SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
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September 26, 2008

TO: Commissioners and Alternates

FROM: Will Travis, Executive Director (415/352-3653 travis@bcdc.ca.gov)
Max Delaney, Coastal Program Analyst (415/352-3668 maxd@bcdc.ca.gov)

SUBJECT: **Staff Recommendation on U.S. Fish and Wildlife Service's Material Amendment No. Five to Consistency Determination No. CN 10-03 for the South Bay Salt Ponds Restoration Project**
(For Commission consideration on October 2, 2008)

Summary and Recommendations

The staff recommends conditional concurrence with the U.S. Fish and Wildlife Service's (USFWS's) consistency determination for Phase One of the South Bay Salt Ponds Restoration Project (SBSPRP). Phase One builds on the Initial Stewardship Plan (ISP), which resulted in the circulation of Bay waters through reconfigured pond systems and the continuous release of pond waters into the Bay, as well as the management of a limited number of ponds as seasonal habitat, the restoration of a limited number of ponds to muted or full tidal influence, and the management of several ponds in the Alviso and Ravenswood (formerly known as West Bay) systems as higher salinity batch ponds (ponds where water will be introduced into a pond and allowed to evaporate to achieve varying salinities within a pond). The activities associated with Phase One include restoring additional ponds to tidal habitat, reconfiguring some salt ponds (changing the interior shape and internal configuration of ponds), installing recreation/public access facilities, and conducting on-going operations and maintenance of existing site features, such as levees and water management structures, including tide gates and siphons. The habitats to be restored include salt and brackish marsh, mudflats, subtidal flats and channels, marsh transitional habitat, salt pannes and ponds, and sloughs. Managed ponds will be designed and operated to allow multiple options for pond reconfiguration and water regime

management to vary pond depths and salinities to allow creation of vegetated ponds, salt flats, shallow ponded areas, and deep-water ponds.

Phase One will include Ponds A6, A8 (and A5 and A7 since they are connected hydraulically), A16, and SF2, thereby restoring approximately 330 acres of tidal habitat, creating 1,400 acres of reversible muted tidal marsh, and reconfiguring 479 acres of managed ponds (see Tables 1 and 2).

Table 1. Acreage To Be Converted and Habitat Types Planned for Phase One (in acres)

Pond Complex	Pond	Planned Habitat Type	New Acreage	Anticipated Completion Date	Total Area
Alviso	Pond A6	Tidal	330	2010	1,972
	Pond A8	Reversible Muted Tidal	1,400	2009	
	Pond A16	Reconfigured Managed Ponds	242	2011-2012	
Ravenswood	Pond SF2	Reconfigured Managed Ponds	237	2010	237
Total Area					**2,209**

Table 2. Approximate Existing Habitat and Habitat Areas Resulting from Phase One Conversion and Restoration Activities (in acres)

Habitat Type	Pond Complex	Existing Habitat Area	Habitat Area (after Phase One and Initial Facilities)
Salt Ponds	Alviso	7,360	5,388
	Ravenswood	1,440	1,203
		Net Change:	**-2209**
Tidal Marsh Habitat	Alviso	1,230	1,560
	Ravenswood	50	50
		Net Change:	**331**
Reversible Muted Tidal Habitat	Alviso	0	1,400
	Ravenswood	0	0
		Net Change:	**1400**
Reconfigured Managed Ponds	Alviso	0	242
	Ravenswood	0	237
		Net Change:	**479**
Total Project Area		**10,080**	**10,080**

Table 3. Approximate Area and Length of Public Access To Be Upgraded and/or Constructed for Phase One.

Public Access Type	Ravenswood Complex		Alviso Complex		Moffett Bay Trail Segment		TOTAL (Square Feet)
	Miles	Square Feet	Miles	Square Feet	Miles	Square Feet	
Existing Trails to be Upgraded	0.70	39,600	0.75	59,400	0	0	**99,001**
New Trails to be Built	0.25	19,800	0	0	2.5	198,000	**19,800**
Area of New Public Access Amenities	NA	2,581	NA	1,976	0	0	**4,557**
TOTAL	**0.75**	**61,981**	**0.75**	**61,376**	**2.50**	**198,000**	**123,359 (7 Acres)**

NOTE: Public access trails will be 15 to 20 feet wide; trail area calculations in the public access tables are based on an average width of 15 feet.

Table 4. Approximate Fill Volume and Area for Phase One Activities.

Fill Purpose	Pond A6		Pond A8		Pond A16		TOTAL (Square Feet)
	Cubic Yards	Square Feet	Cubic Yards	Square Feet	Cubic Yards	Square Feet	
Fill in The Bay	0	0	0	0	0	0	**0**
Fill for Levees	9,420	665,812	520	1,608,062	39,000	583,699	**2,857,573**
Fill for Berms/ Rock Protection	0	0	485	2,167	48,620	279,568	**281,735**
Fill for Salt Pond Bottoms	33,970	44,693	25,080	23,117	1,320	39,010	**106,819**
Fill for Nesting Islands	0	0	0	0	89,520	516,275	**516,275**
Fill for Water Control Structures	0	0	720	241	7,100	6,935	**7,176**
Fill for Public Access (pile supported)	0	0	0	0	NA	1,157	**1,157**
TOTAL	43,390	710,505	26,805	1,633,587	185,560	1,426,644	**3,770,735 (86.6 Acres)**

Fill Purpose	Pond SF2		TOTAL (Square Feet)
	Cubic Yards	Square Feet	
Fill in The Bay	0	0	**0**
Fill for Levees	27,000	409,360	**409,360**
Fill for Berms/Rock Protection	88,500	140,555	**140,555**
Fill for Salt Pond Bottoms	15,790	722	**722**
Fill for Nesting Islands	70,100	371,795	**371,795**
Fill for Water Control Structures	720	963	**963**
Fill for Public Access (pile supported)	NA	2,581	**2,581**
TOTAL	202,110	925,976	**925,976 (21.3 Acres)**

Staff Note

Because the project involves a material amendment to an existing consistency determination, the format of the recommendation is different than recommendations for new consistency determinations. This recommendation includes the language of the existing consistency determination, as well as the changes proposed by the amendment. Language to be deleted from the consistency determination has been ~~struck through~~ and language to be added to the amended consistency determination has been underlined. Language that has neither been ~~struck through~~ nor underlined is language of the existing consistency determination that will remain unchanged with the adoption of Amendment No. Five.

In addition, during the period of time between the issuance of the original consistency determination on April 29, 2004 and the issuance of this material Amendment No. Five in 2008, several uses, public access areas, maintenance and monitoring activities, and other project components were added to the project. Over time, these incremental actions created a confusing set of authorizations and requirements. Therefore, with material Amendment No. Five, sections of the consistency determination have been rearranged to clarify the current

authorization and requirements for the Commission staff, the USFWS, and the public, and to create a more concise document that accurately describes the amended project. Most notably, requirements for monitoring and management have been organized to the extent possible under three general categories: general ongoing maintenance activities, (originally authorized in BCDC Permit

No. 4-93) issued to Cargill, the initial stewardship plan (authorized by Amendment No. Four), and Phase One actions (authorized by Amendment No. Five). Sections that have been rearranged, and, where the language remains unchanged, are neither underlined nor struck through.

Staff Recommendation

I. Conditional Concurrence

A. The San Francisco Bay Conservation and Development Commission concurs with the determination of the U.S. Fish and Wildlife Service (USFWS) that the following project is consistent with the Commission's Amended Management Program for the San Francisco Bay segment of the California coastal zone, subject to the USFWS's acceptance of the conditions contained in Section II below and the incorporation of those conditions into the project. If the USFWS fails to agree to the conditions and fails to incorporate the conditions into the project, the USFWS should treat this conditional concurrence as an objection and should notify the Commission immediately. If this conditional concurrence is converted into an objection, the provisions of Title 15 Code of Federal Regulations Sections 930.43, 930.44, and 930.45 shall apply.

B. **Authorized Project.** ~~The USFWS describes the project as follows:~~

In the Bay (existing maintenance requirements authorized <u>previously</u> in BCDC Permit No. 4-93 to Cargill):

a. Use and maintain the existing dredge locks to allow equipment to enter salt ponds for maintenance (previously part of BCDC Permit No. 4-93, issued to Cargill);

b. Place riprap in the minimum amount necessary to protect existing levees, as approved according to Special Condition ~~II-C~~ <u>II-F</u> (previously part of BCDC Permit No. 4-93, issued to Cargill);

c. Repair and use docks on an in-kind, as needed basis, that ~~does~~ <u>will</u> not result in a significant enlargement or increase of square footage (i.e., not more than 100 square feet) over that of the existing dock (previously part of BCDC Permit No. 4-93, issued to Cargill);

d. Maintain, or replace in-kind, and use existing marine crossings (previously part of BCDC Permit No. 4-93, issued to Cargill);

e. Provide native refugial cover several weeks prior to lock access, as needed to implement the Best Management Practices, as described in the best management practices, Special Conditions ~~II-N~~ <u>II-J</u> and ~~II-O~~ <u>II-K</u> herein (previously part of BCDC Permit No. 4-93, issued to Cargill); and

f. Clean out, maintain, and use existing intake channels (previously part of BCDC Permit No. 4-93, issued to Cargill).

Within the 100-foot shoreline band (existing maintenance requirements <u>previously</u> authorized in BCDC Permit No. 4-93 to Cargill):

a. Maintain and use water control structures and access facilities (previously part of BCDC Permit No. 4-93, issued to Cargill); and

b. Store, on a temporary basis, shoreline protection materials in certain designated areas approved in writing by or on behalf of the Commission for levee protection purposes (previously part of BCDC Permit No. 4-93, issued to Cargill).

Within salt ponds (existing maintenance requirements authorized <u>previously</u> in BCDC Permit No. 4-93 to Cargill):

a. Maintain and use in a serviceable condition, the salt pond levees owned or controlled by the USFWS through the placement of material dredged from inside salt ponds or material imported in the minimum amount necessary to repair or protect levees (previously part of BCDC Permit No. 4-93, issued to Cargill);

b. Maintain, or replace in-kind, and use existing improvements, such as pumps, pumping facilities, culverts, pipes, siphons, electrical distribution lines, tide gate structures, fences, bridges, roads on salt pond levees, walkways, bulkheads, and similar facilities (previously part of BCDC Permit No. 4-93, issued to Cargill);

c. Install and use new pipes, culverts, siphons, intake structures, electrical distribution lines for the USFWS's operations, and pumping facilities, all involving the minimum fill necessary (previously part of BCDC Permit No. 4-93, issued to Cargill);

d. Clean-out, maintain, and use existing intake channels, tide gates, brine ditches, and pumps into salt ponds (previously part of BCDC Permit No. 4-93, issued to Cargill);

e. Dispose material dredged from salt ponds along the inside and top of salt pond levees to maintain levee configuration (previously part of BCDC Permit No. 4-93, issued to Cargill);

f. Provide native refugial cover several weeks prior to lock access, as needed to implement the best management practices, as described herein in Special Conditions ~~II-N~~ <u>II-J</u> and ~~II-O~~ <u>II-K</u> (previously part of BCDC Permit No. 4-93, issued to Cargill); and

g. Temporarily store shoreline protection materials at specific, dry land locations approved in writing by or on behalf of the Commission, for levee protection purposes (previously part of BCDC Permit No. 4-93, issued to Cargill).

Within salt ponds (Initial Stewardship Plan):
Salt Pond Conversion:

a. Convert the ponds in the project area from a solar salt making production system to a variety of managed wetland habitats;

b. **Alviso System A2W (Ponds A1 and A2W).** Use and maintain the Alviso System A2W by intaking Bay water from Charleston Slough at an existing, 60-inch-wide tide gate structure at Pond A1, and circulating water from Pond A1 through an existing 72-inch-wide siphon that runs under Mountain View Slough to Pond A2W. Construct, use, and maintain a new, 48-inch-wide outlet tide gate and staff gauge structure at Pond A2W, resulting in approximately 1,860 cubic yards of fill covering approximately 20,038 square feet (0.46 acres) of salt pond water surface area;

c. **Alviso System A3W (Ponds B1, B2, A2E, A3N, and A3W).** Construct, use, and maintain the Alviso System A3W by intaking Bay water at an existing 36-inch-wide

tide gate and/or a new 48-inch-in-diameter culvert at Pond B1, circulating water through Ponds B2 and A2E, and discharging water through Pond A3W using three new, 48-inch-wide tide gate structures to Guadalupe Slough, resulting in approximately

1,861 cubic yards of fill covering approximately 18,730 square feet (0.43 acres) of salt pond water surface area. Manage Pond A3N as a seasonal pond by draining the pond initially;

d. **Alviso System A7 (Ponds A5, A7, and A8).** Construct, use, and maintain the Alviso System A7 by installing two new, 48-inch-wide tide gate structures for intake from Guadalupe Slough at Pond A5, circulating water to Pond A7, and constructing, using, and maintaining two new, 48-inch-wide tide gate structures to discharge water to Alviso Slough from Pond A7, resulting in approximately 1,652 cubic yards of fill covering approximately 3,484 square feet (0.08 acres) of salt pond water surface area. Manage Pond A8 as a seasonal pond by draining the pond initially. Conduct adaptive management for Alviso System A7, as required, by operating Pond A8 as a seasonal batch pond (a batch pond does not have a direct hydrologic connection to the Bay or tidal sloughs or creeks, is not integrated into one of the continuous tidal circulation systems, and allows water to evaporate to achieve varying salinities within a pond, beneficial to specific species);

e. **Alviso System A14 (Ponds A9, A10, A11, A12, A13, A14, and A15).** Construct, use, and maintain the Alviso System A14 by intaking water at the two existing 48-inch-wide tide gates at Pond A9, circulating water through Ponds A10 and A11, and discharging water through two new 48-inch-wide tide gates at Pond A14 into Coyote Creek, resulting in approximately 1,866 cubic yards of fill covering approximately 11,326 square feet (0.26 acres) of salt pond surface area. To increase the amount of water that can be discharged from Pond A14, and thereby improve circulation in all the ponds, widen the existing tidal channel that conveys water from Pond A14 to Coyote Creek by excavating 3,700 cubic yards of material and placing this material inside Pond A14 to reinforce the levee. The excavation would increase the top width of the channel to 35 feet, increase the bottom width of the channel to 7 feet, increase the depth of the channel to 7 feet for approximately 880 feet of the channel, and will impact approximately 0.5 acres of tidal marsh. This work is necessary to allow for the sufficient movement of water through the pond system to maintain the required level of dissolved oxygen in the waters being discharged to Coyote Creek (Amendment No. Four). Manage Ponds A12, A13, and A15 as batch ponds;

f. **Alviso System A16 (Ponds A16 and A17).** Construct, use, and maintain the Alviso System A16 by installing a new 48-inch-wide tide gate structure at Pond A17 to intake Bay waters from Coyote Creek, circulating water from Pond A17 to Pond A16 through an existing 50-foot-wide levee gap, and discharging the water into Artesian Slough through a new 48-inch-wide tide gate structure at Pond A16, resulting in approximately 1,350 cubic yards of fill covering approximately 1,089 square feet (0.03 acres) of salt pond water surface area;

g. **Alviso-Island Pond Complex (Ponds 19, 20, and 21).** Construct, use, and maintain the Alviso-Island Pond Complex by creating one or more levee breaches to Coyote Creek at each pond, allowing full tidal circulation within these ponds and removing the existing Coyote Creek siphon pump, Mud Slough pump, and tidal control gate between Pond A21 and the Mud Slough pump, resulting in approximately 10,905 cubic yards of fill covering approximately 148,500 square feet (3.4 acres) of salt pond bottom surface area. (After fill placement, the filled areas will be submerged at most

tidal stages) (Amendment No. Three). If required to ensure habitat is available for specific species, conduct adaptive management at the Island Ponds, including operating the island ponds as seasonal ponds for particular species prior to levee breaching, for the Initial Stewardship Period. This adaptive management will not

require construction of any intake or outlet structures and there will be no discharges to the Bay or sloughs. The ponds will then be breached as part of the long-term restoration plan;

h. **Alviso System A22/A23 (Ponds A22 and A23).** Construct, use, and maintain, the Alviso Pond A23 water control structure, resulting in approximately 676 cubic yards of fill covering approximately 6,098 square feet (0.14 acres) of salt pond water surface area. Operate Ponds A22 and A23 as batch ponds for the first two years of the Initial Stewardship Period and manage as seasonal ponds during years 3-6 to reduce salinity;

i. **West Bay Pond System (a.k.a. the Ravenswood Complex) (Ponds 1, 2, 3, 4, 5, S5, and SF2).** Operate the West Bay Pond system as batch ponds for the first three years of the Initial Stewardship Plan. Reduce pond salinities during years 3-6 of the Initial Stewardship Plan and subsequently operate the ponds as five separate sub-systems, as follows: (1) operate Ponds 1, 2, 3, and SF2 as independent single pond systems each with inlet/outlet structures; and (2) operate Ponds S5, 5, and 4 as a system intaking Bay water through Pond S5 and intaking and discharging through Pond 4, resulting in approximately 2,674 cubic yards of fill covering approximately 30,056 square feet of salt pond surface area (0.69 acres) from the construction of new water control structures; and

j. Dredge approximately 6,476 cubic yards of material (approximately 40 cubic yards at the Alviso A2W complex, 2,101 cubic yards at the Alviso A3W complex, 740 cubic yards from the Alviso A7 complex, and approximately 3,595 cubic yards from Alviso System A14 and Alviso System A16) covering a total of approximately 840 square feet in both the Alviso and West Bay complexes to create starter channels in tidal areas in front of the outlets of the water control structures in the salt ponds and dispose of the material on the upland portion of on-site levees. (Amendment No. Two increased the cubic yardage authorized for dredging by approximately 3,595 cubic yards).

In the Bay (Phase One, Material Amendment No. Five).

a. Dredge approximately 49,134 cubic yards of material from approximately 115,870 square feet (2.66-acre) of fringe tidal marsh to create pilot channels to connect salt ponds to the Bay, and dispose of the material in adjacent salt ponds as ditch blocks, to create roosting islands, and to raise levee and pond bottoms.

In Salt Ponds (Phase One, Material Amendment No. Five) (Exhibit A):

a. **Alviso Complex (Pond A6) (Phase One, Material Amendment No. Five)**

(1) Excavate approximately 19,730 cubic yards of material to breach levees, create pilot channels, and lower internal levees to restore tidal action;

(2) Place the approximately 19,730 cubic yards of excavated material on 1.86 acres to construct ditch blocks; and

(3) Place approximately 40,000 cubic yards of material on 27.65 acres to resurface levee roads.

b. **Alviso Complex (Pond A8) (Phase One, Material Amendment No. Five)**

(1) Excavate approximately 26,339 cubic yards of material to create a pilot channel, accommodate a water control structure, and obtain material to raise an access road and an existing circular levee (called the "the donut berm");

(2) Place approximately 17,285 cubic yards of the excavated material on 1.02 acres to construct ditch blocks and install outboard water control structures, including a 40-foot-wide, concrete-armored water control structure at the east side of Pond A8 to allow for two-way flow;

(3) Place approximately 107,000 cubic yards of material on 66.78 acres to resurface levee roads;

(4) Place approximately 1,210 cubic yards of rock slope protection on 0.04 acres along interior levees; and

(5) Remove an existing pump station.

c. **Alviso Complex (Pond A16) (Phase One, Material Amendment No. Five)**

(1) Excavate approximately 145,482 cubic yards of material to breach levees and create pilot channels, and install water control structures;

(2) Place approximately 450,000 cubic yards of the excavated material on 1.62 acres to fill borrow ditches;

(3) Place approximately 50,562 cubic yards of the excavated material on 32.84 acres to construct low internal berms and nesting islands;

(4) Place approximately 6,200 cubic yards of rock on 0.21 acre to protect interior salt pond levees;

(5) Place approximately 73 cubic yards of fill on 1.79 acres to install a fish screen and three water control structures: at Coyote Creek, between Pond A16 and A17, and between Pond A16 and Artesian Slough;

(6) Construct four, 4-foot-wide-by-2-foot-high internal weir structures (of various lengths) at each pond cell and two internal weirs at the outlet canal; and

(7) Place approximately 39,000 cubic yards of material on 24.24 acres to resurface levee roads.

d. **Ravenswood Complex (Pond SF2) (Phase One, Material Amendment No. Five)**

(1) Excavate approximately 172,990 cubic yards of material to create pilot channels, and use the dredged material to construct berms to divide the pond into smaller cells to increase management possibilities and to create nesting islands;

(2) Place approximately 43,713 cubic yards of material on 21.11 acres to construct low internal berms and nesting islands;

(3) Place approximately 27,000 cubic yards of material dredged from the pond or from lowering levees on 17 acres of levees to resurface levee roads;

(4) Place approximately 6,920 cubic yards of material on 0.24 acres to install outboard water control structures between Pond SF2 and the Bay; and

(5) Construct seven, 4-foot-wide-by-2-foot-high internal weir structures of various lengths.

e. **Public Access Improvements (Phase One, Material Amendment No. Five)**

(1) Place, use and maintain a total of approximately 3,730 square feet of pile-supported fill (at Ponds A16 and SF2) to construct three public access viewing platforms with seating, interpretive stations and a ramp;

(2) Install, use and maintain a viewing area and interpretive station at Bayfront Park in the City of Menlo Park, San Mateo County, in partnership with the City of Menlo Park at a high point in the park;

(3) Install, use and maintain various public access amenities including interpretive stations at Ponds A16 and SF2, benches, trashcans, toilets at SF2, and interpretive signage;

(4) Upgrade, use and maintain approximately 1.25-mile of existing public access trails, including 0.75 miles of trail along the south side of Pond A16 and 0.70 miles of trail along the eastern and southern edges of Pond SF2 (See Exhibits B and C); and

(5) Create, use and maintain approximately 2.75 miles of public access trails, including a 0.25-mile trail along the eastern and southern edges of Pond SF2 and a 2.5-mile year-round trail from the Sunnyvale Water Pollution Control Plant in the City of Sunnyvale, Santa Clara County, to Stevens Creek in the City of Mountain View (See Exhibits C and D).

~~B.~~ C. This ~~agreement~~ conditional concurrence is given based on the information submitted by or on behalf of the USFWS in its letter dated August 25, 2003 for the original consistency determination, ~~your~~ its letter dated May 10, 2004 requesting Amendment No. One, ~~and~~ its letter dated September 28, 2004 requesting Amendment No. Two, ~~and~~ its letter dated December 15, 2005 requesting Amendment No. Three, ~~and~~ its letter dated February 15, 2006 requesting Amendment No. Four, and its determination dated January 25, 2008, requesting Amendment No. Five, including all accompanying and subsequent correspondence and exhibits~~, particularly the South Bay Salt Ponds Initial Stewardship Plan Final EIR/EIS~~.

~~C.~~ D. The work authorized by this amended consistency determination must commence by ~~April 15, 2009~~ November 1, 2011 and must be diligently pursued to completion and must be completed by ~~April 15, 2012~~ November 1, 2020, unless the terms of this ~~conditional concurrence~~ amended consistency determination are changed by further amendment of this amended consistency determination.

