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STATE WATER RESOURCES CONTROL BOARD
FOR THE STATE OF CALIFORNIA

WILD EQUITY INSTITUTE, a non-profit corporation; Petitioner, vs. REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION Respondent.	**PETITION FOR REVIEW AND RECONSIDERATION** **(California Water Code Section 13320 and California Code of Regulations, Title 23, Sections 2050, 3867)**

Wild Equity Institute ("Wild Equity") respectfully petitions the California State Water Resources Control Board ("State Board") for review and reconsideration of the San Francisco Bay Regional Water Quality Control Board's ("Regional Board") decision to issue a federal Clean Water Act Section 401 Water Quality Certification ("Certification") to the City of San Francisco Recreation and Parks Department ("Rec and Park") for the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project ("Project"). Specifically, Wild Equity argues that the Regional Board improperly issued the Certification in light of substantial evidence that the Project is not in compliance with state and federal law and requires further testing to fully asses the water quality impacts of the Project.

I. CONTACT INFORMATION FOR PETITIONER WILD EQUITY

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II. BACKGROUND

Sharp Park is located on the coast in Pacifica, California, but it is owned and operated by the City and County of San Francisco through Rec and Park. Sharp Park contains one of the last backbarrier lagoon wetland complexes in Northern California. The wetland complex contains several water features, including Laguna Salada, Horse Stable Pond, and a connecting channel between these two water bodies; and wetlands that surround these water features. Collectively, these features are called the Laguna Salada wetland complex.

The Laguna Salada wetland complex is home to the threatened California Red-Legged Frog, *Rana draytonii* ("Frog"), and the endangered San Francisco Garter Snake, *Thamnophis sirtalis tetrataenia* ("Snake"). Sharp Park also contains an 18-hole golf course, which surrounds much of the Laguna Salada wetland complex. Winter rains that fall in Sharp Park's watershed naturally flow into the Laguna Salada wetland complex, but the golf course's construction, combined with the subsequent construction of an earthen berm along Sharp Park's coastline, prevent this water from flowing to the ocean.

Due to the poor design and placement of Sharp Park golf course and the earthen berm, winter rains flood Sharp Park annually. Rec and Park installed and operates two pumps at the Laguna Salada wetland complex to drain the wetlands during winter rains. Draining the wetland complex causes several significant environmental affects, including killing rare and endangered species; altering the hydrology of the wetland system; changing the composition of aquatic vegetation on the site from species that require deep water to those that grow best in shallow water; and conversion of open water habitats to dry land and/or shallow wetlands.

Water flowing to the pumps is impeded by the overgrowth of aquatic vegetation, and the pumps cannot operate at full capacity. In implementing this Project, Rec and Park plans to dredge the wetland complex and remove sediment and vegetation, which will have clear impacts to water quality and on species, including the federally protected Frog and Snake.

The Certification failed to address the Project's direct, indirect, and long-term effects that will degrade the beneficial uses of water bodies at Sharp Park, including Laguna Salada and Horse Stable Pond, resulting in adverse impacts to the waters of the State that were not described in the application nor addressed by the Project's monitoring and mitigation plan. Wild Equity brought these deficiencies to the Regional Board's attention during the public comment period for the Project, submitting extensive written comments on March 18, 2013, attached as Exhibit A. However, those concerns were not fully addressed in the final Certification, and Wild Equity respectfully requests that the State Board review the record and reconsider the Regional Board's Certification decision.

III. DECISION FOR WHICH WILD EQUITY SEEKS RECONSIDERATION

Wild Equity received notice on June 26, 2014 from Katie Hart, Water Resource Control Engineer with the Regional Board, that the Regional Board finalized the Certification for the Project. Ms. Hart then sent a copy via electronic mail of the Certification decision, dated June 25, 2014 and signed by Bruce H. Wolfe, Executive Officer with the Regional Board. Mr. Wolfe states:

> I hereby issue an order certifying that any discharge from the referenced Project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification.

The document then listed 22 General Conditions associated with the Certification. The Certification (including attachments) is herein attached as Exhibit B.

IV. THE DECISION WAS INAPPROPRIATE AND IMPROPER

The decision by the Regional Board to issue the Certification to Rec and Park was inappropriate or improper because the Regional Board abused its discretion by failing to consider readily available and substantial evidence that Rec and Park's Project did not satisfy all legal standards for 401 certification and by improperly issuing the Certification despite such evidence.

V. MANNER IN WHICH WILD EQUITY IS AGGRIEVED

Wild Equity, its members, its staff, and its Board of Directors have long-standing interests in preserving water quality at the Laguna Salada Wetland complex and protecting habitat for the Frog and Snake at Sharp Park.

The action of the Regional Board in issuing the Certification aggrieves Wild Equity, its members, staff, and Board of Directors. The Project will result in direct and long-term negative consequences for the water quality at Laguna Salada and Horse Stable Pond and for the imperiled Frog and Snake that depend those water bodies. As such, Wild Equity is entitled under California Water Code Section 13320 and California Code of Regulations, Title 23, Section 3867 to challenge an inappropriate and improper decision by the Regional Board to certify a Project that is not in compliance with the law.

VI. STATEMENT OF POINTS AND AUTHORITIES

As explained in Wild Equity's comments to the Regional Board and again below, the Project will have a major impact on water quality and beneficial uses, and those impacts are not properly mitigated. Wild Equity offered detailed analyses on these impacts with supplemental comments from Dr. Peter Baye, an expert in coastal ecology and water quality, and suggested further testing. Although the Regional Board stated that testing was conducted on sediment, it

cited no data, methods, sampling locations, sample size, or reports to support its assertion that "the potential for acid sulfate soils to be present in the Project area is expected to be low." Exhibit B, Certification pg 5. Water quality data found in a technical memorandum ("Memo"), which became available to Wild Equity only after a request to review the completed record, does not support the Regional Board's conclusions. Exhibit C, Tetra Tech Memo.

A. The Project will have a major impact on water quality and beneficial uses.

Wild Equity argued in its comment letter to the Regional Board that the Project will negatively impact the beneficial uses of the water bodies at Sharp Park, including the rare and endangered species and wildlife habitat beneficial uses. The Project's proposed dredging activities at Laguna Salada and Horse Stable Pond threaten water quality and species in a variety of ways, but most importantly through the resuspension of sulfide, which can cause mortality to wildlife in the water, changing the population and community ecology in the area. Sulfide and Population and Community Ecology are water quality objectives that can be found in the San Francisco Bay Basin Plan. As Wild Equity pointed out, the impacts to those areas are significant enough that the Regional Board should have refrained from issuing the Certification until such time that Rec and Park properly addressed those issues through further testing or allowed the public to view and comment on any results of further testing.

The Regional Board acknowledges that the Project will result in an increase in turbidity in Horse Stable Pond and the connecting channel, that the sediment in those water bodies may contain sulfides, and that excavation may suspend sulfidic soils in the water column and expose those soils to aerobic conditions. Further, the Regional Board acknowledged that resuspension of anoxic sulfide sediments could cause low oxygen conditions and the production of sulphuric acid in the water, which would result in a decrease in pH and dissolved oxygen in the water, thus causing negative impacts to species. However, for reasons that are unclear, the Regional Board states that the "impacts to water quality and beneficial uses from the exposed sediments are expected to be minimal and temporary." Certification p. 5.

The Basin Plan states that "all water shall be free from dissolved sulfide concentrations above natural background levels." Basin Plan 3.3.15 at p. 79. The Basin Plan also states that "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors." *Id.* at 78.

There is no indication in the Basin Plan that raising the sulphide concentrations above natural levels or producing significant ecological alterations at the site would be acceptable for any amount of time, even temporarily, as the Regional Board seems to suggest. As suggested by Wild Equity in its comment letter to the Regional Board, further testing of sediment and water quality for sulfides should have been completed before the Project was certified. If the Regional Board did in fact conduct further testing following Rec and Park's application, those results should be made available for public review and comment.

B. The Project's impacts are not properly mitigated.

The mitigation measures presented in the Rec and Park's application and the final Certification are not sufficient to mitigate the resuspension of anoxic sulfide sediments, which can cause low oxygen conditions and production of sulphuric acid in the water. The Regional Board is allowing the Project to move forward despite the clear evidence that these impacts will occur. Even in a short period of time, these conditions can have devastating impacts on species.

Dr. Baye's analyses, presented to the Regional Board by Wild Equity and included as herein as Exhibit D, showed that hypoxia and associated pulses of toxic ammonia and sulfides in anoxic sediment dispersed in suspended sediment plumes can be lethal to wildlife during and following dredging. Exhibit D, pgs. 2, 13-15. The Fish and Wildlife Service's Biological Opinion on the Project concurred with Dr. Baye's analyses, stating that "resuspension of

anoxic hydrogen sulfide sediments may result in pulses of low oxygen conditions in Horse Stable Pond which could cause mortality of California red-legged frog larvae and juveniles."[1]

However, the Rec and Park's attempts to mitigate impacts to species by time-shifting the dredging to the warmest parts of the year could result in further impacts. Dredging during the proposed time window would in fact maximize harmful anoxic conditions because they would occur during the warmest times of the year, yet the Regional Board failed to consider the inadequacy of Rec and Park's plan. In addition, there is no data to support that listed species are not present during the times that the Project proposes to create anoxic, sulfidic conditions at Sharp Park, and there are other plant and animals species besides the Frog and Snake that the wetland complex must protect throughout the year.

C. The Regional Board Failed to Consider Substantial Evidence

Despite the fact that the Project will have a major impact on water quality and species, and that Rec and Park's mitigation plan is deficient, the Regional Board is allowing the Project to move forward. Not only is the Regional Board disregarding the clear impacts that will result from the Project, but it also completely ignores other potential impacts without providing the public with the results of any new testing. Following this decision, Wild Equity requested access to the record under the Public Records Act. The aforementioned Tetra Tech Memo found in the record alluded to further testing that was conducted as a basis for the water quality evaluation, however the Regional Board failed to make clear whether it had actually evaluated the data found in the Memo. Exhibit C, Tetra Tech Memo.

The water quality testing explained in the Memo was flawed in several ways. Samples reporting low organic matter content are inconsistent with the Horse Stable Pond dredging location for the Project, where organics accumulate and are one of the primary reasons proposed for dredging – suggesting that the sample locations were either in sandy areas (west shore) or

[1] Fish and Wildlife Service, Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project Biological Opinion (Oct 2012) at p.31.

other accessible drawdown areas with little or no vegetation. It is still unknown to Wild Equity and the public in general where the testing occurred, and thus there has been no meaningful opportunity to evaluate the data. In addition, the Memo refers to "sulfate" instead of "sulfide" in bottom sediment core. Sulfate is formed in drained wetland or aerobic aquatic conditions, not saturated aquatic anoxic sediment cores. Either the report omitted sulfide from analysis, or it is incorrectly referred to. The Memo also indicates a basic misunderstanding of natural versus anthropogenic sulfur source. The Memo attributes the sulfur source to anthropogenic upland sources despite the lagoon having 2-4 ppt salinity with seawater influence and superabundant sulfate anions in the seawater source. Exhibit C, Tetra Tech Memo p. 2. A 2009 Tetra Tech alternatives report regarding the Sharp Park site clearly identified the seawater source of salinity in the lagoon, and sulfate is the second most abundant anion in seawater after chloride. Finally, the Memo indicates no understanding of relationship between pH decrease and sulfide oxidation to acid sulfate.

The Project application did not satisfy the legal standards for 401 certification because it does not meet the requirements under state law for water quality and beneficial uses, as explained above. Therefore, the Project should not have been certified and the Regional Board abused its discretion in issuing the Certification.

VII. SPECIFIC ACTION WILD EQUITY REQUESTS OF THE STATE BOARD

Wild Equity respectfully requests that the State Board: (1) accept this Petition for Review and Reconsideration; (2) set aside the Regional Board's decision to issue the Certification; and (3) direct the Regional Board to deny Rec and Park's Certification application until such time as Rec and Park corrects the deficiencies in its application noted by Wild Equity during the public comment period.

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VIII. OTHER INTERESTED PERSONS

Persons interested in this Petition may include the San Francisco Public Golf Alliance. Other than the public generally, Wild Equity is not aware of any other persons with an interest in the subject matter of the Petition.

IX. THIS PETITION WAS SENT TO THE REGIONAL BOARD AND PROJECT SPONSOR

A true and correct copy of this Petition for Review and Reconsideration was sent to the Regional Board and to the Project sponsor San Francisco Recreation and Parks Department via U.S. mail on July 24, 2013. The copies were sent to the attention of Bruce H. Wolfe, Executive Officer with the Regional Board, and Katie Hart, Water Resource Control Engineer with the Regional Board as well as Phil Ginsberg, Director of Rec and Park, and Lisa Wayne, Natural Areas Manager at Rec and Park.

X. PETITIONER WILD EQUITY INSTITUTE'S REQUEST TO PREPARE RECORD

A true and correct copy of Wild Equity's Request to Prepare the Record is attached as Exhibit E to this Petition. In addition, on June 27, 2014, Wild Equity sent a request to the Regional Board via electronic mail under the California Public Records Act for the entire Administrative Record for the decision challenges herein. The request was sent to the appropriate public records custodian with the Regional Board. The request was fulfilled by the Regional Board and the subsequent results of the record review are included in this Petition.

