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Naval Facilities Engineering Command
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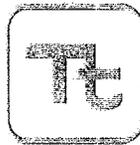
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**TECHNICAL MEMORANDUM
WETLAND ASSESSMENT**

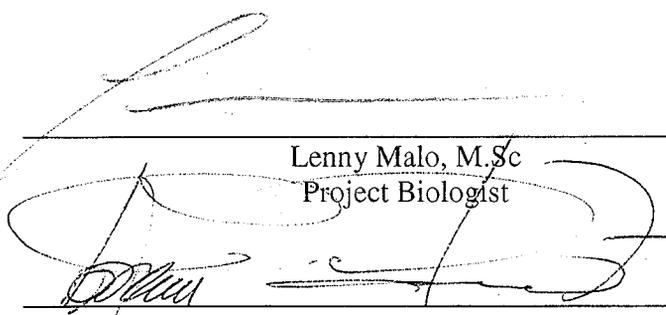
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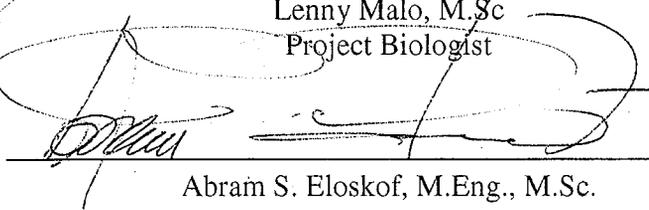
**RADIOLOGICAL SURVEY AT
INSTALLATION RESTORATION SITE 1, 1943-1956 DISPOSAL AREA
AND SITE 2, WEST BEACH LANDFILL
ALAMEDA POINT
ALAMEDA, CALIFORNIA**

DCN: FWSD-RAC-04-1410



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Southwest Division
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Neil Hart, Program Manager

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ABBREVIATIONS AND ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOA	Department of the Army
EPA	U.S. Environmental Protection Agency
IR	Installation Restoration
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
OHWM	ordinary high-water mark
SCS	Soil Conservation Service
SWANCC	Solid Waste Agency of Northern Cook County
TtFW	Tetra Tech FW Inc.
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture

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**SUBJECT: TECHNICAL MEMORANDUM
WETLAND ASSESSMENT**

**REF: RADIOLOGICAL SURVEY AT
INSTALLATION RESTORATION SITE 1
1943-1956 DISPOSAL AREA AND SITE 2 WEST BEACH LANDFILL
ALAMEDA POINT, ALAMEDA, CALIFORNIA**

1.0 INTRODUCTION

This section describes the seasonal wetland assessment activities associated with the pending radiological surveys to be conducted on Alameda Point within Installation Restoration (IR) Site 1, 1943-1956 Disposal Area (Site 1), and IR Site 2, West Beach Landfill (Site 2). In March 2004, the Tetra Tech FW Inc., (TtFW) Project Biologist conducted a seasonal wetland field assessment to determine the potential extent of Section 404 (b)(1) Clean Water Act (CWA) jurisdictional features as overseen by the U.S. Army Corps of Engineers (USACE). Prior to the start of field activities at IR Sites 1 and 2, the TtFW Project Biologist examined all areas proposed for vegetation clearing. The TtFW Project Biologist then delineated the potentially jurisdictional wetland boundaries at IR Sites 1 and 2, by staking/pin and flagging abrupt boundaries on the ground. The staking/pin and flagging established a visual boundary so that site personnel could identify potential jurisdictional wetland areas and avoid temporary impacts to the maximum extent possible. The wetland boundaries were transferred to a topographic base map of the site. The results of the wetland assessment are presented in the following discussion.

2.0 REGULATORY FRAMEWORK

This field assessment was completed pursuant to the permit exemption in Section 121(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). IR Sites 1 and 2 on Alameda Point are on the National Priorities List (NPL) as a Superfund site. Specifically, permit exemptions apply for all work conducted within IR Sites 1 and 2; however, the substantive requirements must still be met. The Department of Defense has the authority to undertake

CERCLA response actions, including removal actions, under 42 United States Code (USC) Section 9604, 10 USC, Section 2705, and federal Executive Order 12580. However, all site activities are still conducted in a manner to ensure compliance with the substantive requirements of the CWA and Executive Orders 11990 and 11998, Protection of Wetlands and Floodplain Management.

