

**DELINEATION OF POTENTIAL JURISDICTIONAL WETLANDS  
AND “OTHER WATERS”**

**GIACOMINI WETLAND RESTORATION PROJECT**

**MARIN COUNTY, CALIFORNIA**



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## INTRODUCTION

This report describes the methods and results of a delineation of the waters of the United States, including special aquatic sites such as wetlands, for the Giacomini Wetland Restoration Project (Project). Point Reyes National Seashore (Seashore), a unit of the National Park Service (Park Service), will be preparing an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for this Project. The Project proposes to restore natural hydrologic and ecological processes and functions to a historic coastal marsh that was diked in the 1940s for operation of a dairy. The Park Service purchased the Waldo Giacomini dairy ranch (Giacomini Ranch) in 2000 for the purpose of wetland restoration. Since that time, the Park Service has been working on assessing existing conditions and initiating the planning process. As part of the EIS/EIR, the Seashore must consider whether this Project could impact sensitive vegetation communities such as wetlands, as well as special status wildlife and plant species, water quality, and other environmental and socioeconomic factors. A preferred restoration alternative has not been selected yet, however, most of the preliminary alternatives involve some degree of levee and berm alteration and/or removal and grading activities. Information from this report will be used to assess potential impacts of the Project to wetlands and waters subject to regulatory oversight by the U.S. Army Corps of Engineers (Corps).

The Project Area is located in the southern portion of the Tomales Bay watershed in the county of Marin west of the town of Point Reyes Station and east of the town of Inverness Park (Figure 1). It incorporates the Giacomini Ranch proper, Olema Marsh, portions of Levee and Bear Valley Road, and undiked marsh areas directly adjacent to the Giacomini Ranch. The Delineation Study Area expands the Project Area by including areas directly adjacent that might be impacted by restoration activities (Figures 1 and 2). The goal of this study was to map and describe areas within the Delineation Study Area under federal jurisdiction pursuant to Section 404 of the federal Clean Water Act and Section 10 of the Rivers and Harbors Act.

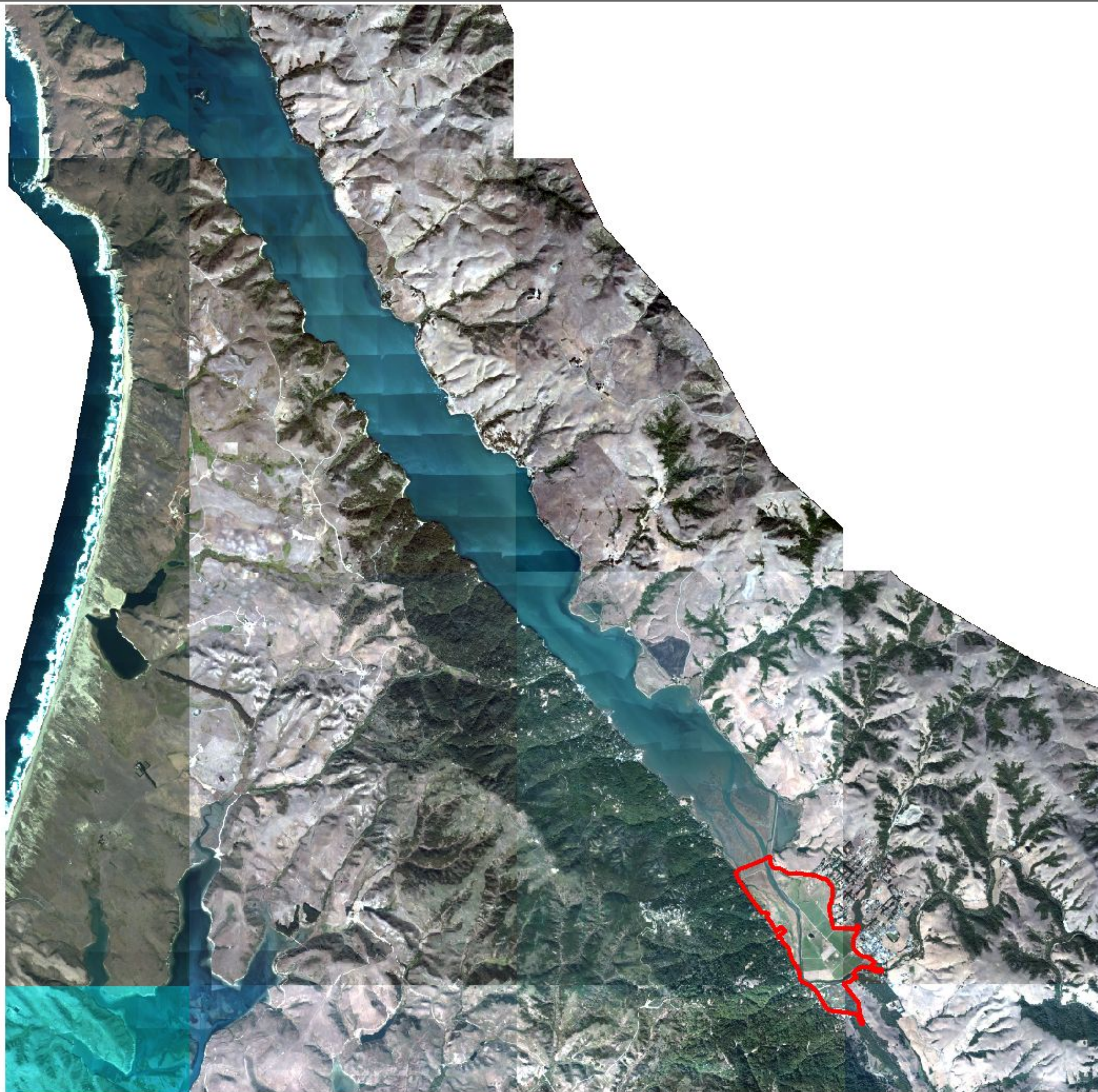
### Background Information on Project and Project Area

The Park Service is proposing a 563-acre wetland restoration project at the Giacomini Ranch and Olema Marsh in the southern end of Tomales Bay in Marin County, California (Figure 1). The Park Service acquired the 563-acre Giacomini Ranch in February 2000 through a combination of Congressional appropriations and funding from the California Department of Transportation (CalTrans). The Giacomini Ranch is located in the north district of the Golden Gate National Recreation Area (GGNRA), which is administered by the Seashore. The Giacominis have been operating a dairy ranch on this property since the 1940s when they constructed levees on Lagunitas Creek and, later in the 1960s, Tomasini Creek. Prior to that, the mouth of the Tomales Bay watershed was largely a combination of subtidal and intertidal habitat, with the latter increasing substantially after the 1860s due to increased sedimentation caused by watershed disturbances such as logging, agriculture, etc. As part of the purchase agreement with the Giacominis, the Giacomini family was granted a reservation of use agreement until 2007 on




# Giacomini Wetland Restoration Project

Project Location - southern Tomales Bay, Marin County



0.4 0 0.4 0.8 Miles

A horizontal scale bar with markings for 0.4, 0, 0.4, and 0.8 miles.

Map Location



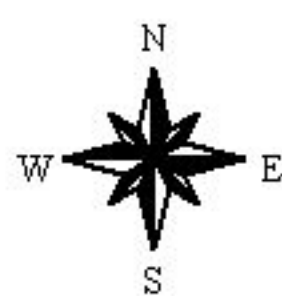
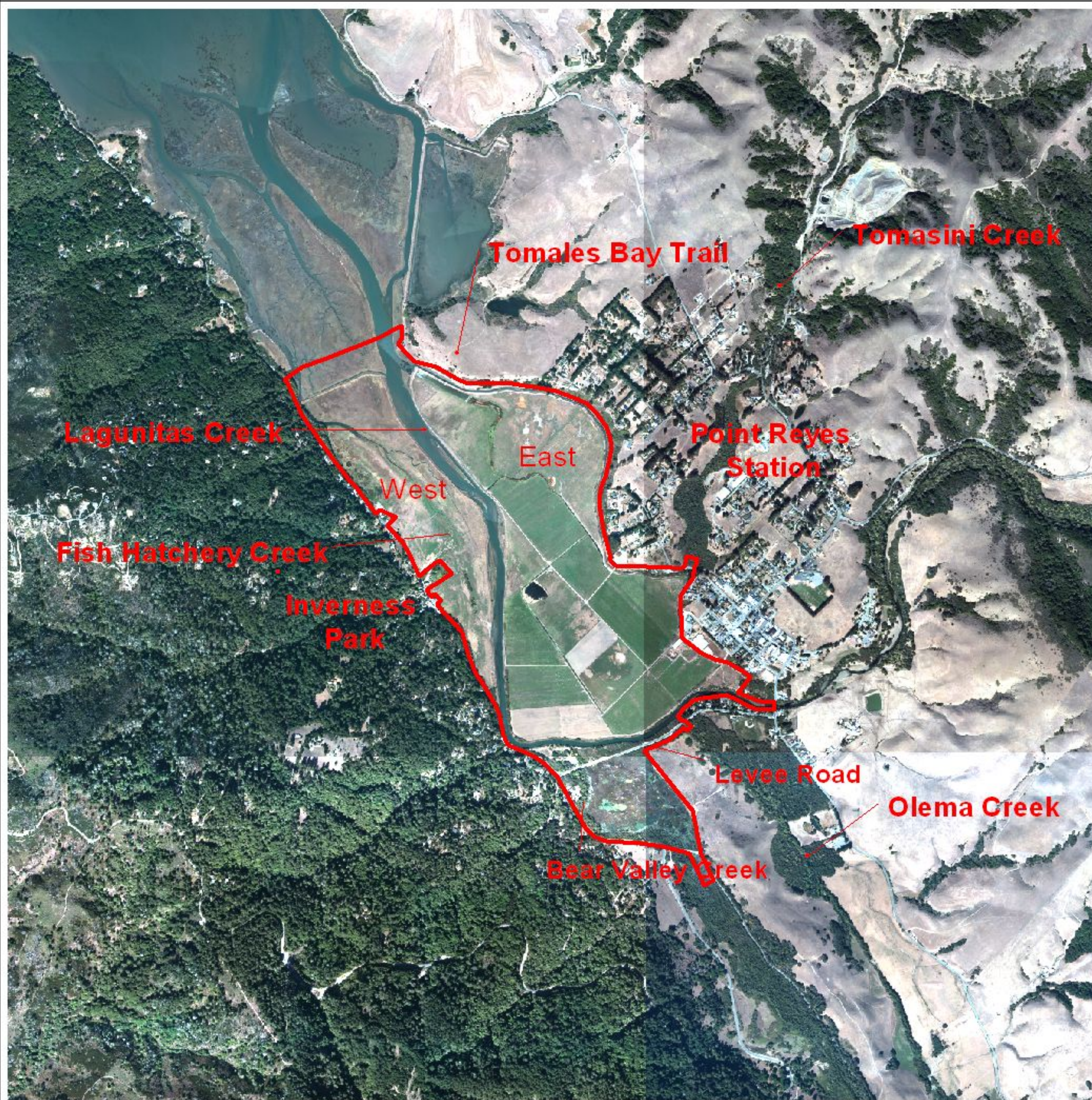
National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 1. Location of Giacomini Wetland Restoration Project in southern Tomales Bay.



# Giacomini Wetland Restoration Project

## Delineation Study Area



1000 0 1000 2000 Feet

Map Location



National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 2. Giacomini Wetland Restoration  
Project Delineation Study Area



approximately 463 acres. The remaining 100 acres are already under Park Service management. These 100 acres are located in the northwestern corner of the Project Area in the northern portion of the West Pasture: Lagunitas Creek bisects the pasturelands into two pasture areas that have been termed the East and West Pastures (Figure 1).

Since purchase of the property in 2000, the Seashore has been moving forward with the environmental planning process. Baseline studies on existing wildlife, vegetation, wetland, and cultural resources have been or are being conducted. Through integration of this baseline information with restoration science tenets, Park Service directives and management policies, and mitigation and contractual obligations, the Seashore has identified one primary project objective -- specifically, restoration of natural hydrologic tidal and freshwater processes, thereby enabling restoration of ecological processes and functions. Public and agency scoping for the environmental document -- a joint EIS/EIR -- ended in January 2003. State ownership of land below the Ordinary Higher Water mark in Lagunitas Creek triggered the need to conduct a joint federal/state planning process. State Lands Commission agreed to participate in the planning process as the lead California Environmental Quality Act (CEQA). The Park Service will act as the lead National Environmental Policy Act (NEPA) agency and principal project manager. Two of the alternatives include restoration in Olema Marsh, a 63-acre freshwater marsh that is owned by the non-profit organization, Audubon Canyon Ranch. Restoration would require alteration to Levee Road and possibly Bear Valley Road and the White House Pool County park that is owned by the state of California Wildlife Conservation Board and leased by the County of Marin Parks and Open Space District. The Park Service has been working collaboratively with Audubon Canyon Ranch, the County of Marin Public Works department, and the Open Space district, as well as the Gulf of the Farallones National Marine Sanctuary, whose jurisdiction includes Tomales Bay, throughout the environmental planning process.

In 2003, the Park Service held a series of internal workshops designed to prioritize restoration objectives based on a number of factors, including mitigation requirements, project Purpose, project Goals, and scoping comments and concerns. A hydrologic consulting firm was hired in spring 2003 to investigate existing hydrologic conditions and to develop and perform hydrodynamic modeling of preliminary restoration and public access concepts. During spring 2004, the Park Service conducted a number of workshops with adjacent landowners, regulatory agencies, local and state agencies and organizations, the general public and wetland restoration experts. The objective of these workshops was to gather feedback from these various groups on the preliminary restoration and public access concepts and to use this feedback to refine alternatives prior to inclusion and analysis in the environmental document. At this point, the Seashore has finalized the restoration components, but is still collecting information regarding technical feasibility and land use/noise impacts that will better enable the Park Service to refine the public access component.

The restoration and public access concepts developed to date involve various degrees of hydraulic and/or topographic alterations, such as partial levee breaching; complete levee removal; lowering and regrading levees; removal of tidegates, spillways and other



infrastructure; removal of sediment to lower elevations; installation of larger culverts or bridges; construction of paved or unpaved paths and viewing platforms/elevated overlooks; revegetation of selected areas; creation of freshwater marsh, and creation of high marsh or upland areas to serve as high tide refugia habitat for bird species such as black rails and the California clapper rail. The Seashore anticipates that, due to construction timing constraints, restoration will probably be phased over a three-year period, with restoration on the 100 acres already managed by the Park Service planned for 2006. Preparation of the environmental document will begin in spring 2005.



## MATERIALS AND METHODS

### Background Information on Jurisdiction of Federal and State Regulatory Agencies

#### *Section 404*

“Waters of the United States” has become the standard term used to classify all areas under federal jurisdiction pursuant to Section 404 of the Clean Water Act. Historically, the U.S. Army Corps of Engineers (Corps) has exerted jurisdiction over a broad scope of waters, including territorial seas; coastal and inland “navigable” lake, rivers, and streams; tributaries to navigable waters; interstate waters; and other waters such as isolated lakes and intermittent streams that could conceivably play a role in interstate commerce. Isolated “waters” are defined as non-tidal areas that are not part of a tributary to interstate or navigable waters that occur above the headwaters (average annual flow less than 5 cubic feet per second/cfs). The Corps has historically also had jurisdiction over special aquatic sites, such as vegetated shallows, mudflats, riffle and pool complexes, and wetlands that are both isolated from or adjacent to interstate and/or navigable waters and their tributaries.

Since the January 9, 2001, ruling by the Supreme Court on *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (No. 99-1178), the Corps’ jurisdiction under Section 404 has been redefined to specifically focus only on territorial seas, coastal and inland “navigable” lakes, rivers, and streams; tributaries to navigable waters; interstate waters; and waters and wetlands that are “adjacent” to interstate and/or navigable waters and their tributaries. Adjacent “waters” are those that border, neighbor, are contiguous with, or are within “reasonable proximity” to interstate and/or navigable waters and their tributaries and that can be construed to be “connected” through hydrologic, ecological, or other processes. The Corps has further refined its jurisdiction by separating “waters” such as streams into three different classes – perennial, intermittent, and ephemeral – with the latter not being subject to some of the same permitting restrictions as the first two.

For delineation purposes, waters of the United States are commonly divided into “wetlands” and “other waters of the United States,” which includes territorial seas; navigable lakes, rivers, and streams; interstate waters; tributaries to navigable waters; and water bodies that could be defined as “adjacent.”

Under Section 404, the Corps has defined wetlands, a special aquatic site, as:

*Those areas that are inundated or saturated by surface or ground waters 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 328.3)*



Riffle and pool complexes, another special aquatic site, are defined as “steep gradient sections of streams” in which “rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles” (40 CFR 230.45(a)).

### *Section 10*

Predating Section 404, the Corps’ jurisdiction was limited to “waters” subject to Section 10 of the Rivers and Harbor Act (1899). The Corps continues to oversee Section 10 jurisdictional waters, which are navigable waters that are subject to the ebb and flow of the tide, and/or those that are presently used, have been used in the past, or could be used for interstate transport or foreign commerce. Section 10 jurisdiction extends to mean high water (MHW) and includes tidal areas presently subject to tidal influence, as well as unfilled areas currently behind levees that were historically below MHW.

### *Other Regulatory Agencies*

In addition to the Corps, there are several other regulatory agencies that have jurisdiction over aquatic habitats such as wetlands, bays, coastal areas, lakes, rivers, and streams. In California, these agencies include the California Department of Fish and Game (CDFG), Regional Water Quality Control Board (RWQCB), the California Coastal Commission (CCC), and, in the San Francisco Bay area, the Bay Conservation and Development Commission (BCDC). The RWQCB has typically exerted jurisdiction over the same features as the Corps, but, in light of the SWANCC ruling, it is possible now that it will claim jurisdiction over features such as isolated wetlands and waters that the Corps no longer regulates. RWQCB’s regulatory authority comes either from administration of Section 401 of the federal Clean Water Act or state legislative acts such as the Porter-Cologne Act. For this and other reasons, features delineated as potentially isolated are included in this study.

The CCC oversees implementation of the federal Coastal Act and has a much broader interpretation of wetlands subject to its purview than the Corps. The CCC uses a version of the U.S. Fish and Wildlife Service’s (USFWS) Cowardin wetland classification approach (Cowardin et al.1979) that has been modified by CDFG such that presence of only one of three potential indicators is required for an area to be categorized as a wetland or aquatic feature. The Seashore, which has been inventorying its wetlands as directed by the Park Service in its 2000 Management Policies, initially used a one-parameter approach, as well, due partly to the fact that most of the Seashore is subject to CCC oversight. However, because of problems with this approach, the Seashore has now reverted to a two-parameter approach that is more in keeping with the Park Service wetland delineation methodology and the Cowardin wetland definition.

For private landowners and local and state agencies, CDFG also has some overlapping jurisdiction through issuance of Streambed Alteration Agreements. This agency has historically had a more limited jurisdiction than the Corps, focusing specifically on lakes, major tidal sloughs, rivers, and streams, where streams are defined as “....a body of water



that flows at least periodically or intermittently through a bed or channel having banks....” CDFG also typically includes riparian areas adjacent to rivers and streams within its jurisdiction.

### **Methodology for Delineating Section 404 Jurisdiction**

In tidal areas, Section 404 jurisdiction, by definition, extends to the high tide line (HTL). According to the Corps, the HTL means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds. (33 CFR 328). The HTL for the Delineation Study Area was calculated as 8.09 ft National American Vertical Datum 1988 (NAVD88). Areas below the HTL that support more than 5 percent cover of vegetation are classified as wetlands, and non-vegetated areas are classified as “waters of the U.S.”

In non-tidal areas, the Corps has jurisdiction over areas below Ordinary High Water (OHW) in water features such as navigable streams, rivers, and lakes; interstate waters; and tributaries to navigable waters. In streams, OHW typically corresponds to flooding events with recurrence intervals <1.5-2 years and is represented in all water bodies by a physical demarcation or “OHW mark” on the shore or bank that has been established by fluctuations of the water. As with tidal areas, vegetated areas (areas with > 5 percent vegetation cover) below the OHW mark are classified as wetlands.

If adjacent or bordering, neighboring, or contiguous “waters” are present above the HTL or OHW, then Corps jurisdiction extends to the limit of the adjacent feature. Corps jurisdiction in vegetated areas that are adjacent to “waters” such as bays, lakes, rivers, and streams is determined by using the three criteria outlined in the Corps of Engineers Wetlands Delineation Manual (1987 Manual; Environmental Laboratory 1987). Potential jurisdictional wetlands must meet all three criteria, which are presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The soil, hydrology, and vegetation criteria used to make wetland determinations are summarized below. Unvegetated areas that are considered “adjacent” must exhibit at least two of three criteria used to delineate wetlands (i.e., hydric soils and hydrology).

#### *Wetlands Criteria*

**Hydrology.** An area exhibits wetland hydrology characteristics if it is inundated or if the soil is saturated at a sufficient frequency and duration to support wetland vegetation during the growing season under normal circumstances. Areas that are only episodically (< 5 percent of the growing season) inundated or saturated or never inundated or



saturated are not wetlands. Evidence of wetland hydrology is determined by presence of either one primary indicator or two secondary indicators. Primary hydrologic indicators include standing water, water table within the top 12 inches of the soil surface, or saturation within the top 12 inches of the soil surface, drift lines, sediment depositions, and drainage patterns. Standing water is recorded in inches for the average depth found within the wetland. If standing water is not present, the soil is checked for an elevated water table and/or saturation in the upper 12 inches. Examination of these indicators requires digging a soil pit to a depth of 16 inches, observing the level at which water stands or saturation occurs in the hole. If no signs of primary hydrologic indicators are present, then, secondary hydrologic indicators are used, which include oxidized root or pore channels, algal matting, water marks/water-stained vegetation, etc. Indirect indicators of hydrology must be interpreted with caution in areas with artificial hydrology such as irrigation.

**Vegetation.** Plant species identified were assigned a wetland indicator status according to the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988). This indicator status refers to the probability that a particular plant species is found in wetland habitats within specific regions of the United States and was developed by USFWS in cooperation with a number of federal agencies (Table 1). Positive or negative signs are used to more specifically define frequency of occurrence in wetlands. A positive (+) sign indicates a frequency toward the higher end of a category (more frequently found in wetlands), and a negative sign (-) indicates a frequency toward the lower end of a category (less frequently found in wetlands). Some plant species are either not listed (NL), or there is insufficient information available to determine an indicator status (NI: no indicator). The initial plant list was developed in 1988 for Region 10 (California) and other regions in the United States, and a draft revision of this list was released in 1996, but it has not been finalized.

<b>Table 1. Plant Wetland Indicator Status Classification System (Reed 1988)</b>		
<b>Indicator Categories</b>	<b>Definition</b>	<b>Frequency of Occurrence in Wetlands</b>
OBL	Obligate, always found in wetlands	>99 percent
FACW	Facultative wetland, usually found in wetlands	67-99 percent
FAC	Facultative, equal in wetlands or non-wetlands	34-66 percent
FACU	Facultative upland, usually found in non-wetlands	1-33 percent
UPL/NI	Upland/No Indicator, not found in local wetlands	<1 percent

Plants with OBL, FACW, FAC+, and FAC classifications are considered hydrophytic species. In using the routine wetland delineation method described in the 1987 *Manual*, the dominant plants in the area are listed. If more than 50 percent of the dominant species have a wetland indicator status of OBL, FACW, and/or FAC, the wetland vegetation criteria is satisfied.

**Soils.** An area exhibits a hydric soil characteristic if it is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor



growth and regeneration of hydrophytic vegetation. The National Technical Committee for Hydric Soils has established several criteria for hydric soils, including histosols or organic soils; soils with aquic or periaquic moisture regimes; and soils that are ponded or that are frequently flooded for a long duration during the growing season. Long duration is defined as the period of inundation related to flooding from a single event that persist for 7 days to 1 month in length, and frequently flooded refers to events that occur with a 2-year recurrence interval. A list of hydric soil series, complexes, and taxonomic inclusions for Marin County are found in the Official List of Hydric Soil Map Units for Marin County, California (SCS 1992). Many soil series or complexes will not necessarily be hydric, but will contain hydric inclusions such as drainageways.

Persistent flooding of soils creates anaerobic conditions, which changes the chemistry of the soil, causing a visual change in soil coloration. Oxygen depletion usually makes the soil darker or, in some cases, greyer such as in gleying. When ponded or saturated for long periods, iron can be leached or depleted from the soil. Areas of the soil where oxygen is introduced either when the soil drains or through oxidation of areas around roots and in pore spaces can lead to oxidation of remaining iron in soils that creates a characteristic red staining commonly referred to as mottling or oxidized pore channels or rhizospheres. The matrix and mottle colors in soils are identified using the Munsell™ Soil Color Chart (Kollmorgen Instruments Corporation 1994). The matrix color is the predominant soil color and mottles are contrasting color spots within the soil matrix. The soil chart characterizes soil color according to hue, value, and chroma. Hue measures the overall soil color, value describes the lightness or darkness of the hue, and chroma describes the amount of grayness in the color (USACE 1987). Wetland soils are characterized as those with a chroma of (2) if mottles are present and those with a chroma of (0) or (1) if no mottles are present.

The hydric soil criterion is met if soils have low-chroma and/or mottling (described above) and/or other special characteristics such as iron or manganese concretions, gleying, sulfidic odor, high organic content, or organic streaking that has resulted from prolonged inundation or saturation (USACE 1987).

### *“Waters of the US” Criteria*

As noted earlier, areas that are flooded or ponded for a sufficient duration to actually preclude vegetation from establishing can be subject to Section 404 jurisdiction as “other waters of the U.S.” Non-tidal rivers, streams, and drainages with an average annual flow of greater than 5 cfs are classified as being “below the headwaters,” and areas of these rivers, streams, and drainages that are below the OHW mark are considered Section 404 jurisdictional “other waters” of the U.S. These jurisdictional features often show evidence of an OHW “mark” and a discernible “bed and bank” and can include perennial, intermittent, and ephemeral drainages. Streams or drainages with average annual flow less than 5 cfs are considered to be “above the headwaters” and are therefore considered isolated and not currently subject to Corps’ jurisdiction. Other potential jurisdictional water features include “adjacent” lakes, ponds, and areas that have less than 5 percent



vegetation cover, but that still meet wetland hydrology and soil criteria or show evidence of an OHW mark.

The common definition of OHW relies principally on visual indicators of frequent flooding rather than on established stream gage data or any type of hydrologic analysis. The Corps defines OHW as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (CFR 328.3(e)).

Visual indicators can be difficult, if not impossible, to discern in shallowly entrenched systems with large floodplains (e.g., Laguna de Santa Rosa in Sonoma County) or in manipulated systems, such as those that have been subjected to mining or clearing activities or “improved” through levee construction or channelization. Determination of OHW in these types of systems must rely either entirely or to some degree on use of recorded hydrologic information such as stream gage data. Unfortunately, there are no official stream gages in the Delineation Study Area and immediate vicinity.

### **Methodology for Delineating Corps Section 10 Jurisdiction**

Section 10 jurisdiction extends up to Mean High Water (MHW). MHW is the average height of all high tides. MHW is typically determined from the nearest tide level station and then surveyed in the field from a benchmark of known elevation. The nearest tide level station to the Delineation Study Area is the Inverness water level station formerly maintained by the National Oceanic and Atmospheric Administration (NOAA) Field and Operations Division (NOAA Station 9415020) at southern end of Tomales Bay. MHW for the Study Area was calculated to be 5.13 ft NAVD88 or 2.49 ft National Geodetic Vertical Datum of 1929 (NGVD29). Areas either currently below or historically below 5.13 ft NAVD88 were mapped as Section 10 waters using topographic contours onto digital aerial imagery in ArcView 3.3. The U.S. Coast Survey maps from 1862 were used to determine the probable historic extent of Section 10 waters, although these maps did not specify absolute elevations.

### **Literature Review Activities**

Prior to conducting field studies, available reference materials were reviewed. These include the National Wetland Inventory (NWI) map for the Inverness quadrangle (April 1991), the Soil Survey of Marin County California (U.S. Soil Conservation Service 1985), Hydric Soils List for Marin County (U.S. Soil Conservation Service March 1992), and a wetland delineation that was conducted as part of the feasibility study in 1993 (PWA et al. 1993). Information from these types of materials is typically used to help determine where wetlands are likely to occur in the Delineation Study Area prior to field survey.



The NWI maps characterize wetlands and waters of the United States according to the Classification of Wetlands and Deepwater Habitats of the United States developed by USFWS (Cowardin et al. 1979). Wetlands mapped in the NWI are overlaid on top of USGS topographic maps and include wetland and aquatic features other than creeks and drainages. Because NWI is prepared from high-altitude aerial photography, mapped wetlands are typically those that are readily discernible in aerial photographs, such as perennially ponded marshes, stock ponds, lakes, and forested riparian areas along streams and drainages. It is less likely to incorporate seasonal or saturated wetlands that pond only seasonally or are primarily saturated through the growing season and support a low-growing emergent vegetation cover that is indistinct in aerial photographs from adjacent grasslands (e.g., wet meadows, flats, seeps, etc.) The accuracy of NWI maps undoubtedly varies within regions of the United States. A reassessment of a selected portion of one quadrangle (Tomaes Point) by the USFWS during 2000 using interpretation of a different set of aerial photographs suggested that the initial NWI efforts may have underestimated wetland acreage by as much as 53 percent (David Schirokauer, *pers comm.*). A second component of assessing the adequacy of NWI for the Seashore's wetland inventory involved conducting field investigations of polygons that appeared likely to have wetlands based on the plant communities present (e.g., predominance of rushes and sedges) despite the fact that NWI had mapped no wetlands in the area. As with the USFWS remapping, these field efforts again suggested a significant underestimation of wetlands within the Seashore and the north district of GGNRA by NWI.

Other valuable tools in evaluating the potential for wetlands are the Vegetation Communities map for the Project Area (Parsons and Allen 2004) and the Soil Survey of Marin County, California (U.S. Soil Conservation Service 1985). The soil survey map can indicate potential areas where hydric soils or soils formed by wetland hydrologic processes exist. These maps either show soil types or series where all the soils within the mapped area have major horizons that are similar in composition, thickness, or arrangements, they show less definitive grouping such as complexes, which consist of two or more soils or miscellaneous areas that occur in such an intricate pattern or in such small areas that they cannot be shown separately on maps (SCS 1985). Most of these soil series and complexes contain "inclusions" of other soils from other taxonomic classes (SCS 1985). In addition to the soil survey map, the SCS often produces Hydric Soil Lists for each county, which are soils that meet the definition and criteria developed by the National Technical Committee for Hydric Soils (SCS 1992). The list for Marin County was published in 1992. This list specifies which of the soil series, complexes, and inclusions are considered hydric and also describes any "hydric landforms" within these soil groupings such as drainageways, beach, etc.

### **Field Survey Activities**

The wetland delineation was conducted by Lorraine Parsons (wetland ecologist, Seashore) using the routine method described by the Corps (1987). Leslie Allen (wetland ecologist, Seashore), Amelia Ryan (wetland ecologist, Seashore), Chelsea Donovan



(wetland ecologist, Seashore), and Kristen Ward (wetland ecologist, Golden Gate National Recreation Area) assisted with the delineation. The delineation was conducted on the following dates in 2003 (February 14, November 19, November 25) and 2004 (February 20, March 3, March 9, March 12, April 6, April 9, May 18, June 2, August 10, and August 12). The Corps requires that data on soil, hydrology, and vegetation be recorded on standard data forms. Sampling point locations were consecutively numbered with potential jurisdictional wetland locations denoted with an “A” after the number and potential non-jurisdictional upland locations denoted with a “C” or “D” after the number. Sites with a “B” after the number were areas located at the wetland-upland boundary. Completed data forms are provided in Appendix A. A list of all plant species observed is provided in Appendix B. Potential jurisdictional wetlands and waters, as well as potential non-jurisdictional isolated features, were mapped at a scale of at least 1 inch = 200 feet on a color digital orthoquad aerial imagery using GIS (ArcView 3.3 or ArcView 8.1; ESRI). Information maps within the report were prepared at varying scales, using opaque overlays in ArcView 3.3. Formal delineation maps were prepared in ArcView 8.1 using transparent overlays at a scale of 1 inch = 200 feet, with detail maps inserted of smaller wetland features at scales varying from 1 inch = 25 feet to 1 inch = 100 feet.

Because large portions of the East Pasture are irrigated during the summer to improve forage for cattle, we felt that using hydric soil and indirect hydrologic indicators would be somewhat unreliable for delineation purposes in irrigated areas. For this reason, we installed a series of six (6) shallow monitoring wells in October 2002. The PVC wells were installed along an elevational gradient from the lowest portion of the property in the north to the highest portion in the south adjacent to the dairy facility (see figure in Appendix C). Due to ongoing agricultural activities such as mowing, manure spreading, etc., wells were strategically placed adjacent to existing infrastructure such as fences, irrigation pipes, etc. Depth of the wells ranged from 2.5 feet to 3 feet deep. Starting in January 2003, the wells were monitored on a weekly basis throughout the winter and spring through May 2003. Monitoring frequency dropped to once a month in June 2003. Monitoring is still being conducted. Data from monitoring wells were graphed using Microsoft Excel and are presented in Appendix C. Precipitation data from the Park Service’s Bear Valley weather station are included to enable a comparison between groundwater levels and rainfall totals.



## **STUDY AREA BACKGROUND**

### **Geology and Soils**

The nature of the Delineation Study Area has been sharply defined by this region's unique geologic and land-use history. The San Andreas Fault, responsible for the 1906 Earthquake that devastated San Francisco, runs directly through the Delineation Study Area and Tomales Bay. Movement of the Pacific and Continental Plates has produced striking differences in the geologic nature of the lands on the west and east sides of Tomales Bay by displacing lands along this major fault as much as several hundred miles (Shuford and Timossi 1989).

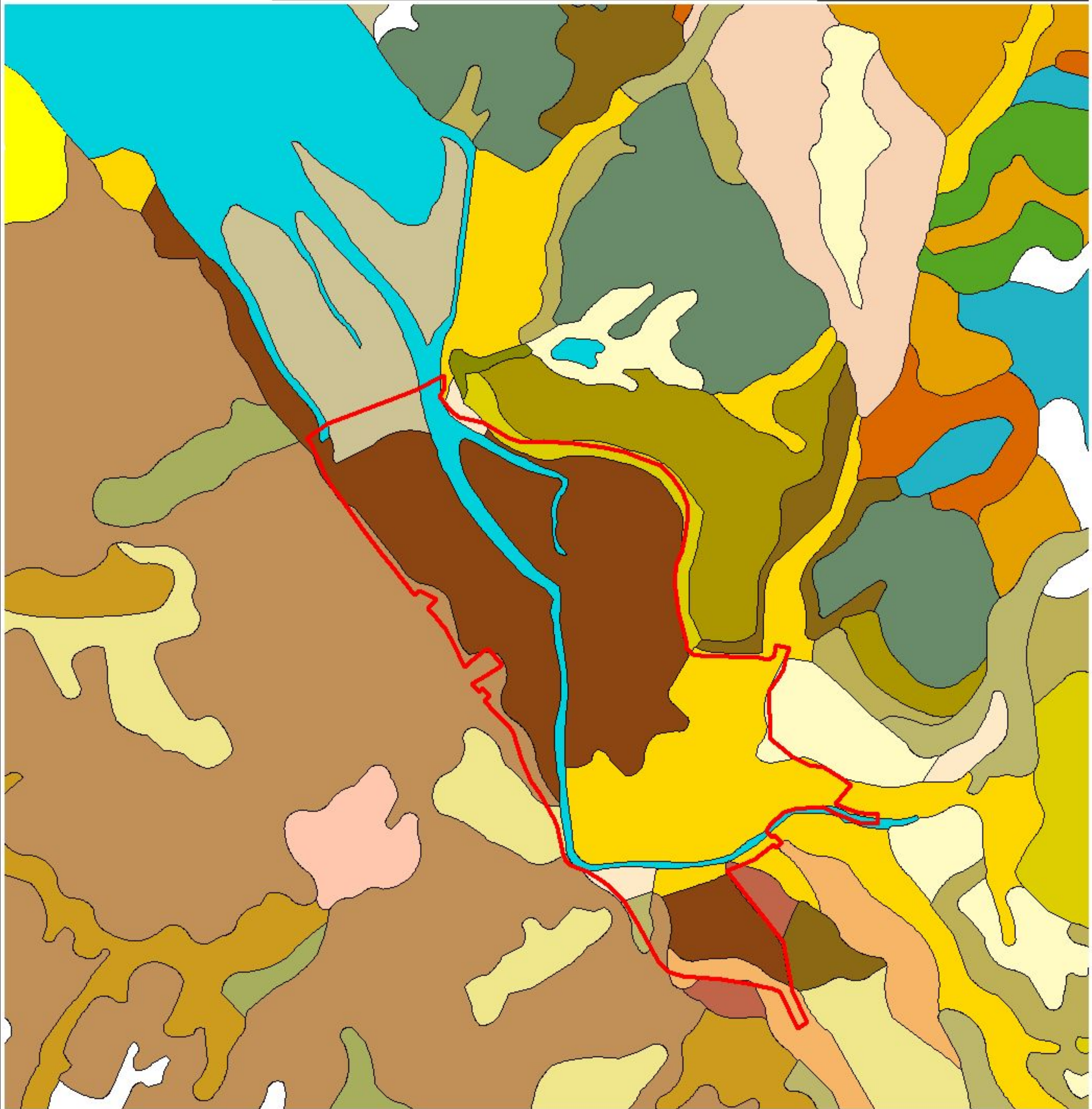
The eastern portion of the Tomales Bay watershed is dominated by the Franciscan formation, composed of sandstone, graywacke, shale, some volcanic and metamorphic rock, and greenstone (U.S. Soil Conservation Service 1985). The Franciscan Formation is typically associated with the higher elevation ridges, mountains, and hills that run along Marin County's western perimeter. Directly adjacent to the Delineation Study Area lies a lower-elevation coastal terrace known as the Point Reyes Mesa. This stream-shaped marine terrace is composed of marine sediments with layers of gravel alluvium (A.A. Rich and Associates et al. 1987). Soil types mapped along the terrace include Olompali loam and the Saurin-Bonnydoon complex, neither of which are characterized as hydric (U.S. Soil Conservation Service 1985; Figure 3). West of Tomales Bay on the steeply sloped Inverness Ridge – and within most of the Seashore – granitic rock such as quartz-diorite and granodiorite dominate, forming the backbone of the Point Reyes Peninsula (U.S. Soil Conservation Service 1985). Overlying the granitic rock in most areas are shale, sandstone, porcelainite, and chert, but, in some areas, the dominant parent material is mudstone, siltstone, and greenish sandstone that is referred to as the Drakes Bay or Purisma Formation (U.S. Soil Conservation Service 1985). Soils on the portion of the Inverness Ridge directly adjacent to the western boundary of the Delineation Study Area are mainly comprised of the Inverness loam series, ranging from 15 to 75 percent slopes (U.S. Soil Conservation Service 1985; Figure 3).

