



January 28, 2014

Margarete Beth
Water Quality Certification
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Project Revisions and Response to Additional Questions for Water Quality Certification for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project, San Mateo and Santa Clara Counties, CA

Dear Ms. Beth:

As detailed in an email received on September 4, 2013, the Water Board determined that the application for Water Quality Certification CIWQS Place No. 757384 of the San Francisquito Creek Joint Powers Authority (SFCJPA) San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project (Project) is complete, however the email included a list of additional questions needing further response and discussion. Since receiving this email, the SFCJPA has redesigned the Project to address concerns regarding salt marsh species impacts and the potential for increased stormwater discharge to the Faber Tract marsh. The revised Project no longer includes a Faber Tract levee degrade and associated features. This is discussed in detail in the introduction to the SFCJPA's response to questions from the Water Board.

Changes to the Project design have resulted in modifications to the Water Quality Certification Application for the Project and attachment sheets. The following is a list of changes in the application/ attachment sheets:

- Box 15: Description of Activity and Environmental Impacts
- Box 18: Dredge and Fill Information
- Box 19: Mitigation

The original application was submitted to the Regional Water Quality Control Board (Water Board) on March 12, 2013. The Application was determined by the Water Board to be incomplete on March 29, 2013. The first response package was submitted to the Water Board on August 2, 2013. The following is a list of changes.

The following is a list of changes:

- Project Description, Question #2
- Page 9, Question i.

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- Page 13, Question ii.

The following documents/enclosures comprise the notification package¹:

- Response letter addressing each of the additional questions
- Updated Water Quality Certification Application (Form R2C502-E), including attachment sheets and figures showing the project location, impacts to waters of the State and riparian vegetation.
- Updated initial response letter submitted for the 1st Incomplete Notification
- Attachments
 - A: Diversion Plan
 - B: HDR's Hydraulic Analysis Summary: Comparison of Results Between Existing and Proposed (No Degrade) Conditions
 - C: Letter re: Palo Alto Airport

If you would like printed copies of any of the above reports, require additional information, or have any questions regarding this request, please contact Kevin Murray (Project Applicant) at (650) 324-1972 or me at (408) 216-2815. Thank you for your assistance with this project.

Sincerely,



Matthew Jones
Project Manager

cc: Kevin Murray, SFCJPA, Project Manager/Applicant
Michael Martin, SCVWD, Environmental Planner

¹ Attachments referred to in the additional pages and 1st response letter that are not associated with the changes listed above were not included in this submittal.

Project Revisions and Responses to questions regarding the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project, from San Francisco Bay to Highway 101, in the City of East Palo Alto, San Mateo County, and the City of Palo Alto, Santa Clara County, California

Introduction

To address the FWS concerns regarding impacts on California clapper rail and salt marsh harvest mouse populations in the Faber Tract and RWQCB concerns about the potential for increased stormwater discharge to the Faber Tract marsh, the SFCJPA is now proposing a revised Project which includes in channel capacity and levee improvements, but would not include a Faber Tract levee degrade. The proposed project modification is the result of extensive additional modeling and analysis completed by the SFCJPA and its design consultant (The new analysis is summarized in HDR 2013, Attachment A). The revised project, while providing significant improvement in flood protection, required the SFCJPA to make significant concessions on the level of flood protection provided as the revised project does not provide the freeboard required to remove parcels in the area from the FEMA floodplain. This project modification would ensure that flows into Faber Tract would continue to occur at roughly 8-year event (previously believed to occur at the 5-year event, but revised as per the refined analysis) and maintain the existing condition in the Faber Tract. The revised Project would result in roughly equivalent flows into Faber Tract at the 8-year event (35 cfs existing versus 30 cfs proposed). The 8-year event is also the point at which all other events larger in magnitude would also spill over the Faber Tract levee and limit the ability of the Faber Tract levee to provide viable refugia above that flow. Hence, the project would not contribute to additional loss of refugia for salt marsh harvest mouse and California Clapper Rail within the Faber Tract.

During the 8-year event of 4,200 cfs, the proposed Project with a widened channel would result in a water surface elevation lower than the existing channel, even without a degrade of the Faber Tract levee. Based on this information, the SFCJPA also modeled fluvial events at the MHHW (7.1') tide and, based on the results, concluded the different tidal events would not result in significant differences in the outcomes of fluvial events. Finally, while the Project without the degrade does not meet all FEMA freeboard requirements, it can meet the SFCJPA's flood protection goals and accommodate projected sea level rise scenarios. This can all be achieved without construction impacts on the Faber Tract levee or post-project impacts on the ability of the Faber Tract levee to provide refugia at existing flows. The SFCJPA believes that the project, as currently proposed, would accommodate the SFCJPA's reasonably foreseeable flood control needs and ensure that the project will not increase the frequency of stormwater discharge to the Faber Tract marsh and is not likely to adversely affect the California clapper rail and salt marsh harvest mouse.

Comments and Responses

The format of the comment and response section reprints in full the RWQCB's comments, both enumerated and otherwise, found in the January 16, 2014 Incomplete Notification. Each complete comment, presented in *italics* is followed immediately by a complete response indented without italics. If the response is partially or wholly addressed in a previous response to comment, the applicable discussion will be succinctly summarized again and the applicable previous response to comment will be referenced.

