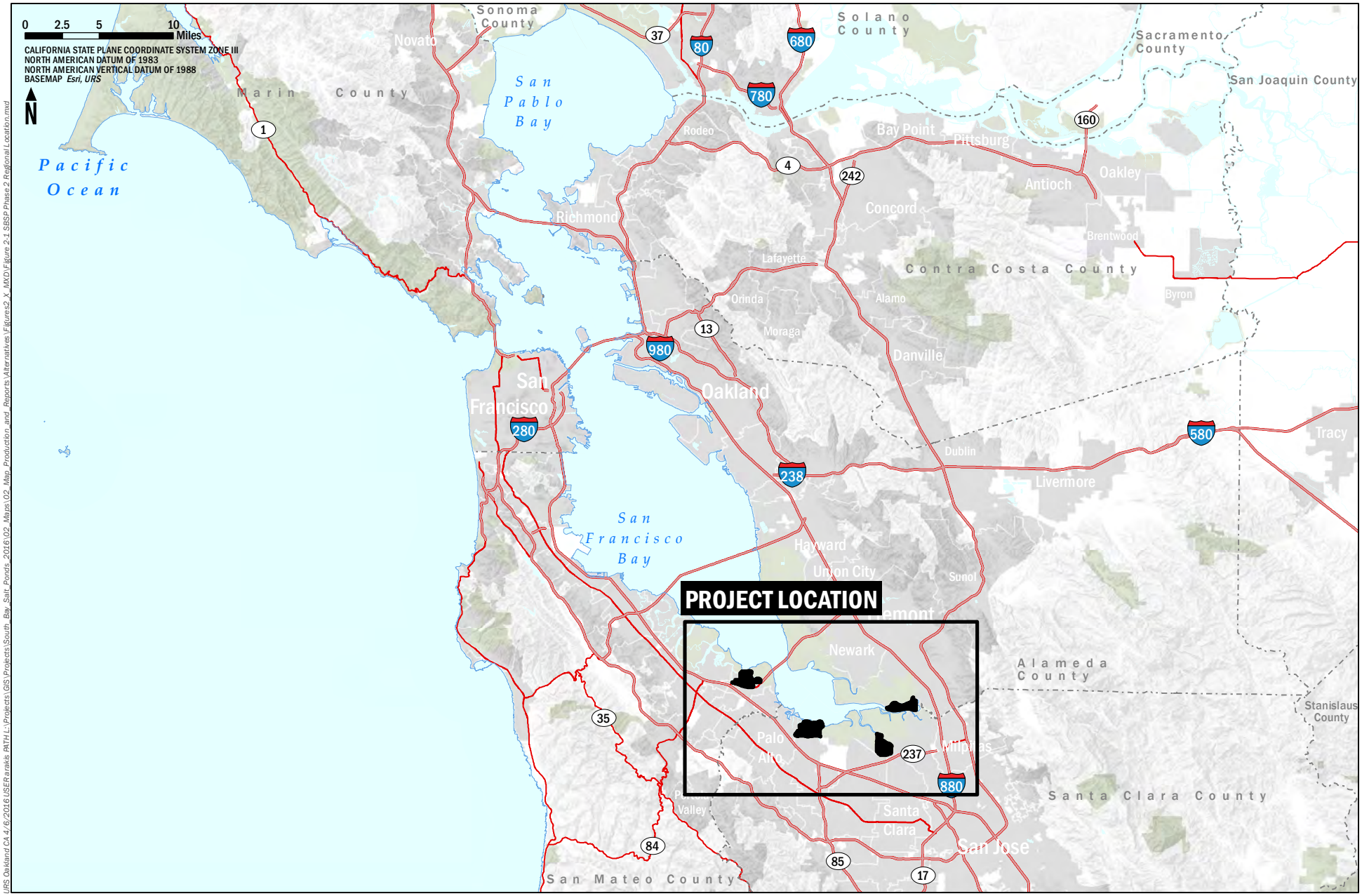
The SBSP Restoration Project is intended to tier from the analysis conducted for the 2007 EIS/R by advancing additional restoration activities within the SBSP project area. The 2007 EIS/R assessed the environmental consequences associated with two long-term restoration alternatives. In consideration of the environmental consequences discussed in the 2007 EIS/R, the USFWS Record of Decision (ROD) and the CDFW Notice of Determination (NOD) state that the USFWS and CDFW will implement Programmatic Alternative C, which would eventually convert up to 90 percent of the former salt ponds to tidal marsh, while at least 10 percent would remain as enhanced managed ponds. Phase 2, as the second project component of this long term restoration project, would incrementally advance the project toward this end goal. Each of the Phase 2 Alternatives considered in this Final EIS/R consist of various components that, if instituted, further advance the project toward achieving the 90/10 goal.

Construction, operations, and maintenance of Phase 2 activities at one pond cluster would be independent from activities at other Phase 2 ponds. When considering and developing project alternatives for Phase 2, each pond cluster has been independently considered in meeting the targeted habitat designated in Program Alternative C (the 90/10 alternative), and separate sets of action alternatives were developed for each pond cluster.

The Phase 2 project would be implemented at the Alviso-Island Ponds, the Alviso-Mountain View Ponds, the Alviso-A8 Ponds, and the Ravenswood Ponds. These pond clusters are located at the Don Edwards National Wildlife Refuge (Refuge) in Alameda, Santa Clara, and San Mateo Counties, California (See Figure ES-1, SBSP Phase 2 Regional Location, and Figure ES-2, SBSP Phase 2 Project Sites). In addition, the Phase 2 projects under consideration include two areas that are not within the Refuge boundary: the City of Mountain View's Charleston Slough and a small portion of land in the City of Menlo Park's Bedwell Bayfront Park. Alternatives are proposed for each pond cluster, including a No Action Alternative. This EIS/R evaluates the following alternatives for each of the pond clusters. It also presents the Phase 2 Preferred Alternative, which combines the selected alternative for each pond cluster with minor modifications where applicable.

Alviso-Island Pond Cluster

The Alviso-Island Ponds cluster (also referred to as the Island Ponds) consists of Ponds A19, A20, and A21, the levees surrounding each pond, and some of the fringe marsh outside of these levees including the narrow marsh between Ponds A19 and A20. Ponds A19, A20, and A21 are located in the eastern portion of the Alviso pond complex. These ponds are oriented east to west between Mud Slough to the north and west and Coyote Creek to the south. Mud Slough and Coyote Creek converge at the western edge of this pond cluster. The community of Alviso and City of Milpitas are located to the south and to the north and east, respectively. The ponds are geographically isolated from any urbanized and built-out areas by other waterbodies, other salt ponds, and a landfill. The former community of Drawbridge is located on a strip of land between Pond A21 and Pond A20. That strip of land also holds an active Union Pacific Railroad (UPRR) track.



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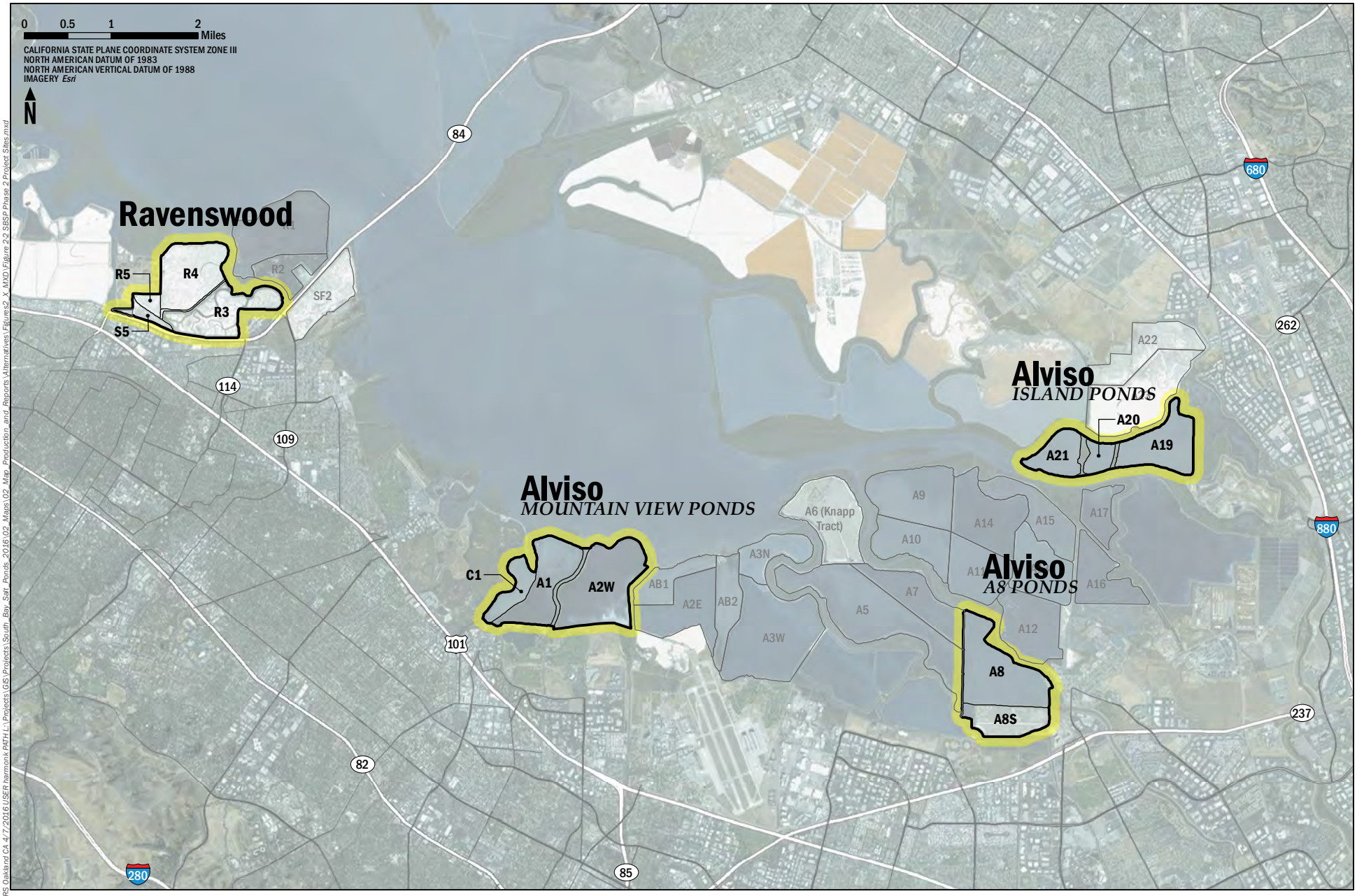
South Bay Salt Pond Restoration Project

Figure ES-1

SBSP Phase 2 Regional Location



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South Bay Salt Pond Restoration Project

Figure ES-2

SBSP Phase 2 Project Sites

Under the No Action Alternative for the Alviso-Island Ponds cluster (Alternative Island A), no new activities would occur in Phase 2. Alternative Island B and Island C propose activities that increase habitat complexity and improve the distribution of sedimentation and vegetation establishment of these ponds as they transition to tidal marsh. To increase complexity and connectivity of the Island Ponds and the waterways surrounding them, the activities proposed under these alternatives include breaches of the existing levees at various locations, removal or lowering of levees, and modification of existing breaches. Details about each Phase 2 alternative for this pond cluster are described below.

Due to their geographic isolation, the SBSP Restoration Project does not include recreation or flood control goals for these ponds. Therefore, no flood management or flood control activities or recreation components are proposed at these ponds for Phase 2.

Each Phase 2 alternative at the Island Ponds is described below and illustrated on Figures ES-3 through ES-5. The Phase 2 Action Alternatives for this pond cluster are summarized in Table ES-1.

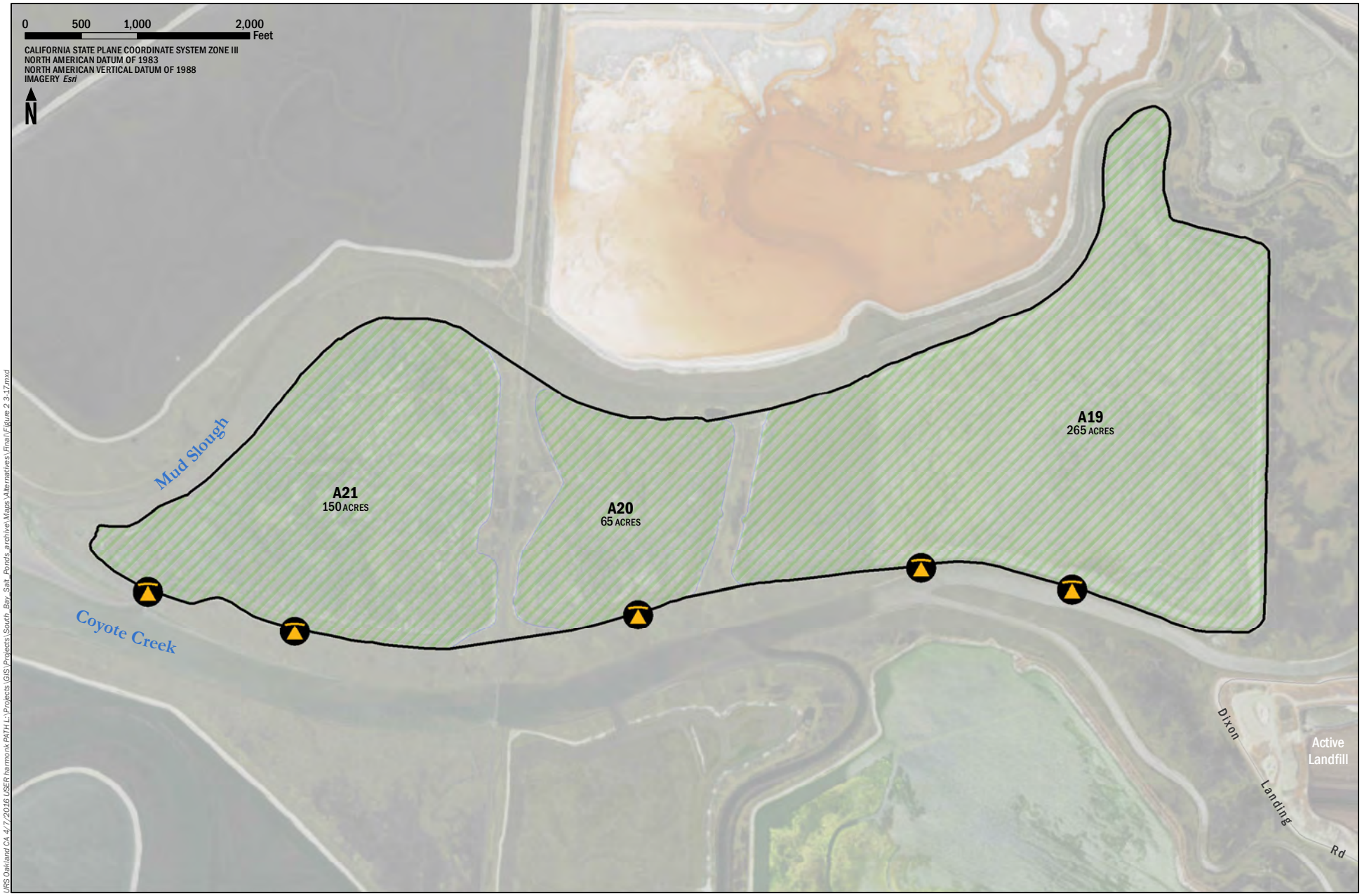
Alternative Island A (No Action)

Under Alternative Island A (No Action Alternative) no new activities would occur under Phase 2. The pond cluster would continue to be monitored and managed through the activities described in the AMP and in accordance with current USFWS practices. The existing breached levees would continue to be scoured from hydraulic action and naturally degrade. Ongoing monitoring and studies to track the progress of these ponds toward restoration as tidal marsh would be the principal component of the continued implementation of the AMP at this pond cluster.

Ponds A19, A20, and A21 were breached on their southern sides in March 2006 as part of the ISP actions. The intent of the 2006 levee breaches was to bring tidal flows to these ponds and allow sediment to accrete until marsh plain elevation was reached. The unmaintained breaches would continue to scour from hydraulic action until equilibrium with the tidal flux is reached, and most levees would be allowed to degrade naturally. The levee containing the active railroad track would be maintained by UPRR to allow the continued use of the tracks. Under this alternative, this transition to tidal marsh would be allowed to continue. Aside from the monitoring and management activities of the AMP and maintenance of the railroad track, no other operation and maintenance activities would occur.

Table ES-1. Components of the Phase 2 Action Alternatives at the Island Ponds

ALTERNATIVE ISLAND B	ALTERNATIVE ISLAND C
Breach north side of Pond A19 in two places.	Breach north side of Pond A19 in two places.
Lower or remove much of Pond A19's northern and southern levees.	Lower or remove much of Pond A19's northern and southern levees.
Remove Pond A19's western levee and Pond A20's eastern levee to connect these two ponds.	Remove Pond A19's western levee and Pond A20's eastern levee to connect these two ponds.
—	Breach the north sides of Ponds A20 and A21.
—	Lower portions of Pond A20's northern and southern levees.
—	Widen existing breaches on Pond A19's southern side.
—	Excavate two pilot channels within Pond A19.