The Delineation Study Area is comprised primarily of low-elevation lands bounded by Inverness Ridge and the Point Reyes Mesa to the west and east and by Bear Valley to the south. Prior to the 1860s, approximately one-third to one-half of the Giacomini Ranch was actually subtidal or unvegetated intertidal habitat (PWA et al. 1993, Niemi and Hall 1996). The historic coastal salt marsh was relegated to the southeastern corner of the Giacomini Ranch near the existing dairy facility and in the Olema Marsh and Olema Creek floodplains (PWA et al. 1993). This marsh complex represented a significant percentage of the existing salt marsh present at that time in Tomales Bay, with tidal influence at that time believed to extend as far south as Bear Valley during storm tides (Evens 1993). However, during the latter half of the 19<sup>th</sup> century, sedimentation rates rose dramatically, resulting in rapid deltaic aggradation of coarse alluvium in the southern end of Tomales Bay. This increase in sedimentation probably resulted from an increase in logging and other changes in land use practices (PWA et al. 1993, Niemi and Hall



# Giacomini Wetland Restoration Project

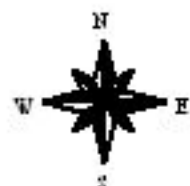
## Soil Types



### Soil Types

Banabe very gravelly loam (30-50)	Olm pall (15-30)
Blocker-Cole complex (2-5)	Rock outcrop-Xerothermic complex (50-75)
Cortina gravelly sandy loam (0-5)	Santa-Bonnydoon complex (2-15)
Fine-textured, channelled	Santa-Bonnydoon complex (15-30)
Hydrothermic, saline	Santa-Bonnydoon complex (30-50)
Inverness loam (0-15)	Tocaloma-Santa association, very steep
Inverness loam (15-30)	Tocaloma-Santa association, extremely steep
Inverness loam (30-50)	Xerothermic, fill
Inverness loam (50-75)	Yorkville clay loam (15-30)
Los Osos-Bonnydoon complex (15-30)	Yorkville clay loam (30-50)
Los Osos-Bonnydoon complex (30-50)	Water
Novato clay	
Olm pall loam (2-9)	
Olm pall (9-15)	

— Delineation Study Area



### Map Location



National Park Service

Golden Gate National Recreation Area/

Point Reyes National Seashore

Point Reyes Station, Calif.

County of Marin

Figure 3. Soil types in the Giacomini Wetland Restoration Project Delineation Study Area.



1996), but was undoubtedly exacerbated by the geologic instability characteristic of this region. It has been estimated that, between 1860 and 1950, approximately 5 vertical feet of sediment deposited within southern Tomales Bay, creating 650 acres of new vegetated intertidal habitat (PWA et al. 1993). The greatest sedimentation occurred between 1860-1910 (PWA et al. 1993). The 1906 Earthquake may have subsequently “drowned” some of this deltaic aggradation. There were reports in Bolinas Lagoon of subsidence of up to 1 foot, however, evidence of similar subsidence events in Tomales Bay were not as clear-cut (Gilbert 1908). Sedimentation in the delta continued to be high until at least the 1950s, when construction of several dams and reservoirs within the Marin Municipal Water District (MMWD)-owned portion of the Tomales Bay watershed began reducing sediment input (PWA et al. 1993, Niemi and Hall 1996).

Sedimentation continued to occur in Olema Marsh, driven by large, episodic events associated with 1982 and 1998 floods. However, Olema Marsh had already been diked in the early 1900s by construction of Levee Road, which restricted tidal influence and essentially forced this area to convert from a brackish tidal marsh to a freshwater wetland. Following construction of the levee, filling of the lands bayward of the levee also occurred. Bear Valley Creek now flows through an impounded freshwater marsh, Olema Marsh, to Lagunitas Creek through a culvert under Levee Road and a channel that has been excavated in the filled land to the north. As with many artificial systems, functioning of Olema Marsh upstream of Levee Road has deteriorated during recent years due to increased sedimentation within the marsh that has decreased hydraulic capacity and precluded flow through at least one of the culverted drainages. Olema Creek is also culverted underneath Levee Road, however, in recent years, this highly altered stream has started to reclaim its historic floodplain in Stewart’s Flat and possibly reestablish some of the conditions that once led people to refer to this area as Olema Lake.

Soil types mapped within the Delineation Study Area are consistent with this area’s unique history (Figure 3). The primary soil substrate in the northern 60 percent of the Giacomini Ranch and the northern 80 percent of Olema Marsh consists of Novato Clay (U.S. Soil Conservation Service 1985). Novato Clay is described as “very deep, very poorly drained soil...in saltwater marshes ...formed in alluvium derived from various kinds of rock” (U.S. Soil Conservation Service 1985). It is characterized as hydric, specifically within salt marshes (U.S. Soil Conservation Service 1992). The southernmost portion of Olema Marsh, as well as the portion of Bear Valley Creek flowing into the Marsh, consists of Fluvents, channeled, a hydric soil complex commonly formed in floodplains (Figure 3).

The southeastern corner of the Giacomini Ranch, as well as large sections of the land along Levee Road and the southern portion of Lagunitas Creek, is mapped as Blucher Cole complex (Figure 3; U.S. Soil Conservation Service 1985). The Blucher-Cole complex is also formed in alluvium from various kinds of rock, although this mapping unit is typically found in basins and on alluvial fans. Both components of this mapping unit are characterized as very deep soils that are somewhat poorly drained with seasonally high water tables and occasional periods of flooding (U.S. Soil Conservation



Service 1985). The Blucher component is characterized as hydric, specifically within drainageways (U.S. Soil Conservation Service 1992).

Soil borings conducted in 2003, however, indicate that soil patterns within the Giacomini Ranch are much more complex than the soil map would suggest. The historic salt marsh areas in the southern and eastern portions of the East Pasture typically have deep, intermixed estuarine clays and peats overlain with a thin (~0.3 –0.5 m) loam or clayey loam layer (Kamman Hydrology & Engineering, *in prep.*). The loams probably date to the period in which the Project Area was isolated from tidal and freshwater flow influence and started being actively farmed. The very southern portion of the East Pasture has a very thick (2.5 m) layer of silts and sands that appears to have resulted from the Giacomini's efforts to deliberately direct flood overflows from Lagunitas Creek to this portion of the property (Kamman Hydrology & Engineering, *in prep.*). Conversely, sediment in many of the historic subtidal areas directly adjacent to historic and current Lagunitas Creek channels are comprised of loam or silty loam overlain on interbedded silt, clays, and sands. This interbedded layer rests on a very deep layer of extremely permeable coarse-grained sands and gravels that were probably deposited by historic bedload and suspended sediment transport during storm events (Kamman Hydrology & Engineering, *in prep.*).

The undiked salt marsh north of the Giacomini Ranch has been mapped as almost exclusively Hydraquents, saline, with slightly smaller pockets of Novato Clay and Xerorthents, fill, at the base of the Tomales Bay trailhead, directly north of the East Pasture and the outlet of Tomasini Creek into Tomales Bay (Figure 3). Hydraquent, saline, soil types are hydric and consist of “nearly level soils along the coast” typified by “stratified deposits of silt and clay with thin layers of peat” that are “continuously waterlogged” (U.S. Soil Conservation Service 1985). Xerorthents, fill, is comprised of soil material that has been moved mechanically and mixed (U.S. Soil Conservation Service 1985). This unit was also mapped at the corner of Sir Francis Drake Boulevard and Levee Road near White House Pool and along the northern portion of Bear Valley Road (Figure 4). Xerorthents, fill, is characterized as having a hydric inclusion, Swamps.

Unlike many of the diked salt marshes in San Francisco Bay, the Delineation Study Area does not appear to have subsided much and, in some areas, may have actually aggraded due to episodic sedimentation events, flood overflows, and agricultural activities (e.g., filling, land-leveling). Subsidence or decreases in elevation on the diked Giacomini Ranch may have been minimized by not only the coarse nature of the sediments present, but the relatively rapid pace of deltaic deposition, which probably prohibited substantial vegetation recruitment and dieback and, therefore, formation of undecomposed plant material or “peat” layers. When areas are drained through diking, fine-grained sediments compress, and peat is broken down, leading to compaction of soils and often substantial lowering of elevations. Topographic information suggests that elevations in the northern end are perhaps 1-2 feet lower than the adjacent undiked marsh, while elevations at the southern end are actually slightly above intertidal elevations. In Olema Marsh, elevations have increased substantially relative to historic conditions, because, at least historically, sediment from Bear Valley Creek naturally deposited in this very “flat”



portion or reach of the creek. In addition, large episodic sedimentation events associated with the 1982 and 1998 floods contributed enough alluvium from the Inverness Ridge that the marsh's geomorphology was dramatically reshaped during this period. For example, following the 1998 flood, the course of Bear Valley Creek shifted from the western to the eastern portion of Olema Marsh.

## Hydrology

From an estuarine perspective, the Delineation Study Area represents the mixing zone for oceanic tides from the Pacific Ocean and freshwater fluvial flows from several perennial/seasonal creeks and drainages, including Lagunitas, Olema, Bear Valley, Fish Hatchery, and Tomasini creeks, as well as several smaller drainages (Figure 4). Tomales Bay is characterized as a typical "classic," winter-stratified estuary, with salinities ranging from freshwater near 0-5 ppt in the winter to brackish and even saline (15-30 ppt) in the summer and fall. Both Fish Hatchery and Tomasini Creeks, which flow through the diked West and East Pastures, respectively, are tidally influenced to some degree, because their so-called "one-way" tidegate or flashboard dam structures are malfunctioning, allowing tidal inflow. The downstream portions of both Olema Creek and Bear Valley Creek are also tidal, although Bear Valley Creek is only tidally influenced in the westernmost portion of the creek (Kamman Hydrology & Engineering, *in prep.*). Another source of freshwater influences within the Study Area is seep flow from groundwater sources along Inverness Ridge and Point Reyes Mesa, which again relates strongly to this area's unique and unstable geologic history. These seeps either emerge from coarse alluvial layers at the base of the Point Reyes Mesa or the base of Inverness Ridge and then sheetflow out onto the relatively level pastures, drainages, or freshwater marshes (Figure 4). These freshwater influences appear to be mediated to some extent by localized subsidence and a potential influence on the groundwater table within the outer portions of the pasture from Lagunitas Creek, which is tidal (Figure 4). As noted earlier, most of the East Pasture is actively spray- or flood-irrigated during the summer to increase forage for cattle.

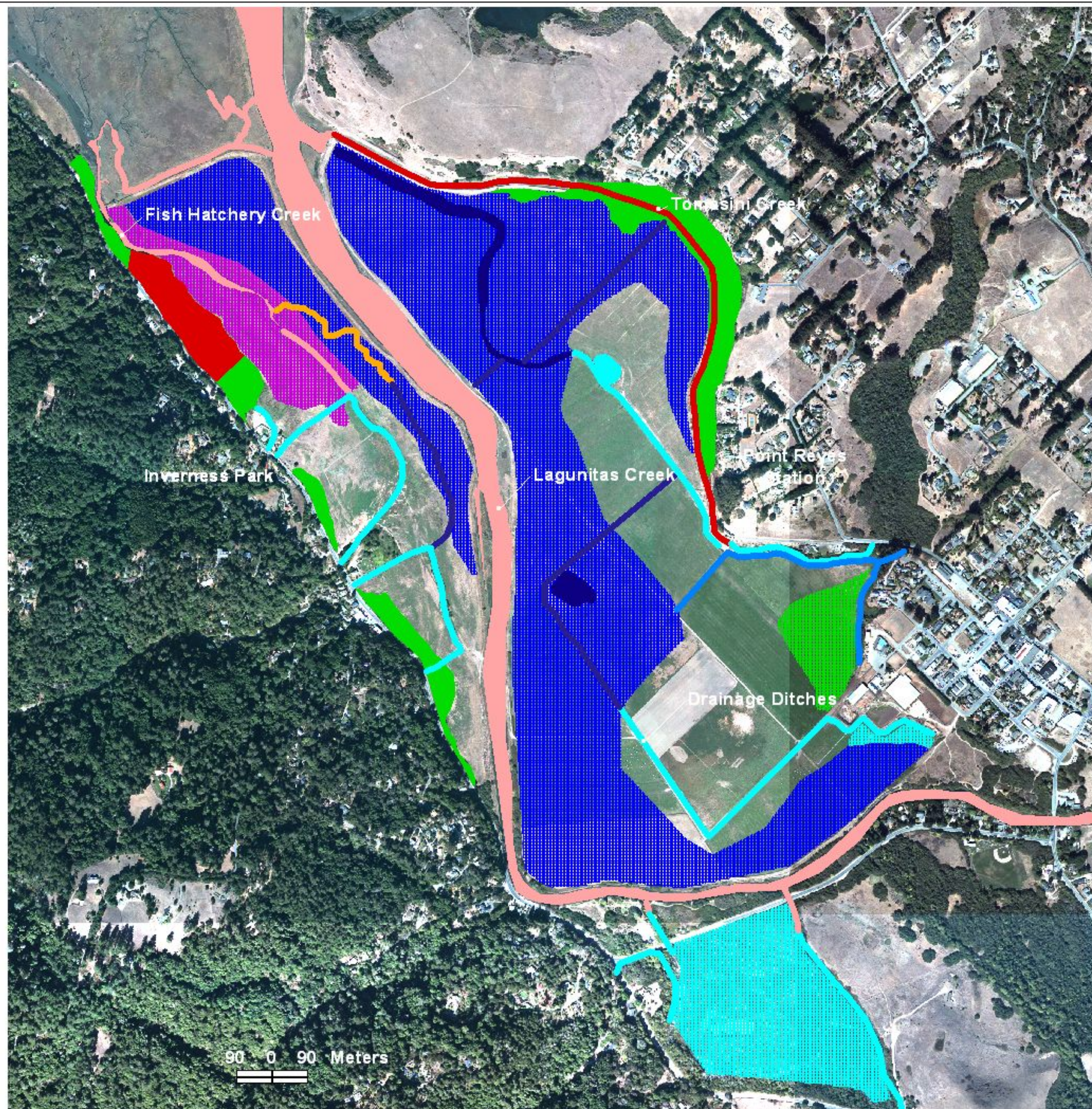
## Vegetation Communities

This hydrologic complexity undoubtedly accounts for the wide variety of wetland habitats present in the Delineation Study Area, including freshwater marsh, vernal marsh, seasonal wetland, wet meadow, tidal/diked salt marsh, tidal/diked brackish marsh, moist grassland, scrub-shrub riparian, and forested riparian (Parsons and Allen 2004; Figure 5). Even some of the limited coastal scrub habitat present incorporates a mesic component, with perennial or seasonal seep flow on the Point Reyes Mesa creating a unique vegetation community dominated by both arroyo willow (*Salix lasiolepis*) and coyote brush (*Baccharis pilularis*). Approximately 50 percent of the Giacomini Ranch has been mapped as Wet Pasture (Figure 5). Wet Pasture is managed grassland dominated by grasses and herbs that are predominantly facultative or obligate hydrophytes or wetland species. Lower elevation portions of the West Pasture and a smaller portion of the East Pasture also incorporate another vegetation community, Salt Marsh Pasture, that supports



# Giacomini Wetland Restoration Project

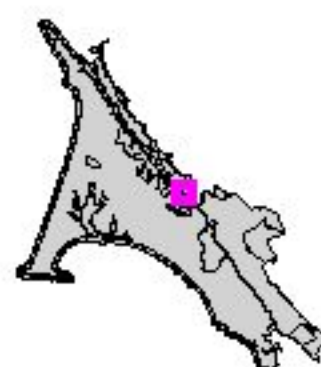
## Sources of Hydrology



- Hydrologic Sources**
- Groundwater - Freshwater
  - Surface - Freshwater
  - Surface - Freshwater/Groundwater - Freshwater
  - Surface - Freshwater/Groundwater - Tidally Influenced
  - Surface - Tidally Influenced
  - Surface - Tidally Influenced/Groundwater - Freshwater
  - Surface - Tidally Influenced/Groundwater - Tidally Influenced
- Hydrologic Influences**
- Groundwater-Freshwater
  - Groundwater-Tidally Influenced
  - Surface-Freshwater
  - Surface-Tidally Influenced



Map Location



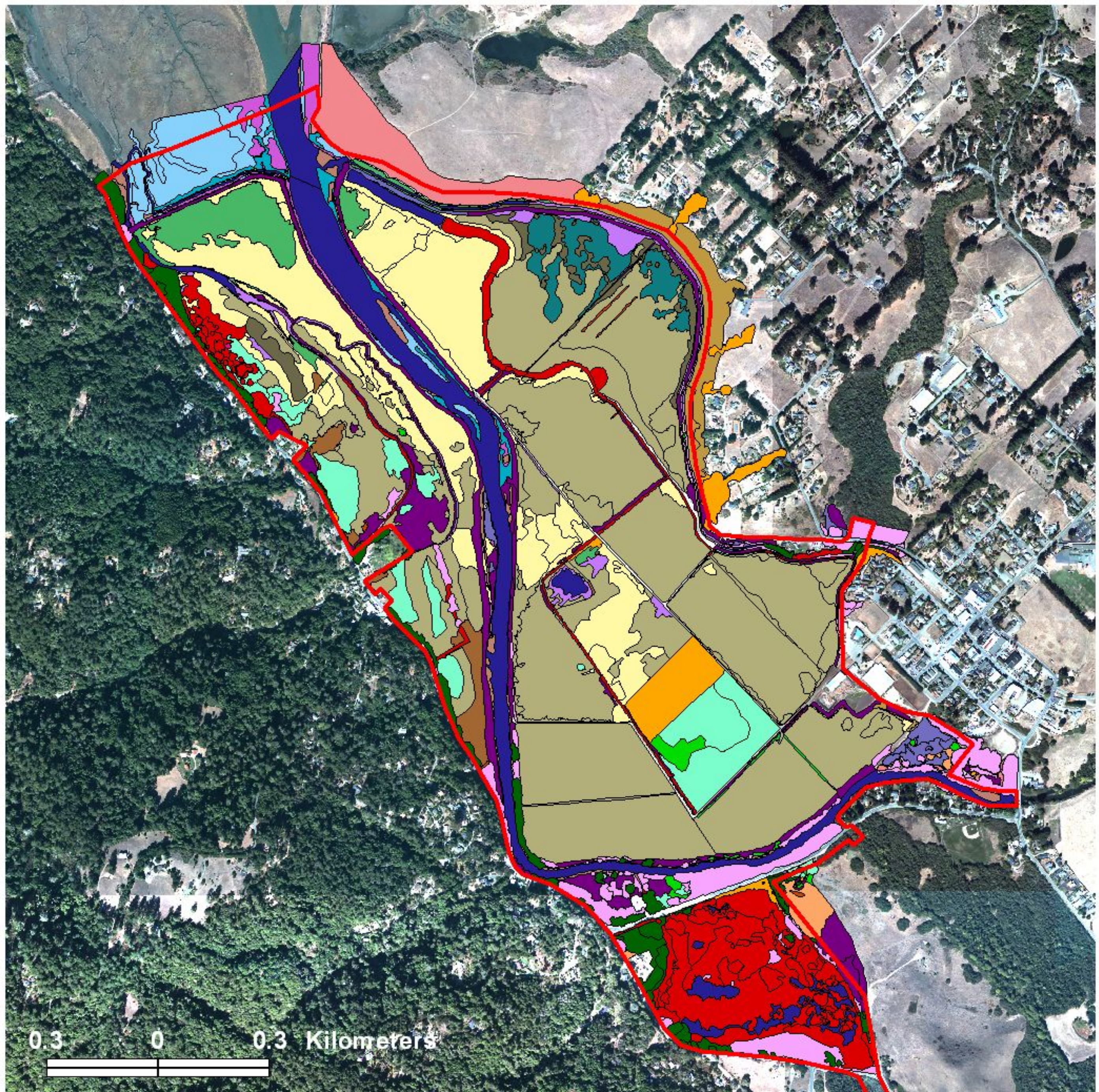
National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 4. Hydrologic sources in the Giacomini Wetland Restoration Project Delineation Study Area.



# Giacomini Wetland Restoration Project

## Vegetation Communities



Vegetation Sub-Alliances

Coyote Brush Coastal Scrub	Riparian
Diked Brackish Marsh	Salt Marsh Pasture
Diked Salt Marsh-High	Scrub-Shrub Riparian
Diked Salt Marsh-Mid	Seasonal Wetland
Diked Salt Marsh-Mudflat/Pan	Tidal Brackish Marsh
Distributed	Tidal Salt Marsh-High
Dry Grassland	Tidal Salt Marsh-High/Upland
Dry Pasture	Tidal Salt Marsh-Low
Forested Riparian	Tidal Salt Marsh-Mid
Freshwater Marsh	Unvegetated
Mesic Coastal Scrub	Vernal Marsh
Moist Grassland	Wet Meadow
Moist Meadow	Wet Pasture
Open Water	

Map Location



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County of Marin

Figure 5. Vegetation sub-alliances or habitat types within the Giacomini Wetland Restoration Project Delineation Study Area.



the halophytic grass, saltgrass (*Distichlis spicata*) and other halophytic herbs such as alkali heath (*Frankenia salina*), as well as pastoral grasses such as creeping bent grass (*Agrostis stolonifera*) and rough blue grass (*Poa trivialis*; Figure 5). Scrub-shrub and Forested Riparian communities primarily occur along the western boundary of the West Pasture, the southern portion of Lagunitas Creek; Wildlife Conservation Board lands near White House Pool and the Green Bridge; the western and southern edges of Olema Marsh; and along limited portions of Tomasini and Fish Hatchery Creeks and other small drainages (Figure 5). Grazing has eliminated riparian habitat along most of the drainages within the pastures themselves. Outboard of the Lagunitas Creek levee and downstream of the Giacomini Ranch, the predominant vegetation communities are Tidal Salt Marsh, Tidal Brackish Marsh, and, to a lesser extent, Moist Grassland (Figure 5). Olema Marsh supports extensive patches of Freshwater Marsh comprised principally of cattails (*Typha angustifolia*) and tules (*Scripus californicus* and *acutus*) and was at least once considered the most extensive freshwater marsh in Marin County (Shuford and Timossi 1989; Figure 5).

### **Previous Delineation Efforts**

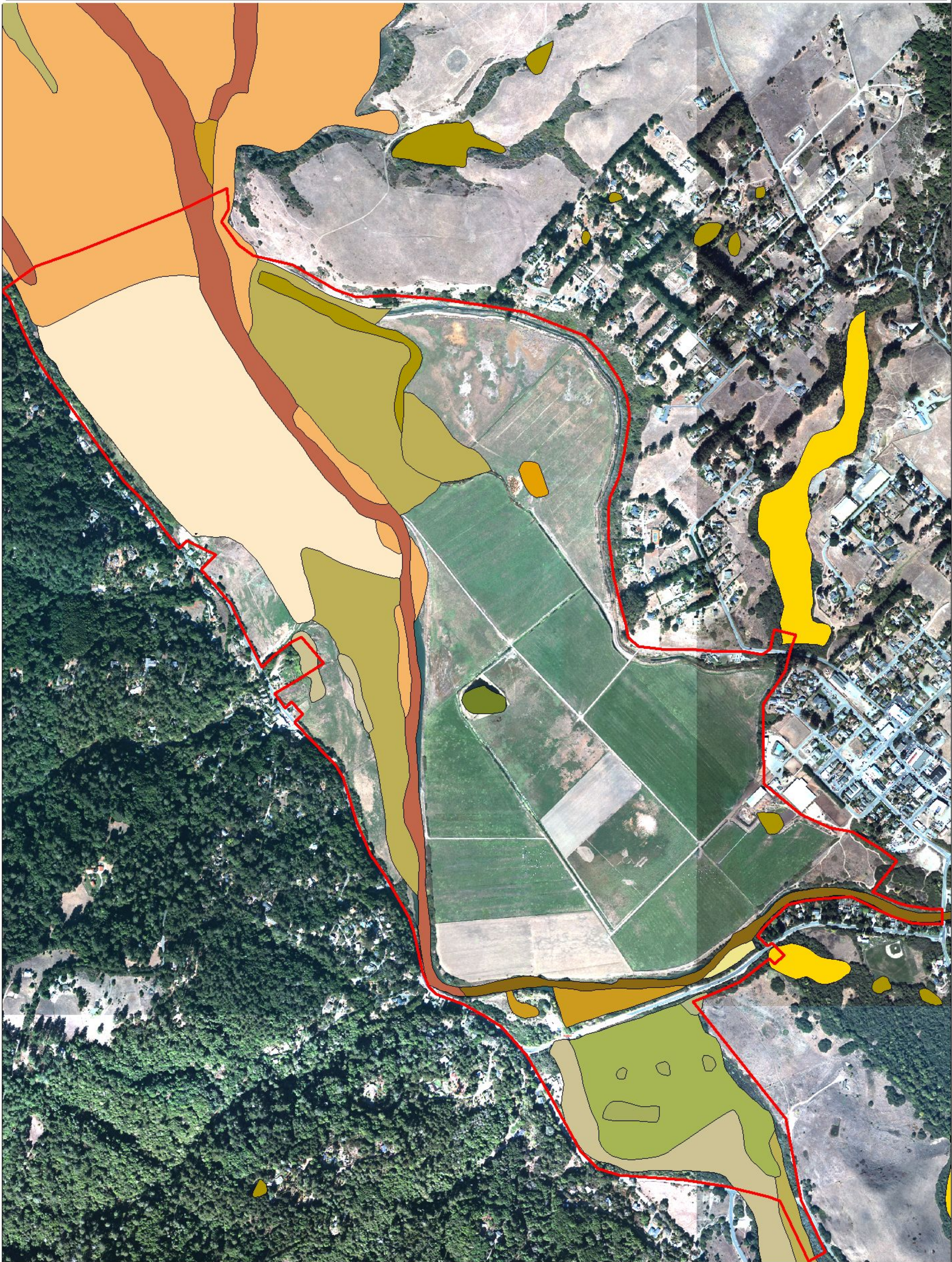
**NWI.** Seventeen (17) NWI wetland types were mapped within the Project Area and vicinity by the USFWS (1991; Figure 6). The NWI map characterized much of the undiked marsh north of the pastures as estuarine emergent, regularly flooded (E2EMN). Lagunitas Creek was characterized as estuarine subtidal unconsolidated bottom subtidal (E1UBL). Fish Hatchery Creek was characterized as palustrine emergent permanently flooded diked and semi-permanently flooded (PEMHh and PEMF). Tomasini Creek was characterized as palustrine emergent seasonal tidal (PEMR) where it enters the Project Area, and as estuarine intertidal stream bed regularly flooded (E2SBN) as it reaches Tomales Bay. The northern half of the West Pasture was characterized as palustrine emergent seasonally flooded (PEMC), and the southern half of the West Pasture was characterized as palustrine emergent temporarily flooded (PEMA). It is unclear whether the entire East Pasture or only the northern half of the East Pasture was classified as palustrine emergent temporarily flooded (PEMA). The north end of the old slough in the East Pasture was characterized as palustrine unconsolidated bottom permanently flooded diked (PUBHh), but none of the drainage ditches in the East Pasture were delineated.

As part of the baseline survey efforts conducted in 2002-2004, a modified Cowardin methodology was used to map wetlands at a greater level of detail than the 1991 NWI survey (Allen and Parsons, *in prep.*). Approximately 90 percent of the area surveyed for this report qualified as a Cowardin wetland. The actual Project Area encompasses a total of 563 acres of upland, wetlands and open water. As the proposed Project may have direct or indirect impacts on areas upstream, downstream, or immediately surrounding the Project Area, approximately 56 additional acres in the vicinity of the Project Area were surveyed. The modified Cowardin approach resulted in delineation of 594 individual wetland units or polygons, totaling approximately 556 acres in surface area. Among these 594 polygons, more than 100 different classifications of wetlands and aquatic habitat were designated.



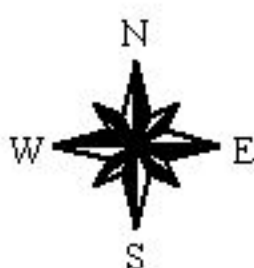
# Giacomini Wetland Restoration Project

National Wetland Inventory Wetlands

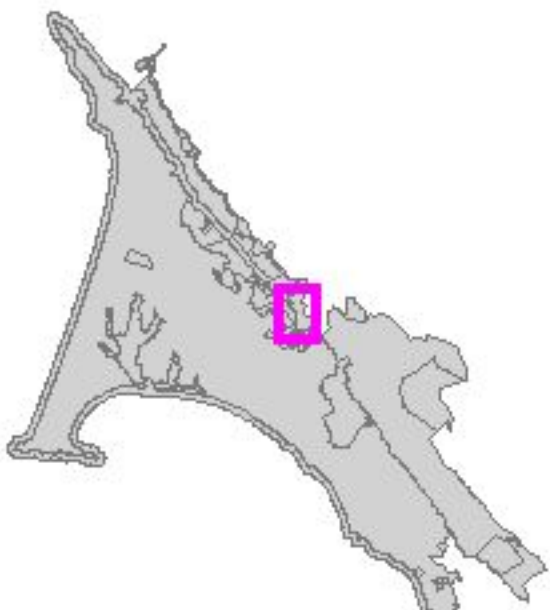


National Wetlands Inventory Cowardin Code		
E1UBL	PABHh	PFOC
E1UBLh	PABHx	PFOR
E2EM/USN	PEMA	PSSA
E2EMN	PEMAh	PSSC
E2EMP	PEMC	PSSR
E2USN	PEMCh	PSSS
E2USP	PEMF	PUBF
L1UBHh	PEMFh	PUBFh
M1UBL	PEMH	PUBH
M2RSN	PEMHh	PUBHh
M2USN	PEMHx	PUBHx
M2USP	PEMR	R1UBV
PABFh	PFOA	R2USC
Delineation Study Area Boundary		

400 0 400 800  
Feet



Map Location



National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 6. Wetlands mapped by the National Wetlands Inventory (1991) in the Giacomini Wetland Restoration Project Delineation Study Area.

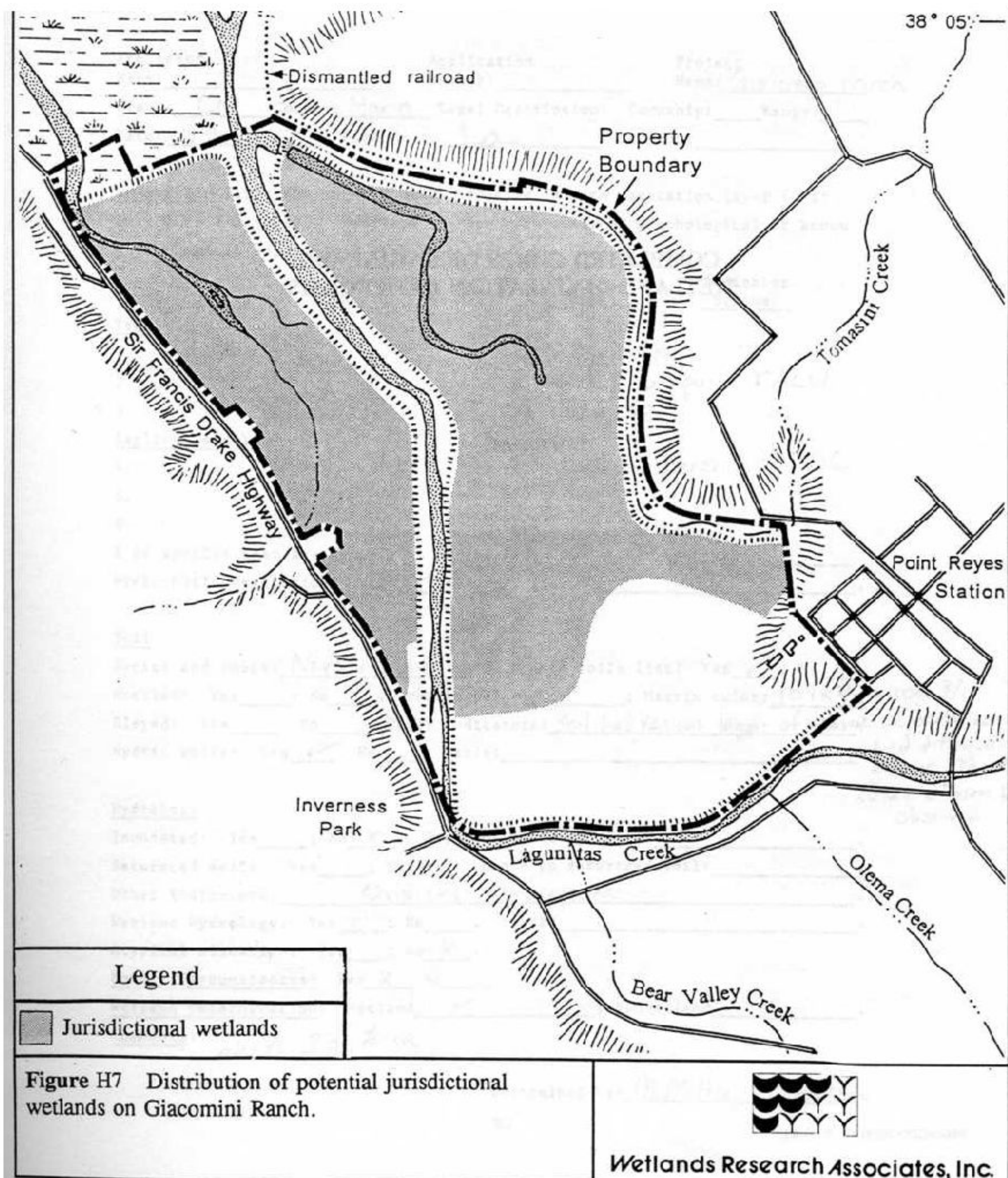


**Feasibility Study.** As part of the wetland restoration feasibility study conducted in 1993, a wetland reconnaissance was performed on the Giacomini Ranch to determine the potential acreage of potential Corps' jurisdictional wetlands (PWA et al. 1993). This reconnaissance was conducted in March and April 1992 using a combination of field surveys, including some transects, and installation of shallow groundwater monitoring wells in the irrigated East Pasture. The study concluded that potential jurisdictional wetlands and "other waters" totaled 108 acres in the West Pasture and 191 acres in the East Pasture (PWA et al. 1993; Figure 7). These potential jurisdictional features were mapped in the northern two-thirds of the West Pasture and the northern two-thirds of the East Pasture, with potential non-jurisdictional uplands concentrated in the highest elevation lands in the southern portions of both pastures (Figure 7). The extent of potential jurisdictional Section 10 waters was not evaluated.

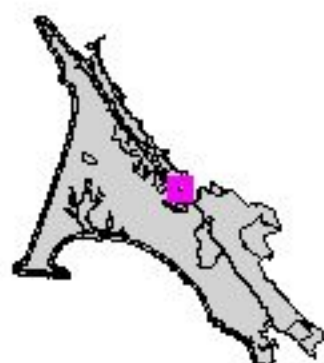


# Giacomini Wetland Restoration Project

## Previous Wetland Delineation Efforts



Map Location



National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 7. Map showing potential Section 404 jurisdictional wetlands mapped during wetland delineation conducted in 1993 in Giacomini Wetland Restoration Project Delineation Study Area.



## RESULTS

The Delineation Study Area includes tidal and non-tidal wetlands and “other waters” subject to Corps’ jurisdiction under both Section 404 and Section 10 regulations. Areas potentially subject to Corps’ jurisdiction are shown in Figures 8 and 17 and in greater detail in Figures 9-16 and Sheets 1-2. Opaque overlays are used in Figures 8-17, but Sheets 1-2 use transparent overlays that enable readers to view areas on the digital aerial images underneath the overlays.