XI. SUMMARY OF WILD EQUITY'S INVOLVEMENT IN THE PUBLIC PROCESS

Wild Equity availed itself of every opportunity to engage and participate before the Regional Board. On March 18, 2013, Wild Equity filed substantial written comments on Rec and Park's application to the Regional Board. Exhibit A. Those substantive issues or objections raised in the comments are included herein. This Petition has been filed because, despite Wild

Equity's good faith effort to bring attention to the water quality and species impacts associated with the Project, the Regional Board ignored Wild Equity's comments and improperly issued the Certification.

Respectfully submitted,

July 24, 2014

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EXHIBIT A

WILD Equity
INSTITUTE

Building a healthy and sustainable global community for people and the plants and animals that accompany us on Earth

March 18, 2013

Katie Hart
California Environmental Protection Agency
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

Re: Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project Application for 401 Water Quality Certification and/or Report of Waste Discharge

Dear Ms. Hart:

On behalf of the Wild Equity Institute and Surfrider Foundation, we submit these comments to inform and guide the San Francisco Bay Regional Water Quality Control Board's (Water Board) review of the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project's (Project) application for a 401 Water Quality Certification (Certification).

We have carefully reviewed San Francisco Recreation and Park Department's (Department) application for the Project, as well as the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) and available water quality data on the Sharp Park area. These reviews indicate that the Project's direct, indirect, and cumulative effects will degrade the beneficial uses of water bodies within the Sanchez Creek Watershed, including Laguna Salada and Horse Stable Pond, resulting in adverse impacts to the waters of the State that are not described in the application nor addressed by the Project's monitoring and mitigation plan. Thus, Certification should be denied.

This letter discusses the areas affected by the Permit application, the protections offered by the Basin Plan for the area, and the ways the Project's activities will undermine these protections.

San Francisco Bay Region Basin Plan

An application for a 401 Permit must provide sufficient information for the Water Board to determine whether the project complies with State water quality standards and will not result in adverse impacts to waters of the State.[1] The Basin Plan defines the State water quality standards, which include beneficial uses, water quality objectives, anti-degradation policies, and general policies for protecting waters of the State.[2]

The State must specify appropriate water uses to be achieved and protected. These appropriate, or beneficial uses, "must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural,

[1] California Regional Water Quality Control Board, Instructions for 401 Water Quality Certification Application 1, available at http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/401_certs/401appinstructions_2009.doc.
[2] 40 C.F.R. 131.

industrial, and other purposes including navigation."[3] As one California Regional Board describes, beneficial uses are "the uses of water necessary for the survival or well-being of man, plants, and wildlife."[4] The Basin Plan's designated beneficial uses include (1) the preservation of rare and endangered species and (2) wildlife habitat.[5]

Although the specific water bodies affected in Sharp Park—namely Sanchez Creek, Laguna Salada, Horse Stable Pond, and the associated wetland complex—are not given specific beneficial uses in the Basin Plan, wetland complexes with similar characteristics do have designated beneficial uses, and are applicable to the water bodies at Sharp Park.[6]

Pescadero Marsh and Rodeo Lagoon are two such locations.[7] Like the Sharp Park wetlands, beneficial uses for Pescadero Marsh and Rodeo Lagoon include wildlife habitat and the preservation of rare and endangered species.[8] For water bodies supporting wildlife habitat, the two most important types of wildlife habitat, riparian and wetlands, can be threatened by development, erosion, and sedimentation, as well as by poor water quality.[9] For water bodies supporting preservation of rare and endangered species, the water quality criteria to be achieved must encourage development and protection of rare and endangered species and should be the same as those for protection of fish and wildlife habitats generally.[10] In addition, Water quality objectives in the Basin Plan provide both detailed numerical standards and general descriptions of water quality that must be attained through pollutant control measures and watershed management.[11] The Basin Plan provides a list of water quality objectives, including sulfide and population and community ecology, among others, that are applicable here.[12] This letter describes the potential impacts of the Project to those beneficial uses and objectives below.

Potential significant impacts

Laguna Salada, covering approximately 25 acres, is the main water body in Sharp Park. Laguna Salada is separated from the ocean by a berm and provides habitat for various plants and animals, including the fully protected and endangered SFGS, and the threatened CRLF.[13] The smaller Horse Stable Pond is located south of Laguna Salada, but at one time these two bodies comprised a single, large back barrier lagoon—before

[3] 40 C.F.R. 131.10.

[4] San Diego Regional Water Quality Control Board, 401 Water Quality Certification Frequently Asked Questions 1, available at http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/401_certification/docs/401_FAQ_FINAL.pdf.

[5] Basin Plan 2.1.20 at p.15 (Wildlife Habitat "support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl."); Basin Plan 2.1.14 at p.13 (Preservation of Rare and Endangered Species "support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.")

[6] See Basin Plan at Figure 2-4a at p.28 for water body locations. Horse Stable Pond and Laguna Salada are visible between Milagra Creek and Calera Creek.

[7] Horse Stable Pond and Laguna Salada are fresh to brackish non-tidal coastal water bodies. The Basin Plan incorrectly describes Pescadero Marsh as a fresh water wetland and as a salt water wetland, and Rodeo Lagoon as a salt water wetland, even though both are more aptly described as brackish. These inaccuracies should be addressed in future editions of the Basin Plan. However, this error is irrelevant here, where the Water Board must simply compare beneficial uses and water quality objectives at Sharp Park.

[8] Beneficial Uses for Pescadero Marsh and Rodeo Lagoon *wetlands* are located Basin Plan Table 2-4 at p.74. (Note, the wetlands table does not list preservation of rare and endangered species for Rodeo Lagoon. However, Rodeo Lagoon is also listed as a *surface water*, for which preservation of rare and endangered species is a designated beneficial use. See Basin Plan Table 2-1 at p. 50.)

[9] Basin Plan 2.1.20 at p. 15.

[10] Basin Plan 2.1.14 at p. 13.

[11] Basin Plan 3.1 at p. 75.

[12] See generally Basin Plan Chapter 3: Water Quality Objectives at pp. 75-82.

construction of Sharp Park Golf Course filled the wetland complex and separated these two bodies. There remains a connecting channel between Horse Stable Pond and Laguna Salada, and Horse stable Pond is also hydrologically connected to Sanchez Creek, which has been channelized in several areas by golf course construction.

The Project will negatively impact the beneficial uses of the water bodies at Sharp Park, including the rare and endangered species and wildlife habitat beneficial uses. Dredging activities at Laguna Salada and Horse Stable Pond threaten the CRLF and the SFGS in a variety of ways, but most importantly through the resuspension of sulfide, which can cause mortality to wildlife in the water, changing the population and community ecology in the area. Sulfide and Population and Community Ecology are water quality objectives that can be found in the Basin Plan and should be considered by the Water Board.

Sulfide

The Project has potential significant negative impacts from dredging activities. Of particular concern are the potential significant negative impacts on wildlife species from suspended sulfides, contrary to the water quality standards for sulfides that are applicable to the Sharp Park water bodies.

The Basin Plan states that "all water shall be free from dissolved sulfide concentrations above natural background levels." Further, it states "sulfide occurs in Bay muds as a result of bacterial action on organic matter in an anaerobic environment. Concentrations of only a few hundredths of a milligram per liter can cause a noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment."[14]

The potential for the Project to cause rapid oxidation of sulfides and the formation of acid sulfates and iron oxides during and after excavation and dredging of the known high sulfide sediments at Sharp Park needs to be addressed. However, the Project application does not address this concern except to suggest that it will avoid impacts to protected wildlife by time-shifting the dredging to the warmest parts of the year. As explained below, this provision is inadequate because (1) the water and sediments should be tested for sulfide, ammonia, and oxidation products such as acid sulfates, before any dredging occurs to create a baseline of information, and no such testing has yet been conducted; (2) dredging during the proposed time window would in fact maximize harmful anoxic conditions because they would occur during the warmest ties of the year; (3) there is in fact no data to support that listed species are not present during the times that the Project proposes to create anoxic, sulfidic conditions at Sharp Park, and (4) there are other plant and animals species besides CRLF & SFGS that the wetland complex must protect throughout the year.

As Dr. Peter Baye observed in his various analyses of the Project,[15] hypoxia and associated pulses of toxic ammonia and sulfides in anoxic sediment dispersed in suspended sediment plumes are potentially lethal to wildlife during and following dredging.[16] The Fish and Wildlife Service's (Service) Biological Opinion on the Project concurred with Dr. Baye's analyses, stating that "resuspension of anoxic hydrogen sulfide sediments may result in pulses of low oxygen conditions in Horse Stable Pond which could cause mortality

[13] Kamman Hydrology & Engineering, Inc., Report for the Hydrologic Assessment and Ecological Enhancement Feasibility Study: Laguna Salada Wetland System, Pacifica, California (Mar 2009) at p.1.
[14] Basin Plan 3.3.15 at p. 79.
[15] Peter Baye, Sharp Park Conceptual Restoration Alternatives Report Technical Review and Comments (Nov 2009) at p.4; Baye, Critical Review of BA at pp.3-4.
[16] ESA PWA, et al., Conceptual Ecosystem Restoration Plan and Feasibility Assessment: Laguna Salada, Pacifica, California (Feb 2011) at pp.170-171; Peter Baye, Critical Review of the Biological Assessment for the Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project (May 2012) at pp.3-4 ("Baye, Critical Review of BA").

of California red-legged frog larvae and juveniles."[17] In apparent response, the Application suggests that limiting dredging to a June 1 through October 31 time window will minimize the likelihood that *adult or juvenile* CRLF will be present and harmed by these anoxic sulfide conditions (emphasis added). However, CRLF *larvae* (i.e., tadpoles) can and do overwinter at Sharp Park, and therefore are likely present during the entire year, including from June through October. This is also true for adult and juvenile frogs—in addition to other wildlife species, including SFGS, that are protected by a separate beneficial use for the Sharp park water bodies.

Further, the proposed dredging period coincides with the warmest water temperatures in Laguna Salada and Horse Stable Pond. As water temperature rises, water loses the ability to hold dissolved oxygen, and oxygen concentration is reduced. As a result, the water is more susceptible to adverse hypoxic and anoxic byproducts, such as a toxic iron sulfide, caused by the proposed dredging activity. Therefore, the proposed time window is not adequate to prevent the degradation of either RARE or WILD beneficial uses, because wildlife protected by these standards are present throughout the year.

Population and Community Ecology

The Basin Plan also states that "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors."[18]

From the above information, it is clear that both dredging and pumping activities have the potential to significantly alter population and community ecology of these water bodies. The sulfide condition in the water is a controllable factor that will be altered through human activities in the area, and it is likely that those conditions will differ significantly from other areas that avoid those activities. Testing sediment and water quality for sulfides and related metrics before the project is certified would give greater insight into the Project's potential impacts, but this information is not present in the Application. Therefore, Certification should be denied.

Long-term impacts

Wild Equity Institute and Surfrider Foundation are also concerned about the potential long-term impacts of the Project, including the impacts of rising sea levels and climate change, the necessity for further dredging and sediment disturbance, and changes in groundwater levels caused by pumping. If not properly addressed, these interactions can cause long-term degradation of the wetlands and endangered species habitat, undermining any alleged short-term enhancement of beneficial uses.

For example, long-term increases in salinity intrusion (salt seepage) through the groundwater interface between Sharp Park's wetland complex and the Ocean due to pumping—exacerbated by sea level rise which will slowly increase the level of the ocean to elevations higher than Sharp Park's wetland complex—need to be considered through the 401 certification process. This concern, noted in the attached study by ESA-PWA and Dr. Peter Baye's comments, are relevant to the 401 inquiry because the ultimate purpose of the Project is to increase the rate at which Sharp Park's wetlands are drained by the pumping operations. But this will also enhance the pull of saline waters into Sharp Park, changing the ecological conditions of the area over time. The Application is completely devoid of any consideration of this impact on beneficial uses of the water bodies.

[17] Fish and Wildlife Service, Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project Biological Opinion (Oct 2012) at p.31 ("Biological Opinion").
[18] Basin Plan 3.3.8 at p. 78.

Moreover, the Department's pumping of Laguna Salada is the cause of growth of emergent vegetation such as cattails and tules, which only grow in relatively shallow waters. Instead of responding to this issue by dredging, the Department should end its practice of draining Sharp Park's lagoons to low levels. Allowing water levels to rise naturally will create inhospitable conditions for tules and cattails, without the negative consequences on beneficial uses that are inevitable with dredging areas with anoxic sediments. Until the Department's practice of draining Sharp Park's wetlands to low levels has ended, dredging projects such as those proposed here will become an ongoing component of wetland and water body management at Sharp Park. These alternatives and long-term permitting processes must be considered by the Water Board as part of this Certification request, and because the Application does not provide sufficient information for Certification in light of these concerns, the Certification request must be denied.

Other Legal Requirements

The SFGS, in addition to being protected as an endangered species under California and Federal Endangered Species Acts, is also a Fully Protected Species in the state of California. This law prohibits any take of listed species for any reason, with no ability to obtain a permit, except for instances of bonafide scientific research or restoration and recovery actions.