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LEGEND

Existing breach

Tidal marsh

Pond boundary

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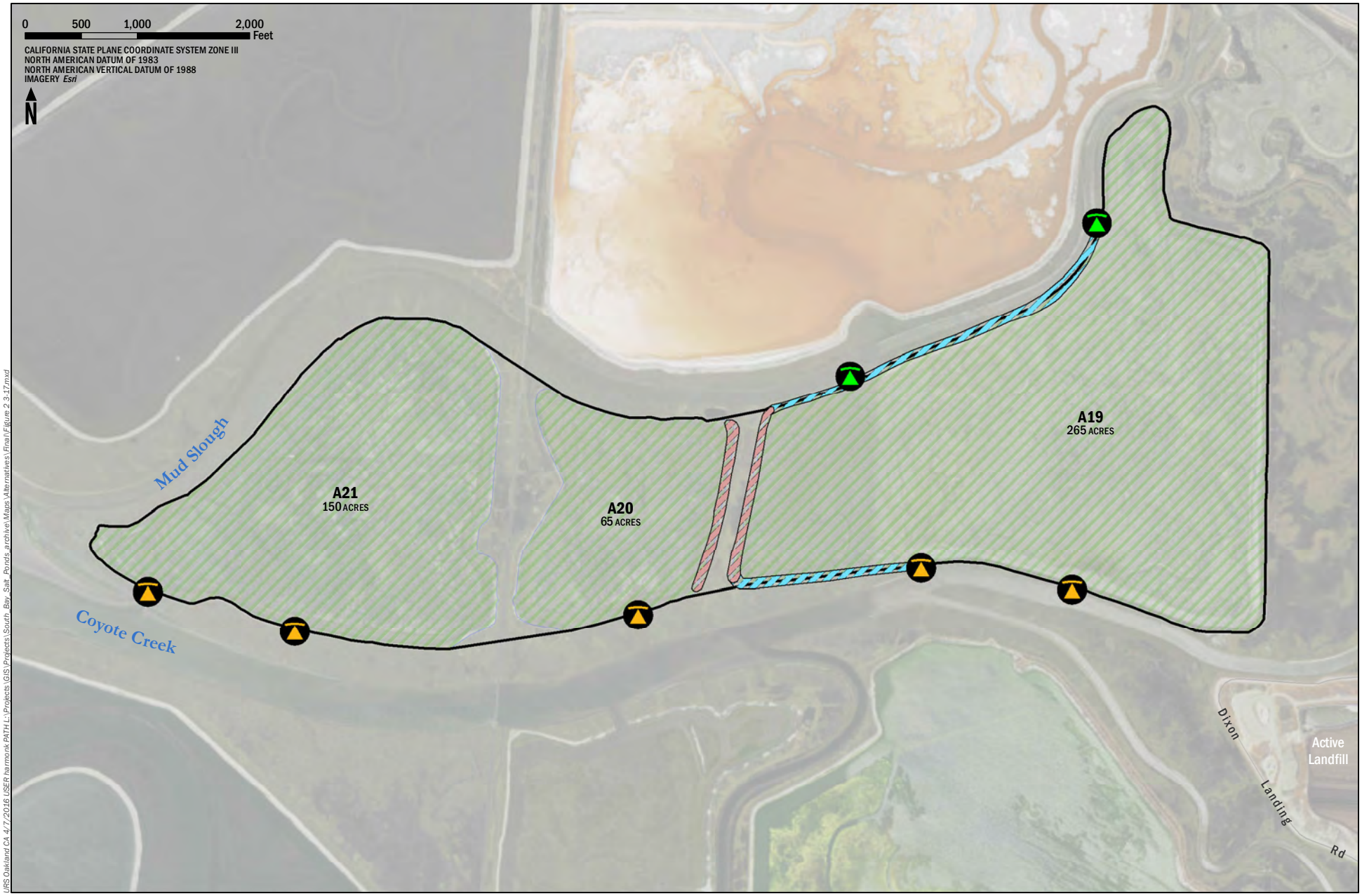
South Bay Salt Pond Restoration Project

Figure ES-3

Alternative Island A



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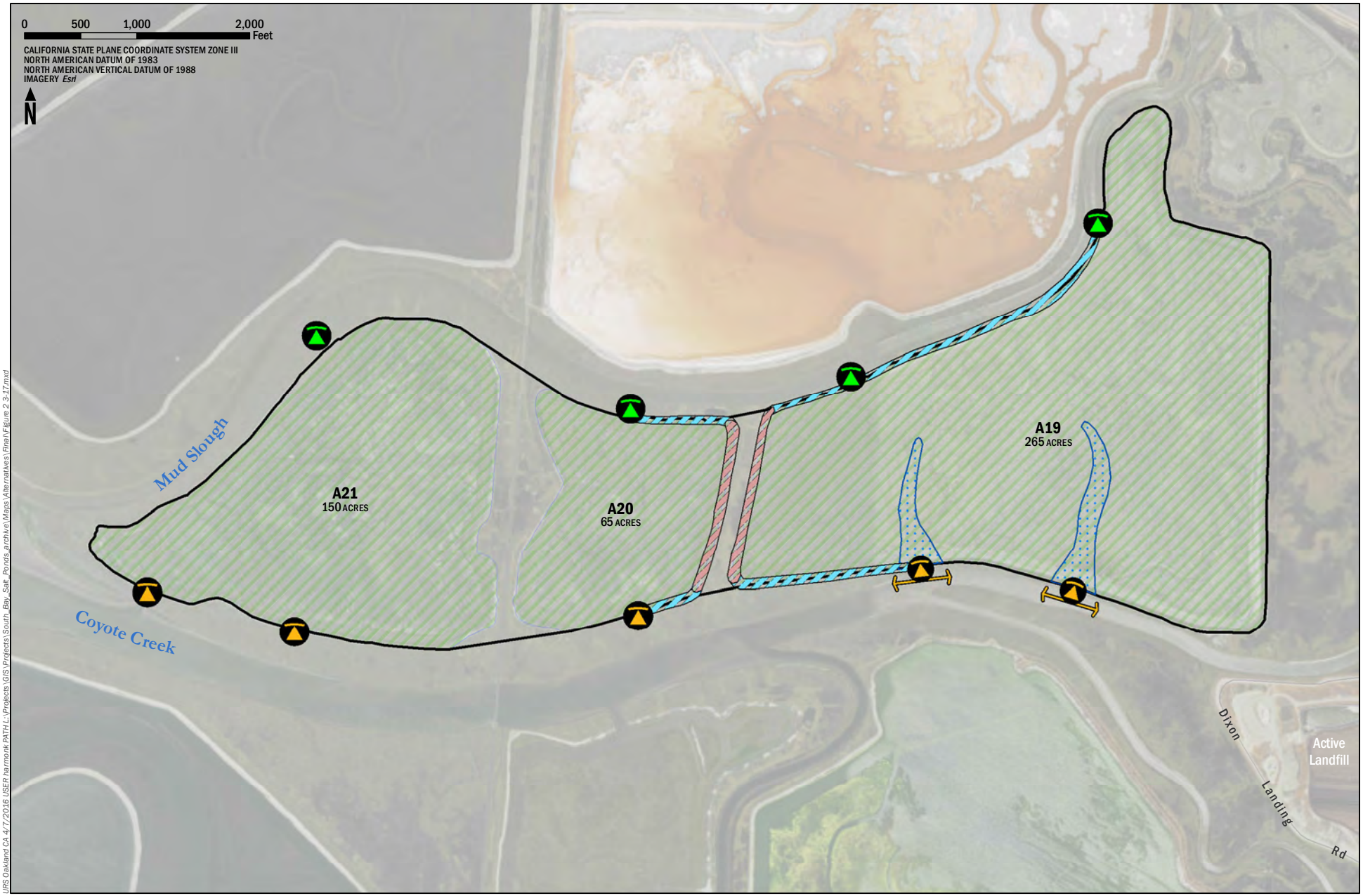
South Bay Salt Pond Restoration Project

Figure ES-4

Alternative Island B



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LEGEND

Proposed breach

Existing breach

Expand existing breach

Removed levee

Lowered levee

Pilot channel

Tidal marsh

Pond boundary

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South Bay Salt Pond Restoration Project

Figure ES-5

Alternative Island C

Alternative Island B

Alternative Island B would remove or lower the levees between Ponds A19 and A20 and lower westerly portions of the north and south perimeter levees of Pond A19 to increase connectivity and improve the ecological function of both ponds by altering circulation and sedimentation patterns in the ponds and improve the distribution of sediment accretion in Pond A19 and, to a lesser extent, in Pond A20. Alternative Island B also includes some improvements for habitat quality for juvenile salmonids and other fish. Any levee material moved would be used locally to fill borrow ditches (ditches that were created to construct the original levees) or raise the pond bottom elevation and further speed revegetation.

Alternative Island C

Alternative Island C would include all of the components of Island B with the addition of four components: levee breaches on the north sides of Ponds A20 and A21, lowering of portions of levees around Pond A20, excavating pilot channels in Pond A19, and widening the existing breaches on the southern levee of Pond A19. These additional components are intended to further increase the habitat complexity and connectedness as this pond cluster transitions to tidal marsh. Levee material from lowering would be sidecast into the borrow ditches or pond bottoms to speed the return to marsh plain elevation. These actions would alter circulation and sedimentation patterns in the ponds and improve the distribution of sediment accretion in Pond A19 and to a lesser extent in Ponds A20 and A21.

Similar to Alternative B, improvements would be made for habitat quality for juvenile salmonids and other fish. Under Alternative C, the projected increase in sediment accumulation would help ensure that the rate of sedimentation accretion and marsh development would keep pace with expected SLR. Any levee material moved would be used locally to fill borrow ditches and further speed revegetation.

Operation and Maintenance

Aside from the monitoring and management activities of the AMP and continued maintenance of the existing railroad track, no other operation and maintenance activities would occur at the Island Ponds. The breaches would scour from hydraulic action until equilibrium with the tidal flux is reached, and most levees would be allowed to degrade naturally. The levee containing the existing railroad track would be maintained to allow the continued use of the tracks. Ongoing monitoring and studies to track the progress of these ponds toward restoration as tidal marsh are a component of the continued implementation of the AMP.

Alviso-Mountain View Pond Cluster

The Alviso-Mountain View pond cluster (the Mountain View Ponds) consists of Pond A1, Pond A2W, the levees surrounding each pond, some of the fringe marsh outside of the pond and slough levees, Permanente Creek, and Mountain View Slough. Charleston Slough, which is owned by the City of Mountain View and is not part of the Refuge, is included as part of the Mountain View pond cluster, as are the levees surrounding it.

The Mountain View Ponds are in the western portion of the Alviso pond complex, between the Palo Alto Flood Basin to the west, Mountain View Shoreline Park and Stevens Creek Marsh to the south, Stevens Creek to the east, and open bay water to the north. The 115-acre Charleston Slough is located at the western end of the cluster. Permanente Creek, which flows into Mountain View Slough, is located

between Ponds A1 and A2W. The cities of Mountain View and Palo Alto are located immediately inland of the pond cluster to the south and west, respectively.

Under the No Action Alternative for the Alviso-Mountain View Pond cluster (Mountain View A), no new activities would occur as part of Phase 2. The action alternatives (Mountain View B and Mountain View C) propose activities transitioning the ponds to tidal marsh while maintaining or improving existing flood protection along the pond cluster borders with the cities of Mountain View and Palo Alto. Viewing platforms and trails would be established to improve recreation and public access to the pond cluster. The SBSP Restoration Project goals for this pond cluster are a transition to tidal marsh, maintain or improve flood protection, and improve recreation and public access.

Restoration activities include breaches of levees at various locations, constructing habitat features, and making other levee alterations to improve the overall ecological conditions of Pond A1, Pond A2W, and Charleston Slough. Upland fill material may be used to create habitat transition zones (gently sloping areas), between the bottoms of the ponds and the uplands at the top of the pond levees. Depending on the volume of material available, the constructed slope could be steeper than the planned 30:1 horizontal:vertical ratio, which would reduce the footprint area of the TZH. Upland fill material would also be used to create habitat islands and improve levees

Alternative Mountain View C includes the integration of Charleston Slough into the project, as well as several actions that are necessary to provide additional flood protection to portions of the City of Mountain View and City of Palo Alto and to help maintain the water supply to the sailing lake in Mountain View's Shoreline Park.

Each Phase 2 alternative at the Mountain View Ponds is described below and illustrated on Figures ES-6 through ES-9. The Phase 2 Action Alternatives for this pond cluster are summarized in Table ES-2.

Alternative Mountain View A (No Action)

Under Alternative Mountain View A, the No Action Alternative, no new activities would be implemented as part of Phase 2. The USFWS would maintain the ponds as part of the Don Edwards San Francisco Bay National Wildlife Refuge System, following the AMP and other management practices. The pond cluster would continue to be managed through activities described in the AMP and in accordance with current USFWS practices. The levees around Ponds A1 and A2W are classified as high priority levees to be maintained for inland flood protection. These outboard levees would be maintained (or repaired upon failure). The ponds would not be actively managed except for the current water quality management in Pond A2W, which involves circulating water as needed to control dissolved oxygen per the existing AMP.

Existing trails on the levees along the boundary of the pond cluster would continue to be maintained. The current use of water from Charleston Slough to supply the Shoreline Park sailing lake would continue. Alternative Mountain View A is shown in Figure ES-6.

The PG&E towers and power lines that run through Pond A2W and outside of it and Pond A1 would continue to be maintained as they are now (see Appendix D to the main text). These maintenance and repair activities include aerial and ground patrol, inspections, equipment inspections, electrical outage repair, and insulator washing and replacement.