1. *The SFJPA have identified impacts in linear feet for some impacts and acres for other impacts. Below is a table that lists Project activities that may potentially impact waters of the State. Please complete the table identifying the impact area in linear feet and acres and indicate/confirm if the impact will be permanent or temporary. Please include any additional impacts that have not been identified in the table.*

<i>Activity Type</i>	<i>Linear Feet</i>	<i>Acres</i>	<i>Temporary (T) or Permanent (P) Impact</i>
<i>Floodwall (right)</i>	<i>2154</i>		<i>P</i>
<i>Floodwall (left)</i>	<i>2729</i>		<i>P</i>
<i>Channel excavation/fill</i>			<i>P</i>
<i>-Lowered terrace</i>	<i>5460</i>	<i>4.29</i>	<i>P</i>
<i>-Levee setback (right)</i>	<i>2846</i>		<i>P</i>
<i>-Levee setback (left)</i>	<i>2727 1119</i>	<i>0.93</i>	<i>P</i>
<i>-Channel bypass</i>	<i>187</i>	<i>0.09</i>	<i>P</i>
<i>-Levee degrade (Faber Tract)</i>	<i>1054</i>		<i>P</i>
<i>Rock slope protection (each location)</i>			
<i>-2-ft</i>	<i>68</i>	<i>1.6 0.004</i>	<i>P</i>
<i>-3-ft</i>	<i>384</i>	<i>0.13</i>	<i>P</i>
<i>-floodwall</i>	<i>364</i>	<i>0.08</i>	<i>P</i>
<i>-levee toe</i>	<i>921</i>	<i>2.2 0.32</i>	<i>P</i>
<i>Concrete work (tie-ins, etc)</i>			<i>P</i>
<i>-Existing footprint</i>			<i>T</i>
<i>-New footprint</i>			<i>P</i>
<i>Boardwalk</i>			<i>T/P</i>

Response: The data included above represents the most complete calculation of linear interaction of features with waterbodies. However, the Project, as designed, completely

redesigns a substantial portion of San Francisquito Creek on the Palo Alto (left levee) side of the project, impacting wetlands on either side of the existing levee. Thus, calculations of linear impact are not as simplistic as would be on a traditional linear project and inherently create false accounting of Project impacts. We also would warn against double counting the effects occurring on either bank of the stream as independent impacts. Ultimately, a length of San Francisquito Creek where a left levee setback, channel terrace excavation, and rock slope protection exist at both toes is a single linear length of impact on a portion of San Francisquito Creek, not four independent impacts.

The table now shows strike through where calculations have been revised and underline where data has been entered. The levee degrade has been struck through as this element has been removed from the project. A discussion of all elements below is included to understand how calculations were determined or not included.

- **Floodwalls.** Floodwalls already occur above the top of the existing channel and are outside of State waters. The length of the structures is informational only for that segment of the reach.
- **Channel excavation/fill.** Channel excavation represents the most substantial impact on Waters of the State as the excavation of the channel and adjoining Golf Course area provide the new functional channel capacity. “Lowered terrace” calculations represent channel excavation of State Waters in the new floodplain bench (What we believe RWQCB is calling the “bypass”). However, the “bypass” is new excavation and almost completely within current upland areas. The “right levee” is not set back under the proposed project and is reconstructed in place as to not encroach on private residential property in East Palo Alto. The Left Levee Setback impacts isolated wetlands on the Palo Alto Golf Course interior of the existing levee and does impact San Francisquito Creek.
- **Rock Slope Protection.** Calculations are provided, however these do not represent unique impacts as rock slope protection is placed in areas where the channel has been excavated or new levees constructed.
- **Concrete work (tie-ins, etc).** This text was meant to inform methodologies for connecting together specific project elements, but given the small size these features are calculated within the footprint of major elements and have not been called out.
- **Boardwalk .** The new boardwalk will exist within the former golf course and has no impact on Waters of the State. The area of the new boardwalk have however been excluded from calculations of post project wetlands being counted as mitigation

In conclusion, given the complexities of the design and the interaction of the design with wetlands we continue to assert that looking from the perspective of impacts on State Waters resulting from the sum of Project elements is more informative of the true impacts of the Project and that trying to isolate the impact of each Project Element creates ambiguity and unnecessary complexity. Again, Table 4 from the original application is provided. The Table includes updated calculations that now account for impacts associated with the revised Project.

Table 4. Summary of Water Bodies

Water Body Type	ID	Reason For Action	Amount and Type of Material Cut (CY)	Amount and Type of Material Fill (CY)	Surface Area Affected (P acre)	Surface Area Affected (T acre)
Diked Marsh	DM-1	Levee	0	0	0.001	0.15
Diked Marsh	DM-2	Levee	0	0	0	0.01
Diked Marsh	DM-3	Levee	0	2	0.001	0.03
Diked Marsh	DM-4	Levee	0	0	0.001	0.01
Diked Marsh	DM-5		0	0	0	0
Diked Marsh	DM-6		0	0	0	0
Diked Marsh	DM-7	Levee	0	0	0.02	0
Diked Marsh	DM-8	Levee, Pavement, Cut of Floodplain Bench (CFB)	461	11,383	1.33	0
Diked Marsh	DM-9	Levee, Rock(RSP), Gravel	0	1,246	0.18	0
Diked Marsh	DM-10	Levee, RSP, CFB	308	2,552	0.80	0
Diked Marsh	DM-11	Levee	0	2,296	0.24	0
Diked Marsh	DM-12	Levee	0	1,346	0.10	0
Diked Marsh	DM-13	Levee, CFB	40	573	0.21	0
Freshwater Marsh	FM-1	Levee	0	881	0	0
Freshwater Marsh	FM-2	Levee	0	742	0.14	0
Tidal Salt Marsh	TSM-1	Levee, CFB	3,229	1,592	1.51	0
Tidal Salt Marsh	TSM-3	Levee, RSP, CFB	337	140	0.06	
Tidal Salt Marsh	TSM-4	Levee, RSP, CFB	1,223	1490	0.14	0.58
Tidal Salt Marsh	TSM-5	Levee	0	0	0.0003	0
Tidal Salt Marsh	TSM-6		0	0	0	0
Tidal Salt Marsh	TSM-7	Levee, RSP, CFB	225	103	0.02	0.002
Tidal Salt Marsh	TSM-8		0	0	0	0
Tidal Salt Marsh	TSM-9	Levee, RSP, CFB	1,987	2,518	1.03	0
Tidal Salt Marsh	TSM-10	Levee, CFB	3	0	0.002	0
Tidal Salt Marsh	TSM-11	Levee, RSP, CFB	191	64	0.04	0