3.0 WETLANDS ASSESSMENT METHODS

A wetland assessment and field evaluation of vegetation, soils, and hydrology of potentially jurisdictional features were conducted in accordance with the procedures of the USACE *Wetlands Delineation Manual* (USACE, 1987), Department of the Army (DOA) *Clarification and Interpretation of the 1987 USACE Manual* (1992), and the recent January 9, 2001, U.S. Supreme Court-issued decision for the Solid Waste Agency of Northern Cook County (SWANCC). Additionally, wetland "type" identification criteria developed by Cowardin, et al. (1979) and Reed (1988) were also employed. USACE wetland delineation data sheets are available upon request. Botanical species names were recorded according to *The Jepson Manual - Higher Plants of California* (Hickman, 1993) and Reed (1988).

Because the historical record indicates that the site land area resulted from fill operations using dredged materials from the surrounding San Francisco Bay, soil types were not confirmed with the U.S. Department of Agriculture, Soil Conservation Service (SCS) publications. A Munsell Color Book (Munsell Color 2000) was used¹ to determine the soil color(s) and any mottles that may be present. To determine soil color, the TtFW Project Biologist placed a small portion of soil (moistened) in the openings behind the color page and matched the soil color to the nearest appropriate color chip. Additionally, the recent version of National Technical Committee for Hydric Soils hydric soil criteria were used as recommended by the DOA (1992). Criteria published in the June 1991 Hydric Soils of the United States [U.S. Department of Agriculture (USDA), SCS] specify that at least 13 consecutive days of saturation or 7 days of inundation during the growing season in most years is one of the criteria used to define hydric soils.

Hydrology was evaluated in areas suspected of being seasonally inundated and/or saturated to the surface or some period during the growing season as wetlands, provided the soil and vegetation parameters were met as defined in the *Wetlands Delineation Manual* (USACE, 1987). Areas wet between 5 percent and 12.5 percent of the growing season in most years may be

¹ Three features characterize soil color: hue, value, and chroma. Hue refers to the soil color in relation to red, yellow, blue, and so forth. Value refers to the lightness of the hue. Chroma refers to the strength of the color, or departure from a neutral of the same lightness. Each Munsell Color Book has color charts of different hues, ranging from 10R to 5Y. Each page of hue has color chips that show values and chromas. Values are shown in columns down the page from as low as zero to as much as 8, and chromas are shown in rows across the page from as low as zero to as much as 8. In writing Munsell color notations, the sequence was always hue, value, and chroma e.g. 10YR5/2.

potential USACE jurisdictional wetlands (USACE, 1987). However, areas saturated to the surface for less than 10 percent of the growing season were not classified as wetlands during this assessment.

To evaluate hydrologic data, growing season dates were required. A soil temperature regime (period of the year when soil temperature is at 20 inches below the surface) above 5 degrees Celsius was used as the primary definition of growing season. Site-specific data are not available for IR Sites 1 and 2, therefore; for this wetland assessment, the local growing season was estimated from climatologically data given from the USDA Natural Resource Conservation Service (NRCS) Alameda County Soil Survey (1981) and from the Oakland Museum Precipitation Data Center provided by the Western Region Climate Center (Oakland Museum). Precipitation Data included frequency of rainfall events and inches of precipitation (January 2003 through March 2004). The local growing season was determined to be between 275 and 330 days.

Potential waters of the U.S. were identified in the field by the presence of a well-defined bed and bank and ordinary high-water mark (OHWM). Potential jurisdictional waters of the U.S. in this assessment also had to demonstrate potential resource value for wildlife species, provide flood control, and had to have some connection to a navigable water, its tributaries, and wetlands or be adjacent to a navigable waterway and tributary. (Isolated features are not included as potentially 404 jurisdictional, but were evaluated). All potential jurisdictional features within IR Sites 1 and 2 area noted on Figure 1.

The USACE and the United States Environmental Protection Agency (EPA) regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the CWA. The USACE jurisdiction over non-tidal "waters of the United States" extends to the "ordinary high water mark provided the jurisdiction is not extended by the presence of wetlands" [33 Code of Federal Regulations (CFR), Part 328, Section 328.4]. Waters of the United States are defined as:

All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide, all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which would affect interstate or foreign commerce, including such waters which are or could be used by interstate or foreign travelers for recreational or other purposes, or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce, or which are used or could be used for industrial purposes by industries in interstate commerce; all impoundment of waters otherwise defined as waters of the United States interstate commerce, tributaries of waters identified in paragraphs 1-4 of this section, the territorial sea; and wetlands adjacent to waters (40 CFR, Part 230.3).