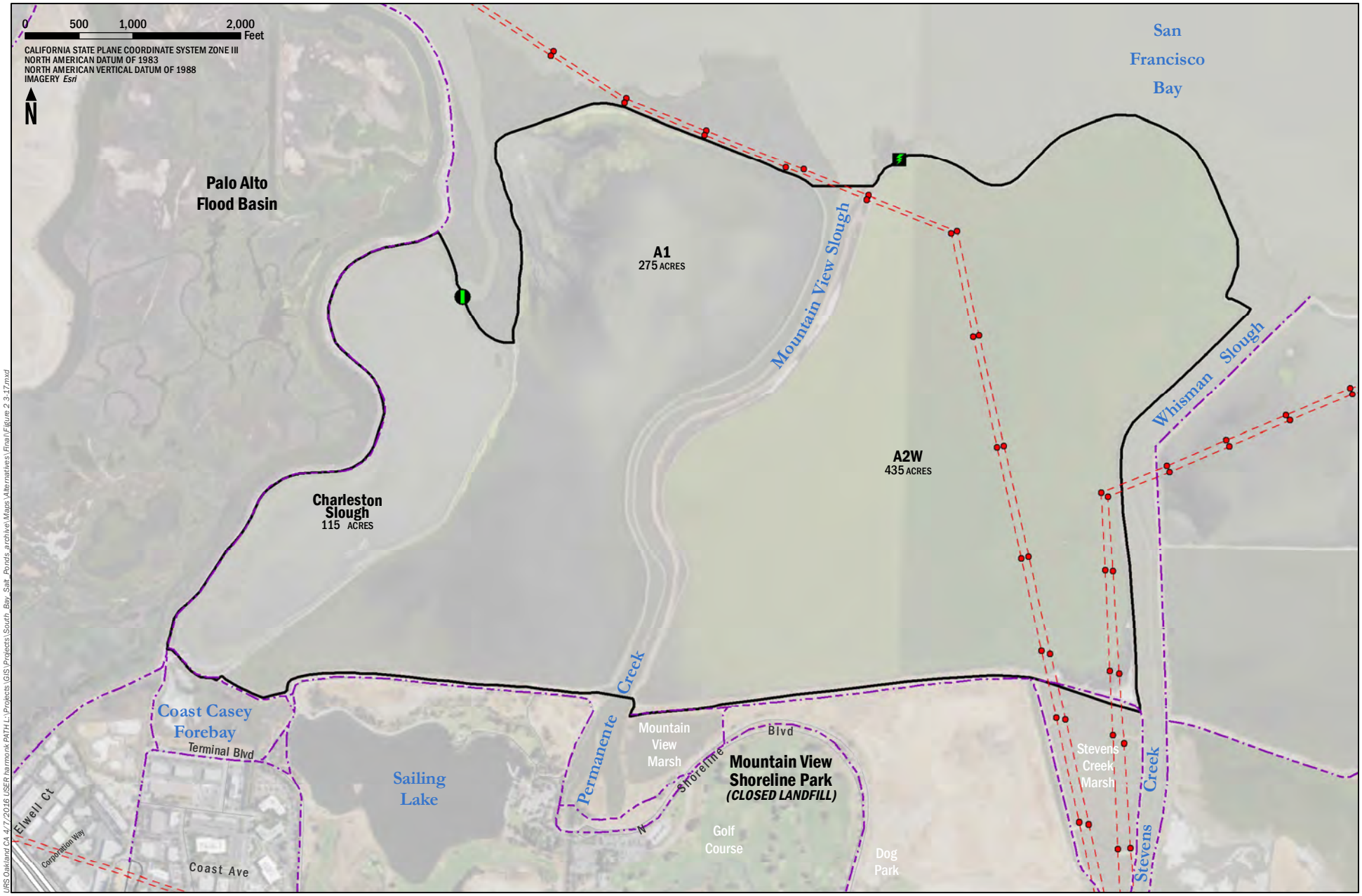

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Figure ES-6

Alternative Mountain View A

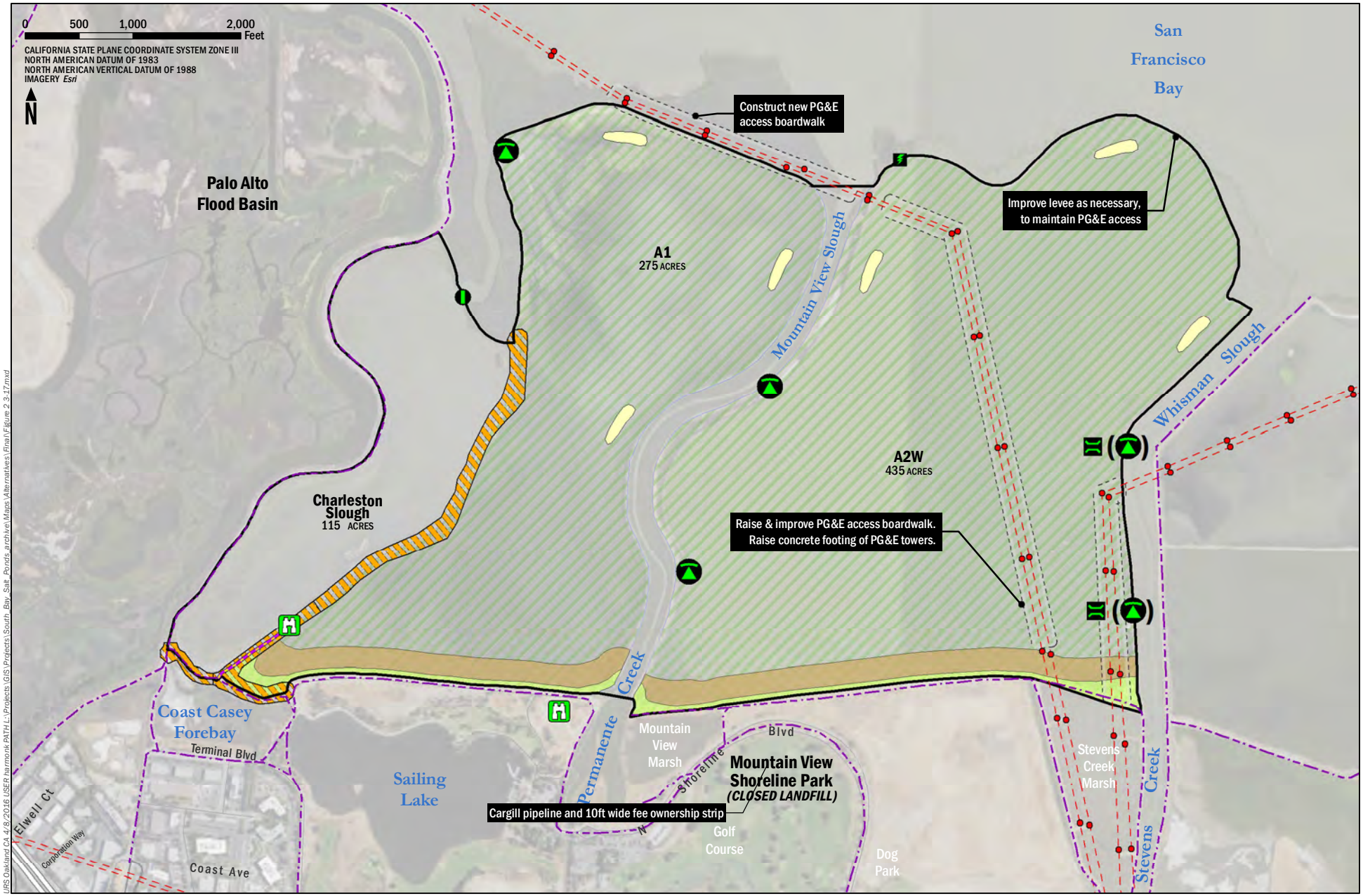

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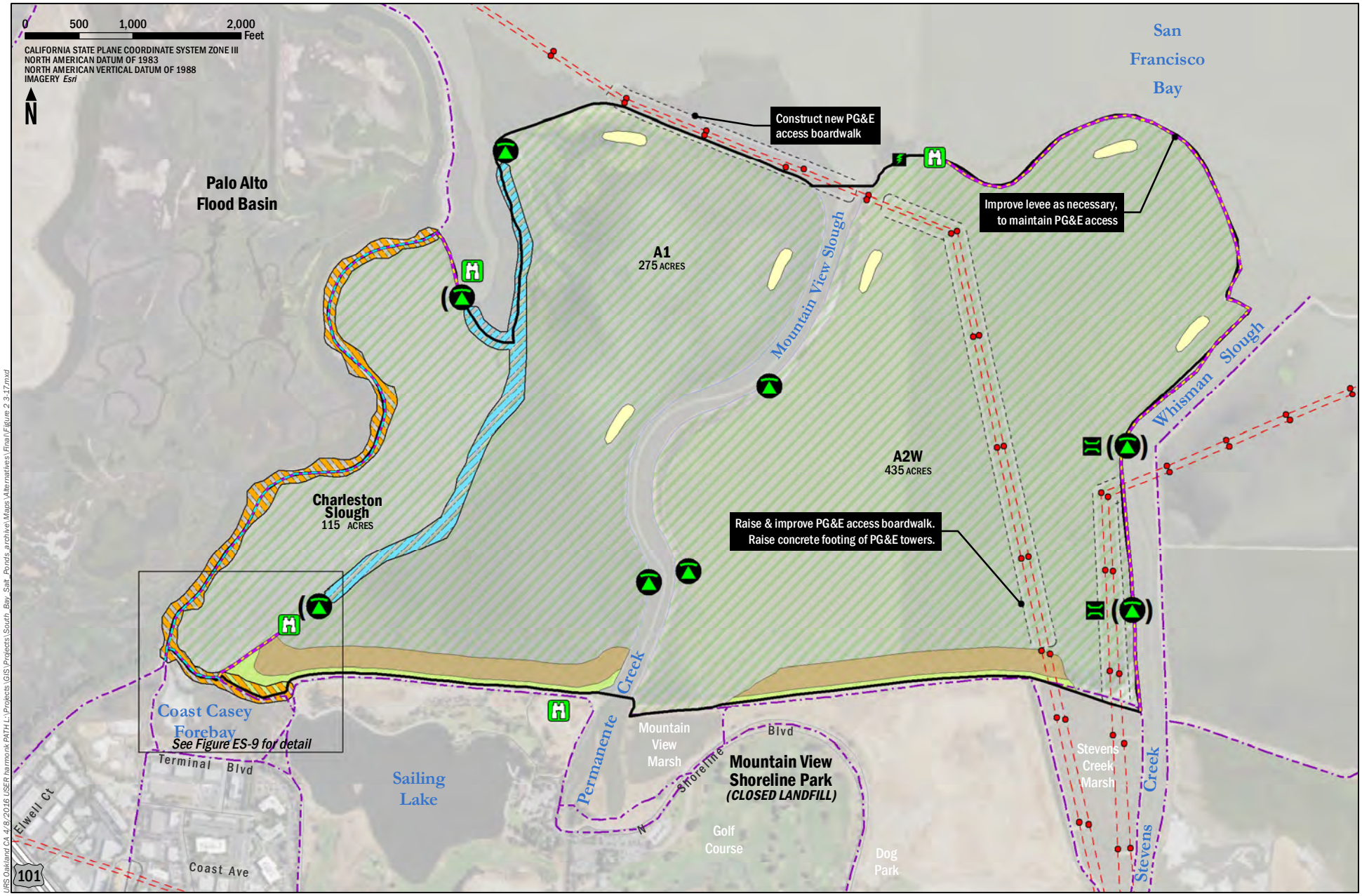
Figure ES-7

Alternative Mountain View B



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South Bay Salt Pond Restoration Project

Figure ES-8

Alternative Mountain View C

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South Bay Salt Pond Restoration Project

Figure ES-9
Alternative Mountain View C - Detaill

Alternative Mountain View B

Under Alternative Mountain View B, the Pond A1 and A2W levees would be breached at several points to introduce tidal flow in the ponds. Habitat transition zones and islands would be constructed in the ponds to increase habitat complexity and quality for special-status species. A new trail and viewing platform would be installed to improve recreation and public access at these ponds. Onsite cut material from breached or lowered levees and imported upland fill material would be used to raise levees, construct islands, or build transition zones.

Table ES-2. Components of the Phase 2 Action Alternatives at the Mountain View Ponds

ALTERNATIVE MOUNTAIN VIEW B	ALTERNATIVE MOUNTAIN VIEW C
Do not include Charleston Slough in tidal marsh restoration.	Include Charleston Slough in tidal marsh restoration.
Raise and improve western levee of Pond A1.	Lower and breach western levee of Pond A1.
Breach the west side of Pond A1 at one location.	Breach Pond A1 at three locations.
—	Breach Charleston Slough and connect it to Pond A1: ▪ Open Charleston Slough to full tidal exchange, by breaching the northern levee or by removing the tide gate structure itself, to allow vegetation to colonize the mud flats surrounding the slough's main channel; ▪ Raise and improve the western levee 1 of Charleston Slough, which separates it from the Palo Alto Flood Basin; ▪ Raise the Coast Casey Forebay levee1 along southern border of Charleston Slough and associated sailing lake water intake and pump station structures; ▪ Add a primary water intake 2 for the Mountain View Shoreline Park sailing lake at the breach in the levee between Charleston Slough and Pond A1; ▪ Lower western levee of Pond A1; ▪ Rebuild the existing viewing platform along the Coast Casey Forebay levee; rebuild the existing trail and replace benches and signage along the improved western levee of Charleston Slough; and ▪ Armor levee on landward side of breach between Pond A1 and Charleston Slough.
Construct bird habitat islands in Ponds A1 and A2W.	Add bird habitat islands in Ponds A1 and A2W.
Construct habitat transition zones across entire southern extent of Ponds A1 and A2W.	Construct a habitat transition zone across entire southern extent of Pond A1 but only across a portion of A2W.
Breach Pond A2W at four locations.	Breach Pond A2W at four locations.
Armor the two eastern breaches of Pond A2W and add railcar bridges over the two breaches for Pacific Gas and Electric Company (PG&E) access.	Armor the two eastern breaches of Pond A2W and add railcar bridges for PG&E access and recreational trail access.
Raise concrete footings of PG&E towers in Pond A2W; elevate existing PG&E access boardwalk in Pond A2W; construct new sections of boardwalk from Pond A2W to connect to existing boardwalk over Bay outside of the Palo Alto Flood Basin.	Raise concrete footings of PG&E towers in Pond A2W; elevate existing PG&E access boardwalk in Pond A2W; construct new sections of boardwalk from A2W to connect to existing boardwalk over Bay outside of Palo Alto Flood Basin.

Table ES-2. Components of the Phase 2 Action Alternatives at the Mountain View Ponds

ALTERNATIVE MOUNTAIN VIEW B	ALTERNATIVE MOUNTAIN VIEW C
Add viewing platform in Shoreline Park south of Pond A1.	Add viewing platform in Shoreline Park south of Pond A1.
Construct spur trail on improved western levee of Pond A1 to a viewing platform.	Construct spur trail on improved west levee of Pond A1 to a viewing platform at the armored breach.
—	Add a spur trail from Bay Trail spine along Charleston Slough's northern levee to a viewing platform at or near the breach location.
—	Add recreational trail on eastern and northern sides of Pond A2W to a bay side viewing platform near PG&E turnaround point.

[1] The proposed improvements to the Coast Casey Forebay levee and the western levee of Charleston Slough would be to an elevation beyond that required by SBSP Restoration Project's requirements; it would be higher to meet City of Mountain View's expectations for sea-level rise.

[2] The proposed water intake at the A1-Charleston Slough breach location requires the intake, pipes, and sump to be constructed under the existing levee out to the breach.

Alternative Mountain View C

Under Alternative Mountain View C, levees would be breached and lowered to increase tidal flows in Pond A1, Pond A2W, and Charleston Slough. The inclusion of Charleston Slough into the SBSP Restoration Project is the primary distinguishing feature between Alternative Mountain View C and Alternative Mountain View B. Other actions would include adding habitat transition zones and habitat islands, and allowing for possible future connectivity with two brackish marshes south (inland) of Pond A2W. Proposed activities under Alternative Mountain View C are intended to increase habitat complexity and quality for special-status species. Flood control would be maintained with improvements to the southern and western levees of Charleston Slough. Several new trails and viewing platforms would be installed or replaced to improve recreation and public access at the pond cluster. Upland fill material would be imported into the ponds to raise levees, construct islands, or build habitat transition zones. To continue providing water to the City of Mountain View's Shoreline Park sailing lake, a new water intake would be constructed at the proposed breach between Pond A1 and Charleston Slough. The current water intake would be retained as a secondary intake source for backup, maintenance, etc.

Operation and Maintenance

Operation and maintenance of this pond cluster would be similar under Alternative Mountain View B and Mountain View C. However, some of those maintenance activities would occur in different places (e.g., on the west levee of Charleston Slough instead of on the west levee of Pond A1) or over a larger or smaller area (e.g., Alternative C has more trails to maintain and fewer square feet of habitat transition zones). Otherwise, the operation and maintenance activities described below apply to both action alternatives.

Operation and maintenance activities would continue to follow and be dictated by the 2009 USACE permit #2008-00103S, applicable County operations, the Refuge's Comprehensive Conservation Plan (CCP), and the AMP. PG&E would continue to operate and maintain its infrastructure, which would occur in coordination with the Refuge managers to ensure consistency with the operation and maintenance of the pond cluster. The City of Mountain View would continue to operate and maintain its properties that are adjacent to the pond cluster, which would also occur in coordination with the Refuge managers.

Periodic maintenance of the pond infrastructure would be required following construction. Maintenance activities would require a maintenance staff person to travel to the pond cluster one or two times a week to perform activities such as predator control, general vegetation control, and vandalism repairs. AMP monitoring activities would occur, which would require additional workers (e.g., staff, consultants) to access the pond clusters. The frequency of visits to the pond cluster to conduct AMP monitoring activities would depend on the actual activities and would vary by season (e.g., during the bird breeding season there would be more trips to the site than during the non-breeding season).

In Alternative Mountain View B, the west levee of Pond A1 would require ongoing levee maintenance since it would provide flood protection. In Alternative C, this maintenance would instead take place on the western and southern levees of Charleston Slough. These levee maintenance activities would include placement of additional earth on top of, or on the sides of, the levees as the levees subside, with the level of settlement dependent upon geotechnical considerations. In general, pond levees which are improved to provide flood protection would likely exhibit the greatest degree of settlement. Levees that require erosion control measures would also require routine inspections and maintenance. If the levees that provide flood protection are improved to provide FEMA 100-year flood protection, a detailed levee maintenance plan would be required for certification to comply with FEMA standards.

The northern perimeter levee, eastern levee, and northern portion of the western perimeter levee at Pond A1, and the western levee of Pond A2W would not be maintained and would be allowed to degrade naturally. The eastern and northern levee of Pond A2W would be maintained for PG&E access.

Improved levees would be inspected and maintained for slope stability, erosion control, seepage, slides and settlement on an annual basis. Maintenance is expected to occur every 5 years to add additional fill material in areas where settlement occurs. Most of the maintenance would be accomplished during low tides and from levee crests.

Maintenance of the nesting islands may require weed/vegetation removal as often as quarterly and placing fill material (sand, gravel and/or oyster shells) before the onset of the yearly nesting period. Nesting islands would also be periodically examined for erosion.

Maintenance of habitat transition zones would include inspections and maintenance for slope stability, erosion control, seepage, slides and settlement on an annual basis. As necessary, vegetation removal would occur to prevent colonization of invasive species. Fill material would be placed, when needed, to repair areas where erosion is observed. Additional maintenance activities may also be needed to address an AMP-specified management trigger.

Public access and recreation features would be maintained as needed to keep trail surfaces safe and accessible. There would be a need for trash removal along trails and more intensely at staging areas and trailheads. The viewing platforms would be designed to minimize maintenance by 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 forms of vandalism.

Railcar bridges placed in publicly accessible areas, such as city streets and highways must be visually inspected every two years and may be required to report on the conditions every 5 years. In Alternative Mountain View B, the bridges would not be publicly accessible, so this would not be required. However, because Alternative C would include a public access trail along the east levee of Pond A2W, the railcar bridges over the breaches there would need visually inspected and reported on as described above.