The Project is not a research, recovery, or restoration activity, and therefore a Fully Protected Species take permit cannot be issued. The Department of Fish and Game has explained that dredging in this area will be "very difficult to dredge in inundated areas and avoid take of SFGS."[19] Even "negligible" levels of take cannot be permitted under this law. The Board must include consideration and the application of other regulatory laws during this process, and because take of SFGS cannot be determined to be zero, the inability to meet the Fully Protected Species law's requirements should counsel the Water Board to deny certification here.

Proposals

Dredging anoxic sediments in the aquatic habitat of the CRLF and SFGS can significantly degrade habitat conditions for rare and endangered species and other wildlife, and these impacts are exacerbated by the Project's proposed measure to conduct dredging during the warmest part of the year.[20] The water quality impacts of excavation and dredging activities in brackish wetlands such as Laguna Salada and Horse Stable Pond should be evaluated for sulfidic, anoxic (ecotoxic) brackish marsh sediments, and potential for hypoxia events and subsequent acid sulfate formation before certification is granted.[21]

Testing would determine the pre-existing lagoon bed sediment sulfide levels (hydrogen sulfide, iron sulfide) in bottom sediments of Laguna Salada within areas proposed for excavation or dredging. Using this data, the potential for rapid oxidation of sulfides and formation of acid sulfates and iron oxides during and after excavation and dredging of high sulfide sediments can be more adequately assessed.

In addition, the Department does not know how significantly pumping activities contribute to the exposure of anoxic sediments to the air, or the long-term ecological conditions on the site. The Water Board should order further testing to better understand these impacts, before the Project moves forward.

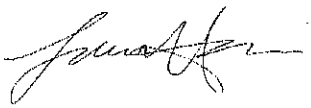
In conclusion, there is simply not enough information in the Application for the Water Board to conclude that Certification should be granted given the unaddressed impacts noted here. Wild Equity and Surfrider

[19] DeLeon, Suzzane, attached.
[20] Baye, Critical Review of BA at pp. 3-4.
[21] Baye, Critical Review of BA at p. 29.

Foundation therefore urge the Water Board to deny the Department's Permit Application and demand further testing of water bodies in light of these concerns.

Thank you for consideration of our comments.

Sincerely,



Laura Horton

EXHIBIT B

California Water Boards

Edmund G. Brown Jr., Governor

Matthew Rodriguez, Secretary for Environmental Protection

San Francisco Bay Regional Water Quality Control Board

June 25, 2014
Site No. 02-41-C0750
CIWQS Place ID No. 787892
ACOE File No. 2011-00338S

Sent via electronic mail: No hardcopy to follow

SF Recreation and Parks Department
Mclaren Lodge
501 Stanyan Street
San Francisco, CA 94117

Attention: Phil Ginsburg (philip.ginsburg@sfgov.org)

Subject: 401 Water Quality Certification for the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project, City of Pacifica, San Mateo County

Dear Mr. Ginsburg:

San Francisco Bay Regional Water Quality Control Board (Water Board) staff have reviewed the application materials submitted by the San Francisco Recreation and Parks Department (SFRPD)(Applicant) for the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project (Project). The Project was authorized by the U.S. Army Corps of Engineers (Corps) pursuant to the Clean Water Act (CWA) Section 404 Nationwide Permits (NWP) No. 3 (*Maintenance*) and 25 (*Structural Discharges*). You applied to the Water Board under Section 401 of the CWA for water quality certification (Certification) verifying that the Project does not violate State water quality standards.

Project Site Description: The Project is described in the application that was received by the Water Board on November 2, 2012, as updated by a revised application received on January 14, 2014 (Application). The Application includes a biological assessment titled, *Biological Assessment, Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project* (Recreation and Park Department, City of San Francisco, May 16, 2012)(*Biological Assessment*), and a mitigation and monitoring plan described in two documents, the *Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project, 2013 Habitat Mitigation and Monitoring Plan* (SFRPD, updated January 9, 2014), and the *Habitat Restoration Plan for the Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project* (SFRPD, September 25, 2013) (See Attachment 2 to this Certification).

Sharp Park is a public park located in the City of Pacifica in San Mateo County. The park is about 417 acres, and is bordered by a seawall and the Pacific Ocean to the west and by residential development to the north and south. The Golden Gate National Recreation Area, which is managed by the National Park Service, borders the park to the south and east. The Pacific Coast Highway (Highway 1) also transects the park.

The park contains an 18-hole golf course, about 27 acres of wetlands, an archery range, a remediated former rifle range, a clubhouse, parking lot, and extensive natural areas (See Figure 2 in Attachment 1 to this Certification). The Project will occur at the Sharp Park Golf Course, which is located west of Highway 1 and where the wetlands complex is located. The wetlands complex is composed of Laguna Salada (LS), Horse Stable Pond (HSP), a channel that connects the two water bodies, and adjacent wetlands. Sanchez Creek enters HSP from the east and surface water from Mori Point likely enters from the South. In addition to watershed drainage, the area also receives runoff from the highway, residential streets of Pacifica, undeveloped areas managed by the Golden Gate National Recreation Area, and surrounding subdivisions constructed after the golf course (See Figure 4 in Attachment 1 to this Certification). The area historically existed as a brackish lake, which is now predominantly occupied by the lower golf course. The watershed originally drained by gravity into the ocean through a sandy barrier dune that seasonally formed along the beach. The seawall along the western side of the wetlands complex was originally constructed between 1941 and 1952. The seawall eliminated the historic hydrologic connection between the Pacific Ocean and the wetlands complex, and the marine influenced lake was transformed into a fresh water wetland.

LS, the main component of the wetland complex, covers about 27 acres and consists of an open water pond and adjacent emergent wetland. The bottom elevation of the lagoon ranges from 0 to 2.5 feet and the water depth is up to 7.5 feet under normal conditions. HSP is located at the southern end of the wetland complex and consists of an open water pond and a freshwater wetland. It extends between the shoreline levee on the west and about 500 feet east to a housing subdivision. HSP is smaller and shallower than LS, with bottom elevations ranging from 3 to 5 feet and typical water depths ranging from 1 to 3 feet. The channel that connects LS and HSP is about 1,000 feet long and allows for bidirectional flow under most water levels. The true bottom of the channel is about 3 feet, but dead and decaying vegetation have raised the functional floor and provides a platform from which rooted emergent vegetation grows. Removal of sediment in the connecting channel between SHP and LS was reported to have occurred more than 10 years ago. The wetlands are believed to be maintained by groundwater but are also fed by surface water inflow due to precipitation and flows from Sanchez Creek.

A flood control pump system was installed in HSP in 1941 to control the water levels by pumping water out to the ocean. The pump affects water levels in HSP, as well as LS when water levels are high enough to create a surface water connection through the channel. The pump system consists of a large pump that pumps 10,000 gallons per minute (gpm) and a small pump that pumps 1,500 gpm. The pumps are located in a

pumphouse within HSP, with pipes built through the seawall to an outfall leading to the ocean. The pumps sit in a wet well and are controlled by electric probes, which are adjustable and set by SFRPD engineers. A gauge board is mounted to the outside of the pumphouse that allows monitoring of the water levels. Pumping takes place primarily during the rainy season between November and May. In accordance with a compliance plan developed in 2009, the Director of the Natural Areas Program determines whether and when the pumps are operated and communicates target water levels to an SFRPD Stationary Engineer that adjusts the pump setting accordingly. Currently, the operation of the pumps is adversely affected by two factors: the buildup of vegetation on the pump intake screens and sediment buildup and vegetation growth around the pump intake structure and along the connecting channel between LS and HSP. Daily maintenance can be necessary during the rainy season, and is often necessary when the pumps are being operated during or immediately after storm events. Currently, there is no safe working area around the pumps, and clearing the screens requires simultaneously lifting a chain link fence. The screen is metal mesh with holes measuring about 1-inch by 0.5-inch.

Operation of the flood control pump system is necessary to manage floodwaters both on the golf course property and on adjacent properties. During normal rainfall years, floodwaters that flow to LS back up onto the golf course path. During heavy rainfall years, extensive flooding can occur in areas of play on the golf course and can also threaten adjacent residential areas. Flooding of the golf course affects the playability of the course as well as golf course maintenance activities. In past years, flooding on the course has rendered entire holes or portions of holes unplayable including holes 9, 12 and 14. Flood waters back up onto the course such that players cannot access greens and tees and holes are shortened to avoid flooded areas. Operationally, the course cannot be mowed or otherwise maintained under flooded conditions.

The wetlands complex is currently supported by freshwater flows that are generated by the Sanchez Creek watershed and adjacent area. However, sea level rise caused by climate change may increase the intrusion of saline water into HSP and LS, and result in conversion of the water bodies to more brackish conditions.

Project Description: The purpose of the Project is to ensure the ongoing operation of the pump system, ensure worker safety when operating and maintaining the pump, replace minor infrastructure, and expand existing California red-legged frog (*Rana draytonii*) (CRLF) habitat. Construction for the Project will involve removal of sediment and emergent vegetation, installation of steps and walkway around the pump system, replacement of a failing wooden retaining wall next to the pumphouse, and repair of one cart path (See Figure 5 in Attachment 1 to this Certification).

Removal of sediment and vegetation: Sediment and emergent vegetation will be removed within HSP in order to improve water flow to the pump intake. Excavation will occur over a 0.14 acre area, of which 0.05 acres is occupied by cattails and bulrush. Vegetation will first be trimmed down to 4 inches by hand, and the remaining vegetation will be removed using a bucket with a thumb. Suction hydraulic equipment may be used

in consultation with USFWS and the California Department of Fish & Wildlife (CDFW) to minimize the disturbance of sediments in the water. Excavation around the pumphouse will require temporary wetland impacts for the creation of an equipment access route through the jurisdictional wetland on the north side of HSP. Sediment and vegetation will also be removed from sections of the connecting channel that impedes water flow. The removal of sediment and cattails (*Typha angustifolia*) and bulrush (*Scirpus americanus*) will create open water habitat that will provide breeding habitat for CRLF. A compact multi-purpose aquatic vessel or similar equipment with a long boom and clam shell will be used for sediment and vegetation removal. To reduce impacts to listed species the water level of HSP and the connecting channel may be lowered through the use of the existing pumps, or other dewatering methods in consultation with USFWS and CDFW.

Construction of steps and walkway: Steps will be built from the access road to the pumphouse and intake structure. A fence with a locking gate will restrict access to the steps and pumphouse. A walkway, approximately 42 feet long and 4.9 feet wide, around the front of the pumphouse will be constructed of wood and supported by approximately two concrete filled pipe piles to be placed in the water. Cylindrical metal casings will be installed in the water, and the inside of the casings will be dewatered and excavated. The casings will then be filled with concrete and rebar. If possible, a secondary screening system will be installed below the walkway surface and between the pilings to further reduce the amount of detritus that can enter the pump area. The secondary screening system would be similar to the existing screens.

Replacement of wooden retaining wall: A wooden retaining wall exists next to the pumphouse, at the base of the slope between the uplands and wetland. The existing wall will be replaced with a concrete or wood retaining wall to prevent further soil deposition from the uplands from entering the waterway. The new retaining wall will installed within the existing retaining wall footprint, which is about 12 feet long and 5 feet high.

Repair of cart path: The portion of the golf cart path that regularly floods is located in a low lying depression, so water does not drain to LS and ponds on the pathway. About 100 linear feet of the existing section will be removed and the golf cart path will be realigned away from the wetland and into the golf course (See Figure 6 in Attachment 1 to this Certification).

Impacts: Project activities include removal of sediment and vegetation within HSP and the connecting channel, as well as the construction of structures that will facilitate screen cleaning associated with the pumphouse. Excavation will convert vegetated wetland to open water habitat. Project impacts are summarized in Table 1 below.

Project implementation will result in a temporary increase in turbidity in HSP and the connecting channel. The sediment in HSP and the connecting channel may contain sulfides, and excavation may suspend sulfidic soils in the water column and expose these soils to aerobic conditions. Resuspension of anoxic sulfide sediments may result

in low oxygen conditions and the production of sulfuric acid in the water. This condition generally will cause a decrease in pH and dissolved oxygen in the water, and impacts to aquatic species could occur as a result.

Sediment core samples from the Project site have been collected and analyzed to determine the potential for formation of acid sulfate soils and anoxic conditions in the water column. Based on the results, the potential for acid sulfate soils to be present in the Project area is expected to be low. However, if suspended sulfidic soils result from the disturbance of the sediments, anoxic conditions would be expected to be short term and temporary. Therefore, impacts to water quality and beneficial uses from the exposed sediments are expected to be minimal and temporary. In order to verify that post-Project water quality conditions are similar to pre-Project conditions, prior to and during sediment and vegetation removal and for the six weeks following, pH levels of water immediately above the sediment and in the connecting channel will be monitored to determine if there is any significant change in water quality conditions. Remediation measures, such as the addition of lime or injection of sodium nitrate, will be implemented after approval by the resource agencies if monitoring results indicates they are necessary.