Wetlands are defined for regulatory purposes as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR, Part 328.3, 40 CFR, Part 230.3). The USACE will typically take jurisdiction over the portion of a project site that contains waters of the United States and/or adjacent wetlands. The USACE will typically not take jurisdiction over agricultural-irrigation canals and drains or hydrologically isolated features that lack vegetation or a connection to a navigable water, its tributaries, and wetlands.

4.0 WETLANDS ASSESSMENT RESULTS

A wetland assessment evaluating vegetation, soils, and hydrology of potentially jurisdictional seasonal features (seasonal wetland) was conducted at IR Sites 1 and 2 on February 29 through March 13, 2004. Potential jurisdictional seasonal wetlands found within the sites are listed in Table 1 and presented on Figure 1. A description of each identified feature is provided following the table. The descriptions of the features include characterizations of acreage, soil types, hydrology, and vegetation (including wetland indicator status noted in brackets).

Table 1. *Potential Jurisdictional Seasonal Wetlands Within the IR Sites 1 and 2 Areas

I.D. Number	Classification	Acreage	Dominant Vegetation
SW1	Seasonal Wetland	1.06	Sand Pygmy Weed, Annual Bluegrass, Lose Strife Hyssop, Water-Smartwort, Brass Buttons, and <i>Geranium dissectum</i>
SW2	Seasonal Wetland	1.43	Sand Pygmy Weed, Annual Bluegrass, Lose Strife Hyssop, Water-Smartwort, Brass Buttons, and <i>Geranium dissectum</i>
SW3	Seasonal Wetland	7.05	Saltgrass, Dock willow, English Plantain, Birds Foot Trefoil, Brass Buttons, Creeping Spikerush, and two unknown grass species which could not be identified during the time of survey
SW4	Seasonal Wetland	1.61	Saltgrass, English plantain, Birds Foot trefoil, Creeping Spikerush, and one unknown grass species which could not be identified during the time of survey
SW5	Seasonal Wetland	3.05	Saltgrass, Dock Willow, Birds Foot Trefoil, Brass Buttons, Common Pickle Weed, <i>Lolium multiflorum</i> , Barley, and <i>Geranium dissectum</i>
SW6	Seasonal Wetland	1.04	Saltgrass, Common Pickle Weed, Birds Foot Trefoil, English Plantain, and <i>Geranium dissectum</i>
SW7	Seasonal Wetland	0.22	Sand Pygmy Weed, Annual Bluegrass, Saltgrass, Common Pickle Weed, Birds Foot Trefoil, English Plantain, and <i>Geranium dissectum</i>
SW8	Seasonal Wetland	0.08	Saltgrass, Dock Willow, Birds Foot, Brass Buttons, Common Pickle Weed, Barley, and <i>Geranium dissectum</i>

Notes:

*Permanent wetlands on IR Site 2 are not included in this report but are present on the map because they were previously identified as USACE jurisdictional.

Seasonal Wetland 1 (SW1)

Acreage

This seasonal wetland occupies a vegetated area on the northwest side of the study area within IR Site 1. This feature is approximately 1.06 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Observed soils were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 9 days. Additional hydrology indicators included the following: 1-inch depth to surface water; 6-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; water stained leaves; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrologically connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of sand pygmy weed (*Crassula erecta*) [FAC], annual bluegrass (*Poa annua*) [FACW-], loose strife hyssop (*Lythrum hyssopifolia*) [FACW], Water-Smartwort (*Callitriche* sp.) [OBL], brass buttons (*Cotula coronopifolia*) [FACW], and *Geranium dissectum* [no indicator status]. Greater than 80 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 2 (SW2)

Acreage

This seasonal wetland occupies a vegetated area on the upper southwest side of the study area within IR Site 1. This feature is approximately 1.43 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 8 days. Additional hydrology indicators included the following: 14-inch depth to free water in the soil pit; 8-inch depth to saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; water stained leaves; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrologically connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of sand pygmy weed (*Crassula erecta*) [FAC], annual bluegrass (*Poa annua*) [FACW-], loose strife hyssop (*Lythrum hyssopifolia*) [FACW], Water-Smartwort (*Callitriche* sp.) [OBL], brass buttons (*Cotula coronopifolia*) [FACW], and *Geranium dissectum* [no indicator status]. Greater than 80 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 3 (SW3)