The proposed bridges and the concrete abutments with wing walls at both ends of the bridge would be basically maintenance free for the design life cycle of 50 to 75 years. The bridges' superstructures include main span girders, lateral bracing system, deck slab systems and safety railing that would need basic erosion protection maintenance work every few years. These activities include sanding, cleaning, and re-painting as needed, which are common activities for all steel structures permanently exposed to weather.

The PG&E towers, boardwalks, and power lines would be maintained in accordance with PG&E's current practices which are described in Appendix D. The maintenance of Pond A2W's east and north levees and the construction of new and improved boardwalks for PG&E's use would continue to provide the necessary access at current levels.

Alviso-A8 Pond Cluster

The Alviso-A8 pond cluster (A8 Ponds) consists of Ponds A8 and A8S and the levees surrounding each pond. This pond cluster is located in the south-central portion of the Alviso pond complex, between the Guadalupe Slough and Alviso Ponds A5 and A7 to the west, Sunnyvale Baylands County Park, Guadalupe Slough and San Tomas Aquino Creek to the south, Alviso Slough to the east and northeast, and San Francisco Bay to the north. The cities of Sunnyvale and Santa Clara are located inland of the pond cluster to the south; a capped landfill lies to the southeast.

The SBSP Restoration Project set the initial goals for this pond cluster to be tidal habitat. However, due to mercury concerns, the tidal flows needed to be "reversible". That is, the ponds needed to be modified in such a way that they could be converted back to a seasonal pond if that proved to be necessary to avoid a severe mercury problem. The SBSP Restoration Project also provided for flexibility such that later project actions could convert the ponds to fully tidal habitat, maintain or improve flood protection, and improve recreation and public access. Ponds A8 and A8S were physically connected in the Phase 1 actions and were made "reversibly muted tidal habitat" by removing parts of the levees (and associated vehicle access) between them and between Pond A8 and the adjacent Ponds A5/A7 to the west. A reversible, armored notch (smaller than a full breach that can be closed seasonally) was made in the eastern levee of Pond A8 to allow some muted tidal exchange and to allow the USFWS to vary the size of the notched opening.

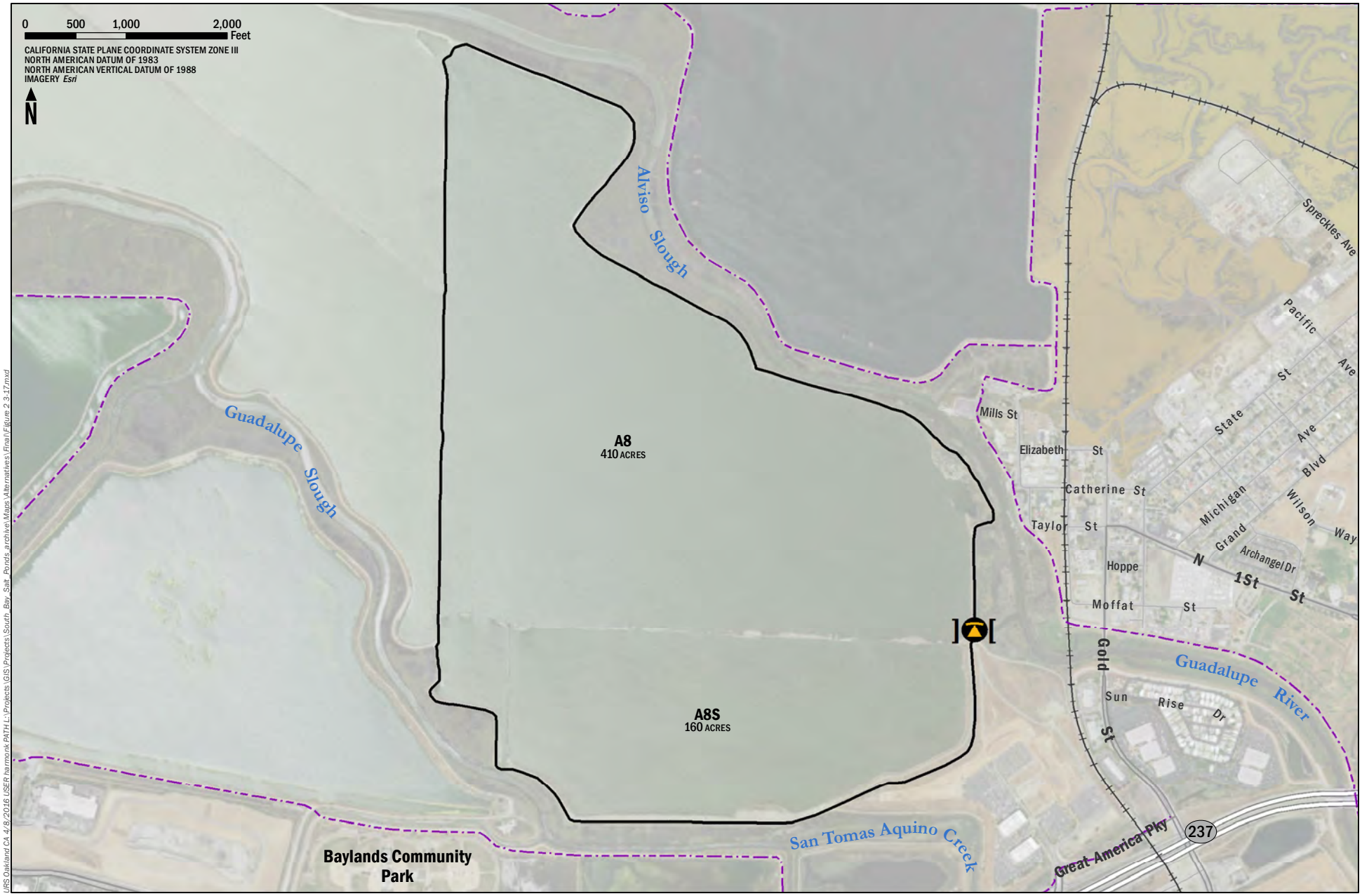
Ponds A8 and A8S are configured and managed such that they can also be used as flood storage basins during high-rainfall events. Pond A8 contains an overflow weir. During flood events greater than a 10-year flood in the lower Guadalupe River and Alviso Slough, water can overflow into Pond A8 for initial flood storage. There are currently no recreation or public access features at these ponds.

Under Alternative A8 A (No Action), no new activities would occur under Phase 2. The Action Alternative (Alternative A8 B) would involve the placement of upland fill material to form habitat transition zones in the southwestern and southeastern corners of Pond A8S.

Each Phase 2 alternative at the A8 Ponds is described below and illustrated on Figures ES-10 and ES-11.

Alternative A8 A (No Action)

Under Alternative A8 A, 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 Phase 1 actions. These management practices include the wet season management of tidal exchange between Pond A8 and Alviso Slough to avoid fish entrainment and maintain existing levels of flood



LEGEND

Existing reversible armored notch

Existing trail

Pond boundary

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South Bay Salt Pond Restoration Project

Figure ES-10

Alternative A8 A

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LEGEND

Existing reversible armored notch

Existing trail

Pond boundary

Transition Zone Habitat

High marsh habitat

Intertidal habitat

AECOM

South Bay Salt Pond Restoration Project

Figure ES-11

Alternative A8 B

protection; inspections of pond infrastructure to ensure the pond is operating as intended, tidal connectivity is achieved as intended, and water quality requirements are being met; and monitoring of restoration performance.

Alternative A8 B

Alternative A8 B proposes the construction of habitat transition zones in Pond A8S's southwest corner, southeast corner, or both, depending on the amount of material available. This document assumes both are constructed and analyzes the impacts associated with that assumption. The habitat transition zones would perform several functions: adding some flood protection, adding transitional habitat for salt marsh harvest mouse and Ridgway's rail, and protecting the adjacent landfill. Up to 1,400 linear feet of habitat transition zone would be established along the southwest corner of perimeter levee of Pond A8S, and up to 1,500 linear feet of habitat transition zone would be established along the southeast corner of perimeter levee of Pond A8S. The habitat transition zone for Alternative A8 B would extend into the center of the pond at a slope of 30:1(h:v) or steeper, and would start at a top elevation of 9.0 feet NAVD88.

Operation and Maintenance

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 Phase 1 actions. These ongoing management practices would not change during or after the construction activities described above.

Ravenswood Pond Cluster

The Phase 2 Ravenswood pond cluster consists of Ponds R3, R4, R5, and S5; the levees surrounding each pond; some of the fringe marsh outside of these levees; and the All-American Canal (AAC). The pond cluster is bordered by Menlo Park's Bedwell Bayfront Park to the west, State Route (SR) 84 and the city of Menlo Park to the south, Ravenswood Slough to the east, and Greco Island and open bay water to the north. A small triangular pond is to the immediate west of Pond S5. This pond is unnamed and is labeled or described in various documents in three different ways: part of Pond S5, a separate but unnamed pond, or as the forebay of Pond S5. This document treats it as part of Pond S5 and frequently refers to it as the forebay.

Under Alternative Ravenswood A (No Action), no new activities would be implemented as part of Phase 2. Alternatives Ravenswood B, Ravenswood C, and Ravenswood D propose activities that would initiate the transition of Pond R4 from a seasonal pond to tidal marsh while maintaining or improving the existing flood protection and the conversion of Ponds R5 and S5 from seasonal ponds to a variety of enhanced managed pond habitat types. Upland fill material would also be placed in ponds to construct habitat transition zones in these ponds and enhance levees around them. In Pond R3, the existing western snowy plover (*Charadrius alexandrinus nivosus*) habitat would be improved by adding a water control structure to improve water circulation within the pond.

Up to several hundred thousand cubic yards of appropriate upland fill material would be imported and used in Ponds R4, R5, or S5 to enhance levees, fill borrow ditches, and build habitat transition zones. The majority of any imported fill material would be used for habitat transition zone and levee improvements; therefore, the information needed to assess the impacts of accepting and placing fill material is included in those parts of this project description.

Viewing platforms and trails would be established to improve recreation and public access to the pond cluster.

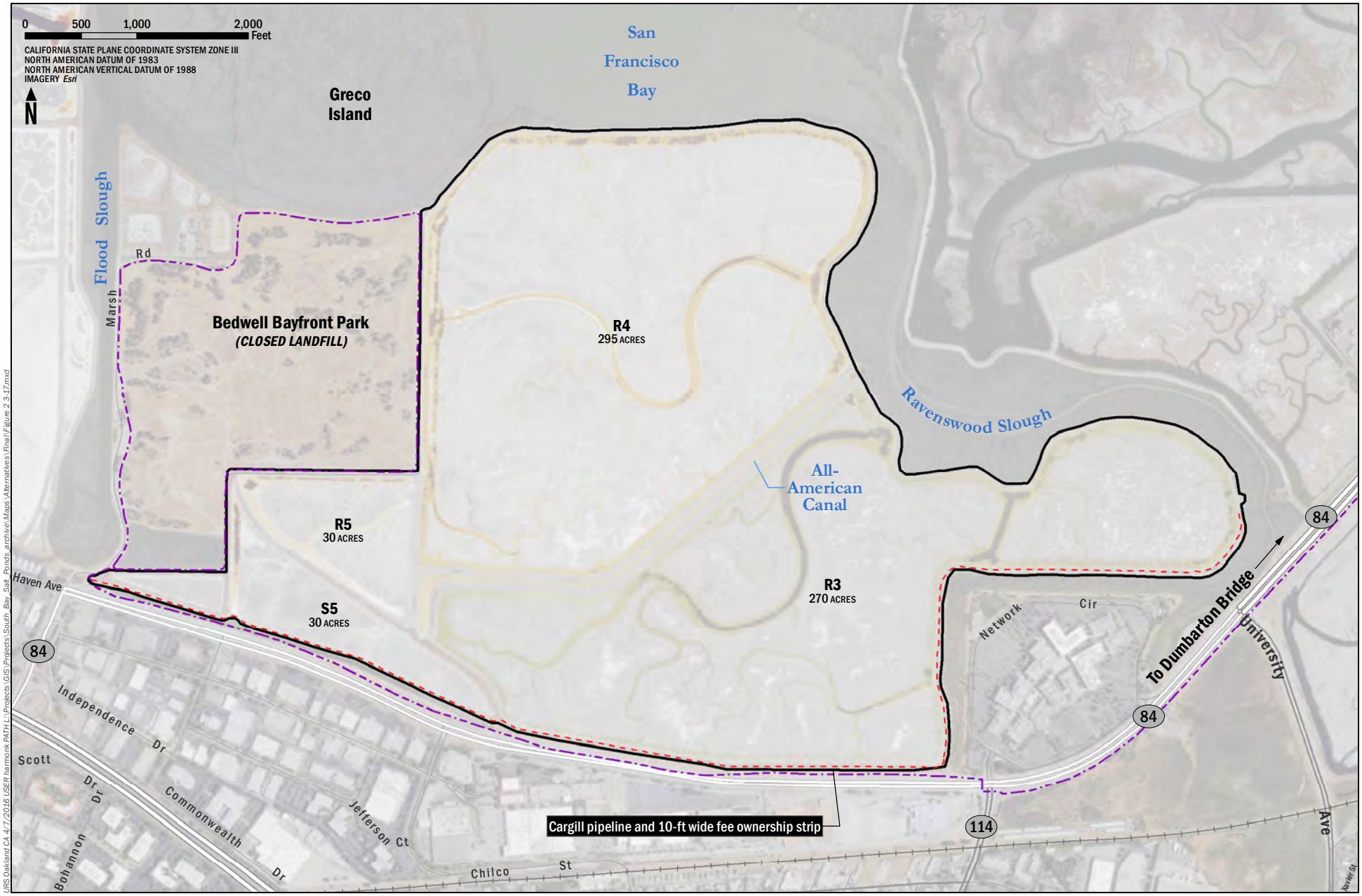
Each Phase 2 alternative at the Ravenswood Ponds is described below and illustrated on Figures ES-12 through ES-16. The Phase 2 Action Alternatives for this pond cluster are summarized in Table ES-3.

Alternative Ravenswood A (No Action)

Under Alternative Ravenswood A, the No Action Alternative, no new activities would be implemented as part of Phase 2. The USFWS would maintain the ponds as part of the Don Edwards San Francisco Bay National Wildlife Refuge system following the AMP and other management practices. The Ravenswood pond cluster would continue to be managed through the activities described in the AMP. Ponds R3, R4 and R5/S5 would function as seasonal ponds. The outboard levees along Ponds R3 and R4 provide inland flood protection and would continue to be maintained or repaired as a component of the 2009 USACE operations and maintenance (O&M) permit #2008-00103S. Trails of the adjacent Bedwell Bayfront Park, owned by the City of Menlo Park, would continue to be used and maintained separately.