~~D.~~ E. The ISP ~~project~~ will result in ~~(~~at both the Alviso and West Bay salt pond complexes~~)~~ in approximately 20,983 cubic yards of fill ~~in the Commission's salt pond jurisdiction~~ covering approximately 239,321 square feet (5.48 acres) of salt pond water surface area~~, although~~. ~~s~~Some of the ~~acres where~~ filled areas will be ~~placed will be~~ submerged at most tidal stages (Amendment No. Three). The fill is needed to install 31 water control structures (including intake structure, outlet structure, and additional pumps) in the salt ponds (25 at Alviso and 6 at the West Bay Ponds). The water control structures will be used for initial controlled releases of pond water into the Bay to reduce pond salinities, and in the long-term, for continuous circulation of Bay water within the pond

complex. The calculated area that will be impacted includes temporary disturbances, installation of water control structures, and dredging starter channels. The loss of this salt pond water surface area will be offset by the increased functions and values in the project area that will occur when the area is managed primarily to improve wildlife habitat. Amendment No. Five authorizes Phase One of the restoration effort and will convert 330 acres of salt ponds to full tidal action, 1,400 acres of salt ponds to reversible tidal action, and 479 acres of salt ponds to managed pond habitat. Phase One will result in approximately 457,865 cubic yards of fill in the Commission's salt pond jurisdiction (both in the Alviso and Ravenswood salt pond complexes) covering approximately 4,699,711 square feet (107.8 acres) of area (Material Amendment No. Five).

II. Conditions

If the USFWS does not agree with the following conditions or fails to incorporate them into the project, the USFWS shall notify the Commission immediately of its refusal to agree or to incorporate the conditions into the project and this conditional concurrence shall become converted to an objection. The USFWS shall also immediately notify the Commission if the USFWS determines to go forward with the project despite the Commission's objection.

A. **Specific Plans and Plan Review**

1. **Plan Review**. No work whatsoever shall be commenced pursuant to this amended authorization until final precise site, public access, engineering, restoration, and grading plans and any other relevant criteria, specifications, and plan information for that portion of the work have been submitted to, reviewed, and approved in writing by or on behalf of the Commission. The specific drawings and information required will be determined by the staff. To save time, preliminary drawings should be submitted and approved prior to final drawings.

   a. **Site Plans**. Site, public access, engineering, restoration, and grading plans shall include and clearly label the five-foot contour line above Mean Sea Level (the Mean High Tide Line, or the inland edge of marsh vegetation up to five feet above Mean Sea Level in marshland), property lines, the boundaries of all areas currently reserved for public access purposes, grading, details showing the location, types, dimensions, and materials to be used for all structures, public access improvements, water control structures, fences, and other proposed improvements. In addition to the information listed above, the site plan shall provide a dimension line which marks the minimum distance between a proposed structure authorized by this ~~permit~~ amended consistency determination and the Mean High Water Line (or, if marsh is present, the inland edge of marsh vegetation up to 5 feet above mean sea level. Additional dimension lines shall be provided, as necessary, to locate where this minimum dimension occurs in relation to either the property line, the top of bank, or some other fixed point upon the site.

   b. **Engineering Plans**. Engineering plans shall include a complete set of contract drawings and specifications and design criteria. The design criteria shall be appropriate to the nature of the project, the use of any structures and soil and foundation conditions at the site. Final plans shall be signed by the professionals of record and be accompanied by:

      (1) Evidence that the design complies with all applicable codes; and

      (2) Evidence that a thorough and independent review of the design details, calculations, and construction drawings has been made.

   c. **Plan Approval.** Plans submitted shall be accompanied by a letter requesting plan approval, identifying the type of plans submitted, the portion of the project involved, and indicating whether the plans are final or preliminary. Approval or disapproval shall be based upon:

   ~~a~~. (1) completeness and accuracy of the plans in showing the features required above, particularly the Mean High Tide Line~~,~~ or the inland edge of marsh vegetation up to a line five feet above Mean Sea Level in marshland Mean

Higher High Water, property lines, and the line 100-feet inland of the Mean High Tide Line~~,~~ (or ~~a line~~ the inland edge of marsh vegetation up to five feet above Mean Sea Level in marshland), and any other criteria required by this ~~authorization~~ amended consistency determination;

~~b.~~ (2) consistency of the plans with the terms and conditions of this amended consistency determination; ~~and~~

(3) the provision of the amount and quality of public access to and along the shoreline and in and through the project to the shoreline required by this amended consistency determination, to ensure: (1) the public's use and enjoyment of public access areas; (2) public safety; (3) accessibility for persons with disabilities; (4) sufficient durability and maintenance; and (5) the access is clear and continuous and encourages public use;

~~(c)~~ (4) assuring that any fill in the Bay does not exceed this amended consistency determination and will consist of appropriate shoreline protection materials, as determined by or on behalf of the Commission;

(5) consistency of the plans with the recommendations of the Design Review Board; and

(6) assuring that appropriate provisions have been incorporated for safety in case of seismic event.

Plan review shall be completed by or on behalf of the Commission within 45 days after receipt of the plans to be reviewed.

2. **Future Board Review.** All proposed public access facilities required herein shall be reviewed by or on behalf of the Commission's Design Review Board (Board) prior to submittal of construction documents to the staff for final plan approval pursuant to Special Condition II-A. It is anticipated that Board review will focus on project advertising at the site, such as a billboard, and the design vocabulary of site furnishings and other public facilities, including but not limited to overlooks, restrooms, seating, fencing, trash cans, interpretive signage and public access signage. The required drawings presented to the Board shall be determined by the Commission staff (Material Amendment No. Five).

~~2.~~ 3. **Conformity with Final Approved Plans**. All work, improvements, and uses shall conform to the final approved plans. Prior to any use of the facilities authorized herein, the appropriate design professional(s) of record shall certify in writing that, through personal knowledge, the work covered by this amended consistency determination has been performed in accordance with the approved design criteria and in substantial conformance with the approved plan. No noticeable changes shall be made thereafter to any final plans or to the exterior of any constructed structure, outside fixture, lighting, landscaping, signage, landscaping, parking area, or shoreline protection work without first obtaining written approval of the change(s) by or on behalf of the Commission.

~~3.~~ 4. **Discrepancies between Approved Plans and Special Conditions**. In case of any discrepancy between final approved plans and Special Conditions of this amended consistency determination, the Special Condition or the legal instrument shall prevail. The USFWS is responsible for assuring that all plans accurately and fully

reflect the Special Conditions of this amended authorization.

B. **Marsh Restoration Plans for the Island Ponds and Phase One**

~~1. **Restoration Plan.**~~ Prior to the commencement of any work at the Island Ponds and Phase One (Ponds A6 and A8) ~~for~~ involving tidal restoration pursuant to this authorization, the USFWS shall submit a marsh restoration plan and program, to be approved by or on behalf of the Commission for the restoration and enhancement of the site. The plan shall contain the following:

~~a.~~ 1. **Site Conditions and Modifications.** A topographic map of the site in one-foot contours and a topographic map showing the proposed modifications. All elevations shall be relative to National Geodetic Vertical Datum (NGVD) or North American Vertical Datum (NAVD). The map shall include typical cross-sections showing proposed elevation of marsh plain, any channels, and any high spots. The map shall show: (1) figures for the ratios of typical horizontal to vertical slopes for existing and proposed marsh surface, channels, and sloughs; (2) proposed plant species along the cross-sections according to their expected zone of growth; (3) the elevation of adjacent surrounding properties; and (4) the estimated tidal range related to Mean Higher High Water, Mean High Water, Mean Lower Low Water, Mean Sea Level, the maximum predicted tide, and the 100-year tide. To promote natural sedimentation, channel formation, and plant colonization of the site, constructed elevations shall generally be six to twelve inches below target elevations.

~~b.~~ 2. **Levee Breaches.** For any levee breaches, the program shall show calculations for determining the size of any levee breach or pipe to be installed, including any tide control structure to be installed to control the amount of water entering at various tidal stages. The program shall indicate the amount of any cut and fill activities, the amount of material to be placed to strengthen the levee, and the expected tidal exchange. The expected tidal range shall indicate predicted expectations both inside and outside the levee breach. If plants will be used to protect the levee from erosion or undercutting, the program shall specify the type of plants to be used. If plants will not be used, the program shall describe how the breach will be protected from erosion and undercutting. If any inlet-outlet structure is to be used, the program shall include a detailed drawing of such structure(s) with a schedule of operation, inspection and maintenance.

c. 3. **Soil and Water Information**. The program shall include a report identifying the type of soils found at the site and the soil type of any fill to be imported to the site. Information shall be provided on the quantitative soil measurements of salinity, pH, organic content, and bulk density. ~~All imported soils must be within 10% of the range of values found at the reference marsh for soil qualities such as grain size, organic content, salinity, and pH. Information shall also be provided on the water, including water analysis of salinity, pH, biochemical oxygen demand (BOD), dissolved oxygen (DO), and, if appropriate, heavy metals.~~

~~d.~~ 4. **Schedule.** The program shall include a schedule indicating when excavation, fill, and grading will occur, the time to be allowed for settlement, the time when levee breaches or inlet structures will begin to function and the time when planting will occur. The program for the ISP shall include an estimate of the extent of expected

sedimentation over a ten-year period. The tidal restoration plan for Phase One shall include an estimate of the extent of expected sedimentation over a fifteen-year period.

C. **Monitoring**

~~E~~ 1. **Mitigation, Monitoring, and Maintenance Reports (maintenance report previously part of BCDC Permit No. 4-93, issued to Cargill, for ongoing salt pond maintenance)**

~~1.~~ a. **Mitigation and Monitoring Report.** By October 1, 2004, the USFWS shall submit for review and approval by or on behalf of the Commission a Mitigation and Monitoring Plan for the project that provides: (1) a list of all of the mitigation measures required for the project, as determined necessary in the environmental document (South Bay Salt Ponds Initial Stewardship Plan Final Environmental Impact Report/ Environmental Impact Statement, March 2004) and as a result of agency approvals and consultations; and (2) a list of all the monitoring, and its required frequency, that will be conducted, as determined necessary within the environmental document (South Bay Salt Ponds Initial Stewardship Plan Final Environmental Impact Report/Environmental Impact Statement, March 2004) and as a result of approvals from and consultations with agencies, such as those required by the Regional Water Quality Control Board.

~~2.~~ b. **Annual Mitigation, Monitoring, and Maintenance Report.** Every year on April 15th, a report shall be submitted to the Commission that provides the following information: (1) results of all mitigation implemented for that year, including the findings of any surveys; (2) the methodology and results of all monitoring conducted for that year; and (3) all maintenance conducted within that year, including information on the location, extent, and type of work undertaken by or on behalf of the USFWS pursuant to this amended consistency determination. In addition, the report should include the environmental impact reduction or avoidance measures used in compliance with the Best Management Practices listed in Special Conditions ~~II-N and II-O~~ II-J and II-K.

~~3.~~ c. **Pre-Notification of Proposed Maintenance Activities.** Every year on April 15th, a report shall be submitted that includes: (a) information on all maintenance proposed for the next year, including information on the location, extent, and type of work proposed to be undertaken by or on behalf of the USFWS pursuant to this amended consistency determination; (b) supplemental notification regarding dredge locks and levees to be maintained in the next June 1 to May 31 maintenance cycle to provide the Commission and other relevant agencies with a minimum of 10 months for review of proposed dredge lock use and maintenance. The report shall include: (i) a site map indicating the locks to be accessed, likely areas of levee maintenance and proposed equipment to be used; and (ii) a list of special status species known to be present and proposed measures to reduce and/or avoid impacts to known species. Simultaneously, the USFWS shall stake for agency review, the lock access channel, sediment placement areas and areas proposed for stockpiles. Combined with the reporting required in Section ~~II-E-2~~ II-C-1, above, this notification shall provide the Commission and other interested parties with a rolling 10-month advanced notification of proposed dredge lock use and maintenance activities.

~~4.~~ d. **Report Approval.** The Commission staff shall respond in writing within 60 days of the submittal of the three reports, described above, after reviewing with other public agencies, interested organizations, and individuals. The Executive Director may withhold approval of one or more items of the proposed work, or may impose additional Best Management Practices to reduce or avoid significant impacts to special status species. A separate consistency determination may be made by the USFWS for any proposed work that has not been approved by the Executive Director.

2. **Initial Stewardship Plan (ISP) Monitoring and Management.**

a. **Marsh Monitoring (Island Ponds).** Every year, starting the year following project completion, for a five-year period, or until those portions of the restoration site subject to tidal action are approximately 95% vegetated as compared with nearby reference marshes, whichever occurs first, the USFWS shall report to the Commission on the effects of the project in restoring tidal marsh and transitional habitat at the Island Ponds (Ponds A19, A20, and A21) ~~restoration site~~. The report shall pertain to the Island Ponds only and include ~~measuring~~ sedimentation rates, percentage of the site revegetated, plant survival, approximate percentage representation of different plant species, and a qualitative assessment of plant growth rates for the tidal restoration area, including adjacent transitional and upland habitats. Undesirable exotic plant species such as pepperweed (*Lepidium latifolium*), *Spartina alterniflora*, broom, or star thistle shall be reasonably controlled (coverage of less than 5 percent of their expected zone of growth) during the five-year monitoring period. Should adverse conditions be identified during the monitoring period, the USFWS shall take corrective action as specified by or on behalf of the Commission (Amendment No. Four).

~~a.~~ (1) **Identification of a Suitable Reference Site**. The USFWS shall identify nearby reference sites that shall be evaluated as part of the monitoring program and shall provide a reference for evaluating the progress of the Island Ponds (A19, A20, and A21) restoration site. (Amendment No. Four)

b. **Additional ISP Monitoring**. (Monitoring previously part of the Initial Stewardship Plan, Amendment No. Four)

~~1.~~ (1) **Salinity.** To avoid water quality impacts from increased salinity as a result of the initial release of saltpond water to the Bay, the USFWS shall: (1) conduct pre-discharge and post-discharge monitoring; and (2) if monitoring identifies the potential for significant impacts to benthic invertebrates, operational changes in releases, such as slowing the rate of discharge, shall be made. This modified operation would decrease the maximum predicted salinity conditions, but may extend the period where more discharge would contain moderate increased salinity. (Amendment No. Four)

~~2.~~ (2) **Metals.** To avoid total mercury in discharged water and receiving water from exceeding total mercury water quality objectives and temporary impacts on water quality, the USFWS shall monitor the discharges and receiving waters for exceedances of the mercury objective. If mercury exceeds predicted levels in the receiving waters by more than 10 percent, the USFWS shall contact the

Regional Board and the Commission and an adaptive management strategy shall be devised to reduce mercury levels. Mitigation measures may include temporarily slowing discharge or additional dilution (Amendment No. Four).

~~3.~~ (3) **Dissolved Oxygen.** To avoid decreased dissolved oxygen in ponds relative to the receiving waters due to increased algal activity in ponds, the USFWS shall monitor the ponds, effluent, and receiving waters to determine the water quality objectives are being met. During the implementation of the ISP actions (under Amendment No. Four), the USFWS unsuccessfully attempted to implement several mitigation measures, such as introducing muted tidal action to discharge ponds and using supplemental aeration techniques to address dissolved persistent low oxygen levels in several of the ponds. As Phase One actions are implemented, if monitoring shows that water quality objectives are not being met, then other management alternatives will be investigated and implemented to address and improve low dissolved oxygen levels. ~~one of the following mitigation measures shall be implemented by the USFWS: (1) supplemental aeration using a solar powered aerator and timer to be actuated during non-daylight hours shall be installed at discharge outlets; or (2) discharge ponds shall be operated as muted tidal ponds for the duration of low dissolved oxygen in the ponds.~~ (Material Amendment No. Five).

~~4.~~ (4) **Turbidity**. To avoid discharges of pond water resulting in a greater than 10 percent increase in turbidity of receiving water and adversely affecting water quality and biota in adjacent waterways, the USFWS shall monitor discharged water at discharge points of pond systems with known elevated turbidity and slow the discharge of water when the turbidity variance between the discharging water and the receiving water exceeds 10 percent (Amendment No. Four).

~~5.~~ (5) **Temperature**. To avoid discharges that exceed the natural temperature of receiving waters by 20° degrees Fahrenheit and cause temperatures to rise greater than 4°F above the natural temperature of the receiving water at any time or place, the USFWS shall monitor discharged water at discharge points of pond systems with known elevated temperatures and slow the discharge of water when the temperature variance between the discharging water and the receiving water exceeds 20^{o} degrees Fahrenheit (Amendment No. Four).

~~6~~ . (6) **pH.** To avoid deviations from the water quality objectives for pH, the ponds, effluent, and receiving waters shall be monitored by the USFWS to determine if deviations from the water quality objectives are occurring. During the implementation of the ISP actions (under Amendment No. Four), the USFWS unsuccessfully attempted to implement several mitigation measures, such as introducing muted tidal action to discharge ponds and using supplemental aeration techniques to address poor pH conditions in several of the ponds. As Phase One actions are implemented, ~~I~~if monitoring shows deviations from the water quality objectives, then other management alternatives will be investigated and implemented to address and improve

pH conditions.~~ one of the following mitigation measures will be implemented by the USFWS: (1) supplemental aeration using a solar powered aerator and timer to be actuated during non-daylight hours shall be installed at discharge outlets; or (2) discharge ponds shall be operated as muted tidal ponds for the duration of the pH excursion from the water quality objectives.~~ (Amendment No. Five).

~~J.~~ (7) **Control of Invasive Species**. The disturbance of existing vegetation could promote the spread of invasive cordgrass thus, the USFWS shall: (1) coordinate with the Santa Clara Valley Water District to ensure existing clusters of invasive cordgrass (Spartina alterniflora) in the vicinity of the Island Ponds are removed prior to breaching the ponds; (2) ensure all equipment is cleaned prior to movement from an infested site; (3) conduct post-implementation monitoring for new, establishing populations of cordgrass; and (4) gain control of new, establishing populations using protocols suggested by the San Francisco Estuary Invasive Spartina Project (Amendment No. Four).

~~M.~~ (8) **Monitor Changes in Wildlife Habitat.** The USFWS shall continue surveys of waterbird use every two months and at least one "window" survey each spring because wildlife habitat will change with positive impacts for some wildlife species and negative impacts for other wildlife species due to changes in hydrology, salinity, and resultant invertebrate populations. In addition, the USFWS shall compare the bimonthly monitoring data to monthly post-Initial Stewardship Plan implementation data. The USFWS shall compare data from monthly high tide surveys carried out throughout implementation of the Initial Stewardship Plan with USGS monthly baseline waterbird monitoring data. If survey results show a major decline in waterbird populations, the FWS shall manage more ponds as medium- or high salinity batch ponds (Amendment No. Four).

~~H.~~ (9) **Sediments.** To determine if the mobility and bioavailability of inorganic contaminants have increased within project ponds, the USFWS shall conduct pre-project sampling of sediments from specific ponds, in accordance with the project Additional Sediment Sampling Analysis Plan and conduct post-implementation monitoring in areas with elevated concentrations of inorganics to determine whether conditions are occurring that would increase contaminant mobility (e.g., methylation, acidification, or oxidation of sediments, or visual observation of increased drying or wetting/drying cycles). If post-implementation monitoring indicates the presence of conditions that would increase contaminant mobility, the USFWS shall implement water management measures to mitigate these conditions (Amendment No. Four).

3. **Phase One Monitoring and Management (Material Amendment No. Five).** Monitoring of Phase One improvements shall substantially conform to the "South Bay Salt Pond Restoration Project Phase I Monitoring Plan," as revised August 14, 2008 and prepared by H.T. Harvey and Associates. In addition to the parameters outlined in the aforementioned monitoring plan, the USFWS shall monitor Phase One public

access improvements and associated parking areas serving this public access. Public access monitoring data to be collected is described below. Monitoring for Phase One actions shall be conducted for 15 years from the time at which on-the-ground restoration work is completed for each part (i.e. each pond system) of Phase One project and shall include:

a. **Sedimentation.** Provisions for monitoring sedimentation using sedimentation pins or plates and staff gauges. A minimum of four sedimentation pins or plates shall be installed in the ponds to be monitored.

b. **Erosion.** A plan for monitoring the effects of the project on increasing erosion and scour within the ponds and in adjacent channels, fringe marsh and surrounding areas.

c. **Water Quality.** A water-quality monitoring program that shall, at a minimum, monitor pH, salinity, dissolved oxygen, turbidity, temperature, contaminants, and suspended sediment in the restoration area. Water quality monitoring shall substantially conform to the elements of the "South Bay Salt Pond Restoration Project Phase I Monitoring Plan," to ensure that water quality in the project area meets the Basin Plan's Water Quality Objectives as established by the San Francisco Regional Water Quality Control Board to the maximum extent possible.

d. **Vegetation.** In areas within the project site where tidal action has been restored, vegetation monitoring shall include determining the amount of vegetation establishment at the restoration site using aerial photographs and ground-truthing of the plant species established until it is determined that the site has achieved 20% cover of tidal marsh vegetation. These aerial photos will be included in the monitoring report. Once marsh vegetation has become established on 20% of restored ponds, vegetative transects or other suitable surveys may be conducted to provide more detailed information on vegetation cover, including species present, percentage of the site vegetated, approximate percentage representation of different plant species and a qualitative assessment of anticipated plant colonization.

e. **Bird Surveys.** Provisions for monitoring the use of the site by bird species including bird surveys conducted four times a year, two at high tide and two at low tide for the first five years following the completion of restoration activities and then every other year for the remainder of the monitoring period.

f. **Fish.** The fish monitoring plan shall follow the protocols developed in coordination with the National Marine Fisheries Service (NMFS).

~~I.~~ g. **Invasive Species.** Monitoring reports submitted to the Commission pursuant to the approved monitoring plans shall report on all eradication efforts conducted on the site for invasive plant species such as non-native *Spartina*, broom and thistle as well as any efforts to control other invasive plant species on site. The SBSPR Project team shall work with the San Francisco Estuary Invasive Spartina Project to monitor and control introduced and invasive *Spartina*, in order to ensure regional coordination. During the 15-year monitoring period, the USFWS shall control non-native *Spartina* species and undesirable non-native species, such as star thistle and broom. Reasonable efforts shall be made to eradicate

and/or control invasive species such as pampas grass, giant reed, and various species of broom for the duration of the monitoring period where feasible. Other invasive species of concern, such as *Lepidium*, wild radish, etc., shall be monitored and, should funding become available, eradication and/or control attempts shall be implemented over the course of the monitoring period.

h. **Public Access.** The USFWS shall conduct Applied Studies numbers 16, 17, and 18 from Appendix D of the Adaptive Management Plan in order to monitor public access to address the following concerns:

(1) Whether boating activities adversely affect bird populations, harbor seals, and other target species. Monitoring activities shall include species richness and abundance in boater and non-boater areas, effects on nesting birds, and immediate behavioral and movement responses from harbor seals, especially at seal haul-out and pupping sites;

(2) Whether landside public access adversely affects birds and other target species on short and long timescales. Monitoring activities shall include bird flushing distances, sustained changes in abundance and/or species richness, and availability and quality of impacted and non-impacted habitat;

(3) Whether the public access features provided in Phase One meet the recreation and access needs of the public. Monitoring activities shall include surveys administered to the public to assess demographic parameters, the frequency, locations, and types of recreation activities that the public engages in, the types of recreation activities desired, and the public's knowledge of the SBSPR Project; and

(4) Whether sufficient parking is available for Phase One public access. Monitoring activities shall include usage of existing parking areas located at the Environmental Education Center, the Alviso Marina County Park (immediately adjacent to the complex), near Crittenden Lane, and at Carl Lane (Sunnyvale Water Pollution Control Plant) and at the north and south side of the Dumbarton Bridge off-ramp, during regular workdays and holidays.

Monitoring of public access areas shall occur at least every five years over the fifteen-year monitoring period (Material Amendment No. Five).

i. **Monitoring Reports.** Monitoring reports describing the data collected pursuant to the approved restoration plan shall be submitted annually beginning on July 1, one year following the completion of restoration activities for each part (i.e., each pond) of the Phase One improvements. Monitoring reports shall continue for 15 years post-construction for each pond.

j. **Relevant Monitoring Data.** The USFWS shall provide all monitoring information and data from other studies conducted on the site including but not limited to any CalFed, U.S. Army Corps of Engineers (Corps), Ducks Unlimited, and Wildlife Conservation Board-funded studies.

