

Giacomini Wetland Restoration Project EIS/EIR
Point Reyes National Seashore/Golden Gate National Recreation Area
California State Lands Commission

Statement of Findings

For Wetlands and Floodplains

Marin County, California

Recommended: _____
Superintendent, Point Reyes National Seashore Date

Recommended: _____
Chief, Water Resources Division Date

Recommended: _____
Regional Safety Officer Date

Recommended: _____
Pacific West Regional Director Date

Preliminary

***Statement of Findings
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Wetland
Restoration
Project***

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Golden Gate National Recreation Area
Point Reyes National Seashore
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April 25, 2007

Introduction

Since early 1900s, levees constructed at the southern end of Tomales Bay for roads and dairy farms have served to hydrologically disconnect Lagunitas Creek and its tributaries from their floodplains. Infrastructure such as levees, tidegates, and culverts, as well as intensive agricultural management, degraded the condition of wetlands in the Waldo Giacomini Ranch (Giacomini Ranch) and Olema Marsh and substantially reduced hydrologic and ecological functionality of what was once of the largest integrated tidal marsh complexes in Tomales Bay. Hydrologically connected, natural wetlands provide many important functions and services for humans and wildlife, including floodwater retention, water quality improvement, wildlife habitat and food supply, recreational opportunities, and support of mariculture and fisheries industries. Because two-thirds of Tomales Bay's freshwater inflow passes through the Project Area, these wetlands may have once played an integral role in maintaining health of Tomales Bay, which has deteriorated over the last century because of excessive sedimentation, water and sediment quality problems, non-native species invasions, and other issues.

In 2000, the Park Service acquired the Giacomini Ranch for the purpose of wetland restoration using a combination of Congressional appropriations and mitigation monies from the California Department of Transportation (CalTrans). The Giacomini Ranch is located in the county of Marin in the San Francisco Bay region in California (Figure D-1). The Giacomini Ranch was incorporated into the northern district of the Golden Gate National Recreation Area (GGNRA), which is managed by Point Reyes National Seashore (Seashore). The Seashore also owns a small portion of the Olema Marsh. With this project, the Park Service and its state partner, the California State Lands Commission (CSLC), propose to restore natural hydrologic processes to a significant portion of the Giacomini Ranch and Olema Marsh, thereby promoting restoration of ecological processes and functions. The CSLC owns most of Lagunitas Creek within the Project Area.

The *Draft Environmental Impact Statement/Environmental Impact Report* (DEIS/EIR) evaluates four alternatives for restoring wetlands and wetland functionality and incorporating public access, as well as a No Action Alternative. Among the impact topics evaluated in the draft document are wetlands and floodplains. Executive Orders (EO) 11988 (Floodplain Management) and 11990 (Protection of Wetlands) require the Park Service and other federal agencies to evaluate the consistency of actions with policies on wetlands and floodplains and the likely impacts of actions on these resources. Park Service Director's Order #77-1: Wetland Protection and Procedural Manual #77-1 provide Park Service policies and procedures for complying with E.O. 11990, and Park Service Special Directive 93-4 (Floodplain Management Guideline) provides Park Service guidelines for compliance with E.O. 11988.

Under these guidelines, proposed new development or other new activities, plans, or programs that have the potential for direct or indirect adverse impacts on wetlands and floodplains must document that every effort has been made to avoid or minimize impacts to these resources. Actions proposed by the Park Service that have the potential to have adverse impacts on wetlands and floodplains will be addressed in an Environmental Assessment (EA) or an EIS.

If the preferred alternative in an EA or EIS will result in adverse impacts on wetlands and floodplains, a "Statement of Findings" (SOF) documenting compliance with this Director's Order and its implementation procedures will be completed.

Certain "water-dependent" actions may be excepted from the Statement of Findings requirement. For wetlands, this includes scenic overlooks and foot/bike trails or boardwalks; minor stream crossings using culverts or bridges that completely span the channel and associated wetland habitat; actions designed specifically for the purpose of restoring degraded (or completely lost) natural wetland, stream, riparian, or other aquatic habitats or ecological processes that cause less than 0.25 acres of loss; and maintenance, repair, or renovation of currently serviceable facilities or structures. For floodplains, excepted actions include archaeological structures, sites, or artifacts; picnic facilities, scenic overlooks, foot trails, and small associated daytime parking facilities; and certain emergency actions. This SOF documents compliance with these Park Service wetland protection procedures.

Figure D-1 Project Area

Proposed Action

Of the five alternatives, Alternative D is the lead agencies' preferred alternative, because it best meets the purpose of restoring wetlands while also providing opportunities for public access that allow visitors and residents to experience and enjoy the restored wetlands. Alternative D would involve several types of restoration, including discontinuation of agricultural management; removal of agricultural and hydrologic control infrastructure; tidal channel creation; partial creek realignment; excavation to lower higher elevation areas to active floodplain and marshplain elevations; creation of alternate freshwater marsh habitat for a federally threatened amphibian species; creation of high-elevation high tide refugia habitat for federally and state-listed bird species; and revegetation of marsh, grassland, and riparian habitats. In addition, this alternative would result in enhancement and construction of several new public access facilities, including spur trails on the southern and eastern perimeters; an ADA-compliant trail at White House Pool County park; and several viewing areas and overlooks along the Giacomini Ranch perimeter.