Table ES-3. Components of the Phase 2 Action Alternatives at the Ravenswood Ponds

ALTERNATIVE RAVENSWOOD B	ALTERNATIVE RAVENSWOOD C	ALTERNATIVE RAVENSWOOD D
Improve All-American Canal levee	Improve All-American Canal levee	Improve All-American Canal levee
—	All-American Canal habitat transition zone	All-American Canal habitat transition zone
Bedwell Bayfront Park habitat transition zone	Bedwell Bayfront Park habitat transition zone	—
—	—	Pond R4 Northwest habitat transition zone
Remove parts of Ponds R5 and S5 internal levees	Remove parts of Ponds R5 and S5 levees	Remove all of Ponds R5 and S5 internal levees
—	Grade and partially fill Ponds R5/S5	—
Ponds R4/R5 water control structure	Ponds R4/R5 water control structure	Ponds R4/R5 water control structure
—	Ponds R3/S5 water control structure	Ponds R3/S5 water control structure
Pond R3/Ravenswood Slough water control structure	Pond R3/Ravenswood Slough water control structure	Pond R3/Ravenswood Slough water control structure
—	—	Connect to Bayfront Canal and Atherton Channel Project
Pond S5/Flood Slough water control structure	Pond S5/Flood Slough water control structure	Pond S5/Flood Slough water control structure
Pond R4 pilot channel	Pond R4 pilot channel	—
Pond R4 east breach	Pond R4 east breach	Pond R4 east breach
—	Pond R4 northwest breach	—
Lower Pond R4 northwest levee	Lower Pond R4 northwest levee	—
Ponds R5 and S5 bird habitat island	Ponds R5 and S5 bird habitat island	—
Viewing platform near Pond R5	Viewing platform near Pond R5	Viewing platform near Pond R5
—	Pond R4 boardwalk trail at northwest corner	Pond R4 trail on northwest levee
—	Pond R4 viewing platform	Pond R4 viewing platform
—	Complete loop trail around Ponds R5 and S5 to connect to Bay Trail	Complete loop trail around Ponds R5 and S5 to connect to Bay Trail



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South Bay Salt Pond Restoration Project

Figure ES-12

Alternative Ravenswood A

LEGEND

- Proposed breach
- Proposed control gate
- Viewing platform
- Existing trail
- Cargill pipeline
- Fence
- Lowered levee
- Removed levee
- Improved levee
- Pilot channel (optional)
- Tidal marsh
- Managed pond
- Pond boundary

Transition Zone Habitat

- High marsh habitat
- Intertidal habitat

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South Bay Salt Pond Restoration Project

Figure ES-13

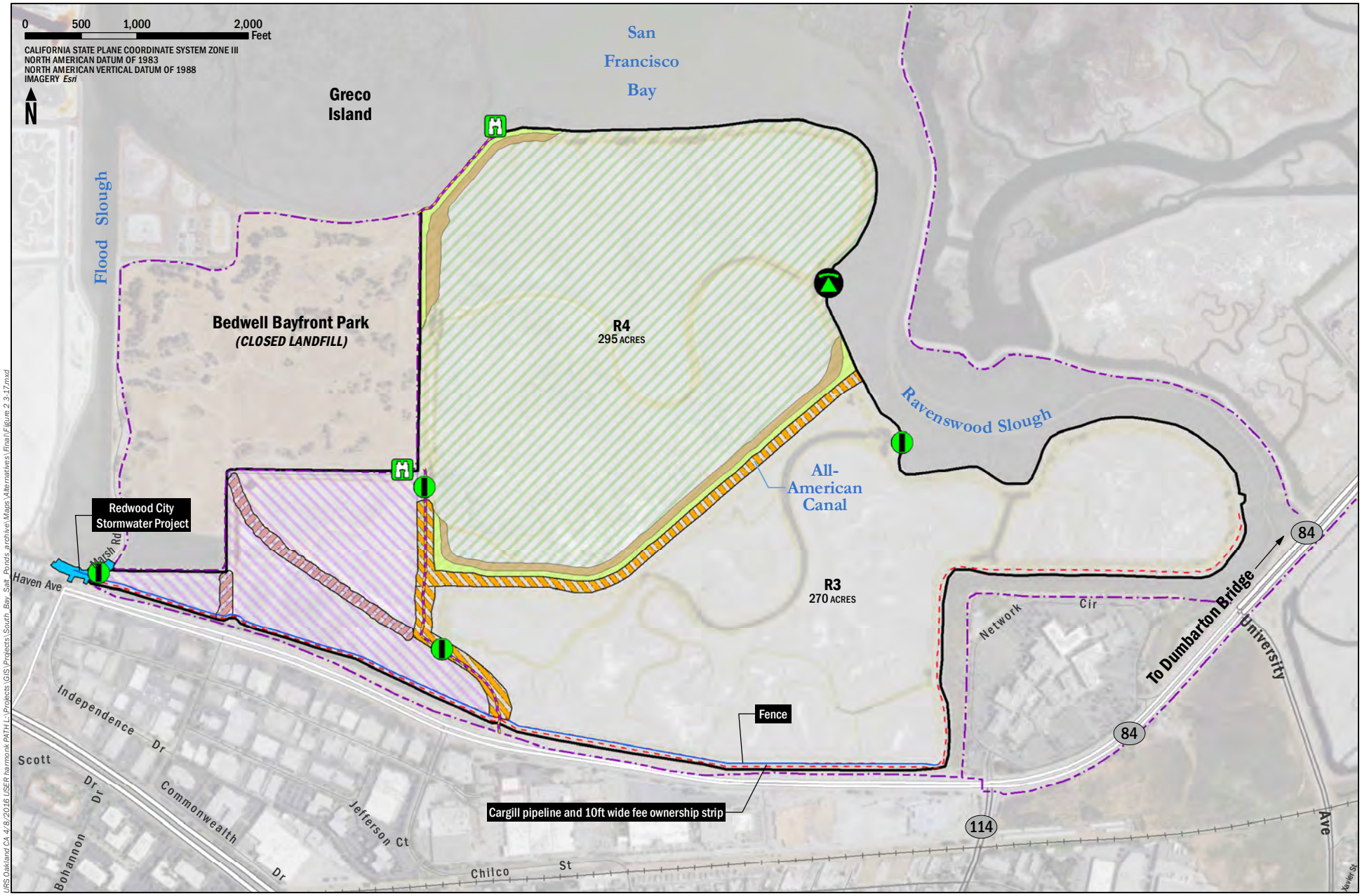
Alternative Ravenswood B

AECOM

South Bay Salt Pond Restoration Project

Figure ES-14

Alternative Ravenswood C



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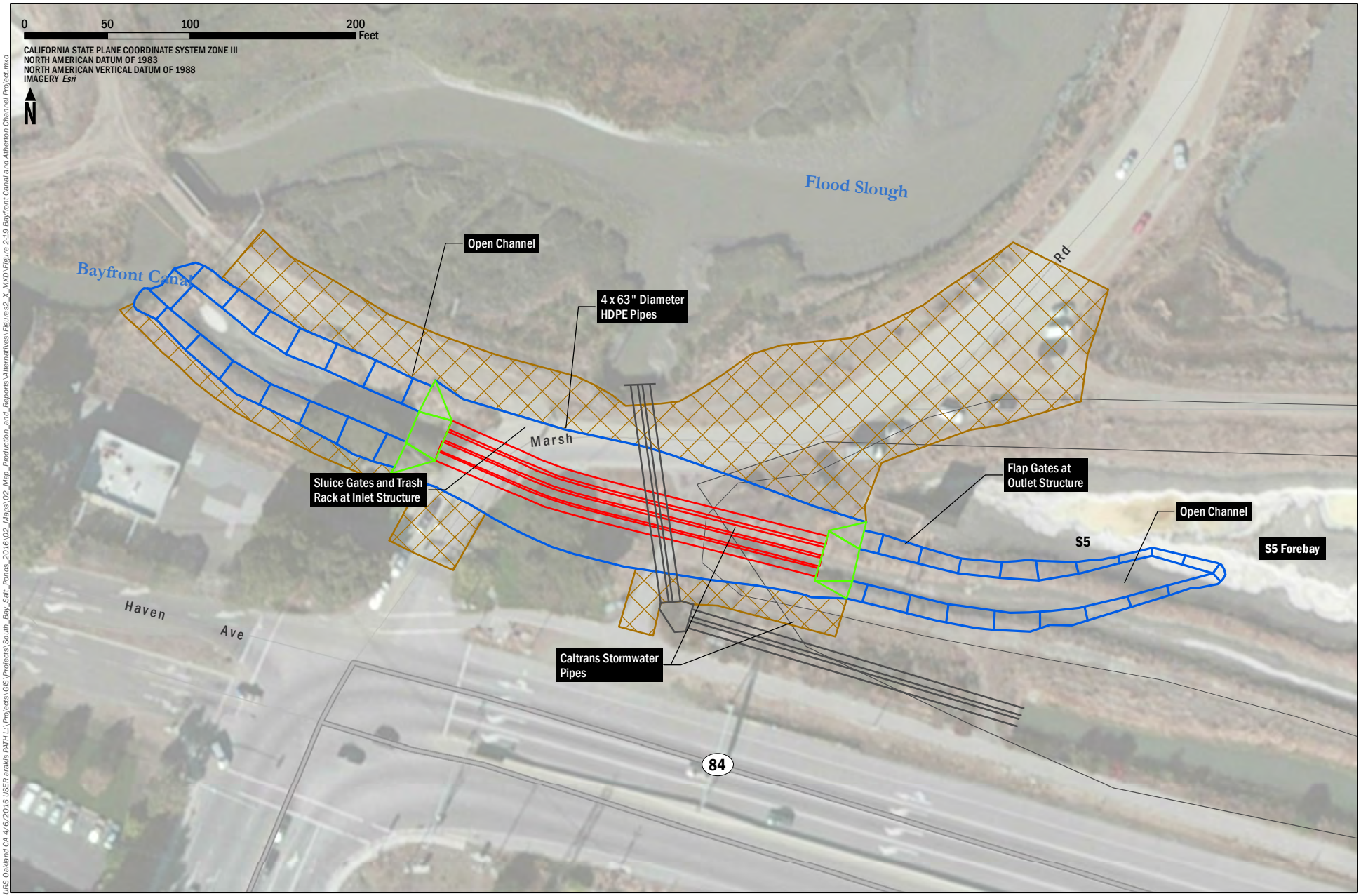
South Bay Salt Pond Restoration Project

Figure ES-15

Alternative Ravenswood D



URS Oakland CA 4/6/2016 USER arakis PATH L:\Projects\GIS\Projects\South Bay Salt Ponds 2016\02 Maps\02 Map Production and Reports\Alternatives\Figures2_X.MXD (Figure 2-19 Bayfront Canal and Atherton Channel Project.mxd

LEGEND

- Proposed new pipes
- Proposed grading boundary
- Caltrans culvert
- Staging areas
- Proposed concrete structures

AECOM

South Bay Salt Pond Restoration Project

Figure ES-16

Bayfront Canal and Atherton Channel Project

Alternative Ravenswood B

Alternative Ravenswood B would open Pond R4 to tidal flows, improve levees to provide additional flood protection, create habitat transition zone along the western edge of Pond R4, establish managed ponds to improve habitat for diving and dabbling birds, increase pond connectivity, and improve recreation and access. Surplus upland fill material (after completing the habitat transition zone and improving levees) would be used to fill borrow ditches and speed tidal marsh restoration.

Alternative Ravenswood C

Alternative Ravenswood C would be similar to Alternative Ravenswood B with the following exceptions: Ponds R5 and S5 would be converted to a particular type of managed pond that is maintained at mud flat elevation for shorebirds; water control structures would be installed on Pond R3 to allow for improvement to the habitat for western snowy plover; an additional habitat transition zone would be constructed; and additional recreational and public access components would be constructed.

Alternative Ravenswood D

Alternative Ravenswood D would open Pond R4 to tidal flows, improve levees to provide additional flood protection, create two habitat transition zones in Pond R4, establish enhanced managed ponds in Ponds R5 and S5, increase pond connectivity, enhance Pond R3 for western snowy plover habitat, remove the levees within and between Ponds R5 and S5, and improve recreation and public access. Alternative Ravenswood D would also allow stormwater outflow from Redwood City to Ponds R5 and S5 (via connections with the Bayfront Canal and Atherton Channel), including open channel improvements, installation of a system of pipes or culverts, temporary removal of California Department of Transportation (Caltrans) stormwater pipes, and installation of a water control structure. This alternative would address a problem with residual salinity in Ponds S5 and R5 and would reduce flood risk in the neighborhood to the southwest.

Operation and Maintenance – All Action Alternatives

Operation and maintenance activities for components of the pond cluster within the Refuge would continue to follow and be dictated by the 2009 USACE permit #2008-00103S, the CCP, applicable County operations, and the AMP. The City of Menlo Park would continue to operate and maintain its properties that are adjacent to the pond cluster, in coordination with the Refuge managers. In Alternative Ravenswood D, the City of Redwood City would also coordinate its management and maintenance of the Bayfront Canal and Atherton Channel water diversion system with other O&M activities, as described below.

Periodic maintenance of the pond infrastructure would be required following construction. Maintenance would require a staff person to travel to the pond cluster one or two times a week to perform activities such as predator control, general vegetation control, and vandalism repairs. Operation of the water control structures would require additional staff visits. In addition, AMP monitoring activities would occur, which would require additional workers (e.g., staff, consultants) to access the pond clusters. The frequency of visits to the pond cluster to conduct AMP monitoring activities would depend on the actual activities and would vary by season (e.g., during the bird breeding season there would be more trips to the site than during the non-breeding season).

Ongoing levee maintenance would continue for existing levees that provide flood protection (as part of O&M activities described above and in consistency with the 2009 USACE permit #2008-00103S and the CCP). Levee maintenance activities would include the placement of additional earth on top of or on the pond side of the levees as the levees subside, with the level of settlement dependent upon geotechnical considerations. In general, pond levees that are improved to provide flood protection would likely exhibit the greatest degree of settlement. Levees that require erosion control measures would also require routine inspections and maintenance. The northern perimeter levee at Pond R4 would not be maintained and would be allowed to degrade naturally.

Improved levees shall be inspected and maintained for slope stability, erosion control, seepage, slides and settlement on an annual basis. Maintenance is expected every 5 years to add additional fill material in areas where settlement occurs. Most of the maintenance work can be accomplished during low tides and from levee crests. If the levees that provide flood protection are improved to provide FEMA 100-year flood protection, a detailed levee maintenance plan would be required for certification to comply with FEMA standards.

Water control structures would require inspection for structural integrity of gates, pipes, and approach way, obstruction to flow passage and preventative maintenance such as visual functionality of gates, seals, and removal of debris. In Alternative Ravenswood D only, these same activities would be required for the Redwood City stormwater connection. Inspection would be required every month until the first year and semi-annually thereafter. Maintenance would be required on an annual basis. O&M would be accomplished during low tides in Pond R4 and sloughs and by maintaining low storage conditions in the managed ponds.

Maintenance of habitat transition zones would include inspections and maintenance for slope stability, erosion control, seepage, slides, and settlement on an annual basis. As necessary, vegetation removal would occur to prevent colonization of invasive species. Fill material would be placed, when needed, to respond to areas where erosion has been observed. Maintenance activities would also be dictated by the AMP if an AMP management trigger is reached, especially a trigger related to a biological resource (e.g., salt marsh harvest mouse) that would utilize habitat transition zone as habitat.

Maintenance of public access and recreation features are similar but not identical across the Action Alternatives. The viewing platforms would be designed to minimize maintenance utilizing durable and sustainable materials as much as possible to prevent degradation and the need for repeated maintenance. All features would need to be checked periodically for defacement of interpretive boards and other forms of vandalism. Alternatives Ravenswood C and D would also include trail grooming to keep them safe and accessible. There would be a need for trash removal along trails and more intensely at staging areas and trailheads.

Operations and maintenance of water levels in Ponds R3, R5, and S5 would differ across the three action alternatives, as described below.

Alternative Ravenswood B:

- The water levels in Ponds R5 and S5 would be actively managed year-round by opening and closing the water control structures as needed to maintain desired surface elevations, flows, and water quality. The salinity of these ponds would also be somewhat controlled through the use of the water control structures. USFWS Refuge staff would operate the water control structures and provide maintenance and cleaning as needed.

- The water levels of Pond R3 would be actively managed using one new water control structure to provide for the improvement of the existing western snowy plover habitat in Pond R3. USFWS Refuge staff would operate all of the water control structures and provide maintenance and cleaning as needed.

Alternative Ravenswood C:

- The water levels in Ponds R5 and S5 would be actively managed year-round by opening and closing the water control structures as needed to maintain desired surface elevations, flows, and water quality. Water surface elevation in Ponds R5 and S5 would be managed to receive regular damped or muted tidal flows and maintain the pond bottoms at an intertidal elevation to form mudflats for shorebirds. The salinity of these ponds would also be somewhat controlled through the use of the water control structures. In addition, water would be controlled to flow into Pond R4 as needed for flood control as an overflow stormwater detention pond from Ponds R5 and S5 or other management purposes.
- The water levels of Pond R3 would be actively managed using two new water control structures to provide for the improvement of the existing western snowy plover habitat in Pond R3. USFWS Refuge staff would operate all of the water control structures and provide maintenance and cleaning as needed.

Alternative Ravenswood D:

- The water levels in Ponds R5 and S5 would be actively managed year-round using the water control structures that would be installed as a part of meeting the habitat restoration goals of these ponds. Water surface elevation in Ponds R5 and S5 would be managed to create open water habitat for diving and dabbling ducks and other birds. Water levels would be maintained such that bottom depths are at subtidal elevations except during storm events. Prior to and during storm events when the tide in Flood Slough is high, the ponds would be drawn down to provide capacity for temporary detention of stormwater runoff from the City of Redwood City. Stormwater would enter into Pond S5 through new water control structures that would be installed to connect the Redwood City storm drain outflow to the forebay of Pond S5. This stormwater would then be discharged back into Flood Slough through a new water control structure between the pond and the slough when the tide is low and the slough can accept that volume of stormwater. The salinity of Ponds R5 and S5 would also be somewhat controlled through the use of the water control structures by receiving low salinity stormwater. Additionally, water would also be controlled to flow into Pond R4 as needed for flood control as an overflow stormwater detention pond from Ponds R5 and S5 or for salinity dilution or other management purposes.
- The water levels of Pond R3 would be actively managed using two new water control structures to provide for the improvement of the existing western snowy plover habitat in Pond R3. USFWS Refuge staff would operate the water control structures for habitat and water quality management purposes and provide maintenance and cleaning as needed.

Identification of the Phase 2 Preferred Alternative

This section identifies the Preferred Alternative, as it would be implemented at each of the four pond clusters evaluated for Phase 2 at the Refuge ponds. The federal and state lead agencies (the USFWS and the State Coastal Conservancy, respectively) along with the Project Management Team and other project

partners did not specify a Preferred Alternative in the Draft EIS/R for Phase 2. Instead, by waiting until this Final EIS/R to make that decision, they were able to incorporate input received from the public, regulatory agencies, and other stakeholders on the Draft EIS/R's alternatives and impact analyses to factor into the decision about the Preferred Alternative. Many of the comments on the Draft EIS/R contained statements supporting or opposing particular components of the alternatives in the document.