Tidal Salt Marsh	TSM-12	Levee, CFB	30	0	0.01	0
Subtotal Wetlands			8,034	26,928	5.84	0.78
Freshwater Pond	FP-1	Levee	0	5,605	1.13	0
Tidal Channel and Bay Waters	TC-1	Levee	0	0	0	0.02
Tidal Channel and Bay Waters	TC-2	Levee, RSP, CFB	1,048	3,080	0.78	0
Tidal Pan	TP-1		0	0	0	0
Tidal Pan	TP-2		0	0	0	0
Tidal Pan	TP-3		0	0	0	0
Subtotal Other Water Bodies			1,048	8,685	1.91	0.02
PROJECT TOTAL			9,082	35,613	7.93	0.80

2. *Please confirm if any part of the proposed boardwalk footprint will be in waters of the State.*

Response: The proposed boardwalk would extend from the eastern footing of Friendship Bridge, across the new marshplain terrace, to the relocated left bank levee. The boardwalk is overall 202 feet long and 10 feet wide with 21 by 26 foot platforms at each end. Construction of the bridge will require 20, 18 inch diameter Cast In Drilled concrete piles. The boardwalk would be the same width as Friendship Bridge (140 feet long and 10 feet wide) and would be constructed of timber deck and concrete piles. The elevation of the low mark of the boardwalk would be set above the highest anticipated flood elevation, with the lowest point of the bridge a minimum of 5 feet above the marshplain terrace beneath it. The boardwalk would be designed in accordance with the Palo Alto Baylands Nature Preserve Design Guidelines (City of Palo Alto 2005) and the San Francisco Bay Trail Design Guidelines (Association of Bay Area Governments 1999). As described above, these Guidelines are intended to help provide a consistent approach to design, placement, and construction of common landscape elements that respects the landscape character, established a distinctive identity, and sets a standard of quality within the Baylands. The boardwalk would provide views similar to views from Friendship Bridge. The boardwalk would appear to be a visual extension of the Bridge and would not substantially alter the visual character of the Project site; therefore, impacts would be less than significant (See Figure 6, Public Access, included with this response).

Based on the existing conditions of San Francisquito Creek, the proposed boardwalk footprint does not impact any waters of the State, while the existing Friendship Bridge is located within waters and wetlands. Following project completion, concrete piles will be located within newly created waters of the State; however any wetlands and waters of the State created by channel widening and marshplain restoration are not jurisdictional until after project implementation.

3. *Marsh planting as mitigation for Project impacts within the footprint of the boardwalk will not be included in the mitigation accounting. If the mitigation accounting of 14.63 acres includes any part of*

the boardwalk footprint, then the proposed marsh planting as mitigation needs to be extended elsewhere within the Project footprint to adequately compensate for project impacts.

Response: After Project redesign, the mitigation accounting is now approximately 15.3 acres. This acreage does not include any part of the boardwalk footprint. This number accurately represents the area of restoration and notably excludes areas such as zones with rock slope protection, the footprint of the in-channel PG&E transmission tower, and the footprint of the new boardwalk extension.

4. *As was discussed on the conference call on August 29, SFJPA/District will coordinate with District staff to consider biotechnical methods given the project design will widen the channel and rock slope protection may not be necessary.*

Response: The revised project features a significant reduction in the use of rock slope protection partially due to a re-examination of potential alternative methods, but largely due to the elimination of the degrade of the Faber Tract levee. The RSP that was proposed in the Faber Tract at the levee spur between Stations 26+00 and 29+50 as well as the horseshoe armoring at the downstream end of the degrade between Stations 16+00 and 17+50 are not required in the revised design. Similarly, the RSP originally proposed on the left levee (PA side) from Station 15+50 to Station 23+00 intended to protect the levee from exposure to wind and wave action of San Francisco Bay is not necessary due to the elimination of the levee degrade. In total, the revised project features a total reduction of 1.16 acres of RSP (The RSP Table in the 401 1st LOI Response Letter under Page 13ii, has been updated to reflect these changes. Rock is still required at certain locations along the new levees to protect against scour, but the majority of the rock will be located in areas currently occupied by golf course lands and therefore not currently Waters of the State.