4. **Methylmercury Concerns (Material Amendment No. Five).** To aid in the understanding of mercury methylation at the site and to inform future adaptive management strategies that may be proposed to remedy excess methylmercury accumulation, if it occurs, USFWS shall do the following:

   a. By September 1, 2009, USFWS shall submit and receive approval, by or on behalf of the Commission, of a methlymercury monitoring program for the project. The program shall at a minimum include the following: (1) methods that will be employed to assess methylmercury accumulation at the site, particularly in sentinel species, the frequency and timing of sampling, and a schedule for reporting results of the monitoring; (2) provisions for the creation or use of an existing Methlymercury Technical Advisory Committee (MTAC) that shall include representatives from BCDC, RWQCB, and methylmercury experts, such as U.S. Geological Service (USGS) and the San Francisco Estuary Institute (SFEI); (3) provisions for implementing adaptive management techniques to remedy methylmercury accumulation if and when such techniques have been developed. Approval or disapproval of the monitoring program shall be made by or on behalf of the Commission in consultation with the MTAC, in particular the RWQCB; and (4) implementation within a reasonable time of the plan once it is approved by the Commission.

   b. USFWS shall continue to make the project site available to researchers and scientists and continue to encourage methylmercury research at the site. To this end, USFWS shall report to the Commission and the RWQCB annually, beginning December 31 of the year following breaching of the levees at all ponds, on the results of methylmercury research at the site and any future research proposals or opportunities, and the status of efforts to gain the necessary funding of studies to help manage the methylation of mercury in the newly restored ponds.

D. **Adaptive Management Plan (Material Amendment No. Five).** This amended consistency determination authorizes specific facilities, public access, fill quantities, fill locations and coverage. Furthermore, this amended consistency determination contains conditions specifying construction practices, timing, and mitigation measures. It is anticipated that operational experience with Phase One facilities will suggest modifications to the facilities and their management authorized herein. Proposed modifications shall substantially conform to the process described in the "Adaptive Management Plan" (Appendix D in the South Bay Salt Ponds Restoration Project Final EIS/R) dated December 2007 and prepared by Lynne Trulio and the South Bay Salt Pond Restoration Project Science Team, which identifies, for each monitoring activity, restoration targets, expected time frames for decision-making, and management triggers to determine when Phase One activities are not performing as expected. Prior to installing any facilities or improvements; modifying any public access improvements, including the location, availability and use; placing additional fill for ditch blocks, roosting islands, or raising pond bottoms; constructing new pilot channels; or undertaking other

modifications to adaptively manage Phase One ponds, USFWS shall consult with Commission staff to determine if such modifications are consistent with the Commission's laws and policies and, if so, whether the modifications can be approved through plan review (Special Condition II-A), or if they will require an amendment to this consistency determination (Material Amendment No. Five).

E. **Public Access.** Within six months of completing the Phase One habitat restoration activities, or by November 1, 2013, whichever is earlier, the USFWS shall provide the following public access improvements:

1. **Phase One Improvements (Material Amendment No. Five)**

a. **Alviso Pond Complex**. Public access improvements in the Alviso pond complex shall be located in two separate areas, one will be accessed from existing trails that connect to the existing USFWS Environmental Education Center, and the other, a Bay Trail spine, will connect to existing Bay Trail spine segments. They shall include:

(1) An approximately 2.5-mile-long multiuse Bay Trail spine located north of Moffett Field, and connecting the City of Sunnyvale Water Pollution Control Plant staging area to the south side of Stevens Creek Levee which connects to the Mountain View Bay Trail spine (See Exhibit D);

(2) A retrofitted 0.75-mile-long, at least 15-feet-wide, segment of the Pond A16 trail (See Exhibit B);

(3) One raised viewing platform and one at-grade interpretive station along the pond A16 trail (See Exhibit B); and

(4) Public access, Bay trail, and interpretive signs; the number of each of these signs will be determined by the final interpretive signage plan.

b. **Ravenswood Pond Complex.** Public access improvements at the Ravenswood pond complex shall occur at Pond SF2, accessed from Highway 84 and served by existing parking areas, and shall include:

(1) A 15-feet-wide multiuse trail on the east side of Pond SF2 (See Exhibit C);

(2) At Pond SF2, an entry control gate, trailhead with informational kiosk and bench seating, and chemical toilets (See Exhibit C);

(3) Along the Pond SF2 trail, two raised viewing platforms with interpretive stations (see Exhibit C); and

(4) Public access, Bay trail, and interpretive signs; the number of each of these signs will be determined by the final interpretive signage plan.

(5) An additional viewing area at a high point in Bayfront Park overlooking Pond R4 and Greco Island to be developed in cooperation with the City of Menlo Park.

c. **Barrier-Free Access.** The USFWS will ensure that all Phase One public access trails and amenities provide barrier-free access for persons with disabilities to the maximum feasible extent either during the implementation of Phase One actions or within a reasonable period of time after the completion of Phase One.

~~L.~~ 2. **Temporary Impacts to Public Access.** To minimize temporary construction impacts on public access to, and recreational use of project areas, the USFWS shall implement the following measures: (1) limit access restrictions during construction to specific areas surrounding the construction activities and limit such restrictions to the minimum period necessary. Once the activities are completed, public access shall resume as before; (2) before beginning construction, the contractor shall develop, in consultation with the appropriate representatives of USFWS, a Public Access Plan indicating how public access to the Bay Trail and nearby roads, trails, paths, and park areas shall be maintained during construction work, if possible. If needed, flaggers shall be stationed near the construction activity areas to direct and assist members of the public around these areas while maintaining public access and signs shall be posted explaining how long the public access path will be affected and showing possible alternative routes.

3. **Reasonable Rules and Restrictions.** The USFWS may impose reasonable rules and restrictions for the use of the public access facilities authorized herein to correct particular problems that may arise. Such limitations, rules, and restrictions shall have first been approved by or on behalf of the Commission upon a finding that the proposed rules would not significantly affect the public nature of the area, would not unduly interfere with reasonable public use of the public access areas, and would tend to correct a specific problem that the USFWS has both identified and substantiated. Rules may include restricting hours of use and delineating appropriate behavior (Material Amendment No. Five).

4. **Maintenance.** The areas and improvements within the total Phase One project area shall be permanently maintained by and at the expense of, the USFWS. Such maintenance shall include, but is not limited to, repairs to all path surfaces; replacement of any trees or other plant materials that die or become unkempt; repairs or replacement as needed of any public access amenities such as signs, benches, chemical toilets, and trash containers; periodic cleanup of litter and other materials deposited within the access areas; removal of any encroachments into the access areas; and assurance that the public access signs remain in place and visible. Within 30 days after notification by staff, the USWFS shall correct any maintenance deficiency noted in a staff inspection of the site (Material Amendment No. Five).

~~C.~~ F. **Riprap**

1. **Riprap Material.** Riprap material shall be either quarry rock or specially cast or carefully selected concrete pieces free of reinforcing steel and other extraneous material and conforming to quality requirements for specific gravity, absorption, and durability specified by the California Department of Transportation or the U. S. Army Corps of Engineers. The material shall be generally spheroid-shaped. The overall thickness of the slope protection shall be no more than three feet measured perpendicular to the slope. Use of dirt, small concrete rubble, concrete pieces with exposed rebar, large and odd shaped pieces of concrete, and asphalt concrete as riprap is prohibited.

2. **Riprap Placement.** Riprap material shall be placed so that a permanent shoreline with a minimum amount of fill is established by means of an engineered slope not steeper than two (horizontal) to one (vertical). The slope shall be created by the

placement of a filter layer protected by riprap material of sufficient size to withstand wind and wave generated forces at the site.

3. **Riprap Plans**

   a. **Design.** Professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes, should participate in the design of the shoreline protection improvements authorized herein.

   b. **Plan Review**. No work whatsoever shall be commenced on the shoreline protection improvements authorized herein until final riprap plans have been submitted to, reviewed, and approved in writing by or on behalf of the Commission. The plans shall consist of appropriate diagrams and cross-sections that: (1) show and clearly label the Mean High Tide Line, or the inland edge of marsh vegetation up to a line five feet above Mean Sea Level in marshland, property lines, grading limits, and details showing the location, types, and dimensions of all materials to be used, (2) indicate the source of all materials to be used, and (3) indicate who designed the proposed shoreline protection improvements and their background in coastal engineering and familiarity with the Commission's concerns. Approval or disapproval of the plans shall be based upon (1) completeness and accuracy of the plans in showing the features required above, (2) consistency of the plans with the terms and conditions of this amended consistency determination, (3) assuring that the proposed fill material does not exceed this amended consistency determination, (4) the appropriateness of the types of fill material and their proposed manner of placement, and (5) the preparation of the plans by professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes. All improvements constructed pursuant to this ~~permit~~ amended consistency determination shall conform to the final approved plans. No changes shall be made thereafter to any final plans or to the constructed shoreline protection improvements without first obtaining written approval of the change(s) by or on behalf of the Commission.

4. **Maintenance**. The shoreline protection improvements authorized herein shall be regularly maintained by, and at the expense of the USFWS, any assignee, lessee, sublessee, or other successor in interest to the project. Maintenance shall include, but not be limited to, collecting any riprap materials that become dislodged and repositioning them in appropriate locations within the riprap covered areas, replacing in-kind riprap material that is lost, repairing the required filter fabric as needed, and removing debris that collects on top of the riprap. Within 30 days after notification by the staff of the Commission, the USFWS or any successor or assignee shall correct any maintenance deficiency noted by the staff.

~~D.~~ G. **Marsh Protection**

1. **Best Management Practices**. All construction operations shall be performed to prevent construction materials from falling, washing, or blowing into the Bay. In the event that such material escapes or is placed in an area subject to tidal action of the Bay, the USFWS shall immediately retrieve and remove such material at its expense. The USFWS shall also employ best management practices, such as compaction, soil

fences, jute matting, etc. to assure that material placed for any purposes authorized herein will not erode into the Bay shortly after placement.

2. **Marsh and Upland Plant Protection During Construction.** The work authorized by this amended consistency determination shall be performed in a manner that will prevent, avoid, or minimize to the extent possible, any significant adverse impact on any tidal marsh, other sensitive wetland resources, and existing native upland vegetation. If any unforeseen adverse impacts occur to any such areas as a result of the activities authorized herein, the USFWS shall restore the area to its previous condition, including returning the disturbed area to its original elevation and soil composition and, if the area does not revegetate to its former condition within one year, the USFWS shall seed all disturbed areas with appropriate vegetation consistent with plans approved by or on behalf of the Commission, pursuant to Special Condition II-A. The USFWS shall employ mitigation measures to minimize impacts to wetland areas, such as: (1) minimizing all traffic in marsh/mudflat areas; and (2) carefully removing, storing, and replacing wetland vegetation that has been removed or "peeled back" from construction areas as soon as possible following construction.

3. **Removal of Excavated Material**. All dredged and excavated material must either be used to stabilize levees, create ditch blocks, resurface levee roads, construct authorized pond berms, construct pilot and internal channels, raise pond elevations, install water control structures, or be removed from the project site for proper disposal outside of the Commission's jurisdiction.

4. **Debris Removal**. All construction debris and any uncovered debris, such as concrete, asphalt, wood, plastics, etc., shall be removed from the project site for proper disposal outside of the Commission's jurisdiction. Excavated debris may be temporarily stored within the Commission's jurisdiction, provided measures are employed to assure that such material does not wash or erode into the surrounding marsh or waterways. In the event that any such material is placed in any area within the Commission's jurisdiction for an extended period (i.e. more than 60 days), the USFWS, its assigns, or successors in interest, or the owner of the improvements, shall remove such material, at its expense, within ten days after they have been notified by the Executive Director of such placement.

~~5. **Protection of Special Status Animal Species.** The USFWS shall take all precautions to avoid adverse impacts to the California clapper rail, California black rail, Salt Marsh harvest mouse, San Pablo song sparrow, salt marsh yellow throat, winter-run chinook salmon, and west coast steelhead trout. The USFWS shall employ the mitigation measures outlined in the environmental document for the project and contained herein.~~

~~F.~~ H. **Hydrology**

1. **Breaching of Island Ponds**. To avoid increased velocities in the surrounding areas as a result of breaching the Island Ponds that could result in erosion of mudflats, the USFWS shall have a coastal hydrologist conduct regular inspections of adjacent mudflats and a qualified engineer conduct regular inspections of the Union Pacific railroad bridge piers during the first 5 years following breaching to look for evidence of scour or damage to the mudflats and the bridge pier supports. The bridge inspections shall be coordinated with regular bridge inspections conducted by Union Pacific.

2. **Breaching of Pond A6.** USFWS shall yearly monitor adjacent tidal flats and channels using the methodology described in the "South Bay Salt Pond Restoration Project Phase I Monitoring Plan," as revised through August 14, 2008 and prepared by H.T. Harvey and Associates, in order to assess whether breaching Pond A6 is impacting the rate of scour, accretion, or channel formation and include these yearly assessments in the monitoring report (Material Amendment No. Five) .

~~2.~~ 3. **Sediment Deposition.** To avoid excessive sediment deposition near inlet/outlet structures that could impact operation of water control structures, the USFWS shall conduct annual inspections of all water control structures to look for areas of excessive sediment deposition or scour. Results of these inspections shall be recorded on maintenance log sheets along with any follow-up inspections or maintenance sediment removal or re-grading operations. If monitoring determines sediment buildup is excessive and must be removed, the USFWS shall comply with all regulatory requirements prior to removing deposited sediment, shall remove deposited sediment, and shall regrade as required to avoid deposition impacts.

~~K.~~ I. **Protection of Wildlife**

1. **Protection of Nesting Waterbirds**. The USFWS shall conduct the following measures to protect nesting waterbirds from the changes in water levels in some ponds that would result in impacts to nesting bird colonies from increased predator access and/or flooding, thereby substantially reducing the breeding habitat for certain waterbird species in the South Bay: (1) identify islands and interior levees in need of protection from water level fluctuation; (2) check islands and interior levees weekly (as access conditions permit) from March to July for nesting waterbirds that could be impacted by flooding or landbridging; and (3) manipulate water levels, as needed, to ensure proper isolation from the surrounding levees and tidal marsh during the nesting season and to avoid flooding of nest sites.

2. **Protection of Wildlife from Contaminated Sediments**. The USFWS shall implement Special Condition II-G to ensure that lower average water levels in project ponds do not increase the exposure of some foraging waterbirds to contaminated sediments on the bottoms of some ponds, potentially resulting in a substantial reduction in suitable foraging habitat for some species.

3. **Avian Botulism.** Because increased suitable conditions for avian botulism could result from the overall reduction in pond salinities and water depths, the USFWS shall take the following measures to reduce the spread of avian botulism: (1) if there is evidence of avian botulism in areas surveyed by the San Francisco Bay Bird Observatory, USFWS staff shall survey the adjacent ponds using shallow draft boats; (2) all personnel conducting operational activities in the ponds shall be trained to recognize symptoms of avian botulism and shall make special observation efforts during late August, September, and October, when outbreaks generally occur; and (3) if dead birds are found, they will be retrieved and incinerated in an approved facility. Sick birds shall be brought to an approved avian rehabilitation facility.

4. **Protection of California Clapper Rail.** The USFWS shall implement the following measures to avoid or minimize adverse affects on clapper rails from direct construction impacts to existing tidal salt marsh habitat: (1) survey construction sites for clapper rails; (2) locate construction outside clapper rail nesting habitat; (3) offset any short-term impacts to clapper rail habitat by the long-term benefits of restoring Alviso Ponds A19, A20, and A21 (475 acres) and A6 (330 acres) to tidal marsh; and (4) if surveys indicate that the clapper rail is present on the project site, then all project-related work shall be limited to the period between September 1st and February 1st of any year. If an active clapper rail nest is found, then a 750-foot-in-diameter buffer shall be established around the nest between February 1st through September 1st of any year.

5. **Protection of Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew.** The USFWS shall implement the following measures to avoid or minimize adverse impacts to the salt marsh harvest mouse (SMHM) and salt marsh wandering shrew (SMWS) due to direct construction impacts on existing tidal or non-tidal salt marsh habitat: (1) survey construction sites for SMHM and SMWS prior to construction. Prior to the start of construction activities, a qualified wildlife biologist shall visit all construction sites. The biologist shall determine whether potential SMHM or SMWS

habitat is present within the immediate disturbance area of each construction site; (2) whenever possible, construction sites shall be relocated, if necessary to avoid areas that support potential habitat for SMHM or SMWS; (3) if a construction site(s) cannot be located outside of such areas, construction impacts shall be limited to the smallest possible area of suitable SMHM or SMWS habitat. The construction areas shall be clearly demarcated by temporary fencing and signs throughout the construction period. No construction activities shall be allowed in tidal marsh, except within the fenced areas; (4) just before construction, vegetation within the fenced areas shall be cleared using hand tools, if feasible, to discourage SMHM or SMWS from remaining in the construction areas and making it possible to see any mice that are present. Construction work shall start as soon as possible (and no longer than one week) after the vegetation has been cleared; (5) a qualified biological monitor shall oversee vegetation clearing and construction activities at the construction sites. The monitor shall remain on-site during all construction work directly affecting SMHM habitat. The monitor shall have the authority to control or halt construction activity that is not consistent with the protection measures noted above. Additionally, the monitor will notify the USFWS of any unanticipated damage to protected habitat areas, or any dead or injured special-status species.

6. **Protection of Burrowing Owls.** The USFWS shall implement the following measures to avoid or minimize adverse impacts to Burrowing Owls on the levees within the project area: (1) survey the construction sites for burrowing owls prior to construction. Pre-construction surveys for burrowing owls shall be conducted in and adjacent to all construction areas within 30 days of all construction activities, or by following the California Department of Fish and Game (DFG) survey protocols currently in effect at that time. If construction activities at a site are delayed or suspended for more than 30 days, the site shall be re-surveyed; (2) during the breeding season (February 1 through August 31), if burrowing owls are found on or adjacent to a construction site, a clearly-delineated construction buffer shall be established around each occupied burrow at a minimum radius of 250 feet from the burrow. If construction vehicles must pass through an established buffer in order to access a construction site, a "no stopping" policy shall be implemented, and appropriate signs shall be posted at the buffer periphery; (3) during the non-breeding season, if destruction of an occupied burrow is unavoidable, or if a construction site is located within 160 feet of an occupied burrow, passive relocation measures shall be implemented to encourage the owl(s) to move away from the burrow prior to construction. If no suitable alternate burrows are present within 500 feet of the destroyed burrow, two artificial burrows shall be installed at an appropriate location, to be determined by a qualified wildlife biologist. Passive relocation methods and artificial burrow locations shall be subject to ~~Fish and Game~~ DFG approval. Passive relocation shall not be conducted during the breeding season (February1-August 31); and (4) all protection measures shall remain in place for the duration of construction at the occupied sites or until a qualified biological monitor verifies that burrowing owls are no longer present.

7. **Protection of Northern Harriers**. The USFWS shall implement the following measures to avoid or minimize adverse effects to northern harriers on the levees within the project area: (1) survey construction sites for northern harriers prior to construction at sites where construction is scheduled during the northern harrier nesting season

(generally late March through August). Pre-construction surveys for northern harriers shall be conducted in and adjacent to all construction areas within 30 days of all construction activities, or by following the ~~Fish and Game~~ DFG survey protocols currently in effect at that time. If construction activities at a site are delayed or suspended for more than 30 days, the site shall be re-surveyed; (2) if an active harrier nest is found at or adjacent to a site, construction activities shall be rescheduled until after the nesting season. If this is not feasible, construction buffers shall be established around each nest, at a minimum radius of 200 feet from the nest. The buffers shall be clearly marked with temporary fencing and signs. No construction activities shall occur within the buffer as long as the nest is active. If construction vehicles must pass through an established buffer to access a construction site, a "no stopping" policy shall be implemented, and appropriate signs will be posted at the buffer periphery; (3) active nest sites shall be monitored by a qualified biologist throughout the nesting season to verify that the protective measures are effective

and to implement additional measures, if necessary. The protection measures shall remain in effect until the biological monitor determines that the nesting cycle has been successfully completed or that the nest is no longer active.

8. **Protection of Common Yellowthroat and Song Sparrow**. The USFWS shall implement the following measures to avoid or minimize adverse effects to the breeding activity of salt marsh common yellowthroat and Alameda song sparrow: (1) construction associated with implementation of the project shall be located and timed to avoid impacts to potential nesting habitat of these species, to the extent feasible; (2) if avoidance of construction during the nesting season is not feasible, pre-construction surveys shall be completed, prior to the initiation of project construction, at construction sites that are located within, or adjacent to, suitable nesting habitat for these species; (3) if active nests are present, construction buffers shall be established at a minimum radius of 50 feet from the nest. Active nest sites shall be monitored by a qualified biologist periodically during the nesting season to verify that the protection measures are effective and to implement additional measures, if necessary.

9. **Protection of Waterbird Nesting Sites.** The USFWS shall implement the following measures to avoid or minimize adverse effects to nesting sites of western snowy plover, Caspian tern, Forster's tern, California gull, black skimmer, or other special status waterbird species (e.g., herons and egrets): (1) construction associated with implementation of the project shall be located and timed to avoid impacts to potential nesting sites of these species, to the extent feasible. This construction timing restriction shall be implemented from March through September 15 for western snowy plover and from April through August for the other waterbird species; (2) if avoidance of construction during the nesting season is not feasible, pre-construction surveys shall be completed, prior to the initiation of project construction, at construction sites that are located within, or adjacent to, suitable nesting habitat for these species (e.g., seasonal ponds, islands, and levees); (3) if active nests are present, construction buffers shall be established at a minimum radius of 200 feet from the nesting site or nesting colony periphery. Active nest sites shall be monitored by a qualified biologist periodically during the nesting season unless monitoring demonstrates that nesting is complete and the young are capable of flight. If construction vehicles must pass through an established buffer to access a construction site, a "no stopping" policy shall be implemented, and appropriate signs shall be posted at the buffer periphery. The protection measures shall remain in effect until the biological monitor determines that the nesting cycle has been successfully completed or that the nest is no longer active.

10. **Protection of Harbor Seals.** The USFWS shall implement the following measures to ensure that construction for implementation of the project and various maintenance operations, do not impact harbor seals in the area: (1) pre-construction surveys shall be conducted prior to initiating project construction at locations near known harbor seal haul-outs and pupping sites; (2) to the extent feasible, water control structures shall not be located at or adjacent to active haul-out or pupping sites. The installation of such structures and the subsequent maintenance could be a source of significant disturbance to the seals; (3) if installation of structures and subsequent maintenance is proposed for locations in close proximity to sensitive harbor seal

sites (i.e., within 200 feet for haul-outs and 500 feet for pupping sites; distance subject to approval of NOAA), such activities shall be conducted outside of the pupping season (March to May) and the molting season (June to August); and (4) if construction and operations activities cannot be timed to avoid disturbance to haul-out sites, disturbance to hauled out individuals shall be minimized. A qualified biological monitor shall be present during construction activities near harbor seal haul-outs. A clearly-marked, protective buffer (200 feet wide, as measured from the edge of the haul-out site; distance subject to approval of NOAA) shall be established and maintained, and no construction personnel or equipment shall be allowed to enter this area while hauled out individuals are present.

11. **Protection of Benthic and Aquatic Organisms.** To avoid adverse impacts to benthic organisms, fish, and macroinvertebrates, due to a deterioration of water quality, the USFWS shall assess and maintain salinity and other water quality parameters, as required in Special Conditions ~~II-G~~ II-C, at levels protective of aquatic resources.