### Potential Jurisdictional Section 404 Waters of the United States

#### *Tidal*

Within the Delineation Study Area, potential jurisdictional tidal features were defined as wetlands and waters that fell below the High Tide Line (HTL), which was calculated as 8.06 ft NAVD88 using the observed high tide at Golden Gate (7.2 ft Mean Lower Low Water/MLLW) and correction factor for Inverness (0.4 ft) and then converting the MLLW datum to the NAVD88 datum. Most of the tidal areas occurred in Lagunitas Creek either on the outboard side of the Giacomini Ranch levees or just downstream of the Green Bridge and in the undiked marsh north of the Giacomini Ranch (Figures 8, 9, 11, 12, 13, and 16). These areas are inundated tidally either daily during high tides or more infrequently during higher high or extreme high tides. Due to the strong fluvial influences within the Delineation Study Area, the elevation gradient between Lagunitas Creek and adjacent marsh plains and “shelves” is discontinuous rather than gently sloping due to the presence of alluvial levees and steep, vertical creek banks. During extreme high tides, tidal waters will overtop the alluvial levees or high vertical banks and overwash onto the marsh floodplains and “shelves” that occur along manmade levees.

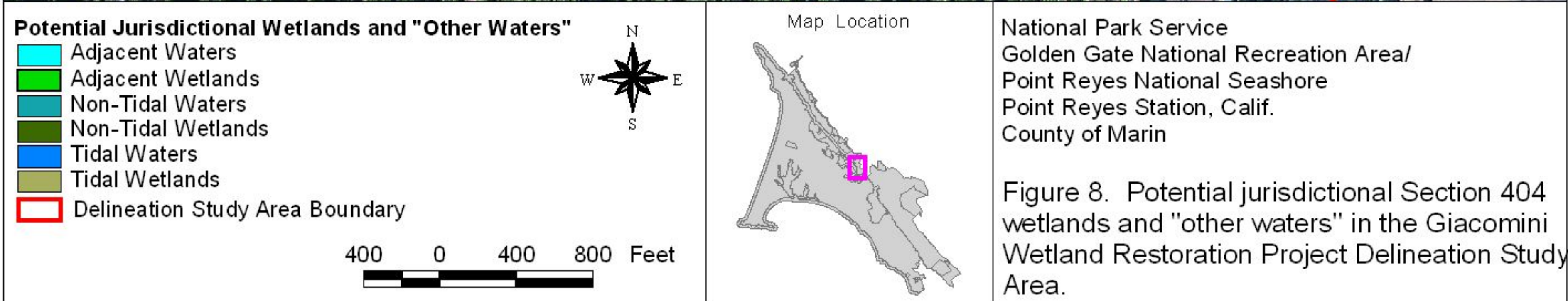
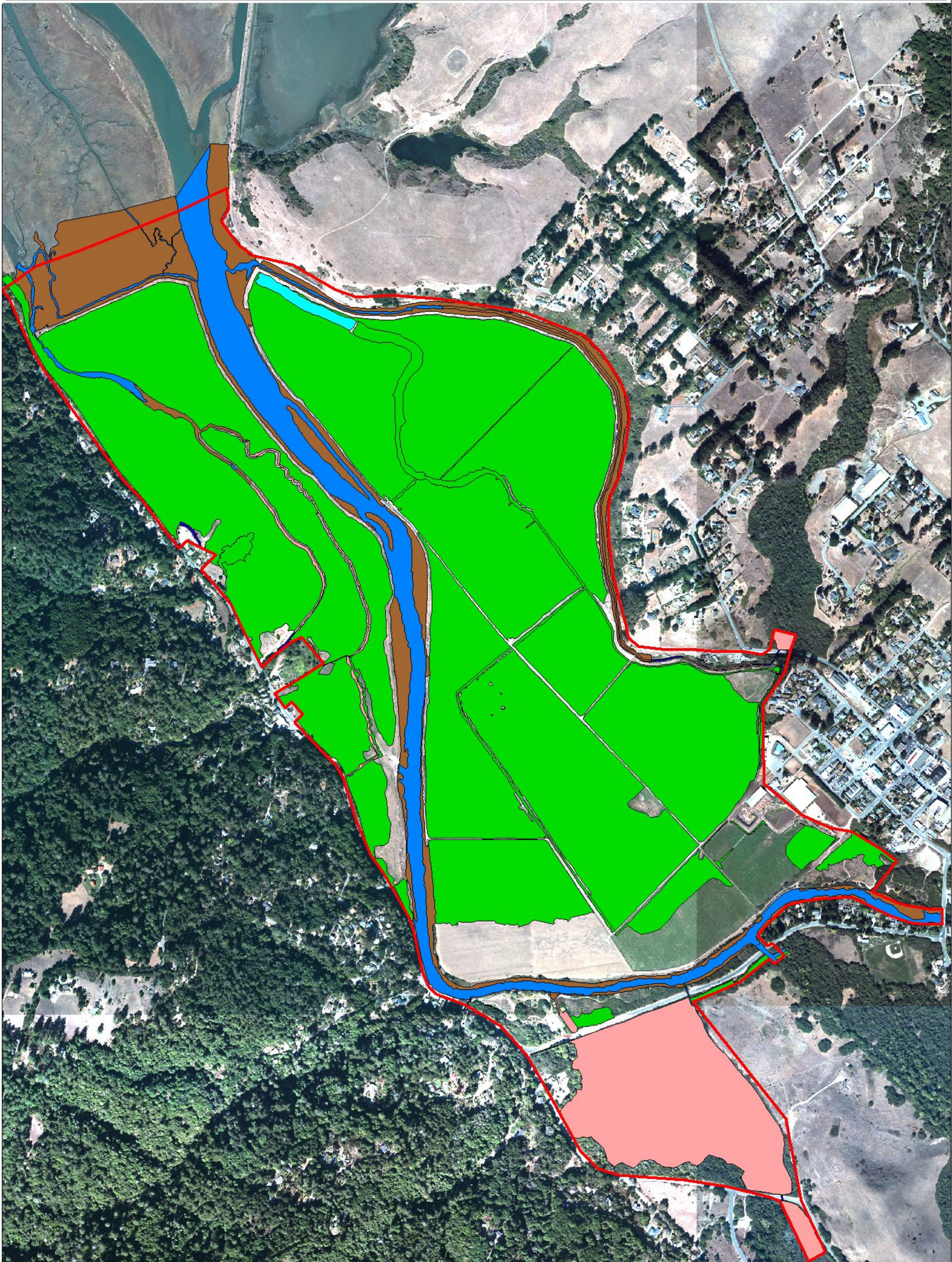
Tidal influence within this section of Lagunitas Creek is strongly controlled by freshwater flows from the upstream watershed, as well as other tributaries, particularly Olema Creek (Kamman Hydrology & Engineering, *in prep.*). Upstream reservoirs, including Kent, Alpine, and Nicasio, and, to a lesser extent, private water diversions and wells regulate the amount of freshwater in Lagunitas Creek, thereby significantly affecting salinity dynamics in the downstream tidal reaches. Tidal influence can apparently extend as far upstream as the North Marin Water District groundwater well – approximately 1 mile upstream of the Green Bridge near Point Reyes Station -- during a fall high tide when freshwater flows are at their lowest. Within the Delineation Study Area, salinities remain low throughout the winter and spring. During the summer, salinities increase, ranging from saline at the northern end to brackish at the southern end, although, within this brackish “range,” salinities can vary considerably, even on a daily basis, due apparently to changes in freshwater release rates from the reservoirs and other factors.

Some degree of muted tidal action also occurs in Tomasini Creek and the southern portion of the West Pasture, where tidegate structures have failed to some degree and



# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters"





allowed tidal inflow. The improperly functioning flashboard structure on Tomasini does not restrict the upper part of the tidal range, but rather precludes full draining of water from the creek, promoting subtidal rather than intertidal conditions in the northern portion of the creek.

The improperly functioning Fish Hatchery Creek tidegate in the West Pasture has acted to mute both the upper and lower part of the tidal range. Currently, following replacement of the failed culverts in 2003 with modified tidegates that still allow some tidal inflow, the upper part of the tidal range is restricted to 5.25 feet (Kamman Hydrology & Engineering, *in prep.*). During normal high tides, overbank flooding in the northern portion of the West Pasture and the Freshwater Marsh is limited, with most of the tidal influence restricted to the creek and its tributary, the Old Slough. Substantial overbank flooding does occur during extreme high tide series (tides > 6.8 ft MLLW), however, the flooding generated by tidal action in the pasture is difficult to separate from that of storm-related freshwater flooding from Fish Hatchery Creek and surface runoff from southern portions of the West Pasture sheetflowing down into the lowest elevation portion of the pasture and ponding. Even during periods when waters from the adjacent undiked marsh flow into the West Pasture via the concrete spillway, these waters are typically a mixture of spring tides and flood flows from Lagunitas Creek, Fish Hatchery Creek, and other small drainages that flow into this portion of Tomales Bay. In these muted tidal areas, the potential extent of tidal wetlands and waters was assessed, then, by using 1) observations of wrack deposited during high tides and 2) information from two (2) years of monthly water quality sampling throughout the Giacomini Ranch that demarcates the extent of tidal influence during the year, particularly during the summer and fall when decreased freshwater flow increases the upstream extent of tidal influence.

**Waters.** Potential jurisdictional tidal waters occurred in Lagunitas Creek upstream to the Green Bridge (boundary of the Delineation Study Area); tributaries to Lagunitas Creek in the undiked marsh; downstream portion of Tomasini Creek just before it flows into Tomales Bay; downstream portion of Fish Hatchery Creek just before it flows through the culvert into the undiked marsh; and downstream portions of Bear Valley and Olema Creeks before the confluence with Lagunitas Creek (Figures 8, 9, 11, 13, 14, 16; Sheets 1-2). These tidal waters would principally be subtidal and intertidal mudflat areas that supported less than 5 percent vegetation cover. The upstream boundary of tidal waters was characterized either through anecdotal information on the extent of tidal influence (1 mile upstream of the Green Bridge on Lagunitas Creek); data from water level loggers and hydraulic modeling (Olema, Bear Valley, and Tomasini Creeks; Kamman Hydrology & Engineering, *in prep.*), and/or through salinity data recorded on a monthly basis at various stations along Tomasini and Fish Hatchery Creeks between 2002 and 2004.

**Wetlands.** Potential jurisdictional tidal wetlands occurred in vegetated areas or areas with more than 5 percent cover of vegetation below the HTL (Figures 8, 9, 11, 12, 13, 14, and 16; Sheets 1-2). Most of the “tidal” wetlands were located in the northern portion of the Delineation Study Area such as the intertidal marsh plain in the undiked marsh north of Giacomini Ranch, central bars in the middle of Lagunitas Creek, and fringe tidal salt marsh on the outboard portion of the Giacomini Ranch levees. Dominant species in these



areas included halophytes such as saltgrass (FACW), jaumea (*Jaumea carnosa*; OBL), pickleweed (*Salicornia virginica*; OBL), arrow grass (*Trigochlin maritima*; OBL), and alkali heath (*Frankenia salina*; FACW+).

However, tidal wetlands also included areas characterized by more brackish or even glycophytic species in the upstream portions of Lagunitas Creek and Tomasini Creek. Brackish and glycophytic plant species present in the tidal wetlands along Lagunitas and Tomasini Creeks primarily included alkali bulrush (*Scirpus maritimus*; OBL), California bulrush (*Scirpus californicus*; OBL), arroyo willow (*Salix lasiolepis*; FACW), and some glycophytic herbs such as water parsley (*Oenanthe sarmentosa*; OBL), annual beard grass (*Polypogon monspeliensis*; FACW+), etc. Salinities within Lagunitas Creek typically remain in brackish range up to at least the Green Bridge directly south of the Giacomini Ranch and perhaps even further upstream. Tidal wetlands also occurred inside the levee in the northern portion of the West Pasture, where the tidegates have failed and allow a substantial amount of tidal inflow. Plant species in the tidal wetlands along Fish Hatchery Creek ranged from halophytic species such as saltgrass (FACW) and pickleweed (OBL) to glycophytic ones such as creeping bentgrass (FACW), rough bluegrass (FACW), white clover (*Trifolium repens*; FACU+), meadow barley (*Hordeum brachyantherum*; FACW), and creeping wildrye (*Leymus triticoides*; FAC+).

### *Non-Tidal*

The extent of non-tidal waters and wetlands within the Delineation Study Area is low compared to tidal and adjacent wetlands and waters. Potential jurisdictional non-tidal wetlands and waters include features that fall below the Ordinary High Water (OHW) mark in non-tidal streams and drainages and non-tidal portions of streams and drainages. For delineation purposes, OHW was typically inferred from field indicators such as abrupt break in bank topography: most of the drainages have been dredged or even re-routed at some point, creating steep vertical banks.

While these creeks and drainages may not be considered truly “navigable,” they could be characterized as “tributaries” to navigable waters, i.e., Lagunitas Creek and Tomales Bay. Fish Hatchery, Bear Valley, 1906, Silver Hills, and several small drainages in the northern portion of the West Pasture are perennial. The upstream portion of Tomasini Creek dries up in the late summer and early fall, possibly due to upstream diversions. Several other drainages that flow into the Giacomini’s West Pasture are seasonal, drying up in the early spring.

**Waters.** Potential jurisdictional non-tidal waters included unvegetated portions of Fish Hatchery Creek near Sir Francis Drake, Tomasini Creek near Mesa Road, the 1906 Creek near Sir Francis Drake Boulevard, and a small culverted drainage near White House Pool (Figures 8, 10, 12, 13, and 15; Sheets 1-2). The upstream portions of these creeks support less than 5 percent vegetation cover below the OHW mark. The lack of plant cover in the streambeds may result from the riparian overstory present on the creek banks, which is dominated by species such as red alder (*Alnus rubra*; FACW) and arroyo willow (FACW). Further downstream, the reduced flow velocities associated with a



decrease or flattening in channel gradient might encourage establishment by hydrophytic plant species. One other non-tidal water feature occurs on the County of Marin's White House Pool park. This small drainage is culverted to run underneath Sir Francis Drake and then flows into Lagunitas Creek (Figure 15, Sheet 2).

**Wetlands.** Potential jurisdictional non-tidal wetlands include vegetated portions of Olema Marsh, Fish Hatchery, Tomasini, Bear Valley, Silver Hills, 1906 creeks, and several other small drainages in the Giacomini's West Pasture (Figures 8, 9, 11, 12, 14, and 15; Sheets 1-2; Appendix A: Sampling Locations 44A, 45A, and 46). These portions or reaches of creeks and drainages support more than 5 percent vegetation cover below the OHW mark. Again, reduced flow velocities associated with a decrease or flattening of the creek gradient might promote recruitment of hydrophytic plant species in the creek bed. The portion of Bear Valley Creek that flows through Olema Marsh is largely concentrated on the marsh's east side, although impoundment of creek waters has led the creek's course through the marsh to be somewhat indistinguishable. For the purposes of this delineation, the entire marsh was mapped as Non-Tidal Wetland, because most of it falls below OHW, including portions of the riparian habitat that fringes the marsh (Figure 14; Sheet 2; Appendix A: Sampling Locations 44A, 45A, and 46). However, the very northern portion of Bear Valley Creek near Levee Road was mapped as Tidal Waters (Figure 14; Sheet 2).

Some of the dominant plant species within these Non-Tidal Wetland areas included water parsley (OBL), western manna grass (*Glyceria occidentalis*; OBL), hydrocotyle (*Hydrocotyle ranunculoides*; OBL), willowherb (*Epilobium ciliatum*; FACW), lady's thumb (*Polygonum persicaria*; FACW) knotweed (*Polygonum punctatum*; OBL), rush (*Juncus effusus*; OBL), California bulrush (OBL), cattails (*Typha* spp.; OBL), etc.

### *Adjacent*

Adjacent wetlands and waters comprised the largest group of potential jurisdictional features delineated in the Delineation Study Area. These features were either physically proximate or contiguous with either Tidal or Non-Tidal Wetlands and Waters. In areas where features were not contiguous with tidal and non-tidal features, the proximity, as well as the strong hydrologic and ecological interaction between leveed areas and Lagunitas Creek, became the rationale for classifying these features as potentially "adjacent." Adjacent waters and wetlands include features that met the "three" criteria: wetland hydrology, hydric soils, and hydrophytic vegetation, although waters typically support less than 5 percent vegetation. As noted earlier, because the East Pasture is irrigated during the summer, secondary hydrologic indicators and hydric soil features become more difficult to interpret. For this reason, we installed a series of shallow monitoring wells that were assessed weekly during 2002-2003 winter and spring and less frequently through spring 2004.

The complex hydrology of southern Tomales Bay, which is characterized by tidal and freshwater surface flow, as well as fresh and tidally influenced groundwater, creates an equally complex mosaic of wetlands in the Delineation Study Area. Groundwater plays



an important role in the Giacomini Ranch and Olema Marsh. Along the perimeter of the Giacomini Ranch, groundwater emerges from the base of the adjacent Inverness Ridge and Point Reyes Mesa and appears to both sheetflow across the soil surface and percolate through the soil, draining from the higher elevation “edges” to the lower portions of the pasture. Not surprisingly, because of the varied sources and locations of groundwater, groundwater tables did not necessarily follow an elevational gradient within the pastures (Appendix C). This seep flow causes a seasonal elevation in the shallow groundwater table within the pastures, often saturating the ground surface through spring or even later. Most of the shallow monitoring wells in the East Pasture showed that the groundwater tables rose to within 12- to 18 inches of the ground surface for an average of 5- to 6 consecutive weeks during the winter and spring (Appendix C: EP1-3 and EP5), although at least one well (EP6) near the dairy was actually inundated for five (5) months in spring 2003 (Appendix C). The water table typically dropped below 30-35 inches in the summer, except for EP3, which showed an anomalous rise in fall 2003 prior to the rainy season that was probably related to summer and fall irrigation flooding by the dairy ranchers (Appendix C).

In addition, the groundwater table in areas adjacent to the Lagunitas Creek levee appears to be influenced to some degree by tidal action within Lagunitas Creek (Kamman Hydrology & Engineering, Inc., *in prep.*). The groundwater table in areas directly adjacent to the Lagunitas Creek levee, particularly those with alluvial subsurface soils deposited when the creek was not leveed, appeared to rise and fall with the tide with a varying amount of lag respective to tidal heights in Lagunitas Creek proper. This tidal influence either results from direct exchange of waters from Lagunitas Creek through porous alluvial subsoils or, more likely, through hydraulic pressure of tides on the largely freshwater-driven groundwater table. Most of the groundwater in areas directly adjacent to the levees is slightly to moderately saline, ranging from 1.0- to 30 ppt. However, even in areas without tidal influence, salinities in the groundwater often exceeded 0.5 – 1 ppt, ranging from 3 to as high as 50 ppt (Park Service, *unpub. data*). These increased salinities may result from freshwater-driven groundwater interacting with residual salts in clay-dominated portions of the substrate that were exposed to tidal action when the Giacomini Ranch was not diked.

Surface water flows also contribute to maintenance of wetlands and waters within the Delineation Study Area. Frequent overbank headwater flooding events along Fish Hatchery and Bear Valley creeks promotes recharge of the shallow groundwater table and prolonged surface ponding, particularly in Olema Marsh where Levee Road and the culverts act to impound waters and increase water residence time. Surface run-off and precipitation probably also maintain water levels in the drainage ditches of the East Pasture during the winter and spring. (During the summer and fall, water levels within the ditches are maintained with pumped water obtained by the Giacomini from the North Marin Water District for irrigating the pastures to increase forage for dairy cattle.) In the center of the East Pasture, where groundwater influences appear to be minimal based on the deep groundwater table (EP4; Appendix C), wetland hydrology during the winter and spring actually appears to have developed from shallow perching of run-off and precipitation on the soil surface caused by the low permeability of the clay loam soils and



densely matted stolons and rhizomes of the dominant pasture grasses (e.g., *Agrostis stolonifera*, *Poa trivialis*): Almost 2- to 3 inches of water was observed ponding on the soil surface at many sampling points in this area approximately 18 days after the last rainfall event. In the unmanaged pasture in which well EP4 is located, this unique ponding effect appeared to encourage establishment by other plant species strongly associated with wetlands such as annual beardgrass (*Polypogon monspeliensis*; FACW) despite the fact that groundwater table was consistently below the top 12 inches of the soil surface, and the soil was not saturated below the top 2 inches of the soil surface.

The presence of wetland hydrology was typically determined through use of primary indicators such as inundation or saturation within the top 12- to 18-inches of the soil surface 14- to 18 days after the last major rainfall event. In addition, secondary indicators such as oxidized pore channels were often present, as well, but the groundwater-driven nature of the wetland hydrology in these areas minimized the potential for other primary and secondary indicators associated with surface flooding such as sediment deposits, algal matting, matted vegetation, etc. In areas where irrigation is not performed, either a very low chroma (0 or 1) or the presence of mottles in soils with a chroma of 2 distinguished sampling points with hydric soils. In general, adjacent wetlands in the pastures had clay loam soils with a chroma of 2 and abundant, prominent mottles.

One of the anomalies encountered during field surveys, at least in the West Pasture, involved a seeming disconnect between primary indicators of hydrology such as the presence of inundation or saturation and the presence of hydric soil features (mottles) and secondary hydrology indicators (oxidized pore channels). In several areas of the West Pasture, there was no visible presence of inundation or saturation only 7 days after the last rainfall event within the soil surface, and, yet, there were common or abundant mottles and oxidized pore channels. This anomaly cannot be explained simply by timing, because, at the time the survey was performed, there had been no dry periods or significant breaks in precipitation, and precipitation totals, at least to that point in time, approximated that of normal rainfall years. In these anomalous areas, wetland determination was based on primary hydrologic indicators and the composition of the plant community, particularly perennial species that might be considered indicators of long-term hydrologic conditions.

**Waters.** One adjacent water feature was mapped within the Delineation Study Area. It is located in the northern portion of the Giacomini Ranch East Pasture and represents an unvegetated portion of a historic slough that once flowed into Tomales Bay, but has been cut off by construction of the Lagunitas Creek levee (Figures 8 and 9; Sheet 1). Possibly to enhance hunting opportunities, the Giacomini constructed another interior berm just southward of the levee and probably used to actively dredge to discourage colonization by emergent plant species. To this day, this Old Slough “pond” remains almost entirely unvegetated (vegetation cover < 5 percent).

**Wetlands.** “Adjacent” wetlands mapped within the Delineation Study Area occurred in the East and West Pastures of the Giacomini Ranch, County Parks lands, and Olema



Marsh (Figures 8 -13 and 16; Sheets 1-2; Appendix A: Sampling Locations 1A-46). Most of the plants within the adjacent wetlands were either FACW or OBL, with FAC species restricted to more marginal wetlands and even upland areas. The very wet nature of the Delineation Study Area, combined with the cool, moist climate of this coastal region, favors establishment of hydrophytic species even in upland areas that have no prolonged saturation or inundation. Plants in the adjacent wetlands at the Giacomini Ranch, Olema Marsh, and Olema Creek areas typically included species characteristic of the Wet Pasture, Salt Marsh Pasture, Freshwater Marsh, Scrub Shrub, and Forested Riparian vegetation communities described in the Study Area background.

The adjacent wetlands within the County Parks lands at the south end of the Giacomini Ranch near the dairy facility and at White House Pool (Figure 16; Appendix A: Sampling Locations 21A, 23A, and 30A), however, often supported a more ruderal mix of plant species such as goldenrod (*Euthamia occidentalis*; OBL), rush (*Juncus effusus*; OBL), rush (*Juncus patens*; FAC), water parsley (OBL), teasel (*Dipsacus* sp.), and wild mustard (*Brassica nigra*; NL) that defied classification into one vegetation community, probably due to the amount of past and ongoing disturbance present. These adjacent wetlands also included some seasonal wetland features that pond during the spring due to perching of surface flows on substrates that have been compacted either through foot traffic and/or fill activities. Dominant plant species ranged from goldenrod (OBL) and annual bluegrass (*Poa annua*; FACW-) at the White House Pool park to mixtures of common velvet grass (*Holcus lanatus*; FAC), ryegrass (*Lolium* sp.; FAC), barley (*Hordeum marinum* var. *gussoneanum*; FAC), dock (*Rumex conglomeratus*; FACW), rush (*Juncus patens*), and others at the County park near the dairy facility. Interestingly, one of the primary hydrologic sources for adjacent wetlands at the County park near the dairy facility appears to be seep discharge from the adjacent Point Reyes Mesa terrace that emerges from the base of the mesa and sheet flows across property. Both algal matting and matted vegetation were observed within this adjacent wetland area, pointing to prolonged surface ponding of these seep flows, as well as ponding of precipitation, surface run-off, and episodic overbank flooding from Lagunitas Creek during high flow events.

### **Potential Non-Jurisdictional Isolated Waters**

Potential non-jurisdictional isolated wetland and waters occur in areas that have wetland hydrology, but that are physically part of or “adjacent” to navigable waters and their tributaries. One potential non-jurisdictional isolated wetland was located in the Delineation Study Area. It occurred on the eastern side of Olema Marsh in the grassland-dominated “shutter ridge” that separates the Bear Valley and Olema Creek watersheds (Figure 14; Sheet 2; Appendix A: Sampling Location 47). The depressional feature appears to have been potentially created through past earthwork activity and does not appear to have an outlet that would enable it to be hydrologically connected to Olema Marsh.

### **Potential Jurisdictional Section 10 Waters of the Rivers and Harbors Act**



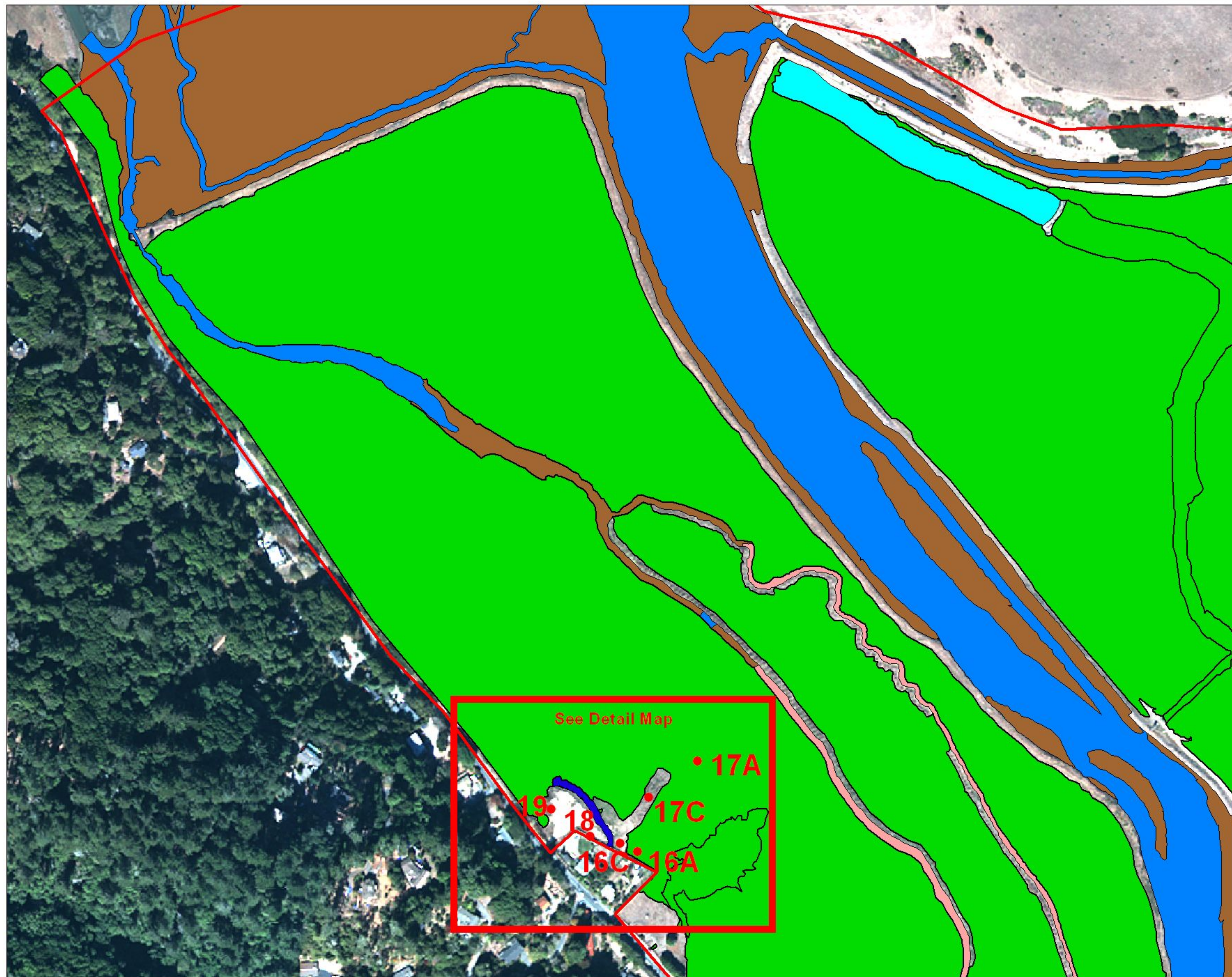
As noted earlier, Potential Section 10 jurisdictional areas are navigable waters that are subject to the ebb and flow of the tide, and/or those that are presently used, have been used in the past, or could be used for interstate transport or foreign commerce. It also includes unfilled areas currently behind levees that were historically below MHW. Within the Delineation Study Area, Potential Section 10 jurisdictional areas consisted of areas that are either currently below the MHW elevation of 5.13 ft NAVD88 (Lagunitas Creek, Tomasini Creek, Fish Hatchery Creek, Bear Valley Creek in Olema Marsh, Olema Creek near Levee Road), as well as historically below MHW (the northern and western portions of the Giacomini Ranch and portions of Olema Marsh and Olema Creek floodplain; Figure 17). Potential historic Section 10 jurisdiction was estimated by overlaying the 1862 U.S. Coast Survey map on the digital aerial imagery and performing heads-up digitizing on the open water and tidal creek subtidal and intertidal areas in the Giacomini Ranch, Olema Marsh, and Olema Creek floodplains that appeared likely to be below MHW at that time.





# Giacomini Wetland Restoration Project

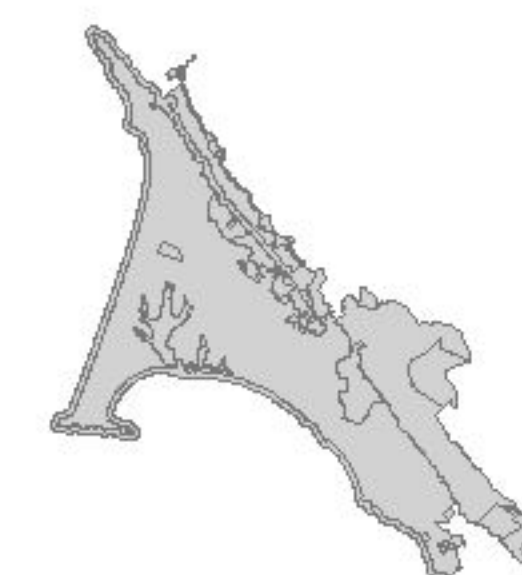
Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Northwest



- Potential Jurisdictional Wetlands and "Other Waters"**
- Adjacent Waters
  - Adjacent Wetlands
  - Non-Tidal Waters
  - Non-Tidal Wetlands
  - Tidal Waters
  - Tidal Wetlands
  - Delineation Sampling Points
  - Groundwater Wells
  - Delineation Study Area Boundary

Figure 9. Potential jurisdictional Section 404 wetlands and "other waters" in the northwest portion of the Giacomini Ranch's West Pasture - Giacomini Wetland Restoration Project Delineation Study Area.

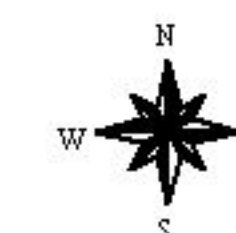
## Map Location



National Park Service  
Point Reyes National Seashore

100 0 100 200 Feet

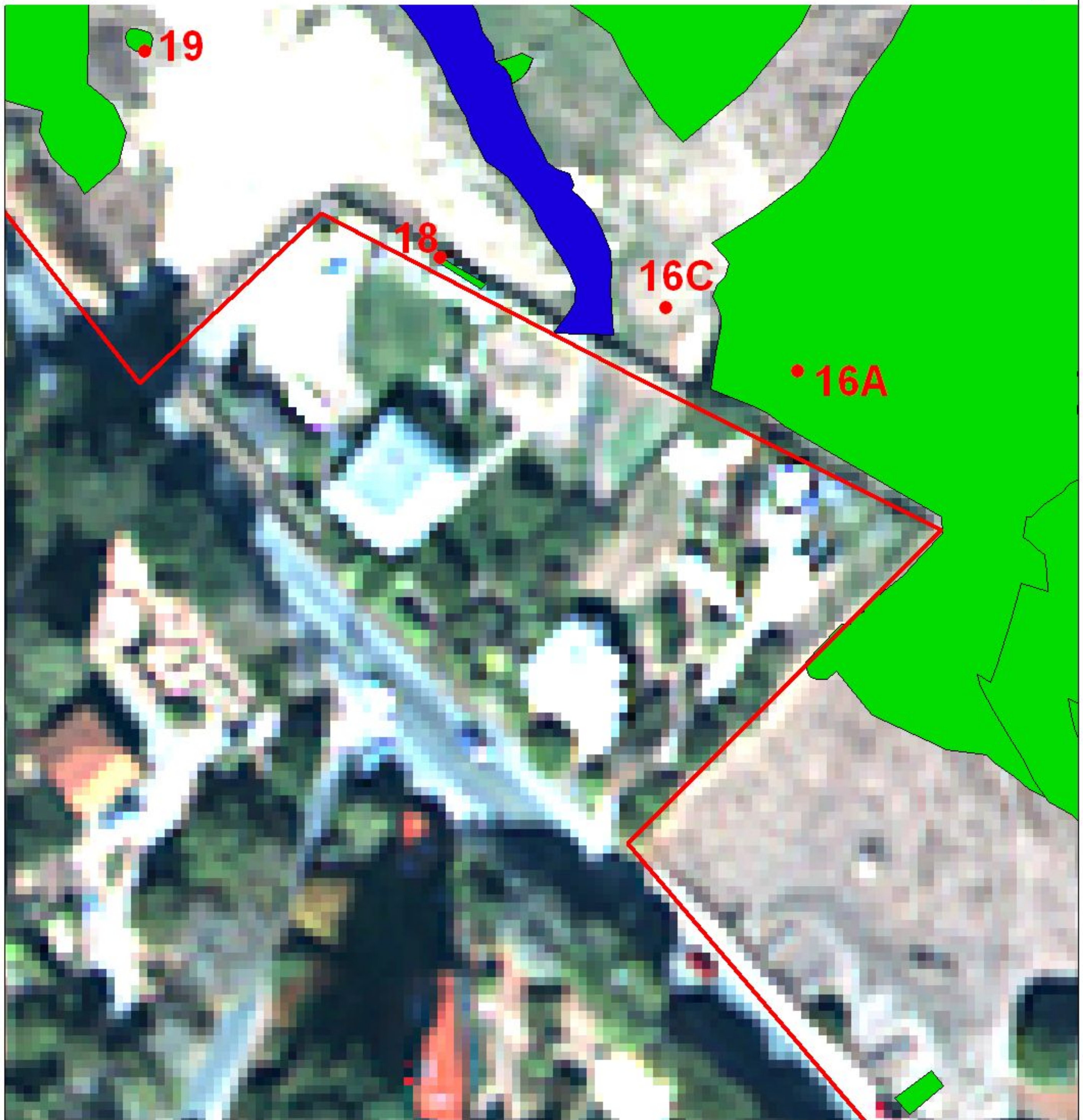
1 : 3,600 1 inch = 300.00 feet



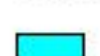
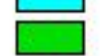


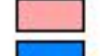







# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Inverness Park



Potential Jurisdictional Wetlands and "Other Waters"

- |   |                                 |   |
|---|---------------------------------|---|
|  | Adjacent Waters                 | 25 0 25 Feet<br>1 : 700 1 inch = 58.3 feet  |
|  | Adjacent Wetlands               |   |
|  | Non-Tidal Waters                |  |
|  | Non-Tidal Wetlands              |   |
|  | Tidal Waters                    |   |
|  | Tidal Wetlands                  |   |
|  | Delineation Sampling Points     |   |
|  | Groundwater Wells               |   |
|  | Delineation Study Area Boundary |   |

Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, California  
County of Marin

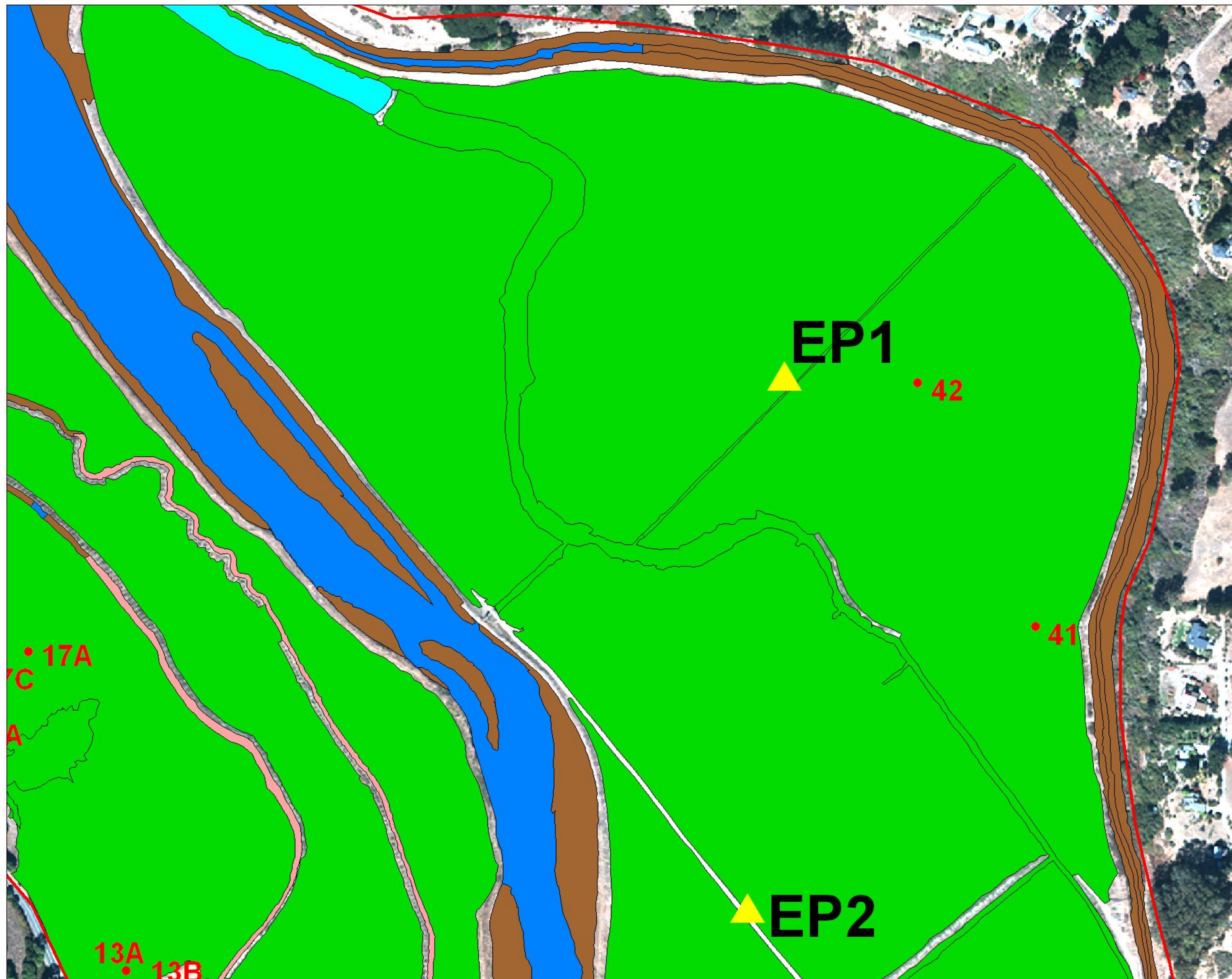
Figure 10. Detail map of potential jurisdictional Section 404 wetlands and "other waters" near north Inverness Park.





# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Northeast



## Potential Jurisdictional Wetlands and "Other Waters"

- Adjacent Waters
- Adjacent Wetlands
- Non-Tidal Waters
- Non-Tidal Wetlands
- Tidal Waters
- Tidal Wetlands
- Delineation Sampling Points
- Groundwater Wells
- Delineation Study Area Boundary

Figure 11. Potential jurisdictional Section 404 wetlands and "other waters" in the northeast portion of the Giacomini Ranch's East Pasture - Giacomini Wetland Restoration Project Delineation Study Area.

## Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

100 0 100 200 Feet

1 : 3,600 1 inch = 300.00 feet

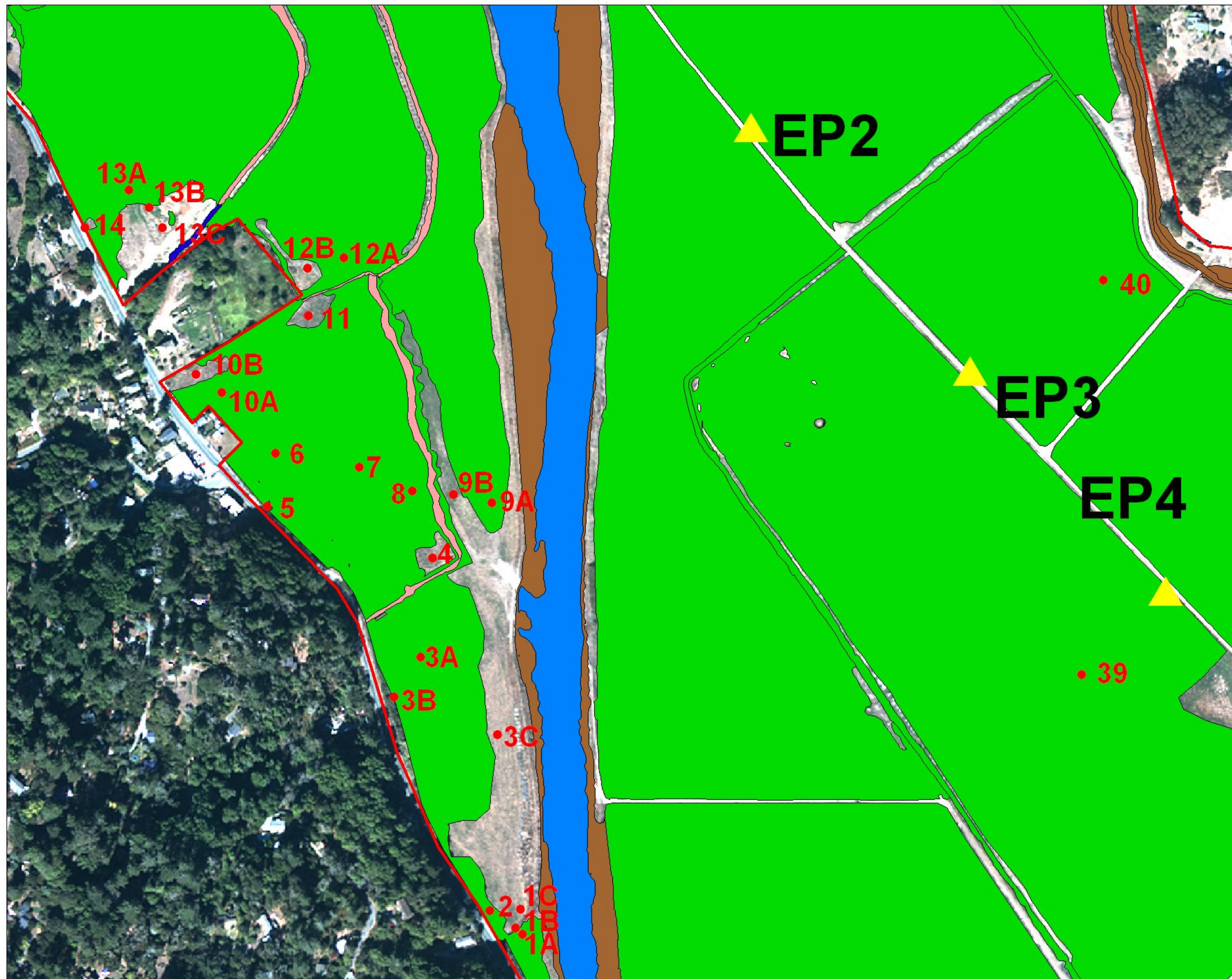






# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Central/West



## Potential Jurisdictional Wetlands and "Other Waters"

- Adjacent Waters
- Adjacent Wetlands
- Non-Tidal Waters
- Non-Tidal Wetlands
- Tidal Waters
- Tidal Wetlands
- Delineation Sampling Points
- Groundwater Wells
- Delineation Study Area Boundary

Figure 12. Potential jurisdictional Section 404 wetlands and "other waters" in the central portion of the Giacomini Ranch's West Pasture - Giacomini Wetland Restoration Project Delineation Study Area.

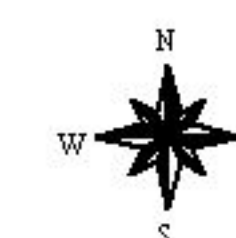
## Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

100 0 100 200 Feet

1 : 3,600 1 inch = 300.00 feet

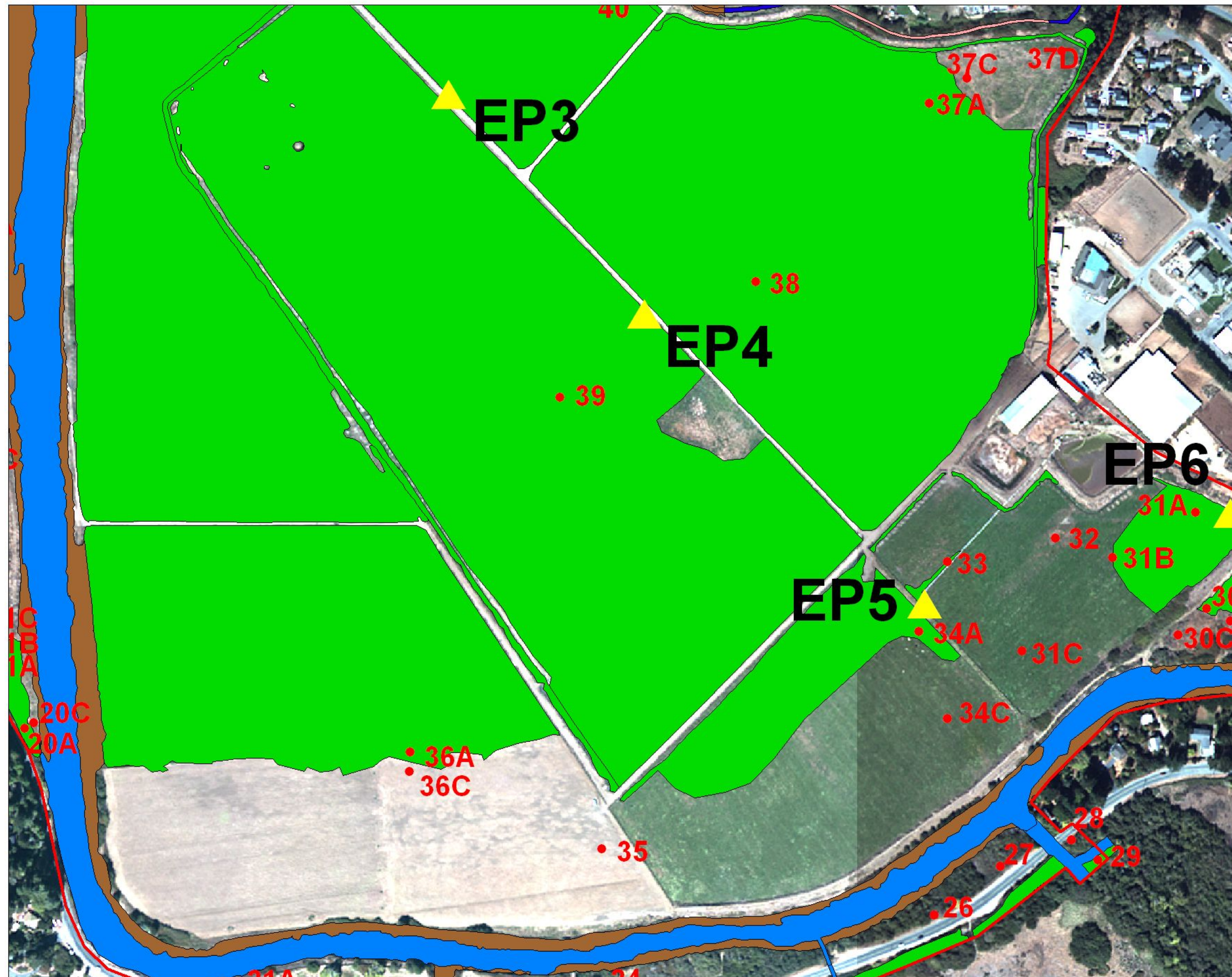






# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Central/East



- Potential Jurisdictional Wetlands and "Other Waters"**
- Adjacent Waters
  - Adjacent Wetlands
  - Non-Tidal Waters
  - Non-Tidal Wetlands
  - Tidal Waters
  - Tidal Wetlands
  - Delineation Sampling Points
  - Groundwater Wells
  - Delineation Study Area Boundary

Figure 13. Potential jurisdictional Section 404 wetlands and "other waters" in the central portion of the Giacomini Ranch's East Pasture - Giacomini Wetland Restoration Project Delineation Study Area.

## Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

100 0 100 200 Feet

1 : 3,600 1 inch = 300.00 feet

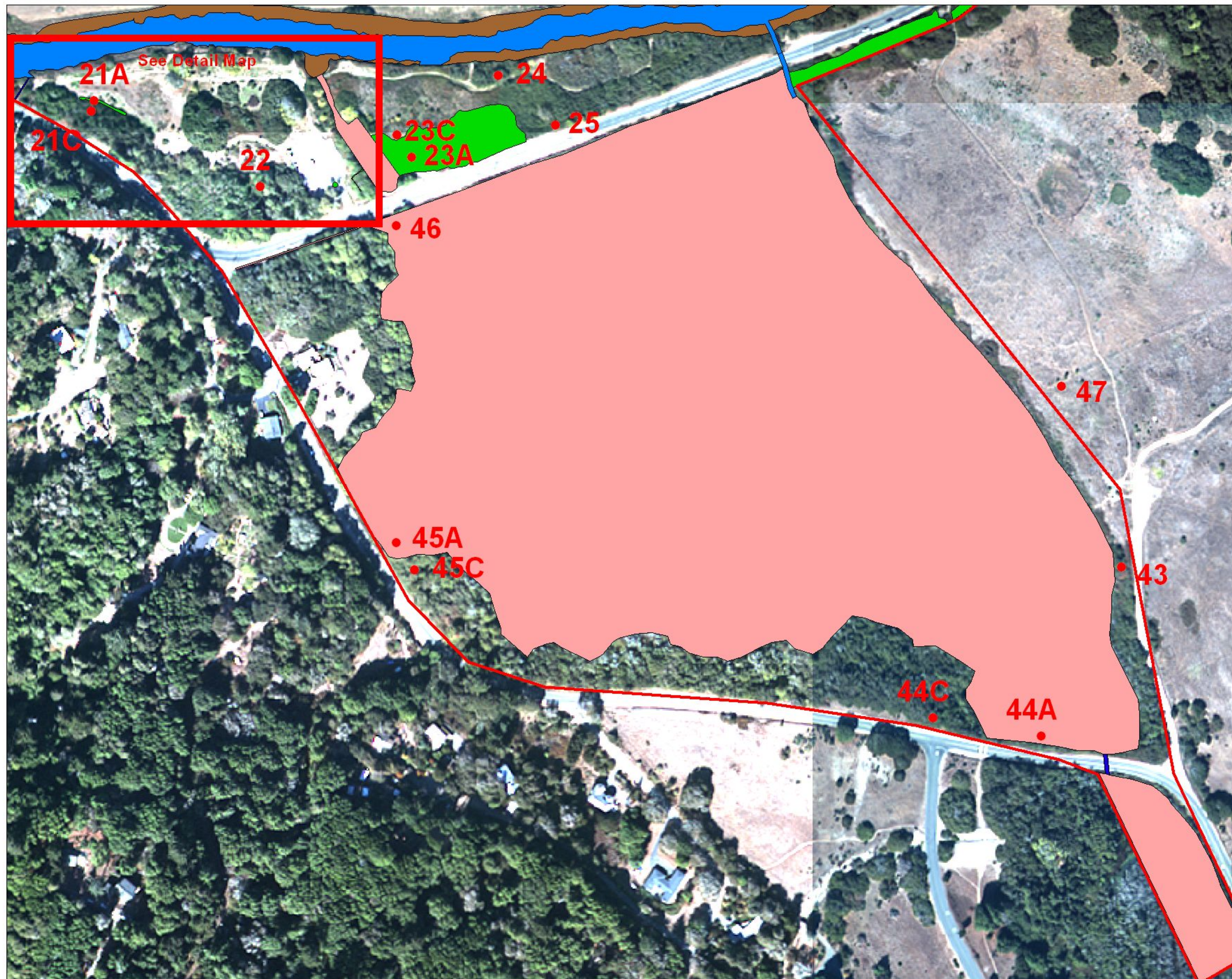






# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Olema Marsh



- Potential Jurisdictional Wetlands and "Other Waters"**
- Adjacent Waters
  - Adjacent Wetlands
  - Non-Tidal Waters
  - Non-Tidal Wetlands
  - Tidal Waters
  - Tidal Wetlands
  - Delineation Sampling Points
  - Groundwater Wells
  - Delineation Study Area Boundary

Figure 14. Potential jurisdictional Section 404 wetlands and "other waters" in the White House Pool County Park, Olema Marsh, and Bear Valley Creek areas- Giacomini Wetland Restoration Project Delineation Study Area.

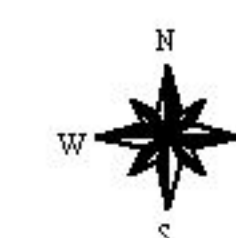
## Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

100 0 100 200 Feet

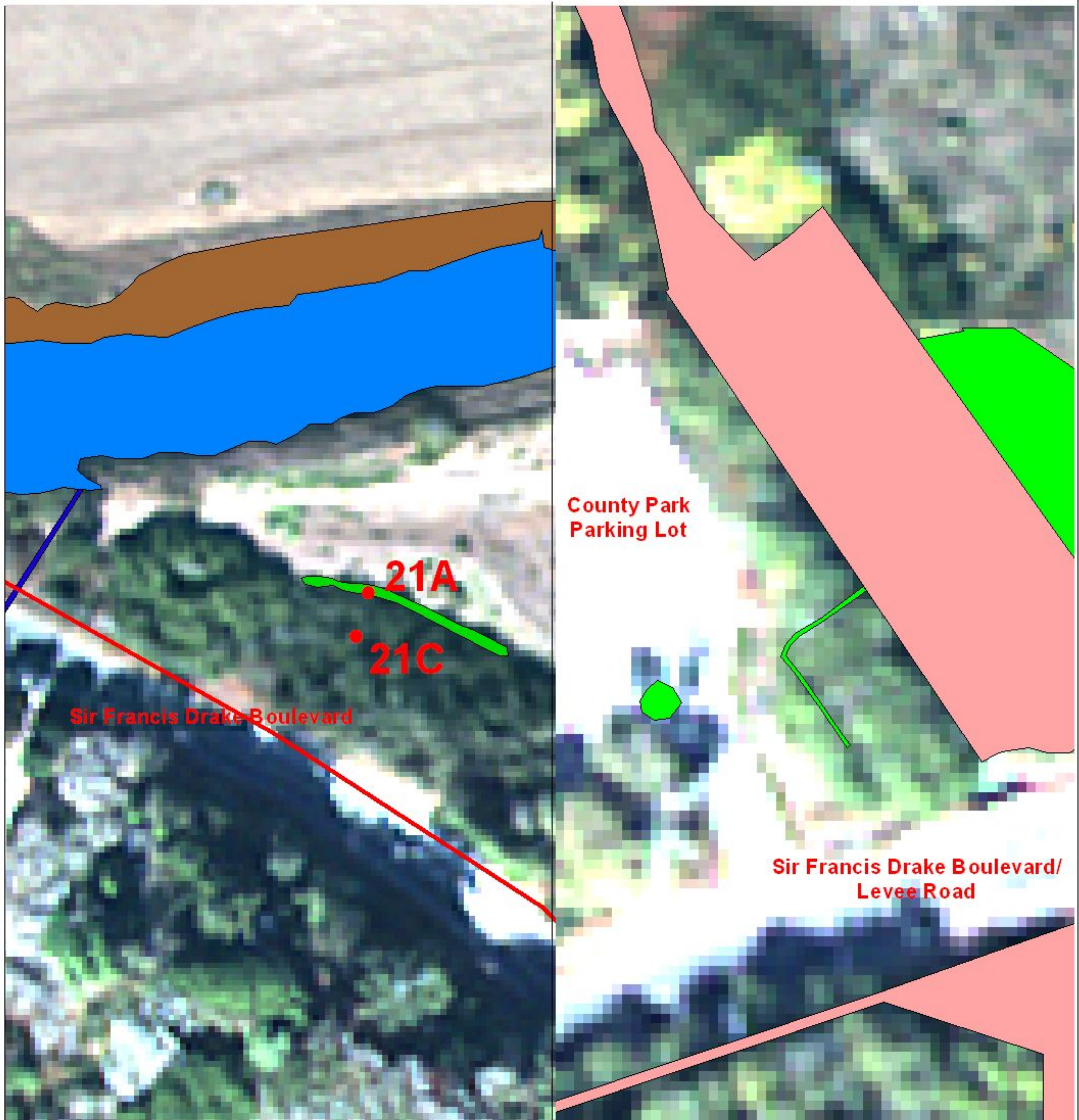
1 : 3,000 1 inch = 250.00 feet





# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - White House Pool



Potential Jurisdictional Wetlands and "Other Waters"

- Adjacent Waters
- Adjacent Wetlands
- Non-Tidal Waters
- Non-Tidal Wetlands
- Tidal Waters
- Tidal Wetlands
- Delineation Sampling Points
- ▲ Groundwater Wells
- Delineation Study Area Boundary

30 0 30 Feet

1 : 1000 1 inch = 83.3 feet

Map Location



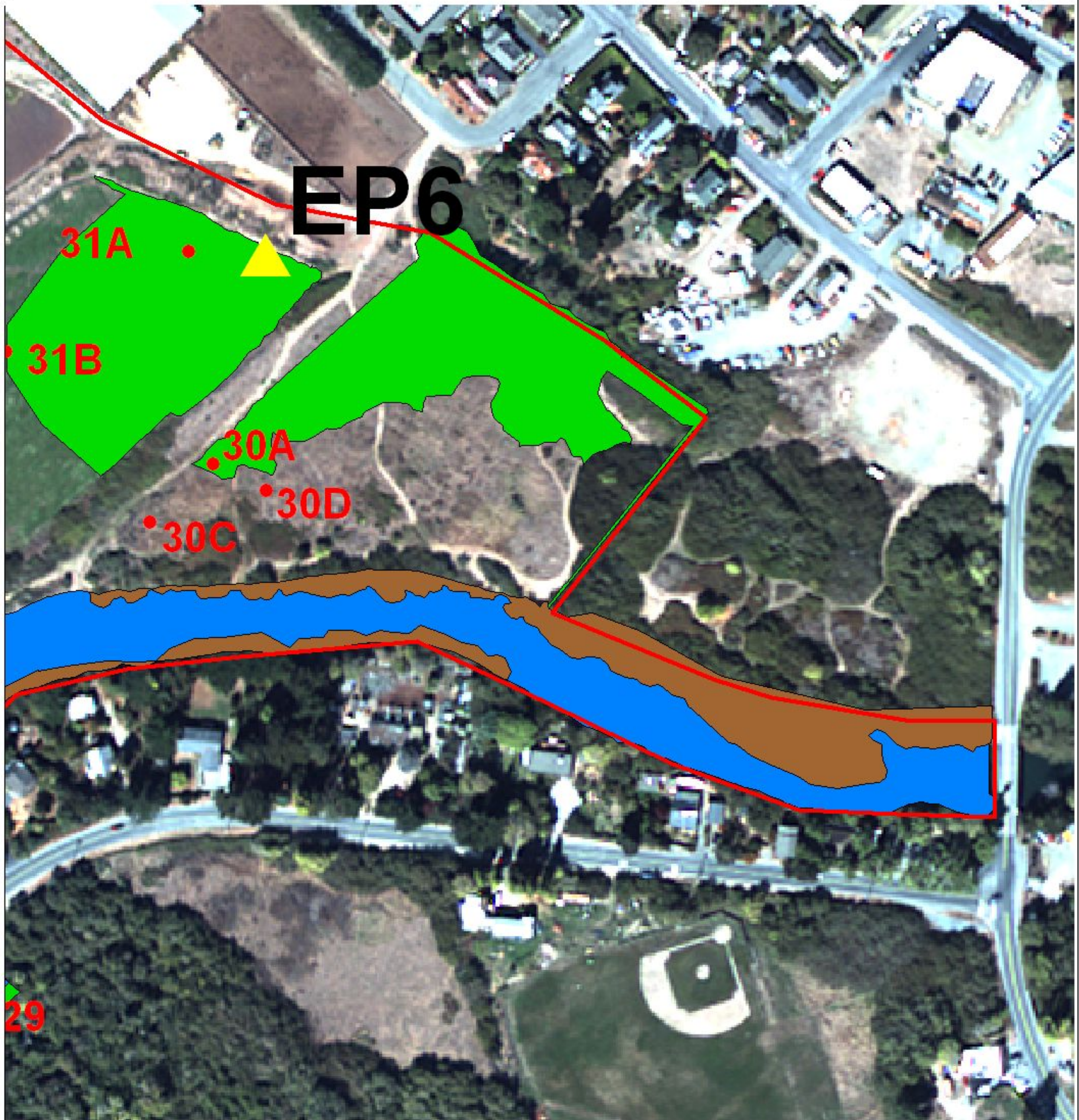
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, California  
County of Marin

Figure 15. Detail map of potential jurisdictional Section 404 wetlands and "other waters" at White House Pool County Park.



# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 404 Wetlands and "Other Waters" - Green Bridge Area



Potential Jurisdictional Wetlands and "Other Waters"

- Adjacent Waters
- Adjacent Wetlands
- Non-Tidal Waters
- Non-Tidal Wetlands
- Tidal Waters
- Tidal Wetlands

- Delineation Sampling Points
- ▲ Groundwater Wells
- Delineation Study Area Boundary

50 0 50 100 Feet



1 : 2400 1 inch = 200 feet



Map Location



Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, California  
County of Marin

Figure 16. Detail map of potential jurisdictional Section 404 wetlands and "other waters" at Green Bridge County Park.



# Giacomini Wetland Restoration Project

Potential Jurisdictional Section 10 Waters



**Potential Section 10 Jurisdiction**

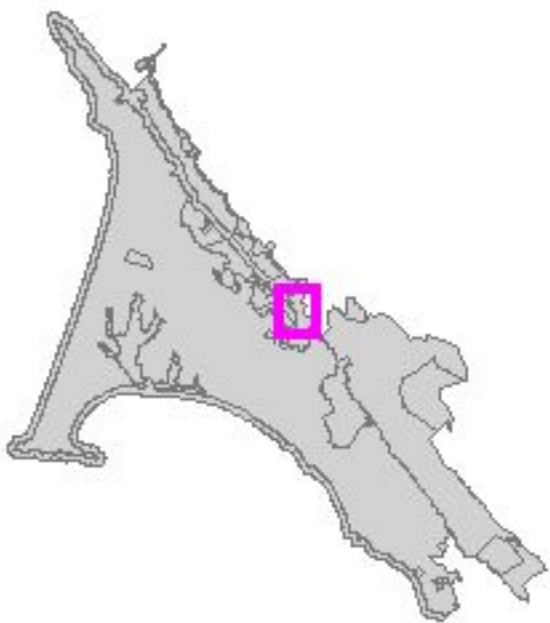
-  Section 10
-  Delineation Study Area Boundary



500 0 500 1000 1500 2000 Feet

1 : 10,000 1 inch = 833.33 feet

**Map Location**



National Park Service  
Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, Calif.  
County of Marin

Figure 17. Potential jurisdictional Section 10 waters in the Giacomini Wetland Restoration Project Delineation Study Area.



## POTENTIAL JURISDICTION OF CORPS OF ENGINEERS

### Potential Section 404 Jurisdictional Wetlands and Waters of the United States

The Corps regulates several types of activities in waters of the United States, which includes navigable waters, tributaries to navigable waters, special aquatic sites (e.g., wetlands), and areas that are “adjacent” to navigable waters. These waters are regulated under Section 404 of the Clean Water Act (40 CFR Section 328.3). Based on our review of the literature and field surveys, we have concluded that the following jurisdictional features were or were not present.

#### *“Other Waters” of the United States*

##### **Tidal**

Potential jurisdictional tidal waters present in the Delineation Study Area consisted of unvegetated (<5 percent vegetation cover) areas below the High Tide Line (HTL) in Lagunitas Creek and the downstream portions of Tomasini, Fish Hatchery, Bear Valley, and Olema Creeks. Total acreage (square-footage) of potential jurisdictional tidal waters was:

- **Tidal Waters:** 43.88 acres (1,911,412.8 square feet)

##### **Non-Tidal**

Potential jurisdictional non-tidal waters consisted of unvegetated areas below the Ordinary High Water (OHW) elevation. Non-Tidal Waters were mapped in small portions of Fish Hatchery Creek, Tomasini Creek, 1906 drainage, and at least one small drainage near White House Pool. Total acreage (square-footage) of potential jurisdictional Non-Tidal Waters was:

- **Non-Tidal Waters:** 0.36 acres (15,681.6 square feet)

##### **“Adjacent”**

Potential jurisdictional Section 404 “adjacent” waters consisted of one small portion of a historic slough in the Giacomini Ranch East Pasture that has been hydrologically disconnected from Tomales Bay by the Lagunitas Creek levee. Total acreage (square-footage) of potential jurisdictional “Adjacent” Waters was:

- **“Adjacent” Waters:** 1.93 acres (84,070.8 square feet)



## *Special Aquatic Sites -- Wetlands*

### **Tidal**

Potential jurisdictional tidal wetlands were comprised of vegetated areas (>5 percent vegetation cover) below the HTL. Within the Delineation Study Area, tidal wetlands included the undiked marsh plain north of the Giacomini Ranch, fringing marsh along Lagunitas Creek, and fringing marsh along the downstream portions of Tomasini Creek and the Silver Hills drainage outlet. It also included diked portions of Fish Hatchery Creek in the northern portion of the West Pasture that are flooded during high tides (see Results for explanation). Total acreage (square-footage) of potential jurisdictional tidal wetlands was:

- **Tidal Wetlands**                      54.99 acres (2,395,364.4 square feet)

### **Non-Tidal**

Potential jurisdictional Non-Tidal Wetlands consisted of vegetated areas (vegetation cover > 5 percent) below the OHW. Within the Delineation Study Area, Non-Tidal Wetlands included vegetated, upstream portions of Fish Hatchery Creek, the Old Slough in the Giacomini Ranch West Pasture, and Tomasini Creek. It also included most of Silver Hills drainage channel that flows parallel to Levee Road and is then culverted to flow through the White House Pool County park. By far, the largest portion of Non-Tidal Wetlands occurred in Olema Marsh, which largely falls below OHW and is heavily vegetated. Total acreage (square-footage) of potential jurisdictional non-tidal wetlands was:

- **Non-Tidal Wetlands:**      49.85 acres (2,171,466 square feet)

### **“Adjacent”**

Potential jurisdictional Section 404 “adjacent” wetlands represented most of the potential jurisdictional features delineated in the Study Area. “Adjacent” wetlands consisted of vegetated areas directly adjacent to Tidal and Non-Tidal Waters and Wetlands that could be considered connected either through hydrology (e.g., groundwater movement) or ecologically (e.g., movement of organisms). These potential jurisdictional features included most of the potential jurisdictional features in the Giacomini Ranch pasturelands and selected areas in Olema Creek and in County park lands near White House Pool and the Green Bridge/dairy facility area. Total acreage (square-footage) of potential jurisdictional Section 404 “adjacent” wetlands was:

- **“Adjacent” Wetlands:**      385.63 acres (16,798,042.8 square feet)

### **Potential Section 10 Jurisdictional Waters**



Potential jurisdictional Section 10 waters consisted of navigable waters either presently or historically subject to tidal influence that fall below Mean High Water (MHW). In the Delineation Study Area, potential jurisdictional Section 10 waters included Lagunitas, Tomasini, Fish Hatchery, Bear Valley, and Olema Creek. In addition, it included portions of the Giacomini Ranch, Olema Marsh, and Olema Creek floodplains that were historically subtidal or intertidal and therefore below MHW before being diked or culverted/bridged. Total acreage (square-footage) of potential jurisdictional Section 10 waters was`:

- **Section 10 Waters:** 249.28 acres (10,858,713.3 square feet)



## **OTHER REGULATORY ISSUES**

The potential jurisdictional wetlands and waters identified in this study may fall subject to the jurisdiction of other regulatory agencies such as RWQCB, CCC, and, and, depending upon land ownership, CDFG. In addition, these agencies may regulate features such as isolated waters and wetlands that are not regulated currently by the Corps.



## REFERENCES

- A.A. Rich & Associates and North Marin Water District. 1987. *The Summer Dam*. Prepared for Waldo Giacomini, Waldo Giacomini Ranch, Point Reyes Station, Calif.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. Office of Biological Services, Fish and Wildlife Service. U.S. Dept. of the Interior. Washington, D.C.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Waterways Experiment Station, Vicksburg, Miss.
- Evens, J.G. 1993. *The Natural History of the Point Reyes Peninsula*. Point Reyes National Seashore Association. Point Reyes, California. 224 pp.
- Gilbert, G.K. 1908. *The earth movement on the fault of April, 18, 1906, Tomales Bay to Bolinas Lagoon in The California earthquake of April 18, 1906: Report of the State Earthquake Investigation Commission*. Volume I(I). The Carnegie Institution of Washington, Washington, D.C.
- Kamman Hydrology & Engineering. *In prep. Hydrologic investigations for the Giacomini Wetland Restoration Project*. Prepared for the National Park Service. San Rafael, Calif.
- Kollmorgen Instruments Corporation. 1994. *Munsell Soil Color Charts*. Windsor, New York.
- Niemi, T.M. and N.T. Hall. 1996. *Historical changes in the tidal marsh of Tomales Bay and Olema Creek, Marin County, California*. Journal of Coastal Research. 12(1):90-102.
- Parsons, L. and L. Allen. 2004. *Vegetation communities: Giacomini Wetland Restoration Project*. Point Reyes National Seashore, Point Reyes Station, Calif.
- Philip Williams & Associates, Wetlands Research Associates, Strong Associates, and L.J. Butler. 1993. *An evaluation of the feasibility of wetland restoration on the Giacomini Ranch, Marin County*. Prepared for the National Park Service.
- Reed, Jr., P.B. 1988. *National List of Plant Species That Occur in Wetlands: 1988 California (Region 0)*. Biological Report 88(26.10). U.S. Fish and Wildlife Service, St. Petersburg, Florida.
- Schirokauer, David. 2003. GIS Biologist. Point Reyes National Seashore. Point Reyes Station, California. Personal communications dated October 2003.



Shuford, W.D. and I.C. Timossi. 1989. *Plant communities of Marin County*. California Native Plant Society. Sacramento, California.

Soil Conservation Service (SCS). 1985. *Soil survey of Marin County, California*. U.S. Department of Agriculture in cooperation with the U.S. Department of the Interior, National Park Service, and University of California Agricultural Experiment Station.

Soil Conservation Service (SCS). March 1992. *Hydric soils lists*. U.S. Department of Agriculture. Davis, California.

U.S. Fish and Wildlife Service. 1991. *Atlas of National Wetlands Inventory maps for Marin County, California*. Portland, Oregon.

.



## **APPENDICES**



## **Appendix A. Corps Datasheets**



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Very southern end of West Pasture in riparian habitat		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	1A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Oenanthе sarmentosa</i>	Herb	OBL			
3. <i>Rumex</i> sp.	Herb				
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p>_____ Recorded Data (Describe in Remarks):</p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> No direct observation of saturation or inundation was observed. There had been some rainfall (2.03 inches) in two weeks prior to sampling, but it was early enough in the rainy season that it would not be expected to produce hydric conditions. The presence of sediment deposits and faint, but common oxidized pore channels attests to the fact that the soil is probably frequently saturated/inundated from creek flood flows and then subsequently drains. The point is located on a floodplain terrace adjacent to Lagunitas Creek. Area may also receive some seep flow from adjacent Inverness Ridge.</p>	



## SOILS

<b>Map Unit Name</b>					
(Series and Phase): <u>Inverness Loam, 15 – 30 % Slopes</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-2	A	10YR 3/1.5			Sandy loam
2-12	A/B	10YR 3/2		No mottles	Sandy loam – coarse gravel
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
<b>Remarks:</b> Hydric soil criterion is met. While no mottling was present in soils with a chroma of 2, the presence of wetland hydrology points to the soils being hydric.					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is located on a shallow floodplain terrace adjacent to Lagunitas Creek. The site is probably easily flooded during moderate to large storm events by overflow from headwaters flooding, and when floodwaters recede, water table levels remain within the top 12 inches of the soil surface for at least 14-18 days. The site is probably also influenced by seep action from the Inverness Ridge.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Very southern end of West Pasture near levee		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	1B
<b>(If needed, explain on reverse.)</b>			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Dactylis glomerata</i>	Herb	FACU			
2. <i>Brassica nigra</i>	Herb	NL			
3. <i>Agrostis stolonifera</i>	Herb	FAC+, FACW			
4. <i>Conium maculatum</i>		FAC			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **50%**

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is not greater than 50% hydrophytic. Other species present include *Bromus hordaceus* (UPL), *Hypochaeris radicata* (NL), *Mentha pulegium* (OBL), *Rumex pulcher* (FAC-), *Hemizonia congesta* (NL), etc.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed, although it was fall prior to most of the rainy season: there had been 2.03 inches of rainfall in the prior two weeks. Oxidized pore channels were few, although distinct. This area is located on the levee, and most waters may run off of the levees into adjacent pastures or floodplain.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 – 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10YR 3/2		Very few/distinct	Sandy loam
4-12	A/B	10YR 3/2		No mottles	Sandy loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. While mottling was present, there were very few mottles, suggesting that the soils are not hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on a levee adjacent to Lagunitas Creek. Any precipitation or run-off probably flows into adjacent pastures or floodplain.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Very southern end of West Pasture near levee		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	1C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Raphanus sativus</i>	Herb	NL			
2. <i>Cirsium vulgare</i>	Herb	FAC			
3. <i>Trifolium repens</i>	Herb	FAC			
4. <i>Hypochaeris radicata</i>	Herb	NL			
5. <i>Lolium</i> sp.	Herb	FAC			
6. <i>Bromus</i> sp.	Herb				
7. _____					
8. _____					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).      / = 60%

**Remarks:** Vegetative criterion is met. Dominant plant species are greater than 50% hydrophytic. However, the plants present are marginal hydrophytic species.