This alternative would take approximately two to four years to construct, depending on the funding and implementation timeline for the public access component. Construction would require operation of numerous pieces of earthmoving equipment in the Project Area, as well as equipment and material stockpiling, during that period.

Description of Wetlands Within Project Area

Extent of Wetlands

While the project is intended to "restore" wetlands, more than 90 percent of the Project Area is already wetland. Wetlands within the Project Area are subject to oversight by several state and federal agencies, including the U.S. Army Corps of Engineers (Corps), the Park Service, the California Coastal Commission (CCC), the Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG). The extent of jurisdiction or oversight of wetlands by the Corps, the Park Service, and CCC can differ slightly among some of these agencies because of slightly different interpretations or definition of wetlands from a regulatory or oversight perspective. Based on the minimum number of parameters (hydrology, soils, and/or vegetation) required, the Corps and Park Service methodologies produce the most similar results and are, therefore, the ones presented below.

Corps Jurisdiction

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) or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403). A wetland delineation was performed by the Seashore and verified by the Corps in 2005 (Parsons 2005; Figure D-2). Based on this delineation, 536.6 acres of wetlands and waters subject to Section 404 jurisdiction under the Clean Water Act exist in the Project Area, with 249.3 of those acres also subject to Section 10 jurisdiction under the Rivers and Harbors Act (Parsons 2005).

Park Service Oversight

Director's Order #77-1 established Park Service policies, requirements, and standards for implementing Executive Order 11990, which directs federal agencies to avoid long- and short-term impacts to wetlands. The Park Service uses the Cowardin classification system (Cowardin et al. 1979) as the basis for creating a Park Service standard for defining, classifying, and inventorying wetlands that might be subject to adverse impacts and Park Service oversight.

Figure D-2 Corps Jurisdictional Wetlands and Waters

Park Service lands within the Delineation Study Area generally include the Giacomini Ranch and portions of Bear Valley Creek upstream of Bear Valley Road and the southern 14.0 acres of Olema Marsh. Wetlands potentially subject to management and oversight by the Park Service were delineated using the Cowardin wetland delineation definition developed by the USFWS (Parsons et al. 2005). This definition relies on the presence of two of three criteria – wetland hydrology and hydrophytic vegetation or hydric soils – to classify areas as wetlands. Because of the similarity of this approach to that of the Corps, the Seashore proposed to delineate these wetlands by modifying, if necessary, the boundary line proposed for potential Corps' jurisdiction to incorporate areas that met two, but not necessarily all three, criteria (Parsons et al. 2005).

After reviewing information collected during the delineation, there did not appear to be any areas that would require expansion of the Corps' potential jurisdictional boundary (Parsons et al. 2005). There were some areas that technically only met two of the criteria, but most of these areas qualified as Corps' wetlands, as well, because wetland hydrology and hydrophytic vegetation were present, and the absence of hydric soil indicators could be explained by the fact that soils were fill, recently disturbed, or alluvial and therefore less likely to display obvious hydric soil indicators. Therefore, wetlands potentially subject to management and oversight by the Park Service in the Project Area total 446.4 acres.

Hydrogeomorphic Classification of Wetlands

Within the wetland regulatory and management community, there has been a strong push in recent years to classify wetlands not only according to vegetation type and structure such as freshwater marsh or salt marsh, but on hydrogeomorphology. Naturally, regional variations exist in the specific types of hydrogeomorphic features present, but most wetlands share some basic hydrologic and geomorphic attributes that enable them to be classified, on at least a basic level, by a methodology developed by Brinson (1993). The Project Area incorporates at least five different hydrogeomorphic classes of wetlands, including Estuarine Fringe; Slope Wetlands; Groundwater Slope Wetlands; Riverine Wetlands; and Organic Soil Flats. Because of the hydrologic complexity within the Project Area, a considerable amount of overlap occurs between these geomorphic classes.

Estuarine Fringe Wetlands are comprised of tidal wetlands in the undiked marsh north of the Giacomini Ranch, as well as the narrow fringe of undiked marsh on the outboard of the Giacomini Ranch levees and some of the islands or topographically elevated "central bars" in the middle of Lagunitas Creek. The entire Project Area could be classified as Riverine Wetlands, which include floodplains and riparian areas along rivers, creeks, and streams, although a large portion of the Riverine Wetlands for Lagunitas Creek and Tomasini Creek have been eliminated or minimized through levees that greatly reduce the amount of overbank flooding. Only Fish Hatchery Creek, Bear Valley Creek, and some of the small drainages flowing off the Inverness Ridge are hydrologically connected with their floodplains, although hydrologic functioning of these creeks has also been negatively impacted by culverts, road levees, ditching, and frequent dredging.