Table 1

	Amount of Dredge or Fill Material	**Surface Area Impacted**
Permanent Impacts		
Construction of walkway around pumphouse	2 CY of concrete & steel	4 SF
Replacement of wooden retaining wall	0.4 CY of concrete or wood	6 SF
Temporary Impacts		
Removal of sediment and vegetation from HSP	435 CY	0.14 acres (5,900 SF)
Removal of sediment and vegetation from connecting channel	480 CY	0.15 acres (6,500 SF)
Creation of access path to HSP	Soil disturbance associated with equipment access	700 SF
Totals	917.4 CY	0.30 acre (13,110 SF)

CY = cubic yards
SF = square feet

Special Status Species: CRLF and San Francisco garter snake (SFGS)(*Thamnophis sirtalis tetrataenia*) are known to occur within the Project site. The Corps requested a formal consultation with the U.S. Fish and Wildlife Service (USFWS), and the effects on the species are summarized in the *Formal Endangered Species Consultation on the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project* (USFWS, October 2, 2012) (*Biological Opinion*). The *Biological Opinion* includes two

parts: (1) the construction action; and, (2) golf course maintenance and operations. The Project is intended to ensure ongoing operation of the pumps in HSP, which enables golf course operations by lowering water levels in HSP and LS during winter storm conditions that would otherwise flood the golf course and render portions of holes unusable. Accordingly, the *Biological Opinion* concluded that the operations and maintenance portion of the golf course is considered interdependent and interrelated to the construction action. The *Biological Opinion* is included in the Attachment to this Certification.

Construction: Project construction will occur during the non-breeding period for CRLF to minimize impacts to the species. Most Project construction activities such as noise, vibration, and increased human activity may interfere with normal behaviors such as feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors.

The CRLF is a critical food source for the SFGS. The SFGS prefers vegetated ponds with an open water component near open hillsides. Foraging areas for the SFGS exist in freshwater aquatic habitats where CRLF are present, and include Sanchez Creek, LS, and HSP. One of the primary purposes of the Project is to convert a portion of the freshwater wetland dominated by bulrush and cattail to open water habitat. Open water habitat is critical for CRLF breeding and the overall Project will have long term beneficial effects on the two species.

USFWS anticipates that both species in the 0.624 acres within the HSP construction site will be subject to incidental take: the CRLF in the form of harassment and capture and the SFGS in the form of harassment. Provided that the reasonable and prudent measures outlined in the *Biological Opinion* are taken, USFWS concluded that the level of anticipated take is not likely to result in jeopardy to the CRLF or SFGS.

Golf Course Maintenance & Operations: The *Biological Opinion* covers incidental take over a 10-year period for implementation of golf course maintenance. Maintenance activities include mowing, irrigation, application of fertilizers and compost tea, controlling for gophers, tree removal and trimming, landscaping, maintenance of golf course features, structures, and cart paths, implementation of integrated pest management and flood control and drainage measures, and plumbing and electrical operations. These activities are described in detail in the *Biological Opinion*, along with a list of Conservation Measures that will be implemented to minimize potential effects on listed species and their habitat.

If water levels are not appropriately managed, operation of the pumps and lowering of water levels within HSP, LS and the connecting channel could result in a decrease in the size of the overall footprint of open water and vegetated wetlands area over time. Lowering of water levels could also increase the likelihood of salinity intrusion to LS and HSP if water levels fall below sea level and beach groundwater levels.

Mitigation: Compensatory mitigation for Project impacts are outlined in the *Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project, 2013 Habitat Mitigation and Monitoring Plan* (SFRPD, updated January 9, 2014), and the *Habitat Restoration Plan for the Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project* (SFRPD, September 25, 2013) (See Attachment 2 to this Certification). Mitigation activities include construction of a perennial CRLF pond, restoration of disturbed upland and wetland areas following construction, and enhancement of wetland habitat by removing invasive predator species. The latter mitigation document includes the upland restoration work required by the USFWS for CRLF habitat enhancement, and a more detailed description of the pond construction.

The perennial CRLF pond will be about 1,600 square feet in size and will be located in the uplands southeast of HSP. After construction of the pond, the margins and surrounding disturbed uplands will be planted and seeded with a mix of native grass and shrub species designed to provide suitable habitat for CRLF and SFGS. The pond itself will be planted with non-aggressive wetland species that will provide attachment sites for CRLF breeding. Planting and seeding is expected to occur the December following the pond construction. Monitoring of the pond will include use of the pond by all life stages of CRLF and San Francisco garter snake, the amount of emergent vegetation and open water available, and the effectiveness of barriers for preventing entry by people and off-leash dogs.

All areas temporarily impacted by the Project, including access and staging areas, will be revegetated. The impacted areas will be planted and seeded with native species to achieve a grassland-shrub mosaic most beneficial to the listed species. In addition, CRLF frog habitat in Arrowhead Reservoir, located east of Highway 1, will be enhanced by draining the reservoir to eliminate the bass population. The reservoir draining work will be done in accordance with requirements established by CDFW. Signs will be posted prohibiting release of animals in order to reduce the potential for future introductions.

Best Management Practices (BMPs) described in the Application that will be implemented to protect biological resources include the following:

- All vegetation within the Project area will be cut down to 4 inches by hand to ensure adequate visibility of the ground;
- In-water sediment and vegetation will be removed using an excavator located from the bank to minimize impacts to wetlands and water quality;
- Coir rolls and silt fences will be installed and disturbed areas will be restored immediately following Project completion;
- The areas near wetlands and ponds will be fenced to the maximum extent possible when heavy equipment is in use;
- A USFWS-approved biological monitor will be present at the site during all construction activities and will have the authority to stop work temporarily in order to protect listed species;

- No earthmoving or soil disturbing work will occur between November 15 and April 15, the breeding season for the CRLF and when SFGS are less active on site;
- A USFWS-approved biological monitor will present an educational program for every person who works on the Project site;

Included in the conservation measures of the *Biological Opinion* are specific criteria for operation of the HSP pumps. These measures are included to ensure that the Applicant will operate the pumps in a manner that will protect CRLF egg masses. Appropriate water levels will be determined by conducting visual surveys for egg masses in potential habitat areas around HSP, LS and the connecting channel. If egg masses are observed and there is sufficient water surrounding the mass, no adjustments to the water level will be made. If one or more egg masses in any of these three areas are observed to not possess sufficient water around it to prevent stranding, the water level that triggers operation of the pumps will be adjusted upwards, even at the risk of flooding the golf course. Once all eggs have hatched and the tadpoles are no longer aggregating around the egg mass, the water levels in HSP, LS and the connecting channel may be lowered to reduce flooding, or in advance of the rainy season to increase flood storage capacity. Water levels are to be maintained at a level sufficient to support non-breeding habitat. This level will be determined to be sufficient if the open water adjacent to the emergent vegetation is at least 6 inches deep on the inboard margin of the vegetation. Prior to the rainy season, water levels in HSP may be lowered no more than five days before the first projected large rain event of the season.

In accordance with requirements included in the *Biological Opinion*, the Applicant will develop a plan for monitoring water quality in HSP and LS. The plan will include monitoring of nitrate, nitrite, ammonia, pH, and salinity in both water bodies and set threshold levels for each that will trigger defined conservation actions, such as changes to fertilization and pumping practices, or other measures for the protection of CRLF and San Francisco garter snake.

CEQA Compliance: *Pursuant to the California Environmental* Quality Act (CEQA), the Project's potential environmental impacts were evaluated in the *Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project* (State Clearinghouse No. 2013092042). A Notice of Determination for the *Mitigated Negative Declaration* was filed with the State Clearinghouse by the City and County of San Francisco on April 3, 2014.

California EcoAtlas: It has been determined through regional, state, and national studies that tracking of mitigation/restoration projects must be improved to better assess the performance of these projects, following monitoring periods that last several years. In addition, to effectively carry out the State's No Net Loss Policy for wetlands, the State needs to closely track both wetland losses and mitigation/restoration project success. Therefore, we require that the Applicant use the Wetland Tracker Standard Form to provide Project information related to impacts and mitigation/restoration measures. An electronic copy of the form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml . Project information

concerning impacts and mitigation/restoration will be made available at the web link: http://ecoatlas.org.

Certification and General Waste Discharge Requirements: I hereby issue an order certifying that any discharge from the referenced Project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003 - 0017 - DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification. The following conditions are associated with this certification:

General Conditions

1. The Project shall be constructed in conformance with the description in the Application received by the Water Board on November 2, 2012 and supplemental correspondence, including the revised Application received on January 14, 2014. Any changes to these plans must be submitted to the Water Board's Executive Officer for review and approval before they are implemented;

2. All Standard and Special Conditions of the Corps' permit authorization under NWP No. 3 and 25 shall be fully implemented (File No. 2011-00338S);

3. The Applicant shall comply with all requirements in the Streambed Alteration Agreement (File No. 1600-2012-0412-R3) issued by CDFW;

4. The Applicant shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the *Formal Endangered Species Consultation on the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project in San Mateo County, California,* dated October 2, 2012 (Ref. No. 08ESMF00-2012-F-0082-2), issued for the Project by the U.S. Fish and Wildlife Service (USFWS);

5. No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into HSP or LS. Any of these materials placed within or where they may enter HSP or LS by the Applicant or any party working under contract or with the permission of the Applicant, shall be removed immediately. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into HSP, LS, or other waters of the State. During construction, the contractor shall not dump any litter or

construction debris within the riparian/wetland zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site;

6. The applicant shall use the appropriate protocols, as approved CDFW and USFWS to ensure that Project activities do not impact the Beneficial Use of the Preservation of Rare and Endangered Species;

7. No equipment shall be operated in areas of flowing or standing water (except for the bucket and thumb device proposed for sediment and vegetation removal if the area is not dewatered prior to construction); no fueling, cleaning, or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to HSP, LS and the connecting channel may occur;

8. Concrete, if used in the Project, shall be allowed to completely cure (a minimum of 28 days) or be treated with a CDFW-approved sealant before it comes into contact with flowing water;

9. No later than 24 hours prior to the start of a likely rain event, the Applicant shall ensure that disturbed areas that drain to waters of the State are protected with correctly installed erosion control measures (e.g., jute, straw, coconut fiber erosion control fabric, coir logs, straw, etc.). The likely rain event is defined as any weather pattern that is forecast to have a 50% or greater probability of producing precipitation in the Project area. The Applicant shall obtain daily a printed copy of precipitation forecast information, and keep for the record, from the National Weather Service Forecast Office (e.g., by entering the zip code of the Project's location at http://www.srh.noaa.gov/forecast);

10. The Applicant shall operate the pumps in HSP to lower water levels in HSP and LS only to the extent necessary to minimize flooding conditions on the golf course and the neighboring residential neighborhood. At a minimum, water levels shall be maintained at a level sufficient to support non-breeding habitat for CRLF. This level will be determined to be sufficient if the open water adjacent to the emergent vegetation is at least 6 inches deep on the inboard margin of the vegetation. Prior to the rainy season, water levels in HSP may be lowered no more than five days before the first projected large rain event of the season;

Monitoring and Reporting Conditions

11. Within 60 days of Project completion, the Applicant shall submit an as-built report documenting that sediment and vegetation removal and Project construction were completed in accordance with the Project plans. The as-built report shall include the results from pH monitoring during and 6 weeks after sediment and vegetation removal. Any remediation measures that were implemented shall be described in the report;

12. To document conditions within the Project area, the Applicant shall establish a minimum of 8 total photo-documentation points: 2 points each for the sediment

and vegetation removal in HSP and the connecting channel, and 1 point each for the construction of the steps, walkway, retaining wall, and cart path repair. A map shall be submitted to the Water Board showing the locations of the photo-documentation points. The photo-documentation points shall be selected to document site conditions within the Project area. Photos shall be taken before and immediately after Project implementation. Photos shall be submitted to the Water Board in the as-built report described in Condition 11 above;

13. The Applicant shall establish at least 2 additional photo-documentation points to document any soil areas that are temporarily disturbed. Photos shall be taken before and after Project implementation. The immediate before and after photos shall be submitted to the Water Board in the as-built report as described in Condition 11 above;

14. Disturbed soil areas will be revegetated and seeded with native species. The Applicant shall monitor the temporarily disturbed area for establishment of invasive species and shall implement targeted control activities, such as weeding, for a minimum of 5 years. The area should achieve 90% overall cover with less than 10% invasive non-native species (with the exception of European non-native grasses that can provide good habitat for listed species) by the end of the monitoring period. Photos and documentation of progress shall be submitted to the Water Board in the annual report described Condition 18 below;

15. Within 60 days of the creation of the perennial pond, the Applicant shall submit an as-built report documenting that construction of the pond was completed in accordance with the Project plans. This can be included in the as-built report described in Condition 11 above, if feasible;

16. The Applicant shall establish a minimum of 4 photo-documentation points to document the conditions of the perennial pond. A map shall be submitted to the Water Board showing the locations of the photo-documentation points. The photo-documentation points shall be selected to document pond and bank conditions. Photos shall be taken before and immediately after Project implementation. Photos can be submitted to the Water Board in the as-built report described in Condition 16 above;

17. The perennial pond shall be monitored for a minimum period of five years to ensure that vegetation becomes established and that the construction of the pond is successful. The overall goal is to create a 1,600 SF perennial pond surrounded by native grassland and shrubs. For the vegetation, the goal is to achieve a 90% absolute cover of grassland and shrub species and a relative cover of 25:75 of shrubs to grasslands after five years. The perennial pond and surrounding vegetation shall be monitored annually to evaluate the growth and survival of vegetation in the pond and along the bank. Monitoring of the pond will include use of the pond by all life stages of CRLF and San Francisco garter snake, the amount of emergent vegetation and open water available, and the effectiveness of barriers for preventing entry by people and off-leash dogs;

18. Annual reports shall be submitted to the Water Board by December 31 during each year of the 5-year monitoring period for the disturbed soil areas within the Project site and the creation of the perennial pond. The reports shall compare vegetation conditions to previous years' observations, and describe progress towards meeting the overall goals. Annual reports shall document the conditions of the revegetation and pond sites, and provide a plan for implementation of corrective measures if vegetation is not growing and thriving. Corrective measures shall be implemented as soon as feasible, but no later than one year after observing poor growth or survival. Annual reports and the comprehensive final report shall include photographs from the required photo-documentation points specified in Conditions 12 and 13;

19. **California EcoAtlas:** The Applicant is required to use the California Wetlands form to provide Project information describing impacts and restoration measures within 14 days from the date of this Certification. An electronic copy of the form can be downloaded at http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. The completed form shall be submitted electronically to habitatdata@waterboards.ca.gov or shall be submitted as a hard copy to both 1) the address on the letterhead (or to the Water Board), to the attention of EcoAtlas and, 2) to the San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA 94804, to the attention of EcoAtlas;

Standard Conditions

20. In accordance with CWC §13260, the Discharger shall file with the Board a report of any material change or proposed change in the ownership, character, location, or quantity of this waste discharge. Any proposed material change in operation shall be reported to the Executive Officer at least 30 days in advance of the proposed implementation of any change. This shall include, but not be limited to, all significant new soil disturbances, all proposed expansions of development, or any change in drainage characteristics at the Project site. For the purpose of this Order, this includes any proposed change in the boundaries of the area of wetland/waters of the State to be filled;

21. This certification action does not apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to California Code of Regulations (CCR) Title 23, Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

22. Certification is conditioned upon full payment of the required fee as set forth in 23 CCR Section 3833. Water Board staff received payment in full of $2,202.00 on November 6, 2012.