**HYDROLOGY**

<p>_____ Recorded Data (Describe in Remarks):</p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed, but it was the fall prior to most of the rainy season. There was 2.03 inches of rainfall in the two weeks prior to sampling. Oxidized pore channels were common and distinct in the upper 2- to 3 inches, but there were no other secondary indicators. This area is located in a higher elevation portion of the pasture, and any waters probably drain off. Primary hydrologic sources included precipitation and surface run-off from adjacent uplands.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 – 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):		Field Observations Confirm Mapped Type?		Yes	No
					✓
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/3		No mottles	Fine sandy loam
					Gravel in lower layers
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Soil is not low chroma (3), so soils are not hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No			
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No			
Remarks: Sampling point is located in a higher elevation portion of the West Pasture of the Giacomini Ranch. Any precipitation or run-off probably flows into lower portions of the pasture.					



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 11/25/03
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Leslie Allen	<b>State:</b> CA
<b>Site Location:</b> Southern end of West Pasture near SFD	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 2A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Aesculus californicus</i>	Tree	NL			
2. <i>Rubus discolor</i>	Shrub	FACW			
3. <i>Rubus ursinus</i>	Shrub	FACW			
4. <i>Oenothera sarmentosa</i>	Herb	OBL			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**     / = **75%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. There was 1.49 inches of rainfall in the two weeks prior to sampling, but it was early enough in the season that it would not be expected to create hydric conditions. Sediment deposits as evidenced by matted vegetation and signs of prolonged ponding (watermarked detritus) were observed. Also, there were distinct and common oxidized pore channels. This sampling point occurs at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for a fringe of riparian vegetation.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 – 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No    ✓		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		Prominent/Abundant	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was abundant in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in riparian area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for a fringe of riparian vegetation.			



# DATA FORM

## ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes			<b>Date:</b>	11/25/03	
<b>Applicant/Owner:</b>	Point Reyes National Seashore			<b>County:</b>	Marin	
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen			<b>State:</b>	CA	
<b>Site Location:</b>	Southern end of West Pasture near SFD					
<b>Do Normal Circumstances exist on the site?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	<b>Plot ID:</b>	2C
(If needed, explain on reverse.)						

### VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Vinca major</i>	Herb	NL			
2. <i>Rubus discolor</i>	Shrub	FACW			
3.					
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). / = 50%

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is NOT greater than 50% hydrophytic. Other species present include *Aesculus californicus* (NL), *Cynosurus echinatus* (NL), *Carduus pycnocephalus* (NL), and *Geranium* sp.

### HYDROLOGY

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. Sampling was conducted in the fall prior to most of the rainy season, although there had been 1.49 inches of rainfall in the two weeks prior to sampling. There were no primary or secondary indicators. This sampling point is located on the road berm and, therefore, any run-off probably drains rapidly, and the seep flow is well below the ground surface.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 – 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		No mottles	Uniform: lots of gravel and sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. No mottles were present in the low chroma (2) soil, suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in riparian area adjacent to Sir Francis Drake Boulevard on the road berm. Therefore, any run-off probably drains rapidly, and the seep flow is well below the ground surface.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	3A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Glyceria occidentalis</i>	Herb	OBL			
2.					
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other plant species present include *Juncus balticus* (OBL), *Rumex* sp., *Mentha pulegium* (OBL), and *Agrostis stolonifera* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion appears to be met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. While there had been 2.03 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. Only one secondary indicator was observed: there were prominent, abundant oxidized pore channels. While the presence of only one secondary indicator would suggest that the hydrologic criterion was not met, the fact that this area is probably saturated from groundwater/seep flows from the Inverness Ridge rather than flooded with surface flows that would create some of the other indicators suggests that this area does probably have wetland hydrology.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A				Organic sandy material
4-12+	A/B	10YR 3/2		Prominent/Abundant	Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was abundant in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in pasture area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for wetlands.			



# DATA FORM

## ROUTINE WETLAND DETERMINATION

### (1987 COE Wetlands Delineation Manual)

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near levee		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	3B
(If needed, explain on reverse.)			

#### VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Oenanthе sarmentosa</i>	Herb	OBL			
4. <i>Mentha pulegium</i>	Herb	OBL			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Rumex conglomeratus* (FACW), *Solanum americanum* (FAC), *Rorippa palustris* (OBL), and *Chenopodium ambrosioides* (FAC).

#### HYDROLOGY

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion appears to be met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. While there had been 2.03 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. Only one secondary indicator was observed: there were prominent, abundant oxidized pore channels. While the presence of only one secondary indicator would suggest that the hydrologic criterion was not met, the fact that this area is probably saturated from groundwater/seep flows from the Inverness Ridge rather than flooded with surface flows that would create some of the other indicators suggests that this area does probably have wetland hydrology.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 - 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		Abundant/Prominent	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was abundant in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> No		Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> No		
Hydric Soils Present?	<input checked="" type="checkbox"/> No		
Remarks: Sampling point is located in riparian area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for a fringe of riparian vegetation.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	3C
<b>(If needed, explain on reverse.)</b>			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i> sp.	Herb	FAC			
2. <i>Dactylis glomerata</i>	Herb	FACU			
3. <i>Holcus lanatus</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **66%**

**Remarks:** Vegetative criterion is met. Dominant plant species are greater than 50% hydrophytic. However, the plants present are marginal hydrophytic species. Also, other plant species include *Raphanus sativus* (NL), *Trifolium fragiferum* (FACW-), *Trifolium repens* (FAC), *Lotus corniculatus* (FAC).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. While there had been 2.03 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. Oxidized pore channels were few and faint, and there were no other secondary indicators. This area is located in a higher elevation portion of the pasture, and any waters from precipitation or surface run-off probably drain off to lower areas.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		No mottles	Silt loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. No mottles were present in the low chroma (2) soil, suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a higher elevation portion of the West Pasture of the Giacomini Ranch. Any precipitation or run-off probably flows into lower portions of the pasture.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/25/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near diverted drainage		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	4
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium multiflorum</i>	Herb	FAC			
2. <i>Trifolium fragiferum</i>	Herb	FACW-			
3. <i>Geranium molle</i>	Herb	NL			
4. <i>Cirsium vulgare</i>	Herb	FAC			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 75%

**Remarks:** Vegetative criterion is met. Dominant plant species are greater than 50% hydrophytic. However, the plants present are marginal hydrophytic species. Also, other plant species include *Bromus hordaceus* (FACU-), *Lolium perenne* (FAC).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. While there had been 1.49 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. There were no secondary indicators. Area appears to be fill from maintenance of ditch and higher than surrounding pasture.</p>	



SOILS

Map Unit Name					
(Series and Phase):			Novato Clay		
Taxonomy (Subgroup):			Drainage Class:		
			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		No mottles	Sandy loam fill with chunks of granite
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. No mottles were present in the low chroma (2) soil, suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a higher elevation portion of the West Pasture of the Giacomini Ranch. Area appears to be fill from maintenance of ditch and higher than surrounding pasture.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/20/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near SFD		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	5
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Juncus balticus</i>	Herb	OBL			
4. <i>Holcus lanatus</i>	Herb	FACW			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant plant species are greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 12 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion does NOT appear to be met. Saturation was 12 inches below the soil surface only 3 days after the last rainfall, and there had been no significant break in precipitation prior to sampling (4.04 inches in prior two 18 days). Oxidized pore channels were distinct and abundant in some horizons, but there were no other secondary indicators. The fact that saturation was well below the soil surface only 7 days after the last rainfall and that there had been no significant break in precipitation suggests that this area does not have wetland hydrology.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 2/1		No mottles	Sandy loam with fill
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion does NOT appear to be met. Soils were low chroma (1), suggesting that the soils are hydric. However, the lack of wetland hydrology and the fact that the soils appear to be fill from the road construction suggests otherwise. Therefore, soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located along Sir Francis Drake Boulevard adjacent to the road berm, and soils suggest that this area is fill from road construction. While adjacent riparian areas were actually saturated to the surface, the water table here was actually 12 inches below the soil surface only 7 days since the last significant rainfall. Any precipitation or run-off probably flows into lower portions of the pasture, and the groundwater table appears to be well below the soil surface.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/25/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near SFD		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	6
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Trifolium fragiferum</i>	Herb	FACW-			
2. <i>Agrostis stolonifera</i>	Herb	FACW			
3. <i>Scirpus pungens</i>	Herb	OBL			
4. <i>Juncus phaeocephalus</i>	Herb	FACW			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other plant species present include *Cyperus eragrostis* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: Hydrologic criterion is met. Saturation was observed in the top 12 inches in the fall prior to most of the rainy season. While there had been 1.49 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. It was actually more saturated in upper 6 inches than lower 6 inches. Oxidized pore channels were prominent and abundant.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR 3/2			Fine sandy loam
8-12+	B	10YR 3/1		Prominent/Abundant	Coarse sandy clay
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was abundant in soils with low chroma (2 and 1), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in pasture area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for wetlands. This area was saturated even during the fall when there had been no or very little rainfall.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 2/20/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Kristen Ward	<b>State:</b> CA
<b>Site Location:</b> Southern end of West Pasture	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 7

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Trifolium fragiferum</i>	Herb	FACW-			
2. <i>Trifolium repens</i>	Herb	FAC			
3. <i>Lolium sp.</i>	Herb	FAC			
4. <i>Rumex sp.</i>	Herb				
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 12 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 5 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Soils were saturated in the upper 12 inches 3 days after the last significant rainfall. There had been 4.03 inches of rainfall in the last 14 to 18 days. Based on the water table level, it was assumed that the soils would remain saturated for at least 14 to 18 days without rainfall. There were also prominent and abundant oxidized pore channels.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		Common/Faint	Sandy loam with pockets of sand (fill?)
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was present in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Is this Sampling Point Within a Wetland?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Sampling point is located in pasture area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for wetlands.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 2/20/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Kristen Ward	<b>State:</b> CA
<b>Site Location:</b> Southern end of West Pasture	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 8

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Trifolium fragiferum</i>	Herb	FACW-			
2. <i>Lolium</i> sp.	Herb	FAC			
3. <i>Rumex</i> sp.	Herb				
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 15 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 7 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Soils were saturated in the upper 12 inches 3 days after the last significant rainfall. There had been 4.03 inches of rainfall in the last 14 to 18 days. Based on the water table level, it was assumed that the soils would remain saturated for at least 14 to 18 days without rainfall. There were also distinct and abundant oxidized pore channels. Primary hydrologic sources are surface run-off, precipitation, and groundwater.</p>	



SOILS

Map Unit Name					
(Series and Phase):			Novato Clay		
Taxonomy (Subgroup):			Drainage Class:		
			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		Few/Faint	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was present in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in pasture area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for wetlands.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03, 2/20/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons, Leslie Allen, and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near levee		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	9A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Trifolium fragiferum</i>	Herb	FACW-			
2. <i>Trifolium repens</i>	Herb	FAC			
3. <i>Lolium perenne</i>	Herb	FAC			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Rumex* sp. and *Plantago major* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ 2 on 2/20/04 (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: Hydrologic criterion is met. Area was inundated 3 days after last significant rainfall. There had been 4.03 inches of rainfall in the prior 14 to 18 days. Secondary indicator was also observed: there were faint, but common oxidized pore channels. Primary hydrologic sources are groundwater, surface run-off, and precipitation.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		Common/Faint	Fine sandy loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was present in soils with low chroma (2), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Is this Sampling Point Within a Wetland?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Sampling point is located in a depressional area or basin in the West Pasture adjacent to Lagunitas Creek. Hydrology appears to be primarily a precipitation-driven seasonally high ground water table.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	11/19/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Southern end of West Pasture near levee		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	9B
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Hordeum murinum</i>	Herb	NI			
2. <i>Raphanus sativus</i>	Herb	NL			
3. <i>Lolium perenne</i>	Herb	FAC			
4. <i>Cirsium vulgare</i>	Herb	FACU			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 25%

**Remarks:** Vegetative criterion is NOT met. Dominant plant species is less than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed in the fall prior to most of the rainy season. While there had been 2.03 inches rainfall in the two weeks prior to sampling, it was early enough in the rainy season that this would not be expected to produce hydric conditions. There were no oxidized pore channels or other primary or secondary indicators. This area is located in a higher elevation portion of the pasture, and any precipitation or surface runoff waters probably drain off to lower areas.</p>	



SOILS

Map Unit Name					
(Series and Phase):			Novato Clay		
Taxonomy (Subgroup):			Drainage Class:		
			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12+	A/B	10YR 3/2		No mottles	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. No mottles were present in the low chroma (2) soil, suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a higher elevation portion of the West Pasture of the Giacomini Ranch. Any precipitation or run-off probably flows into lower portions of the pasture.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/20/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly south of Gradjanski Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	10A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Holcus lanatus</i>	Herb	FACW			
2. <i>Mentha pulegium</i>	Herb	OBL			
3. <i>Rumex</i> sp.	Herb				
4. <i>Trifolium repens</i>	Herb	FAC			
5. <i>Trifolium fragiferum</i>	Herb	FACW-			
6. <i>Geranium carolinanum</i>	Herb	NL			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **80%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 5 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 2 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Soils were saturated in the upper 12 inches 3 days after the last significant rainfall. There had been 4.03 inches of rainfall in the prior 14 to 18 days. Based on the water table level, it was assumed that the soils would remain saturated for at least 14 to 18 days without rainfall. There were also distinct and abundant oxidized pore channels. Source of hydrology appears to be seep flow and possibly a small drainage from the Inverness Ridge.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No    ✓		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2		No mottles	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion is met. Although no mottles were present in soils with chroma of (2), wetland hydrology was definitely present, so soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in a disturbed pasture area adjacent to Sir Francis Drake Boulevard at the base of the Inverness Ridge, where it appears that groundwater seeps under Sir Francis Drake Blvd into the West Pasture and creates favorable conditions for wetlands. There may also be a small drainage that flow s through this area.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/20/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly south of Gradjanski Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	10B
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Hordeum (probably murinum).</i>	Herb	NI			
2. <i>Plantago lanceolata</i>	Herb	FAC-			
3. <i>Rumex pulcher</i>	Herb	FAC+			
4. <i>Geranium carolinanum</i>	Herb	NL			
5. <i>Vicia sativa ssp. sativa</i>	Herb	FACU			
6. <i>Hemizonia congesta</i>	Herb	NL			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **17%**

**Remarks:** Vegetative criterion is **NOT met**. Dominant vegetation is less than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> <b>Hydrologic criterion is NOT met.</b> No direct observation of saturation or inundation was observed during the rainy season, less than 3 days since the last significant rainfall. There had been 4.03 inches of rainfall in the prior 14 to 18 days. Oxidized pore channels were few and faint, and there were no other secondary indicators. This area is located in a higher elevation portion of the pasture, and any precipitation or surface runoff waters probably drain off to lower areas.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75% Slopes		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-5+	A/B	10YR 3/3		No mottles	Fill composite
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. The soil did not have low chroma (3) , suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a higher elevation portion of the West Pasture of the Giacomini Ranch created by historic fill activities. Any precipitation or run-off probably flows into lower portions of the pasture.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/20/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly south of Gradjanski Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	11
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Trifolium repens</i>	Herb	FACU+			
2. <i>Plantago major</i>	Herb	FACW-			
3. <i>Rumex pulcher</i>	Herb	FAC+			
4. <i>Trifolium fragiferum</i>	Herb	NI			
5. <i>Poa annua</i>	Herb	FACW			
6. <i>Mentha pulegium</i>	Herb	OBL			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **67%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic, but the plant species are somewhat marginal wetland ones. Other plant species present include: *Cirsium vulgare* (FACU).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No direct observation of saturation or inundation was observed during the rainy season, less than 3 days since the last significant rainfall. There had been 4.03 inches of rainfall in the prior 14 to 18 days. Oxidized pore channels were few and faint, and there were no other secondary indicators. This area is located in a higher elevation portion of the pasture, and any precipitation or surface runoff waters probably drain off to lower areas.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75% Slopes		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-15	A/B	10YR 3/3		No mottles	Fill composite
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. The soil did not have low chroma (3), suggesting that the soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on a mound adjacent to a drainage ditch that was apparently created by historic fill activities. Any precipitation or run-off probably flows into lower portions of the pasture.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Gradjanski Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	12A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Juncus patens</i>	Herb	FAC			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).      / = 66%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other plant species present include *Mentha pulegium* (OBL), *Rumex* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 5 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Saturation was observed in the rainy season (6.41 inches in the prior 14 to 18 days), and depth to saturation suggests that it would persist at least 14 to 18 days after the last rainfall. In addition, prominent, abundant oxidized pore channels were observed. Sampling point is located on alluvial floodplain adjacent to Fish Hatchery Creek and another small drainage ditch. Area probably receives flood overflows, as well as elevated water table during winter.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/1		Common/Prominent	Loamy clay interbedded with alluvium
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Mottling was abundant in soils with low chroma (1), suggesting that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Is this Sampling Point Within a Wetland?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Sampling point is located on alluvial floodplain adjacent to Fish Hatchery Creek and another small drainage ditch. Area probably receives flood overflows, as well as elevated water table during winter.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 3/3/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Kristen Ward	<b>State:</b> CA
<b>Site Location:</b> Directly east of Gradjanski Residence in West Pasture	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 12C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **50%**

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic. Subdominant plant species present include *Rumex* sp. and *Stellaria media* (FACU). Other plant species were: *Poa trivialis* (FACW), *Taraxacum officinale* (FACU), *Brassica nigra* (NL), *Ranunculus muricatus* (FACW+), *Lotus corniculatus* (FAC), *Foeniculum vulgare* (FACU), *Silybum marianum* (NL), and *Poa annua* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 13 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 10 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion does NOT appear to be met. Saturation was observed in the rainy season (6.41 inches in the prior 14 to 18 days) in the top 12 inches, but it was only 6 days since the last rainfall. Based on the depth to saturation, it is estimated that the saturation/water table would exceed 12 to 18 inches after 14- to 18 days with no rainfall. Oxidized pore channels were observed, but they were rather faint. Sampling point is located in a fill mound on the alluvial floodplain adjacent to Fish Hatchery Creek and another small drainage ditch. Area probably receives flood overflows, but the topography encourages quick drainage.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		Faint	Alluvium with some clay pockets
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Mottling was only faint in soils with low chroma (2), suggesting that the soils are probably NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a fill mound on the alluvial floodplain adjacent to Fish Hatchery Creek and another small drainage ditch. Area probably receives flood overflows, but the topography encourages quick drainage.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 3/3/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Kristen Ward	<b>State:</b> CA
<b>Site Location:</b> Directly north of Gradjanski Residence in West Pasture near spoil pile	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 13A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i> sp.	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Mentha pulegium</i>	Herb	OBL			
4. <i>Rumex</i> sp.	Herb				
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** / = 66%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other plant species present include *Stellaria media* (FACU), *Ranunculus muricatus* (FACW+), *Plantago major* (FACW), *Foeniculum vulgare* (FACU), and *Cyperus eragrostis* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge <input type="checkbox"/></p> <p>Aerial Photographs <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>Inundated <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>Water Marks <input type="checkbox"/></p> <p>Drift Lines <input type="checkbox"/></p> <p>Sediment Deposits <input type="checkbox"/></p> <p>Drainage Patterns in Wetlands <input type="checkbox"/></p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>Oxidized Root Channels in Upper 12 inches <input type="checkbox"/></p> <p>Water-Stained Leaves <input type="checkbox"/></p> <p>Local Soil Survey Data <input type="checkbox"/></p> <p>FAC-Neutral Test <input type="checkbox"/></p> <p>Other (Explain in Remarks) <input type="checkbox"/></p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 0 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Saturation was observed in the rainy season (6.41 inches in the prior 14 to 18 days), and depth to saturation suggests that it would persist at least 14 to 18 days after the last rainfall. Sampling point is located on floodplain adjacent to Inverness Ridge. It appears that groundwater seeps from the base of the Ridge and both sheetflows and percolates through the soil across this sloped pasture toward Fish Hatchery Creek. Water table remains elevated for a long time during the winter and spring.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2			Loam intermixed with alluvium
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydricsoil criterion appears to be met. Wetland hydrology was clearly present, so soils must be hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located on floodplain adjacent to Inverness Ridge. It appears that groundwater seeps from the base of the Ridge and both sheetflows and percolates through the soil across this sloped pasture toward Fish Hatchery Creek. Water table remains elevated for a long time during the winter and spring.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly north of Gradjanski Residence in West Pasture near spoil pile		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	13B
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i> sp.	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3.					
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).      / = 66%

Remarks: Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic. Other plant species present include *Rumex* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 12 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 9 _____ (in.)</p>	
<p><b>Remarks: Hydrologic soil criterion does NOT appear to be met.</b> Saturation was observed in the rainy season in the top 12 inches, but it was only 6 days since the last rainfall, and there had been 6.41 inches of rainfall in the prior 14 to 18 days. Based on the depth to saturation, it is estimated that the depth to saturation/water table would exceed 12 to 18 inches after 14- to 18 days with no rainfall. Oxidized pore channels were observed, but they were faint and few. Sampling point is located in a fill area on the alluvial floodplain adjacent to Fish Hatchery Creek. Area probably receives flood overflows, but the topography encourages quick drainage.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Clay Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2		None	Loam intermixed with alluvium
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion is NOT met. There were no mottles in the low chroma (2) soils and no wetland hydrology, which suggests that soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a fill area on the alluvial floodplain adjacent to Fish Hatchery Creek. Area probably receives flood overflows, but the topography encourages quick drainage.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly north of Gradjanski Residence in West Pasture near spoil pile		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	13C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Poa annua</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **66%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other plant species present include *Lotus corniculatus* (FAC).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 12 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 11 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion does NOT appear to be met. Saturation was observed in the rainy season in the top 12 inches, but it was only 6 days since the last rainfall, and there had been 6.41 inches in the prior 14 to 18 days. Based on the depth to saturation, it is estimated that the depth to saturation/water table would exceed 12 to 18 inches after 14- to 18 days with no rainfall. Oxidized pore channels were NOT observed, not even faint ones. Sampling point is located in a fill area used as road and dumping spot on the alluvial floodplain adjacent to Fish Hatchery Creek. Area probably receives flood overflows, but the topography encourages quick drainage.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Clay Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2		None	Loam intermixed with alluvium
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion is NOT met. There were no mottles in the low chroma (2) soils and no wetland hydrology, which suggests that soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located in a fill area used as a road and dumping spot on the alluvial floodplain adjacent to Fish Hatchery Creek. Area probably receives flood overflows, but the topography encourages quick drainage.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly north of Gradjanski Residence in West Pasture along SFD		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	14
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Hypochaeris radicata</i>	Herb	NL			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 33%

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic. Other plant species present include *Geranium carolinanum* (FACU), *Rumex pulcher* (FAC+), *Taraxacum officinale* (FACU), and *Mentha pulegium* (OBL).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 12 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 9 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would NOT appear to be met. Saturation was observed in the rainy season in the top 12 inches, but it was only 6 days since the last rainfall, and there had been 6.41 inches in the prior 14 to 18 days. Based on the depth to saturation, it is estimated that the depth to saturation/water table would exceed 12 to 18 inches after 14- to 18 days with no rainfall. Oxidized pore channels were NOT observed, not even faint ones. Sampling point is located on floodplain adjacent to Inverness Ridge and adjacent to Sir Francis Drake Road. In adjacent areas, it appears that groundwater seeps from the base of the Ridge and both sheetflows and percolates through the soil across this sloped pasture toward Fish Hatchery Creek. This seep flow helps sustain some riparian habitat right on the edge of Sir Francis Drake. However, at this point, there is a break in the riparian habitat that does not appear disturbance-related and may correlate with some discontinuities in the seep flow patterns.</p>	



## SOILS

<b>Map Unit Name</b>					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class: _____	
Taxonomy (Subgroup):		_____		Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>	
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-12	A/B	10YR 2/2		Common/Distinct	Loam intermixed with alluvium/Fill
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
<b>Remarks:</b> Hydric soil criterion does NOT appear to be met. While soils would appear to be hydric due to the presence of mottles in low chroma (2) soils, the fact that the soils are fill and that wetland hydrology does not appear to be present suggests that these mottles may be artifact of road and other fill activities.					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is located on floodplain adjacent to Inverness Ridge and adjacent to Sir Francis Drake Road. In adjacent areas, it appears that groundwater seeps from the base of the Ridge and both sheetflows and percolates through the soil across this sloped pasture toward Fish Hatchery Creek. This seep flow helps sustain some riparian habitat right on the edge of Sir Francis Drake. However, at this point, there is a break in the riparian habitat that does not appear disturbance-related and may correlate with some discontinuities in the seep flow patterns.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	6/2/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons	<b>State:</b>	CA
<b>Site Location:</b>	Near Lucchesi Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	15
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium multiflorum</i>	Herb	FAC			
2. <i>Hordeum marinum</i>	Herb	FAC			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Subdominant plant species is *Vulpia bromoides* (FACW). Other plant species present include *Juncus bufonius* (FACU), *Ranunculus muricatus* (FACW+), *Glyceria occidentalis* (OBL), *Rumex pulcher* (FAC+), *Lotus corniculatus* (FAC), *Hemizonia congesta* (NL), *Poa annua* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would appear to be met. Soil was not saturated or inundated in June, but sampling was conducted long after rains had ceased. Oxidized pore channels were distinct and common in the top 2 inches. While there were no other secondary indicators, it is likely that soil tends to be saturated, rather than inundated with sheetflow, thereby decreasing the potential for most of the other primary and secondary indicators such as algal mats, sediment deposits, water-stained vegetation, etc. This area appears to be a slightly elevated mound of fill in a floodplain that primarily receives groundwater from the Inverness Ridge through sheetflow and percolation through the soil. This area appeared to be saturated during the rainy season, although no formal sampling was conducted at that time, and it is drier than some of the surrounding, unfilled pasturelands.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		???	Very compacted fill composite
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion would appear to be met. Wetland hydrology appears to be present, so soils must be hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: This area appears to be a slightly elevated mound of fill in a floodplain that primarily receives groundwater from the Inverness Ridge through sheetflow and percolation through the soil. This area appeared to be saturated during the rainy season, although no formal sampling was conducted at that time, and it is drier than some of the surrounding, unfilled pasturelands.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Lucchesi Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	16A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium multiflorum</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Juncus balticus</i>	Herb	OBL			
4. <i>Holcus lanatus</i>	Herb	FAC			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 75%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 8 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 2 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Saturation was observed in the rainy season (6.41 inches in the prior 14 to 18 days), and depth to saturation suggests that it would persist at least 14 to 18 days after the last rainfall. However, oxidized pore channels were faint/distinct and few. Sampling point is located on floodplain adjacent to Inverness Ridge and the 1906 Drainage. The area has been probably been filled with spoil material from creek excavation historically, but flood overflow and groundwater sustains saturation long enough to create wetland hydrology.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No    ✓		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		Common/Faint	Alluvial material
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion appears to be met. While mottles were faint, they were common and present in a soil with low chroma (2), suggesting that soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located on floodplain adjacent to Inverness Ridge and the 1906 Drainage. The area has been probably been filled with spoil material from creek excavation historically, but flood overflow and groundwater sustains saturation long enough to create wetland hydrology.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/3/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Kristen Ward	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Lucchesi Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	16C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium multiflorum</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Taraxacum officinale</i>	Herb	FACU			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 33%

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic. Other species present include: *Poa annua* (FACW), *Rumex acetosella* (FAC-), and *Brassica nigra* (NL).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 8 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 2 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. No saturation or inundation was observed in the rainy season 6 days after the last rainfall, and there had been 6.41 inches of rainfall in the prior 14 to 18 days. There were no secondary hydrologic indicators either. Sampling point is located on floodplain adjacent to the 1906 Drainage. The area has been filled substantially with spoil material from creek excavation, and any flood overflows probably drain quickly due to the rounded topography.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2			Alluvial material
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion is NOT met. No mottles were present in a soil with low chroma (2), therefore, suggesting that soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on floodplain adjacent to the 1906 Drainage. The area has been filled substantially with spoil material from creek excavation, and any flood overflows probably drain quickly due to the rounded topography.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	4/6/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Chelsea Donovan	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Lucchesi Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	17A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2.					
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%  
 \_\_\_\_\_

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Subdominant species are: *Lotus corniculatus* (FAC), *Distichlis spicata* (FACW), and *Hordeum brachyantherum* (FACW). Other species present include: *Ranunculus muricatus* (FACW) and *Atriplex semibaccata* (FAC).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would appear to be met. Soil was not saturated or inundated in April, and sampling was conducted 10 days after the last significant rainfall. However, there had been only 1.16 inches of rainfall in the past 30 days. Oxidized pore channels were abundant. While there were no other secondary indicators, it is likely that soil tends to be saturated from groundwater, rather than inundated with sheetflow, thereby decreasing the potential for most of the other primary and secondary indicators such as algal mats, sediment deposits, water-stained vegetation, etc. Sampling point is located on floodplain adjacent to Inverness Ridge.</p>	



SOILS

Map Unit Name					
(Series and Phase): Novato Clay			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/1		Abundant/Distinct	Clay Loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. While mottles are not required to be present in a soil with a chroma of (1), they were abundant, suggesting that soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Is this Sampling Point Within a Wetland?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Sampling point is located on floodplain adjacent to Inverness Ridge. The area probably receives groundwater from the base of the Inverness Ridge through sheetflow and percolation through the soil, as well as perhaps some overflow from both the 1906 drainage and Fish Hatchery Creek. Groundwater table is elevated through the winter and spring.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	4/6/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Chelsea Donovan	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Lucchesi Residence in West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	17C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Lolium multiflorum</i>	Herb	FAC			
2. <i>Trifolium repens</i>	Herb	FACU+			
3. <i>Cerastium sp.</i>	Herb				
4. <i>Hordeum sp.</i>	Herb				
5. <i>Geranium dissectum</i>	Herb	NL			
6. <i>Rumex pulcher</i>	Herb	FAC+			
7. <i>Vulpia bromoides</i>	Herb	FACW			
8. <i>Aira caryophyllea</i>	Herb	NL			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **43%**

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. Soil was not saturated or inundated in April, and sampling was conducted only after 10 days after the last significant rainfall. However, there had been only 1.16 inches of rainfall in the past 30 days. There were possibly some oxidized pore channels, but they were not distinct, and there were no other primary or secondary indicators. Sampling point is located on floodplain adjacent to the 1906 Drainage. The area has been filled substantially with spoil material from creek excavation, and any flood overflows probably drain quickly due to the rounded topography.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/3		No mottles	Sandy loam fill mix
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Soils did not have a low chroma (3), therefore, suggesting that soils are NOT hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on floodplain adjacent to the 1906 Drainage. The area has been filled substantially with spoil material from creek excavation, and any flood overflows probably drain quickly due to the rounded topography.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Directly east of Lucchesi Residence in north West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Plot ID:</b>	18
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Poa trivialis</i>	Herb	FACW			
2. <i>Juncus phaeocephalus</i>	Herb	FACW			
3. <i>Potentilla anserina</i>	Herb	OBL			
4. <i>Lythrum hyssopifolium</i>	Herb	FACW			
5. <i>Trifolium repens</i>	Herb	FACU+			
6. <i>Cyperus eragrostis</i>	Herb	FACW			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **83%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species are: *Epilobium* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would appear to be met. Soil was saturated in March. Sampling was conducted only 10 days after the last large rainfall, and there had been 4.08 inches of rainfall in the last 14 to 18 days. However, it appeared likely that saturation would persist at least 14 to 18 days. There were several secondary indicators, including distinct, common oxidized pore channels, algal matting, and matted vegetation. Spread of creek excavation materials on west bank of 1906 drainage has created a berm effect, encouraging ponding of water in a depressional feature adjacent to the Lucchesi residence fence. Use of heavy machinery in this area for creek excavation has altered the topography in this area, creating man-induced wetlands (atypical situations) that have the potential to be seasonal wetlands (problem areas). Primary hydrologic sources appear to be precipitation and surface run-off and, perhaps during very extreme flood events, overbank flooding from the 1906 drainage.</p>	



## SOILS

<b>Map Unit Name</b>					
(Series and Phase): <u>Inverness Loam, 50 to 75 % Slopes</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-12	A/B	10YR 2/1		No mottles	Very clayey, probably Novato Clay
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
<b>Remarks:</b> Hydric soil criterion is met. Soil had a low chroma of (1), and mottles are not required, therefore, the soils are hydric.					

## WETLAND DETERMINATION

<table style="width: 100%;"> <tr> <td>Hydrophytic Vegetation Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Wetland Hydrology Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Hydric Soils Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> </table>	Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
<b>Remarks:</b> Sampling point is located in depressional feature adjacent to Lucchesi residence and fenceline on west bank of 1906 drainage. Spread of creek excavation materials on west bank of 1906 drainage has created a berm effect, encouraging ponding of water in the depressional feature. Use of heavy machinery in this area for creek excavation has altered the topography in this area, creating man-induced wetlands (atypical situations) that have the potential to be seasonal wetlands (problem areas).										