With levees reducing the amount of overbank flooding, most of the Giacomini Ranch could be classified as functioning more as Slope Wetlands, with surface runoff and precipitation generally sheetflowing from the higher-elevation southern portions of the two pastures towards the lower-elevation northern portions, where waters drain out either through one-way or modified one-way tidegates or over concrete spillways. Some of the surface run-off derives from groundwater that emerges at the base of the Inverness Ridge or Point Reyes Mesa and flows into the two pastures. This abundant groundwater creates groundwater slope wetlands or, as they have been referred to in other areas of the country, "seepage toeslope" wetlands on the perimeter of both the West and East Pastures. In the West Pasture, the western perimeter is at a higher elevation than most of the rest of the pasture, encouraging sheetflow of this emergent groundwater into the center of the pasture, except where there are depressional basins such as in the extensive freshwater marsh along Sir Francis Drake Boulevard. The Point Reyes Mesa appears to support both seepage toeslope wetlands, as well

as localized areas of hillside seepage slope wetlands, which manifest themselves as extensive arroyo willow forests or Mesic Coastal Scrub on the face of the Point Reyes Mesa bluff. In the East Pasture, the influence of these seeps creates more localized seepage toeslope features, because the perimeter elevation is flatter and more consistent with elevations in the center of the pasture.

Classification of Wetlands

For purposes of compliance with Executive Order 11990, parks are directed to use the "Classification of Wetlands and Deepwater Habitats of the United States" (FWS/OBS-79/31; Cowardin et al. 1979) as the standard for defining, classifying, and inventorying wetlands. The Cowardin classification system is also the basis for the National Wetland Inventory (NWI) maps of wetlands and waters prepared by the USFWS for the entire United States. As part of the CCC delineation, a classification of all wetlands types was conducted. Summarized below are some of the major findings.

System/Subsystems (Parsons et al. 2005). Because of its location at a major freshwater-estuarine confluence, the Project Area is a combination of Palustrine (freshwater) and Estuarine (saltwater) wetlands and Riparian non-wetlands. Estuarine Systems are those in which salinities during the period of average annual low flow exceeds 0.5 ppt (Cowardin et al. 1979). Areas mapped as Estuarine included not only undiked, tidal areas such as Lagunitas Creek and the undiked marsh north of Giacomini Ranch and Lagunitas Creek, but even some areas inside dikes such as the Giacomini Ranch West and East Pastures, Tomasini and Fish Hatchery Creeks, northernmost portions of Olema Creek, and Olema Marsh. Estuarine influence in these areas results either from tidal surface flow muted to some degree either naturally or by improperly functioning tidegates (Olema Marsh; Fish Hatchery Creek/northern portion of Giacomini Ranch West Pasture; Tomasini Creek) or from indirect tidal interaction with the saline groundwater table. The elevated salinities observed in the diked pastures' groundwater tables probably derive from residual marine salts deposited in underlying estuarine sediments when these areas were open to tidal flushing (KHE 2006). Most of the mapped Estuarine areas consisted of the Intertidal Subsystem (2), but the Subtidal Subsystem (1) did occur in Lagunitas Creek, the northern portions of Fish Hatchery and Tomasini Creeks, and some diked portions of old sloughs in the Giacomini Ranch.

Because of the extensive tidal influence at the northern end of the Project Area, Palustrine Systems dominate the southern end, particularly Olema Marsh, Bear Valley Creek, Olema Creek, and the southern end of the Giacomini pastures. In the northern end of the Project Area, Palustrine areas are relegated to the fringes of the Giacomini Ranch on higher gradient sections of creeks such as Tomasini and Fish Hatchery and small drainages and higher elevation areas adjacent to seeps flowing off the Inverness Ridge or Point Reyes Mesa. Often a sharp juxtaposition exists between Palustrine and Estuarine wetlands, as evidenced by the West Pasture freshwater marsh or Palustrine Emergent marsh polygon (e.g., PEM1Eb) adjacent to Sir Francis Drake Boulevard that is bordered by an Estuarine Emergent (E2EM1R) Diked Tidal Salt Marsh polygon with summer groundwater salinities as high as 50 ppt. There are no Palustrine Subsystems.

Some areas on the upland perimeter of the Project Area were mapped as the NWI's new Riparian (Rp) System category. Riparian (Rp) Systems support Scrub Shrub or Forested Class hydrophytic vegetation, but lack wetland hydrology. This category is not wetlands and, therefore is not subject to Corps' jurisdiction or the Park Service's oversight, although areas on state, county, and private lands may fall under jurisdiction by CDFG (Lake and Streambed Alteration Agreement). Acreage of non-wetland Riparian Systems within the Project Area totaled 55.1 acres, with 37.9 of those acres occurring in the Giacomini Ranch (Table 12). Most areas within the Project Area that qualified as Riparian (Rp) are Intermittently (J) or Temporarily Flooded (A) in which flooding occurs only at peak storm flow discharge or for several days following peak discharge or flooding occurs only an episodic basis (i.e., recurrence interval > 2 years). These Riparian Systems are dominated by deeply rooted riparian tree and shrub species -- many of which are considered hydrophytic at least in their seedling and juvenile stages -- that typically rely on groundwater tables that are greater than 12 inches from the soil surface. All of the Riparian System areas were mapped as Lotic (1) or

flowing water Subsystems, because they occurred at the periphery of freshwater streams, creeks, drainages, or actively flowing seeps.

