WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-1 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 26' 39" N Long: 121 57' 48" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 10 and Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Scirpus acutus var. occidentalis*	85	X	OBL
2. *Typha latifolia*	15		OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust	0			

Remarks:

Estuarine, brackish, tidal wetlands dominated by tule. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5 Y 3/1		7.5 YR 4/6	20+	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	___	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	X	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, low-chroma, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
___	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
___	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, brackish, tidal marsh with approximately 1-inch of standing water observed during flood tide. Hydrology criteria met.

Photograph A-1. USACE Section 10 and Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-2 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 26' 38" N Long: 121 57' 51" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___
Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Alviso Salt Pond A16 represents current Section 404 Other Waters of the U.S. Photo not included.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: n/a (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL Species	x 5 =	
Column totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ Dominance Text is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	0			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** _____ **No** **X**
	Total Cover:	0			
% Bare Ground in Herb Stratum	100	% Cover of Biotic Crust			

Remarks:
Vegetation absent.

SOIL

Sampling Point: A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Soil sample pit not excavated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonal hydrology associated with incidental rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-3 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Salt Pond Levee Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 27' 3" N Long: 121 58' 17" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 10 and Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Lepidium latifolium*	60	X	FACW
2. *Scirpus robustus*	30	X	OBL
3. *Salicornia virginica*	10		OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	60	x 2 =	120
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	100 (A)		180 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust	0			

Remarks:

Brackish wetland vegetation dominated by Lepidium latifolium. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: A-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5 Y 3/2			20+	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	___	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	X	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, low-chroma, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
___	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
___	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology criteria met.

Photograph A-3. USACE Section 10 and Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-4 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 26' 20" N Long: 121 59' 50" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Scirpus robustus*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	100			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0		

Remarks:

Estuarine, brackish, tidal wetlands adjacent to Alviso Slough. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: A-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5 Y 3/1			10+	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	___	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	X	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, low-chroma, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

					Secondary Indicators (2 or more required)
X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
X	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
___	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 3+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, brackish, tidal marsh with approximately 3-inches of standing bay water observed during flood tide. Hydrology criteria met.

Photograph A-4. USACE Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-5 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 26' 18" N Long: 121 59' 50" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Observation point with less than 5% hydrophytes overall. Alviso Salt Pond A8N represents current USACE Section 404 Other Waters of the U.S. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	<5		OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL Species	x 5 =	
Column totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	<5			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No** ___
	Total Cover:	0			
% Bare Ground in Herb Stratum	95+	% Cover of Biotic Crust			

Remarks:
Less than 5% hydrophytes present overall within observation point.

SOIL

Sampling Point: A-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Soil sample pit not excavated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 3+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonal hydrology associated with incidental rainfall.

Photograph A-5. USACE Section 404 Other Waters.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-6 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 27' 22" N Long: 122 1' 15" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	100			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No** ___
	Total Cover:	0			
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0		

Remarks:

Estuarine, tidal wetlands dominated by pickleweed associated with Alviso Slough. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: A-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	Gley 2.5/10 Y		7.5 YR 4/6	20	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)
___	Hydrogen Sulfide (A4)	X	Loamy Gleyed Matrix (F2)
___	Stratified Layers (A5) **(LRR C)**	___	Depleted Matrix (F3)
___	1 cm Muck (A9) **(LRR D)**	___	Redox Dark Surface (F6)
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)
___	Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils[3]:

___	1 cm Muck (A9) (**LRR C**)
___	2 cm Muck (A10) (**LRR B**)
___	Reduced Vertic (F18)
___	Red Parent Material (TF2)
___	Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, gleyed-matrix, hydric soils. Hydric soils criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
X	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
___	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, tidal marsh. Hydrology criteria met.

Photograph A-6. USACE Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Alviso City/County: Alviso/Santa Clara Sampling Date: 28 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: A-7 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 1W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 27' 22" N Long: 122 1' 16" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Observation point with less than 5% hydrophytes overall. Alviso Salt Pond A6 represents current USACE Section 404 Other Waters of the U.S. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	<5		OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL Species	x 5 =	
Column totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	<5			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum	95	% Cover of Biotic Crust			

Remarks:
Less than 5% hydrophytes present overall.

SOIL

Sampling Point: A-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Soil sample point not excavated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- X Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology within salt pond associate with seasonal, incident rainfall. Hydrology criteria met.

Photograph A-7. USACE Section 404 Other Waters.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Ravenswood City/County: Redwood City/San Mateo Sampling Date: 27 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: R-1 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 3W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 29' 49" N Long: 122 7' 41" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	100			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0		

Remarks:

Estuarine, tidal wetlands dominated by pickleweed. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: R-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	5 Y 3/2						Bay mud/silt	
3-18	Gley 1 2.5/5 GY						Bay mud/silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	X	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	___	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Reduced, gleyed-matrix, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
X	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
X	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	___	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 2

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes X No _____ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, tidal marsh with approximately 2-inches of Bay water documented during flood tide. Hydrology criteria met.