12. **Salmonid Migration.** The USFWS shall close intakes on salmonid migration routes during periods of juvenile migration to ensure that water control structures do not lead to juvenile entrainment.

13. **Consistency with the National Marine Fisheries Service's (NMFS) Biological Opinion (Phase One Only, Material Amendment No. Five).** The USFWS shall comply with all requirements contained in the National Marine Fisheries Service Biological Opinion prepared for this project and provide BCDC staff with a copy of the opinion within 10 days of its issuance. If the NMFS biological opinion requires project modifications, including but not limited to modifications in construction practices or timing, or the design, location, or operation of authorized facilities, USFWS must obtain an amendment to this amended consistency determination prior to constructing any facility affected by the NMFS Biological Opinion (Material Amendment No. Five).

~~M. **Reconsideration of Public Access Requirements.** If the long-term restoration plan for the South Bay salt ponds has not commenced within five years, the USFWS shall reconsider, with the Commission, the provision of additional public access with this project.~~

~~N.~~ J. **Dredge Lock Use And Maintenance Requirements (previously part of BCDC Permit No. 4-93, issued to Cargill).** When using dredge locks to conduct levee maintenance authorized herein, the USFWS shall use the following Best Management Practices by doing all of the following to the maximum practicable extent:

1. Access dredge locks at the highest practicable tide;

2. Place dredged material into existing stockpile areas, into the lock pond or on the levees, to the maximum extent feasible;

3. If sidecasting is required, place the material in temporary areas, then place the material back into the cut upon exiting;

4. Use material obtained from within the dredge lock to maintain the lock levee;

5. Place sediments from the lock interior in excess of that required for lock levee

maintenance into the salt pond borrow ditches or on the salt pond levee;

6. Place dredged material on the top or on the inboard slope of the lock levee only;
7. Survey locks proposed for access during a high tide event just prior to maintenance to ensure that clapper rails are not in material deposition locations;
8. Preserve and enhance high marsh features created at previous lock access events, such as vegetated mounds, to the maximum extent feasible;
9. Preserve outboard vegetation on lock levees by placing material on the top and inboard slope only. Vegetative material removed from lock levee tops shall be placed aside, then replaced after topping the levee with fresh material;
10. Replant the access cut with cordgrass plugs to hasten revegetation;
11. Spray a salt solution on disturbed areas at the peak time of Lepidium seedling emergence or remove Lepidium by other means;
12. Maintain a 300-foot buffer surrounding any active nest at ~~the~~ heron and egret ~~rookery~~ rookeries during the nesting season;
13. Maintain a 500-foot buffer at active seal pupping locations unless the buffer is decreased in consultation with and the agreement of the National Marine Fisheries Service;
14. Enhance refugial habitat on both sides of pond levees 100 feet in both directions, from the points where the lock and pond levees meet, by using natural vegetation, as discussed in and pursuant to the U.S. Fish and Wildlife Service (USFWS) biological opinion and associated mitigation matrix;
15. If Clapper rails are assumed or found to be present at a lock, consistent with USFWS-approved call count surveys, no lock entry or exit from a different lock than the lock entered shall occur between February 1 and August 31. No lock exit shall occur between March 1 and May 3, if rails are found to be present during the last and current breeding season. However, exit may occur if rails are found to be present after entry; and
16. Conduct the Animal Damage Control program employed by the San Francisco Bay National Wildlife Refuge with the incremental costs of additional predator management activities required for lock access and levee maintenance.

~~O.~~ K. **Levee Maintenance Requirements (previously part of BCDC Permit No. 4-93, issued to Cargill).** When conducting levee and other maintenance activities authorized herein, the USFWS shall use the following Best Management Practices:

1. Use chokers on the outsides of exterior levees;
2. Slope exterior levee tops inward;
3. Remove any spillage onto the marsh plain that occurs, unless it is deemed by consulting experts that the spillage removal would create additional impacts;
4. Perform levee maintenance, when it is possible to avoid the use of dredge locks, from the outside of the salt ponds;
5. Upon consultation with species experts, and subsequent approval by the Executive

Director, the USFWS shall construct low, linear islands suitable for least tern habitat in existing salt ponds in the three key post-breeding foraging areas traditionally used by least terns for foraging. However, the USFWS shall not be subject to the required buffers upon usage by the least tern;

6. Provide annual monitoring reports on the effectiveness of Best Management Practices used and their effectiveness;
7. Maintain during the March 1 to September 14 breeding season, a 200-foot buffer between levee topping activity and active western snowy plover nests in high use areas in the annual work plan review;
8. Manage Pond A-22 for maximum land exposure during the March 1 to September 1 breeding season;
9. Access and maintain levees in no more than two California least tern "high use" areas in any single year; and
10. Create islands within reach of the dredge but as far away from the levees as possible in all high use areas identified for California least terns.

~~P.~~ L. **Unanticipated Maintenance Work (previously part of BCDC Permit No. 4-93, issued to Cargill).** If the USFWS wishes to undertake work it did not anticipate during the preparation of the pre-notification report required in Special Condition ~~II-E~~ II-C-1 herein, the USFWS shall provide a written request describing the desired work, existing conditions, and proposed Best Management Practices to the Commission. Upon consultation with interested agencies and organizations, the Executive Director shall respond within 45 days in writing, either approving, disapproving, or approving with modifications, the proposed work based upon the conformance of the proposal with the Best Management Practices listed in Special Conditions ~~II-N~~ II-J and ~~II-O~~ II-K, above. In addition, the Executive Director may approve, pursuant to this amended ~~permit~~ consistency determination, and without the pre-notification review period, activities that would otherwise qualify for an emergency permit under government Code Section 66632(f) and Regulation Sections 10120 and 10652, upon consultation with the Chair of the Commission, if time allows.

~~Q.~~ M. **Regional Water Quality Control Board-401 Certification.** The USFWS shall complete the administrative process of receiving a 401 Certification from the Regional Water Quality Control Board (RWQCB) for the Initial Stewardship Plan, San Francisco Bay Region and shall submit a copy of this certification to Commission staff by October 1, 2004. The USFWS shall comply with the Final Order, which includes Waste Discharge Requirements and a Water Quality Certification, for Phase One activities which was obtained from the RWQCB on August 13, 2008.

N. **In-Kind Repairs and Maintenance.** Any in-kind repairs and maintenance of the facilities authorized herein shall only use construction material that is approved for use in San Francisco Bay. Construction shall only occur during current approved months during the year to avoid potential impacts to fish and wildlife. BCDC staff should be contacted to confirm current restrictions. (Material Amendment No. Five)

~~R. National Marine Fisheries Service. The USFWS shall complete the consultation process with the National Marine Fisheries Service for the Interim Stewardship Plan and submit evidence of successful completion of the consultation process by October 1, 2004.~~

~~S.~~ O. **Creosote Treated Wood.** No pilings or other wood structures that have been pressure treated with creosote shall be used in any area subject to tidal action in the Bay or any certain waterway, in any salt pond, or in any managed wetland within the Commission's jurisdiction as part of the project authorized herein.

P. **Prevention of Flooding**. The USFWS shall assure that the restoration plan meets the requirements of ~~the Public Works Director or the~~ appropriate public works directors, flood control districts, and/or water agencies, ~~whichever has~~ with jurisdiction over the site and surrounding area and that are ~~is~~ responsible for assuming adequate flood protection for surrounding communities. The USFWS shall provide a letter to the Commission indicating that the review has been done and that inland areas will not flood as a result of the work shown on the plan. The Commission makes no warrants as to the adequacy of the flood protection provided by the USFWS project and is not responsible for any flooding that may result.

~~T. **Debris Removal**. All construction debris shall be removed to an authorized location outside the jurisdiction of the Commission. In the event that any such material is placed in any area within the Commission's jurisdiction, the USFWS, its assigns, or successors in interest, or the owner of the improvements, shall remove such material, at its expense, within ten days after it has been notified by the Executive Director of such placement.~~

~~U. **Site Access.** The USFWS grants permission to any member of the Commission's staff to conduct a site visit at the subject property during and after construction to verify that the project is being/has been constructed in compliance with the authorization and conditions contained herein. Site visits may occur during business hours without prior notice and after business hours with 24-hour notice.~~

~~V. **Notice to Contractor.** The USFWS shall provide a copy of this document to any contractor or person working in concert with the USFWS to carry out the activities authorized herein and shall point out the special conditions contained herein.~~

Q. **Abandonment.** If, at any time, the Commission determines that the improvements in the Bay authorized herein, have been abandoned for a period of two years or more, or have deteriorated to the point that public health, safety or welfare is adversely affected, the Commission may require that the improvements be removed by the USFWS, its assignees or successors in interest, or by the owner of the improvements, within 60 days or such other reasonable time as the Commission may direct (Material Amendment No. Five).

R. **Certification of Contractor Review.** Prior to commencing any grading, demolition, or construction, the general contractor or contractors in charge of that portion of the work shall submit written certification that s/he has reviewed and understands the requirements of the amended consistency determination and the final BCDC-approved plans, particularly as they pertain to any public access or open space required herein, or environmentally sensitive area. (Material Amendment No. Five).

S. **Hold Harmless.** The USFWS shall hold harmless the Commission, all Commission members, Commission employees, and agents of the Commission from any and all claims, demands, losses, lawsuits, and judgments accruing or resulting to any person, firm, corporation, governmental entity, or other entity who alleges injuries or damages caused by work performed in accordance with the terms and conditions of this amended consistency determination. This condition shall also apply to any damage caused by flooding of or damage to property that is alleged to be caused as a result of some action or lack of action by the Commission growing out of the processing of and issuance of this amended consistency determination.

The USFWS also agrees to cooperate, to the extent allowed by law, in the submission of claims pursuant to the Federal Tort Claims Act against the United States for personal injuries or property damage resulting from the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his/her employment, arising out of this agreement. Further, the U.S. Fish and Wildlife Service agrees to perform all work under this agreement with reasonable diligence and precaution (Material Amendment No. Five).

T. **Notifying NOAA to Update Nautical Charts.** Within 30 days of the completion of the project authorized by this amended consistency determination, the USFWS shall provide written verification to the Commission that it has submitted to the Nautical Data Branch of the National Oceanic and Atmospheric Administration (NOAA) the following: (1) (a) as-built drawings, blueprints or other plans that correctly depict the completed development or, if the project involves the removal of an existing development; (b) a list of the existing development(s) that have been removed and a statement from a qualified engineer or professional salvage company certifying which

portions of the development have been removed; (2) the geographic coordinates of the project using a differential geographic positioning system (DGPS) unit or other comparable equipment suitable for providing location on a Nautical Chart; and (3) the appropriate contact USFWS person's name and contact information (such as a mailing address, telephone number, fax number and/or e-mail address) (Material Amendment No. Five).

III. Findings and Declarations

This amended consistency determination is given on the basis of the Commission's findings and declarations that the work authorized herein is consistent with the McAteer-Petris Act, the *San Francisco Bay Plan*, the California Environmental Quality Act, and the Commissions's amended coastal zone management program for the San Francisco Bay for the following reasons:

A. **Priority Use Designation**. The project will be located in areas that are designated for Wildlife Refuge priority use on *San Francisco Bay Plan* (Bay Plan) Map No. Seven. The project is designed to convert salt ponds to approximately 330 acres of tidal habitat, 1,400 acres of reversible muted tidal marsh, and 479 acres of reconfigured managed ponds. The project area is within the Don Edwards San Francisco Bay National Wildlife Refuge and actively managed by the U.S. Fish and Wildlife Service. Therefore, the Commission finds that the project, as conditioned herein, is consistent with the priority use designation for the site.

~~1.~~ B. **~~Fill in the Commission's Salt Pond Jurisdiction~~ McAteer-Petris Act and Bay Plan Policies on Bay Fill.** Section 66605 of the McAteer-Petris Act states, in part, that: (1) "…the water area authorized to be filled should be the minimum necessary to achieve the purpose of the fill"; (2) "…the nature, location, and extent of any fill should be such that it will minimize harmful effects to the Bay area, such as, the reduction or impairment of the volume surface area or circulation of water, water quality, fertility of marshes or fish or wildlife resources, or other conditions impacting the environment…"; (3) "…public health, safety, and welfare require that fill be constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters"; and (4) "…fill should be authorized when the applicant has such valid title to the properties in question that he or she may fill them in the manner and for the uses to be approved."

1. **Initial Stewardship Plan (ISP)**

The amended consistency determination (Amendment No. Four) the ISP ~~project~~ states that the installation of new water control structures will result in approximately 158,774 square feet (3.64 acres) of fill in salt ponds. The amended consistency determination for the ISP ~~also~~ states that the structures have been designed to result in the minimum fill necessary "…to effectively maintain existing shallow open water habitat and reduce salinity within the ponds [and meet water quality objectives in discharge waters]." The consistency determination for the ~~project~~ ISP and the environmental document for that project state that the new water control structures have been sited to result in ~~the~~ minimal direct and indirect impacts to wetlands. The impacts to wetland habitat ~~can be categorized as~~ will result from direct impacts from installation of the water control structures and

indirect impacts resulting from changes in habitat due to the discharge of pond water into various receiving waters, reduced salinity in the ponds, and changes in water regime (seasonal ponds). The mitigation measures that will be implemented to minimize indirect impacts to wetland habitat are discussed below, in Section III, "Consistency with Bay Plan Policies on Fish, Other Aquatic Organisms, and Wildlife." In addition, while a total of 3.64 acres of existing salt pond water surface area will be permanently lost as a result of installing water control structures, implementation of the Initial Stewardship Plan should offset the adverse impacts of this fill many fold due to the management of the ponds to maximize functions and values for wildlife. In regards to public safety concerns, the environmental document for the ~~project~~ ISP states that "…the existing levees would be maintained and the existing risk of flooding due to unplanned levee failures would not be affected. In general, water levels in the ponds would be similar to existing conditions and would not affect the available storage within the ponds to contain potential overflows from adjacent creeks and sloughs. Similarly, the Initial Stewardship Plan should have no impact on the Bay's shoreline because, with the exception of the Island Ponds, where levees may be breached, the Initial Stewardship Plan does not involve change to the existing network of ponds, channels, and levees. As the consistency determination for the ISP states, the "…water control structures will allow circulation of water through the salt ponds to minimize any effects on existing potential wildlife habitat, pond water quality, and salinity levels during the planning and implementation of a long-term salt pond restoration program." In other words, no change is envisioned in the existing network of ponds and adjoining channels although water circulation patterns will change. Finally, the USFWS has provided proof of valid title to all areas ~~proposed for the installation of~~ water control structures will be installed.

2. **Phase One (Material Amendment No. Five)**

   a. **Minimum Amount Necessary.** The USFWS states that the placement of approximately 457,865 cubic yards of material at the Alviso and Ravenswood complexes over 4,699,711 square feet as part of Phase One to restore the South Bay Salt Ponds is the minimum amount necessary to meet the goals of restoring the site to fully functioning tidal marsh and creating managed pond habitat. The USFWS also states that "[t]he fill is necessary to create habitat (i.e., nesting islands) while maintaining the structural integrity of several existing levees, and to construct features such as starter channels and berms, ditch blocks, etc. to produce the appropriate hydrologic conditions conducive to tidal marsh formation. The majority of fill material will be generated from on-site activities such as levee lowering, thus, not imported from off-site. This material will simply be redistributed within the restoration project area for maintenance and restoration improvements." A small amount of additional fill will be placed to provide shoreline protection (approximately 7,410 cubic yards) and for public access (approximately 4,587 square feet of pile-supported, floating, and/or solid fill).

   b. **Effects on Bay Resources.** The USFWS states that, for Phase One, "[t]he majority of the fill will be used to create wildlife habitat, including special-status species (i.e., nesting islands). Secondarily, fill will also be used to create hydrologic

conditions conducive to tidal marsh restoration, including ditch blocks, levee breaches, pilot channels, and levee lowering associated with restored ponds." The fill for Ponds A16 and SF2 in Phase One will be used to reshape levees and construct berms and to create viable bird habitat by building nesting islands. The USFWS states that as part of Phase One, "Ponds A16 and SF2 will be reconfigured to create islands for nesting birds and shallow water habitat for shorebird foraging. It is important to note that these ponds have been designed as an experiment to create a high density of bird nesting islands interspersed with shallow water foraging habitat that has not been created previously in San Francisco Bay. The design attempts to optimize the balance of the constraints and considerations above based on what is known at this time." The restoration actions in Phase One (as well as in the overall SBSPR Project) will be evaluated for impacts and beneficial outcomes using adaptive management techniques. An Adaptive Management Plan has been prepared by the SBSPR Project Science Team that provides project objectives and "an approach to achieving [them] through learning from restoration and management actions." There are some key uncertainties regarding the habitat designs, specifically regarding how the ecosystem will respond to restoration activities. The SBSPR Project will use monitoring, applied studies, and modeling to refine the design approach and plan future phases accordingly. Special Conditions II-C and II-D are included in this amended consistency determination to ensure that appropriate monitoring and adaptive management efforts occur for Phase One.

c. **Public, Health, Safety, and Welfare.** The USFWS states that "[a]ny impacts (e.g., fill placement to create nesting islands) are done to create or enhance habitat for wildlife, including listed species, and to optimize restoration activities; environmental benefits will result from implementation of restoration."

The USFWS states that for Phase One "the project will also result in beneficial impacts on flooding. Specifically, the existing levee system will be repaired, if needed, should an emergency occur or for reducing the risk of failure. To prevent channel erosion and potential damage to adjacent levee systems, although not anticipated, the USFWS will repair unintended levee breaches that are not consistent with the restoration option selected. Tidal channels on and adjacent to restored marshlands will be larger after restoration, than under existing conditions, as a result of natural channel erosion. Consequently, the flood conveyance capacity of major tidal channels will be increased, lowering flood risk on nearby parcels."

The USFWS states that "…it is important to note that the Phase One actions were chosen because they do not, in and of themselves, require the implementation of flood control measures and they are an integral step from which much is expected to be learned and applied toward the successful implementation of planned future phases of the Project." In other words, the ponds chosen for restoration as part of Phase One, were sited in areas where altering hydrology and reestablishing tidal action will not be expected to affect any of the levees that are currently providing flood protection to populated, urbanized areas near the project site.

However, the USFWS states that "[r]eestablishing tidal connectivity initially will increase the average discharge in tidal channels, increasing the potential for erosion of levees as a result of tidal currents and seepage-related failures. Consequently, there will be an initial increase in the risk of property loss (levee failure) during Phase One actions. As part of the project, a monitoring and adaptive management plan will be implemented to monitor the expansion of the slough channels to accommodate the additional tidal prism and to ensure that the expansion does not threaten the adjacent levee systems. If channel expansion threatens adjacent levees, project managers will identify measures to protect the levee in question, if needed, including potentially closing the breach. These measures may include additional levee breaches, altering the phasing of pond levee breaching, or requiring levee repairs or revetment." Special Condition II-D ensures that the USFWS will employ adaptive management measures to address such issues.

The USFWS further states that "[l]evees could potentially fail due to seismic ground shaking. However, repairs and upgrades to existing levees for the proposed trail system and water conveyance/control structures associated with the ponds, as well as regular maintenance, will be performed as part of the project. New water control structures will be engineered to withstand seismic events to the extent practicable, and these structures will not be located in an area that will result in the increased exposure of people to adverse effects." Special Condition II-K is included in this amended consistency determination to ensure that such levee maintenance will occur.

In addition, the Army Corps of Engineers is conducting the South San Francisco Bay Shoreline Study, a Congressionally-authorized study to identify and recommend for Federal funding one or more projects for flood damage reduction, ecosystem restoration, and related purposes such as public access in the entire SBSPR Project area.

d. **Valid Title**. The USFWS acquired the approximately 10,000 acres of former salt ponds in the Ravenswood and Alviso complexes in March 2003 from Cargill, Inc., using state, federal, and private foundation funds.

The Commission finds that the project, as conditioned herein, is consistent with its law and policies on fill in salt ponds in that the project will result in the minimum fill necessary to successfully complete a project, ~~a project~~ whose primary goal is to increase the ecological functions, biological diversity, and compatible recreational opportunities at former salt ponds, ~~and~~ has been designed to minimize impacts to the Bay environment, will be constructed in a manner to protect persons and property against unstable soil and flooding conditions, and at a site to which the project sponsor holds valid title.

~~2.~~ C. **Bay Plan Policies on Salt Ponds and Other Wetlands**

1. **Initial Stewardship Plan.** At the time of the Commission's conditional concurrence with USFWS's consistency determination for the Initial Stewardship Plan (ISP) (Amendment No. Four), ~~T~~the Bay Plan policies on salt ponds and other wetlands stated, in part, that "[a]s long as is economically feasible, the salt ponds should be maintained in salt production and the wetlands should be maintained in their

present use. Property tax policy should assure that rising property taxes do not force conversion of the ponds and other wetlands to urban development." The salt pond policies also state that, "[i]f, despite these provisions, the owner of the salt ponds or the owner of any managed wetland desires to withdraw any of the ponds or marshes from their present uses, the public should make every effort to buy these lands, breach the existing dikes, and reopen these areas to the Bay. This type of purchase should have a high priority for any public funds available, because opening ponds and managed wetlands to the Bay represents man's last substantial opportunity to enlarge the Bay rather than shrink it. (In some cases, if salt ponds are opened to the Bay, new dikes will have to be built on the landward side of the ponds to provide the flood control protection now being provided by the salt pond dikes.)"

On March 16, 2003, the State of California and the United States of America acquired 16,500 acres of commercial salt ponds in San Francisco Bay from Cargill. This acquisition set the stage for the development of the largest tidal wetland restoration project on the West Coast. Specifically, the purpose of this acquisition was to protect, restore, and enhance the property for fish and wildlife, as well as to provide opportunities for wildlife-oriented recreation and education. Of the acquired lands, most of the salt ponds are located in South San Francisco Bay and the remaining lands are in the North Bay in Napa County. Under the terms of the acquisition, the USFWS owns and will manage 8,000 acres of the "Alviso Ponds" and 1,600 acres of the "West Bay Ponds," while Department of Fish and Game owns and will manage 5,500 acres of the "Baumberg Ponds". Commercial salt making will still continue at Cargill's Newark Plant site and surrounding salt ponds and the same volume of salt will be produced on a smaller site with the use of improved production techniques. While the Initial Stewardship Plan does not envision any levee breaches other than breaching the levees at the Island Ponds, implementation of the Initial Stewardship Plan is anticipated to greatly enhance wildlife functions and values of the ponds, and

to set the stage for implementation of the long-term restoration plan which will result in substantial enlargement of the Bay through levee breaches and the management of all the ponds for improved habitat values.

The Commission found that the ISP was consistent with its policies on salt ponds and other wetlands in that the project resulted in enlarging the Bay and improving habitat values.

2. **Phase One (Material Amendment No. Five).** The Bay Plan policies on salt ponds were revised in August 2005. The revised Bay Plan policies on salt ponds read, in part, that "[i]f the owner of any salt ponds withdraws any of the ponds from their present uses, the public should make every effort to buy these lands and restore, enhance or convert these areas to subtidal or wetland habitat. This type of purchase should have a high priority for any public funds available, because opening ponds to the Bay represents a substantial opportunity to enlarge the Bay and restoring, enhancing or converting ponds can benefit fish, other aquatic organisms and wildlife, and can increase public access to the Bay."