Class/Subclass (Parsons et al. 2005). Most of the Project Area is dominated by low-growing Emergent (EM), Persistent (1) plant species such as pastoral, salt marsh, and ruderal forbs and herbs. Areas with taller vegetation (Scrub Shrub or Forested) tended to occur outside the Giacomini Ranch or on its perimeter due the lack of grazing and/or higher quantities of freshwater from seeps and drainages and creeks. As with Aquatic Bed, the areal extent of the Scrub Shrub class was relatively low within all regions of the Project Area. The Forested Class was the dominant class in the portion of Bear Valley Creek within the Project Area and the second highest class in the White House Pool and Green Bridge County Park and Olema Marsh areas. Unconsolidated Bottom subclasses within the Project Area consisted largely of Cobble-Gravel (1), Sand (2), Mud (3), and Organic (4). Mineral soils (Subclasses 1-3) dominated most of the Project Area, but a combination of Organic and Mud sediments occurred in some of the unvegetated portions of Olema Marsh.

Functionality and Condition of Wetlands

In order to achieve protection of these ecosystems, the Park Service has been directed to “conduct or obtain parkwide wetland inventories to help ensure proper planning with respect to the management and protection of wetland resources” (NPS 2006, Section 4.6.5). Beginning in 2000, the Seashore initiated an enhanced wetlands mapping project. During the first two phases of the project, more than 911 acres within 230 wetlands polygons or areas were inventoried and mapped. In 2003, the Seashore began a third phase of the wetlands mapping project that focused on the 140,094-acre Tomales Bay watershed. As one of the larger landowners within the Tomales Bay watershed, the Park Service felt that it could contribute to improving water quality within Tomales Bay by identifying potential pollutant sources on its lands and targeting degraded wetlands for restoration (Parsons et al. 2004). In order to evaluate the condition of existing wetlands and how well they are currently functioning, the Seashore recognized that it needed to expand its mapping efforts to incorporate a condition and functional assessment of wetlands.

A number of different methodologies exist for assessing wetland condition and/or functions, but, ultimately, the Seashore created a hybrid assessment methodology that incorporated components from several methodologies, including the recently developed California Rapid Assessment Methodology (CRAM; Collins et al. 2003; 2004). This assessment methodology uses indicators or metrics of wetland condition or functionality based on observable impairments or disturbances to hydrologic processes, hydrologic functions, landscape connectivity, soils, vegetation communities, and ecological functions such as wildlife habitat, as well as qualitatively ranking the number and intensity of potential “stressors” to wetlands such as grazing, contamination, etc. (Parsons et al. 2004).

As part of this functional assessment, more than 1,500 acres and 717 polygons of wetlands were mapped within the western portion of Tomales Bay and Olema Valley (Parsons et al. 2004). Using a semi-quantitative evaluation of scores for both functionality and stressors, sites were ranked as being either high or medium priority for more detailed future evaluation of condition and functionality and possible future restoration. A large percentage of the sites or Functional Units that were considered either high or medium priority for restoration occurred in specific areas of the watershed, including the Waldo Giacomini Ranch in the southern portion of Tomales Bay and the Bear Valley Creek subwatershed (Parsons et al. 2004). In fact, of the six high priority restoration “sites” or drainage areas identified in the Tomales Bay-Olema Valley watershed, three of them were on the Giacomini Ranch, specifically the eastern portions of the East Pasture-Tomasini Creek, the leveed portion of Lagunitas Creek, and the diked northern portions of the East and West Pasture (Parsons et al. 2004). Intensive agricultural and/or hydrologic management of Giacomini Ranch and Olema Marsh has degraded conditions within both of these former tidal marshes. In addition, the lack of hydrologic connectivity of the Giacomini Ranch and, to a lesser degree, Olema Marsh, with Lagunitas Creek and other drainages severely reduces the ability of these wetlands to serve functions such as floodwater retention and storage, water quality improvement, carbon export,

and wildlife habitat for marine and estuarine aquatic species that might utilize tidally connected wetlands for foraging, breeding, and refugia.

Description of Floodplains Within Project Area

Extent of Floodplains and Flood Frequency

Situated in an alluvial valley at the confluence of at least three moderate to large-size creeks and a number of smaller drainages, it is perhaps not surprising that the entire Project Area has been mapped within the FEMA-designated 100-year flood hazard zone (Clearwater Hydrology and Nichols-Berman 2002). The extent of the 500-year flood hazard zone was not delineated in the Point Reyes area (Clearwater Hydrology and Nichols-Berman 2002). The history of the Project Area has been one that has marked by a number of catastrophic floods that have caused extensive to homes, ranches, and roads, as well as substantially changed the physical environment. Within the Project Area, flooding is directly influenced by both tidal and watershed processes, with flooding from creeks often exacerbated by extreme tide conditions. However, during normal to high tide conditions, tidal flooding of floodplains within the Project Area has largely been precluded by the presence of levees along Lagunitas Creek and Tomasini Creek and across the mouth of Bear Valley and Olema Creeks.