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Do Normal Circumstances exist on the site?</b>		Yes	<input checked="" type="checkbox"/>
<b>Is the site significantly disturbed (Atypical Situation)?</b>		Yes	<input checked="" type="checkbox"/>
<b>Is the area a potential Problem Area?</b> (If needed, explain on reverse.)		Yes	<input checked="" type="checkbox"/>
		<b>Community</b>	Adjacent Wetland
		<b>Transect ID:</b>	
		<b>Plot ID:</b>	19

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Mentha pulegium</i>	Herb	OBL			
2. <i>Rumex conglomerates</i>	Herb	FACW			
3. <i>Cyperus eragrostis</i>	Herb	FACW			
4. <i>Poa trivialis</i>	Herb	FACW			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).     / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 0 _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Soil was saturated to the surface in early March. Sampling was conducted only 10 days after the last rainfall, and there had been 4.08 inches of rainfall in the last 14 to 18 days. However, it appeared likely that saturation would persist at least 14 to 18 days. There were several secondary indicators, including algal matting and matted vegetation. Use of heavy machinery in this area for creek excavation has altered the topography in this area, creating man-induced wetlands (atypical situations) that have the potential to be seasonal wetlands (problem areas). Primary hydrologic sources appear to be precipitation and surface run-off and, perhaps during very extreme flood events, overbank flooding from the 1906 drainage.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 50 to 75 % Slopes		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?    Yes    No    ✓	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/1		No mottles	Coarse sandy loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Soil had a low chroma of (1), and mottles are not required, therefore, the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Is this Sampling Point Within a Wetland?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Sampling point is located in depressional feature in parking area adjacent to Lucchesi residence. Use of heavy machinery in this area for creek excavation has altered the topography in this area, creating man-induced wetlands (atypical situations) that have the potential to be seasonal wetlands (problem areas).			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b> 3/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amelia Ryan	<b>State:</b> CA
<b>Site Location:</b> Riparian area adjacent to Sir Francis Drake Blvd south of West Pasture	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 20A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Oenanthе sarmentosa</i>	Herb	OBL			
3. <i>Scirpus microcarpus</i>	Herb	OBL			
4. <i>Poa trivialis</i>	Herb	FACW			
5. <i>Juncus patens</i>	Herb	FAC			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ 2 _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Inundation was present in early March. Sampling was conducted only 10 days after the last large rainfall, and there had been 4.08 inches of rainfall in the last 14 to 18 days. However, it appeared likely that saturation would persist at least 14 to 18 days. Algae were also present in the water, suggesting long-term ponding. This area is a depressional area fed by a seep off the Inverness Ridge, and seep flows are bermed to some extent by the created and/or alluvial levee bordering Lagunitas Creek.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 to 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No    ✓		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2		No mottles	Gravelly, clayey loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Soil had a low chroma of (2), and there were no mottles. However, the presence of inundation more than 14 to 18 days since the last rainfall indicates that the soils are hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is a depressional area fed by a seep off the Inverness Ridge, and seep flows are bermed to some extent by the created and/or alluvial levee bordering Lagunitas Creek.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Levee area adjacent to Sir Francis Drake Blvd south of West Pasture		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	20C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Holcus lanatus</i>	Herb	FAC			
2. <i>Brassica nigra</i>	Herb	NL			
3. <i>Vicia sativa ssp. sativa</i>	Herb	FACU			
4. <i>Geranium carolinanum</i>	Herb	NL			
5. <i>Artemisia douglasiana</i>	Herb	FACW			
6. <i>Phalaris aquatica</i>	Herb	FAC+			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is NOT met.</b> Soil was not saturated or inundated in early March, and sampling was conducted only 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. There were no other primary or secondary indicators. The area is located on either a created or alluvial levee bordering Lagunitas Creek. Topographic position (top of levee) probably encourages quick draining of any creek overbank flows.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Inverness Loam, 15 to 30 % Slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 3/2		No mottles	Fine sandy loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydricsoil criterion is NOT met. Soil had a low chroma of (2), and there were no mottles. Sandiness of soil and topographic position (top of levee) probably encourage quick draining of any creek overbank flows.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on either a created or alluvial levee bordering Lagunitas Creek. Topographic position (top of levee) and sandiness of soils probably encourage quick draining of any creek overbank flows.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b> 3/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amelia Ryan	<b>State:</b> CA
<b>Site Location:</b> Depressional area along path in White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 21A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Euthamia occidentalis</i>	Herb	OBL			
2. <i>Poa annua?</i>	Herb	FACW-			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge <input type="checkbox"/></p> <p>Aerial Photographs <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>Inundated <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>Water Marks <input type="checkbox"/></p> <p>Drift Lines <input type="checkbox"/></p> <p>Sediment Deposits <input type="checkbox"/></p> <p>Drainage Patterns in Wetlands <input type="checkbox"/></p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>Water-Stained Leaves <input type="checkbox"/></p> <p>Local Soil Survey Data <input type="checkbox"/></p> <p>FAC-Neutral Test <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 0 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Saturation was present in early March. Sampling was conducted only 10 days after the last large rainfall, and there had been 4.08 inches of rainfall in the last 14 to 18 days. However, it appeared likely that saturation would persist at least 14 to 18 days. Secondary indicators were oxidized pore channels (distinct, abundant) and algal matting. This area is a depressional feature that encourages ponding of precipitation and surface run-off by low permeability of clay soils.</p>	



SOILS

Map Unit Name					
(Series and Phase): Xerothents, fill			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-5	A	10YR 3/1		No mottles	Clay material
5-12+	A/B	10YR 2/2		No mottles	Gravelly clayey loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydricsoil criterion is met. Soil had a low chroma of (1), so, therefore, no mottles are required. Low permeability of clay soil layer probably sustains ponding and saturation within soil surface.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is a depressional area along path in White House Pool park. The distinct clay layer present may point to a fill episode in this past, as this area is known to have been filled substantially in the past. This layer probably encourages long-term ponding and saturation of surface run-off and precipitation.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Area along path in White House Pool County Park		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	21C
<b>(If needed, explain on reverse.)</b>			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Conium maculatum</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion did NOT appear to be met. The area is located in a floodplain terrace riparian stand set back from Lagunitas Creek in White House Pool County Park. Soil was almost saturated at bottom of 13" hole, but sampling was conducted in early March, only 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. There were no secondary indicators, although there appeared to be possibly sediment deposits. However, sediment deposits may have occurred during some creek flooding event with recurrence interval greater than 1.5-2 years.</p>	



## SOILS

<b>Map Unit Name</b>					
(Series and Phase): <u>Xerothents, Fill</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?      Yes      No		
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-12	A/B	10YR 3/2		No mottles	Clayey loam with a lot of sand and gravel
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
<b>Remarks:</b> Hydricsoil criterion is <b>NOT</b> met. Soil had a low chroma of (2), but there were no mottles. The lack of hydric features in the soil suggests that sediment deposits observed (see Hydrology) in this floodplain terrace area probably result from episodic flooding rather than floods with recurrence intervals < 2 years.					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located within an abandoned floodplain or floodplain terrace area that supports riparian habitat. It is likely that this area has been filled historically dating back to the turn of the 20 <sup>th</sup> century. While sediment deposits were observed, it is likely that this is a result of episodic flooding that occurs during floods with recurrence intervals > 1.5- 2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey).	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b> 3/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amelia Ryan	<b>State:</b> CA
<b>Site Location:</b> Depressional area in southern portion of White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 22

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Cirsium vulgare</i>	Herb	FACU			
4. <i>Juncus patens</i>	Herb	FAC			
5. <i>Juncus effusus</i>	Herb	OBL			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**     / = **80%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p><b>Depth of Surface Water:</b> _____ (in.)</p> <p><b>Depth to Free Water in Pit:</b> _____ (in.)</p> <p><b>Depth to Saturated Soil:</b> _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. Soil was moist at bottom of hole, however, sampling was conducted in early Marc, only 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. There were no primary or secondary indicators. The area is located in a small depression in the floodplain terrace of Lagunitas Creek, although it is not immediately adjacent to the creek. The area may receive some surface run-off from Sir Francis Drake Boulevard to the south. Texture of soil probably encourages quick draining of any creek overbank flows during larger storm events or surface run-off from Sir Francis Drake Boulevard.</p>	



## SOILS

<b>Map Unit Name</b>							
(Series and Phase): <u>Xerothents, Fill</u>			Drainage Class: _____				
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 3/2		No mottles	Sandy clay loam with fill on top		
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histosol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfidic Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low-Chroma Colors </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Concretions  <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils  <input type="checkbox"/> Organic Streaking in Sandy Soils  <input type="checkbox"/> Listed on Local Hydric Soils List  <input type="checkbox"/> Listed on National Hydric Soils List  <input type="checkbox"/> Other (Explain in Remarks) </td> </tr> </table>						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)						
<b>Remarks:</b> Hydricsoil criterion is <b>NOT</b> met. Soil had a low chroma of (2), but there were no mottles. Texture of soil probably encourages quick draining of any creek overbank flows during larger storm events or surface run-off from Sir Francis Drake Boulevard.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is located in a small depression in the floodplain terrace of Lagunitas Creek, although it is not immediately adjacent to the creek. The area may receive some surface run-off from Sir Francis Drake Boulevard to the south. Texture of soil probably encourages quick draining of any creek overbank flows during larger storm events or surface run-off from Sir Francis Drake Boulevard.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Depressional floodplain area in White House Pool County Park		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Plot ID:</b>	23A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Euthamia occidentalis</i>	Herb	OBL			
2. <i>Dipsacus sativa</i>	Herb	NL			
3. <i>Oenanthе sarmentosa</i>	Herb	OBL			
4. <i>Juncus patens</i>	Herb	FAC			
5. <i>Juncus effusus</i>	Herb	OBL			
6. <i>Rubus ursinus</i>	Shrub	FACW			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Erechtites minima* (NL) and *Brassica nigra* (NL).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 8 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 6 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Saturation and free water was present. Sampling was conducted in early March, only 10 days after the last large rainfall, and there had been 4.08 inches of rainfall in the last 14 to 18 days. However, it appeared likely that saturation would persist at least 14 to 18 days. Another primary indicator was sediment deposits, which probably results from overflow of the Bear Valley Creek drainage onto its floodplain when this was the primary outlet for the creek. (Since 1998, drainage pattern of Bear Valley Creek has shifted to flow through another culvert further east, and the adjacent drainage channel now principally drains the Silver Hills drainage.) A secondary indicator was algal matting. This area is a depressional basin within a former floodplain terrace for Bear Valley Creek that probably still receives both surface and subsurface hydrologic influences from the remnant channel, which now principally drains the Silver Hills drainage. Currently, however, the primary hydrologic sources are probably surface run-off from Sir Francis Drake Boulevard and a drainage that flows into the basin from a small culvert located east of the Silver Hills drainage. Saturation is promoted by the clayey nature of the loam soils present.</p>	



## SOILS

<b>Map Unit Name</b>							
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class: _____			
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No    _____				
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 2/1		No mottles	Clayey loam		
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histosol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfidic Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Concretions  <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils  <input type="checkbox"/> Organic Streaking in Sandy Soils  <input type="checkbox"/> Listed on Local Hydric Soils List  <input type="checkbox"/> Listed on National Hydric Soils List  <input type="checkbox"/> Other (Explain in Remarks)         </td> </tr> </table>						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)						
<b>Remarks:</b> Hydric soil criterion is met. Soil had a low chroma of (1), so, therefore, no mottles are required. Low permeability of clayey loam soil probably sustains saturation within soil surface. While it is possible that this soil is the mapped type, it is also likely that the area has been filled to some degree, as well.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a depressional basin within a former floodplain terrace for Bear Valley Creek that probably still receives both surface and subsurface hydrologic influences from the remnant channel, which now principally drains the Silver Hills drainage. Currently, however, the primary hydrologic sources are probably surface run-off from Sir Francis Drake Boulevard and a drainage that flows into the basin from a small culvert located east of the Silver Hills drainage. Saturation is promoted by the clayey nature of the loam soils present..	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Depressional Area in White House Pool County Park		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Plot ID:</b>	23C
<b>(If needed, explain on reverse.)</b>			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Euthamia occidentalis</i>	Herb	OBL			
2. <i>Dipsacus sativus</i>	Herb	NL			
3. <i>Conium maculatum</i>	Herb	FACW			
4. <i>Erechtites minima</i>	Herb	NL			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 50%

**Remarks:** Vegetative criterion is met. Dominant vegetation is equal to 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p><b>Depth of Surface Water:</b> _____ (in.)</p> <p><b>Depth to Free Water in Pit:</b> _____ (in.)</p> <p><b>Depth to Saturated Soil:</b> _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary or secondary hydrologic indicators, and sampling was conducted in early March, 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. Sampling point is a depressional basin within a former floodplain terrace for Bear Valley Creek that probably still receives both surface and subsurface hydrologic influences from the remnant channel, which now principally drains the Silver Hills drainage. Currently, however, the primary hydrologic sources are probably surface run-off from Sir Francis Drake Boulevard and a drainage that flows into the basin from a small culvert located east of the Silver Hills drainage. The sampling point is located in a slightly higher elevation portion of the basin relative to Sampling Point 23A and, therefore, does not appear to have wetland hydrology.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Profile Description</b>						
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>	
0-12	A/B	10YR 2/2		No mottles	Clayey loam	
<b>Hydric Soil Indicators:</b>						
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions				
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils				
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils				
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List				
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List				
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)				
<b>Remarks:</b> Hydric soil criterion is <b>NOT</b> met. Soil had a low chroma of (2), but there were no mottles. While it is possible that this soil is the mapped type, it is also likely that the area has been filled to some degree, as well.						

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located in a slightly higher elevation portion of a depressional basin within a former floodplain terrace for Bear Valley Creek that probably still receives both surface and subsurface hydrologic influences from the remnant channel, which now principally drains the Silver Hills drainage. Currently, however, the primary hydrologic sources are probably surface run-off from Sir Francis Drake Boulevard and a drainage that flows into the basin from a small culvert located east of the Silver Hills drainage.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, White House Pool, Point Reyes	<b>Date:</b>	3/9/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Riparian Area along path in White House Pool County Park		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	24
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Lonicera involucrata</i>	Herb	FAC			
4. <i>Ribes menziesii</i>	Herb	NL/new name?			
5. <i>Oenothera sarmentosa</i>	Herb	OBL			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).      / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion did NOT appear to be met.</b> The area is located in a slightly depressional feature within the floodplain terrace riparian area adjacent to Lagunitas Creek in White House Pool County Park. Soil was moist at the bottom of the hole, but not saturated. Sampling was conducted in early March, only 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. There were no secondary indicators, although there appeared to be at least one primary indicator, sediment deposits. However, based on the location of the sampling point, sediment deposits may have occurred during some creek flooding event with recurrence interval greater than 1.5-2 years. The depressional feature probably ponds water for a short time (~ 5 days), but is dry by 14- to 18 days.</p>	



## SOILS

<b>Map Unit Name</b>																	
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class: _____													
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
<b>Profile Description</b>																	
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>												
0-12	A/B	10YR 2/2		No mottles	Clayey loam												
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Histosol</td> <td><input type="checkbox"/> Concretions</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon</td> <td><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Sulfidic Odor</td> <td><input type="checkbox"/> Organic Streaking in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Aquic Moisture Regime</td> <td><input type="checkbox"/> Listed on Local Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Reducing Conditions</td> <td><input type="checkbox"/> Listed on National Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Gleyed or Low-Chroma Colors</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> </table>						<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List	<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions																
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils																
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils																
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List																
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List																
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)																
<b>Remarks:</b> Hydric soil criterion is <b>NOT</b> met. Soil had a low chroma of (2), but there were no mottles. The lack of hydric features in the soil suggests that sediment deposits observed (see Hydrology) in this floodplain terrace area probably result from episodic flooding rather than floods with recurrence intervals < 2 years.																	

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located within a depressional feature within an abandoned floodplain or floodplain terrace area of Lagunitas Creek that supports riparian habitat. While sediment deposits were observed, it is likely that this is a result of episodic flooding that occurs during floods with recurrence intervals > 1.5-2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey).	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, White House Pool, Point Reyes <b>Applicant/Owner:</b> Point Reyes National Seashore <b>Investigator:</b> Lorraine Parsons and Amelia Ryan <b>Site Location:</b> Riparian Area along Sir Francis Drake in White House Pool County Park	<b>Date:</b> 3/9/04 <b>County:</b> Marin <b>State:</b> CA
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Community:</b> Upland <b>Transect ID:</b> <b>Plot ID:</b> 25

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3.					
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<b>Recorded Data (Describe in Remarks):</b> _____ Stream, Lake or Tide Gauge _____ Aerial Photographs _____ Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> _____ Inundated _____ Saturated in Upper 12 inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits _____ Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> _____ Oxidized Root Channels in Upper 12 inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: _____ (in.)	
<b>Remarks: Hydrologic criterion is NOT met.</b> The area is located in a slightly depressional feature within the floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard. There were no primary or secondary hydrologic indicators, and sampling was conducted in early March, only 10 days after the last large rainfall. In addition, there had been 4.08 inches of rainfall in the last 14 to 18 days, and the month itself was quite wet. Sampling point is a depressional feature. Currently, the primary hydrologic sources are probably surface run-off from Sir Francis Drake Boulevard and a drainage that flows into the basin from a small culvert located east of the Silver Hills drainage. However, hydrologic inputs do not appear to be sufficient to create wetland hydrology.	



SOILS

Map Unit Name					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/2		No mottles	Clayey loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydricsoil criterion is NOT met. Soil had a low chroma of (2), but there were no mottles.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: This sampling point is located slightly depressional feature within the floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard. There were no primary or secondary hydrologic indicators, so hydrologic inputs from surface run-off and a small drainage do not appear to be sufficient to create wetland hydrology.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Creek, Point Reyes	<b>Date:</b> 4/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Riparian Area along Sir Francis Drake in White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 26

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Fraxinus latifolia</i>	Tree	FACW			
3. <i>Ribes menziesii</i>	Shrub	NL/new name?			
4. <i>Toxicodendron diversilobum</i>	Shrub	NL			
5. <i>Equisetum arvense</i>	Herb	FAC			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**     / = **60%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ ? Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p><b>Depth of Surface Water:</b> _____ (in.)</p> <p><b>Depth to Free Water in Pit:</b> _____ (in.)</p> <p><b>Depth to Saturated Soil:</b> _____ (in.)</p>	

**Remarks:** Hydrologic criterion did NOT appear to be met. The area is located in a floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard in White House Pool County Park. There was no inundation, free water in the hole, or saturation. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. There were some very faint oxidized pore channels, and there appeared to be at least one primary indicator, sediment deposits. However, based on the location of the sampling point, sediment deposits may have occurred during some creek flooding event with recurrence interval greater than 1.5-2 years.



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 3/3		No mottles			
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydricsoil criterion is <b>NOT</b> met. Soil did not have a low chrom (3).							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located within the floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard. While sediment deposits were observed, it is likely that this is a result of episodic flooding that occurs during floods with recurrence intervals > 1.5- 2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey).	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Creek, Point Reyes	<b>Date:</b> 4/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Riparian Area along Sir Francis Drake in White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 27

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Artemisia douglasiana</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion did NOT appear to be met. The area is located in a floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard east of White House Pool County Park. There was no inundation, free water in the hole, or saturation. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. There appeared to be at least one primary indicator, sediment deposits, but there were no other primary or secondary indicators. Based on the location and elevation of the sampling point, sediment deposits may have occurred during some flooding event along Olema Creek with recurrence interval greater than 1.5-2 years.</p>	



## SOILS

<b>Map Unit Name</b>							
(Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>			Drainage Class: _____				
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 2/1		No mottles			
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histosol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfidic Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Concretions  <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils  <input type="checkbox"/> Organic Streaking in Sandy Soils  <input type="checkbox"/> Listed on Local Hydric Soils List  <input type="checkbox"/> Listed on National Hydric Soils List  <input type="checkbox"/> Other (Explain in Remarks)         </td> </tr> </table>						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)						
<b>Remarks:</b> Hydric soil criterion did NOT appear to be met. Soil had a low chroma (1), but, based on the location and elevation of the Sampling Point, it would appear that it does not have wetland hydrology.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located within the floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard. While sediment deposits were observed, it is likely that this is a result of episodic flooding that occurs during floods with recurrence intervals > 1.5- 2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey).	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Creek, Point Reyes	<b>Date:</b> 4/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Riparian Area along Sir Francis Drake in White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 28

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Fraxinus latifolia</i>	Tree	FACW			
3. <i>Rubus discolor</i>	Shrub	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion did NOT appear to be met. The area is located in an abandoned floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard where Olema Creek flows underneath the road. There was no inundation, free water in the hole, or saturation. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches), although, prior to this rain event, the month of March had been pretty dry. There appeared to be at least one primary indicator, sediment deposits, but there were no other primary or secondary indicators. However, based on the location of the sampling point, sediment deposits may have occurred during some creek flooding event with recurrence interval greater than 1.5-2 years, as this area is significantly elevated above the base elevation of the creek. The primary hydrologic source for this area would appear to be surface run-off from Sir Francis Drake Boulevard.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes    No <input checked="" type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 2/2		No mottles			
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion is <b>NOT</b> met. Soil had a low chroma (2), but not the mottles required to classify it as hydric. It is likely that soils in this area have been affected by historic road maintenance activities.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This sampling point is located within the floodplain terrace riparian area adjacent to Sir Francis Drake Boulevard. While sediment deposits were observed, it is likely that this is a result of episodic flooding that occurs during floods with recurrence intervals > 1.5- 2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey). Most of the hydrologic inputs currently are from surface run-off, and it appears that these inputs are really not sufficient to create hydric soil conditions.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Creek, Point Reyes	<b>Date:</b> 4/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Riparian Area along Sir Francis Drake in White House Pool County Park	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b> _____
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 29

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Prunus</i> sp.	Tree	NL			
3. <i>Rubus ursinus</i>	Shrub	FACW			
4. <i>Carex obnupta</i>	Herb	OBL			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 75%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Alnus rubra* (FACW) and *Stachys chamissonis* (OBL) were also present.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. The area is located in a relatively low elevation floodplain terrace riparian area adjacent to Olema Creek on the south side of Sir Francis Drake Boulevard. There was no inundation, free water in the hole, or saturation. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches), although, prior to this rain event, the month of March had been pretty dry. There appeared to be two primary indicators, sediment deposits and wrack lines. Based on the relatively low elevation of this sampling point, sediment deposits probably occurred during creek flooding event with recurrence interval less than 2 years.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A/B	10YR 2/1		No mottles	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Soil had a low enough chroma (1) that mottles are not required to classify it as hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: This sampling point is located within a low elevation floodplain terrace riparian area adjacent to Olema Creek. Based on the elevation of this sampling point, sediment deposits probably occurred during creek flooding event with recurrence interval less than 2 years.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Green Bridge Park, Point Reyes	<b>Date:</b> 4/9/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Depressional basin in Green Bridge County Park south of Giacomini Rnch	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 30A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Holcus lanatus</i>	Herb	FAC			
2. <i>Lolium</i> sp.	Herb	FAC			
3. <i>Rumex conglomeratus</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **100%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. However, at least two secondary indicators were observed: faint, abundant oxidized pore channels and algal matting. In addition, detritus appeared to be discolored from ponding of water and matted. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes      No <input checked="" type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		Distinct, abundant	Sandy loam		
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion is met. Soil had a low chroma of (2) and mottles. The soil did not match the mapped type, which is not surprising as it is possible that the Giacomini once used this area to dispose of excavated materials from the Giacomini Ranch.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a depressional basin on the north side of the Green Bridge County Park. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Green Bridge Park, Point Reyes <b>Applicant/Owner:</b> Point Reyes National Seashore <b>Investigator:</b> Lorraine Parsons and Chelsea Donovan <b>Site Location:</b> Depressional basin in Green Bridge County Park south of Giacomini Rnch	<b>Date:</b> 4/9/04 <b>County:</b> Marin <b>State:</b> CA
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Is the area a potential Problem Area?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	<b>Community:</b> Upland <b>Transect ID:</b> <b>Plot ID:</b> 30B

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Leymus triticoides</i>	Herb	FAC+			
2. <i>Juncus balticus</i>	Herb	OBL			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion did NOT appear to be met. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. However, one primary indicator was observed: sediment deposits. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events. It is likely that the sediment deposits result from creek overbank flooding during storm events with recurrence intervals &gt; 2 years. This sampling point is located at a slightly higher elevation than Sampling Point 30A.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes    No <input checked="" type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		No mottles	Sandy loam or Loamy sand		
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion is <b>NOT</b> met. Soil had a low chroma of (2), but there were no mottles present. The soil did not match the mapped type, which is not surprising as it is possible that the Giacomini once used this area to dispose of excavated materials from the Giacomini Ranch.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is located in a slightly higher elevation portion of a depressional basin on the north side of the Green Bridge County Park. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events. While sediment deposits were present, it is likely that these resulted from episodic flooding events with recurrence intervals greater than 2 years. During the past 50 years, this area has had two very large storms: a 50-year storm in 1982 and a 10-year storm in 1998. The former particularly was shown to have created huge sedimentation in the southern portion of Tomales Bay (Roberto Anima, U.S. Geological Survey).	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Green Bridge Park, Point Reyes <b>Applicant/Owner:</b> Point Reyes National Seashore <b>Investigator:</b> Lorraine Parsons and Chelsea Donovan <b>Site Location:</b> Depressional basin in Green Bridge County Park south of Giacomini Rnch	<b>Date:</b> 4/9/04 <b>County:</b> Marin <b>State:</b> CA
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Is the area a potential Problem Area?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	<b>Community:</b> Upland <b>Transect ID:</b> <b>Plot ID:</b> 30C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Holcus lanatus</i>	Herb	FAC			
2. <i>Rumex conglomeratus</i>	Herb	FACW			
3. <i>Lolium</i> sp.	Herb	FAC			
4. <i>Brassica nigra</i>	Herb	NL			
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 75%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. Sampling was conducted in early April, only 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. However, there were no other primary or secondary indicators. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events. This area and 30B are slightly higher in elevation than 30A, perhaps resulting in faster drainage or leaching of any waters.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 3/2		Distinct, abundant????	Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion appears to be met, however, they be misleading due to site history. Mottle-like features were present in soil with chroma of (2), but it is possible that these features are related to past fill removal and disposal activities and not indicative of hydrology in the current location. The soil did not match the mapped type, which is not surprising as it is possible that the Giacomini's once used this area to dispose of excavated materials from the Giacomini Ranch.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is located in a higher elevation portion of a depressional basin on the north side of the Green Bridge County Park relative to Sampling Poiint 30A. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that spills into and ponds within this depressional basin, surface run-off from adjacent uplands, and occasional creek overflow during very large storm events. However, these waters appear to drain quickly enough to not allow for creation of wetland hydrology. The mottling observed in the chroma (2) soils may be an artifact of the site history reflective of the fact that these areas have reputedly been filled with soils from the Giacomini Ranch.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southeast portion of East Pasture at Giacomini Ranch; Nearest well (EP6)		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	31A
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1. <i>Poa trivialis</i>	Herb	FACW				
2. <i>Agrostis stolonifera</i>	Herb	FACW				
3. <i>Trifolium repens</i>	Herb	(FAC)1996				
4.						
5.						
6.						
7.						
8.						

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%  
 \_\_\_\_\_

**Remarks: Vegetative criterion is met.** Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands. Other species present include *Festuca arundinacea* (FAC-) and *Rumex* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 0 _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. While topographically this sampling point is at one of the highest elevations within the East Pasture, seep flow from the adjacent Point Reyes Mesa keeps the water table in this area for a long period through the winter and spring. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that flows onto this pasture flat, irrigation flooding during the summer, surface run-off from adjacent uplands, and occasional Lagunitas Creek overflow during extremely large storm events. There may also possibly be some influence of Lagunitas Creek on the groundwater table in this area.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____						<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2			Clay loam		
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (saturation at 14-18 days and groundwater well monitoring data) and low chroma of soils (2), the soils would appear to be hydric regardless of irrigation.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Remarks:</b> Sampling point is a pasture flat located in the southeast portion of the East Pasture of the Giacomini Ranch. While topographically this sampling point is at one of the highest elevations within the East Pasture, seep flow from the adjacent Point Reyes Mesa keeps the water table in this area for a long period through the winter and spring.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southeast portion of East Pasture at Giacomini Ranch; Nearest wells (EP5 and EP6)		
<b>Do Normal Circumstances exist on the site?</b>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>Is the site significantly disturbed (Atypical Situation)?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Is the area a potential Problem Area?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
(If needed, explain on reverse.)		<b>Community</b>	Adjacent Wetland
		<b>Transect ID:</b>	
		<b>Plot ID:</b>	31B

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Poa trivialis</i>	Herb	FACW			
2. <i>Agrostis stolonifera</i>	Herb	FACW			
3. <i>Trifolium repens</i>	Herb	(FAC)1996			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks: Vegetative criterion is met.** Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands. Other species present include *Festuca arundinacea* (FAC-) and *Rumex* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 11-12 _____ (in.)</p> <p>Depth to Saturated Soil: _____ 7-8 _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. While topographically this sampling point is at one of the highest elevations within the East Pasture, seep flow from the adjacent Point Reyes Mesa keeps the water table in this area for a long period through the winter and spring. However, this area is a little drier than Sampling Point 31A. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that flows onto this pasture flat, irrigation flooding during the summer, surface run-off from adjacent uplands, and occasional Lagunitas Creek overflow during extremely large storm events. There may also possibly be some influence of Lagunitas Creek on the groundwater table in this area.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____											
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													
<b>Profile Description</b>																	
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>												
0-14	A/B	10YR 3/2			Clay loam												
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Histosol</td> <td><input type="checkbox"/> Concretions</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon</td> <td><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Sulfidic Odor</td> <td><input type="checkbox"/> Organic Streaking in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Aquic Moisture Regime</td> <td><input type="checkbox"/> Listed on Local Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Reducing Conditions</td> <td><input type="checkbox"/> Listed on National Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Gleyed or Low-Chroma Colors</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> </table>						<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List	<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions																
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils																
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils																
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List																
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List																
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)																
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (saturation at 14-18 days and groundwater well monitoring data) and low chroma of soils (2), the soils would appear to be hydric regardless of irrigation.																	

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a pasture flat located in the southeast portion of the East Pasture of the Giacomini Ranch. While topographically this sampling point is at one of the highest elevations within the East Pasture, seep flow from the adjacent Point Reyes Mesa keeps the water table in this area for a long period through the winter and spring. Because it is further from the Mesa than Sampling Point 31A, it is also drier than Sampling Point 31A.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southeast portion of East Pasture at Giacomini Ranch; Nearest wells (EP5 and EP6)		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	31C
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Poa trivialis</i>	Herb	FACW			
2. <i>Agrostis stolonifera</i>	Herb	FACW			
3. <i>Trifolium repens</i>	Herb	(FAC)1996			
4. <i>Rumex</i> sp.	Herb				
5. <i>Fesuca arundinacea</i>	Herb	FAC-			
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **75%**

**Remarks: Vegetative criterion is met.** Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge <input type="checkbox"/></p> <p>Aerial Photographs <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>Inundated <input type="checkbox"/></p> <p>Saturated in Upper 12 inches <input type="checkbox"/></p> <p>Water Marks <input type="checkbox"/></p> <p>Drift Lines <input type="checkbox"/></p> <p>Sediment Deposits <input type="checkbox"/></p> <p>Drainage Patterns in Wetlands <input type="checkbox"/></p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>Oxidized Root Channels in Upper 12 inches <input type="checkbox"/></p> <p>Water-Stained Leaves <input type="checkbox"/></p> <p>Local Soil Survey Data <input type="checkbox"/></p> <p>FAC-Neutral Test <input type="checkbox"/></p> <p>Other (Explain in Remarks) <input type="checkbox"/></p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is NOT met.</b> There were no primary indicators such as inundation, saturation, or free water in the 14" hole. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. While the nearest groundwater well (EP5) did appear to have wetland hydrology based on the groundwater table being within 12-18 inches of the surface for 14 to 18 days, the well was unfortunately located in a topographic depression, and conditions did not appear to be reflective of this area. Primary hydrologic sources for this area appear to be irrigation flooding during the summer, precipitation, surface run-off from adjacent uplands, and occasional Lagunitas Creek overflow during extremely large storm events. There may also possibly be some influence of Lagunitas Creek on the groundwater table in this area.</p>	



## SOILS

<b>Map Unit Name</b>																	
(Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>			Drainage Class: _____														
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
<b>Profile Description</b>																	
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>												
0-14	A/B	10YR 3/2			Clay loam												
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Histosol</td> <td><input type="checkbox"/> Concretions</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon</td> <td><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Sulfidic Odor</td> <td><input type="checkbox"/> Organic Streaking in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Aquic Moisture Regime</td> <td><input type="checkbox"/> Listed on Local Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Reducing Conditions</td> <td><input type="checkbox"/> Listed on National Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Gleyed or Low-Chroma Colors</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> </table>						<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List	<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions																
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<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List																
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List																
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)																
<b>Remarks:</b> Hydric soil criterion <b>DOES NOT</b> appear to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (lack of saturation at 14-18 days), this area does not appear to be hydric despite the low chroma of soils (2).																	

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is a pasture flat located in the southeast portion of the East Pasture of the Giacomini Ranch. This area appears to be distance enough from the Point Reyes Mesa and seep flow that it is not wet long enough to be characterized as having wetland hydrology.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southeast portion of East Pasture at Giacomini Ranch; Nearest wells (EP5 and EP6)		
<b>Do Normal Circumstances exist on the site?</b>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>Is the site significantly disturbed (Atypical Situation)?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Is the area a potential Problem Area?</b>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
(If needed, explain on reverse.)		<b>Community</b>	Upland
		<b>Transect ID:</b>	
		<b>Plot ID:</b>	32

**VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1. <i>Poa trivialis</i>	Herb	FACW				
2. <i>Spergularia rubra</i>	Herb	FAC-				
3.						
4.						
5.						
6.						
7.						
8.						

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 50%

**Remarks:** Vegetative criterion is met. Dominant vegetation is equal to 50% hydrophytic. This Sampling Point was located in a very sparsely vegetated area (vegetation cover = 5-10%), suggestive of possible prolonged ponding conditions.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>Inundated _____</p> <p>Saturated in Upper 12 inches _____</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p>Sediment Deposits _____</p> <p>Drainage Patterns in Wetlands _____</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>Oxidized Root Channels in Upper 12 inches _____</p> <p>Water-Stained Leaves _____</p> <p>Local Soil Survey Data _____</p> <p>FAC-Neutral Test _____</p> <p>Other (Explain in Remarks) _____</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary indicators such as inundation, saturation, or free water in the 14" hole, despite the fact that this area appear to be slightly depressional and sparsely vegetated, somewhat suggestive of possible prolonged ponding conditions. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. While the nearest groundwater well (EP5) did appear to have wetland hydrology based on the groundwater table being within 12-18 inches of the surface for 14 to 18 days, the well was unfortunately located in a topographic depression, and conditions did not appear to be reflective of this area. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer, and occasional Lagunitas Creek overflow during extremely large storm events.</p>	



SOILS

Map Unit Name (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u> Drainage Class: _____					
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?      Yes <input checked="" type="checkbox"/> No      _____		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-15	A/B	10YR 3/2			Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion DOES NOT appear to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (lack of inundation or saturation at 14-18 days), this area does not appear to be hydric despite the low chroma of soils (2).					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: Sampling point is a slight depressional feature within a pasture flat located in the southeast portion of the East Pasture of the Giacomini Ranch. This area was sparsely vegetated, which suggested possible prolonged ponding conditions, but the lack of hydrology at the time of sampling may indicate simply some past disturbance event.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southeast portion of East Pasture at Giacomini Ranch; Nearest wells (EP5 and EP6)		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Plot ID:</b>	33
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Glyceria occidentalis</i>	Herb	OBL			
2. <i>Lilaea scilloides</i>	Herb	OBL			
3. <i>Festuca arundinacea</i>	Herb	FAC-			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **66%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 0 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. There was at least one primary indicator: saturation to the surface. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. This depressional feature is located within the same depression as groundwater well (EP5), which appeared to have wetland hydrology based on the groundwater table being within 12-18 inches of the surface for 14 to 18 days. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer, and occasional Lagunitas Creek overflow during extremely large storm events.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-15	A/B	10YR 3/2			Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion appears to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (saturation at 14-18 days and groundwater well data) and soil chroma (2), this area does appear to be hydric.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is a depressional feature within a pasture flat located in the southeast portion of the East Pasture of the Giacomini Ranch and is contiguous with the same depression that groundwater well EP5 was located.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southern portion of East Pasture at Giacomini Ranch; Nearest well (EP5)		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b> (If needed, explain on reverse.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	34A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Trifolium repens</i>	Herb	(FAC)1996			
3. <i>Juncus balticus</i>	Herb	OBL			
4. <i>Cyperus eragrostis</i>	Herb	FACW			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: Saturated in top 2 inches of root zone (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. This area appears to be saturated within the top 2 inches of the root zone. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer, and occasional Lagunitas Creek overflow during extremely large storm events.</p>	



SOILS

Map Unit Name					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class:	
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 3/2			Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion appears to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (saturation at 14-18 days) and low chroma of soils (2), the soils would appear to be hydric regardless of irrigation.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Remarks: Sampling point is a pasture flat located in the southern portion of the East Pasture of the Giacomini Ranch. This area appears to be a slightly depressional flat that ponds enough precipitation during the winter to develop a characteristic wetland plant community regardless of irrigation.			



# DATA FORM

## ROUTINE WETLAND DETERMINATION

### (1987 COE Wetlands Delineation Manual)

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southern portion of East Pasture at Giacomini Ranch; Nearest well (EP5)		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	34C
(If needed, explain on reverse.)			

## VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Fesuca arundinacea</i>	Herb	FAC-			
2. <i>Trifolium repens</i>	Herb	(FAC)1996			
3. <i>Rumex</i> sp.	Herb				
4. <i>Geranium carolinanum</i>	Herb	NL			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 33%

**Remarks:** Vegetative criterion is probably met, because *Rumex* sp. is probably greater than a FAC. Dominant vegetation would then be equal to 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

## HYDROLOGY

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary indicators such as inundation, saturation, or free water in the 15" hole. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. While the nearest groundwater well (EP5) did appear to have wetland hydrology based on the groundwater table being within 12-18 inches of the surface for 14 to 18 days, the well was unfortunately located in a topographic depression, and conditions did not appear to be reflective of this area. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer and occasional Lagunitas Creek overflow during extremely large storm events. This area appears to be slightly higher in elevation than Sampling Point 34A, and, therefore, waters may sheetflow off into lower elevation areas.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Profile Description</b>						
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>	
0-14	A/B	10YR 3/2			Clay loam	
<b>Hydric Soil Indicators:</b>						
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions				
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils				
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils				
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List				
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List				
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)				
<b>Remarks:</b> Hydric soil criterion DOES NOT appear to be met. Soil features such as mottles are unreliable, because this pasture area is flood irrigated. However, based on hydrology (lack of saturation at 14-18 days), this area does not appear to be hydric despite the low chroma of soils (2).						