5. *Reuse of excavated sediment. Does the creek have any existing soil contaminant problems that need to be addressed during construction (e.g. residual soil contaminant exposure)? The Project may be subject to sediment characterization prior to reuse.*

Response: HDR collected soil samples in November 2011 from the USPS site in an area adjacent to the Creek to test for soil and groundwater contaminants. The subsequent report prepared by HDR (2011) indicated that there is methyl tert-butyl ether in the groundwater at the USPS site at a level above the reporting screening limits. The technical memorandum prepared by HDR | e2M (2010) identified no known hazardous materials contamination within or adjacent to the proposed areas of Project-related ground disturbance. However, due to current and historic uses of properties adjacent to the Project site, there is a possibility of undocumented soil and/or groundwater contamination that, if disturbed, could impact the Project site. Soil and/or groundwater contamination could be present for the following reasons:

- Historical activities at the Yeaman Auto Body Property.
- Existing and unknown USTs at the Palo Alto and O'Connor Pump Stations.
- Historical activities at the Palo Alto Road Pump Station property.
- Herbicide and pesticide usage at the Golf Course.
- Presence of hazardous materials in the soil or groundwater at the USPS site.
- Presence of remnant landfill materials at the Baylands Athletic Center.

- Contaminated sediment from runoff from urban uses upstream.
6. *PG&E Tower. The tower needs to be design and constructed with adequate BMPs to avoid and minimize impacts to waters of the State and beneficial uses.*

Response: Following completion of the Project, PG&E Tower 3 would be located within the Creek. Therefore, there would be a fortified concrete pier supporting each leg of the tower. Otherwise there would be no towers or structures within the channel and there would be no effect on beneficial uses resulting from the placement of the tower during the operational lifetime of the Project. As waters of the State are being created around the tower after its construction, the tower is anticipated to have no impact on Waters of the State.

7. *Project Alternative Analysis. Further discussion is needed to fully understand the benefits and constraints of project alternative #3. Topics of discussion include the following:*

- a. *Please explain why the bypass design would not perform as well as the proposed project for hydraulic conveyance.*

Response: Due to the elevations of the Palo Alto Golf Course, a bypass through the golf course would need to be elevated to accommodate gravity flow from the diversion location to the mouth of the diversion near the Palo Alto Airport. An elevated diversion channel would require a significant increase in earthwork and construction impacts over the proposed project. In addition to the earthwork on the golf course needed, the existing creek levees would still need to be rebuilt and armored to meet safety standards and both the existing channel and the bypass channel would be subject to USACE restrictions on vegetation. The result would be a project that is much more structural in nature, with a channelized bypass route with hardened surfaces. The existing channel would not be widened and therefore the project would provide no new or restored marshland habitat. Upstream of the diversion point, the bypass project would rely more heavily on floodwalls and the floodwall heights may increase as an elevated bypass diversion would not lower the water surface elevation in the creek channel as significantly as does the expanded and widened channel in the proposed project. The proposed project results in 14 acres of restored marshland habitat; the golf course bypass alternative would likely result in a net loss of habitat.

The Proposed Project was selected as it was the least environmentally damaging alternative that met the purpose and need. The proposed action plans to utilize a large portion (7.4 acres) of the Palo Alto Municipal Golf Course as currently designed. This amount of acreage was allocated to optimize the flows through the project reach. Using additional acreage of the Golf Course has diminishing returns in terms of flow conveyance due to the already low elevation of the golf course and downstream constriction at the Palo Alto Airport runway, therefore widening the channel further does not provide additional flood protection.

The SFCJPA analyzed using the Golf Course as a detention basin in 2008 and determined that flooding the Golf Course was not a viable alternative in and of itself and would require channel capacity improvements similar to the proposed project. The SFCJPA determined in their 2008 analysis that a Golf Course Alternative would require construction of passive weirs to allow for active flooding of the Palo Alto Golf Course as well as the Faber Tract to relieve fluvial constraints of the main channel during 100-year storm events. Additionally, while relative costs associated with alternatives were considered, no alternative was eliminated or selected over any other because of cost.

To utilize the golf course as a detention basin, the existing levee would be lowered starting just downstream of the Palo Alto Athletic Center to create a passive weir (spillway) in to the Palo Alto Golf Course (PAGC). The PAGC is approximately 150 acres which translates, considering the topography of the golf course lands, into about 600 acre-feet of storage if the spillway were placed at elevation 9.0. A ring levee would be needed around the golf course to protect the businesses and airport, and the stored water would need to be pumped out as there is no feasible outlet in the area to allow for gravity flow out of the PAGC in to SF Bay.

The maximum feasible amount of flow that could be diverted from the creek during a 7,500 cfs event would be approximately 3,500 cfs, leaving 4,000 cfs in the creek downstream of the diversion.

Storage capacity under this scenario can be calculated as follows:

$600 \text{ acre-feet} \times 43,000 \text{ cubic-feet/acre-foot} = 25,800,000 \text{ cubic feet of storage}$

Diversion duration under this scenario can be calculated as follows:

$25,800,000 \text{ cubic feet} / 3,500 \text{ cfs} = 7,370 \text{ sec} = 122 \text{ min} = 2.03 \text{ hours}$

There would be about a 2 foot decrease in water surface elevation downstream of the weir when considering an instantaneous flow of 7,500 cfs. Under real conditions, creek flow would begin to spill in to the Golf Course at 4,000 cfs, and would occupy about half of the holding capacity of the basin prior to creek flow reaching 7,500 cfs if the rise in creek flow was sustained at the maximum rate observed in the historic hydrograph. Therefore, during a 7,500 cfs event under these conditions, the Golf Course basin would fill in about 1 hour. During a similar event in which the flow in the creek rose less rapidly there would be less storage capacity when flows reached 7,500 cfs.