Acreage

This seasonal wetland occupies a vegetated area in the southern portion of the study area within IR Site 1. This feature is approximately 7.05 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11% of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 14 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrologically connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of saltgrass (*Distichlis spicata*) [FACW], dock willow (*Rumex salicifolius*) [OBL], English plantain (*Plantago lanceolata*) [FAC-], birds foot trefoil (*Lotus corniculatus*) [FAC], brass buttons (*Cyperus eragrostis*) [FACW], Creeping Spikerush (*Eleocharis macrostachya*) [OBL], and two unknown grass species, which could not be identified during the time of survey [cannot determine]. Greater than 62 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 4 (SW4)

Acreage

This seasonal wetland occupies a vegetated area along the eastern boundary of the study area within IR Site 1. This feature is approximately 1.61 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the

USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 14 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrological connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of saltgrass (*Distichlis spicata*) [FACW], English plantain (*Plantago lanceolata*) [FAC-]; birds foot trefoil (*Lotus corniculatus*) [FAC], creeping spikerush (*Eleocharis macrostachya*) [OBL], and one unknown grass species, which could not be identified during the time of survey [cannot determine]. Greater than 60 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 5 (SW5)

Acreage

This seasonal wetland occupies a vegetated area in the northern portion of the study area within IR Site 2. This feature is approximately 3.05 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles

from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 14 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrologically connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of saltgrass (*Distichlis spicata*) [FACW], dock willow (*Rumex salicifolius*) [OBL], birds foot trefoil (*Lotus corniculatus*) [FAC], brass buttons (*Cyperus eragrostis*) [FACW], common pickle weed (*Salicornia rubra*) [OBL], *Lolium multiflorum* [FAC], barley (*Hordeum* sp.) [No indicator status], and *Geranium dissectum* [no indicator status]. Greater than 75 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 6 (SW6)

Acreage

This seasonal wetland occupies a vegetated area in the northeastern portion of the study area within IR Site 2. This feature is approximately 1.04 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate

and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 14 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrologically connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of saltgrass (*Distichlis spicata*) [FACW], common pickle weed (*Salicornia rubra*) [OBL]; birds foot trefoil (*Lotus corniculatus*) [FAC], English Plantain (*Plantago lanceolata*) [FAC-], and *Geranium dissectum* [no indicator status]. Greater than 60 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 7 (SW7)

Acreage

This seasonal wetland occupies a vegetated area in the northeastern portion of the study area within IR Site 2. This feature is approximately 0.22 acre in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season), during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 14 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrological connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of sand pygmy weed (*Crassula erecta*) [FAC], annual bluegrass (*Poa annua*) [FACW-], saltgrass (*Distichlis spicata*) [FACW], common pickle weed (*Salicornia rubra*) [OBL], birds foot trefoil (*Lotus corniculatus*) [FAC], English plantain (*Plantago lanceolata*) [FAC-], and *Geranium dissectum* [no indicator status]. Greater than 70 percent of the dominant plant species observed were obligate or facultative in nature.

Seasonal Wetland 8 (SW8)

Acreage

This seasonal wetland occupies a vegetated area in the eastern portion of the study area within IR Site 2. This feature is approximately 0.08 acres in size.

Soils

Soils were identified by digging a soil pit to a depth of 16 inches within the topographic low of the basin feature identified on Figure 1. The soil observed was sandy and is described by the USDA NRCS as consisting of permeable sandy fill material dredged from old beach areas (USDA NRCS, 1981). Soils observed were characterized as mainly heterogeneous fill material with pieces of asphalt, concrete, sandstone, and fragments of glass making up the soil profile in the upper 18 inches. The soil profile was sandy with a matrix color 10YR 3/1 without mottles from zero to 8 inches, and consisted of a matrix color 2.5YR 4/2 without mottles from 8 to 16 inches. Hydric soils were determined to be present due to the low-chroma color of the substrate and the aquatic moisture regime of the soil. Soil inclusions within the fill exhibit hydric soil conditions likely because of topography (depressions).