The revised Bay Plan policies on salt ponds also state, in part, that "[a]ny project for the restoration, enhancement or conversion of salt ponds to subtidal or wetland habitat should include clear and specific long-term and short-term biological and physical goals, success criteria, a monitoring program, and provisions for long-term maintenance and management needs. Design and evaluation of the project should include an analysis of: (a) the anticipated habitat type that will result from pond conversion or restoration, and the predicted effects on the diversity, abundance and distribution of fish, other aquatic organisms and wildlife; (b) potential fill activities, including the use of fill material such as sediments dredged from the Bay and rock, to assist restoration objectives; (c) flood management measures; (d) mosquito management measures; (e) measures to control non-native species; (f) the protection of the services provided by existing public facilities and utilities such as power lines and rail lines, (g) siting, design and management of public access and recreational opportunities while avoiding significant adverse effects on wildlife; and (h) water quality protection measures that include management of highly saline discharges into the Bay; monitoring and management of mercury methylation and sediments with contaminants; managing the release of copper and nickel to the Bay; and the minimization of sustained low dissolved oxygen levels in managed ponds."

As previously stated, in 2003, the project site was acquired by the public. The overall goal of the 50-year SBSPR Project is to restore and enhance a mix of wetland habitats, and provide for wildlife-oriented public access and recreation, and for flood management. The specific goals of Phase One are to restore a mosaic of habitats, including tidal marsh, mudflat, salt panne and open water habitats (managed ponds), to support populations of fish and wildlife, special status species, migratory waterfowl, shorebirds, and anadromous and resident fishes.

The SBSPR Project will result in a mix of restored tidal and managed pond habitat. Phase One activities were designed to test restoration techniques on a small scale. An adaptive management strategy will allow for design approaches that ensure successful restoration of the entire SBSPR Project site over time. The final combination of each type of habitat will be determined through an adaptive

management process allowing for lessons learned from earlier phases to be incorporated into subsequent phases. Criteria for determining the success of restoration actions will be developed over time through the adaptive management process. Special Condition II-D is included in this amended consistency determination to ensure that this will occur.

Each phase of the project will have a separate monitoring plan with common elements and adaptive strategies as more data are gathered. The USFWS states that "this approach to phased tidal restoration acknowledges that uncertainties exist and provides a framework for adjusting management decisions, as the cause-and-effect linkages between management actions and the physical and biological response of the system are more fully understood." Special Condition II-C is included in this amended consistency determination to ensure that monitoring will occur.

The project sponsors drafted an "Adaptive Management Plan" that identifies management triggers to determine when restoration activities are not performing as expected. These triggers are intended to assist decisionmakers by preventing significant impacts before they occur. If a management trigger is tripped, restoration will not proceed until a focused evaluation is conducted to assess if a potentially significant impact will result. If the evaluation determines a significant impact will result, adaptive management action to avoid the impact will be implemented, and ongoing monitoring will determine the effectiveness of that action. USFWS has developed an adaptive management plan that identifies, for each monitoring activity, restoration targets, expected time frames for decision-making, management triggers, and resulting potential management actions.

Pond A6 will be restored to tidal action. At Pond A6, monitoring will include evaluating water quality specifically related to mercury, tidal marsh habitat evolution (vegetation and channel mapping), invasive Spartina and other invasive plants, fish, and endangered species (California clapper rail and salt marsh harvest mouse).

Ponds A5, A7, A8, and A8S will be restored to muted tidal habitat. At these ponds, monitoring will cover water quality (including salinity pH, temperature, dissolved oxygen, and mercury), mercury in sediment, mercury in sentinel species (monitoring of mercury bioavailability and mercury uptake in sentinel species as a special study associated with Pond A8), tidal marsh habitat evolution (vegetation and channel mapping), and invasive *Spartina* and other invasive plants.

Ponds A16 and SF2 will be reconfigured as a series of managed ponds. At Ponds A16 and SF2, monitoring will include evaluating water quality (including salinity pH, temperature, dissolved oxygen), tidal marsh habitat evolution (vegetation and channel mapping), invasive Spartina and other invasive plants, and Federally-listed species (California least tern and Western snowy plover).

Site management and any necessary maintenance activities will occur pursuant to the adaptive management plan described in Special Condition II-D.

The restoration of Pond A8 to muted tidal habitat poses a potential flood risk. Monitoring will track downstream tidal scour to ensure that no levees will be undermined by the increased tidal action at Pond A8. If a problem arises with levee integrity anywhere along Alviso Slough, Pond A8 will be closed to tidal action. Pursuant to the adaptive management plan, a specially designed water control

structure will be installed at this pond which can reverse tidal action and prevent the risk of flooding or levee integrity according to the USFWS. The USFWS also states that all other project activities will either improve flooding risk or maintain the status quo.

An increase in vegetated wetlands could potentially increase mosquito populations if the areas do not drain properly. The EIS/R for the project states that the potential increase in mosquito populations as a result of the project will be less than significant, as well-drained tidal marshes typically do not provide high-quality habitat for mosquitoes. In addition, the USFWS worked closely with the local Mosquito Abatement Districts in preparing the restoration plan.

There is a risk of invasive species colonizing the restoration site. The USFWS will comply with Special Condition II-C-3 which requires monitoring reports and eradication efforts.

Several ponds in the Alviso Complex contain public utilities infrastructure. In Pond A6, the project will include construction of four new sections of boardwalk to allow access to PG&E's electrical transmission towers. The USFWS states that the project is not expected to affect PG&E's access to existing PG&E power towers in Pond SF2 because the project will include maintaining the areas beneath the towers and boardwalk as seasonal wetland. A section of the existing PG&E boardwalk, approximately 35 feet in length, will be modified to construct a seasonal wetland ditch and allow access over the ditch.

Special Conditions II-A, II-B II-F, and II-G are included in this amended consistency determination to ensure that the Commission reviews and approves plans provided by the USFWS prior to implementing overall site improvements, public access improvements, shoreline protection (i.e., rip-rap), and the marsh restoration program. These special conditions regarding plan review will ensure that the project is carried out in a manner that conforms with the specific provisions included in the Commission's salt pond policies.

Fill activities for Phase One are discussed in the earlier section regarding fill. Public access improvements and water quality protection measures are discussed in following sections of this amended consistency determination.

For these reasons, the Commission finds that the ~~proposed~~ project, as conditioned herein, is consistent with its Bay Plan policies on salt ponds and other wetlands in that the project will enlarge the Bay and improve habitat values, while the solar salt making process continues at Cargill's Newark Plant, and that the restoration has been designed, and will be implemented, managed and maintained in a manner consistent with the Bay Plan salt pond policies.

D. **McAteer-Petris Act and Bay Plan Policies on Public Access**. Section 66602 of the McAteer-Petris Act states that "…existing public access to the shoreline and waters of the…[Bay] is inadequate and that maximum feasible public access, consistent with a proposed project, should be provided."

In addition, the Bay Plan policies on public access state in part, "[p]ublic access to some natural areas should be provided to allow study and enjoyment of these areas. However, some wildlife are sensitive to human intrusion. For this reason, projects in

such areas should be carefully evaluated in consultation with appropriate agencies to determine the appropriate location and type of access to be provided." The policies further state, "[p]ublic access should be sited, designed and managed to prevent significant adverse effects on wildlife…Siting, design and management strategies should be employed to avoid or minimize adverse effects on wildlife, informed by the advisory principles in the Public Access Design Guidelines…." The policies further state, "[p]ublic access should be integrated early in the planning and design of Bay habitat restoration projects to maximize public access opportunities and to avoid significant adverse effects on wildlife." The policies state, "[t]he Commission should continue to support and encourage expansion of scientific information on the effects of public access on wildlife and the potential of siting, design and management to avoid or minimize impacts." Finally, the policies state in part that the Commission's "…Design Review Board should advise the Commission regarding the adequacy of the public access proposed."

As stated earlier, the Bay Plan policies on salt ponds state, in part, that the restoration, enhancement or conversion of salt ponds to subtidal or wetland habitat, "[d]esign and evaluation of the project should include an analysis of…(g) siting, design and management of public access to maximize public access and recreational opportunities while avoiding significant adverse effects on wildlife."

1. **Initial Stewardship Plan.** In assessing whether the public access improvements proposed as part of a public agency project are consistent with Commission law and policy, the Commission must consider whether there is a reasonable relationship between a condition and the impact or burden created by a development project. In this case, the Commission should evaluate the impact of the ~~project~~ ISP on existing public access facilities and the demand on public access facilities that will be generated by the interim project and whether any potential increases in demand on public facilities would arise from completion of the Initial Stewardship Plan.

   The ~~consistency determination~~ USFWS states that "[u]nder prior management for commercial salt operations, most of the ponds included in the ISP [Initial Stewardship Plan] were closed to public access. However, Alviso Ponds A-9 through A-17 and the West Bay Ponds 1 and 2 were previously owned by the USFWS as part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) and were open to the public for pedestrian and bicycle access to promote wildlife observation, wildlife photography, interpretation, and environmental education opportunities. These ponds will continue to be open for similar public access activities during the Initial Stewardship period."

   The ~~consistency determination~~ USFWS also states that "…public access… to the Alviso and West Bay salt pond complexes would be limited to regularly scheduled docent-led tours during the Initial Stewardship period. More extensive public access opportunities in these areas will be developed during the long-term South Bay Salt Pond restoration planning process. Significant use conflicts make it infeasible to provide additional, unsupervised public access at the project site at this time. There are present on the site a number of federally listed species, including the California clapper rail, salt marsh harvest mouse, western snowy plover, California least tern, California black rail, and American peregrine falcon. Additional biological information and trail planning will need to be completed before additional public access is feasible. This is part of the long-term restoration planning process." As noted above, a complex planning and data collection process is under way for the long-term restoration of the project site. The USFWS has agreed to re-evaluate and possibly implement some public access improvements, if a long-term restoration plan has not yet been approved and implemented after 5 years.

   The Commission found that the ISP ~~project~~ is consistent with its laws and policies on public access because: (1) requiring public access in association with the Initial Stewardship Plan could potentially adversely affect wildlife and planning studies must be completed that indicate the appropriate locations, types, and times for public access; and (2) requiring additional public access with this interim project would not be reasonable, if the long-term planning period is not longer than five years, especially because the USFWS is willing to consider implementing some public access improvements, if the long-term restoration plan has not commenced implementation in five years. The Commission finds that this modest public access

proposal is adequate for an interim plan, but should a long-term management proposal take more than 5 years to commence implementation, additional public access should be provided within the project.

2. **Phase One Public Access (Material Amendment No. Five)**

a. **Phase One Improvements.** Public access to the shoreline and views to the Bay currently exist at the SBSPR Project area. Public access is available to the Alviso Ponds through the Don Edwards National Wildlife Refuge with parking at its Environmental Education Center, the Alviso Marina County Park (immediately adjacent to the complex), Crittenden Lane, and Carl Lane (Sunnyvale Water Pollution Control Plant). In addition, public access is available to the Ravenswood Ponds at the parking area at the north and south side of the Dumbarton Bridge off-ramp (to Ravenswood trail at Pond SF2). Multiple users, including bicyclists, hikers on the Bay Trail, fishermen and duck hunters, access the region surrounding the project area.

The EIS/R for the Phase One project discusses the potential for some existing public access areas to be lost or removed as part of the overall SBSPR Project. Phase One activities, however, will not result in any loss of public access. Rather, it will provide a substantial increase in public access. In addition, the USFWS states that "the EIS/R concluded that the maintenance and habitat restoration work proposed at the ponds will enhance habitat for a number of plant, fish, and wildlife species. Overall, these habitat quality increases will result in increases in recreational potential of the project site. The public is expected to be attracted to the site as species populations and composition increase. Specifically, recreational use of the site for bird watching, hunting and fishing is expected to increase. Thus, the restoration activities can be expected to enhance access and recreation at the site and make it a more desirable destination for hikers, boaters, bird watchers, anglers and possibly hunters."

Phase One of the SBSPR Project will increase public access by providing approximately four miles of new trails throughout the Alviso and Ravenswood complexes, a 2.5-mile year-round Bay Trail connection from Sunnyvale to Stevens Creek, a trailhead platform and restroom facilities at Pond SF2, two raised viewing platforms, interpretive stations, and other amenities. Existing trails at Ponds A16 and SF2, will also be upgraded to provide barrier free access. In addition, a viewing platform at the southern edge of Pond A16 will include an interpretive station. A second interpretive station will be located adjacent to the freshwater marsh area along the eastern edge of Pond A16. All of the new access facilities and improvements will be barrier free.

In addition, the USFWS will work with the City of Menlo Park to construct an additional viewing area at a high point in Bayfront Park overlooking Pond R4 and Greco Island. Special Condition II-E is included in this amended consistency determination to ensure that all of these public access improvements occur.

b. **Effects on Wildlife.** In many locations around the Bay, the shoreline edge is a vital area for wildlife. Access to some wildlife areas allows visitors to discover, experience and appreciate the Bay's natural resources and can foster public support for Bay resource protection. However, in some cases, public access may have adverse effects on wildlife (including flushing, increased stress, interrupted foraging, and/or nest abandonment), and may result in adverse long-term population and species effects. The type and severity of effects, if any, on

wildlife depend on many factors, including site planning, the type and number of species present and the intensity and nature of the human activity. Potential adverse effects on wildlife may be avoided or minimized by siting, designing and managing public access. The Commission's advisory document, *Shoreline Spaces: Public Access Design Guidelines for the San Francisco Bay,* cites several strategies to reduce or prevent adverse human and wildlife interactions including: using design elements such as paving materials and site amenities to encourage or discourage specific types of human activities; using durable materials to reduce erosion and to keep users from creating alternate access routes, using physical design features to buffer wildlife from human use such as bridges, boardwalks, moats, fencing, viewing platforms and overlooks, and vegetation; managing the type and location of public use such as restricting specific activities or implementing periodic closures during sensitive periods such as breeding seasons; and incorporating education and interpretive elements.

The USFWS states that "the SBSPR Project will allow public access to the maximum extent compatible with resource protection and maintenance of research and education programs. Unlimited public access to all parts of the wildlife area may be incompatible with resource protection, public safety, and existing regulations."

Phase One actions include upgrading the existing Bay Trail spur along the Bay front of Pond SF2, and constructing two viewing platforms and interpretive stations along the trail. The trail follows an existing levee that will be rehabilitated to allow multi-use. The perimeter of Pond SF2 will be revegetated, in part to provide an additional buffer from human disturbance along the trail and the adjacent highway. A post-and-cable fence will be built along the northwestern side of the pond to further minimize potential intrusion into the managed pond area.

Pond SF2 Viewing Platform East will be located at the eastern edge of Pond SF2, off the levee trail at the edge of the pond. Pond SF2 Viewing Platform South will be located at the southern edge of Pond SF2, off the levee trail at the edge of the pond. To minimize impacts to the pond, both platforms will be raised four feet above the existing grade of the levee. In addition, interpretive stations will describe the process of developing and maintaining a managed pond and explain the value to wildlife.

Phase One activities include the implementation of a number of applied studies researching the potential impacts of landside public access on birds or other target species.

The USFWS currently allows pedestrian and bicycle access (but no dogs) on the existing Alviso Slough Trail, including the levees around A16 and A17. The project will continue to allow the same public access around these ponds, but will implement a number of applied studies on the effects of public access on use of islands by nesting birds and reproductive success of nesting birds in Pond A16. Results of those studies will be used to determine whether periodic closures of trail segments to protect wildlife are needed.

In addition, Special Condition II-C-3 is included in this amended consistency determination which requires that the USFWS monitors the usage of public access areas.

c. **Design Review Board.** The Design Review Board (DRB) initially reviewed this project at its December 10, 2007 meeting in East Palo Alto, following a site visit to the Ravenswood SF2 pond. The DRB focused on four aspects of the public access design: (1) ensuring that elevations of the public access areas were designed appropriately, relative to future sea level rise; (2) adequate parking availability; (3) "access to the access", i.e., ensuring that the public is aware of the project and the new public access areas; and (4) designing the proposed dead end trails to attract more public usage.

The USFWS responded that: (a) viewing platforms would be constructed well above anticipated sea level rise, trails would be built on levees which will have to be raised to protect inland areas from flooding as sea level rise occurs, and many public access platforms and levee trails would be around managed ponds with controlled water levels; (b) key public access areas are accessible by car, bike and foot and parking already exists at all public access areas; (c) the project managers will use different approaches to raise public awareness (billboards, web cams, websites, encouraging school groups to use the refuge, etc.); and (d) wildlife viewing areas would be situated at the ends of the two terminal trails planned for Phase One to provide a "reward" for the public to go to the end.

The DRB reviewed this project a second time at its April 8, 2008 meeting, and recommended that the USFWS review BCDC's shoreline signage guidelines for design direction for the billboard. The DRB also requested that a future review focus on a comprehensive sign program that includes interpretive, way-finding, etc. and that in advertising the project, the USFWS should include a whole network of communication techniques, including technology and/or photography. Special Condition II-A-2 of this amended consistency determination ensures that the DRB will conduct further plan review of public access areas and amenities.

d. **Parking.** Phase One does not include parking facilities. BCDC's Design Review Board expressed concern about the lack of new parking availability in that it may prevent the public from accessing the site. The USFWS responded by stating that parking is currently available "near the Alviso salt ponds complex through the Wildlife Refuge at the Environmental Education Center, the Alviso Marina County Park (immediately adjacent to the complex), near Crittenden Lane, and Carl Lane (Sunnyvale Water Pollution Control Plant). In addition parking is available near the Ravenswood complex at the north and south side of the Dumbarton Bridge offramp (to Ravenswood trail and unnamed trail at Pond SF2)."

e. **Barrier-Free Access**. Bay Plan Public Access policies provide that "improvements should be designed and built to encourage diverse Bay-related activities and movement to and along the shoreline, should permit barrier-free access for the physically-handicapped to the maximum feasible extent, should include an

ongoing maintenance program, and should be identified with appropriate signs."

The USFWS states that they will "…install Americans with Disabilities Act (ADA)-compliant features for all trails over time. Currently, Phase One action ADA-compliant features include the trail to the Salt Works interpretative area and all Ravenswood area recreational features. ADA-compliant features will be added to … the Moffett Bay Trail, and the A16 viewing platform at a later date (these actions may be undertaken during Phase One or during later Phases of the SBSP Restoration Project)." The project will include measures to ensure barrier-free access for the disabled, will provide an appropriate maintenance program, and will identify facilities for the disabled with appropriate signs. These provisions comply with Bay Plan policies to provide barrier-free access because the improvements must meet federal accessibility guidelines adopted pursuant to the ADA. However to assure that these improvements are provided in a timely manner, Special Condition II-E-1-c requires that the barrier-free trail and amenities be implemented either during Phase One or within a reasonable period of time thereafter.

To better assess public access needs in the future, Special Condition II-C-3 of this amended consistency determination requires the USFWS to monitor public use of parking lots, trails, and viewing platforms so that public access facilities can be provided consistent with public demands on the facilities.

The Commission finds that the Phase One project, as conditioned, is consistent with the Bay Plan policies regarding public access.

~~3.~~ E. **Bay Plan Policies on Water Quality.** The Bay Plan policies on water quality state in part, that "[b]ay water pollution should be prevented to the greatest extent feasible. The Bay's tidal marshes, tidal flats, and water surface area and volume should be conserved and, whenever possible, restored and increased to protect and improve water quality. Fresh water inflow into the Bay should be maintained at a level adequate to protect Bay resources and beneficial uses." The policies also state that "[w]ater quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the *San Francisco Bay Regional Water Quality Control Plan, San Francisco Bay Basin* and should be protected from all harmful or potentially harmful pollutants. The policies, recommendations, decisions, advice, and authority of the State Water Resources Control Board and the Regional Board, should be the basis for carrying out the Commission's water quality responsibilities." Finally, the policies also state that "[n]ew projects should be sited, designed, constructed, and maintained to prevent or, if prevention is infeasible, to minimize the discharge of pollutants into the Bay by: (a) controlling pollutant sources at the project site; (b) using construction materials that contain nonpolluting materials; and (c) applying appropriate, accepted, and effective best management practices, especially where water dispersion is poor and near shellfish beds and other significant biotic resources."

1. **Initial Stewardship Plan.** The USFWS will begin the discharge of water to the Bay from a limited number of salt ponds beginning in July and August of 2004, meeting Water Quality Objectives, as outlined by the Regional Water Quality Control Board, San Francisco Bay Region, Waste Discharge Requirements, discussed below. In

March and April of 2005, the USFWS will discharge water from the remaining salt ponds, when salinities within the ponds and receiving waters are at their lowest.

On March 17, 2004 the Regional Water Quality Control Board, San Francisco Bay Region, approved Waste Discharge Requirements for the project. The Regional Board states, in part, that these discharge requirements "…permit discharge from certain ponds under an initial release scenario where high salinities discharged from certain ponds will likely impact beneficial uses in the short term, but impacted areas are expected to fully recover within one year. These requirements also permit subsequent discharge from these ponds as waters from the south bay area are taken into pond systems and then discharged more-or-less continuously (continuous circulation). For the continuous circulation period, the Discharger must manage the pond systems to ensure beneficial uses remain protected. The initial release refers to the time expected to substantially empty salt ponds of their current contents. Modeling performed by the Discharger indicates that the duration of the initial release will be about eight weeks or less…it is the position of the Board that the long-term water quality benefits of this project (i.e., maximizing the acreage of salt ponds restored to tidal marsh habitat) outweigh short-term impacts associated with the initial release."

Because the ISP ~~project~~ will, after the initial discharge period (expected to be approximately 8 weeks), maintain almost all of the existing water surface area and volume of the existing salt ponds, while reducing salinities in many of the ponds to promote use of most of these ponds for a greater variety of fish and wildlife uses, the Commission ~~finds~~ found that the ~~proposed~~ project, with the mitigation measures included herein, ~~is~~ was consistent with its water quality policies because although some short-term water quality impacts will occur, the long-term benefits to Bay water quality exceed the short-term impacts.

2. **Phase One (Material Amendment No. Five).** The project could potentially affect water quality in the SBSPR Project area. Most of the construction will occur inside the ponds prior to being breached and away from the breach locations to prevent releases to adjacent sloughs or creeks. However, breaching levees to restore tidal action to diked salt ponds or increasing circulation into managed ponds can cause adverse changes in turbidity, aquatic habitat sedimentation, or result in exposure to toxic substances and other contaminants. The USFWS states that "short-term channel incision will likely result in increased sediment suspension and water turbidity downstream of areas where erosion is taking place. However, appropriate site-specific design should ensure that this effect will be comparatively minor and that it will decrease and disappear as the system equilibrates as part of habitat restoration." Potential impacts to water quality from methylmercury may result from project implementation, as discussed in section below entitled "Mercury." On August 13, 2008, the USFWS obtained authorization from the RWQCB under waste discharge requirements to construct Phase One of the SBSPR Project.

   The USFWS states that as part of Phase One actions "all managed ponds will comply with water quality discharge requirements and objectives set by the RWQCB." Special Condition II-M requires that the USFWS comply with the provisions of the RWQCB's authorization for the Phase One project.