Once the basin fills, there would not be capacity to receive additional flow until the basin is emptied. This could provide some flood protection for a short period of time during a 7,500 cfs event under the right conditions, but would result in significant overtopping within the reach even if flows recede from 7,500 cfs to 4,000 cfs quickly after the peak. For a one percent event, the basin would offer no protection as it fills prior to the peak discharge and is no longer available for additional storage.

Lastly, as requested, the SFCJPA asked the Palo Alto Municipal Airport for an analysis of the potential for easing the downstream constriction. The response, included as Attachment C, concluded that land use restrictions and baylands to the south would not accommodate a shifted runway and maintain the necessary runway and safety needs. Given that the Airport is a part of the national transportation network, there would be no situation where the Airport could be closed in the foreseeable future.

- b. *Why would the Faber Tract marsh preserve be required for alternative #3 for flood flow detention given the other alternative #3 design features (e.g. golf course bypass, floodwalls, and lowered terrace)?*

Response: As noted in the previous response discussion, for a one percent event, the Golf Course as a basin would offer no protection as it fills prior to the peak discharge and is no longer available for additional storage. With either the proposed project or the golf course bypass alternative, some degrade of the Faber Tract would be required to accommodate a one percent event and provide for FEMA freeboard requirements. Channel widening is limited by a control

point at the mouth of the creek which sits between the end of the Palo Alto Airport runway and critical upland refugia provided by elevated areas adjacent to the Faber Tract levee. The golf course bypass alternative is limited by the need to create a gradient between the elevations of the diversion location and the outlet of the bypass. In either project, only a certain amount of additional flow can be accommodated as the channel invert and Bay water level act as controls.

c. *Please explain how this alternative would not reduce impacts to waters of the State as compared to the proposed design given channel excavation would be reduced. In addition, how would alternative #3 result in more significant impacts to traffic, air quality, GHG emissions, especially since the alternative analysis said these impacts would be similar.*

Response: Excavation of the channel itself would still be required under the Golf Course Bypass Alternative, and the existing levees would still need to be rebuilt and armored to meet safety standards to avoid levee failure (a water quality issue in of itself). There would be additional impacts to waters of the State within the golf course as a result of the construction of the elevated bypass channel, and no new marshland habitat would be created or restored. The Bypass Alternative would have significantly greater traffic, air quality, and greenhouse gas emission impacts due to the extensive nature of earthwork necessary to build the bypass and would have significant recreational impacts associated with the impacts on the Golf Course and the resulting trips necessary to construct the channel. The Alternative Analysis under CEQA did consider these impacts similar, as all impacts would be significant and unavoidable under CEQA, regardless of alternative. As such, increases in air quality and traffic on local residents would substantially increase a condition that is already significant and unavoidable, resulting in potential short term health risks for local residents. .

8. *Mitigation and Monitoring Plan (MMP), dated June 2013*

a. *Table 4: Summary of Impacts (page 19 of the MMP)*

i. *Does the table include replacement of tree removal (other than the 0.75 mitigation riparian)?*

Response: The table on page 19 does not include replacement of tree removal but the supporting paragraph states that removed trees will be replaced at a one to one ratio. The MMP states “the Project will result in the removal of between 162 and 256 trees. Of the potential of 256 trees to be removed, 220 of these are on the Palo Alto side and the remaining 36 are on the East Palo Alto side. Some of these trees are also counted in the discussion of Riparian Habitat above. The EIR states that the JPA will replace removed trees at a 1:1 ratio consistent with the Tree Ordinances for East Palo Alto and Palo Alto. The current relatively high density of trees along San Francisquito Creek is not typical of the Project site’s San Francisco baylands transitional habitat, which is subject to a high groundwater table and relatively high salinity content of that groundwater exchanged with the San Francisco Bay. Therefore replacement trees are proposed to be provided off-site in coordination with Palo Alto and East Palo Alto’s urban forest programs.”

ii. *What type of trees (riparian, ornamental) will be impacted?*

Response: Most trees within the Project site are ornamental species. These species include, river sheoak (*Casuarina cunninghamiana*), myoporum (*Myoporum* spp.), common bluegum (*Eucalyptus globulus*), Italian stone pine (*Pinus pinea*), Bailey’s acacia (*Acacia baileyana*), Monterey cypress (*Hesperocyparis macrocarpa*), tree tobacco (*Nicotiana glauca*), Monterey pine (*Pinus radiata*), pear (*Pyrus* spp.), eucalyptus (*Eucalyptus* spp.), glossy privet (*Ligustrum*

lucidum), yucca (*Yucca* spp.), Canary Island palm (*Pinus canariensis*), Canary Island date palm (*Phoenix canariensis*), Hind's black walnut (*Juglans hindsii*), Silver wattle mimosa (*Acacia dealbata*), peppertree (*Schinus molle*), apple (*Malus* spp.), plum (*Prunus* spp.), olive (*Olea europaea*), elm (*Ulmus* spp.), Siberian elm (*Ulmus pumila*), Lombardy poplar (*Populus nigra*), tree of heaven (*Ailanthus altissima*), paperbark (*Melaleuca quinquenervia*), white poplar (*Populus alba*), river redgum (*Eucalyptus camaldulensis*). However, smaller numbers of native species, including arroyo willow (*Salix lasiolepis*), California bay laurel (*Umbellularia californica*), blue elderberry (*Sambucus nigra*), valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), ash (*Fraxinus* spp.), box elder (*Acer negundo*), California buckeye (*Aesculus californica*), Fremont's cottonwood (*Populus fremontii*), balsam poplar (*Populus balsamifera*), and western white alder (*Alnus rhombifolia*), may be removed.

b. P.6 need to include post-project erosion control.