While major flooding events remain the most memorable in terms of extent of inundation and damage, hydraulic modeling conducted as part of the proposed projects suggests that the Project Area and vicinity floods frequently, even during lesser storm events. Active floodplains – or areas subject to frequent flooding during bankfull or ordinary high water flows that recur every 1.5 years on average – occur principally within the streambeds of creeks such as Lagunitas Creek, Bear Valley Creek, Tomasini Creek, Fish Hatchery Creek, and some of the other smaller drainages that flow into the Project Area. Model simulation results indicate that Giacomini Ranch East Pasture levees start to overtop from higher flows on Lagunitas Creek during 3.5-year flood events, while the West Pasture levees do not overtop until flooding reaches levels consistent with 12-year flood events (KHE 2006). Lagunitas Creek is the principal source of flooding in the Project Area, but not the only one. Bear Valley and Olema Creeks and smaller drainages on the Inverness Ridge often play a large – and, in some cases, an even larger role -- in flooding of Levee Road and Sir Francis Drake Boulevard and properties along these roads.

Impact to Wetlands and Floodplains Within Project Area

Wetlands

Alternative D would result in approximately 1.82 acres of wetland loss from fill used to create a high tide refugia for special status species in the West Pasture and berms adjacent to the created Tomasini Triangle freshwater marsh and the realigned Tomasini Creek in the East Pasture (Figure D-3). In the West Pasture, a section of the existing levee would be extended slightly northward and widened to provide high tide refugia for the federally and state endangered California clapper rail (*Rallus longirostris obsoletus*) and state threatened California black rail (*Laterallus jamaicensis coturniculus*). A low berm would also be created in the East Pasture to enhance the duration and extent of ponding in the created Tomasini Triangle freshwater marsh for the federally threatened California red-legged frog (*Rana aurora draytonii*), which breeds in freshwater marshes that pond through July or August. Also, it would provide some refugia for wildlife during high tide and floodwater conditions. In addition, because Tomasini Creek is realigned to run through the Tomasini Triangle, low berms would also be placed on either side of the creek to minimize draining of surface waters in the marsh to the creek.

There would also be some potential permanent fill of wetlands and removal of riparian habitat associated with the potential future extension of access facilities on the southern perimeter, including possible construction of a trail to Inverness Park through possible widening of the Sir Francis Drake Boulevard road berm or widening of Levee Road. The level of impact with berm

Figure D-3 Potential Impacts to Project Area Wetlands

widening would vary depending on final design, but impacts would be expected to minor to moderate unless the trail was placed instead on a boardwalk through the West Pasture. As compliance for this component would be conducted through a possible future project conducted jointly with the County, potential impacts to wetlands are not addressed here.

Certain types of actions cannot accomplish their intended purposes unless they are located in or are carried out in close proximity to wetlands (i.e., they are "water dependent"; NPS #77-1 Procedural Manual). Several other types of actions are not water dependent but, in general, are considered to have minimal impacts on wetlands (NPS Wetlands Procedural Manual). These actions may be **excepted** from the Statement of Findings procedures. One of the excepted types of actions are those designed specifically for the purpose of **restoring** degraded (or completely lost) natural wetland, stream, riparian, or other aquatic habitats or ecological processes. For purposes of this exception, "restoration" refers to reestablishing environments in which natural ecological processes can, to the extent practicable, function at the site as they did prior to disturbance. Temporary wetland disturbances that are directly associated with and necessary for implementing the restoration are allowed under this exception (see "conditions" in Section 4.2.A.2).

Actions causing a cumulative **gross** total of up to 0.25 acres of new long-term adverse impacts on natural wetlands may be allowed under this exception if they are directly associated with and necessary for the restoration (e.g., small structures or berms). Because construction of the berms and refugia under Alternative D would impact more than 0.25 acres of wetlands, a Statement of Findings is required for this proposed project if Alternative D was ultimately chosen for implementation. Temporary impacts to wetlands during construction caused by stockpiling of equipment and materials would be an excepted action, because they are necessary for implementing restoration.

Floodplains

Alternative D would include enhancement and construction of spur trails on the southern and eastern perimeter. This alternative also includes construction of an ADA-compliant trail component at White House Pool County park includes construction of a low-elevation viewing platform and replacement of the current portable toilet with an ADA-compliant vault toilet facility and ramp. This viewing platform and vault toilet facility would be within the 100-year floodplain, as would all of the other trail facilities constructed. Viewing platform and vault toilet facility construction would represent, then, less than 1,100 square feet of Class I development within the 100-year floodplain. Trails would be developed and maintained with the assumption that they would be flooded on a regular basis and would be constructed accordingly in terms of construction materials and methods. Therefore, trails are not included within development totals. These facilities would be expected to have no more than negligible adverse impacts on flooding in the Project Area.