This certification applies to the Project as proposed in the application materials and designs referenced above in the conditions of certification. Be advised that failure to implement the Project as certified is a violation of this water quality certification. Also, any violation of water quality certification conditions is a violation of State law and subject to administrative civil liability pursuant to California Water Code (CWC) Section 13350. Failure to respond, inadequate response, late response, or failure to meet any condition of a certification may subject the Applicant to civil liability imposed by the Water Board to a maximum of $5,000 per day of violation or $10 for each gallon of waste discharged in violation of this action. Any requirement for a report made as a condition to this action is a formal requirement pursuant to CWC Section 13267, and failure or refusal to provide, or falsification of such required report is subject to civil liability as described in CWC Section 13268.

Should new information come to our attention that indicates a water quality problem with this Project, the Water Board may issue individual Waste Discharge Requirements pursuant to 23 CCR Section 3857. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC Section 13330 and 23 CCR Section 3867.

Please contact Katie Hart of my staff at (510) 622-2356 or khart@waterboards.ca.gov if you have any questions. All future correspondence regarding this Project should reference the CIWQS Place ID No. indicated at the top of this letter.

Sincerely,

for

Bruce H. Wolfe
Executive Officer

Attachment 1: Project Area Map, Photographs, & Plans

Attachment 2: *Sharp Park Safety, Infrastructure Improvement and Habitat Enhancement Project, 2013 Habitat Mitigation and Monitoring Plan* (SFRPD, updated January 9, 2014)

Attachment 3: *Formal Endangered Species Consultation on the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project* (USFWS, October 2, 2012)

cc:

Bill Orme, State Board, Stateboard401@waterboards.ca.gov
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EXHIBIT C

TETRA TECH

Technical Memorandum

TO: Ms. Sarah Jones, Environmental Review Officer, San Francisco Planning Department

FROM: David Munro and Robert Plotnikoff, Tetra Tech, Inc. Surface Water Group

SUBJECT: Sediment Core Chemistry Evaluation, Laguna Salada and Horse Stable Pond Dredging Project

DATE: April 9, 2014

At the request of the San Francisco Planning Department, Tetra Tech recently prepared a memorandum to address specific concerns related to the potential for acid sulfate soils (ASS) and other components to be released or disturbed as a result of the proposed sediment removal and other activities intended to restore and improve endangered species habitat at Horse Stable Pond and the connecting channel at Sharp Park in Pacifica (Tetra Tech 2013). One of the components that we recommended was to take sediment samples from the proposed dredge area and have them analyzed at a lab for soil conditions that would indicate the potential for adverse effects on water quality from ASS during construction.

Soil testing was conducted by Fugro Inc. in 2013 and 2014 (Fugro 2014). The sampling memorandum was evaluated by Tetra Tech water quality specialists Dr. Harry Gibbons and Robert Plotnikoff. Their assessment is as follows:

Sediment cores collected from four locations in support of the Laguna Salada project were analyzed in 6-inch intervals. Results from the sediment cores were interpreted based on historic origins of the area and known management for current conditions. Some general observations from sediment chemistry will assist in describing how disturbance of bottom sediments will influence water quality.

Organic content in sediments is relatively low in all layers of the S-4 core (Laguna Salada site) with a spike in higher phosphorus (P) concentration at mid depth in the core. The P is calcium-bound at this depth in the sample and is a condition also found in at site S-3 (top of ditch) and in S-1 (Horse Stable Pond). Concentration of aluminum (Al) and iron (Fe) at all depths in each of the sediment cores is high with respect to total P content (approximately 52:1) indicating that little internal cycling occurs through sediment release. Aluminum and iron bind with phosphorus when the ratio is 11:1 (Al:P) or 15:1 (Fe:P) so both metals are in excess supply for holding P in sediments.

Sediment pH at S-4 (Laguna Salada) is > 8.0 due to relatively high alkalinity and indicating little microbial respiration due to lack of available, organics. The highest sulfate concentrations were found near the surface sediment in each of the cores from S-4, S-3, S-2, and S-1. Deposition of sulfates from stormwater runoff of surrounding impervious surfaces like asphalt and from some of

the tile/composite roofs are likely sources. Deposition of sulfates from burned fossil fuels (e.g., NOx and SOx) are mobilized from these surfaces before transport to nearby waterbodies.

Total Kjeldahl Nitrogen (TKN) was extremely low within cores taken from S-3 and S-4 as was TOC. At sites S-1 and S-2 TKN had higher concentrations that corresponded with core depths that had high sulfate concentrations. Nitrogen deposition in wetlands is common through breakdown of organics like plants, but was only high near the sediment surface and not at depth for wetland areas not open water areas.

There is no indication that acid sulfate soils are found within the depth interval proposed for dredging. The sulfate concentrations found near the surface of the sediment cores in all cases reflect sources from the surrounding land use activity. Removal of the surficial sediment will result in reduction of compounds originating from non-point sources of pollution.

San Francisco Recreation and Parks staff recently requested additional guidance to address options in the event that inordinately high or low pH levels were found during water quality testing that will occur during dredging. Nothing in the sediment analysis showed any naturally-occurring biological reason that excavation of sediments could cause elevated pH levels, therefore if elevated pH levels do occur they would likely be evidence of an artificial deposit of material that can elevate pH if allowed into the water column. In the unlikely event that elevated pH levels occur, sediments would need to be sampled at the dredging location to determine what materials were in the sediments and were causing the effect. If such a deposit were detected, the area around it may need to be dewatered until it could be excavated in the dry, after which sediment dredging could resume.

Decreased pH is a much more likely scenario. If decreased pH levels are detected, construction should cease and repeated pH measures in 15 min to 30 min intervals should be made. Once two consecutive pH readings are within acceptable range then construction should resume. It is likely that pH levels will return to normal relatively quickly.

References Cited:

Fugro. 2014. Sediment Sampling and Analysis. Sharp Park Habitat Restoration Project. Prepared for San Francisco Recreation and Parks Dept. San Francisco, CA.

Tetra Tech, 2013. Review of Acid Sulfate Soils, Potential Release Mechanisms, and Risk of Release in the Laguna Salada Wetland Restoration Project. Prepared for San Francisco Department of Planning. San Francisco, CA.

EXHIBIT D

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attention: Kei Zushi - (415) 575-9036 kei.zushi@sfgov.org

via email

January 29, 2013

SUBJECT: Notification of Project Environmental Review dated January 15, 2013, Case No 2012.1427E, Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project; concerns regarding potential environmental effects

To the San Francisco Planning Department:

I would like to submit the following summary of concerns and questions regarding potential significant environmental effects of the proposed Sharp Park Enhancement Project described in the notice of environmental review. I assume that the Department is using this notification as an informal CEQA scoping process for public and expert comments, in addition to CEQA scoping comments from responsible and trustee state agencies. I have previously commented on earlier versions of Sharp Park habitat enhancement proposals that differ from the current proposed project, but which have substantial similarities in the types of potential environmental effects, and which remain relevant. I am attaching my 2011 comments on the Natural Areas Program EIR pertaining to Sharp Park. They include statement of my qualifications. I am submitting comments for the current Sharp Park Enhancement Project as an independent applied wetland scientist with knowledge of Laguna Salada and similar coastal lagoons of the Central California coastal region. I was previously invited to provide expert wetland technical advice to the *ad hoc* "Sharp Park Working Group" meeting convened by the project sponsor (SFRPD) in November 2010.

1. Environmental baseline and scope of analysis

- What is the time-frame for analysis of long-term and short-term impacts? The Initial Study must address important long-term changes in hydrology forced by climate change and accelerated sea level rise, and their interactions with proposed changes in water management of Sharp Park. Will the long-term impact time-frame be less than 50 years? If so, why? What is the proposed duration (project lifetime) of the "enhancement" project?

- Although CEQA *normally* considers the pre-project condition at the time of public notification to be the baseline for assessing impacts of a *single-event* construction project, this approach to impact assessment does not apply to the proposed "enhancement" project. The proposed project involves ongoing, long-term operational changes in the water and vegetation and wildlife management of Sharp Park, not just a single short-tem construction event. The long-term effects of proposed water and vegetation management cannot be assessed meaningfully in relation to a static 2013 baseline condition. Sharp Park wetlands are dynamic, not static. The long-term background physical conditions affecting Sharp Park are also dynamic: long-term beach shoreline retreat, sea level rise, and infrequent extreme storms. The assessment of long-term impacts of the project should therefore consider the effects of "no action" as baseline, allowing for dynamic background changes of Sharp Park wetlands to contrast with the static 2013 pre-project conditions.

2. Integration of hydrology and biological resources in impact assessment methodology

Conventionally, CEQA initial studies and EIRs often segregate discussions of impacts by subject, such that hydrology and water quality are analyzed in one section, and biological resources are analyzed in a separate section. Accurate and meaningful wetland impact assessment, however, depends on close integration of hydrology and biological resource analyses. Most biological resources in coastal wetlands are influenced by hydrologic forcing factors. Significant impacts on biological resources may be mediated by water quality, wetland soil biogeochemical processes, salinity gradients and pulses, and duration and depth of flooding. To avoid omission or underestimation of potentially significant short-term, long-term, direct, and indirect or cumulative biological resource wetland biological resource impacts at Sharp Park, they must be assessed in a framework based accurate hydrological effects of proposed project actions.

3. Potentially significant wetland and wildlife effects

3.1. Lagoon drainage (pumping) effects

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- What are the impacts of lowered lagoon water levels (lagoon drawdown) on the spread of cattails and tules over the lagoon bed? (potential indirect significant impact)

- What are the baseline (pre-project) effects of lagoon drainage (pumping, lowering lagoon levels) on water depths and the spread of cattails and tules on the lagoon bed? (baseline for assessment of potential indirect significant impact)

- What does SFRPD assume to be the critical limiting water depth range, and duration of limiting flood depth, for tules and cattails? (threshold for potential indirect significant impact)

- How long, and in what time of year, would areas of the lagoon be lowered to submergence depths that are shallower than the presumed critical depth for restricting spread of cattails beyond their pre-project extent? (threshold and mechanism for potential indirect significant impact)

- What is the *minimum area* of the lagoon bed that would be maintained at depths beyond the limits of submergence tolerance of cattails and tules? (threshold for potential indirect significant impact)

- What is the *maximum duration* of drawdown (lagoon lowering) to depths shallower than the limit of submergence tolerance of cattails and tules? (threshold for potential indirect significant impact)

- How will maintenance of low lagoon levels prior to storms (lagoon drawdown for stormwater detention capacity) affect the *vulnerability of the lagoon to seawater flooding during oceanic storm overwash events*? How much will drawing down the lagoon prior to storms impair the lagoon's capacity trap heavier seawater overwash flooding at the lagoon bottom by stratification of heavier saltwater under lighter freshwater? How much would lagoon drawdown during winter storm season expose the marsh shoreline to potential direct ocean water flooding, or flooding by less diluted seawater, compared with full freshwater-flooded lagoon conditions? (threshold and mechanism for potential indirect long-term significant impact)

- How will maintenance of proposed target lagoon levels affect the *elevation range* of freshwater and fresh-brackish marsh habitat of listed threatened and endangered wildlife species in relation to the elevation range of rising sea level or potential storm oceanic overwash flooding?