Construction activities may cause temporary water quality impairment because of discharges to nearby water and/or drainage channels. Best management practices (BMPs) for controlling soil erosion and discharges of other construction-related contaminants will be identified in a Storm Water Pollution Prevention Plan to be prepared by the project sponsors. Best management techniques to be used include floating sediment curtains; the construction of temporary containment berms, baffles, and hay bales; and hydroseeding disturbed slopes with native vegetation. Special Condition II-G of this amended consistency determination requires USWFS to implement BMP's, such as those above, to limit erosion and sediment release and keep effects localized.

a. **Salinity.** The USFWS states that Phase One actions are designed to ensure that discharged salinity levels comply with the RWQCB's water quality standards. Salinity levels will be monitored in Ponds A5, A7, A8, A8S, A16 and SF2 and, if triggers are exceeded in the Adaptive Management Plan, then actions will be implemented to avoid significant impacts. Special Condition II-C-3 requires the USFWS to monitor salinity and Special Condition II-D ensures that appropriate adaptive management actions will be implemented if water quality standards are not met for salinity.

b. **Dissolved Oxygen**. It has been difficult to maintain adequate dissolved oxygen levels at pond discharge points, particularly in the Alviso complex according to the USFWS. There have been three reported occasions in the past four years where severe depletion in dissolved oxygen levels has led to gulls feeding on oxygen stressed fish or conditions where low dissolved oxygen levels caused fish mortality. The project has been designed to minimize high risk factors for low dissolved oxygen. Design elements, including hydraulic residence time, water depth, and mixing will be optimized to maintain dissolved oxygen levels that meet the RWQCB's Basin Plan Water Quality Objectives. Dissolved oxygen levels will be monitored in Ponds A5, A7, A8, A8S, A16, and SF2 and, if triggers are exceeded in the Adaptive Management Plan, then actions will be implemented to avoid significant impacts. Special Condition II-C-3 requires the USFWS to monitor dissolved oxygen and Special Condition II-D ensures that appropriate adaptive management actions will be implemented if water quality standards are not met for dissolved oxygen.

c. **Mercury**. Sediments in some of the ponds throughout the SBSPR Project area contain high levels of mercury contamination. The Alviso complex ponds are an area of special concern given that the historic New Almaden mercury mine released significant quantities of mercury into Guadalupe Slough that accumulated in the Alviso ponds. The remobilization of mercury-contaminated sediments into the water column, either directly (e.g., during excavation of pilot channels) or indirectly (through increased sediment scour after a pond is opened to tidal action), can cause increased mercury concentrations in the water column and sediment in the Bay and have impacts on water quality, and fish and wildlife. In 2006, the RWQCB approved a total maximum daily load (TMDL) plan for mercury in San Francisco Bay which specifies that mercury levels cannot exceed 0.2 part per million (ppm) in large fish and 0.03 ppm in small fish. The Bay mercury TMDL also requires that activities avoid release of sediments

into the Bay that have a median mercury concentration greater than 0.2 ppm, and that existing water quality objectives (0.025 – 0.050 µg/L) for mercury be attained.

The USFWS also states that "to help ensure that these objectives are met, testing of sediments for mercury concentrations has been conducted within ponds to be opened to tidal action, and within sloughs and marshes that may scour following breaching of a pond. As a result of the preliminary testing, a mercury study is currently underway to ensure that impacts on biota are minimized during the restoration process. This mercury study focuses on the Alviso area where mercury levels are known to be high, but also includes sampling sites elsewhere in the South Bay. This study is measuring mercury levels in the sediment, water column, and various sentinel species; measuring the bioavailability of inorganic mercury in sediments; measuring mercury methylation across salinity gradients in managed ponds, marshes, and other habitat types. This study will increase the understanding of mercury cycling within the Project area and will inform management decisions to further minimize mercury exposure."

As tidal habitat is restored in the ponds, there is a potential for increased methylmercury (MeHg) production. MeHg is a particular toxic form of mercury which is more bioavailable to fish and wildlife and therefore can have more adverse effects. Pond A8 is of special concern since it contains a significant amount of mercury-laden sediment. The USFWS states that "restoration of tidal action at Pond A8 is designed to be reversible so that in the event that unacceptable ecological impacts begin to occur, tidal exchange to Pond A8 can be eliminated to prevent long-term adverse impacts."

On August 13, 2008, RWQCB issued waste discharge requirements and a water quality certification authorizing Phase One activities for the South Bay Salt Ponds Restoration Project. The order requires the USFWS to have all discharge waters comply with the water quality objectives set by the Basin Plan; monitor all of the parameters that were proposed in the habitat mitigation and monitoring plan, as discussed in a later section of this amended consistency determination entitled, "Monitoring/Adaptive Management"; and comply with the limits set by the mercury TMDL for mercury concentrations. This amended consistency determination requires USFWS to comply with the RWQCB's authorization. In addition, Special Condition II-C-4 of this amended consistency determination requires USFWS to develop a methylmercy monitoring program to assess methylmercury accumulation at the site in sentinel species, formation of a methyl mercury technical advisory committee, provides for adaptively managing the ponds to reduce methyl mercury if levels exceed acceptable, and making the ponds available to researchers to study methyl mercury. These provisions are similar to those required for the California Department of Fish and Game Napa Salt Pond restoration project (BCDC Permit No. 8-04) and by the RWQCB for this project.

For all these reasons, the Commission finds that the Phase One project, as conditioned, is consistent with its policies on water quality.

~~4.~~ F. **Bay Plan Policies on Fish, Other Aquatic Organisms, and Wildlife and on Tidal Marshes and Tidal Flats and Subtidal Areas.** The Bay Plan policies on fish, other aquatic organisms, and wildlife state, in part, that "[t]o assure the benefits of fish, other aquatic organisms, and wildlife for future generations, to the greatest extent feasible, the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored, and increased." The policies also state that, "[s]pecific habitats that are needed to conserve, increase, or prevent the extinction of any native species, species threatened or endangered, species that the California Department of Fish and Game has determined are candidates for listing as endangered or threatened under the California Endangered Species Act, or any species that provides substantial public benefits, should be protected, whether in the Bay or behind dikes." In addition, the policies state that "[i]n reviewing or approving habitat restoration programs the Commission should be guided by the recommendations in the Baylands Ecosystem Habitat Goals report and should, where appropriate, provide for a diversity of habitats to enhance opportunities for a variety of associated native aquatic and terrestrial plant and animal species." Finally, the policies state that "[t]he Commission may permit a minor amount of fill or dredging in wildlife refuges, shown on the Plan Maps, necessary to enhance fish, other aquatic organisms, and wildlife habitat or to provide public facilities for wildlife observation, interpretation, and education."

The Bay Plan policies on tidal marshes and tidal flats state, in part, that "[w]here and whenever possible, former tidal marshes and tidal flats that have been diked from the Bay should be restored to tidal action in order to replace lost historic wetlands or should be managed to provide important Bay habitat functions, such as resting, foraging, and breeding habitat for fish, other aquatic organisms, and wildlife. As recommended in the Baylands Ecosystem Habitat Goals report, around 65,000 acres of areas diked from the Bay should be restored to tidal action…." The policies also state that "[a]ny tidal restoration project should include clear and specific long-term and short-term biological and physical goals, and success criteria and a monitoring program to assess the sustainability of the project. Design and evaluation of the project should include an analysis of: (a) the effects of relative sea level rise; (b) the impact of the project on the Bay's sediment budget; (c) localized sediment erosion and accretion; (d) the role of tidal flows; (e) potential invasive species introduction, spread, and their control; (f) rates of colonization by vegetation; (g) the expected use of the site by fish, other aquatic organisms, and wildlife; and (h) site characterization. If success criteria are not met, appropriate corrective measures should be taken." The Bay Plan policies on subtidal habitat, state in part, that "[a]ny proposed filling or dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: (a) the possible introduction or spread of invasive species; (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plans; and (e) the Bay's bathymetry. Project in subtidal areas should be designed to minimize, and, if feasible, avoid any harmful effects."

1. **Initial Stewardship Plan.** The environmental document for the ~~project~~ ISP outlines the potential impacts to biological resources in the project area. The document states that there may be potentially significant and significant short-term (24 hours to 8 weeks) impacts from elevated salinity in discharges to benthic organisms in several of the creeks and sloughs in the project area during the initial release period. These short-term impacts will be mitigated to less than significant levels by the

implementation of mitigation measures such as assessing and maintaining salinity in discharges at levels to minimize impacts to invertebrates in receiving waters and other water quality parameters at levels that protect aquatic resources. Special Condition ~~II-G~~ II-J outlines the measures that will be required to protect wildlife from water quality impacts.

The long-term impacts to vegetation are expected to be less than significant during the continuous circulation period. Impacts to vegetation in the project area could occur due to disturbances from the construction of water control structures or the spread of invasive cordgrass. Impacts from the installation or replacement of water control structures will result in the loss of an estimated 158,774 square feet (3.64 acres) in the Alviso and West Bay complexes. The environmental document states that "[t]here are no reports of populations of special-status plants within or adjacent to the project areas, and survey of the proposed water control structure sites did not identify special-status plants in these specific locations. Disturbance and/or loss of common plan communities at these locations would not jeopardize their existence. Therefore, this impact is considered less than significant." Impacts due to invasive cordgrass will be mitigated to less than significant levels by the implementation of mitigation measures, outlined in Special Condition ~~II-I~~ II-L, which requires the removal of invasive cordgrass in areas adjacent to intakes and the monitoring and removal of invasive cordgrass within the ponds themselves.

Impacts to fish could potentially be significant and significant on a short-term basis (24 hours to 8 weeks) from elevated salinity in discharges into adjoining waterways in several of the creeks and sloughs in the project area during the initial release of water from the ponds. A potential for impacts to juvenile fish by entrainment by the water control structures also exists. These short-term impacts will be mitigated to less than significant levels by the implementation of mitigation measures, outlined in Special Conditions ~~II-K-11~~ II-I-11 and ~~II-K-12~~ II-I-12, such as assessing and maintaining salinity and other water quality parameters at levels protective of aquatic resources and closing intakes on salmonid migration routes during periods of juvenile migration. Long-term impacts are expected to be less than significant during the continuous circulation period.

The environmental document for the ~~project~~ ISP states that changes in pond management will result in some wildlife habitat changes. For example, conversion of project area salt ponds to seasonal ponds will result in substantial loss of open water foraging habitat for some waterbirds. This conversion will be beneficial to snowy plovers, however reduction in medium and high salinity ponds will substantially reduce the available foraging habitat for waterbirds which favor this habitat (e.g., sandpipers). The loss of medium- and high- salinity ponds is a significant impact to waterbirds. Although mitigation measures are proposed to mitigate this impact, the impact remains potentially significant even with these measures. Mitigation measures to avoid or minimize impacts to wildlife, in part, include: (1) monitoring waterbird use and comparing pre-implementation of the Initial Stewardship Plan to post-implementation monthly monitoring data to determine waterbird use. If survey results show a major decline in waterbird populations, adaptive management would be implemented to manage more ponds as medium- or high salinity batch ponds; (2) identifying islands and interior levees

in need of protection from water level fluctuation to reduce impacts to nesting bird colonies from increased predator access and/or flooding; and (3) surveying areas to avoid direct impacts to salt marsh harvest mouse, salt mouse wandering shrew, burrowing owl, nesting harriers, and other species, as a result of water control structure construction and if any of these species of special concern are found, construction would be located outside the habitat, if possible, or buffers between construction area and species would be installed and the species monitored, or work would be rescheduled until after nesting season. These mitigation measures are included as Special Condition ~~II-K~~ II-I.

While the ~~project~~ ISP may have some significant impacts to some species of fish and wildlife during the initial construction and discharge period, and by reducing the number of high salinity ponds, it is expected that the project will quickly provide improved habitat function for most San Francisco Bay species. The project also will monitor impacts of the project on fish and wildlife species adjacent to the project to assure protection of species most directly impacted. For these reasons, the Commission finds that the proposed project is consistent with its Bay Plan policies on Fish, Other Aquatic Organisms, and Wildlife and on Tidal Marshes and Tidal Flats and Subtidal Areas, in that the project will result in improved wildlife habitat and special conditions are included in this amended consistency determination that will reduce most of the potential impacts to less than significant levels.

2. **Phase One (Material Amendment No. Five).** Historically, the salt ponds in all three of the SBSPR Project complexes were comprised of tidal marsh and marsh ecotone habitats. Commercial salt production at the site began as early as the mid-1800s and continued into the 1990's. Existing salt pond levees prevent Bay floodwaters and tides from entering the site. Phase One actions will involve the restoration of approximately 3,069 acres of former salt ponds to a mosaic of tidal habitat and managed ponds, which will provide habitat for a broad range of migratory shorebirds and waterfowl, marsh-dependent birds, mammals, fish and other aquatic organisms, including special-status species such as the California clapper rail and the salt marsh harvest mouse. The restoration will also establish connectivity among habitats within and adjacent to the project site, which will allow for the movement of wildlife between habitat types.

   To restore tidal action and hydraulic connectivity at the ponds in Phase One, approximately 49,134 cubic yards of material will be dredged or excavated from 115,870 square feet (2.66 acres) of fringe tidal marsh to construct pilot channels and levee breaches. The project will involve approximately 457,865 cubic yards of fill. The dredging/excavation associated with the Phase One is considered minor in relation to the overall size of the project and the resulting benefits to fish and wildife and the public.

   The project goals, monitoring program, and related criteria for determining restoration success are discussed in an earlier section of this amended consistency determination. In designing and evaluation the restoration project, various factors were considered. For example, the effects of relative sea level rise, which is discussed in Section V.I of this amended consistency determination.

Project design and evaluation also considered the scouring of adjacent tidal marshes, sloughs and channels and the erosion of nearby tidal flats as tidal action is restored at the ponds in the Phase One project area. This impact will potentially occur when levees are breached. There may be inadequate suspended sediment supply available to feed the accreting wetland areas. When levees are breached, sediment may be eroded from nearby tidal flats by the increased tidal prism, thereby impacting, to some unknown degree, the resource values of existing tidal flats.

As discussed earlier in the amended consistency determination, project design and evaluation also considered the potential for introduction and control of invasive species. It is expected that the site will be restored, as planned, within four to five years following project commencement.

The EIS/R for the project found that there is potential for significant impacts to species of birds using the salt ponds. As a result of conversion of 50% of the salt ponds to tidal habitat (Alternative B in the EIS/R), foraging habitat for ruddy ducks could be lost. However, given that Phase One aims to introduce gradual restoration of the SBSPR Project ponds area that will result in approximately 2,450 acres of tidal habitat (16% of the ponds) and 709 acres of managed ponds (5% of the ponds), this is not an immediate issue of concern for Phase One actions.

The U.S. Army Corps of Engineers completed a Section 7 consultation with the USFWS for the entire SBSPR Project. A programmatic Biological Opinion that assessed the potential impacts of the entire project and of the Phase One activities was completed in August 2008. The USFWS opinion on the effects of Phase One actions on the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) (harvest mouse), endangered California clapper rail (*Rallus longirostris obsoletus*) (clapper rail), threatened western snowy plover (*Charadrius alexandrinus nivosus*) (plover), the endangered California least tern (*Sternula antillarum browni*) (tern), and the threatened California brown pelican (*Pelecanus occidentalis californicus*) is that the project will not likely adversely affect any of these species. Furthermore, the Biological Opinion found that the creation of tidal wetlands and managed ponds will greatly increase the amount of habitat that supports these species.

The EIS/R for the project also identified potential impacts to estuarine fish including the federally listed threatened steelhead. Although, the project is expected to have a net benefit to steelhead by increasing estuarine habitat, it is possible that steelhead and other fish could enter managed ponds and become trapped. The project requires a Biological Opinion from the National Marine Fisheries Service (NMFS). The Biological Opinion from NMFS is expected in October 2008. Special Condition II-I-13 requires the USFWS to obtain a Biological Opinion from NMFS. In addition, the USFWS's monitoring program includes sampling of pelagic and demersal fish in and near Ponds A6 and SF2.

Similar to the ISP, Phase One may have some significant impacts to some species of fish and wildlife during the initial period of construction and discharge of salt pond water into the Bay, and a reduction of high salinity ponds. As with the ISP, it is expected that the project will quickly provide improved habitat function for most

Bay species. USFWS also will monitor impacts of the project on fish and wildlife species adjacent to the project to assure their protection.

For these reasons, the Commission finds that the Phase One project, as conditioned, is consistent with its Bay Plan policies on Fish, Other Aquatic Organisms, and Wildlife, on Tidal Marshes and Tidal Flats, and on Subtidal Areas.

~~6.~~ G. **Bay Plan Policies on Mitigation.** The Bay Plan policies on mitigation state, in part, that "[p]rojects should be designed to avoid adverse environmental impacts to Bay natural resources…Whenever adverse impacts cannot be avoided, they should be minimized to the greatest extent practicable. Finally, measures to compensate for unavoidable adverse impacts to the natural resources of the Bay should be required. Mitigation is not a substitute for meeting the other requirements of the McAteer-Petris Act." In addition, the policies state that "[i]ndividual compensatory mitigation projects should be sited and designed within a Bay-wide ecological context, as close to the impact site as practicable, to: (1) compensate for the adverse impacts; (2) ensure a high likelihood of long-term ecological success; and (3) support the improved health of the Bay ecological system. Determination of the suitability of proposed mitigation locations should be guided in part by the information provided in the Baylands Ecosystem Habitat Goals report."

Implementation of the Initial Stewardship Plan and Phase One will lead to significant changes in a large area of the South Bay. The most significant change over the long term will be the conversion of a number of ponds from salt production to tidal and managed wetlands. Over time, ~~a number of animals~~ some wildlife, particularly wading shorebirds and a few species of invertebrates (e.g. brine shrimp and brine fly) has come to depend on the higher salinity ponds for foraging and breeding habitat). Other ~~animals~~ wildlife have come to roost and nest on salt pond levees and islands. The Initial Stewardship Plan ~~is an interim~~ and Phase One are first steps toward managing this 16,000-acre portion of the salt pond complex for wildlife. It seeks to reduce salinity in a number of the ponds, while maintaining a sufficient number of ponds at various salinities to support the species currently utilizing the ponds. Because the ISP ~~is~~ and Phase One are intended to maximize habitat function in the former salt ponds, most Bay plant and animal species will benefit from its implementation. In addition, water quality benefits should also be realized through a reduction in pond salinity and increases in tidal prism and circulation. Even though, some species, particularly those primarily utilizing higher salinity ponds, may experience a decline in the number of individuals as acreage of ponds of such habitat are reduced, ~~Through~~ monitoring and adaptive management will help to ~~, it is anticipated that impacts to such species can be~~ minimize~~d~~ but not fully avoid~~ed~~. ~~However, t~~There is consensus that most Bay species will greatly benefit through implementation of the Initial Stewardship Plan and Phase One and the eventual implementation of the long term restoration plan. ~~For this reason, the project is self-mitigating.~~ Though the Initial Stewardship Plan will result in the loss of approximately 3.56 acres of salt pond water surface area, though there will be some short term impacts on receiving waters as highly saline waters from the salt ponds are ~~controlled~~ release~~s~~d into receiving waters, tidal flats and some channels may experience increased scouring as a result of increased tidal prism, and ~~though~~ some species may experience declines in populations as the number of high salinity ponds are reduced, the overall ~~positive~~ beneficial impact to most Bay species through implementation of

the ISP and Phase One restoration is expected to far outweigh the negative impacts. Furthermore, the project is self-mitigating.

For the above reasons, the Commission finds that both the Initial Stewardship Plan and Phase One projects, as conditioned, ~~is~~ are consistent with its laws and policies on mitigation because the project will result in significantly improved habitat values and is, thus, self-mitigating.

H. **Bay Plan Policies on Dredging**

1. **Phase One (Material Amendment No. Five).** Bay Plan policies on dredging state in part, that "[d]redging and dredged material disposal should be conducted in an environmentally and economically sound manner. Dredgers should reduce disposal in the Bay and certain waterways over time…" According to Dredging Policy Two, the Commission should authorize dredging when it can find that (a) it serves a water-oriented use or other important public purpose; (b) the materials to be dredged meet the water quality requirements of the San Francisco Bay Regional Water Quality Control Board; (c) important fisheries and Bay natural resources will be protected through seasonal restrictions; (d) the project will result in the minimum dredging volume necessary; and (e) the materials will be disposed of in accordance with Policy 3." Dredging Policy Three states in part, that dredged materials should,

if feasible, be reused or disposed outside the Bay and certain waterways. Except when reused in an approved fill project, dredged material should not be disposed in the Bay…."

As part of the project, sediment will be dredged from the Commission's Bay and Salt Pond jurisdictions to: breach levees; create pilot channels, internal channels and habitat islands; create borrow pits; and lower internal levees. Dredged material will be placed in the following areas: at the bottom of salt ponds restored to tidal; at levee tops; within ponds for nesting islands; in historic borrow areas; in ponds to create low berms to guide channel and pond development; to partition ponds into smaller management units; and in dredge cuts to create ditch blocks.

The project is designed to restore habitat at an area designated for wildlife refuge use, a water-oriented use as defined in Section 66605 of the McAteer-Petris Act. The dredged sediment will be reused to create habitat features, such as nesting islands, and to aid in restoration to, for instance, create ditch blocks and raise pond bottoms. Dredged material will not be disposed in the Commission's Bay jurisdiction, therefore, this project will meet the LTMS (Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region) goal of reusing dredged material when feasible in restoration and construction projects.

The RWQCB issued a Waste Discharge Requirement and Water Quality Certification for the project (Order No. R2-2008-0078) on August 13, 2008, which requires that the USFWS the appropriate dredged material screening procedures to characterize sediments prior to any dredging in order to prevent the placement of contaminated sediments on-site. As stated earlier, this amended consistency determination includes a special condition to ensure that the USFWS complies with the RWQCB's authorization.

For all the reasons, the Commission finds that the Phase One project, as conditioned, is consistent with the Commission's dredging policies.

I. **Bay Plan Policies on Sea Level Rise/Safety of Fills.** The Bay Plan policies on Safety of Fills state in part that, "[t]o prevent damage from flooding, structures on fill or near the shoreline should have adequate flood protection including consideration of future relative sea level rise as determined by competent engineers." Additionally, these policies state in part that, "[t]o minimize the potential hazard to Bay fill projects and bayside development from subsidence, all proposed development should be sufficiently high above the highest estimated tide level for the expected life of the project or sufficiently protected by levees…" These policies further state in part that, "[l]ocal governments and special districts with responsibilities for flood protection should assure that their requirements and criteria reflect future relative sea level rise and should assure that new structures and uses attracting people are not approved in flood prone areas or in areas that will become flood prone in the future, and that structures and uses that are approvable will be built at stable elevations should assure long-term protection from flood hazards."

The USFWS states that the project generally utilized a mid-range sea level rise estimate for analysis. The Final EIS/R for the project used the 2001 Intergovernmental Panel on Climate Change (IPCC) mid-range sea level rise estimate of 6 inches by 2050 (3 mm/yr average) and 18 inches by 2100 (6 mm/yr average between 2050 and 2100) (IPCC 2001).

The higher rates in the second half of the century reflect the effects of accelerated sea level rise.

Further, the USFWS states that local subsidence historically occurred due to groundwater withdrawals, but that a reduced rate of groundwater withdrawals coupled with the recharge of aquifers, has resulted in decreased subsidence. According to the USFWS, "[r]ecent estimates of vertical land movements in the Santa Clara Valley (Schmidt and Burgmann 2003) show that only small amounts of subsidence are likely to be occurring in the South Bay that are due to groundwater extraction. In this analysis it is assumed that no land movement due to groundwater withdrawal takes place."

The USFWS plans to further consider sea level rise during the detailed design for each subsequent phase of project implementation, including flood protection levees. According to the USFWS, "[t]he plans will outline a strategy for low-, mid-, and high-end sea level rise predictions. For example, the plan may include building a levee to accommodate the 50-year mid-range sea level rise projection, and incorporate features or outline a process to deal with higher or lower rates of sea level rise…. Higher than anticipated sea level rise could require subsequent design phases to raise the levee (i.e., widening and raising the levee or building a flood wall) before sea level rises above the design level for flood protection. Other options would include overbuilding the levee initially to anticipate a higher rate of sea level rise, either by building a higher levee, or by building a levee with a wider base to more easily accommodate future increases in levee height. The future design of the flood protection levee will balance the cost and benefits of the potential approaches at the time of design. The project-level analysis and design will be presented in a future project-level EIS/R. Subsequent phases of environmental documentation may also be required to address changes to the Project based on updated sea level rise information and analysis. There may be a need to import more fill than currently anticipated in the project's programmatic EIS/R for flood protection levee construction and maintenance of the flood protection and managed pond levees."