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is a pasture flat located in the southern portion of the East Pasture of the Giacomini Ranch. This area appears to be slightly higher in elevation than Sampling Point 34A, and, therefore, waters may sheetflow off into lower elevation areas.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southern portion of East Pasture at Giacomini Ranch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b> (If needed, explain on reverse.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	35

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Rumex occidentalis</i>	Herb	OBL			
2. <i>Trifolium repens</i>	Herb	(FAC)1996			
3. <i>Poa annua</i>	Herb	FACW-			
4. <i>Geranium carolinanum</i>	Herb	NL			
5. <i>Cirsium vulgare</i>	Herb	FACU			
6. <i>Brassica nigra</i>	Herb	NL			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = **50%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is equal to 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands. This area is significantly disturbed from agricultural activities (manuring, land leveling) and possibly past episodic flooding events.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary indicators such as inundation, saturation, or free water in the 15" hole. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. There possibly were some very faint, few oxidized pore channels, but these were no prominent or common enough to qualify as a secondary indicator. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer and occasional Lagunitas Creek overflow during extremely large storm events. This area does appear to be higher in elevation due possibly to large sedimentation events from past episodic flooding, as well as sediment dumping by the Giacominis.</p>	



SOILS

Map Unit Name (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u> Drainage Class: _____					
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?      Yes      No <u>✓</u>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 3/3			Silt/Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion does NOT appear to be met. There were no hydric features within the soil, and the soil was not low chroma (3). Soil borings conducted by the Park Service's hydrologic consultants, Kamman Hydrology & Engineering, showed this area has received large amonts of sediment from episodic flooding (flood events with greater than 2-year recurrence intervals).					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <u>✓</u> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <u>✓</u> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <u>✓</u> No	
Hydric Soils Present? <input type="checkbox"/> Yes <u>✓</u> No	
Remarks: Sampling point is a pasture flat located in the southern portion of the East Pasture of the Giacomini Ranch. This area appears to be slightly higher in elevation than adjacent areas, probably due to sediment deposited either by episodic flooding or by sediment dumping by the Giacominis.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southwestern portion of East Pasture at Giacomini Ranch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b> (If needed, explain on reverse.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	36A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Trifolium repens</i>	Herb	(FAC)1996			
3. <i>Rumex crispus</i>	Herb	FACW-			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: Saturated in top 2 inches of root zone (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. This area appears to be saturated within the top 2 inches of the root zone, but not necessarily saturated at depth. This hydrology may result from water perching in the upper column of the soil, perhaps because of the dense roots of the rhizomatous grasses. In certain areas, Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer, and occasional Lagunitas Creek overflow during extremely large storm events.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Profile Description</b>						
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>	
0-14	A/B	10YR 3/2			Clay loam	
<b>Hydric Soil Indicators:</b>						
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions				
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils				
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils				
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List				
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List				
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)				
<b>Remarks:</b> Hydric soil criterion is met. The soil is low enough chroma (1) that mottles are not required.						

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a pasture flat located in the southwestern portion of the East Pasture of the Giacomini Ranch. This area appears to be a wetland flat that has hydrology because water remains perched in the upper column of the soil, perhaps because of the dense roots of the rhizomatous grasses.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	3/12/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amelia Ryan	<b>State:</b>	CA
<b>Site Location:</b>	Southwestern portion of East Pasture at Giacomini Ranch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b> (If needed, explain on reverse.)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	36C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Rumex crispus</i>	Herb	FACW-			
2. <i>Trifolium repens</i>	Herb	(FAC)1996			
3. <i>Unknown grass</i>	Herb				
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands. The unknown grass was newly germinated, so therefore difficult to identify, but it was possibly *Lolium* sp. or *Phalaris* sp.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary indicators such as inundation, saturation, or free water in the 15" hole. Sampling was conducted in mid March, 11 days after the last rainfall (0.65 inches) and 14 days after the last large rainfall event (&gt;2 inches of rain). Prior to this, the month of February had been pretty wet. There were faint and few oxidized pore channels, but they not frequent or prominent enough to qualify as a secondary indicator. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, irrigation flooding during the summer and occasional Lagunitas Creek overflow during extremely large storm events. This area appears to be slightly higher in elevation than Sampling Point 36A, and, therefore, waters may sheetflow off into lower elevation areas.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Profile Description</b>						
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>	
0-14	A/B	10YR 3/3			Silt/Clay loam	
<b>Hydric Soil Indicators:</b>						
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions				
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils				
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils				
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List				
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List				
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)				
<b>Remarks:</b> Hydric soil criterion <b>DOES NOT</b> appear to be met. Based on the hydrology (lack of saturation at 14-18 days) and soil chroma (3), this area does not appear to be hydric.						

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sampling point is a pasture flat located in the southwestern portion of the East Pasture of the Giacomini Ranch. This area appears to be slightly higher in elevation than Sampling Point 36A, and, therefore, waters may sheetflow off into lower elevation areas.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b> 4/6/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Tomasini Triangle area in East Pasture of Giacomini Rnch	

<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Community</b> Adjacent Wetland <b>Transect ID:</b> <b>Plot ID:</b> 37A
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**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Trifolium repens</i>	Herb	FAC(1996)			
3. <i>Festuca arundinacea</i>	Herb	FAC-			
4. <i>Unknown grass</i>	Herb				
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** / = 50%

**Remarks: Vegetative criterion is met.** Dominant vegetation is equal to 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands. The unknown grass was newly germinated, so therefore difficult to identify.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge <input type="checkbox"/></p> <p>Aerial Photographs <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>Inundated <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>Water Marks <input type="checkbox"/></p> <p>Drift Lines <input type="checkbox"/></p> <p>Sediment Deposits <input type="checkbox"/></p> <p>Drainage Patterns in Wetlands <input type="checkbox"/></p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>Water-Stained Leaves <input type="checkbox"/></p> <p>Local Soil Survey Data <input type="checkbox"/></p> <p>FAC-Neutral Test <input type="checkbox"/></p> <p>Other (Explain in Remarks) <input type="checkbox"/></p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 12 _____ (in.)</p>	

**Remarks: Hydrologic criterion is met.** Sampling was conducted in early April, 9 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. Water depth in nearby groundwater monitoring well (EP8) was at 35 inches at the time of sampling. However, at least one secondary indicator was observed: distinct, abundant oxidized pore channels. Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that elevates the water table in this area, surface run-off from adjacent uplands, and precipitation. This pasture is either not irrigated or irrigated infrequently.



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____						<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/1		Abundant oxidation features			
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion is met. Soil had a low chroma of (1), so mottles are not required. Abundant oxidation features were observed at 12".							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a flat in the so-called Tomasini Triangle portion of the East Pasture of the Giacomini Ranch. This entire portion of the pasture is often extremely wet, because of the abundant seep and surface drainage from the Point Reyes Mesa.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Green Bridge Park, Point Reyes	<b>Date:</b> 4/6/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Tomasini Triangle portion of East Pasture of Giacomini Rnch	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 37C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Festuca arundinacea</i>	Herb	FAC-			
2. <i>Geranium dissectum</i>	Herb	NL			
3. <i>Trifolium repens</i>	Herb	FAC(1996)			
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** / = **33%**

**Remarks:** Vegetative criterion is NOT met. Dominant vegetation is less than 50% hydrophytic. Other species present included *Alopecurus pratensis* (FACW) and *Cirsium vulgare* (FACU). *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	

**Remarks:** Hydrologic criterion is NOT met. There were no primary indicators, and sampling was conducted in early April, 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. Water depth in nearby groundwater monitoring well (EP8) was at 35 inches at the time of sampling. However, one secondary indicator may have been present: there appeared to be distinct, common oxidized pore channels, but there were no other secondary hydrologic indicators. This Sampling Point is slightly elevated from Sampling Point 37A: the Giacomini appeared to have used dredge material from the nearby drainage at the base of the Mesa to fill in the tip of the "triangle." Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that elevates the water table in this area, surface runoff from adjacent uplands, and precipitation. This pasture is either not irrigated or irrigated infrequently.



## SOILS

<b>Map Unit Name</b>					
(Series and Phase):		Blucher-Cole complex, 2 to 5 percent slopes		Drainage Class: _____	
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-14	A/B	10YR 3/2		No mottles	
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Soil had a low chroma of (2), but there were no mottles present.					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: This Sampling Point is located in the southeastern portion of the East Pasture in the so-called "Tomasini Triangle" and is slightly elevated from Sampling Point 37A: the Giacomini's appeared to have used dredge material from the nearby drainage at the base of the Mesa to fill in the tip of the "triangle." Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that elevates the water table in this area, surface run-off from adjacent uplands, and precipitation. This pasture is either not irrigated or irrigated infrequently.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Green Bridge Park, Point Reyes	<b>Date:</b> 4/6/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Chelsea Donovan	<b>State:</b> CA
<b>Site Location:</b> Tomasini Triangle portion of East Pasture of Giacomini Rnch	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 37D

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Picris echioides</i>	Herb	FAC			
2. <i>Geranium carolinanum</i>	Herb	NL			
3. <i>Trifolium repens</i>	Herb	FAC(1996)			
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**     / = **66%**

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present included *Silybum marianum* (NL), *Agrostis stolonifera* (FACW), and *Festuca arundinacea* (FAC-). *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary indicators, and sampling was conducted in early April, 12 days after the last large rainfall (1.51 inches). Prior to this rain event, the month of March had been pretty dry. Water depth in nearby groundwater monitoring well (EP8) was at 35 inches at the time of sampling. However, one secondary indicator may have been present: there appeared to be distinct, abundant oxidized pore channels, but there were no other secondary hydrologic indicators. This Sampling Point is slightly elevated from Sampling Points 37A and 37C: the Giacomini appeared to have used dredge material from the nearby drainage at the base of the Mesa to fill in the tip of the "triangle." Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that elevates the water table in this area, surface run-off from adjacent uplands, and precipitation. This pasture is either not irrigated or irrigated infrequently.</p>	



## SOILS

<b>Map Unit Name</b>							
<b>(Series and Phase):</b>		Blucher-Cole complex, 2 to 5 percent slopes		<b>Drainage Class:</b>			
<b>Taxonomy (Subgroup):</b>				<b>Field Observations Confirm Mapped Type?</b> Yes    No <input checked="" type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		No mottles			
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histosol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfidic Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low-Chroma Colors </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Concretions  <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils  <input type="checkbox"/> Organic Streaking in Sandy Soils  <input type="checkbox"/> Listed on Local Hydric Soils List  <input type="checkbox"/> Listed on National Hydric Soils List  <input type="checkbox"/> Other (Explain in Remarks) </td> </tr> </table>						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)						
<b>Remarks:</b> Hydric soil criterion is NOT met. Soil had a low chroma of (2), but there were no mottles present.							

## WETLAND DETERMINATION

<b>Hydrophytic Vegetation Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Wetland Hydrology Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Hydric Soils Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is this Sampling Point Within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> This Sampling Point is located in the southeastern portion of the East Pasture in the so-called "Tomasini Triangle" and is slightly elevated from Sampling Points 37A and 37C: the Giacomini appeared to have used dredge material from the nearby drainage at the base of the Mesa to fill in the tip of the "triangle." Primary hydrologic sources for this area appear to be seep flow from the adjacent Point Reyes Mesa that elevates the water table in this area, surface run-off from adjacent uplands, and precipitation. This pasture is either not irrigated or irrigated infrequently.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/11/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Central portion of East Pasture of Giacomini Rnch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	38
<b>(If needed, explain on reverse.)</b>			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Trifolium repens</i>	Herb	FAC(1996)			
3. <i>Rumex</i> sp.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: 0.5-1 (in.)</p> <p>Depth to Free Water in Pit: 14.5 (in.)</p> <p>Depth to Saturated Soil: Saturated within top 1" (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Sampling was conducted in mid February, 17 days after the last significant period of rainfall (1.74 inches). Prior to this rain event, the month of January had been pretty wet. Water depth in nearby groundwater monitoring well (EP4) was at 29 inches below the ground surface at time of sampling. There were abundant oxidized pore channels, however, these pastures are irrigated during the summer, so these features are unreliable. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone of these plant species. It is very possible that the dense, matted roots of some of the rhizomatous pasture grasses actually promote ponding by limiting the amount of water that leaches down into the lower soil horizons. Once the hole was dug, a substantial amount of water from the soil surface ran down into the hole, practically filling it.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____						<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		Abundant oxidation features			
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil had wetland hydrology and a low chroma of (2) with abundant oxidation features, although the oxidation features must be discarded due to the fact that the soil is flood irrigated during the summer.							

## WETLAND DETERMINATION

<b>Hydrophytic Vegetation Present?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<div style="border: 1px solid black; height: 100px; margin-bottom: 10px;"></div> <b>Is this Sampling Point Within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Wetland Hydrology Present?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Hydric Soils Present?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Remarks:</b> Sampling point is a flat in the central portion of the East Pasture of the Giacomini Ranch. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone and encourage colonization by hydrophytic plant species.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/11/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Central portion of East Pasture of Giacomini Rnch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	39
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Stellaria media</i>	Herb	FACU			
2. <i>Trifolium repens</i>	Herb	FAC(1996)			
3. <i>Ranunculus muricatus</i>	Herb	FACW+			
4. <i>Trifolium fragiferum</i>	Herb	NI			
5. <i>Lolium sp.</i>	Herb	FAC			
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 75%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. This area has been significantly disturbed through agricultural activities, creating a very mixed community of plant species. Other plant species present include *Atriplex triangularis* (FACW), *Plantago major* (FACW-), *Rorippa palustris* (OBL), and *Lythrum hyssopifolium* (FACW). *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ 0.5-1 (in.)</p> <p>Depth to Free Water in Pit: _____ 16.5 (in.)</p> <p>Depth to Saturated Soil: _____ Saturated within top 1" (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Sampling was conducted in mid February, 17 days after the last significant period of rainfall (1.74 inches). Prior to this rain event, the month of January had been pretty wet. Water depth in nearby groundwater monitoring well (EP4) was at 29 inches below the ground surface at time of sampling. There were abundant oxidized pore channels, however, these pastures are irrigated during the summer, so these features are unreliable. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone of these plant species. It is very possible that the dense, matted roots of some of the rhizomatous pasture grasses actually promote ponding by limiting the amount of water that leaches down into the lower soil horizons. Once the hole was dug, a substantial amount of water from the soil surface ran down into the hole, practically filling it.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____				<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-12	A/B	10YR 2/2					
12-	B	10YR3/2					
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil had wetland hydrology and a low chroma of (2). This area has been significantly disturbed by agricultural activities.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a flat in the central portion of the East Pasture of the Giacomini Ranch. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone and encourage colonization by hydrophytic plant species.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/11/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Central portion of East Pasture of Giacomini Ranch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	40
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Trifolium repens</i>	Herb	FAC(1996)			
3. <i>Rumex</i> sp.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).**      / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. *Trifolium repens* was listed as a FACU+ in the 1988 National List, but in the draft 1996 list, it was listed as a FAC species within California, which agrees better with our observations on its occurrence within wetlands and uplands.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>Stream, Lake or Tide Gauge <input type="checkbox"/></p> <p>Aerial Photographs <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: 0.5-1 (in.)</p> <p>Depth to Free Water in Pit: 11.5 (in.)</p> <p>Depth to Saturated Soil: Saturated within top 1" (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is met. Sampling was conducted in mid February, 17 days after the last significant period of rainfall (1.74 inches). Prior to this rain event, the month of January had been pretty wet. Water depth in nearby groundwater monitoring well (EP4) was at 29 inches below the ground surface at time of sampling. There were abundant oxidized pore channels, however, these pastures are irrigated during the summer, so these features are unreliable. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone of these plant species. It is very possible that the dense, matted roots of some of the rhizomatous pasture grasses actually promote ponding by limiting the amount of water that leaches down into the lower soil horizons. Once the hole was dug, a substantial amount of water from the soil surface ran down into the hole, practically filling it.</p>	



SOILS

Map Unit Name (Series and Phase): <u>Blucher-Cole complex, 2 to 5 percent slopes</u> Drainage Class: _____					
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?      Yes <input checked="" type="checkbox"/> No      _____		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 3/2		Abundant oxidation features	Clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion appears to be met. Soil had wetland hydrology and a low chroma of (2) with abundant oxidation features, although the oxidation features must be discarded due to the fact that the soil is flood irrigated during the summer.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: Sampling point is a flat in the central portion of the East Pasture of the Giacomini Ranch. Primary hydrologic sources for this area appear to be precipitation, surface run-off from adjacent uplands, and, to a lesser extent, groundwater. Despite the fact that the groundwater table exceeded 12-18 inches 17 days after the last rainfall, it appears that precipitation ponds on the soil surface, permeating at least the top 1 inch of the soil, long enough to create wetland hydrologic conditions within the root zone and encourage colonization by hydrophytic plant species.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/11/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Eastern portion of East Pasture of Giacomini Rnch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	41
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Festuca arundinacea</i>	Herb	FAC-			
3. <i>Rumex</i> sp.					
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).      / = 50%

Remarks: Vegetative criterion is met. Dominant vegetation is equal to 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 9 _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Sampling was conducted in mid February, 17 days after the last significant period of rainfall (1.74 inches). Prior to this rain event, the month of January had been pretty wet. Water depth in nearby groundwater monitoring well (EP1) was at 9.5 inches below the ground surface at time of sampling. There were abundant oxidized pore channels, however, these pastures are irrigated during the summer, so these features are unreliable. Primary hydrologic sources for this area appear to be groundwater, which is recharged by diverted creek flow from Tomasini Creek and seep flow from the Point Reyes Mesa, as well as precipitation and surface run-off from adjacent uplands.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Novato Clay</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____						<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		Abundant oxidation features	Clay loam		
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil had wetland hydrology and a low chroma of (2) with abundant oxidation features, although the oxidation features must be discarded due to the fact that the soil is flood irrigated during the summer.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a flat in the eastern portion of the East Pasture of the Giacomini Ranch. Primary hydrologic sources for this area appear to be groundwater, which is recharged by diverted creek flow from Tomasini Creek and seep flow from the Point Reyes Mesa, as well as precipitation and surface run-off from adjacent uplands.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Giacomini Ranch, Point Reyes	<b>Date:</b>	2/11/03
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Leslie Allen	<b>State:</b>	CA
<b>Site Location:</b>	Eastern portion of East Pasture of Giacomini Ranch		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Adjacent Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Plot ID:</b>	42
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Agrostis stolonifera</i>	Herb	FACW			
2. <i>Hordeum brachyantherum</i>	Herb	FACW			
3.					
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 8.5 - 9 _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks: Hydrologic criterion is met.</b> Sampling was conducted in mid February, 17 days after the last significant period of rainfall (1.74 inches). Prior to this rain event, the month of January had been pretty wet. Water depth in nearby groundwater monitoring well (EP1) was at 9.5 inches below the ground surface at time of sampling. Algal matting, a secondary indicator, was also present. Primary hydrologic sources for this area appear to be groundwater, which is recharged by diverted creek flow from Tomasini Creek and seep flow from the Point Reyes Mesa, as well as precipitation and surface run-off from adjacent uplands.</p>	



## SOILS

<b>Map Unit Name</b> (Series and Phase): <u>Novato Clay</u>						<b>Drainage Class:</b> _____	
<b>Taxonomy (Subgroup):</b> _____						<b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Profile Description</b>							
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>		
0-14	A/B	10YR 3/2		Abundant oxidation features	Clay loam		
<b>Hydric Soil Indicators:</b>							
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)					
<b>Remarks:</b> Hydric soil criterion appears to be met. Soil had wetland hydrology and a low chroma of (2) with abundant oxidation features, although the oxidation features must be discarded due to the fact that the soil is flood irrigated during the summer.							

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sampling point is a flat in the eastern portion of the East Pasture of the Giacomini Ranch. Primary hydrologic sources for this area appear to be groundwater, which is recharged by diverted creek flow from Tomasini Creek and seep flow from the Point Reyes Mesa, as well as precipitation and surface run-off from adjacent uplands.	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b> 8/10/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amy Langston	<b>State:</b> CA
<b>Site Location:</b> Eastern portion of Olema Marsh adjacent to Olema Creek	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 43

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ 8.5 - 9 _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary or secondary hydrologic indicators. Sampling was conducted in August, well past the rainy season. Sampling point is located on a floodplain terrace for Bear Valley Creek, which is perennial. It is likely that this area is flooded only episodically, and it may drain quickly when flooded.</p>	



SOILS

Map Unit Name (Series and Phase): Novato Clay						Drainage Class: _____		
Taxonomy (Subgroup): _____				Field Observations Confirm Mapped Type?		Yes	No	✓
Profile Description								
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.			
0-14	A/B	10YR 3/2		No mottles	Fill mix with loam			
Hydric Soil Indicators:								
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions					
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils					
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils					
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List					
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List					
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain in Remarks)					
Remarks: Hydric soil criterion is NOT met. Soil had a low chroma of (2), but the mottling required to classify it as hydric was not present.								

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Remarks: Sampling point is located on a floodplain terrace adjacent to Bear Valley Creek in Olema Marsh that is probably only episodically flooded and drains quickly once flooded.			



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes <b>Applicant/Owner:</b> Point Reyes National Seashore <b>Investigator:</b> Lorraine Parsons and Amy Langston <b>Site Location:</b> Southern portion of Olema Marsh adjacent to Olema Creek	<b>Date:</b> 8/10/04 <b>County:</b> Marin <b>State:</b> CA
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Community:</b> Non-Tidal Wetland <b>Transect ID:</b> <b>Plot ID:</b> 44A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Stachys chamissonis</i>	Herb	OBL			
3. <i>Athyrium filix-femina</i>	Herb	FAC			
4.					
5.					
6.					
7.					
8.					

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>Stream, Lake or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ 5 _____ (in.)</p>	
<p>Remarks: <b>Hydrologic criterion is met.</b> The soil was still saturated despite the fact that sampling was conducted in August, well past the rainy season. Sampling point is located on a very low elevation floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.</p>	



Map Unit Name					
(Series and Phase):			Drainage Class:		
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-5	A	10YR 3/2		No mottles	
5-12	A/B	10YR 2/1			
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Soil had a low chroma of (1) within the A horizon, so mottling is not required. Also, soil matches mapped type, which is hydric.					

Hydrophytic Vegetation Present?	<u>√</u>	Yes	<u>    </u>	No	Is this Sampling Point Within a Wetland? <u>√</u> Yes <u>    </u> No
Wetland Hydrology Present?	<u>√</u>	Yes	<u>    </u>	No	
Hydric Soils Present?	<u>√</u>	Yes	<u>    </u>	No	
Remarks: Sampling point is located on a very low elevation floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.					



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b> 8/10/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amy Langston	<b>State:</b> CA
<b>Site Location:</b> Southern of Olema Marsh	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 44C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Rubus ursinus</i>	Shrub	FACW			
3. <i>Urtica dioica</i>	Herb	FACW			
4. _____	_____	_____			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion is NOT met. There were no primary or secondary hydrologic indicators. Sampling was conducted in August, well past the rainy season. Sampling point is located on a floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial. It is likely that this area is flooded only episodically, and it may drain quickly when flooded.</p>	



Map Unit Name					
(Series and Phase):		Fluents, Channeled		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?      Yes      No      ✓	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 3/2		No mottles	Fill rock with loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Soil had a low chroma of (2), but the mottling required to classify it as hydric was not present. Area has probably been filled historically as part of adjacent road construction (Bear Valley Road), so, therefore, does not match mapped type, which is hydric.					

Hydrophytic Vegetation Present?	<u>✓</u>	Yes	<u>      </u>	No		
Wetland Hydrology Present?	<u>      </u>	Yes	<u>✓</u>	No		
Hydric Soils Present?	<u>      </u>	Yes	<u>✓</u>	No		
Is this Sampling Point Within a Wetland?					<u>      </u> Yes	<u>✓</u> No
Remarks: Sampling point is located on a floodplain terrace adjacent to Bear Valley Creek in Olema Marsh that is probably only episodically flooded and drains quickly once flooded.						



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b> 8/12/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amy Langston	<b>State:</b> CA
<b>Site Location:</b> Western portion of Olema Marsh	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Non-Tidal Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 45A

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Alnus rubra</i>	Tree	FACW			
2. <i>Stachys chamissonis</i>	Herb	OBL			
3.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Ribes* sp., *Urtica dioica* (FACW), and *Rubus ursinus* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: 20-22 _____ (in.)</p> <p>Depth to Saturated Soil: 15-20 _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would appear to be met. The soil was still saturated at 15-20" despite the fact that sampling was conducted in August, well past the rainy season. It is likely that saturation would be within the top 12" 14 to 18 days after the last rainfall. Also, there were distinct and common oxidized pore channels. Sampling point is located on a very low elevation floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.</p>	



Map Unit Name				
(Series and Phase):		Fluvents, Channeled		Drainage Class:
Taxonomy (Subgroup):		Field Observations Confirm Mapped Type? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Profile Description				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast
0-22	A/B	10YR 2/1		No mottles
Texture, Concretions, Structure, etc.				
Clay loam with pockets of sand				
Hydric Soil Indicators:				
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List		
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Hydric soil criterion is met. Soil had a low chroma of (1) within the A horizon, so mottling is not required. Soil matches mapped type, which is hydric.				

Hydrophytic Vegetation Present?	<u>✓</u>	Yes	<u>    </u>	No				
Wetland Hydrology Present?	<u>✓</u>	Yes	<u>    </u>	No				
Hydric Soils Present?	<u>✓</u>	Yes	<u>    </u>	No				
Is this Sampling Point Within a Wetland?					<u>✓</u>	Yes	<u>    </u>	No
Remarks: Sampling point is located on a very low elevation floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.								



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b> 8/12/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amy Langston	<b>State:</b> CA
<b>Site Location:</b> Westen portion of Olema Marsh	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Upland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b> _____
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 45C

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Salix lasiolepis</i>	Tree	FACW			
2. <i>Umbellularia californica</i>	Tree	FAC			
3. <i>Rubus ursinus</i>	Shrub	FACW			
4. <i>Rubus parviflorus</i>	Shrub	FAC+			
5. _____	_____	_____			
6. _____	_____	_____			
7. _____	_____	_____			
8. _____	_____	_____			

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Stachys chamissonis* (OBL), *Urtica dioica* (FACW), and *Alnus rubra* (FACW).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	

**Remarks:** Hydrologic criterion appears to be met. Sediment deposits, a primary indicator, were present, but there were no other primary or secondary indicators, suggesting that these may result from episodic flooding events on this higher elevation floodplain terrace that have recurrence intervals greater than 2 years. Sampling was conducted in August, well past the rainy season. Sampling point is located on a floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.



Map Unit Name					
(Series and Phase):		Fluents, Channeled		Drainage Class:	
Taxonomy (Subgroup):				Field Observations Confirm Mapped Type?      Yes      No      ✓	
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-14	A/B	10YR 2/2		No mottles	Loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is NOT met. Soil had a low chroma of (2) , but the mottling required to classify it as hydric was not present. Area has probably been filled historically as part of adjacent road construction (Bear Valley Road).					

Hydrophytic Vegetation Present?	<u>✓</u>	Yes	<u>    </u>	No			
Wetland Hydrology Present?	<u>    </u>	Yes	<u>✓</u>	No			
Hydric Soils Present?	<u>    </u>	Yes	<u>✓</u>	No			
					Is this Sampling Point Within a Wetland?	<u>    </u> Yes	<u>✓</u> No
Remarks: Sampling point is located on a higher elevation floodplain terrace adjacent to Bear Valley Creek in Olema Marsh that is probably only episodically flooded and drains quickly once flooded.							



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b> 8/17/04
<b>Applicant/Owner:</b> Point Reyes National Seashore	<b>County:</b> Marin
<b>Investigator:</b> Lorraine Parsons and Amy Langston	<b>State:</b> CA
<b>Site Location:</b> Northwestern portion of Olema Marsh	
<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community:</b> Non-Tidal Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>
<b>Is the area a potential Problem Area?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse.)	<b>Plot ID:</b> 46

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Alnus rubra</i>	Tree	FACW			
2. <i>Scrophularia californica</i>	Herb	FAC			
3. <i>Carex</i> sp.					
4.					
5.					
6.					
7.					
8.					

**Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).** \_\_\_\_\_ / = 100%

**Remarks:** Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic. Other species present include *Ribes* sp., *Juncus patens* (FAC), *Juncus balticus* (OBL), and *Digitalis purpurea* (UPL-1996).

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p>_____ Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p><b>Remarks:</b> Hydrologic criterion would appear to be met. Sediment deposits and wrack lines, primary indicators, were present, but there were no other primary or secondary indicators. While it is possible that these sediment deposits and wrack lines resulted from episodic flooding, the elevation of this floodplain terrace suggests that it is flooded on a frequent basis (recurrence interval &lt; 2 years).</p>	



## SOILS

<b>Map Unit Name</b>					
(Series and Phase): <u>Novato Clay</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>		
<b>Profile Description</b>					
<b>Depth (inches)</b>	<b>Horizon</b>	<b>Matrix Color (Munsell Moist)</b>	<b>Mottle Colors (Munsell Moist)</b>	<b>Mottle Abundance/Size/Contrast</b>	<b>Texture, Concretions, Structure, etc.</b>
0-15	A/B	10YR 3/1		No mottles	Very sandy soil – flood deposit material
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Hydric soil criterion is met. Soil had a low chroma of (1) within the A horizon, so mottling is not required. Soil matches mapped type, which is hydric.					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	
Hydric Soils Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	
Remarks: Sampling point is located on a very low elevation floodplain terrace within Olema Marsh for Bear Valley Creek, which is perennial.					



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b>	Giacomini Wetland Restoration Project, Olema Marsh, Point Reyes	<b>Date:</b>	8/17/04
<b>Applicant/Owner:</b>	Point Reyes National Seashore	<b>County:</b>	Marin
<b>Investigator:</b>	Lorraine Parsons and Amy Langston	<b>State:</b>	CA
<b>Site Location:</b>	Depressional feature in grasslands east of Olema Marsh		
<b>Do Normal Circumstances exist on the site?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Community</b>	Isolated Wetland
<b>Is the site significantly disturbed (Atypical Situation)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Transect ID:</b>	
<b>Is the area a potential Problem Area?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Plot ID:</b>	47
(If needed, explain on reverse.)			

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Holcus lanatus</i>	Herb	FAC			
2. <i>Mentha pulegium</i>	Herb	OBL			
3. <i>Lotus corniculatus</i>	Herb	FAC			
4. <i>Agrostis stolonifera?</i>	Herb	FACW			
5. <i>Lolium perenne</i>	Herb	FAC			
6. <i>Cyperus eragrostis</i>	Herb	FACW			
7. _____	_____	_____			
8. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). \_\_\_\_\_ / = 100%

Remarks: Vegetative criterion is met. Dominant vegetation is greater than 50% hydrophytic.

**HYDROLOGY**

<p><b>Recorded Data (Describe in Remarks):</b></p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p><b>Field Observations:</b></p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: Hydrologic criterion would appear to be met. Drainage patterns, a primary indicator, and oxidized pore channels, a secondary indicator, were present. There were no other primary or secondary indicators, but sampling was conducted in August. Compaction of the soil, however, probably promotes prolonged ponding within this depressional feature, which appears to have been created. There is no outlet for the depression, so precipitation and surface run-off that enter the depressional feature appear to have no connection hydrologically with Olema Marsh.</p>	



## SOILS

<b>Map Unit Name</b>																	
(Series and Phase):		Barnabe very gravelly loam, 30 to 50 percent		Drainage Class: _____													
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type?    Yes    No <input checked="" type="checkbox"/>														
<b>Profile Description</b>																	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.												
0-6	A	10YR 3/1		Common/Distinct	Soil very compacted												
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Histosol</td> <td><input type="checkbox"/> Concretions</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon</td> <td><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Sulfidic Odor</td> <td><input type="checkbox"/> Organic Streaking in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Aquic Moisture Regime</td> <td><input type="checkbox"/> Listed on Local Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Reducing Conditions</td> <td><input type="checkbox"/> Listed on National Hydric Soils List</td> </tr> <tr> <td><input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> </table>						<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List	<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions																
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils																
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils																
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List																
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List																
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)																
Remarks: Hydric soil criterion is met. Soil had a low chroma of (1) within the A horizon, so mottling is not required.																	

## WETLAND DETERMINATION

<table style="width: 100%; border: none;"> <tr> <td>Hydrophytic Vegetation Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Wetland Hydrology Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Hydric Soils Present?</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> </table>	Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No								
Remarks: Sampling point is located in a depressional feature within grassland area on the east side of Olema Marsh. This feature appears to have been created. Soil compaction and lack of an outlet promotes ponding and establishment of hydrophytic vegetation. The lack of an outlet suggests that it is hydrologically isolated from Olema Marsh.										



## **Appendix B. List of Plant Species Observed in the Delineation Study Area**



**Appendix Table B-1. List of Plant Species Observed Within the Giacomini Wetland Restoration Study Area.** Initials in table columns refer to areas observed within Study Area: key is provided at back of table.

Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Aceraceae																
<i>Acer negundo</i> var. <i>californicum</i>	box elder			X						X						
Alismataceae																
<i>Alisma lanceolatum</i>	water plantain		X	X							X					
<i>Alisma plantago-aquatica</i>	water plantain					X					X					
Anacardiaceae																
<i>Toxicodendron diversilobum</i>	poison oak		X	X		X				X						
Apiaceae																
<i>Conium maculatum</i>	poison hemlock		X	X			X					X				
<i>Eryngium armatum</i>						X										X
<i>Foeniculum vulgare</i>	fennel		X	X			X					X				
<i>Heracleum lanatum</i>	cow parsnip			X												
<i>Hydrocotyle ranunculoides</i>			X	X		X					X			X		
<i>Lomatium dasycarpum</i>				X												
<i>Oenanthe sarmentosa</i>			X	X			X				X					
<i>Scandix pecten-veneris</i>	Venus' needle					X										X
<i>Torilis arvensis</i>				X								X				
Apocynaceae																
<i>Vinca major</i>	greater periwinkle			X						X						
Aquifoliaceae																
<i>Ilex aquifolium</i>	English holly			X						X						X
Araliaceae																
<i>Aralia californica</i>	elk clover			X						X						X
<i>Hedera helix</i>	English ivy			X						X						X



**Appendix Table B-1. List of Plant Species Observed Within the Giacomini Wetland Restoration Study Area.** Initials in table columns refer to areas observed within Study Area: key is provided at back of table.

Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Asteraceae																
<i>Achillea millefolium</i>	yarrow					X										X
<i>Anthemis cotula</i>	mayweed		X	X												
<i>Artemisia californica</i>	California sagebrush					X										
<i>Artemisia douglasiana</i>	mugwort		X	X		X	X	X		X		X				
<i>Baccharis douglasii</i>	marsh baccharis									X						
<i>Baccharis pilularis</i>	coyote brush		X	X		X	X	X				X				
<i>Carduus pycnocephalus</i>	Italian thistle		X	X		X							X			
<i>Carthamus baeticus</i>	smooth distaff thistle			X												
<i>Centaurea solstitialis</i>	yellow star thistle		X				X									
<i>Chamomilla suaveolens</i>	pineapple weed		X	X			X					X				
<i>Cirsium vulgare</i>	bull thistle		X	X			X					X				
<i>Conyza bonariensis</i>				X												X
<i>Conyza canadensis</i>	horseweed		X													
<i>Cotula coronopifolia</i>	brass-buttons		X	X		X		X	X		X				X	
<i>Delaria odorata</i>	Cape ivy									X						
<i>Erechtites</i> sp.	fireweed		X	X			X					X				
<i>Filago gallica</i>	herba impia			X												X
<i>Gnaphalium luteo-album</i>	cudweed		X	X										X		
<i>Gnaphalium californicum</i>	cudweed				X											
<i>Gnaphalium palustre</i>	cudweed			X		X					X					
<i>Grindelia hirsutula</i>	gumplant					X										
<i>Grindelia stricta</i>	gumplant		X	X	X	X		X								



**Appendix Table B-1. List of Plant Species Observed Within the Giacomini Wetland Restoration Study Area.** Initials in table columns refer to areas observed within Study Area: key is provided at back of table.