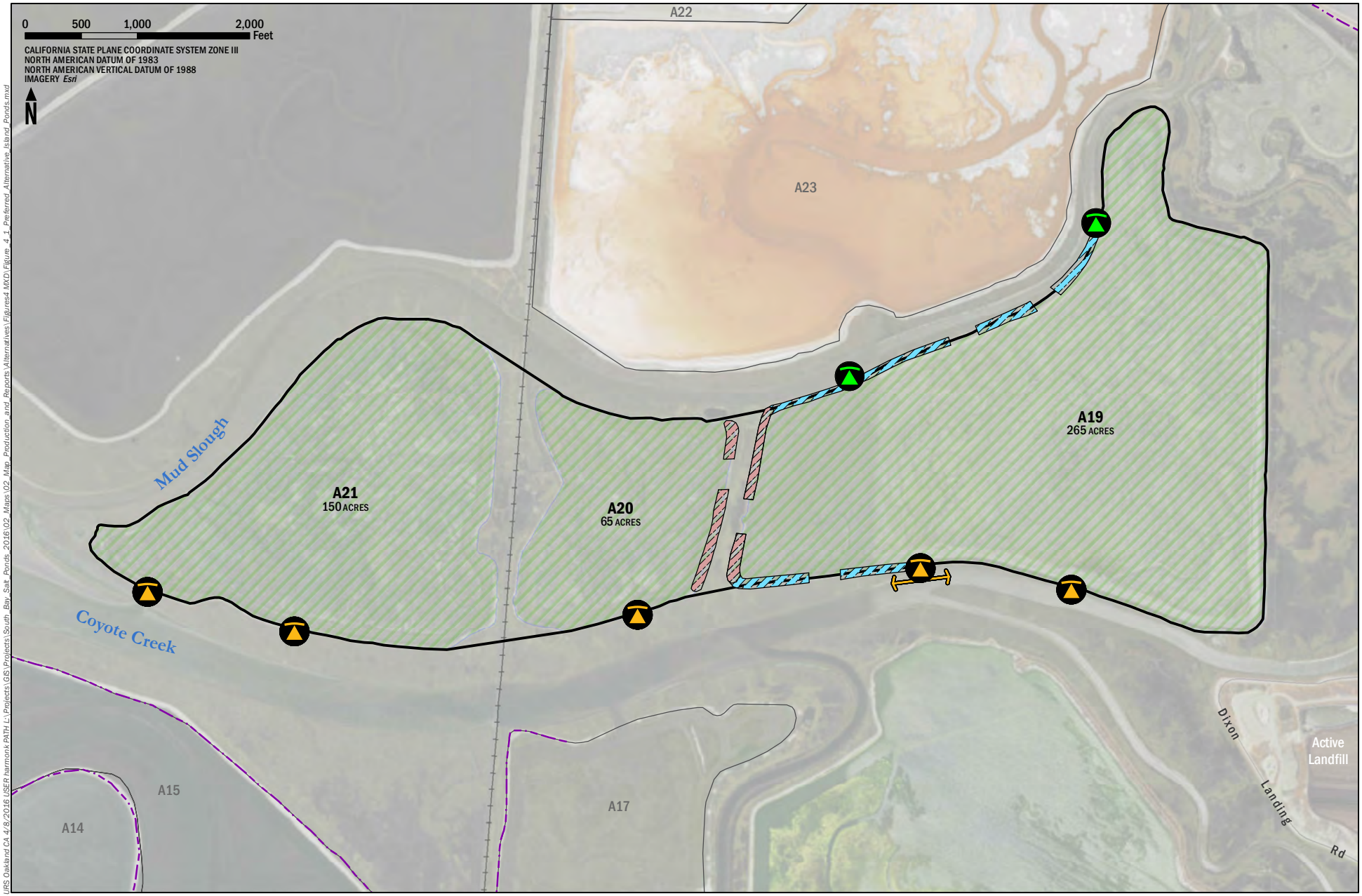
Those comments informed and shaped the selection of the Preferred Alternative from individual components from the various action and no-action alternatives presented in the Draft EIS/R, as well as minor adjustments and some recombination of them into a complete Preferred Alternative. Further, as was described in the 2007 EIS/R and other project planning documents, the SBSP Restoration Project's approach has been to take the lessons learned from each project phase and from the ongoing applied studies and other scientific research and monitoring and allow them to inform future phases and determine the ultimate outcome. These observations and results were also used to shape the selection of components to form the Preferred Alternative.

Finally, the selection of project components to include in the Phase 2 Preferred Alternative was shaped by a sense of how the SBSP Restoration Project's goals and objectives could be met while minimizing the environmental impacts associated with various parts of the project implementation. Many of these potential impacts resulted from the volumes of fill that would need to be imported and placed into the ponds. Although these impacts were found to be less than significant in the Draft EIS/R, the realization that the purpose and need of the project could be met while further reducing associated impacts drove the decision making process. Feasibility, constructability, and regulatory constraints were also carefully considered. The selection of the Preferred Alternative is further discussed by pond cluster in Chapter 6.

The Phase 2 Preferred Alternative provides a variety of restoration enhancements at all four pond clusters, as well as maintained or increased flood protection and additional public access and recreation features at two of the Phase 2 pond clusters. It would be implemented as follows:

- Island Ponds – Alternative Island B with the addition of one restoration component from Alternative Island C.
- Mountain View Ponds – Alternative Mountain View B with substitution of one habitat enhancement and the addition of one public access component drawn from Alternative Mountain View C. Additionally, one of the flood protection features presented in the two action alternatives would be modified.
- A8 Ponds – Alternative A8 B with a refinement to increase the top elevation of the proposed transition zones in order to provide greater erosion protection.
- Ravenswood Ponds – Alternative Ravenswood B with the addition of the habitat transition zone and trail on the eastern edge of Ponds R5 and S5, components incorporated from Alternatives Ravenswood C and D.

Figures ES-17 through ES-20 illustrate the Preferred Alternative as it would be implemented at each of the Phase 2 pond clusters. The pond cluster-specific components are discussed in detail in Chapter 6.



LEGEND

Proposed breach
Existing breach
Expand existing breach
Railroad
Existing trail
Removed levee
Lowered levee
Tidal marsh
Pond boundary

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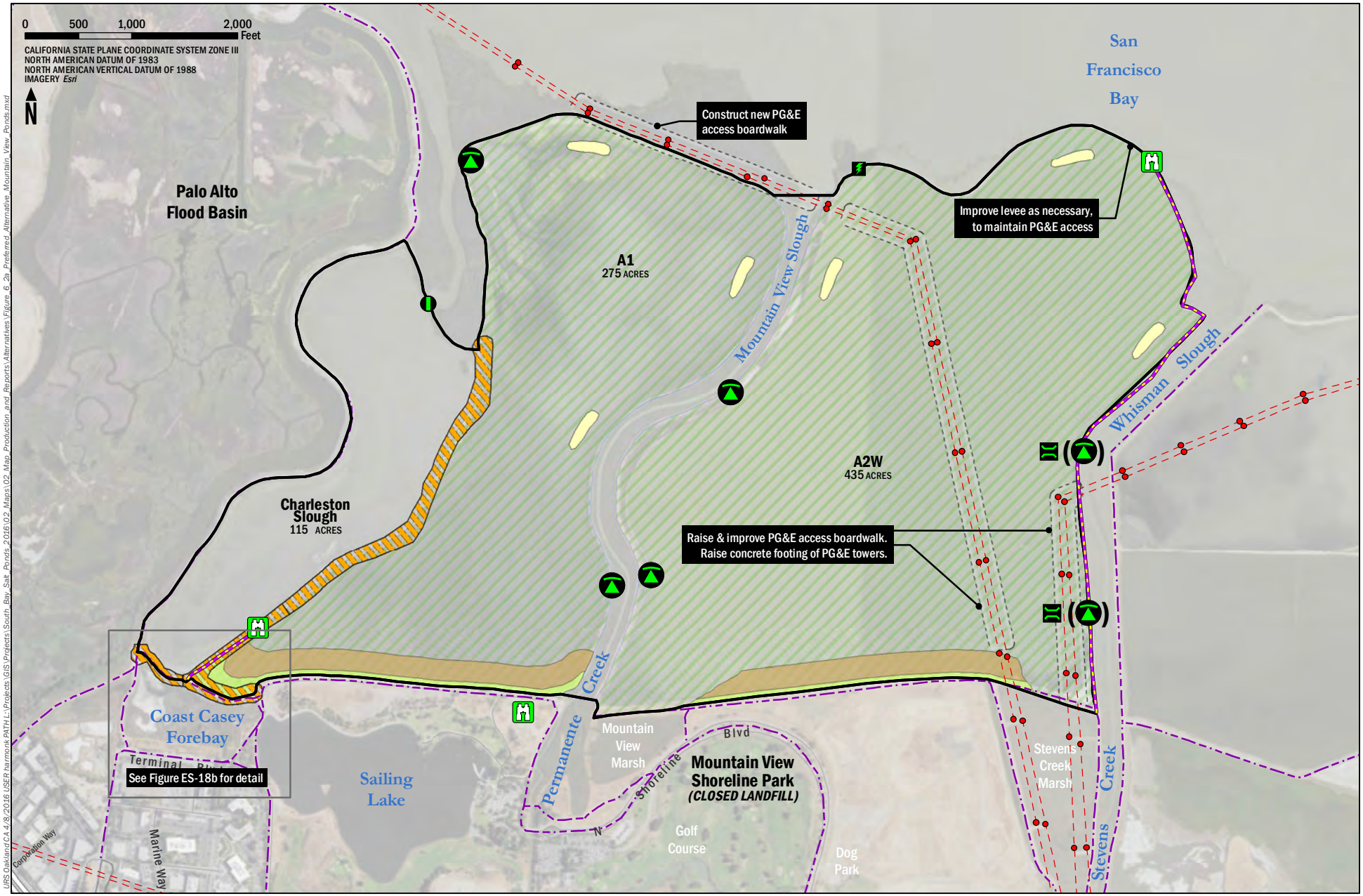
South Bay Salt Pond Restoration Project

Figure ES-17

Preferred Alternative Island Ponds



LEGEND

- Existing control gate
- Proposed breach
- Proposed armored breach (two sides)
- Bridge
- PG&E turnaround
- Viewing platform
- PG&E tower
- PG&E power line
- Phase 2 trail
- Existing trail
- Raised levee
- Habitat island
- Tidal marsh
- Pond boundary
- Pond boundary
- Transition Zone Habitat
- High marsh habitat
- Intertidal habitat

AECOM

South Bay Salt Pond Restoration Project

Figure ES-18a

Preferred Alternative Mountain View Ponds

LEGEND

Exsiting pipeline

Existing general feature

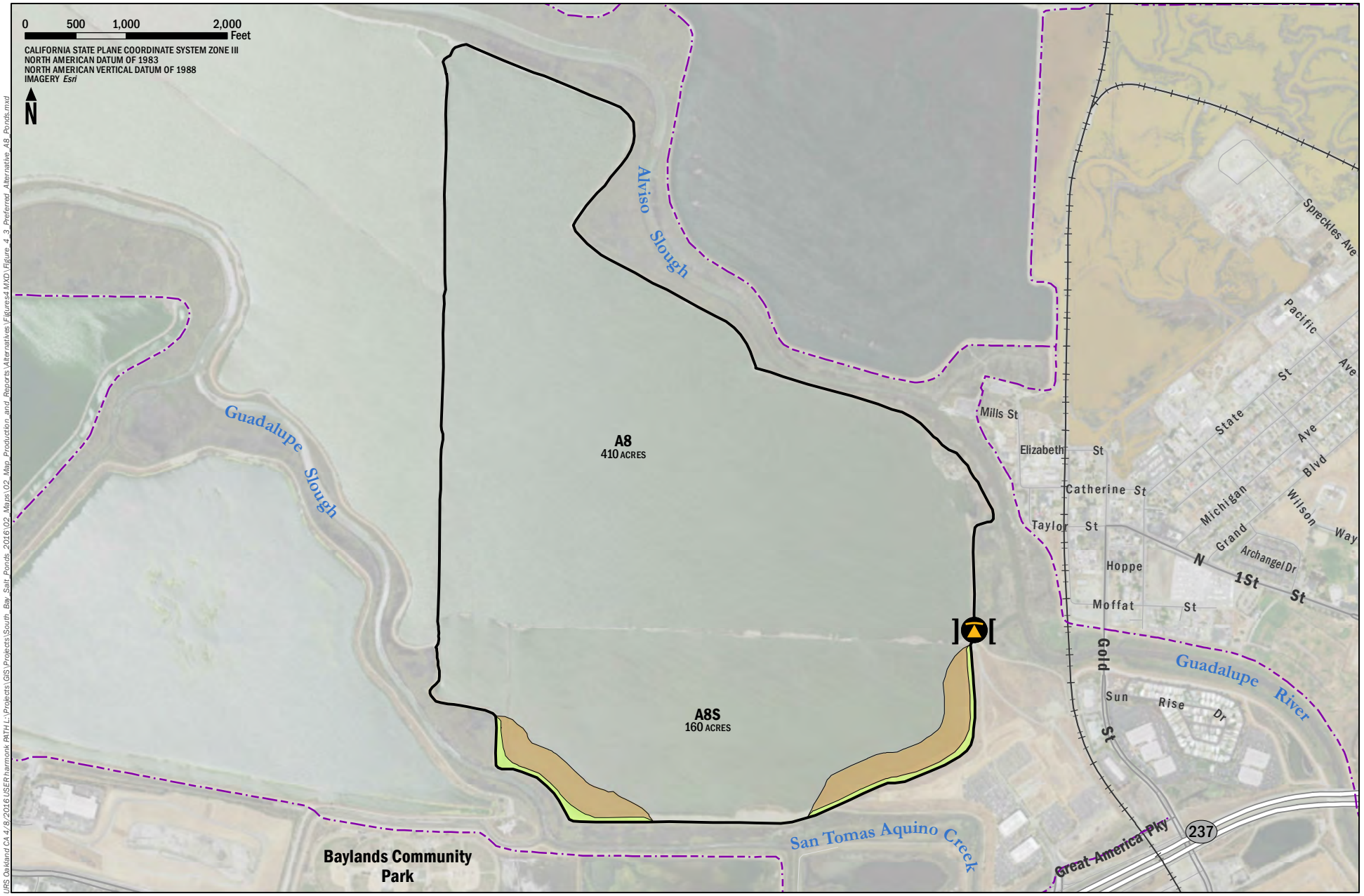
Extent of levee improvements

URS

South Bay Salt Pond Restoration Project

Figure ES-18b

Preferred Alternative Mountain View Ponds - Detail



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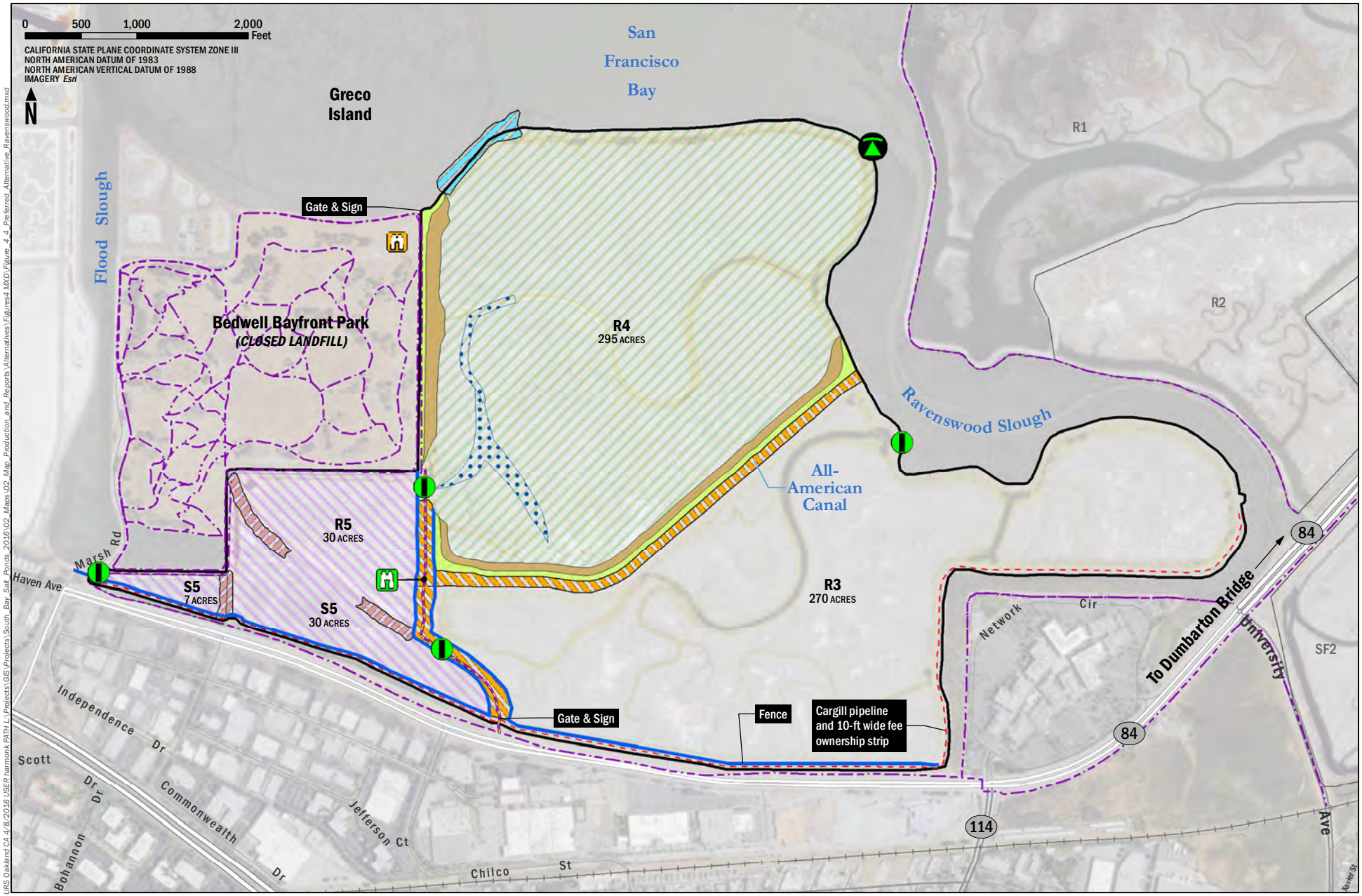
South Bay Salt Pond Restoration Project