Response: As described below, construction period and post-project erosion control measures will be implemented to minimize impacts to water of the State and beneficial uses.

1. The following measures will be implemented as necessary to reduce and minimize stormwater pollution during ground disturbing maintenance activities:
 - a. Soils exposed due to maintenance activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall.
 - b. The preference for erosion control fabrics will be to consist of natural fibers.
 - c. Appropriate measures include, but are not limited to, the following:
 - Silt Fences.
 - Straw Bale Barriers.
 - Brush or Rock Filters.
 - Storm Drain Inlet Protection.
 - Sediment Traps.
 - Sediment Basins.
 - Erosion Control Blankets and Mats.
 - Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.).
 - Wood chips.
 - Straw mulch.
 - d. All temporary construction-related erosion control methods will be removed at the completion of the Project (e.g., silt fences). (Santa Clara Valley Water District Water Quality BMP 41)

In addition, as part of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and the San Mateo Countywide Stormwater Pollution Prevention Program (SM-STOPPP), required under Waste Discharge Requirements and NPDES Permit for the discharge of stormwater runoff from the municipal separate storm sewer systems (MS4s)

overseen by the San Francisco Bay Water Board, all construction sites are required to have site-specific and seasonally and phase-appropriate effective BMPs (San Francisco Bay Regional Water Quality Control Board 2009). SFCJPA will be responsible for ensuring compliance with all local and State regulations, including the RWQCB NPDES permits and local BMPs for jurisdictions adjoining the Project site. The Project specifications require that the Project construction contractor prepare a SWPPP and erosion control and sedimentation plan showing placement of BMPs at various stages of construction in conformance with requirements, and all SWPPP documents and plans will be stamped by a State-certified Qualified SWPPP Developer (QSD). The Project will implement measures to accomplish objectives specified in SFCJPA's *San Francisquito Creek Watershed Analysis and Sediment Reduction Plan*, which fulfills NPDES permit provisions that require the co-permittees of the SCVURPPP and SM-STOPPP within the Creek watershed to assess and implement sediment management measures in the watershed (San Francisquito Creek Joint Powers Authority 2004). Water quality protection standards during construction will comply with the most protective BMPs of the local jurisdictions and the State of California.

- c. *Turbidity testing and exceedence levels must be consistent with Basin Plan (>50 NTU cannot exceed by 10% background)*

Response: The Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows.

- A) Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent.
 - B) Where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent.
 - C) Where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the-Project.
 - D) Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the diversion structure. Natural watercourse turbidity measurements will be made prior to initiation of Project discharges, preferably at least 2 days prior to commencement of operations, after a rain event, and/or a change in construction activity with daily water quality monitoring conduct at least twice per day. (Santa Clara Valley Water District Water Quality BMP 40)
- d. *How will the groundwater located within the project site be tested and treated, if necessary, prior to discharge? Define "high levels of groundwater".*

Response: "High levels of groundwater" is defined as any instance where shallow groundwater is encountered causing water to flow into the project area. In these cases water will be pumped out of the work site. If the groundwater is sediment laden, the water will be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a receiving water body. Water pumped into vegetated areas will be pumped in a manner that will not create erosion around vegetation. Groundwater testing and treatment is described under the Temporary Water Diversion Plan comment (Section H) below.

e. *Monitoring and reporting is proposed for 5 years. SFJPA/District will rely on existing data and continuing monitoring by the Don Edwards Wildlife Refuge, PRBO, and others. This does not provide commitment to maintain and monitor the Project site annually. SFJPA/District needs to provide the responsible party for monitoring and reporting of the Project.*

Response: As per Section 6.3 of the MMP, *Parties Responsible for Implementation and Long-Term Management*, the SFCJPA will be the permit holder and responsible for compliance monitoring. The SFCJPA is a regional government agency whose members include the Cities of Palo Alto, Menlo Park, and East Palo Alto; the San Mateo County Flood Control District, and the Santa Clara Valley Water District. One or more of these entities may conduct monitoring activities, but the SFCJPA will be responsible for preparing annual monitoring reports and submitting them to the regulatory agencies. The monitoring responsibilities specified under this MMP will end when the mitigation goals have been achieved, or when the regulatory agencies determine that sufficient progress has been made towards the mitigation requirements.

f. *Please explain further: "The SFJPA will attempt to quantify the number of events that result in fluvial connection between [S.F.] Creek and the Faber Tract annually; however, this may not always be possible as events may occur when it is not safe to monitor the creek."*

Response: The SFJPA will attempt to visit the site and look for fluvial connections between San Francisquito Creek and Faber Tract to track the number of instances this occurs, however when the creek is flooded (during and following storm events), it may not be safe to visit the site and it may not be physically possible to reach locations where this connection can be viewed.

g. *Criteria:*

i. *The MMP should also include annual criteria including, health & vigor, monitoring of special status indicator species (clapper rail, SMHM, etc.)?*

ii. *Faber Tract monitoring*

1. *Need to include a water quality monitoring plan*

2. *Monitoring of sediment deposition due to overflow*

3. *Monitoring of changes in habitat.*

4. *Need RWQCB approval to mitigation/monitoring completion*

Response: As the SFCJPA is no longer degrading the levee between the Faber Tract and San Francisquito Creek, these conservation measures are no longer necessary.