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- How often would lagoon pumping result in stranding of California red-legged frog egg masses relative to pre-project conditions? What is the estimated impact (frequency, duration, magnitude) of egg mass stranding events due to drawdown under pre-project and post-project conditions? What is the estimated mortality rate, and net cumulative population effect, of drawdown-induced stranding of CRLF egg masses, under pre-project and post-project conditions? (thresholds and mechanisms for potential indirect long-term significant impacts)

- **Excavation or dredging of lagoon bed sediments**

  - What are the pre-existing *lagoon bed sediment sulfide levels* (hydrogen sulfide, iron sulfide) in bottom sediments of Laguna Salada within areas proposed for excavation or dredging? (baseline for assessment of potential indirect significant impact)

  - What is the potential for rapid oxidation of sulfides and *formation of acid sulfates* and iron oxides during and after excavation and dredging of high sulfide sediments? How will this be evaluated in relation to season (water and sediment temperature, microbial activity) of dredging or excavation? (mechanism and threshold for potential indirect significant impact)

  - What is the potential for *hypoxia* (oxygen deficiency due to biological oxygen demand of anoxic, reduced sediments) during and after excavation and dredging of high sulfide sediments? (mechanism and threshold for potential indirect significant impact)

  - What is the *water quality sampling, monitoring, and reporting methodology* for detection and avoidance of bottom sediment sulfide hotspots? What is the water quality monitoring methodology for plumes of suspended anoxic, sulfidic sediment and potential hypoxia during and following dredging or excavation in the lagoon or marsh? (mechanism and threshold for potential indirect significant impact)

  - What is the proposed *timing* of excavation or dredging in wetlands in relation to California red-legged frog tadpole larval development? (mechanism and threshold for potential indirect significant impact)

  - What are the potential short-term impacts of hypoxia on California red-legged frogs? (mechanism and threshold for potential indirect significant impact)

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- What are the potential long-term impacts of acid sulfate sediment on habitat and prey availability of California red-legged frogs and San Francisco garter snakes? (mechanism and threshold for potential indirect long-term significant impact)

- What acid sulfate levels are estimated in excavated ponds proposed for CRLF habitat, based on what methodology and data? What level of growth inhibition or mortality of CRLF larvae is expected for the range of acid sulfate levels estimated? Will ponds be excavated in low sulfide sediments only? (mechanism and threshold of potential indirect significant impact; potential mitigation)

- **Lagoon salinity intrusion in relation to drawdown and sea level rise.**

  - What is the range of variability in the pre-project rate of salinity intrusion (saline groundwater seepage) between the barrier beach (Salada Beach/Sharp Park Beach) to the west shore of the lagoon during spring high tide series and high wave runup conditions? What is the range of variability in salt seepage during neap tides and low wave runup conditions? (baseline for assessment of potential significant long-term impact)

  - How much does saline groundwater intrusion increase during periods of drawdown (lowered lagoon levels due to either pumping or evaporation following pumping)? (threshold and mechanism of potential significant long-term impact)

  - How much will saline groundwater intrusion to the lagoon wetlands increase with sea level rise, under proposed water management regime (target lagoon water surface elevations), by 2020, 2050, 2060? (mechanism for long-term indirect significant impact)

- **Vegetation management impacts**

  - Will vegetation dominated by wetland plant species (bulrush, rush, marsh cinquefoil, brass-buttons, creeping bentgrass) be mown? How will mown marsh be distinguished from actual turfgrass above the zone of winter-spring soil saturation? (criteria for potential significant impact)

  - What is the minimum and mean buffer area excluding mowing of tall vegetation cover around the lagoon wetlands? What is the inner boundary for determining the downslope edge of buffer areas? (threshold for potential significant impact; potential mitigation)

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- What biological supervision, monitoring and reporting protocols will be used to prevent mowing of buffers or marsh vegetation? (potential mitigation)

- *Nutrient management impacts and nitrogen budget*: What is the baseline (pre-project) annual average and peak total application of nitrogen fertilizer to Sharp Park greens (turfgrass maintenance)? What is the environmental fate of the applied nitrogen fertilizer? What proportion of total applied biologically available nitrogen is estimated to leach from golf turf, enter shallow groundwater, and discharge into Laguna Salada via groundwater? How much available applied nitrogen is estimated to enter the lagoon from turfgrass runoff? How much available applied nitrogen is estimated to be lost by denitrification? How much is estimated to be trapped (sequestered) by vegetation buffer zones? Will the "enhancement" project reduce, maintain, or increase the total amount of biologically available nitrogen to Laguna Salada? Would project activities risk causing short-term "hot spots" of elevated ammonia? What is the cumulative impact of turgrass fertilizer application on the growth rate of tules and cattails in the fringing marsh of Laguna Salada? To what extent does fertilizer enrichment of Laguna Salada nitrogen load interact cumulatively with proposed water management of the lagoon (pumping for lagoon drawdowns) to promote accelerated spread of tules and cattails over the lagoon bed? (mechanisms and thresholds for potential significant long-term indirect and cumulative impacts; potential mitigation)

- Are the pre-project nitrate or ammonia levels in Laguna Salada within the effects range (impacts, impaired feeding, predator avoidance, growth) of California red-legged frog larvae? Will proposed project conditions increase the frequency or magnitude of nitrate or ammonia concentrations in the lagoon that reach or exceed effects thresholds for California red-legged frog larvae? (mechanisms and thresholds for potential significant long-term indirect and cumulative impacts; potential mitigation)

- What will the cumulative nitrogen loading impacts of treated wastewater and turfgrass fertilizer application be for Laguna Salada nitrate and ammonia levels, considering nitrogen biogeochemistry of anoxic bed sediments of Laguna Salada? (mechanisms and thresholds for potential significant long-term indirect and cumulative impacts)

- Will any herbicides including surfactants with potential amphibian larval ecotoxicity be applied at Sharp Park under the proposed plan? If so, what quantities (total annual load) and during what seasons in relation to rainfall or irrigation? (mechanisms and thresholds for potential significant long-term indirect and cumulative impacts)

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- **Boulder armoring "emergency repair" of dikes or additional armoring**

    - Does the "enhancement" project include post-storm repair or expansion of boulder armoring on the beach? (project full description)

    - Does the plan propose to maintain the earthen dike and seawall armor as sea level rises, and additional extreme storm damage occurs? How much financial resource commitment increase to Sharp Park will the "enhancement" project bring in the long-term, as it affects cost:benefit ratio of increased future armoring of Sharp Park Beach? (potential long-term additive, cumulative impact)

    - If the project either includes potential increased armoring, or increased "growth-inducing" economic effects on expanded boulder armoring of the beach (sunk costs of infrastructure behind the dike), what are the direct and indirect project effects on passive beach erosion as sea level rises by 2050 or 2060? (potential long-term additive, cumulative effect)

    - Would the project include mitigation for growth-inducing impacts on boulder armoring and passive beach erosion? (potential long-term additive, cumulative effect and mitigation)

- **Monitoring**

    - What biological monitoring will be used to assess the ecological effects of the proposed project, compared with pre-project conditions? What thresholds for significant degradation of either special-status wildlife populations, or their wetland habitats, will be used to determine the need for intervention or modification of management activities? (enforceable CEQA mitigation and monitoring plan)

    - Will sampling methods and data analysis be sufficiently robust to detect significant changes in populations of special-status wildlife species if they occur? Who will review and assess monitoring reports, and what are their scientific qualifications? To which agencies will their assessments of monitoring reports be submitted? Will their evaluations of monitoring data be ensured to be timely, comprehensive, and immune from redaction by the lead agency/project sponsor? Will an independent technical/scientific advisory team be incorporated in the monitoring and reporting plan review protocol? (enforceable CEQA mitigation and monitoring plan)

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3. **Alternatives**

- *Reduced project alternatives*. What reduced project (lower impact alternatives, impact avoidance alternatives) will be considered in the Initial Study or EIR? Will alternatives incorporating sea level rise and climate change adaptation be considered or rejected? The CEQA document should assess reasonable alternatives that avoid or reduce long-term significant impacts by allowing for future reconfiguration of the marsh and buffer zones to adapt to rising sea level, future storm overwash destruction of the northwest golf greens, and indirect groundwater elevation and salinity intrusion effects of rising sea level.

- *Project lifetime alternatives*. Project impacts depend on duration of proposed activities, and interactions with infrequent climate events (extreme storms) or progressive accelerated rise in sea level. The impacts of proposed activities under conditions similar to baseline conditions in 5 to 10 years would be very different from impacts under conditions by 2050 (particularly with respect to sea level). The CEQA document should assess alternatives that assume reduced project lifetimes, or thresholds for adaptive management changes in the configuration and management of the project area (e.g., managed retreat of coastal wetlands and barrier beach as sea level rises). Thresholds of salinity intrusion/lagoon salinization, habitat degradation, ocean storm damage, and beach erosion, and population decline of special-status species should be evaluated as triggers for adaptive modification of water management, habitat management, and infrastructure.

Please contact me if you have any questions.

Sincerely,

Peter Baye
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cc: K. Geisler, California Coastal Commission

ATTACHMENT:
2011 Sharp Park comments on Natural Areas Plan DEIR

ATTACHMENT
2011 Sharp Park comments on Natural Areas Plan DEIR

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San Francisco Planning Department
Bill Wycko, Environmental Review Officer
1650 Mission Street, Suite 400
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October 31, 2011

SUBJECT: Significant Natural Resource Areas Management Plan (SNRAMP) – Draft Environmental Impact Report, August 2011, State Clearinghouse No. 2009042102

To the San Francisco Planning Department:

Please consider my comments on the Significant Natural Resource Areas Management Plan (SNRAMP) programmatic draft EIR (DEIR), which focus on one of the stand-alone projects covered in the programmatic DEIR, Sharp Park Laguna Salada wetland "restoration" project. These comments represent my independent professional opinion, and were not prepared on behalf of any organization.

My qualifications to provide expert comments on conceptual restoration alternatives for coastal wetlands are based on over 30 years of professional work in coastal wetland and terrestrial ecology, with emphasis on planning, management, and restoration of degraded coastal wetlands. Following my Ph.D. research in coastal ecology, I spent nearly twenty years as a professional technical planner and advisor on California coastal wetland restoration and management, with emphasis on recovery of rare and endangered species. I have worked for the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers in this capacity, and I have provided consulting services and peer review for California State Parks and National Park Service, and CAL TRANS on coastal lagoon enhancement and restoration projects along the Central Coast during the last 5 years (Rodeo Lagoon, Crissy Field (Presidio) Lagoon, Big Lagoon, Laguna Creek Lagoon, Pilarcitos Creek mouth, Scott Creek Lagoon, Waddell Creek Lagoon). I am a co-author of a 2011 technical report on Laguna Salada wetland restoration alternatives (PWA 2011), and I was an invited speaker to the Sharp Park advisory working group convened by San Francisco Recreation and Parks Department in

November 2010, where I presented an introduction to California coastal lagoon wetlands, with an emphasis on Laguna Salada and similar lagoons.

My comments generally concern the level of analysis provided in the programmatic DEIR for the stand-alone project at Sharp Park, deficient analysis of impacts and mitigation, and the lack of meaningful evaluation of less environmentally damaging alternatives proposed to achieve the same basic purpose as the proposed project. The rigor of impact and alternatives analyses in CEQA should be commensurate with the sensitivity of the environmental setting, and the potential for significant impacts. As explained below, the DEIR presents a seriously flawed and inadequate CEQA assessment of impacts, mitigation, and alternatives for the stand-alone Sharp Park "restoration" project.

1. The DEIR fails to identify the extent of wetlands filled for the purpose of conversion of marsh to golf fairways rather than enhanced upland habitat for endangered species, and fails to identify mitigation for wetland filled to enhance upland golf greens.

The DEIR fails to disclose that a significant area of existing wetlands bordering the northeastern end of the lagoon would be filled and converted to upland golf greens, rather than filled to provide enhanced habitat for endangered wildlife. This fill is shown in Figure 14 of Appendix I (Tetra Tech 2009) and described in a text box in a misleading and inaccurate way as "raise fairways to reduce flooding" along the inland side of the "habitat boundary" mapped near hole 14. Neither the restoration plan nor the DEIR identify the fairway areas to be filled and raised above flood elevations as including existing wetlands consisting of freshwater marsh mown down to a low turf to function as part of a fairway. The mown marsh is in fact composed of dominant marsh vegetation identical to the marsh that isn't mown on the other side of the artificial habitat boundary. The "habitat boundary" in fact is the line of mowing that encroaches into the marsh, not the boundary between upland and wetland soils and vegetation. It is entirely artificial, nominal boundary. The mown marsh was identified as one of the existing degraded conditions of the Laguna Salada wetland complex in the January 2011 report on Laguna Salada restoration alternatives (PWA 2011), which was provided to the City of San Francisco. It was also shown and explained to representatives of the Recreation and Parks Department in a slide presentation at the November 2010 Sharp Park "working group" meeting at McLaren Hall.

The mown marsh area lying within the proposed fill area falls entirely within the criteria for wetlands protected by policies of the California Coastal Commission, and it meets all criteria for wetlands under the current U.S. Army Corps of Engineers wetland delineation manual.