Figure ES-19

Preferred Alternative A8 Ponds



LEGEND

- Proposed breach
- Proposed water control structure
- Viewing platform
- Existing viewing platform
- Railroad
- Existing trail
- Phase 2 trail
- Cargill pipeline
- Fence
- Lowered levee
- Improved levee
- Removed levee
- Pilot_channel
- Tidal marsh
- Managed pond
- Pond boundary
- Transition Zone Habitat
  - High marsh habitat
  - Intertidal habitat

*Pending property rights/easements

AECOM

South Bay Salt Pond Restoration Project

Figure ES-20

Preferred Alternative Ravenswood Ponds

The Preferred Alternative, including all elements and refinements planned at each pond cluster, is made up entirely of project components that were presented and analyzed in the Draft EIS/R [release date July 24, 2015]. The alternatives analysis is again included in Chapters 3 through 5 of this Final EIS/R. The combinations of project components that comprise the Preferred Alternative are somewhat different than those presented in the Draft EIS/R's action alternatives; however no new components, analyses, significant impacts, or mitigation measures are included in this Final EIS/R. In a few cases, minor clarifications and refinements were made to individual project components either in response to suggestions received in public and/or agency comments or as a result of guidance received from regulatory agencies. In others cases, project design has been improved and/or enhanced since the Draft EIS/R was initially circulated. These enhancements would improve the restoration and flood protection goals and/or increase the likelihood of successfully achieving the project goals. These changes do not increase, and in most cases decrease, the potential for significant environmental impacts. These clarifications or refinements are discussed in detail in Chapter 6, Preferred Alternative.

S.2 Purpose of the EIS/R

This EIS/R is intended to provide the public and responsible and trustee agencies with information about the potential environmental effects of the SBSP Restoration Phase 2 Project. It will be used by the lead agencies when considering approval of the SBSP Restoration Project.

The CEQ regulations for implementing NEPA (40 CFR 1502.1) state that

> "the primary purpose of an [EIS] is to serve as an action-forcing device to ensure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the federal government. An EIS shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."

CEQA Section 21002.1 states that the purpose of an EIR is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.

Both NEPA and CEQA encourage the preparation of combined environmental planning documents. This document is a joint EIS/R. As noted above, NEPA and CEQA have similar purposes and thus use generally similar concepts and terminologies. In some cases, different terms are used to convey the same meaning. This joint Final EIS/R primarily uses CEQA terminology; however, many NEPA terms are also used.

S.3 Role of Adaptive Management in the SBSP Restoration Project

The 2007 EIS/R acknowledged that significant uncertainties remain with the project because of its geographic and temporal scale. To address these uncertainties, the project was planned to be carefully implemented in phases, with learning from the results incorporated into management and planning decisions. This adaptive management approach is described in the AMP (Appendix D), which is a comprehensive plan and program to generate information (applied studies, monitoring, and research) that the Project Management Team (PMT) can use to make decisions about both current management of the project area and future restoration actions to meet project objectives and avoid harmful impacts to the environment.

Adaptive management is essential to keeping the project on track to meet its objectives, and adaptive management was the primary tool that the 2007 EIS/R identified for avoiding significant impacts to the environment. Without adaptive management (and its associated information collection), the PMT would not understand the restored system and would not be able to explain its management actions to the public. Furthermore, responses to unanticipated changes would be based on guesswork, which could exacerbate problems. For these reasons, adaptive management is integral to the project, and construction projects are expected to feature applied studies, as called for in the AMP, so that the PMT can learn from project implementation. Adaptive management continues to be a significant part of Phase 2.

Although the preferred alternative in the 2007 EIS/R was Programmatic Alternative C, which would restore up to 90 percent of the project's ponds to tidal wetlands in phases, the document also states that if that alternative is not possible without causing undesired environmental impacts, as detected through the AMP and other adaptive management monitoring and applied studies, then the project would stop converting ponds to tidal wetlands. The actual amount of tidal wetlands restored at the end of the 50-year project horizon could be less than 90 percent.

S.4 Summary of Impacts and Mitigation Measures

This section summarizes the impacts and the resulting significance determinations made for each of them, as well as any mitigation measures that were developed to reduce the amounts and types of adverse impacts from the various project alternatives. Note that the program-level mitigation measures developed for the SBSP Restoration Project as a whole were incorporated into the Phase 2 alternatives as part of the project itself. Thus, they are no longer mitigation measures, but simply part of the project designs. The full list of program-level mitigation measures is presented in Chapter 2 of the main text.

S.4.1 Impacts Resulting from Phase 2 Alternatives

Table ES-4 summarizes the results of the impacts analysis that makes up Chapter 3. For each action and no action alternative at each pond cluster, the table presents the significance determination for each enumerated impact within each environmental resource. The table also includes a column showing the significance determinations by impact for the Phase 2 Preferred Alternative, discussed in Chapter 6.

Potentially Significant Impacts

The impact analysis and significance determination conducted for this Final EIS/R and explained in full in Chapter 3 identified the potentially significant impacts listed below. These are those impacts that could not be reduced to a less-than-significant level, even after implementation of project-specific mitigation measures or because no appropriate project-level mitigation measures exist that would that have that effect. In these rare cases, these impacts are significant.

- Phase 2 Impact 3.6-1: Provision of new public access and recreation facilities, including the opening of new areas for recreational purposes and completion of the Bay Trail spine. One of the thresholds of significance for this impact included not providing "maximum feasible public access, consistent with the proposed project." While the Phase 2 actions would add a several new public access and recreation features at two pond clusters, others had to be removed from implementation under Phase 2 because of concerns over recreation-based impact on sensitive wildlife species. These impacts are Potentially Significant, however, because the question of "consistent with the proposed project" cannot be answered with certainty at this time. It is possible that these features could have been implemented without disturbing wildlife, in which

case the decision not to add them would have failed to achieve maximum feasible access. It is also possible that the decision was correct, and that those public access features would not have been consistent with the project goals of "wildlife-compatible recreation." Careful monitoring under the AMP would be used to measure wildlife responses to public access features and consider their addition in future project phases, if consistent with the project.

- Phase 2 Impact 3.6-5: Result in the temporary construction-related closure of adjacent public parks or other recreation facilities, making such facilities unavailable for public use. These impacts are Significant and Unavoidable at the Alviso-Mountain View Ponds and at the Ravenswood Ponds, where existing parking areas, park access, and some trails would necessarily be temporarily closed during portions of the construction work. This is a matter of public safety in combination with the need to bring materials and equipment through existing city parks to reach the project ponds themselves.

Phase 2 Mitigation Measures Identified in the EIS/R

There is only one project-level mitigation measures developed for the Phase 2 alternatives. It is described in Section 3.11, Traffic, and it is called Phase 2 Mitigation Measure 3.11-1: Modify Signal Timing. That mitigation measure says that the landowner (USFWS) shall coordinate with Caltrans and/or the City of Menlo Park to modify the intersection signal timing in the a.m. to reduce project-related delay to a level that the City does not deem significant.

Cumulative Impacts

Chapter 4 of this Final EIS/R also evaluated the potential environmental impacts of the proposed project when considered together with other projects. The analysis addressed impacts that could occur as a result of project construction and operation, based on the significance criteria provided for each resource discussion in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures.

The analysis of cumulative impacts followed a multi-step approach. First, an evaluation was made as to whether a significant cumulative impact existed within each relevant study area for the impact under consideration. This evaluation was made by reviewing the conclusions of the No Action Alternative in the "Cumulative Impacts" section of the 2007 EIS/R. Then those conclusions were re-examined based on an updated list of relevant cumulative impact projects. Next, the Phase 2 project impacts were evaluated as to whether they, in combination with impacts from the other projects, would create a new significant cumulative impact. If so, then a potentially significant impact was found, and mitigation measures from Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, were identified and recommended to reduce this impact to a less-than-significant level. In cases where a significant cumulative impact already existed, even without the SBSP Restoration Project, the Phase 2 project's impacts were examined to determine if they would make a considerable contribution to that impact. If it was determined that the Phase 2 project impacts would not make a considerable contribution to a significant cumulative impact, the impacts were determined to be less than significant.

If a Phase 2 project impact were to have a considerable contribution to a cumulative impact, then mitigation from the project impact analysis in Chapter 3 would be recommended to reduce the project's contribution to cumulative impacts to a level that is less than considerable. However, no considerable contributions to a cumulative impact were found.

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
3.2 Hydrology, Flood Management, and Infrastructure													
Phase 2 Impact 3.2-1: Increased risk of flooding that could cause injury, death, or substantial property loss**.**	LTS	LTS	LTS	LTS	LTS	LTS/B	LTS	LTS	LTS	LTS	LTS	LTS/B	LTS
Phase 2 Impact 3.2-2: Alter existing drainage patterns in a manner which would result in substantial erosion or siltation on- or off-site.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.2-3: Create a safety hazard for people boating in the project area.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.2-4: Potential effects from tsunami and/or seiche.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.3 Water Quality and Sediment													
Phase 2 Impact 3.3-1: Degradation of water quality due to changes in algal abundance or composition.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.3-2: Degradation of water quality due to low dissolved oxygen levels.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.3-3: Degradation of water quality due to increased methylmercury production or mobilization of mercury-contaminated sediments.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.3-4: Potential impacts to water quality from other contaminants.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.3-5: Potential to cause seawater intrusion of regional groundwater sources.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.4 Geology, Soils, and Seismicity													
Phase 2 Impact 3.4-1: Potential effects from settlement due to consolidation of Bay mud.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.4-2: Potential effects from liquefaction of soils and lateral spreading.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.4-3: Potential for ground and levee failure from fault rupture.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.4-4: Potential effects from consolidation of Bay mud on existing subsurface utility crossings and surface rail crossings.	LTS	LTS	LTS	NI	NI	NI	NI	LTS	NI	NI	NI	LTS	LTS
3.5 Biological Resources													
Phase 2 Impact 3.5-1: Potential reduction in numbers of small shorebirds using San Francisco Bay, resulting in substantial declines in flyway-level populations.	LTS	LTS	LTS	NI	LTS/B	LTS	NI	LTS/B	NI	LTS	LTS/B	LTS	LTS
Phase 2 Impact 3.5-2: Loss of intertidal mudflats and reduction of habitat for mudflat-associated wildlife species.	LTS	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS/B	LTS	LTS
Phase 2 Impact 3.5-3: Potential habitat conversion impacts to western snowy plovers.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-4: Potential reduction in the numbers of breeding, pond-associated waterbirds (avocets, stilts, and terns) using the South Bay due to reduction in habitat, concentration effects, displacement by nesting California gulls, and other Project-related effects.	LTS	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS
Phase 2 Impact 3.5-5: Potential reduction in the numbers of non-breeding, salt-pond-associated birds (e.g., phalaropes, eared grebes, and Bonaparte's gulls) as a result of habitat loss.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-6: Potential reduction in foraging habitat for diving ducks, resulting in declines in flyway-level populations.	LTS	LTS	LTS	NI	LTS	LTS	LTS	LTS	NI	LTS/B	LTS	LTS/B	LTS
Phase 2 Impact 3.5-7: Potential reduction in foraging habitat for ruddy ducks, resulting in declines in flyway-level populations.	LTS	LTS	LTS	NI	LTS	LTS	LTS	LTS	NI	LTS/B	LTS	LTS/B	LTS
Phase 2 Impact 3.5-8: Potential habitat conversion impacts on California least terns.	NI	NI	NI	NI	LTS	LTS	LTS	LTS	NI	LTS/B	LTS/B	LTS/B	LTS

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.5-9: Potential loss of pickleweed-dominated tidal salt marsh habitat for the salt marsh harvest mouse and salt marsh wandering shrew, and further isolation of these species' populations due to breaching activities and scour.	LTS/B	LTS/ B	LTS/ B	NI	LTS/B	LTS/B	NI	LTS/B	NI	LTS/B	LTS/B	LTS/B	LTS/B
Phase 2 Impact 3.5-10: Potential construction-related loss of or disturbance to special-status, marsh-associated wildlife.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-11: Potential construction-related loss of or disturbance to nesting pond associated birds.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-12: Potential disturbance to or loss of sensitive wildlife species due to ongoing monitoring, maintenance, and management activities.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-13: Potential effects of habitat conversion and pond management on steelhead.	LTS/B	LTS/ B	LTS/ B	NI	LTS/B	LTS	NI	LTS	NI	NI	NI	NI	LTS/B
Phase 2 Impact 3.5-14: Potential impacts to estuarine fish.	LTS/B	LTS/ B	LTS/ B	NI	LTS/B	LTS	NI	NI	NI	LTS/B	LTS	LTS/B	LTS/B
Phase 2 Impact 3.5-15: Potential impacts to piscivorous birds.	LTS/B	LTS/ B	LTS/ B	NI	LTS	LTS	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS/B
Phase 2 Impact 3.5-16: Potential impacts to dabbling ducks.	LTS/B	LTS/ B	LTS/ B	NI	LTS	LTS	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS
Phase 2 Impact 3.5-17: Potential impacts to harbor seals.	LTS/B	LTS/ B	LTS/ B	NI	LTS/B	LTS/B	NI	NI	NI	NI	NI	NI	LTS/B
Phase 2 Impact 3.5-18: Potential recreation-oriented impacts to sensitive species and their habitats.	LTS	LTS	LTS	NI	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-19: Potential impacts to special-status plants.	NI	LTS	LTS	NI	NI	NI	NI	NI	NI	NI	NI	NI	LTS

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.5-20: Colonization of mudflats and marsh plain by non-native *Spartina* and its hybrids.	LTS	LTS	LTS	LTS	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-21: Colonization by non-native *Lepidium*.	LTS	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-22: Increase in exposure of wildlife to avian botulism and other diseases.	NI	NI	NI	NI	NI	NI	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.5-23: Potential impacts to bay shrimp populations.	LTS/B	LTS/ B	LTS/ B	NI	LTS/B	LTS/B	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS
Phase 2 Impact 3.5-24: Potential impacts to jurisdictional wetlands or waters.	LTS	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS
Phase 2 Impact 3.5-25: Potential construction-related loss of, or disturbance to, nesting raptors (including burrowing owls).	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
3.6 Recreation Resources													
Phase 2 Impact 3.6-1: Provision of new public access and recreation facilities, including the opening of new areas for recreational purposes and completion of the Bay Trail spine.	NI	LTS	LTS	PS	PS	LTS/B	NI	NI	PS	PS	LTS/B	LTS/B	PS
Phase 2 Impact 3.6-2: Permanent removal of existing recreational features (trails) in locations that visitors have been accustomed to using and that would not be replaced in the general vicinity of the removed feature.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Phase 2 Impact 3.6-3: Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	NI	LTS	LTS	LTS

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.6-4: Result in substantial adverse physical impacts associated with the provision of new or physically altered park and recreational facilities, or result in the need for new or physically altered park and recreational facilities, the construction of which could cause significant environmental impacts.	NI	NI	NI	NI	LTS/B	LTS/B	NI	NI	NI	LTS	LTS/B	LTS/B	LTS/B
Phase 2 Impact 3.6-5: Result in the temporary construction-related closure of adjacent public parks or other recreation facilities, making such facilities unavailable for public use.	NI	NI	NI	NI	SU	SU	NI	NI	NI	SU	SU	SU	SU
3.7 Cultural Resources													
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	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	LTS
3.8 Land Use and Planning													
Phase 2 Impact 3.8-1: Land use compatibility impacts.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.9 Public Health and Vector Management													
Phase 2 Impact 3.9-1: Potential increase in mosquito populations.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.10 Socioeconomics and Environmental Justice													
Phase 2 Impact 3.10-1: Displace, relocate, or increase area businesses, particularly those associated with the expected increase in recreational users.	NI	LTS/B	LTS/B	NI	LTS/B	LTS/B	NI	LTS/B	NI	LTS/B	LTS/B	LTS/B	LTS/B
Phase 2 Impact 3.10-2: Change lifestyles and social interactions.	NI	LTS/B	LTS/B	NI	LTS/B	LTS/B	NI	LTS/B	NI	LTS/B	LTS/B	LTS/B	LTS/B