Photograph R-1. USACE Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Ravenswood City/County: Redwood City/San Mateo Sampling Date: 27 September 2007
Applicant/Owner: USFWS, Don Edward San Francisco Bay National Wildlife Refuge State: California Sampling Point: R-2 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 5S, R 3W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 29' 48" N Long: 122 7' 43" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X		
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	Yes No X
Wetland Hydrology Present?	Yes X	No		

Remarks:
Ravenswood Salt Pond SF2 represents current USACE Section 404 Other Waters of the U.S. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL Species	x 5 =	
Column totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Text is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	0				___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum						
1. *none*						[1]Indicators of hydric soil and wetland hydrology must be present.
2.						**Hydrophytic Vegetation Present?** **Yes** _____ **No** **X**
	Total Cover:	0				
% Bare Ground in Herb Stratum	100	% Cover of Biotic Crust				

Remarks:
Vegetation absent.

SOIL

Sampling Point: R-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Soil sample pit not excavated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonal hydrology associated with incident rainfall.

Photograph R-2. USACE Section 404 Other Waters.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Eden Landing City/County: Newark/Alameda Sampling Date: 27 September 2007
Applicant/Owner: California Department of Fish and Game State: California Sampling Point: E-1 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 4S, R 3W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 36' 4" N Long: 122 8' 31" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks:
"Whale's Tail Marsh." Positive indicators observed for each of three wetland parameters. USACE Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

					Problematic Hydrophytic Vegetation[1] (Explain)
Total Cover:					
Woody Vine Stratum					[1]Indicators of hydric soil and wetland hydrology must be present.
1. *none*					
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
Total Cover:	0				
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0		

Remarks:

Estuarine, tidal wetlands dominated by pickleweed. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: E-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	Gley 1 2.5 10Y		7.5 YR 4/6	20	C	RC/M	Bay mud/silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	X	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	___	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, gleyed-matrix, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
X	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
X	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

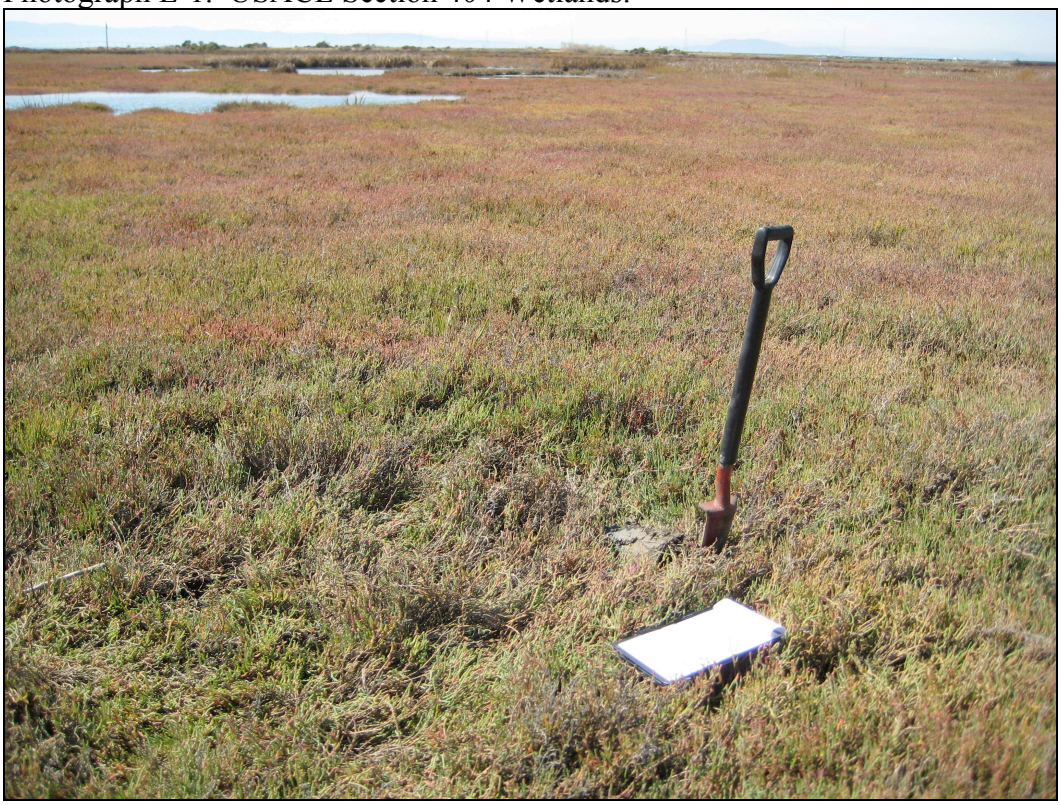
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, tidal marsh with approximately 1-inch of Bay water observed during a flood tide.

Photograph E-1. USACE Section 404 Wetlands.



WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Eden Landing City/County: Newark/Alameda Sampling Date: 27 September 2007
Applicant/Owner: California Department of Fish and Game State: California Sampling Point: E-2 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 4S, R 3W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 36' 4" N Long: 122 8' 28" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E1UBKL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Eden Landing Salt Pond E9 represents current USACE Section 404 Other Waters of the U.S. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		

Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		

Herb Stratum			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Text is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	0			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** _____ **No** **X**
	Total Cover:	0			
% Bare Ground in Herb Stratum	100	% Cover of Biotic Crust		0	

Remarks:
Vegetation absent.