9. *Maintenance*

a. *Why is maintenance proposed for only 3 years*

Response: Three years is a standard period of post-Project maintenance, after which the Project would be anticipated to be safely established and not need regular annual maintenance.

b. *Please indicate who the response party is for maintenance (e.g. District's SMP).*

Response: As described above, the SFCJPA will be the permit holder and ultimately responsible for all facets of the project, including maintenance and monitoring. As a regional government agency whose members include the Cities of Palo Alto, Menlo Park, and East Palo Alto; the San

Mateo County Flood Control District, and the Santa Clara Valley Water District, the SFCJPA may agree with one or more of these entities to conduct project activities.

10. *Temporary Water Diversion Plan*

- a. *Please provide a diagram of the cofferdams including diversion pipe, discharge locations, energy dissipater, and pump locations.*

Response: See Attachment A for the diversion plan, downstream (tidal) sheet pile at cross-section, and dissipator design. Note that locations shown are illustrative and may be modified during installation dependent on construction methods. Narrative plan will be revised to include these additions and changes.

- b. *What is the dewatering duration?*

Response: From beginning of allowed in-creek activity (June expected) till the end of in-creek activity (October, expected) as permitted. Construction is expected to take two seasons.

- c. *Will the stormwater runoff that will be diverted from the pump stations be treated prior to discharge to the creek or is it treated at the pump station prior to being diverted to the creek?*

Response: Water discharged by the pump stations is governed by the 2009 Municipal Regional Permit (MRP) issued to each pump station. Section C.1 of the MRP refers to all municipal discharges, and Section C.2.d is specific to pump stations. This permit will govern discharges from the two pump stations, either directly downstream of the lower cofferdam or into a collector for other site discharges. It is already anticipated that discharges from O'Connor Pump Station will be taken from the wet well and routed directly downstream of the lower coffer dam. Palo Alto discharges will be routed downstream. If collected, the discharge will be subject to the response to Item h., below. No additional treatment is required.

- d. *How will the contractor manage and treat outfall flows into the work area?*

Response: "Contractor shall make available an appropriate number of Baker tanks and pumps in preparation for collecting any water from the work site. Water from the work site will be collected in the Baker tanks and tested prior to discharge downstream if water will meet the requirements of the NPDES Construction permit."

- e. *What are the protective measures of tidal waters piling up against the downstream cofferdam?*

Response: The specifications are being revised to include bracing installed from the top of the sheet piles to driven embedment structures, 8 to 10 feet apart. Exposure above channel invert of the sheet pilings will be approximately 8 feet on the channel within 50 feet of the existing levees and 12 feet within the central 70 feet of width. MHHW is 7.1 feet NAVD88; the central area will experience this elevation of water whereas the edges will not. If the unlikely maximum planned-for tide occurs, then the entire 170 foot width will experience it. The Contractor will determine over what width the additional braces are necessary.

- f. *What are Sections 49-2.058 (steel sheet piles) and 13-5.02G (gravel bags)?*

- i. *Please explain further: "The second paragraph of this section does not apply."*

Response: Sections 49-2.058 (steel sheet piles) and 13-5.02G (gravel bags) are sections of the State Specifications, and the second paragraph of the gravel bag section doesn't apply to this

work. Terminology is from the Caltrans water diversion plan for the project replacing the Highway 101 Bridge.

g. How will erosion be avoided and minimized during removal?

Response: In accordance with District BMP WQ-16, Avoid Erosion when Restoring Flows:

The removal will normally proceed from downstream in an upstream direction. Flows will be restored in a manner that minimizes erosion.

- When diversion structures are removed, to the extent practicable, the ponded flows will be directed into the low-flow channel within the work site to minimize downstream water quality impacts.
- Flows will gradually be restored to the channel to avoid a surge of water that would cause erosion or scouring.

Bypassed flows may be slowly reintroduced into the dewatered area by leaving a silt barrier in place to allow water to slow and drop sediment to the extent possible. Also, energy dissipation per Construction BMP Handbook shall be installed for all discharge points (one is currently proposed).

h. Provide a water quality monitoring plan and treatment methods to be implemented for the ponded water, groundwater, and diverted water. SFJPA/District will be required to conduct water quality monitoring and treatment (if necessary) to ensure water quality objectives, as specified in the Basin Plan, are being met.

Response: Sampling shall consist of taking measurements for pH and turbidity at sampling points located approximately 100 feet upstream of the upstream coffer dam and approximately 100 feet downstream of the downstream coffer dam. Measurements shall be taken daily commencing from two (2) days prior to installation of a temporary water diversion system and concluding one (1) day after removal of the temporary water diversion system. Inspection for noticeable odor or sheen will be performed. Water quality readings will be recorded as part of daily SWPPP reports. Prior to start of the work, background samples will be collected 100 feet upstream of the project site, if natural stream flows allow.

All discharges from the construction site shall be in accordance with Risk Level 2, SWPPP. Daily visual inspection will be made at discharge point BMPs to ensure BMPs are undamaged and in place. Results will be recorded as part of the SWPPP reports.