Most of the public access for Phase One involves trails and observation areas on the top of, or immediately adjacent to, levees. Some of these trails, particularly those that will be part of the Bay Trail spine, will be on levees that protect inland developed areas from flooding. The U.S. Army Corps of Engineers is currently studying flood protection in the South Bay to determine suitable strategies for protecting developed areas from flooding, but it is likely that some or all of the levees bordering development will be raised. The public access on top of raised levees will, thus, be high enough not to be flooded by anticipated sea level rise. However, depending on adaptive management strategies developed as restoration proceeds, some of the spur trails at levees of ponds that will be managed to provide a variety of habitats may be lost if it is determined that such ponds should be restored to tidal action or it becomes too costly to maintain these levees. All of the built structures, such as observation decks, restrooms, interpretive panels, etc. will either be constructed at elevations sufficient to accommodate expected sea level rise, or will be removed and relocated. Special Condition II-A, regarding plan review in this amended consistency determination will provide the Commission with the opportunity to review and approve such changes in public access when and if they are proposed.

For these reasons, the Commission finds that Phase One work, as conditioned, is

consistent with the policies on safety of fills, particularly as those policies concern public access areas affected by rising sea level.

~~B.~~ J. **Continuing Maintenance of the Ponds (as part of Amendment No. Four of Consistency Determination No. CN 10-03, the following findings ~~have been~~ were excerpted from BCDC Permit No. 4-93, issued to Cargill, to correspond with the maintenance activities the USFWS is assuming from Cargill)**

1. **Salt Pond Policies**. The *San Francisco Bay Plan* salt pond policies state that "as long as is economically feasible, the salt ponds should be maintained in salt production and the wetlands should be maintained in their present use....In addition, the integrity of

the salt production system should be respected (i.e., public agencies should not take for other projects any pond or portion of a pond that is a vital part of the production system)...."

The Bay Plan policies support the continuation of the salt pond system because of its many environmental and open space benefits. Because they are quite shallow and thus easily filled for other types of uses and development, the continued economic viability of the salt pond system is critical. Although a substantial acreage of salt ponds have been purchased as a part of the San Francisco Bay National Wildlife Refuge Complex and by the California Department of Fish and Game, hundreds of acres are still held in fee ownership by the Cargill. Cargill will continue its solar salt making process and produce similar volumes of salt as it did on a greater acreage in the past.

The project authorized herein also provides for maintenance and conversion of the existing salt pond for wildlife purposes primarily through existing practices, including the use of the floating dredge, called the *Mallard*, and use and maintenance of the existing system of "dredge locks." This method of maintaining the salt ponds, which has been used for over fifty years, is the most technologically and economically feasible method for solar salt production in south San Francisco Bay. As described below, the Final Environmental Assessment (Cargill Maintenance Activities, dated February 1995) and its background studies also conclude that this method of salt pond system maintenance is the most feasible. As modified by Special Conditions herein, incorporating the proposed Best Management Practices to lessen and mitigate for adverse impacts to marshes and mudflats, fish and wildlife, and endangered species habitat, as well as providing for potential lock relocations, the Commission finds that the salt pond maintenance work authorized herein complies with the Bay Plan salt pond policies.

2. **Fish and Wildlife.** The *San Francisco Bay Plan* policies on fish and wildlife state that "the benefits of fish and wildlife in the Bay should be insured for present and future generations of Californians. Therefore, to the greatest extent feasible, the remaining marshes and mudflats around the Bay...should be maintained....Specific habitats that are needed to prevent the extinction of any species, or to maintain or increase any species that would provide substantial public benefits, should be protected, whether in the Bay or on the shoreline behind dikes...."

   a. **Adverse Impacts and Reduction and Avoidance Measures**

      (1) **Wetland Impacts.** The South Bay marshes and mudflats support a diverse array of wildlife, including several special status species such as the endangered California clapper rail, California least tern and salt marsh harvest mouse. As described in the Final Environmental Assessment ("FEA", Cargill Maintenance Activities, dated February 1995), the past (i.e., pre-BMP) dredge lock and salt pond levee use and other maintenance activities authorized currently in BCDC Permit No. M76-110 have resulted in approximately 17 acres of temporal disturbance to South Bay salt marshes at any one time because as the dredge enters a new dredge lock, the previously used locks are in the process of revegetating and recovering. As detailed in the FEA (Cargill Maintenance Activities, dated February 1995), wildlife

habitat values substantially recover within five years of disturbance, although a small proportion of the 38 locks are accessed so often that they never fully recover before being re-disturbed. In addition, it should be noted

that these activities have been occurring on an ongoing basis for at least the last fifty years, thus no pristine areas of tidal marsh habitat are being disturbed.

To reduce the impacts of the project, the USFWS will use a set of Best Management Practices, which were fully analyzed in the FEA (Cargill Maintenance Activities, dated February 1995) and are required by Special Conditions of this Consistency Determination to become part of its operating practices. Monitoring of Lock B-1 that was accessed using these BMP's, which have been further refined based upon that experience, indicates that both the extent and duration of temporal impacts are significantly less when implementing the BMP's. Thus, the 17-acre estimate of temporal wetland impacts is considered to be conservative. As part of the BMP's, monitoring of all maintenance activities, particularly dredge lock use and maintenance, will provide data on actual impacts using the BMP's.

(2) **Wildlife/Endangered Species**. As described in the FEA (Cargill Maintenance Activities, dated February 1995), maintenance activities could potentially impact fish and wildlife due to temporary habitat loss, disturbance, and changes in water quality. Impacts to animal species include direct effects on organisms or nests, removal or elimination of habitat, or other types of indirect effects such as changes to water quality. While the direct effects are considered relatively minor, as approximately 17 acres out of 8,600 acres of tidal marsh in the South Bay are disturbed at any one time, they may include impacts on endangered or other special status species, which could be significant.

(3) **Dredge Lock Use and Maintenance.** The potential impacts on animal species due to dredge lock use and maintenance include the direct loss of special status species, including the California clapper rail and salt marsh harvest mouse, due to excavation and deposition of dredge materials. Clapper rails may potentially be lost due to deposition of materials on lock levees at high tide periods when the rails seek refugial cover at such areas. In addition to the implementation of the Best Management Practices required by Special Conditions ~~II-N and II-O~~ II-J and II-K, including advanced noticing, pre-access staking, pre-access surveys, and minimization and avoidance measures, as stated above, Special Conditions ~~II-N and II-O~~ II-J and II-K require monitoring during high-tide events to ensure that no clapper rails are present and, if found to be present, no dredged materials would be placed within 150 feet of the rail nests.

In addition to direct impacts, dredge lock use and maintenance could result in the temporary loss of foraging and breeding areas, and high-tide refugia, which could potentially affect special status species including the salt marsh harvest mouse and California clapper rail. As noted in the FEA (Cargill Maintenance Activities, dated February 1995), however, these activities have been occurring for at least the last 50 years, thus pristine areas are not being disturbed, and the estimated 17 acres of temporal impacts represent 0.2 percent of the 8,600 acres of tidal marsh in the South Bay. However, in addition to the measures mentioned above, Special Conditions ~~II-N and II-O~~

II-J and II-K also requires additional measures recommended by the FEA (Cargill Maintenance Activities, dated February 1995): (a) preservation and enhancement of high-marsh features created at prior lock access events; (b) preservation of outboard vegetation by placing dredged material on the top and inboard slopes only; (c) replanting access cuts with cordgrass plugs following egress; and (d) provision of artificial refugial cover, or floating platforms, several weeks prior to lock access. These measures will reduce these impacts to a less-than-significant level.

During the three days it takes for a dredge to access a lock and move into the salt pond, the associated noise, movement and human activity may disturb species that inhabit adjacent sloughs, mudflats and tidal marsh. As indicated in the FEA (Cargill Maintenance Activities, dated February 1995), this activity may disrupt clapper rails breeding and foraging, harbor seals breeding and pupping, and the heron and egret breeding colony located at Mallard Slough. Thus, Special Conditions ~~II-N and II-O~~ II-J and II-K require mitigating for these impacts by conducting pre-access surveys for clapper rails, and maintaining 150-foot-buffer areas around active nests, and by minimizing active dredging in Bay-side mudflats and tidal marsh near haul-outs, and by maintaining a 300-foot buffer zone around the active nests in the heron and egret rookery during the breeding season. In addition, monitoring of the nests and rookery will be conducted by qualified biologists during active dredge lock use, which will provide empirical evidence to be used to modify these buffers as appropriate.

In its comments on the Draft Environmental Assessment prepared for the Commission's review of the project, the United States Fish and Wildlife Service (Endangered Species Division) indicated that a 150-foot buffer from active clapper rail nests would not be sufficient. However, the Service (Endangered Species Division) has not offered, to this date, any data on whether a larger buffer would provide substantially more protection for the rail. As discussed in the FEA (Cargill Maintenance Activities, dated February 1995), this buffer distance was provided, in consultation with the Commission's biology consultant, Wetlands Research Associates, by Jules Evens, a noted expert on clapper rails, and was therefore incorporated into the proposed Best Management Practices. The required BMP's also provide for a qualified biologist to monitor the rails' activities when a rail nest is near, but not within a buffer zone. Finally, the project, as conditioned to provide monitoring of project impacts on sensitive species and re-evaluation of the BMP's after five years, will provide specific new data on impacts on the rail which will later provide the basis for any necessary modification of buffer distances based upon actual on-site experience.

Finally, the Final Environmental Assessment, has determined that increased predation of the clapper rails and salt marsh harvest mouse could occur due to loss of vegetated cover which enhances predator access. However, Special Conditions ~~II-N and II-O~~ II-J and II-K require measures to preserve and enhance beneficial high marsh refugia, preserve and protect outboard vegetation on lock levees, revegetate access cuts to provide supplemental

refugial access cover, as well as to have the USFWS provide the animal damage control program with additional funds to cover the incremental cost of predator control activities associated with reduced access from levee maintenance activities. Thus, this potential impact will be reduced to a less-than-significant impact.

(4) **Salt Pond Levee Maintenance.** Levee maintenance activities on the salt pond levees include topping the levees with fresh dredged material, discing and grading the levees approximately two to three years after topping, grading the levees and constructing chokers prior to the next round of maintenance.

During the process of placing sediments on salt pond levees, "slip-outs" may occur, potentially causing a small temporary loss of habitat for clapper rails and salt marsh harvest mice. Special Conditions ~~II-N and II-O~~ II-J and II-K require sloping the levees toward the salt pond interior and creating a choker which will greatly reduce the possibility of any slip-outs. In addition, Special Conditions ~~II-N and II-O~~ II-J and II-K require pre-access surveys for clapper rail nests if maintenance is scheduled to occur during its breeding season. If active nests are found, a 100-foot buffer will be required which, along with the salt pond levee which itself provides additional buffer from noise and human activities, will reduce these potential impacts to a less-than-significant level.

Topping the salt pond levees with fresh dredged material may result in the direct loss of individual birds from grading and choker construction and the temporary loss of bare open surfaces with friable substrate, which is suitable habitat for species such as the Western snowy plover and California least tern. Special Conditions ~~II-N and II-O~~ II-J and II-K require measures to reduce and avoid these impacts, including: (a) if maintenance is to occur during the breeding season of the snowy plover or least tern, pre-access surveys and observation of a 200-foot buffer between the dredge and any nests that are found; (b) for maintenance in traditional snowy plover nesting habitat, consultation with a United States Fish and Wildlife Service biologist (Endangered Species Division) and development of a maintenance plan that will fulfill maintenance requirements while providing available plover nesting habitat; and (c) construction of low, linear islands within salt ponds traditionally used by nesting snowy plovers. If placed in a location where deep water surrounds the islands throughout the breeding season (April through July) these islands would afford protection against terrestrial predators, particularly the red fox. However, the buffer restrictions required as part of the BMP's in Special Conditions ~~II-N and II-O~~ II-J and II-K, above, shall not apply to these newly created islands. These required measures will reduce these impacts to a less-than significant level.

Deposition of sediments eliminates the flat, smooth surface adjacent to the water's edge where snowy plovers forage. While the FEA (Cargill Maintenance Activities, dated February 1995) identifies this as a less-than-significant impact for adult plovers, which use adjacent ponds for foraging, there is a potentially significant impact for juvenile plovers if a nest is present. Therefore, Special Conditions ~~II-N and II-O~~ II-J and II-K require pre-

maintenance surveys for nests during the snowy plover breeding season, and the creation of a 200-foot buffer area around any active nests to preserve foraging habitat. These measures will reduce the potential impacts to a less-than-significant level.

Dredged sediment deposition, which occurs on approximately 5 percent of the salt pond levees (10 miles out of 200 total) a year, could potentially affect the California least tern at post-breeding foraging ponds. However, according to the Final Environmental Assessment, monitoring shows that the least terns rarely roost on salt pond levees, preferring artificial islands, duckblinds, boardwalks and other human-made structures. As a result, this is identified as a less-than-significant impact by the FEA (Cargill Maintenance Activities, dated February 1995). The impact will be further reduced through the creation of artificial islands in traditional least tern ponds. Special Conditions ~~II-N and II-O~~ II-J and II-K require that these

islands be placed away from locations where maintenance is scheduled to occur so that undue disturbance to nesting seabirds and shorebirds is avoided.

As with the dredge locks themselves, dredge noise, movement and human activity potentially disrupt breeding, foraging and roosting activity, particularly by the Western snowy plover, California gull, Caspian, Forsters terns, and California least tern. Special Conditions require the protection of these species.

Finally, the FEA (Cargill Maintenance Activities, dated February 1995) states that maintenance activities could potentially force snowy plovers and California least terns to use marginal breeding and roosting sites which would increase the possibility of predation, particularly by the red fox. To reduce this potential impact to a less-than-significant level, the best management practices require the creation of low, linear islands in traditional snowy plover and least tern breeding and roosting ponds, as well as funding of the incremental costs associated with increased predator management activities by the Animal Damage Control personnel.

This amended consistency determination herein provides for various modifications to the restrictions and mitigation measures required in the original permit issued to Cargill, Inc., as assigned to USFWS. These modifications are based upon the biological opinion on the project provided by the USFWS (Endangered Species Division) in 1995, which based its conclusions, in part, on the Draft and Final Environmental Assessment, ~~and~~ will provide the USFWS with consistent requirements in both its state and federal permits. These modifications are generally consistent with the Commission's findings and declarations contained in the original permit and are consistent with the policies of the McAteer-Petris Act and the San Francisco Bay Plan.

3. **Beneficial Impacts.** The Final Environmental Assessment identifies the following beneficial environmental impacts for the project:

   a. **Shorebird and Waterfowl Habitat**. The continued maintenance of the salt pond system preserves habitat for large numbers of wintering shorebirds and waterfowl, and as a stopover for numerous migrating bird species. United States Fish and Wildlife Service studies indicate that the salt ponds hold the majority of over 30 species of waterfowl. As a whole, San Francisco Bay has been identified as a site of critical importance to migrating and wintering shorebirds, and over 60 percent of these occur primarily south of the San Mateo Bridge and within the salt pond system;

   b. **Wildlife Habitat**. The salt pond system provides expanses of open, friable substrate which is suitable nesting habitat for several shorebird and seabird populations that did not commonly breed in the South Bay prior to creation of the salt pond system. These include the American avocet, black-necked stilt, Forster's tern, Caspian tern, California gull, western gull and, of note, the first breeding record for northern California, the black skimmer;

   c. **Snowy Plover Breeding Habitat**. The federally threatened snowy plover is not

otherwise present in the South Bay. However, habitat provided by the salt pond system supports one of the largest breeding populations of snowy plovers in North America; and

d. **California Least Tern Habitat**. The federally endangered California least tern historically nested atop levees and other locations with open, friable substrate throughout the salt pond system. Although these sites have not been used lately, least terns still occur locally, and could breed at these locations in the future. In addition, several of the salt ponds are used by least terns as post-breeding foraging sites.

4. **Alternatives.** As discussed in detail in the FEA (Cargill Maintenance Activities, dated February 1995), many of the adverse impacts noted above, particularly those associated with the use of the dredge, the *Mallard*, are associated with the use and maintenance of existing dredge locks Cargill has employed to gain access to the ponds. The United States Army Corps of Engineers and others have suggested, however, that many of these impacts could be avoided through the use of alternative technologies, or through the relocation of locks. An independent analysis of these alternatives was conducted by Chris Matson of Vickerman-Zachary-Miller Engineers for the consultant on the FEA, which was provided in an attachment to the FEA, along with an additional study completed for the Corps of Engineers. In addition, a multi-agency consultation with Cargill has provided further information on these alternatives. As summarized in the FEA (Cargill Maintenance Activities, dated February 1995), these reviews found the following:

   a. **Lock Relocation**. This alternative would include relocating dredge locks to bayfront segments of levee where there is no marsh, or where access cuts would be less than 70 feet in order to prevent the need for sidecasting material. However, out of the 38 extant dredge locks, a total of 16 ponds with dredge locks have bayfront levees, and of these 8 already have bayfront dredge locks, thus only eight potentially could be relocated. Of the eight available for relocation, four would require access cuts over 70 feet long, leaving only four available for relocation. Finally, given the eroded condition of the existing bayfront locks, such relocation would likely not be successful. However, as part of the continuing review of the maintenance program afforded by the pre-maintenance notification and review, further opportunities for relocating locks from environmentally sensitive sites to less sensitive sites will be defined. It should be noted, however, that creation of a new lock requires a period of years before it is usable, thus any identified relocation opportunities will not likely be available during the first five-year period of this amended ~~permit~~ consistency determination;

   b. **Internal Locks**. This alternative refers to the possibility of creating locks within ponds. While technically feasible in some locations, high maintenance costs and shortage of borrow material may make these practically infeasible. Furthermore, the internal locks would not preclude the need for the dredge to cut through marsh to reach the levee, nor the need to stockpile material on the marsh side of the levee;

   c. **Structural Locks**. This alternative is estimated to cost in excess of $3,000,000 each

and, as with internal locks, the cost and potential environmental impacts render these infeasible;

d. **Land-Based Equipment**. Due to the width of the borrow ditch and exterior salt pond levees, a 70-foot reach is required and existing land-based equipment with such a reach are too heavy and could result in levee damage and potential levee failure. In addition, not all levees are accessible by land. Cargill does use such equipment when feasible, especially near the salt crystallizers; and

e. **Transportable Dredge**. This alternative was found in the Vickerman-Zachary-Miller report and in analyses in the Review Report, letter from Bill Dutra, and peer review committee comments, all provided as part of the Final Environmental Assessment, to be the most technologically feasible in reducing the use of some of the dredge locks. However, it was estimated that the transportable dredge would increase current levee maintenance costs by at least 200 percent.

The advantage of a transportable dredge is that it would access ponds from the land, thus reducing the need for the use of some dredge locks, but impacts from levee maintenance itself would be identical. The analysis concluded that three island pond complexes could not be accessed by land, and that 32 pond complexes would require substantial infrastructure modifications and investment in easements for land access, and three pond complexes would require little structural modification. The costs of these modifications are not included in either of the cost estimates provided.

Finally, while use of the transportable dredge would avoid impacts associated with dredge lock use, it would create separate impacts not now associated with dredge lock use. These include: (1) construction of staging areas, or pads, which would require fill in salt ponds; (2) mobilization of the dredge which would require 20-25 truckloads of equipment and a 120-ton crane, resulting in air quality and noise impacts during transport and construction; (3) refueling every two weeks, in comparison with every two months with the *Mallard*. This additional need for fueling increases the potential for fuel spills and leaks into adjacent wetlands, more levee disturbance, and significantly increased air pollution; (4) the transportable dredge, with a muffler, would generate significantly greater noise than the *Mallard*, which would result in increased potential for disturbance of endangered species; and (5) the transportable dredge has a greater draft than the *Mallard*, which would necessitate additional dredging of material from salt ponds to provide flotation, which could result in increasing dredging amounts.

Therefore, the Commission finds that, due to the additional costs, impacts and constraints of alternative equipment, the proposed use of the *Mallard* and associated dredge locks is the most feasible alternative for salt pond levee maintenance and its use. The Commission also finds that, as modified by the Best Management Practices and mitigation measures as amended and as identified in the FEA, USFWS biological opinion, and as required herein, including continued review of potential lock relocations and other impact minimization and avoidance measures, the use of the Mallard and associated

dredge locks is consistent with the Bay Plan policies on Fish and Wildlife and Marshes and Mudflats.

5. **Compliance With Federal and State Endangered Species Acts**

a. **Applicable Legal Requirements**. The Federal Endangered Species Act (16 U. S. Code sections 1531 through 1543) does not impose any requirements on the Commission in its review and action on this amended ~~permit application~~ consistency determination. Nevertheless, the Commission has evaluated the project in terms of this statute and the data and advice provided by the United States Fish and Wildlife Service.

The California Endangered Species Act (Cal Fish and Game Code sections 2050 through 2068) contains several provisions that apply to this application. First, the Act contains several legislative findings that are pertinent. Section 2052 provides in pertinent part that "[i]t is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat...." Section 2053 provides in pertinent part that "[i]t is the policy of the state that state agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy" and that "reasonable and prudent alternatives should be developed by the department [of Fish and Game], together with the project proponent and the state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible." Finally, section 2055 provides in pertinent part that "[i]t is the policy of this state that all state agencies, boards, and commissions shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of this chapter [the California Endangered Species Act]."

In furtherance of these express policies, the Act establishes a series of procedural requirements for the Commission when it acts as the lead agency, as the Commission is in this case. First, the Commission must consult with the State Department of Fish and Game to ensure that the ~~proposed~~ project is not likely to jeopardize the continued existence of any endangered or threatened species (Cal. Fish and Game Code section 2090(a)). As part of that consultation process, the State Department of Fish and Game ("the Department") must provide a written statement to the Commission concerning whether or not the proposed activity would have such an impact or would result in the incidental taking of any such species (section 2090(b)).

Second, if the Department finds that an activity is likely to result in jeopardy, the Department must specify to the Commission reasonable and prudent alternatives consistent with conserving the species that would prevent jeopardy to the continued existence of the species or the destruction or modification of essential habitat. If the Department determines that an incidental taking may occur, the Department must also specify to the Commission necessary and

appropriate measures to minimize the adverse impacts of the incidental taking (section 2091).

Third, if the Department finds that an activity is likely to result in jeopardy, the Commission must require reasonable and prudent alternatives consistent with conserving the species and preventing jeopardy (section 2092(a)). If specific economic, social, or other conditions make these alternatives infeasible, the Commission may still approve the project despite a finding of jeopardy if both of the following conditions are met: (1) the Commission requires reasonable mitigation measures to minimize the adverse impact of the project on the endangered or threatened species or on the essential habitat and (2) the Commission finds that (i) the benefits of the ~~proposed~~ project clearly outweigh the benefits of the project as carried out with alternatives consistent with avoiding jeopardy and (ii) the applicant has not made an irreversible or irretrievable commitment after the commencement of consultation with the Department that forecloses the opportunity for formulating and implementing alternatives that would prevent jeopardy (section 2091(b)). In any case, the Commission may not approve a project that would likely result in the extinction of any threatened or endangered species based on the best existing scientific information (section 2091(c)).

The Department has not provided the Commission with a jeopardy opinion.

b. **Commission Consultation With the State Department of Fish and Game and Other Agencies**. To meet the requirements of the State Endangered Species Act and the Commission's own policies and procedures, the Commission staff mailed a copy of the application to the State Department of Fish and Game on October 20, 1994 and a summary of the application, including the draft environmental assessment of the proposed project, to the State Department of Fish and Game on October 18, 1994. The Commission staff also mailed a copy of the application and the application summary, including the draft environmental assessment, to other interested agencies, including the United States Fish and Wildlife Service, on October 18, 1994.