Hydrology

Based on local climate data and observations of similarly vegetated nearby jurisdictional wetlands, it is a reasonable probability that this specific basin is frequently ponded for a long duration, greater than 37 days (greater than approximately 11 percent of the growing season),

during the growing season. Hydrology for this wetland is provided from tidal fluctuations, upland runoff, precipitation, and a high groundwater table. Standing water and saturated soils were observed at the surface for greater than 10 days. Additional hydrology indicators included the following: 4-inch depth to free water in the soil pit; inundated and saturated soil condition in the upper 12 inches of the soil profile; watermarks; drift lines; and drainage patterns within potential seasonal wetland features. This feature is adjacent to San Francisco Bay and hydrological connected within the 100-year floodplain.

Vegetation

The dominant vegetation consists of saltgrass (*Distichlis spicata*) [FACW], dock willow (*Rumex salicifolius*) [OBL], birds foot trefoil (*Lotus corniculatus*) [FAC], brass buttons (*Cyperus eragrostis*) [FACW], common pickle weed (*Salicornia rubra*) [OBL], barley (*Hordeum* sp.) [No indicator status], and *Geranium dissectum* [no indicator status]. Greater than 70 percent of the dominant plant species observed were obligate or facultative in nature.

Wetland Functions and Values

Seasonal wetland habitats provide food, water, migration and dispersal corridors, and nesting and breeding habitat for a variety of wildlife species. The potential jurisdictional wetlands within IR Sites 1 and 2 are on an essential portion of the Pacific Flyway bird migration route. Numerous amphibian, reptile, avian, invertebrate and mammalian species are residents or visitors in seasonal wetland habitats due to the vegetation's structural diversity. European starlings, red-winged blackbirds, snipes, common sparrows, Canada geese and other migratory waterfowl, harrier's, Black-tailed jackrabbits, California ground squirrels and feral rabbits have been observed within IR Sites 1 and 2. However, no California or Federal Endangered Species Act listed or candidate plants or wildlife have been identified during vegetation and wildlife surveys performed from 1995 to 2004. Seasonal wetland habitats are essential in breeding, rearing, and feeding grounds for many species of wildlife. Seasonal wetlands also provide important flood protection and pollution control.

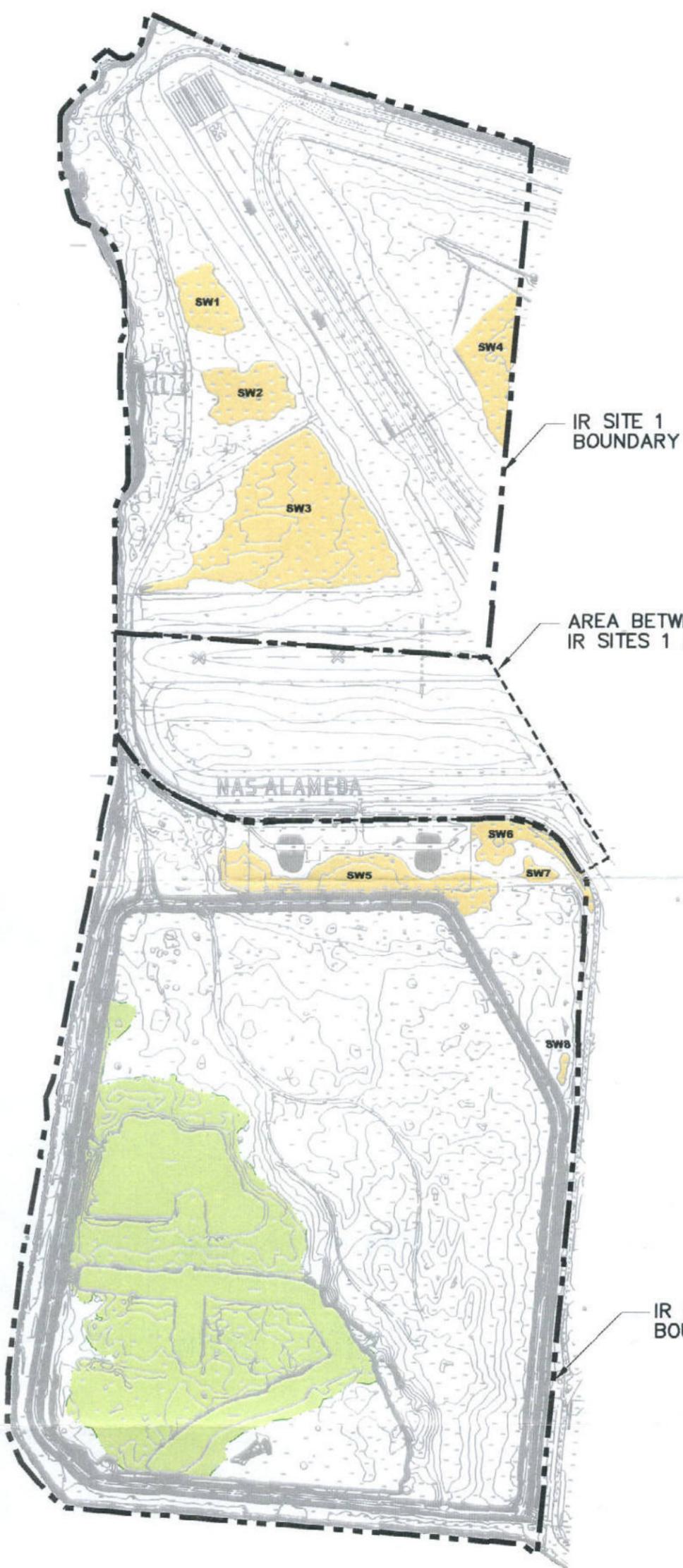
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FIGURES