[illegible]



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Blechnaceae																
<i>Blechnum spicant</i>	deer fern			X								X				
Boraginaceae																
<i>Borago officinalis</i>				X						X						
<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	popcorn flower					X										X
Brassicaceae																
<i>Barbarea orthoceras</i>	common winter cress			X												
<i>Barbarea vulgaris</i>	common wintercress		X													
<i>Brassica nigra</i>	black mustard		X	X		X	X					X				
<i>Brassica rapa</i>	field mustard															
<i>Capsella bursa-pastoris</i>	shepherd's purse			X												
<i>Cardamine oligosperma</i>	bitter-cress		X								X					
<i>Lepidium campestre</i>	peppergrass		X	X												
<i>Raphanus raphanistrum</i>	jointed charlock		X	X			X					X				
<i>Raphanus sativus</i>	wild radish		X	X			X					X				
<i>Rorippa curvisiliqua</i>	water cress		X	X							X				X	
<i>Rorippa nasturtium-aquaticum</i>	water cress		X	X			X				X			X		
<i>Rorippa palustris</i> var. <i>occidentalis</i>	water cress										X					
<i>Sisymbrium officinale</i>	hedge mustard		X			X										
Callitrichaceae																
<i>Callitriche heterophylla</i> var. <i>bolanderi</i>	water starwort					X					X					



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Chenopodiaceae																
<i>Atriplex triangularis</i>	spearscale		X	X				X	X		X				X	
<i>Chenopodium album</i>	lamb's quarters			X						X	X					
<i>Chenopodium ambrosioides</i>	Mexican tea		X									X				
<i>Salicornia virginica</i>	pickleweed		X	X	X	X		X	X						X	
Convolvulaceae																
<i>Calystegia purpurata</i> ssp. <i>purpurata</i>	morning glory		X	X		X	X					X				
Cucurbitaceae																
<i>Marah fabaceus</i>	California man-root		X				X			X						
Cupressaceae																
<i>Cupressus</i> sp.	cypress					X										
<i>Juniperus</i> sp.	juniper						X					X				
Cuscutaceae																
<i>Cuscuta salina</i> var. <i>major</i>	dodder			X					X							
Cyperaceae																
<i>Carex barbarae</i>	sedge		X	X						X		X				
<i>Carex densa</i>	sedge			X		X										
<i>Carex dudleyi</i>	sedge					X										
<i>Carex obnupta</i>	sedge			X						X						
<i>Carex praegracilis</i>	sedge			X												
<i>Carex subbracteata</i>	sedge			X							X			X		
<i>Carex tumulicola</i>	sedge					X										
<i>Cyperus eragrostis</i>	nutsedge		X	X		X	X				X			X		
<i>Eleocharis macrostachya</i>	spikerush		X	X		X					X			X	X	
<i>Scirpus acutus</i> var. <i>occidentalis</i>	tule		X	X							X					
<i>Scirpus americanus</i>				X							X					



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Fabaceae																
<i>Lotus corniculatus</i>	birdfoot trefoil		X	X		X	X		X		X	X			X	X
<i>Lotus formosissimus</i>						X										X
<i>Lupinus arboreus</i>	yellow bush lupine		X	X								X				
<i>Lupinus bicolor</i>	miniature lupine		X			X						X				X
<i>Lupinus nanus</i>	lupine		X	X								X				
<i>Lupinus variicolor</i>	lupine					X										
<i>Medicago polymorpha</i>	California burclover		X	X		X	X					X				X
<i>Trifolium depauperatum</i> var. <i>depauperatum</i>	clover					X										X
<i>Trifolium dubium</i>	little hop clover		X	X		X	X					X			X	X
<i>Trifolium fragiferum</i>	strawberry clover		X	X		X	X				X	X	X	X		
<i>Trifolium fucatum</i>	clover															
<i>Trifolium oliganthum</i>	clover		X													
<i>Trifolium repens</i>	white clover		X	X		X	X					X	X	X		X
<i>Trifolium subterraneum</i>	subterranean clover		X	X		X						X	X			X
<i>Trifolium variegatum</i>	clover			X							X			X		
<i>Vicia hirsuta</i>	vetch			X												
<i>Vicia sativa</i> ssp. <i>nigra</i>	narrow-leaved vetch		X	X		X						X				X
<i>Vicia sativa</i> ssp. <i>sativa</i>	spring vetch		X	X								X				
<i>Vicia tetrasperma</i>	vetch									X		X				



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Lamiaceae																
<i>Stachys chamissonis</i>	hedge nettle			X						X	X					
Lauraceae																
<i>Umbellularia californica</i>	California bay		X	X		X				X						
Lemnaceae																
<i>Lemna</i> sp.	duckweed		X	X		X	X				X					
Liliaceae																
<i>Allium unifolium</i>	onion					X										X
<i>Amaryllis belladona</i>	naked pink lady															
<i>Chlorogalum pomeridianum</i>	soap plant		X			X										X
<i>Smilacina</i> sp.	false solomon's seal			X						X						X
Linaceae																
<i>Linum usitatissimum</i>	common flax					X										X
Lythraceae																
<i>Lythrum hyssopifolium</i>	loosestrife		X			X	X				X					
Malvaceae																
<i>Malva neglecta</i>	common mallow			X												
<i>Malva nicaeensis</i>	bull mallow		X													
<i>Malva sylvestris</i>	high mallow		X													
<i>Modiola caroliniana</i>			X	X								X				
Myricaceae																
<i>Eucalyptus globulus</i>			X													
Myricaceae																
<i>Myrica californica</i>	wax myrtle					X										
Onagraceae																
<i>Camissonia ovata</i>	sun cup		X			X						X				X



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Onagraceae																
<i>Epilobium angustifolium</i>	fireweed		X	X								X				
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	willow herb			X							X					
<i>Epilobium ciliatum</i> ssp. <i>watsonii</i>	willow herb			X		X	X				X					
<i>Ludwigia peploides</i>	water primrose		X								X					
Oxalidaceae																
<i>Oxalis rubra</i>				X									X			X
Papaveraceae																
<i>Eschscholzia californica</i>	California poppy		X	X		X	X					X				X
Pinaceae																
<i>Pinus muricata</i>						X										
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir					X										
Plantaginaceae																
<i>Plantago lanceolata</i>	English plantain		X	X		X	X					X				X
<i>Plantago major</i>	common plantain		X	X							X		X			
<i>Plantago maritima</i> var. <i>juncoides</i>	plantain			X		X		X								
Plumbaginaceae																
<i>Limonium californicum</i>	western marsh rosemary		X	X		X		X	X							
Poaceae																
<i>Agrostis capillaris</i>	bent grass									X		X				
<i>Agrostis stolonifera</i>	creeping bent grass		X	X			X			X		X				
<i>Agrostis viridis</i>	bent grass			X												
<i>Aira caryophyllea</i>	European hairgrass		X	X		X						X				X



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			East	West												
Poaceae																
<i>Alopecurus geniculatus</i>	water foxtail			X							X				X	
<i>Alopecurus pratensis</i>	meadow foxtail		X	X									X		X	
<i>Avena barbata</i>	slender wild oat		X	X		X	X					X				X
<i>Avena fatua</i>	wild oat		X													
<i>Briza maxima</i>	quaking grass		X	X		X	X					X				X
<i>Briza minor</i>	quaking grass		X			X						X				X
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome		X	X		X						X				X
<i>Bromus catharticus</i>	rescue grass		X				X					X				
<i>Bromus diandrus</i>	ripgut brome		X	X		X	X					X				
<i>Bromus hordeaceus</i>	brome		X	X		X	X					X				X
<i>Bromus tectorum</i>	cheat grass			X									X			
<i>Cynodon dactylon</i>	Bermuda grass			X										X		
<i>Cynosurus echinatus</i>	hedgehog dogtail		X			X						X				X
<i>Dactylis glomerata</i>	orchard grass		X	X								X	X			
<i>Danthonia californica</i>						X										X
<i>Distichlis spicata</i>			X	X	X	X		X	X						X	
<i>Echinochloa crus-galli</i>			X								X					
<i>Festuca arundinacea</i>	tall fescue		X	X			X					X	X	X	X	
<i>Festuca rubra</i>	red fescue		X	X	X			X								
<i>Glyceria leptostachya</i>	manna grass			X							X					
<i>Glyceria occidentalis</i>	manna grass		X	X		X					X			X		



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			East	West												
Poaceae																
<i>Holcus lanatus</i>	common velvet grass			X		X	X									X
<i>Hordeum brachyantherum</i> ssp. <i>brachyantherum</i>	barley		X	X		X	X							X		X
<i>Hordeum jubatum</i>	barley			X								X				
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley		X	X			X	X							X	
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Mediterranean barley		X	X		X	X					X				X
<i>Leymus triticoides</i>			X	X			X	X				X			X	
<i>Lolium multiflorum</i>	Italian ryegrass		X	X		X	X					X		X		X
<i>Nassella pulchra</i>	purple needlegrass					X										X
<i>Paspalum dilatatum</i>	Dallis grass						X									
<i>Phalaris aquatica</i>	Harding grass		X	X		X	X				X	X				
<i>Phalaris arundinacea</i>	canary reed grass						X									
<i>Poa annua</i>	annual blue grass		X	X		X					X	X	X	X		X
<i>Poa trivialis</i>	rough bluegrass		X	X							X					
<i>Polypogon australis</i>	Chilean beard grass			X							X					
<i>Polypogon interruptus</i>	ditch beard grass		X	X		X					X			X		
<i>Polypogon monspeliensis</i>	annual beard grass		X	X		X			X							
<i>Spartina foliosa</i>	cordgrass		X		X							X				
<i>Torreyochloa pallida</i> var. <i>pauciflora</i>	weak mannagrass					X					X					
<i>Vulpia bromoides</i>			X	X		X				X		X				X



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			East	West												
Poaceae																
<i>Vulpia myuros</i> var. <i>hirsuta</i>			X	X												
Polemoniaceae																
<i>Navarretia squarrosa</i>	skunkweed			X		X										X
Polygonaceae																
<i>Polygonum arenastrum</i>	common knotweed		X			X	X					X				
<i>Polygonum hydropiper</i>	marshpepper		X	X		X	X									
<i>Polygonum hydropiperoides</i>	waterpepper			X							X					
<i>Polygonum persicaria</i>	lady’s thumb		X	X		X	X				X					
<i>Polygonum punctatum</i>				X						X						
<i>Rumex acetosella</i>	sheep sorrel		X	X		X	X					X	X			
<i>Rumex conglomeratus</i>	dock		X	X			X									
<i>Rumex crispus</i>	curly dock		X	X		X	X		X		X	X	X	X		
<i>Rumex obtusifolius</i>	bitter dock			X							X					
<i>Rumex occidentalis</i>	western dock		X	X				X								
<i>Rumex pulcher</i>	fiddle dock		X	X			X					X	X			
<i>Rumex salicifolius</i> var. <i>crassus</i>	willow dock			X							X					
<i>Rumex salicifolius</i> var. <i>salicifolius</i>	willow dock			X							X					
<i>Rumex salicifolius</i> var. <i>transitorius</i>	willow dock		X	X								X				
Potamogetonaceae																
<i>Potamogeton nodosus</i>	long-leaved pondweed					X					X					
<i>Ruppia cirrhosa</i>	ditch grass		X								X					
<i>Zannichella palustris</i>	horned-pondweed					X					X					



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Primulaceae																
Anagallis arvensis	scarlet pimpernel		X	X		X						X				
Ranunculaceae																
Ranunculus aquatilis	buttercup					X					X					
Ranunculus californicus	buttercup					X										X
Ranunculus muricatus	buttercup		X	X		X								X	X	
Ranunculus occidentalis	buttercup		X	X												
Rhamnaceae																
Rhamnus californica ssp. californica	California coffeeberry			X		X				X						
Rosaceae																
Cotoneaster franchetti						X										
Heteromeles arbutifolia	toyon					X										
Holodiscus discolor	oceanspray			X						X						
Oemleria cerasiformis	oso berry					X				X						
Potentilla anserina ssp. pacifica	cinquefoil		X	X		X		X	X		X		X		X	
Potentilla glandulosa ssp. glandulosa	cinquefoil					X										
Prunus sp.	plum		X	X						X		X				
Rosaceae																
Rosa californica	California rose					X	X									X
Rosa eglanteria										X						
Rubus discolor	Himalayan blackberry		X	X		X	X			X		X				



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			East	West												
Rosaceae																
Rubus parviflorus	thimbleberry			X						X						
Rubus spectabilis	salmonberry			X						X						
Rubus ursinus	California blackberry			X		X	X			X						
Rubiaceae																
Galium aparine	bedstraw		X	X						X		X				
Galium trifidum var. pacificum	bedstraw			X							X					
Sherardia arvensis	field madder		X									X				
Salicaceae																
Populus alba	poplar															
Salix laevigata	red willow		X	X			X				X					
Salix lasiolepis	arroyo willow		X	X		X	X			X	X					
Salix lucida ssp. lasiandra	shining willow		X				X			X						
Scrophulariaceae																
Castilleja ambigua ssp. ambigua	salt marsh owl's clover					X		X								
Castilleja ambigua ssp. humboldtiensis	Humboldt Bay owl's clover	FSC; 1B	X	X	X	X		X								
Cordylanthus maritimus ssp. palustris	Point Reyes bird's-beak	FSC; 1B				X		X	X							
Digitalis purpurea	foxglove			X						X						
Mimulus aurantiacus	monkey flower					X										
Mimulus guttatus	monkey flower			X							X			X		
Mimulus moschatus	musk monkey flower			X							X					
Scrophularia californica ssp. californica	California figwort		X	X			X			X		X				
Verbascum blattaria	moth mullein			X								X				



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Scientific Name	Common Name	Status	Giacomini		SLC Land	TBT	Mesa	SM	DSM	R	FW	B	DP	WP	SMP	NG
			East	West												
Scrophulariaceae																
<i>Veronica americana</i>	American brooklime		X	X			X				X			X		
<i>Veronica anagallis-aquatica</i>	water speedwell			X			X				X			X		
Solanaceae																
<i>Datura</i> sp.	jimson weed		X								X					
<i>Solanum americanum</i>	nightshade			X						X						
Taxodiaceae																
<i>Sequoia sempervirens</i> - cultivar	redwood – possible cultivar						X					X				
Typhaceae																
<i>Sparganium erectum</i> ssp. <i>stoloniferum</i>	bur-reed		X	X							X					
<i>Typha angustifolia</i>	narrow-leaved cattail		X	X			X				X					
<i>Typha latifolia</i>	broad-leaved cattail			X		X	X									
Urticaceae																
<i>Urtica dioica</i>	stinging nettle		X	X						X						
<i>Urtica urens</i>	dwarf nettle		X													
Verbenaceae																
<i>Phyla nodiflora</i> var. <i>nodiflora</i>			X									X				

**Key:**

Giacomini East – East Pasture  
Giacomini West – West Pasture  
SLC Land – SLC Lands  
TBT – Tomales Bay Trail  
Mesa – Mesa Road  
SM – Undiked Salt Marsh



**Appendix Table B-1. List of Plant Species Observed Within the Giacomini Wetland Restoration Study Area.** Initials in table columns refer to areas observed within Study Area: key is provided at back of table.

- DSM – Diked Salt Marsh
- R – Riparian
- FW – Freshwater Marsh
- B – Berm/Levee
- DP – Dry Pasture
- WP – Wet Pasture
- SMP – Salt Marsh Pasture
- NG – Non-native Grassland

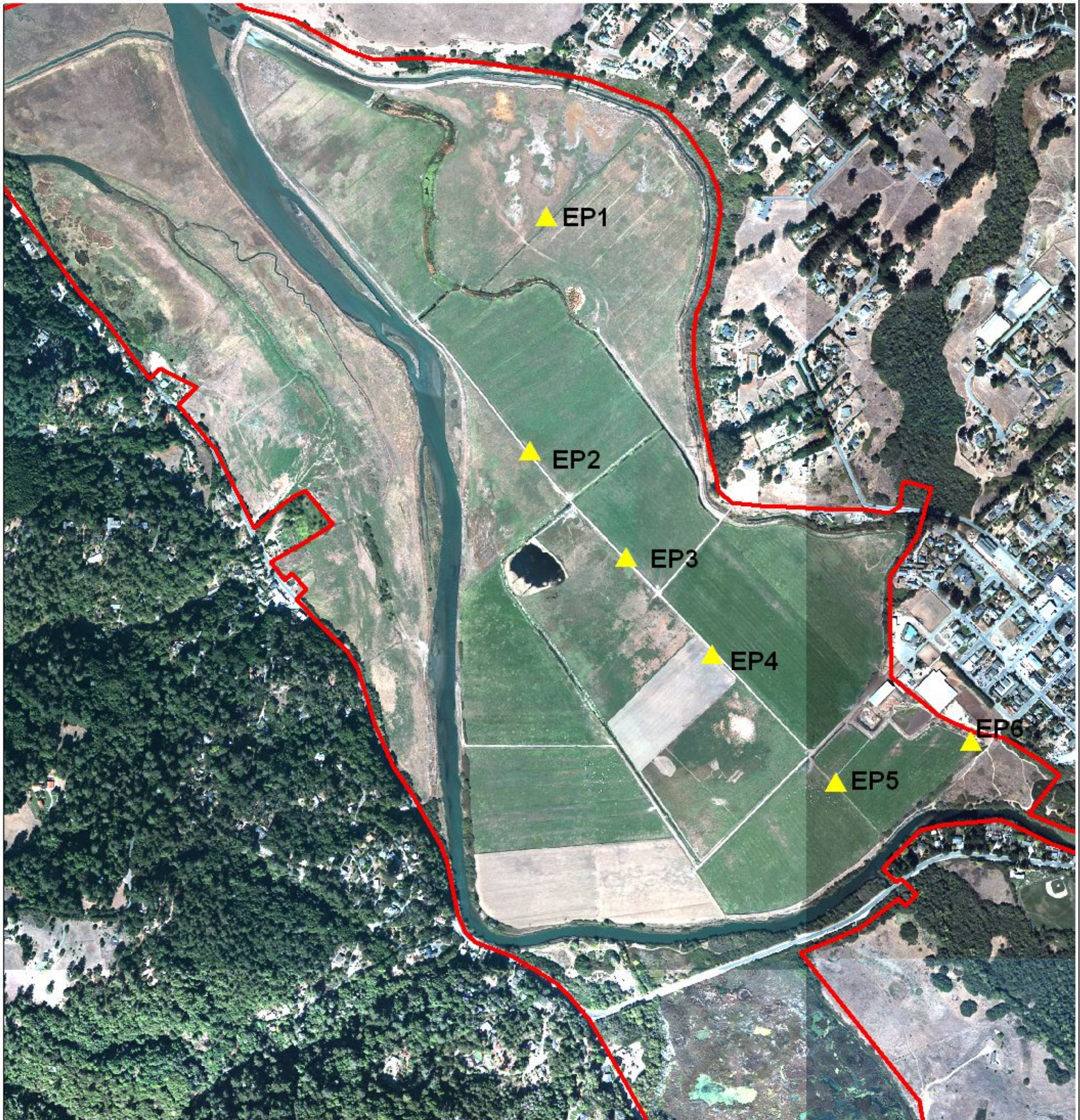


**Appendix C. Shallow Monitoring Well Data from Six Wells  
in the East Pasture of the Giacomini Ranch (2002-2004)**



# Giacomini Wetland Restoration Project

Location of Shallow Groundwater Monitoring Wells at Giacomini Ranch



Location of Shallow Groundwater Wells

- Groundwater Wells
- Delineation Study Area Boundary

300 0 300 600 Feet



1 : 12,000 1 inch = 1,000 feet



Map Location

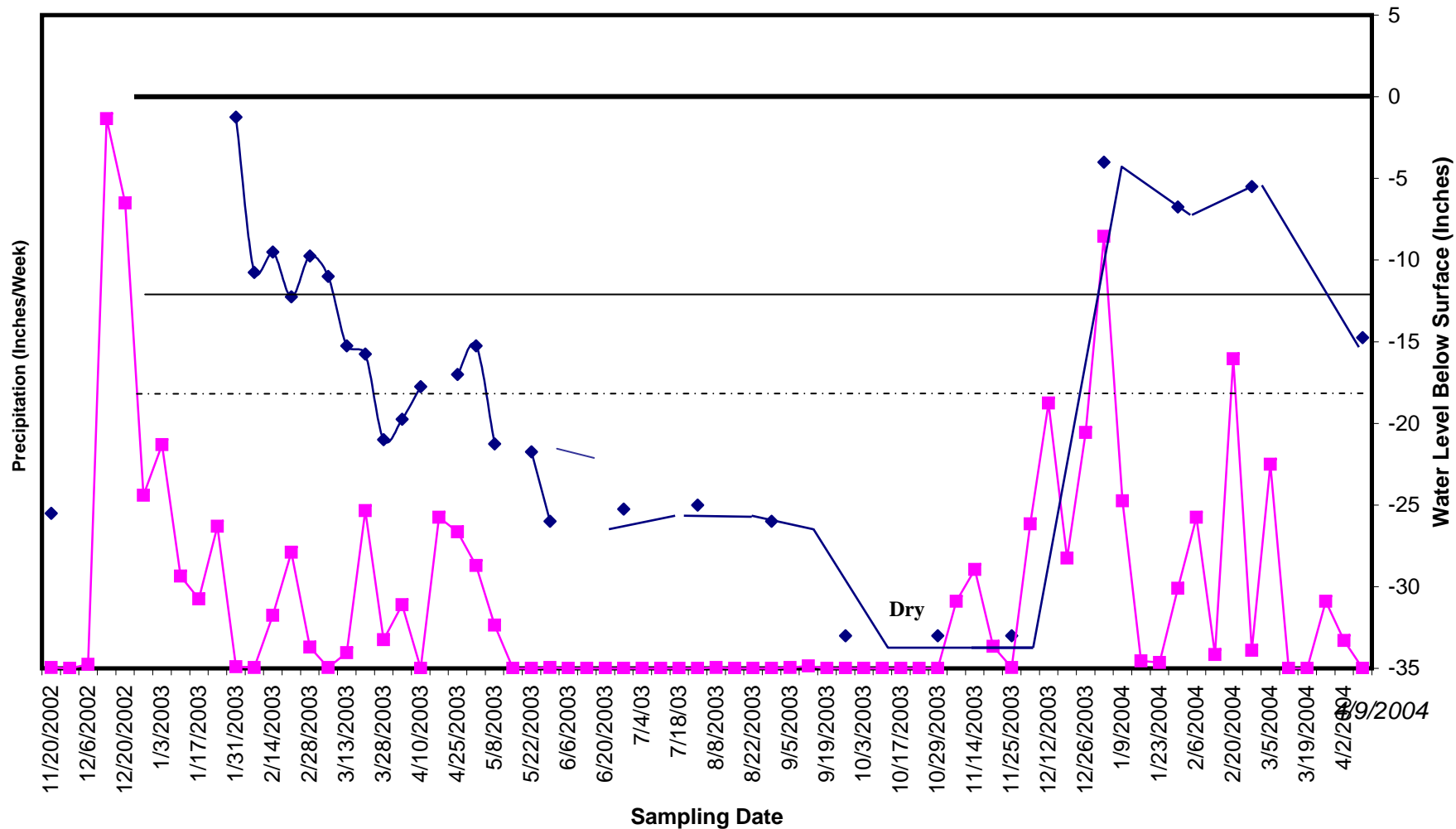
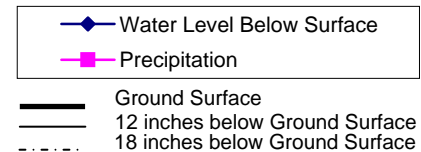


Golden Gate National Recreation Area/  
Point Reyes National Seashore  
Point Reyes Station, California  
County of Marin

Appendix Figure C-1. Map of shallow  
groundwater monitoring wells in East  
Pasture of Giacomini Ranch.

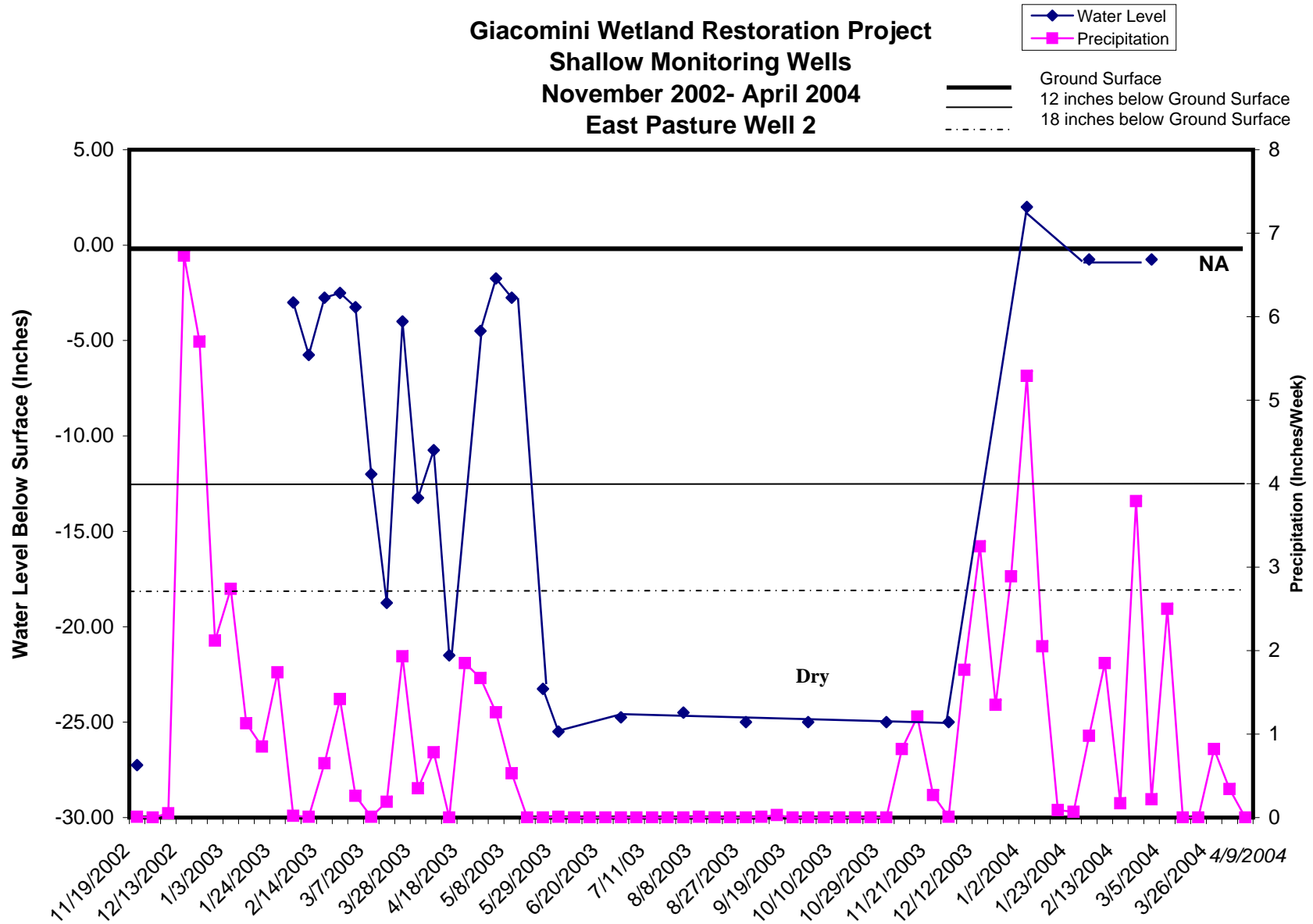


**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002 - April 2004  
East Pasture Well 1**



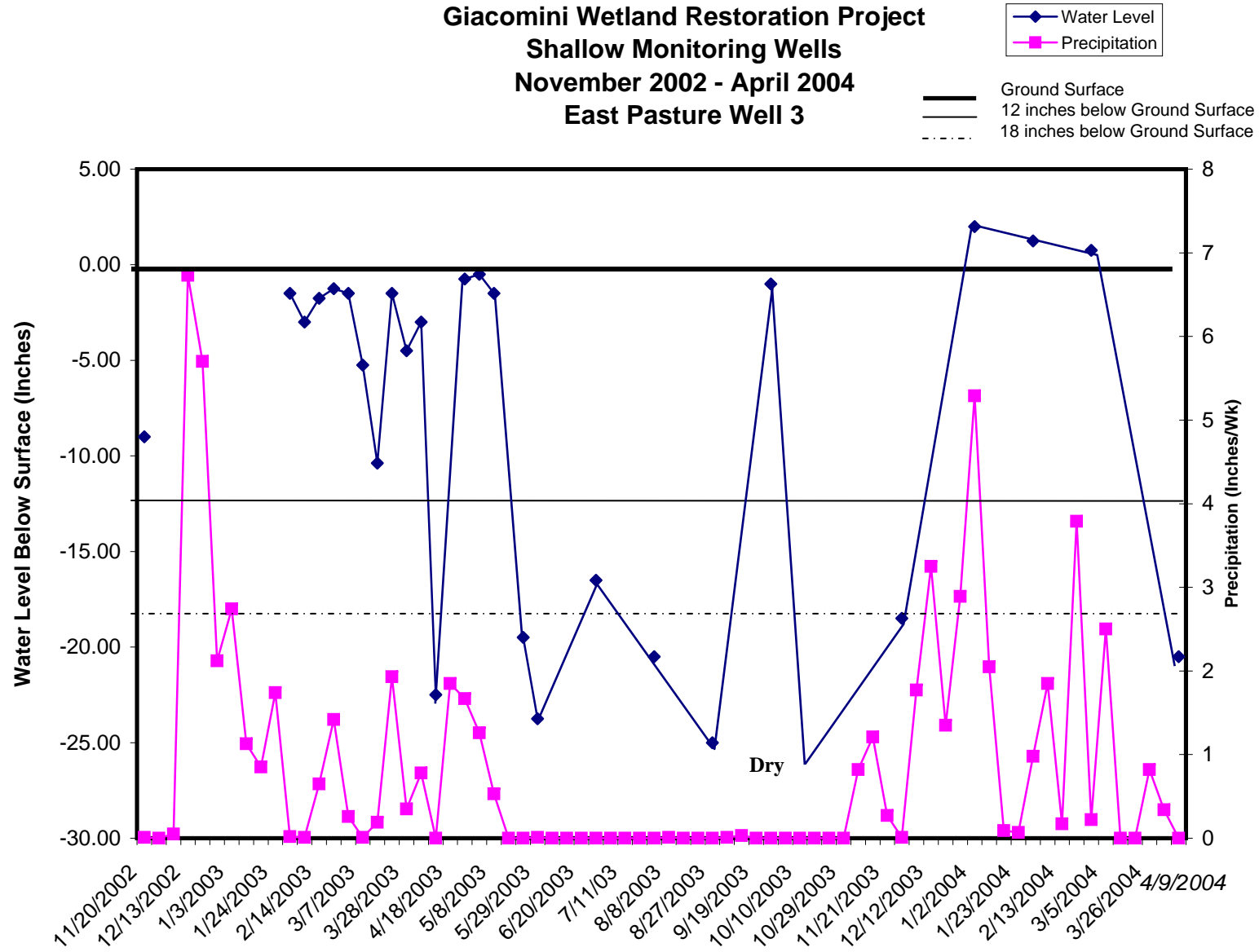


**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002- April 2004  
East Pasture Well 2**



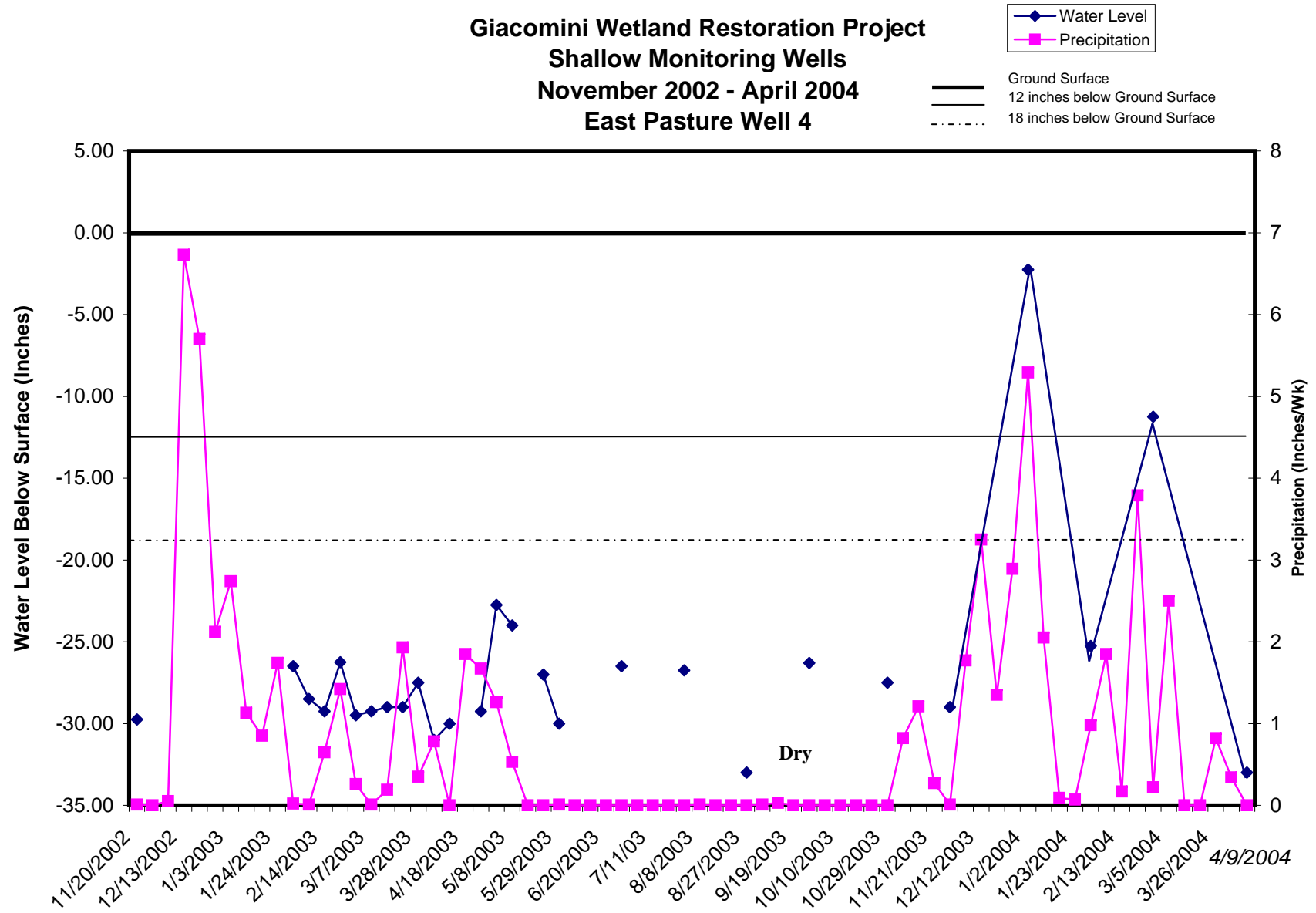


**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002 - April 2004  
East Pasture Well 3**



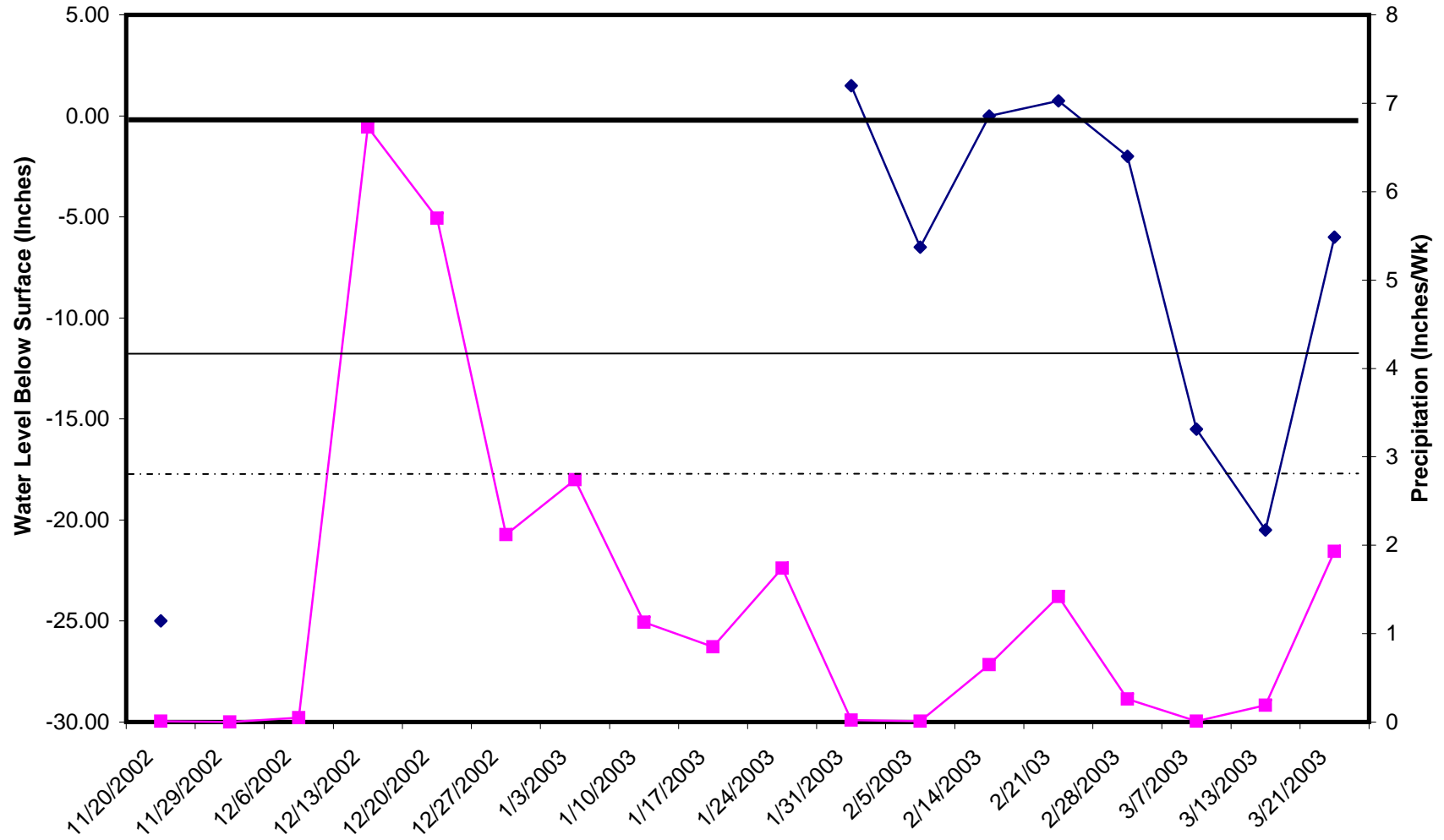
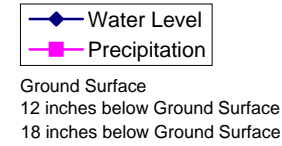


**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002 - April 2004  
East Pasture Well 4**





**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002 - March 2003  
East Pasture Well 5**





**Giacomini Wetland Restoration Project  
Shallow Monitoring Wells  
November 2002 - April 2004  
East Pasture Well 6**