The application summary and the draft environmental assessment identified the following species located in the vicinity of the Cargill facilities as having some level of protection or recognition under the California Endangered Species Act: the salt marsh harvest mouse (endangered), the California clapper rail (endangered), the California least tern (endangered), the Alameda song sparrow (California species of special concern), the salt marsh common yellow throat (California species of special concern), the Western Snowy Plover (California species of special concern), the Double-crested Cormorant (California species of special concern), the California gull (California species of special concern), the Northern harrier (California species of concern), the Burrowing owl (California species of special concern), the short-eared owl (California species of special concern), the California horned lark (California species of special concern), and the salt marsh wandering shrew (California species of special concern).

On December 15, 1994 and on January 12, 1995, Brian Hunter, Regional Manager of Region 3, California Department of Fish and Game, wrote to Richard Cooper

of the Commission staff in response to these documents. On December 13, 1994, Joel A. Medlin, Field Supervisor, United States Fish and Wildlife Service, wrote to the Commission, Attn.: Richard Cooper. In addition, staff members of the Commission, the California Department of Fish and Game, the United States Fish and Wildlife Service, the U. S. Army Corps of Engineers, and other interested parties have met on many occasions to discuss the implications of this project viz-a-viz compliance with the State Endangered Species Act, the Federal Endangered Species Act, and other applicable laws and policies.

c. **Consistency ~~of the Permit~~ With the State Endangered Species Act**. These letters and discussions raise a number of issues relative to the State Endangered Species Act. This process led to the incorporation of numerous requirements into this amended consistency determination to protect various endangered and threatened species. Those requirements are contained herein.

Eventually, these discussions eliminated any disagreement on all but the following issues regarding compliance with the federal and state Endangered Species Acts: (1) the suitability of the proposed best management practices, (2) the restoration of 34 acres for suitable habitat for the salt marsh harvest mouse and the California clapper rail, (3) the use of vegetative cover and floating rafts to compensate for the loss of upland refugia needed at high tide, (4) the decision to require a 150-foot buffer zone around clapper rail nests during the breeding season for the Cargill dredge when entering or exiting a pond through a dredge lock, (5) the suitability of using a 100-foot buffer zone around clapper rail nests during the breeding season when working on levee maintenance, (6) the suitability of maintaining a 200-foot buffer zone around any snowy plover or least tern nests during the breeding season, (7) the suitability of requiring the construction of low linear islands in salt ponds and making suitable roosting habitat available at all times as a mitigation measure, and (8) the reliance on Animal Damage Control personnel as a mitigation measure to reduce potential increased predation caused by temporary changes in habitat.

It should be noted that most if not all of the objections raised come from the USFWS (Endangered Species Division) in 1995, not the California Department of Fish and Game. Although the Commission has traditionally considered the comments from this agency, neither the Commission's own law and regulations nor the Federal or State Endangered Species Act requires the Commission to incorporate those comments or recommendations into the Commission ~~permit~~ consistency determination.

As described more fully in the environmental assessment and in the application summary and staff recommendation, the Commission finds that the implementation of the best management practices and other mitigation measures described in the assessment and required by this amended ~~permit~~ consistency determination will adequately protect the endangered and threatened species that Cargill's activities may affect, especially the California clapper rail, the salt marsh harvest mouse, the California least tern, and the western snowy plover.

In addition, the adoption of all of the recommendations of the USFWS

(Endangered Species Division) on these issues would make the continued operation of the Cargill salt operation extremely difficult, if not impossible. Most, if not all, of Cargill's significant maintenance work must occur other than during the winter months. The draft environmental assessment identifies approximately one-third of the existing 38 dredge locks as having nests located in or near them. Thus, the adoption of much larger "buffer zones" within which no work could occur during the breeding season would severely hamper Cargill's ability to conduct necessary levee maintenance activities and could eventually lead to substantial problems maintaining the levees that make up the salt pond system.

Moreover, the USFWS (Endangered Species Division) has not presented any data that shows that the operation of the dredge "Mallard" or Cargill's levee maintenance activities threaten the identified species. In fact, it appears that the past construction of the locks has created conditions attractive to the California clapper rail, the species of most concern. Therefore, the Commission finds that the conditions imposed in this amended consistency determination will provide adequate protection to the California clapper rail, the California least tern, the salt marsh harvest mouse, and the snowy plover.

Finally, many of the areas of concern that this application has raised are characterized by a lack of substantial data so that a complete evaluation of the potential impacts of the proposed maintenance activities and proposed mitigation measures is difficult. Special Conditions to the amended consistency determination respond to this lack of data and resultant uncertainty by requiring Cargill to monitor its activities and to provide the Commission with a report at the end of five years that summarizes the work completed, the best management practices used, and any impact on threatened or endangered species. If necessary, the Commission may at any time require modifications to the best management practices if it determines such changes are appropriate to protect special status species after appropriate consultation.

6. **Bay Fill.** Section 66605 of the McAteer-Petris Act, in part, provides that "further filling of San Francisco Bay should be authorized only when public benefits from fill clearly exceed public detriment from the loss of the water areas and should be limited to water-oriented uses (such as...water-oriented recreation...) or minor fill for improving shoreline appearance or public access to the bay....That fill in the bay for any purpose, should be authorized only when no alternative upland location is available for such purpose....That the water area...to be filled should be the minimum necessary to achieve the purpose of the fill....That the nature, location and extent of any fill should be such that it will minimize harmful effects to the bay area, such as, the reduction or impairment of the volume surface area or circulation of water, water quality, fertility of marshes or fish or wildlife resources...."

   The project authorized herein includes the continued practice of using existing dredged material stockpile locations, some of which are located in the Commission's Bay jurisdiction. These stockpiles, which are used to dry material in order to create an effective dam after dredge lock and salt pond access, are re-used, thus disturbance occurs generally in the same location. Therefore, Cargill asserted that no "new" fill is proposed. However, as the material is removed and then replaced with new material on each pass (typically once every 5 to 10 years), the Commission finds that the material is new Bay fill each time it is placed. The staff notes that the fill associated with this activity has a very unique type and purpose. The temporary fill authorized herein is a necessary part of maintenance activities for shoreline protection surrounding the salt pond system. Thus, the proposed fill is used to prevent salt pond waters, at various levels of salinity, from entering Bay waters, or the reverse, and is an integral part of the solar production of salt. The Cargill has used the same stockpile locations at the dredge locks for many years, as it has determined, through practice, where the best locations are for the purpose of maintaining salt pond levees and preventing unnecessary erosion of the dredge locks themselves. As the levee tops are disced and graded prior to maintenance, and the levee sides are steep, the use of stockpiles in the Bay are the only feasible alternative available to Cargill. The amount of fill placed in the stockpiles is that which the dredge crews determine is the amount required for the damming of the levees. It does not appear that more Bay mud is stockpiled than is necessary; however, this is a judgment that is difficult to verify. The project, as conditioned, includes several methods to minimize the amount of fill placed and any adverse impacts, including staking the stockpiles areas to reduce them to a minimum foot-print. Finally, the authorized project provides many public benefits, including the habitat maintenance described above, flood protection, retaining 29,000 acres in open space, and the provision of benefits to the local, regional and national economies.

   Therefore, the Commission finds: (1) that the public benefits of the temporary fill, including the provision of habitat and open space, flood control, and continuation of an existing industry, outweigh the detriments of the temporary fill; (2) that the temporary fill is a necessary part of maintenance that provides continued shoreline protection and is, therefore, an allowable use under the McAteer-Petris Act and is consistent with the Bay Plan policies on fill; (3) that the temporary fill is the minimum amount necessary, as a result of long-time practices and special conditions of this amended consistency determination; and (4) that no feasible

upland alternative exists for the fill.

7. **Dredging.** The *San Francisco Bay Plan* policies on dredging state, in part, that "dredging should be authorized when the Commission can find that the applicant has demonstrated that the dredging is needed to serve a water-oriented use or other important public purpose, the materials to be dredged meet the water quality requirements of the San Francisco Bay Regional Water Quality Control Board, important fisheries and Bay natural resources would be protected, and...the maximum feasible amount of dredged material should be disposed of at non-tidal sites or in the ocean. Until non-tidal upland disposal sites are secured and ocean disposal sites designated, aquatic disposal in the Bay should be authorized at sites designated by the United States Army Corps of Engineers and the Commission. Dredged materials disposed of aquatically in the Bay, particularly at the Alcatraz Island disposal site, should be carefully managed to ensure that the amount and timing of disposal does not create navigational hazards, adversely affect Bay currents or natural resources of the Bay, or foreclose the use of the site by projects critical to the economy of the Bay Area."

   The dredge lock use and maintenance include the dredging of the dredge lock access channels in the Bay, where the dredged material is either placed in stockpiles or used on dredge lock or salt pond levees. If the access channel is greater than 70 feet in length, the dredge cannot reach these locations, and the material is sidecast. The project also includes periodic dredging at the Redwood City loading dock and Newark barge canal, with disposal on top of salt pond levees, in salt pond borrow ditches, at dry land locations, or at an available Bay or ocean disposal site.

   As part of the Best Management Practices required herein, the USFWS is required to decrease dredging and dredging impacts by (1) placing dredged material excavated from the dredge lock interior into temporary areas along the access cut, then pulling the material back into the cut upon exit, (2) excess material excavated from the dredge lock interior not needed for dredge lock maintenance will be placed on the salt pond levees or in salt pond borrow ditches for later salt pond maintenance; and (3) maximizing opportunities for placing material from the access cut on existing stockpiles.

   The purpose of the proposed dredging for dredge lock use and maintenance is to maintain and continue existing solar salt production in San Francisco Bay. As noted above, analysis of alternative methods and technologies appears to indicate that there is no other viable method of conducting such maintenance.

   As stated previously, the proposed dredging for salt pond maintenance activities is an activity that has been occurring on an ongoing basis for at least the last fifty years. Throughout this period, the original permittee has frequently been in contact with the San Francisco Bay Regional Water Quality Control Board regarding these activities, and the Regional Board has not objected to their continuation. Both the original permittee and the Commission staff contacted the Regional Board regarding this project and, to date, no objections have been received. There are, however, the following potential impacts on water quality, which are discussed in the Final Environmental Assessment as follows:

   a. **Changes in Turbidity and Dissolved Oxygen**. As discussed in the Final

Environmental Assessment, most of the material dredged from the access cut is placed on levees or on stockpiles, both of which are above the mean high water line. However, a portion of the material is placed below the Mean High Water line and enters the water column. These impacts are considered insignificant, as they occur within tidal sloughs, mudflats and tidal marsh, where high levels of turbidity already occur and the benthic organisms present in those locations are adapted to such conditions. Monitoring of dredging associated with levee maintenance shows an increased turbidity and decreases in dissolved oxygen that last five to seven days, potentially resulting in small localized fish kills in low salinity ponds where fish occur. This effect occurs in the salt ponds themselves, and only in a small portion of the ponds where the dredge is actively dredging, and ambient levels are attained after one week following dredging; and

b. **Contaminants**. As described in detail in the Final Environmental Assessment, existing levels of background mercury in the sloughs and marshes of South Bay are high and are found in rails and other species and proposed dredging may increase the bioavailability of this contaminant. However, recent analyses conducted by scientists associated with the Aquatic Habitat Institute indicate that significant increases in sediment concentrations of mercury from the proposed activity are highly unlikely. For example, at Lock A7, where some of the highest mercury concentrations in the South Bay occur, an estimated potential increase of mercury concentration of 0.066 mg/kg that is within the range of natural variation of mercury levels in the area. However, as a result of inter-agency consultations, a one-time testing program was conducted by Cargill which is intended to determine whether the authorized project results in any significant increases of bioavailable mercury in the areas near the levees and locks, or in the prey of the clapper rail.

   The Commission finds, therefore, that based upon the results of its review of available data, the requirement on the part of the original permittee to develop adequate data on the water quality impacts of the project, and on the requirement for Cargill to obtain further authorization from the Regional Water Quality Control Board, the project, as conditioned, is consistent with the Bay Plan policies on water quality.

c. **Public Access.** The *San Francisco Bay Plan* policies on public access state that "in addition to the public access to the Bay provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible access to and along the waterfront and on any permitted fills should be provided in and through every new development in the Bay or on the shoreline....Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment, including protection of natural resources, and provide for the public's safety and convenience....Access to the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available...."

   The original project proposed providing access for scientists, agency staff persons, and other interested parties to the mitigation site in order to review and

study the progress of marsh restoration in a former salt pond. It has not, however, proposed public access to the salt pond levees or any access improvements as part of the project. However, access to almost 50 percent of the salt pond system is currently provided by the San Francisco Bay National Wildlife Refuge. In addition, the project authorized herein would not include any additional impacts, or burdens, to existing public access in the area of the project. Thus, the Commission was not able to find any burden, or nexus, between the authorized project and public access needs. In addition, these are areas of extremely valuable habitat for large numbers of wildlife that could potentially be harmed by unregulated human intrusion, especially during certain seasons of the year. Finally, most potential locations to provide access are along narrow salt pond levees constructed out of Bay mud, which may not be conducive to public access due to the type and quality of the surface materials, periodic topping with fresh sediments, their proximity to high tides, and other safety considerations, particularly during stormy conditions.

The Commission finds, therefore, that although the maintenance work authorized herein includes no additional public access, the project is consistent with its policies on public access.

d. **Mitigation.** The Bay Plan policies on mitigation, state, in part, that "...mitigation for the unavoidable adverse environmental impacts of any Bay fill should be considered by the Commission in determining whether the public benefits of a fill project clearly exceed the public detriment from the loss of water areas due to the fill and whenever mitigation is necessary for the Commission to comply with the provisions of the California Environmental Quality Act....Mitigation should consist of measures to compensate for the adverse impacts of the fill to the natural resources of the Bay, such as to water surface, volume or circulation, fish and wildlife habitat or marshes or mudflats....When mitigation is necessary to offset the unavoidable adverse impacts of approvable fill, the mitigation program should assure: (1) that benefits from the mitigation should be commensurate with the adverse impacts on the resources of the Bay and consist of providing area and enhancement resulting in characteristics and values adversely affected; (2) that the mitigation would be at the fill project site, or if the Commission determines that on-site mitigation is not feasible, as close as possible; (3) that the mitigation measures would be carefully planned, reviewed, and approved by or on behalf of the Commission, and subject to reasonable controls to ensure success, permanence, and long-term maintenance; (4) that the mitigation would, to the extent possible, be provided concurrently with these parts of the project causing adverse impacts; and (5) that the mitigation measures are coordinated with all affected local, state, and federal agencies having jurisdiction or mitigation expertise to ensure, to the maximum practicable extent, a single mitigation program that satisfies the policies of all the affected agencies....”

As delineated in the Final Environmental Assessment, an estimated maximum of 17 acres of disturbance to existing salt marsh have occurred in the past due to maintenance activities conducted prior to the use of the BMP’s required herein at any one time. These impacts are considered temporal, however, in that the

wetland and habitat values of the disturbed areas regenerate within five years after disturbance (although a small number of locks are accessed more than once each five years, thus this small proportion of locks may not fully regenerate before being re-disturbed).

As mitigation for the estimated 17 acres of temporal impacts, the original permittee implemented a mitigation program to convert a 49 -acre portion of salt pond B-1 to salt marsh, including low, intermediate, and high tidal marsh. The restoration project will provide suitable habitat for special status species, particularly the California clapper rail and salt marsh harvest mouse. The mitigation project will include constructing new levees within a salt pond, grading the area to be converted to appropriate elevations, then breaching the existing exterior levee to restore tidal action to the site. At this time, the amended consistency determination requires natural revegetation, as opposed to planting wetland species, and allowing the salt marsh to be naturally colonized by wetland species. Special Conditions in the original permit, however, required a five-year monitoring program, at which time, if deemed necessary, Cargill would take necessary measures to ensure the success of the mitigation. Furthermore, even though the 17-acre estimate of temporal impacts is considered to be conservative (i.e., a high estimate), if monitoring of project impacts reveals that more acreage is being disturbed than 17 acres, Cargill would have to increase the size of the mitigation area to maintain a 2-to-1 ratio. The additional 15 acres of tidal marsh restoration authorized and required by Amendment No. One herein, as recommended by the USFWS (Endangered Species Division) in 1995, will better offset potential impacts of salt pond maintenance activities on clapper rails to the point that some of the impact avoidance measures required by the original permit can be eliminated.

The three potential sites proposed for mitigation include Salt Ponds 1 and 9 in the Baumberg system, and Salt Pond 23 in the Alviso system. In consultation with the appropriate resource agencies, including the United States Army Corps of Engineers, United States Fish and Wildlife Service, and Department of Fish and Game, the Salt Pond B-1 alternative was selected, as this pond has the greatest potential for successful restoration.

In determining the appropriateness of the mitigation, it should be noted that salt ponds, particularly those with low salinity, do provide habitat for several species of fish and wildlife. Thus, tidal restoration of a 34-acre salt pond would take 34 acres of salt pond out of production and convert existing habitat values. However, this would be only a very small proportion of the existing 29,000-acre salt pond system.

The Commission finds, therefore, that the conversion of 34 acres of salt pond B-1 is appropriate mitigation for the adverse impacts of the project, and will provide 2-to-1 mitigation for the habitat values disrupted by the project. As such, the mitigation is consistent with the Bay Plan policies on mitigation.

e. **Environmental Document-Lead Agency.** As lead agency for the maintenance project (conducted for the permit issued to Cargill in 1995), the Commission complied with the California Environmental Quality Act through use of its

"functional equivalency" regulations. The Commission prepared, with the assistance of a peer review committee, made up of experts in fields of wetlands, endangered species, fisheries and engineering, a Notice of Preparation of the Environmental Assessment, and a Draft Environmental Assessment, and received numerous comments, which, along with responses to these comments, have been incorporated into the attached Final Environmental Assessment. The Commission finds that, with the inclusion of the Best Management Practices and other conditions listed in Section II, above, along with 34 acres of mitigation for the estimated 17 acres of temporal impacts of the project, the project will have no significant adverse impacts on the environment, and will include substantial environmental and economic benefits, and hereby approves the environmental assessment. The Commission further finds and declares that, under the terms and conditions stated herein, the project authorized herein is consistent with Public Resources Code sections 21000 though 21177. I.

K. **Non-Material Amendments**

1. **Amendment No. One.** Amendment No. One resulted in revisions to Special Condition ~~II-B-2~~ II-P, "Prevention of Flooding," to clarify the language declaring that the Commission is not responsible for any flooding that could result from the project. These revisions do not materially alter the project and thus are consistent with Regulation Section 10822, which authorizes the Executive Director to issue a non-material amendment.

2. **Amendment No. Two.** Amendment No. Two authorized the dredging of an additional 3,595 cubic yards of material from the Alviso System A14 and Alviso System A16. The additional material must be dredged to create deeper, intake/out flow channels through wetland vegetation. The area of impacts through wetland vegetation will remain the same, as the channels will be dredged deeper, not wider. The work authorized under Amendment No. Two is not a material alteration of the project and is thus consistent with Regulation Section 10822, which authorizes the Executive Director to issue a non-material amendment.

3. **Amendment No. Three.** Amendment No. Three authorizes an increase in the area that fill will be placed in the Island Ponds (Ponds 19, 20, and 21) from 67,953 square feet to 148,500 square feet. This increase in fill area is necessary as it has been determined that the fill should be placed in such a way as to not be higher than one foot above the pond bottom in order to allow for the establishment of marsh vegetation within the ponds while maintaining adequate water circulation. Additionally, Amendment No. Three revises the monitoring requirements for the waterbird surveys, allowing these surveys to occur every two months rather than every month. The Service believes that bimonthly surveys will still provide sufficient data to analyze the evolution of the ponds and will reduce the financial burden of monthly surveys. All these modifications are simple refinements to the previously defined project and do not materially change it. Thus, the work authorized in Amendment No. Three is not a material alteration of the project and is thus consistent with Regulation Section 10822, which authorizes the Executive Director to issue a non-material amendment.

4. **Amendment No. Four.** Amendment No. Four authorizes the excavation of 3,700 cubic yards of material to widen the tidal channel conveying water from Pond A14 to Coyote Creek. Currently, Bay water is taken in at Pond A9 at high tide, circulated through Ponds A10, A11 and is returned to the Bay at low tide through the Pond A14's water control structure. The water control structure discharges water into a small tidal slough channel that was dredged to connect with an existing tidal channel that leads to Coyote Creek. The slough channel that receives water from Pond A14 is too small and restricts discharge from the pond and thus, the residence time for water in the pond is too long, decreasing dissolved oxygen levels in the water. In order to increase the levels of dissolved oxygen in the discharged water to remain in compliance with Regional Water Quality Control Board's water discharge requirements, it is necessary to increasing the capacity of the dredged slough channel in order to facilitate increased circulation of water through Ponds A9-A14. Approximately 0.5 acres of tidal marsh will be removed during the excavation. However, the channel that will result in this loss of marsh habitat will benefit the overall health and functionality of the ponds that are part of the Initial Stewardship Plan, because water quality and circulation of several hundred acres of former salt ponds will be greatly improved, thereby improving wildlife habitat. The work authorized in Amendment No. Four, therefore does not constitute a material change of the originally authorized project and therefore is consistent with Regulation Section 10822, which authorized the Executive Director to issue a non-material amendment.

L. **Commission Jurisdiction.** Government Code Section 66610(c) defines the Commission's salt pond jurisdiction as "…all areas which have been diked off from the bay and have been used during the three years immediately preceding the effective date of the amendment of this section during the 1969 Regular Session of the Legislature for the solar evaporation of bay water in the course of salt production." All of the ponds that are a part of Phase One satisfy those criteria and therefore are subject to this amended consistency determination are and will continue to be with the Commission's salt pond jurisdiction. Commission Regulation Section 10710 supports this conclusion; it states that areas once subject to Commission jurisdiction remain subject to that same jurisdiction even if filled or otherwise artificially altered. Further, Government Code Section 66610(a) defines the Commission's "Bay" jurisdiction as "…all areas that are subject to tidal action…." Phase One will result in breaching some salt pond levees and opening them to tidal waters and therefore, will extend the Commission's "Bay" jurisdiction inland to Mean High Tide or, in areas containing tidal marsh, to the inland edge of marsh vegetation up to five feet above Mean Sea Level (Material Amendment No. Five).

~~L.~~ M. **Coastal Zone Management Act.** The Commission, pursuant to the Coastal Zone Management Act of 1972, as amended (16 USC Section 1451), and the implementing Federal Regulations in 15 CFR Part 930, is required to review Federal projects within San Francisco Bay and agree or disagree with the Federal agency's determination that the project is consistent with the Commission's amended coastal zone management program for San Francisco Bay. The Commission finds and certifies that the work proposed by the USFWS as conditioned and described herein and in the information submitted, is within the coastal zone and is consistent with the Commission's amended

coastal zone management program for San Francisco Bay, as approved by the Department of Commerce.

~~M.~~ N. **Environmental Review.** The California Department of Fish and Game (DFG) and the USFWS, as lead agencies for the overall project, prepared, circulated and, on March 11, 2004, certified a Final Environmental Impact Report/Environmental Impact Statement (EIS/R) for the South Bay Salt Ponds Initial Stewardship Plan. The same two agencies prepared and circulated a revised version of the EIS/R, which evaluates the potential impacts of Phase One actions. The Final EIS/R was issued in December of 2007 and certified by the DFG in March 2008.

~~N.~~ O. **Conclusion.** For all of the above reasons, the Commission finds that the benefits of the proposed project exceed the detriments of the fill and the project will sufficiently protect fish and wildlife resources and maintain water quality in the Bay. Therefore, the project is consistent with the Commission's amended coastal zone management program for San Francisco Bay.