While Alternative D does not include construction of a bicycle-pedestrian bridge over Lagunitas Creek as does Alternatives A-C, the Park Service would pursue working with the County of Marin on developing additional public access facilities on the southern perimeter of the Project Area. This would include reevaluation of Levee Road for placement of a pedestrian-bicycle path. Should all other options not prove viable, the Park Service would consider construction of a non-vehicular bridge over Lagunitas Creek through a separate environmental compliance process. As discussed under Alternatives A-C, this bridge would be constructed to accommodate flows equal to or greater than the Green Bridge, which is located directly immediately upstream. Design elevations for the bridge would take into account reductions in vertical flood elevations in Lagunitas Creek with removal of the Lagunitas Creek levees under Alternative C. Based on hydraulic modeling analyses, the portions of Levee Road directly adjacent to White House Pool County Park and Olema Marsh would have reductions in vertical flood elevations ranging as high as 0.6- to 1.1 feet during 10-year flood events (KHE 2006). As a result, under restored conditions, elevation of the bridge would only need to exceed 15 feet NAVD88 to allow for conveyance of 10-year flood flows and 17 feet NAVD88 to allow for conveyance of the 50- and 100-year flood flows at the proposed location (KHE 2006). The bridge would likely be designed to have at least 1- to 2-feet of freeboard. Using this type of

approach, hydraulic modeling results suggest that the bridge would not have more than negligible adverse impacts on flooding in the Project Area.

Justification for Impacts to Wetlands and Floodplains and Potential for Avoidance or Minimization of Impacts

Wetlands

While restoring wetlands would benefit numerous wildlife species, many species require nearby refugia or high-elevation upland areas as refuge during extreme tide or high water conditions. Within the Project Area, some of the species most affected by the presence and extent of high tide refugia are the California black rail and California clapper rail, both of which are marsh species that are relatively poor fliers. Currently, California black rail in the undiked marshlands north of the Giacomini Ranch use the Giacomini Ranch levees as high tide refugia, because many of the natural uplands on the perimeter of Tomales Bay have been developed for homes, roads, businesses, and other uses.

The preferred alternative, Alternative D, would involve complete removal of levees in the West and East Pasture, except for most of the Tomasini Creek levee and a small section of the Lagunitas Creek West Pasture levee. The levee section at the northernmost end of the West Pasture adjacent to the undiked marshlands would be retained as refugia for rails and expanded northward to transition into the natural alluvial levee already present in the undiked marshlands. It would also be widened slightly at the location of the existing levee to increase the amount of high-elevation refuge available. (A small portion of the section that would be retained has already been widened under a separate habitat enhancement project conducted in 2006.)

Further widening of the existing levee and expansion of the levee northward would impact 0.07 acres of existing Corps' jurisdictional wetlands. This impact cannot be minimized for two reasons. First, the refugia needs to be located fairly close to marsh currently used by black rails, because they are relatively poor fliers. Secondly, most of the northern portion of the West Pasture is already wetland, except for the levees and some areas at the toe of the levee. Where possible, the footprint for levee widening would try to minimize the amount of jurisdictional wetlands affected.

As impacts cannot be minimized, the only other option would be avoidance. Under Alternative A, the West Pasture levees are not removed or breached, so there is no proposal to either expand or widen a section of levee. However, retention of the West Pasture levees also limits the ability of Alternative A to fully meet the purpose and objectives of restoring a significant portion of the Project Area.

Under Alternative D, a low berm would also be constructed on the westward perimeter of the created Tomasini Triangle freshwater marsh. This berm would serve several purposes. It would increase the extent and duration of ponding within the created marsh, which is crucial to breeding success for California red-legged frogs. The created marsh would receive inflows primarily from surface water run-off, groundwater inflow, and precipitation, so the berm would ensure sustained ponding through preventing outflow of perched surface waters. The berm would also preclude tidal influence during anything but the most extreme storm tides. Lastly, it would provide a high elevation upland area for use as refuge by wildlife within the otherwise low-elevation marsh floodplains during extreme tide or high water conditions. A low berm would also be created on either side of the fully realigned Tomasini Creek to ensure that surface waters within the created marsh do not drain into the creek.

As with the West Pasture, most of the East Pasture is wetland, with the exception of the southernmost portions of the pasture. The created marsh was deliberately situated in an area with a small watershed and seasonal to perennial groundwater inflow contribution to ensure that the proper hydrology is present for breeding of California red-legged frog. There are no non-jurisdictional or upland areas in the vicinity of the created marsh in which these berms

could be located to avoid or minimize impacts to wetlands. The only option for avoidance would be under Alternative A, where the Tomasini Triangle freshwater marsh and associated berm would not be created. The Tomasini Triangle freshwater marsh is not included in Alternative A, because retention of levees in the West Pasture would reduce potential impacts to existing freshwater breeding habitat. However, as noted above, the scope of restoration under Alternative A is also considerably reduced, limiting the ability of Alternative A to fully meet the proposed project's purpose and objectives.

Floodplains

One of the objectives of the proposed project is to provide the public the opportunity to experience and enjoy the restored wetland through providing public access opportunities that do not impact wetland function. The proposed location for the ADA-compliant viewing platform would allow direct access from the existing White House Pool County park parking lot to the viewing platform adjacent to Lagunitas Creek via a 160-long ADA-compliant trail. The ADA-compliant vault toilet facility would be constructed at the location of the current facility at the northwestern corner of the parking lot.