The identification of the marsh as wetland is obscured by regular mowing that makes it resemble golf turf, but the mowing does not alter the basic jurisdictional criteria of the wetland determined by dominant obligate and facultative-wet wetland species, hydric soils, and winter flooding and saturation for multiple weeks. The fill of this mown marsh and its

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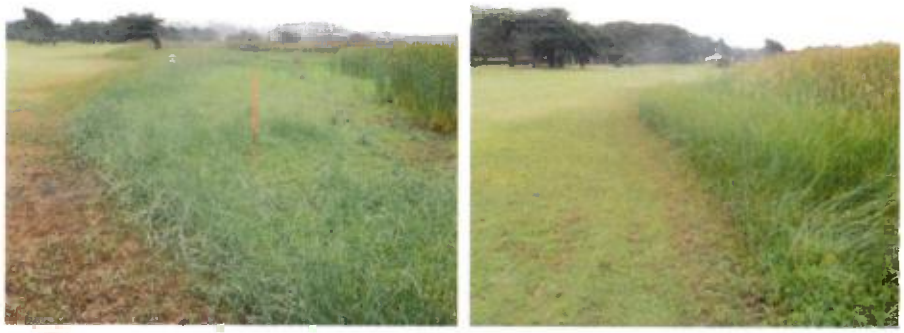
conversion to upland golf greens is neither identified as an impact, nor evaluated for impact significance, nor mitigated in any way.



Mowing of freshwater marsh with saturated soils at the surface mown to height of golf turf, annexing marsh to golf links at N Sharp Park ; fresh-brackish marsh species composition of the mown marsh turf at marsh edge is identical with adjacent marsh: silverweed,threesquare bulrush. Mown marsh grades into facultative wetland grasses (creeping bentgrass) and brass-buttons. Mown marsh zone extended approximately 3 to 5 m (variable) from the unmown emergent marsh edge in 2010.

The golf turf mowing encroaching the northeast end of Laguna Salada, extending directly into the marsh and riparian woodland zones. The apparent golf turf is mown marsh with vegetation composed of the same fresh-brackish obligate and facultative-wet marsh plant species on the lagoon side of the photos: coast bulrush

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(*Schoenoplectus pungens*) silverweed (*Potentilla anserina* ssp. *pacifica*), creeping bentgrass *(Agrostis stolonifera)* and brass-buttons, *Cotula coronopifolia.* The seasonally flooded outer marsh and its terrestrial ecotone are replaced by turf even with pumped drawdown of the lagoon. Photos: June-August 2010.

2. The DEIR fails to analyze and mitigate significant predictable impacts of pre-construction lagoon drainage, and dredging sulfidic, anoxic coastal lagoon sediments.

The DEIR's level of CEQA analysis of the proposed 60,000 cubic yard maximum dredging project at Laguna Salada is inadequate for a highly sensitive coastal wetland complex inhabited by two federally listed wetland-dependent endangered species (California red-legged frog, San Francisco garter snake), regardless of intended "habitat restoration" or enhancement aims. Outstanding aspects of this deficiency are evident in the lack of DEIR analysis of the following proposed "restoration" actions and impacts, as well as the omission of reasonable and feasible alternative "restoration" methods:

- draining (dewatering) Laguna Salada prior to construction and dredging, proposed in the Sharp Park Conceptual Restoration Alternatives Report cited by the DEIR (Tetra Tech 2009, Appendix I of the DEIR)
- if the lagoon is not drained prior to construction activities, sediment and water quality impacts of dredging in a closed fresh-brackish lagoon system where red-legged frog tadpoles are present;
- omission of any feasible alternative methods of wetland habitat enhancement other than dredging, such as modification of lagoon water level and flooding management.
- omission of wetland fill at the northeast end of the lagoon, where marsh is currently mown to function as golf turf, to convert them to elevated upland golf fairways (failure to identify wetlands regulated under current policy criteria of the California Coastal Commission, as well as erroneous omissions from the past Clean Water Act Section 404 wetland delineation)

The proposed draining of Laguna Salada to prepare for "restoration" construction is clearly articulated in Appendix I of the DEIR (Tetra Tech 2009; DEIR Appendix I, p. 48), but the impacts of draining the lagoon are not assessed in the DEIR. This is an incredibly oversized omission; dewatering the lagoon alone would be sufficient as a significant impact to trigger an EIR. Dewatering the lagoon would kill any late-maturing California red-legged frog tadpoles present in any part of the lagoon prior to dewatering, and would be expected to result in "take". This would be a highly significant impact requiring mitigation, and the only feasible mitigation measure would be to avoid draining the lagoon, i.e., an alternative method. Incredibly, the restoration plan on which the DEIR relies suggests as the only mitigation for draining the lagoon an absurd "capture and relocation" (to where?) of endangered species stranded by lagoon dewatering, with vague, unspecified actions arising during future endangered species consultation to address the uncertain feasibility of mitigation :

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> ....although every effort would be made to capture and relocate sensitive wildlife resources prior to construction, the possibility of harm to listed species remains although every effort would be made to capture and relocate sensitive wildlife resources prior to construction, the possibility of harm to listed species remains. Impacts to listed species would be addressed extensively during the Section 7 consultation process with USFWS and during similar consultation with CDFG, and standard and specific practices to minimize the potential for take will be developed at that time. [Tetra Tech 2009, p. 48]

The DEIR simply includes no impact analysis or mitigation for the immensely significant impact of dewatering the lagoon prior to project construction.

If the lagoon is drained, the exposure of sulfidic anoxic lagoon bottom sediments to oxygen on the drained lagoon would release hydrogen sulfide (also not addressed in air quality impacts), and cause rapid oxidation of ferrous and other reactive reduced sulfide compounds, releasing abundant sulfuric acid, ferric oxides, phosphates, and ammonia – all of which would be potentially toxic to aquatic or amphibious wildlife. The DEIR fails to disclose obvious strong indicators of highly sulfidic, anoxic sediments exposed during summer drawdown (low water levels) in the lagoon, as shown below.

Iron oxide surface films and iron sulfide accumulation of muds exposed by artificial lagoon drawdown. Iron oxide (orange-brown mineral films indicative of oxidation of iron sulfide and acid sulfates in brackish coastal sediments subject to alternating strong hypoxia and oxidation) are apparent in drawdown-emergent muds at the northeast end of Laguna Salada (left). Organic-rich sediment immediately below the iron oxide-stained surface sediment film is deep black (right), indicative of toxic iron sulfide, formed under strong anoxic bottom conditions, exposed at the marsh surface by artificial drawdown of the lagoon.

If the lagoon is <u>not</u> drained for dredging, dredging would cause suspension of anoxic, sulfidic bottom sediments in the water column of the lagoon, which would potentially cause <u>hypoxia</u> (severe oxygen deficiency associated with high mortality of fish, amphibians, and invertebrates in the water column) and <u>mobilization of toxic sulfides and ammonia</u>. The DEIR <u>severely underestimates the potential severity, complexity, and persistence of wetland impacts due to dredging anoxic, sulfidic organic lagoon bottom and marsh sediments</u> (DEIR, p. 370). The DEIR treats potential impacts of sulfidic anoxic sediment dredging only

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qualitatively, without any explicit assessment of the severity or level of significance of sediment and water quality impacts in the body of the DEIR.

The DEIR provides no sediment testing data or analysis of potential impacts of dredging anoxic, sulfidic organic brackish to fresh (past seawater-influenced, sulfur-enriched) lagoon bed sediments. Suspension of highly reduced organic "black ooze" organic sediments of the lagoon bed has high potential for causing potentially lethal impacts to California red-legged frog tadpoles due to mobilization of toxic sulfides (hydrogen sulfide, ferrous sulfide), ammonia, and subsequent short-term water column hypoxia, and persistent aerobic formation of toxic acid sulfates and nitrates. The DEIR similarly provides no assessment of potential eutrophication impacts (excessive nutrient loading) of the lagoon due to liberation of ammonia/nitrate and phosphates from suspended anoxic dredged bed sediments. The DEIR impermissibly defers dredge sediment testing analysis and mitigation to future permit processes, as part of a programmatic rather than project-specific mitigation measure (Mitigation HY-3).

The DEIR also misinterprets its own hydrologic analysis report (Appendix A) in arguing that the project will not cause a change in salinity or salinity stratification within the lagoon after dredging. The DEIR correctly reports that the existing condition of the lagoon's continuous open-water area is relatively well-mixed salinity, with little stratification. The scope of the KHE hydrology report did not include any analysis or discussion of the effects of either localized dredging (dredge-deepened pockets, heterogeneous bed depths) or widespread dredging (deeper homogeneous depths) on salinity stratification or salinity intrusion cumulative impacts with sea level rise, and do not support the arguments of "no significant cumulative impact" (p. 380) in the DEIR. The hydrology report explicitly states that the purpose of the salinity assessment was limited to assess salinity and groundwater interactions, specifically for the potential for salinity intrusion under existing conditions, using a mass balance approach:

> ...developed to test the hypothesis that the seasonal change in salinity was affected by shallow groundwater conditions. Given its location along the coastline, there is the potential for seawater intrusion to increase salinity and alter the habitat conditions of the system.(Appendix A, p. 18)

The hydrology report's scope did not include analysis of did not analyze interactions or cumulative impacts of dredge-modified lagoon bathymetry and sea level rise, but it did advise – contrary to the DEIR's conclusion of "no significant cumulative impact" of the project water quality (p. 381-382) – that rising sea level may increase long-term salinity intrusion into the lagoon under its existing regime of artificially low water surface levels maintained by pumping:

> Sea level rise and climate change may also alter seasonal and long-term ocean levels and wave energy, potentially reversing shallow groundwater gradients between the lagoon and ocean and allowing more salts to migrate into the Laguna. The existing salinity and water budget models will prove to be useful tools in evaluating and quantifying potential

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benefits and impacts to wetlands under proposed enhancement plan alternatives. (Appendix A, p. 23; emphasis added in underline)

Unfortunately, The DEIR subsequently failed to apply the useful salinity and water budget model tools in subsequent analysis of benefits and impacts of the project on water quality. It provided absolutely no analysis or assessment of how dredging up to 60,000 cubic yards of sediment from the lagoon, deepening it up to several feet, would affect the stratification and trapping of high salinity pulses during salinity intrusion or storm overwash events. Salinity stratification should be predicted to increase with increased bottom relief and depth in the lagoon, since higher salinity water is denser than fresh or slightly brackish water, and local depressions would be less subject to mixing due to wind-stress current circulation in the lagoon than the existing nearly flat bed. Local dredge-deepened depressions in the lagoon would also be expected to trap fine organic sediments and have elevated water temperature due to the higher specific heat of more saline stratified water. Elevated temperatures, salinity, and organic matter in deeper depressions would be expected to increase anoxia (and hydrogen sulfide and methane gas production). The DEIR cannot cite Appendix A to address these issues because they were not within the scope of the report. These are potentially significant cumulative water quality impacts and impacts on wetland-dependent endangered species that are not assessed in the DEIR.

The DEIR also cannot rely on the findings of the original Laguna Salada conceptual restoration plan (Tetra Tech 2009) for analysis of sediment and water quality impacts of lagoon dredging because that report also failed to provide sediment testing data or impact analysis of dredging anoxic sulfidic sediments in the closed lagoon. In fact, it failed even to identify the potentially huge biogeochemical and water quality impacts of dredging and draining the lagoon. This study considered sediment quality impacts and suitability only from the perspective of re-using dredge spoils for placement on the golf course greens (Tetra Tech 2009, p. 39). Moreover, the City failed to provide sediment or water quality monitoring data from recent "maintenance" dredging episodes of small-scale Horse Stable Pond to elucidate these potential dredging-induced water quality impacts at a larger scale, commensurate with the proposed 60,000 cubic yard dredging proposal.

These omissions of sediment quality assessment for primary restoration methods that rely exclusively on dredging are unreasonable, because:

- the aquatic habitat impacts of disturbing sulfidic anoxic coastal wetland sediments (including acid sulfate soil development) have been studied worldwide for decades, and are well-known in wetland ecology (e.g., Portnoy 1991, and references within)
- Pre-dredging sediment testing is routinely required by state and federal regulatory agencies, particularly in aquatic habitats that support endangered species, so it should have been presumed to be necessary for a meaningful CEQA analysis of impacts and alternatives in an EIR;
- The San Francisco Recreation and Parks Department was notified in 2009 of this deficiency in analysis of anoxic sulfidic sediments proposed for dredging (see

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attached comment letter on the Sharp Park Conceptual Restoration Alternatives Report (Tetra Tech et al. 2009).

The DEIR specifically fails to identify, assess, avoid, or mitigate potential significant acute impacts of dredging to California red-legged frog larvae (tadpoles, the aquatic life-history phase) due to hypoxia and sulfide toxicity due to dredging-induced suspended sulfidic sediments and organic matter in the water column. The DEIR also fails to address overwhelming potential impacts of draining and dewatering the lagoon, a destructive method of facilitating lagoon excavation proposed in the Sharp Park Conceptual Restoration Alternatives Report (p. 45).

Because the DEIR is intended to be project-specific for Sharp Park, and is the lead CEQA document for the project, the deferral of potentially significant dredge sediment impacts and mitigation to future (CEQA responsible and trustee) regulatory agency review is inappropriate, and I believe it is also impermissible under CEQA.