SOIL

Sampling Point: E-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Soil sample pit not excavated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology within salt pond associated with water control structures.

Photograph E-2. USACE Section 404 Other Waters.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Eden Landing City/County: Newark/Alameda Sampling Date: 27 September 2007
Applicant/Owner: California Department of Fish and Game State: California Sampling Point: E-3 (Soil Sample Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 4S, R 3W
Landform (hillslope, terrace, etc.): Tidal Plain Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 36' 52" N Long: 122 7' 50" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E2EMN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Positive indicators observed for each of three wetland parameters. USACE Section 404 wetlands. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X Dominance Text is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	100			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** **X** **No**
	Total Cover:	0			
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0		

Remarks:

Estuarine, tidal wetlands dominated by pickleweed. Hydrophytic vegetation criteria met.

SOIL

Sampling Point: E-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	Gley 1 2.5 10Y						Bay mud/silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Redox (S5)	___	1 cm Muck (A9) (**LRR C**)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)	___	2 cm Muck (A10) (**LRR B**)
___	Black Histic (A3)	___	Loamy Mucky Mineral (F1)	___	Reduced Vertic (F18)
___	Hydrogen Sulfide (A4)	X	Loamy Gleyed Matrix (F2)	___	Red Parent Material (TF2)
___	Stratified Layers (A5) (**LRR C**)	___	Depleted Matrix (F3)	X	Other (Explain in Remarks)
___	1 cm Muck (A9) (**LRR D**)	___	Redox Dark Surface (F6)		
___	Depleted Below Dark Surface (A11)	___	Depleted Dark Surface (F7)		
___	Thick Dark Surface (A12)	___	Redox Depressions (F8)		
___	Sandy Mucky Mineral (S1)	___	Vernal Pools (F9)		
___	Sandy Gleyed Matrix (S4)				

Indicators for Problematic Hydric Soils[3]:

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Reduced, gleyed-matrix, hydric soils. Hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crust (B11)	___	Water Marks (B1) (**Riverine**)
___	High Water Table (A2)	___	Biotic Crust (B12)	___	Sediment Deposits (B2) (**Riverine**)
X	Saturation (A3)	___	Aquatic Invertebrates (B13)	___	Drift Deposits (B3) (Riverine)
___	Water Marks (B1) (**Nonriverine**)	___	Hydrogen Sulfide Odor (C1)	___	Drainage Patterns (B10)
___	Sediment Deposits (B2) (**Nonriverine**)	___	Oxidized Rhizospheres along Living Roots (C3)	___	Dry-Season Water Table (C2)
X	Drift Deposits (B3) (**Nonriverine**)	___	Presence of Reduced Iron (C4)	___	Thin Muck Surface (C7)
___	Surface Soil Cracks (B6)	___	Recent Iron Reduction in Plowed Soils (C6)	___	Crayfish Burrows (C8)
___	Inundation Visible on Aerial Imagery (B7)	X	Other (Explain in Remarks)	___	Saturation Visible on Aerial Imagery (C9)
___	Water-stained Leaves (B9)			___	Shallow Aquitard (D3)
				___	FAC-Neutral Test (D5)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 4+

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Estuarine, tidal marsh with over 4-inches of Bay water observed during a flood tide.

Photograph E-3. USACE Section 404 Wetlands.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: South Bay Salt Pond Restoration Project, Eden Landing City/County: Newark/Alameda Sampling Date: 27 September 2007
Applicant/Owner: California Department of Fish and Game State: California Sampling Point: E-4 (Observation Point)
Investigator(s): H. T. Harvey & Associates, B. Cleary Section/Township/Range: T 4S, R 3W
Landform (hillslope, terrace, etc.): Salt Pond Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Lat: 37 36' 51" N Long: 122 7' 49" W Datum: NAD83
Soil Map Unit Name: Bay Mud NWI classification E1UBKL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Observation point with less than 5% hydrophytes overall. Eden Landing Salt Pond E13 represents current USACE Section 404 Other Waters of the U.S. See attached photo.

VEGETATION

Tree Stratum (Use scientific names)	Absolute Cover %	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum			
1. *none*			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Salicornia virginica*	<5		OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL Species	x 5 =	
Column totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Text is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

	Total Cover:	<5			___Problematic Hydrophytic Vegetation[1] (Explain)
Woody Vine Stratum					
1. *none*					[1]Indicators of hydric soil and wetland hydrology must be present.
2.					**Hydrophytic Vegetation Present?** **Yes** _____ **No** **X**
	Total Cover:	0			
% Bare Ground in Herb Stratum	95+	% Cover of Biotic Crust		0	

Remarks:

Less than 5% hydrophytes present overall within observation point.

SOIL

Sampling Point: E-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils comprised of historic bay mud. Munsell color matrix not recorded.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology within salt pond associated with seasonal incidental rainfall and occasional minor use of a permanently-installed water pump. Hydrology criteria met.

Photograph E-4. USACE Section 404 Other Waters.