DRAWN BY: MD	CHECKED BY: VR	APPROVED BY: AE	DCN: FWSD-RAC-04-1410	DRAWING NO:
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Potential Jurisdictional Seasonal Wetlands within the IR Sites 1 and 2 Areas.*

I.D. Number	Classification	Acreage	Dominant Vegetation
SW1	Seasonal Wetland	1.06	Sand Pygmy Weed, Annual Bluegrass, Lose Strife Hyssop, Water-Smartwort, Brass buttons, and <i>Geranium dissectum</i>
SW2	Seasonal Wetland	1.43	Sand Pygmy Weed, Annual Bluegrass, Lose Strife Hyssop, Water-Smartwort, Brass buttons, and <i>Geranium dissectum</i>
SW3	Seasonal Wetland	7.05	Saltgrass, Dock willow, English plantain, Birds foot trefoil, Brass buttons, Creeping spikerush, and two unknown grass species which could not be identified during the time of survey
SW4	Seasonal Wetland	1.61	Saltgrass, English plantain, Birds foot trefoil, Creeping spikerush, and one unknown grass species which could not be identified during the time of survey
SW5	Seasonal Wetland	3.05	Saltgrass, Dock willow, Birds foot, Brass buttons, Common pickle weed, <i>Lolium multiflorum</i> , Barley, and <i>Geranium dissectum</i> .
SW6	Seasonal Wetland	1.04	Saltgrass, Common pickle weed, Birds foot trefoil, English plantain, and <i>Geranium dissectum</i>
SW7	Seasonal Wetland	0.22	Sand Pygmy Weed, Annual Bluegrass, Saltgrass, Common pickle weed, Birds foot trefoil, English plantain, and <i>Geranium dissectum</i> .
SW8	Seasonal Wetland	0.08	Saltgrass, Dock willow, Birds foot, Brass buttons, Common pickle weed, Barley, and <i>Geranium dissectum</i> .

Notes:
 *Permanent wetlands on IR Site 2 are not included in this report but are present on the map because they were previously identified as ACOE jurisdictional.

LEGEND

- SITE BOUNDARY
- SEASONAL WETLAND
- PERMANENT WETLAND¹

NOTE:
 1 PERMANENT WETLAND FEATURE PREVIOUSLY EVALUATED. SOURCE: FINAL ORDNANCE AND EXPLOSIVE WASTE/GEOTECHNICAL CHARACTERIZATION REPORT, [TETRA TECH FW INC. (TTFW), 2004] JANUARY.



REFERENCE:
 HJW-GeoSpatial, Inc., Upland topography NAD27, NGVD29 - CCS Zone III.

Figure 1
WETLAND ASSESSEMENT AREAS
 IR SITE 1 AND 2 - ALAMEDA POINT
 ALAMEDA, CA

TETRA TECH FW, INC.