As the entire Project Area is located within a 100-year FEMA-designed floodplain, it would not be practicable to avoid floodplain impacts by relocating the viewing platform and vault toilet facility to another non-floodplain area within or immediately adjacent to the Project Area. Under Alternative D, the southern perimeter through-trail proposed under Alternatives A-C would be converted to a spur trail through elimination of the bridge component from project-level consideration.

Should the Park Service eventually consider construction of a non-vehicular bridge over Lagunitas Creek through a separate environmental analysis process, the location was selected by the Park Service and CSLC, because it: 1) represents one of the narrowest sections of the Lagunitas Creek channel in the Project Area and therefore enables construction of the bridge without having to place footings within the active floodplain; 2) allows direction connection of the enhanced existing trail on the Giacomini Ranch East Pasture levee to the existing trail in the White House Pool County park; and 3) minimizes the amount of riparian habitat that would have to be removed on either end of the bridge, because there are already gaps in the riparian canopy.

Mitigative Actions

Wetlands

Under the preferred alternative, Alternative D, losses of wetlands from creation of berms and high tide refugia would be offset by creation of approximately 32.2 acres of wetland in the Giacomini Ranch through 1) complete levee removal; 2) restoration of filled and compacted ranch roads; 3) excavation of spoil piles, berms, manure disposal areas, and upland areas; and 4) excavation and lowering of non-jurisdictional uplands to intertidal elevations, resulting in a net gain of approximately 30.4 acres of wetlands. Most of the wetland gain in the Giacomini Ranch would come from an increase in estuarine wetlands. While the percentage increase in palustrine wetlands would be smaller than that of estuarine wetlands, it would be sufficient to offset loss of 1.82 acres of palustrine wetlands and would, therefore, represent in-kind mitigation.

Overall, then, permanent loss of 1.82 acres of wetland from construction of high-tide refugia would be offset by passive and active restoration, resulting in a net gain of more than 30.4 acres. These mitigative actions would result in an overall 17:1 mitigation ratio.

Floodplains

Generally, the Park Service stipulates that the mitigation should provide protection up to the level of the applicable regulatory floodplain (NPS Floodplain Procedural Manual Section VI.G.).

Mitigation may consist of any combination of seasonal closure, structural flood protection measures, specific actions to minimize impacts to floodplain natural resource values, effective flood warning, and flood evacuation (NPS Floodplain Procedural Manual Section VI.G.). During extreme storm events that would cause overtopping of creek banks, County and Park Service staff would post access roads to facilities as closed if County and Park Service personnel can reach the structure without endangering their own safety. In the event of catastrophic flooding, it would be highly unlikely that pedestrians and bicyclists would attempt to use facilities, because most of the access points would be inaccessible.

Compliance

Because the proposed project would affect wetlands and floodplains, the Park Service and CSLC would have to comply with a number of federal, state, and local laws and regulations governing impacts to wetlands, floodplains, and other aquatic habitats.

Clean Water Act Section 404. Section 404 (33 U.S.C. 1344) of the Clean Water Act prohibits the discharge of fill material into navigable waters, tributaries to navigable waters, and special aquatic sites of the United States, including wetlands, except as permitted under separate regulations by the U.S. Army Corps of Engineers (the Corps) and U.S. Environmental Protection Agency. The proposed project would involve removal or breaching of levees on creeks, realignment of creeks, and excavation and/or permanent or temporary fill in special aquatic sites such as wetlands. Because of this, the project will require Section 404 permits from the Corps. The Corps has already reviewed and verified the delineation of jurisdictional wetlands and other waters in the Project Area.

Clean Water Act Section 401. Under Section 401 (33 U.S.C. 1341) of the Clean Water Act, states and tribes can review and approve, condition, or deny all Federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands. The proposed project has the potential to affect water quality within the Project Area and in downstream water bodies. Because of this, the project will require Section 401 certification from the San Francisco Regional Water Quality Control Board.

Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. §43). Predating Section 404, federal jurisdiction over activities to navigable U.S. waters 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. The proposed project would involve removal or breaching of levees, portions of which are currently below MHW, and potentially excavation of tidal creeks in areas that were historically below MHW. Applications for a Section 10 permit would be submitted to the Corps concurrently with the Section 404 permit.

Coastal Zone Management Act of 1972, as amended through P.L. 104-150, The Coastal Zone Protection Act of 1996 (16 U.S.C. §1451 et seq.). Within California, the California Coastal Commission (CCC) administers the state program (California Coastal Act) for implementation of the federal Coastal Zone Management Act (CZMA). Any action by a federal agency such as the Park Service requires a federal consistency determination by the CCC as required by CZMA. The CCC manages fill, dredge, and other non-point activities affecting wetlands. In California, the Coastal Zone is broken into Local Coastal Program units that specifically oversee land use and management of resources within their jurisdiction. This project falls within the Coastal Zone and has wetlands and riparian/stream buffer areas that would be subject to oversight under the Coastal Act and local LCP. The Park Service would make a determination regarding consistency and submit to the CCC for concurrence.