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.10-3: Effects disproportionately placed on densely populated minority and low-income communities or effects or racial composition in a community.	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE	NDE
3.11 Traffic													
Phase 2 Impact 3.11-1: Potential short-term degradation of traffic operations at intersections and streets due to construction.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTSM	LTSM	LTSM	LTS
Phase 2 Impact 3.11-2: Potential long-term degradation of traffic operations at intersections and streets during operation.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.11-3: Potential increase in parking demand.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.11-4: Potential increase in wear and tear on the designated haul routes during construction.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
3.12 Noise													
Phase 2 Impact 3.12-1: Short-term construction noise effects.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.12-2: Traffic-related noise impacts during construction.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.12-3: Traffic-related noise effects during operation.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.12-4: Potential operational noise effects from O&M activities.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.12-5: Potential vibration effects during construction and/or operation.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.13 Air Quality													
Phase 2 Impact 3.13-1: Short-term construction-generated air pollutant emissions.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.13-2: Potential long-term operational air pollutant emissions.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
Phase 2 Impact 3.13-3: Potential exposure of sensitive receptors to TAC emissions.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.13-4: Potential odor emissions.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
3.14 Public Services													
Phase 2 Impact 3.14-1: Increased demand for fire and police protection services.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
3.15 Utilities													
Phase 2 Impact 3.15-1: Reduced ability to access PG&E towers, stations or electrical transmission lines.	NI	NI	NI	LTS	LTS	LTS	NI	NI	NI	NI	NI	NI	LTS
Phase 2 Impact 3.15-2: Reduced clearance between waterways and PG&E electrical transmission lines.	NI	NI	NI	NI	LTS	LTS	NI	NI	NI	NI	NI	NI	LTS
Phase 2 Impact 3.15-3: Reduced structural integrity of PG&E towers.	NI	NI	NI	LTS	LTS	LTS	NI	NI	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.15-4: Changes in water level, tidal flow and sedimentation near storm drain systems.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.15-5: Changes in water level, tidal flow and sedimentation near pumping facilities.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.15-6: Changes in water level, tidal flow and sedimentation near sewer force mains and outfalls.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Phase 2 Impact 3.15-7: Disrupt Hetch Hetchy Aqueduct service so as to create a public health hazard or extended service disruption.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Phase 2 Impact 3.15-8: Disruption of rail service due to construction of coastal flood levees and tidal habitat restoration.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Phase 2 Impact 3.15-9: Reduced access to sewer force mains due to levee construction.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI

Table ES-4. SBSP Restoration Project Phase 2 EIS/R Summary Impact Table

IMPACT	ALTERNATIVES												
	ISLAND			MOUNTAIN VIEW			A8		RAVENSWOOD				PREF ALT
	A	B	C	A	B	C	A	B	A	B	C	D	
3.16 Visual Resources													
Phase 2 Impact 3.16-1: Alter views of the SBSP Restoration Project Area.	LTS	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS/B	LTS/B	LTS/B	LTS
3.17 Greenhouse Gas Emissions													
Phase 2 Impact 3.17-1: Construction-generated GHG emissions.	NI	LTS	LTS	NI	LTS	LTS	NI	LTS	NI	LTS	LTS	LTS	LTS
Phase 2 Impact 3.17-2: Operational GHG emissions.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Phase 2 Impact 3.17-3: Conflicts with applicable GHG emissions reduction plan, policy, or regulation.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Notes:

Alternative A at each pond cluster is the No Action/No Project Alternative.

B = Beneficial; LTS = Less Than Significant; LTSM = Less Than Significant With Mitigation; NDE = No Disproportionate Effect; NI = No Impact; PS = Potentially Significant; SU = Significant and Unavoidable

The levels of significance for the impacts listed above assume that the program-level mitigation measures from the 2007 EIS/R and the elements of the Adaptive Management Plan are integral components of the Phase 2 project alternatives, and that management responses would be implemented based on ongoing monitoring and applied studies.

S.5 Environmentally Preferred Alternative

The Environmentally Preferred Alternative is defined by the Council on Environmental Quality as the alternative that best meets the criteria of Section 101(b) of NEPA (42 United States Code [USC] 4331)[1]. The environmentally preferred alternative is a NEPA term for the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment, but it also means the alternative that best protects, preserves, and enhances historical, cultural, and natural resources. The SBSP Restoration Project would provide benefits such as increased and improved tidal marshes and other habitats, additional public access and recreation opportunities, reduced risk of unplanned levee failure, and added potential for carbon sequestration. None of these benefits would be realized under the No Action Alternative.

Informed in part by the public and agency comment on the Draft EIS/R as well as ongoing monitoring and research from the AMP, the USFWS has made a preliminary identification of the Environmentally Preferred Alternative. The Phase 2 Preferred Alternative is also the Environmentally Preferred Alternative. This alternative is summarized at the end of Section S.1 above and presented in full in Chapter 6 of this Final EIS/R. As required by the regulations implementing NEPA, the USFWS will formally identify the Environmentally Preferred Alternative in its Record of Decision for Phase 2 of the project.

S.6 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 addresses the selection of the Environmentally Superior Alternative among the alternatives proposed. That section states that, if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify and environmentally superior alternative among the other alternatives. However, as noted above, and explained in this Final EIS/R, the environmentally superior alternative is not the No Project Alternative. The SBSP Restoration Project's Phase 2 action alternatives would bring numerous benefits, none of which would be realized under the No Project Alternative.

Under the various action alternatives considered, the only potentially significant and unavoidable impacts remaining pertain to recreation and public access resources. In one of these impacts, there would be temporary closures of recreation and public access facilities during construction. In the other, the addition of less than the maximum feasible number of public access and recreation features crosses a threshold of significance established for the 2007 EIS/R. Yet even in that instance, there is still an increase in the number of public access and recreation features, but less than the maximum possible addition. These

[1] The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA (Sec. 101 (b)), as follows:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

significant and unavoidable impacts would be realized under any of the action alternatives, and one of them (failure to provide maximum possible new public access features) would be realized and of greater magnitude even under the No Action Alternative. All other potential impacts were either non-existent or less than significant. Therefore, CEQA does not require identification of an environmentally superior alternative.

Nevertheless, informed in part by the public and agency comments received on the Draft EIS/R as well as ongoing monitoring from the AMP, the SCC has made a preliminary identification of the Environmentally Superior Alternative. The Phase 2 Preferred Alternative is also the Environmentally Superior Alternative. This alternative is summarized at the end of Section S.1 above and presented in full in Chapter 6 of this Final EIS/R. Implementing the Preferred Alternative would most effectively and efficiently meet the project goals while minimizing impacts on the natural environment, the built environment, and human communities, and also comply with environmental regulatory requirements.

S.7 Areas of Controversy

CEQ Regulations for Implementing NEPA (40 CFR 1502.12) and Section 15123 of the CEQA Guidelines require that an EIS/R identify areas of controversy. In the 2007 EIS/R, the following issues were identified as being of the greatest concern:

- Potential effects on mercury bioaccumulation in the South Bay;
- Trade-offs between habitat restoration and public access/recreation opportunities;
- Trade-offs between tidal and managed pond species;
- The need to first provide flood protection in order to undertake tidal restoration in many areas;
- Availability of funding for implementation of the AMP (monitoring); and
- The potential entrainment of salmonids and estuarine fish in managed ponds, including tidally muted Pond A8.

Many of these areas were addressed by the ongoing monitoring and research projects conducted under the direction of the SBSP Restoration Project's Science Program. The early results of those monitoring and research questions were used to develop, refine, and analyze the Phase 2 actions. For example, Section 3.5 discusses the current operations of Pond A8 and a study that is being conducted to track migrating salmonids and asses how many become entrained in the A8 Ponds. More broadly, the recognition of the need to balance restoration and recreation was a part of shaping the range of alternatives at the Mountain View Ponds and the Ravenswood Ponds, as was a similar balancing of trade-offs between tidal marsh and managed pond species.

The SBSP Restoration Project's lead agencies, PMT, and other stakeholders use the AMP, results from the Science Program, and other established systems to incorporate new insights and observations into ongoing management actions and into the decisions about how and where to implement future restoration actions. In doing so, these entities seek to resolve these Areas of Controversy and address new ones as they develop.

As expected, the comments received during the public review period for the Draft EIS/R did identify potential areas of controversy. All comments received from SBSP Restoration Project stakeholders were

tracked, considered, addressed, and responded to in Appendix R As intended, the process of responding to these comments helped focus the project's selection of a Preferred Alternative as well as adding detail to its designs and plans. Updates to the list of areas of controversy are as follows:

- Potential effects on mercury bioaccumulation in the South Bay are being tracked and addressed by the SBSP Restoration Project's Science Team and other researchers. Progress is being made in understanding the effects of project activities on mercury in water, sediments, fish, and birds. Though the issues about mercury are not completely solved, there is a growing opinion that restoration activities can proceed with caution without triggering long-term detrimental effects on water quality, biological resources, or sediment. This topic continues to be studied and tracked to inform ongoing management of Refuge ponds as to guide potential future restoration actions there.

- Trade-offs between habitat restoration and public access/recreation opportunities remains an important and challenging issue to balance. The Phase 2 Preferred Alternative includes several new public access and recreation features at the Ravenswood Ponds and at the Alviso-Mountain View Ponds, but some other considered features were removed from Phase 2 because of concerns about disruption to wildlife species. As always, the AMP will be used to study the effects of the existing and newly implemented public access features on wildlife and adjust management as needed, as well as to inform future project phase decisions about whether and how to add more access features.

- Trade-offs between tidal and managed pond species were explicitly included in the programmatic portion of the 2007 EIS/R, which set out the two program-level action alternatives: the 90%/10% mix of tidal marsh and managed ponds and the 50%/50% mix of those habitat types. The long-term program-level endpoint is expected to be somewhere between these "restoration bookends." Though many commenters expressed concern that pond-dependent species would be adversely affected by Phase 2's planned tidal marsh restoration actions, the work done by the Science Team and the analysis in this EIS/R indicate that bay-wide conversion of ponds to tidal marsh has not yet crossed a threshold of a significant adverse impact. Further, the full implementation of Phase 2 actions at the Don Edwards National Wildlife Refuge and the Eden Landing Ecological Reserve would bring the total area of tidal marsh restoration to just under 50% of the total project area. This topic will remain an item that needs careful balancing as future project phases and other restoration projects in the South Bay proceed.

- Provision of flood protection as a prerequisite for tidal restoration in many areas continues to be provided in project designs and planning.

- Availability of funding for implementation of the AMP (and other forms of monitoring) remains an issue that the SBSP Restoration Project's managers work hard to address.

- The potential entrainment of salmonids and estuarine fish in managed ponds, including tidally muted Pond A8 is still a question. The risk and magnitude of this effect will continue to be tracked and evaluated through implementation of the AMP.

In addition, two new areas of controversy were identified based on comments received on the Draft EIS/R.

- The question of whether to include tidal marsh restoration in Charleston Slough as part of the Phase 2 (instead of as a separate project to be undertaken by the city) was the most commented-upon aspect of the Draft EIS/R. That inclusion was initially considered because such a joint effort would reduce the financial cost, the temporary environmental impacts associated with construction, and the permanent environmental impacts of having a flood levee between two restoring marshes. It would also increase the ecological function and habitat connectivity of the two restored marshes. However, a number of regulatory agencies expressed concern about the potential effects on steelhead and other estuarine fish under Alternative Mountain View C. The increased connectivity between Stevens Creek, Pond A1 and Pond A2W were planned to provide additional nursery habitat for outmigrating steelhead and good general use habitat for other estuarine fish. However, the relocation of the water intake for the Shoreline Park sailing lake into the breach at the southwest corner of Pond A1 has potential to entrain some of these fish. Other configurations of the restoration components were considered to reduce or remove the risk to fish posed by the pump intake, but the SBSP Restoration Project eventually concluded that without a fish screen in place at the new water intake location, the effects could rise to the level of a significant impact and "take" of a species listed under the Endangered Species Act. A fish screen is likely to be a required part of this project component. However, the limited area available for the water intake would be inadequate to accommodate the enlarged size of the new intake and screen necessary to provide adequate flows to the sailing lake. That technical and logistical infeasibility combined with the very high initial capital cost and ongoing operations and maintenance costs have made it impracticable to include the fish screen for the water intake at this new location in the breach of the levee between Pond A1 and Charleston Slough. Without the water intake at the breach location, the City of Mountain View has concerns about meeting the demand for water intake for the Shoreline Park sailing lake in the case where the Mountain View Ponds were connected to Charleston Slough itself. Therefore, the Preferred Alternative does not include Charleston Slough.

- Similarly, the possible inclusion of the City of Redwood City's Bayfront Canal and Atherton Channel (BCAC) Project was a controversial area. There were several reasons for initially considering the BCAC Project. Most importantly, the close physical proximity of Ponds R5 and S5 to a substantial stormwater outflow provided a unique opportunity to achieve several important benefits at once. The residual salinity in the seasonally dry bottoms of these former ponds would have been reduced by the periodic introduction of freshwater runoff. Since brackish areas were a plentiful and natural part of the pre-development Bay re-establishing this type of habitat would have re-created some of the Bay's historic habitat diversity to the project. In addition, this element of the SBSP Restoration Project would have reduced an existing flood control problem in portions of Redwood City, Atherton, Menlo Park, and unincorporated San Mateo County. During periods of high stormwater runoff when Flood Slough is also at high tide, there is nowhere for the water to go. The temporary diversion into these ponds would not have completely eliminated this problem (because the storage capacity of the ponds is limited), but it would have reduced its frequency and severity. However, the BCAC Project is not included in the Phase 2 Preferred Alternative because a water quality monitoring and control plan for that project was not developed and approved by the San Francisco Bay Regional Water Quality Control Board and the Environmental Protection Agency in time for it to be incorporated in the ongoing

project development steps. A water quality monitoring and control plan is necessary to ensure that the water diverted into the ponds would not have undesirable impacts to the pond environment. Without the information provided by this plan, the SBSP Restoration Project cannot fully analyze the impacts of the BCAC Project and, therefore, it is not being considered for inclusion in the Preferred Alternative at Ravenswood. However, since the SBSP Restoration Project anticipates no changes to design or construction of the Ravenswood Ponds would be necessary to accommodate the BCAC Project in the future, nothing in this Phase 2 decision precludes future inclusion of the BCAC Project, as long as water quality standards are met and sufficient environmental impacts analysis and disclosure are undertaken under NEPA and CEQA.

S.8 Issues to be Resolved

CEQ Regulations for Implementing NEPA (40 CFR 1502.12) and Section 15123 of the CEQA Guidelines require that an EIS/R identify Issues to be Resolved. The SBSP Restoration Project's adaptive management approach is intended to address uncertainties regarding the restoration. Consequently, the AMP identifies applied studies that are intended to resolve key uncertainties and to provide a better understanding of how restoration actions affect environmental resources. The results of these studies and ongoing monitoring would allow for more effective achievement of restoration objectives in successive phases of Project implementation, and avoidance of potentially adverse environmental impacts.

The AMP proposes applied studies to resolve the following key uncertainties:

- Is there sufficient sediment available in the South Bay to support marsh development without causing unacceptable impacts to existing intertidal habitats?
- Can the existing number and diversity of migratory and breeding shorebirds and waterfowl be supported in a changing (reduced salt pond) habitat area?
- Can restoration actions be configured to maximize benefits to non-avian species both onsite and in adjacent waterways?
- Will mercury be mobilized into the food web of the South Bay and beyond at a greater rate than prior to restoration?
- Can invasive and nuisance species such as *Spartina alterniflora* (or the invasive Spartina hybrid), corvids and the California gull be controlled? If not, how can the impacts of these species be reduced in future phases of the Project?
- Will restoration adversely affect water quality and productivity (food web dynamics)?
- Will trails and other public access features/activities have significant negative effects on wildlife species?
- How will the SBSP Restoration Project gain support from the public now and into the future, including support for continued funding of restoration and management?

During the design and implementation of Phase 1 projects, some of these questions concerning the effectiveness and cost/benefit trade-offs of particular restoration design elements or management approaches were addressed through examination of specific restoration techniques. The results of those Phase 1 projects informed the choices of ponds to include in Phase 2 and the conceptual designs of the

restoration alternatives. Similarly, updated results of those studies and implemented project actions have helped guide the selection of the Phase 2 Preferred Alternative.

As with the discussion above concerning the areas of controversy, the public comment period for the Draft EIS/R focused attention on several specific issues, some that are moving toward a clear answer and others that will continue to need additional study to be fully resolved. The comments and input received from the general public, regulatory agencies, and other stakeholders, including nearby cities and counties, special districts, businesses, and other interests were used to develop and address the list of issues that are included in this Final EIS/R.

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