In fact, the DEIR misrepresents the factual condition of Laguna Salada's long-term sediment and vegetation changes, and the justification for dredging it to "restore" it. There is no evidence presented to support the DEIR assertion that Laguna Salada suffers from "excess sediments" rather than excessive pumping and drainage to maintain golf greens -- lowering of lagoon levels to the point at which the bottom is so shallowly flooded that tules and cattails can invade most of it. Neither the DEIR nor its supporting documents (Appendix I) identify any source of watershed sediment, field evidence of sediment deposition, sediment deposition rates, or mode of transport to deliver terrestrial sediments into the lagoon. The DEIR simply assumes that if cattails and tules are "excessive", it must be due to sedimentation. This is a fallacy. The pumps are set to maintain the lagoon water surface level at less than +7.5 ft NAVD (Tetra Tech 2009), which results in prevalence of shallow water (3 ft or less deep) across the lagoon bed. This chronic stable drawdown condition makes most of the lagoon bed suitable for progressive long-term spread by tules and cattails, even in the complete absence of any sediment deposition.

The shallowness of the lagoon controlled by the artificial water surface elevation range maintained by pump operations is sufficient to explain the multi-decade encroachment of tules and cattails. There is no direct evidence (sediment cores, bed elevation change, suspended sediment concentration measurements) presented for the hypothesis of that shallowness of the lagoon is driven by increased bed elevations cause by "excess sedimentation" in the lagoon during the period of tule and cattail growth.

The proposed dredging is not really compensating for excessive sedimentation: it is merely a way of compensating for artificially stable low lagoon water levels by lowering the bed instead of raising the lagoon to drown out or inhibit growth of tules and cattails (species with submergence tolerance up to about 4 feet). It is this fallacious, biased analysis of the lagoon's alleged "excessive sedimentation" and "excessive vegetation" problems. This fallacy is at the heart of the flaws of the alternatives analysis as well.

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3. The DEIR fails to assess environmentally superior and feasible non-dredging alternatives for Sharp Park wetland and endangered species habitat enhancement and management.

The DEIR uncritically presumes that dredging is the most appropriate (least environmentally damaging) method of providing adequate depth and area of shallow open water marsh-edged wetland habitat suitable for California red-legged frog breeding. It fails to consider feasible environmentally superior alternatives that could achieve the same objectives. The most obvious environmentally superior feasible alternative that was ignored was modification of water level management of the lagoon, which is controlled by artificial drainage of the lagoon by pumps operated by the City. Increased water surface elevations and seasonal fluctuation of lagoon levels, combined with peripheral flood control berms that double as buffers, upland refuge, and basking habitat is a wetland habitat management/enhancement alternative that would eliminate the need for high-cost, high-impact risk engineered dredging alternatives, and would have superior environmental benefits for salinity intrusion and endangered species habitat enhancement. Artificially managing water level fluctuations in the lagoon, emulating natural lagoon hydrology, would maintain a favorable seasonal dynamic balance of shallow open water habitat (submerged aquatic vegetation, principally sago pondweed) and emergent marsh (tule, bulrush, cattail, spikerush) that is evident in the constructed GGNRA ponds at the toe of Mori Point slopes, where California red-legged frogs and tree frogs are now breeding.

Under existing conditions, there is an unnecessary conflict between lagoon wetland hydrology and upland golf drainage because there is no hydrologic separation between them. Golf fairways extend (by mowing marsh into turf) into the lagoon. Flooding of the lagoon in winter to elevations above the set upper limit of +7.5 ft NAVD that triggers pumping rapidly forms flooded seasonal wetland conditions consisting of shallow open water edged with emergent marsh vegetation – conditions that are evidently attractive for California red-legged frog egg mass deposition. (DEIR, p. 377 describes the long-term winter flooding history) The only reason these flooded wetland margins are not allowed to remain flooded for months in winter (enabling red-legged frog eggs may develop in situ with persistent flooded conditions) is because low-lying golf greens are not hydrologically separated from seasonal lagoon-edge wetlands. Consequently, the entire lagoon is pumped down to drain together both wetlands and topographically continuous golf greens, instead of draining the golf greens alone.

Construction of a low berm or levee bordering the upland side of the lagoon's wetland-upland transition zone would be a feasible alternative way of separating the flood control of golf greens and seasonally flooded lagoon wetlands that support red-legged frog breeding habitat. This would require less fill than raising all flood-prone low-lying fairways that are above the elevation of mown marsh, but would require some pumping on the landward side of the berm. A low flood control berm or levee would allow seasonal flooding along the lagoon edge to be tolerated without rapid pumping to lower the lagoon to drain golf greens. A low flood control levee, with dimensions commensurate with the 2-3 ft depth increase proposed in the dredging alternatives, would allow tolerance of higher chronic winter

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flooding levels at the lagoon margins, and consequently would allow a significant reduction in the frequency of pump operation. Reduction in the frequency and amplitude of rapid water level fluctuations caused by frequent pumping would therefore reduce the risk of egg mass desiccation and stranding. This alternative would require reversing the current encroachment of golf greens into seasonal wetlands: some golf greens bordering the lagoon that are subject to flooding are in fact routinely mown marsh vegetation, not turgrass (PWA 2011, and section 1 of this letter).

A low flood control berm placed along the truly upland edge of the golf greens would reduce or eliminate the acute flooding conflicts between winter golf management and lagoon management for red-legged frog breeding. A berm would not need to encroach into wetlands at all (as the marsh mowing to expand fairways currently does), and would additionally provide burrowing mammal (ground squirrel, vole, gopher) habitats (estivation and foraging habitat) and emergent thermal refuges (basking sites) for San Francisco Garter Snakes. This may offset "need" for artificial upland fill in wetlands to provide upland refuge habitat. The soils in this infrequently flooded seasonal wetland zone are also relatively lower in sulfide content (less anoxic) and so would be more suited to excavation of shallow ponds (further hydrologically isolating them from lagoon drawdown, allowing more stable pond water levels to further enhance frog breeding habitat quality).

The DEIR failed to consider, even at a screening level, this environmentally superior alternative based on raised winter lagoon levels and low flood control berms bordering golf greens, which is a reconfigured (downsized) golf-adapted version of the comprehensive ecosystem restoration alternative proposed by PWA and others (PWA et al. 2011).

Instead, all DEIR alternatives for Sharp Park that include restoration are exclusively and arbitrarily limited to ones based on dredging potentially toxic sulfidic organic lagoon bed and marsh sediments (and minimize encroachment of golf greens) -- even in alternatives that are not "maximum recreation". There is no valid reason given in the DEIR to exclude review of alternatives that allow for flood management to separate well-drained upland golf greens from wetlands within areas of increased lagoon water levels in the range at least +9 to +10 ft NAVD. It appears that (tacit) recreational priorities for the status quo of golf fairway boundaries are an overriding arbitrary consideration in the range of feasible alternatives.

In effect, from a perspective of wetland enhancement methods, the DEIR examines only one "restoration" alternative, one that maximizes potential water quality and sediment impact risks for federally listed California red-legged frogs, and minimize or eliminates wetland management (or recapture) of golf greens. The DEIR provides no rational basis for excluding water level management alternatives for lagoon enhancement (no screening-level CEQA explanation of alternatives considered but rejected), and merely adopts the golf-biased, technically flawed proposal of the City's Sharp Park restoration plan (Tetra Tech 2009), which entirely neglected the issue of sediment and water quality impacts associated with sulfidic anoxic lagoon bed sediments, and also provided no sediment testing data or water quality impact analysis of dredging in endangered species habitat.

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The omission of water-level management alternatives in the DEIR, and the cursory, superficial assessment of sediment and water quality impacts of dredging Laguna Salada, are particularly problematic because the San Francisco Recreation and Parks Department (SFRPD) hosted a "Sharp Park working group" composed of stakeholder advisors from Golden Gate National Recreation Area (GGNRA, National Parks Service) and San Mateo County, and other park advisors, in which the issues of sulfidic anoxic sediment impacts and water level management alternatives were explicitly discussed in November, 2010. Furthermore, both these issues were assessed (along with field indicators of existing high sulfide lagoon sediments) in a widely circulated technical report on Laguna Salada restoration alternatives provided to the City, prepared by Philip Williams and Associates (PWA et al. 2011). The DEIR's failure to adequately address water level management that avoids potentially significant impacts of dredging sulfidic sediments is arbitrary, given its knowledge of the potential significance of the impacts and feasibility of alternatives.

The mitigation measures for Laguna Salada dredging water quality impacts in the DEIR (HY-3) were as cursory and inadequate as the impact analysis: they relied on generalized programmatic, generic best management practices that do not address specific issues of dredging sulfidic lagoon bottom sediments (HY-1, BI-12). The DEIR cannot defer substantive mitigation to future mandatory permits from other agencies (BI-12a mitigation) to address the impacts caused by projects of the CEQA lead agency. The few substantie physical mitigation measures identified for sulfidic sediment dredging (such as addition of lime to dredge spoil sediment) do not address potentially significant water column and water quality impacts in the lagoon itself, which may include acute anoxia or hypoxia, acute short-term concentration of hydrogen sulfide, ferrous sulfide, and ammonia, and long-term liberation of metals (including heavy metals) and acid sulfates. The few programmatic mitigation measures for dredging are based on future dredge sediment testing without any corresponding physical actions to actually minimize impacts: they contain no contingency measures to avoid or minimize impacts if anoxic sulfidic sediments are widespread and problematic for dredging -- as should be expected from strong field indicators of widespread intensive formation of ferrous sulfide in bed sediment below surface, and rust-colored ferric oxide films at the surface of the emergent northeastern lagoon flats in summer. The rigor of mitigation feasibility assessment, like the corresponding impact analysis for water quality impacts of dredging, were grossly deficient even for an Initial Study, let alone a full project-level DEIR.

4. Summary of CEQA deficiencies and recommendations for remedies.

In summary, the DEIR:

- fails to disclose fill and conversion of wetlands to uplands used not for purposes of upland habitat enhancement, but for golf recreational enhancement, and fails to assess impacts or mitigate for net fill and conversion of wetland to golf uplands.

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- fails to screen or analyze less environmentally damaging alternatives to dredging, such as combined water level management and perimeter flood management, to provide equivalent or environmentally superior wetland benefits;

- fails to disclose the dewatering (draining) of the lagoon as a restoration construction measure proposed in Appendix I of the DEIR;

- fails to analyze impacts or mitigate impacts of lagoon drainage and dewatering;

- fails to present essential dredge sediment testing data specific to anoxic sulfidic lagon bed sediments, and analyze sediment (and contaminant) fates and impacts in the context of the sensitive wetland and endangered species habitat, and impermissibly defers dredge sediment testing data analysis and mitigation to post-EIR permitting;

- fails to analyze sediment and water quality impacts of mobilizing sulfidic, anoxic lagoon bed sediment, and subsequent acid sulfate soil formation;

- fails to address significant potential cumulative impacts between dredging, salinity stratification, seawater intrusion, and sea level rise within the 20 year planning period.

The DEIR consequently fails to provide adequate project-level CEQA analysis for the highly significant potential Sharp Park Restoration project impacts, and provides inadequate even for programmatic CEQA of this project.

In my independent opinion as a professional coastal ecologist with extensive experience in management of coastal lagoon wetland ecosystems in this region, the proposed Sharp Park "restoration" project, as currently proposed, is likely to cause risks of more long-term significant environmental harm than good. Risks of long-term harm to the lagoon ecosystem and its resident endangered species would be due to inadequate planning, inadequate scientific understanding and analysis of the lagoon's degradation, inadequate scientific peer review of project design, inadequate CEQA analysis of the impacts of the proposed "restoration" project, and inadequate CEQA analysis of feasible alternatives.

The City should either recirculate the DEIR to address these issues, or it should prepare a subsequent project-specific DEIR for Sharp Park. I recommend as the most expedient and efficient CEQA process the separation of the stand-alone Sharp Park project DEIR from an otherwise consistent programmatic DEIR.

Sincerely,

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cc: California Coastal Commission, San Francisco
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U.S. Army Corps of Engineers, San Francisco
Interested Parties

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EXHIBIT E

WILD Equity
INSTITUTE

Building a healthy and sustainable global community for people and the plants and animals that accompany us on Earth

July 24, 2014

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RE: **Request for Preparation Of Record** and **Confirmation of Delivery of Petition for State Board Review and Reconsideration**; Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project

Dear Mr. Wolfe:

As required by the California Code of Regulations, Title 23, sections 2050 and 3867, we provide this letter to: (1) request the preparation of the Regional Board's staff record in the matter of the Sharp Park Safety, Infrastructure Improvement, and Habitat Enhancement Project ("Project"); and (2) confirm that we have provided you with a true and correct copy of the Petition for Review and Reconsideration sent on July 23, 2014 to the State Water Resources Control Board regarding the Regional Board's issuance of a 401 Water Quality Certification for the Project.

Although Wild Equity has already been provided with review of the Project record under the Public Records Act request sent on June 27, 2014, this letter serves as a request to prepare the record specifically regarding the Petition for Review and Reconsideration. The preparation of the record should include all documents pertinent to the Regional Board's decision to issue the 401 Certification for the Project, and should include a tape recording or transcript of any pertinent regional board or staff hearing.

Very truly yours,

Laura Horton

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Enclosures:
Petition to the State Water Resources Control Board for Reconsideration
Exhibits to Petition for Reconsideration

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