Porter-Cologne Act (California Water Code, Division 7, §13000). The Porter-Cologne Act is the principal state law governing water quality control in California. The Regional Water

Quality Control Boards (RWCCB), which also administer Section 401 of the federal Clean Water Act, govern the nine hydrologic regions into which California is divided, adopting regional water quality control plans (basin plans) for their respective regions. Water quality control plans designate beneficial uses of water, establish water quality objectives to protect those uses, and provide a program to implement the objectives. The San Francisco RWQCB has established beneficial uses and associated water quality criteria for Tomales Bay and Lagunitas Creek. The portion of Lagunitas Creek that runs through the Project Area is owned and managed currently by the CSLC.

Lake and Streambed Alteration Agreement (Fish and Game Code, §1600 et seq).

Any person, state or local governmental agency, or public utility must notify the California Department of Fish and Game (CDFG) before beginning an activity that will substantially modify a river, stream, or lake. CDFG has historically had a more limited jurisdiction than the Corps, focusing specifically on lakes, major tidal sloughs, rivers, and streams. CDFG also typically includes riparian areas adjacent to rivers and streams within its jurisdiction. Because the proposed project would affect creeks under state ownership, a Lake and Streambed Alteration Agreement may be required.

Conclusion

While the purpose of the proposed project is wetland restoration, there would be impacts to wetlands and floodplains associated with construction of low berms, upland refuge areas for wildlife, and bridges for public access. The total acres of wetlands permanently impacted would exceed 0.25 acres, so the proposed project would not meet requirements for an exception to preparation of a Statement of Findings despite the fact that the actions are “designed specifically for the purpose of **restoring** degraded (or completely lost) natural wetland, stream, riparian, or other aquatic habitats or ecological processes” (NPS Wetlands Procedural Manual, Section 4.2.A.1.e). The proposed project would also involve placement of a small number of public access facilities in a FEMA-designed 100-year flood hazard zone, which is considered a Class I action under Park Service floodplain management procedures and therefore also subject to Statement of Findings requirements. An alternative has not been formally chosen for implementation, but the Park Service and CSLC have chosen Alternative D as the preferred alternative in the final EIS/EIR (FEIS/EIR). Therefore, this document represents a Preliminary Statement of Findings for Wetlands and Floodplains.

The Park Service and CSLC believe that there are no practicable alternatives to permanent loss of 1.82 acres of degraded palustrine wetlands and 1,100 square feet of Class I development in the FEMA-designated 100-year floodplain. In designing Alternative C, the Park Service and CSLC strived to avoid impacts to wetlands and floodplains, particularly as the purpose of the proposed project is to restore natural wetland hydrologic and ecological processes and functions to a significant portion of the Project Area.

Wetland impacts that cannot be avoided are minimized by trying to locate the construction footprint for small berms and refugia in non-jurisdictional or upland areas to the extent possible. Wetland impacts that cannot be avoided or minimized would be mitigated at approximately an 171:1 ratio, with loss of 1.82 acres of degraded palustrine wetlands replaced in-kind with higher quality and better functioning restored palustrine wetlands. There would also be temporary impacts to wetlands from stockpiling of construction equipment and materials, but these impacts would be “directly associated with and necessary for implementing the restoration” and can therefore be excepted as described under Section 4.2.A.1.e.

Floodplain impacts that cannot be avoided are minimized by locating the viewing platform, vault toilet facility, and, should other access options not prove viable, the potential future non-vehicular bridge outside of the active floodplain. In terms of the bridge, which would be analyzed through a separate environmental analysis process, the bridge elevations would be designed high enough to allow for unimpeded conveyance of larger flood flows. Floodplain

impacts that cannot be avoided or minimized would be mitigated to the extent practicable by closing the structure during extreme flooding, although posting of closure signs may ultimately depend on the ability of County and Park Service staff to safely access this area during flooding.

In general, the purpose of the proposed project fully meets the Park Service directive to restore wetlands and floodplains. The proposed project would directly comply with Park Service policy to restore wetlands to pre-disturbance conditions, when natural wetland characteristics or functions have been degraded or lost due to previous or ongoing activities (NPS Wetlands Procedural Manual, Section 2.2.G). Alternative D would be consistent with the Park Service policy of no net loss wetlands in that there would be a net gain of approximately 30.4 acres of estuarine and palustrine wetlands from removal of levees, restoration of filled and degraded ranch roads, removal of spoil piles and other earthen fill, and creation of freshwater marsh ponds (NPS Wetlands Procedural Manual, Section 2.2.A). It would also meet Park Service directives to “restore natural floodplain values previously affected by land use activities within floodplains” and to “avoid ...floodplain development and actions that could adversely affect the natural resources and functions of floodplains or increase flood risks” (NPS Floodplain Procedural Manual, Section II). Lastly, one of the objectives of the proposed project is to incorporate opportunities for public enjoyment and education through public access that do not disrupt natural wetland functions, which meets another Park Service directive (NPS Wetlands Procedural Manual, Section 2.2.H).

The Park Service, therefore, finds that the proposed project is in compliance with Executive Order 11990: “Protection of Wetlands” and Executive Order 11998: “Floodplain Management.”

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