Samples will be collected and analyzed as required by 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-2006-DWQ for Risk 2 projects, Appendix D, Table 3:

pH: Field test with calibrated portable instrument, detection limit 0.2 pH units,
Numerical Action Limits (NAL): lower NAL=6.5 and upper NAL=8.5

Turbidity: Field test with calibrated portable instrument and/or EPA 0180.1, detection
limit 1 NTU, NAL=250 NTU

Water collected prior to discharge (ponded water, collected groundwater) shall be visually inspected and sampled as above.

Diverted water shall flow by gravity or by pumping from above the upstream dam to below the downstream dam, without being in contact with the construction site (This differs from the previously submitted draft and does not require breaching the sheet pile dams). Water exceeding NALs or potentially containing contaminants shall be pumped or otherwise diverted to storage tanks for treating or disposal. Sediments will be removed by settling and clear water will be discharged. pH will be adjusted by appropriate methods. Otherwise contaminated water will be disposed of in accordance with all applicable regulations.

STATE OF CALIFORNIA – CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD
 1515 CLAY STREET, SUITE 1400
 OAKLAND, CALIFORNIA 94612

**APPLICATION FOR 401 WATER QUALITY CERTIFICATION
 AND/OR REPORT OF WASTE DISCHARGE**

(FORM R2C502-E)

1. APPLICANT'S NAME Kevin Murray, San Francisquito Creek Joint Powers Authority	4. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) Matthew Jones, ICF International
---	--

2. APPLICANT'S ADDRESS 615 B Menlo Avenue Menlo Park, Ca 94025	5. AGENT'S ADDRESS 75 East Santa Clara St., Suite 300 San Jose, Ca 95113
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3. APPLICANT'S PHONE & FAX NOS. (email optional) 650.324.1972	6. AGENT'S PHONE & FAX NOS. (email optional) 408.216.2815
---	---

7. STATEMENT OF AUTHORIZATION
 I hereby authorize _____ N/A _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE **DATE**
 (This must be signed by the Applicant, not the authorized agent)

PROJECT OR ACTIVITY INFORMATION

8. PROJECT NAME OR TITLE (See Instructions.)
 San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project

9. NAME OF AFFECTED WATERBODY(IES) (See instructions.) San Francisquito Creek, South San Francisco Bay, Faber Tract And Associated Unnamed Sloughs	10. PROJECT STREET ADDRESS (if applicable) See Box 13
--	---

11. LOCATION OF PROJECT

<u>San Mateo</u>	<u>Palo Alto</u>	<u>Region 2 – San Francisco Bay</u>
COUNTY	CITY/TOWN (or unincorporated)	REGIONAL WATER BOARD REGION

12. OTHER LOCATION DESCRIPTIONS (watershed, latitude & longitude, river mile, etc. Attach map. See instructions.)
 San Francisquito Creek Watershed, 200 feet upstream of East Bayshore and Highway 101 Bridge to San Francisco Bay. See the Additional Pages; Box 12: Project Location, for more details.

13. DIRECTIONS TO THE SITE

From Highway 101 North: Take the Embarcadero Road exit. Keep left at the fork and follow signs for Embarcadero Road. Then, keep right at the fork and follow signs for Embarcadero Road East and merge onto Embarcadero Road. Take a left onto Geng Road and follow to the end of the road.

From Highway 101 South: Take the Embarcadero Road/Oregon Expressway. Keep left at the fork and follow signs for Embarcadero Road East, then merge on Embarcadero Road. Take a left onto Geng Road and follow to the end of the road.

14. PROJECT PURPOSE (Describe the reason or purpose for the overall project. See instructions.)

The Project would ultimately improve channel capacity for Creek flows coupled with the influence of the tides of San Francisco Bay, including projected Sea Level Rise (SLR), from the downstream face of East Bayshore Road to San Francisco Bay. It would reduce local fluvial flood risks in the action area during storm events, provide the capacity needed for future upstream improvements, increase and improve ecological habitat, and provide for improved recreational opportunities

15. DESCRIPTION OF ACTIVITY AND ENVIRONMENTAL IMPACTS (Provide a full, technically accurate description of the entire activity and associated environmental impacts. See instructions.)

The San Francisquito Creek Joint Powers Authority (SFCPJA) proposes the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project San Francisco Bay to Highway 101 (Project). This Project would increase conveyance and retention capacity of floodwaters from runoff and San Francisco Bay tides to protect residents and property from flood events along the lower section of the Creek, from East Bayshore Road to the San Francisco Bay. An Environmental Impact Report was approved October 25, 2012 . Work within the project boundary includes the following activities:

- Excavating sediment deposits within the channel to maximize conveyance.
- Rebuilding levees and relocating a portion of the southern levee to widen the channel to reduce influence of tides and increase channel capacity.
- Constructing floodwalls in the upper reach to increase capacity and maintain consistency with Caltrans’ enlargement of the U.S. 101/East Bayshore Road Bridge over San Francisquito Creek (Caltrans facility). See Additional Pages; Box 15: Description of Activity and Environmental Impacts, for full details.

16. AVOIDANCE OF IMPACTS (Describe efforts to avoid and minimize impacts to waters of the State. See instructions.)

See Additional Pages: Box 16: Avoidance of Impacts which details the measures that will be implemented as necessary to reduce and minimize stormwater pollution during ground disturbing maintenance activities.

17. ENVIRONMENTAL DOCUMENTS (list any non-CEQA environmental documents that have been prepared for the project and/or the project site. Provide the date of the document and the name of the individual, firm, or agency that prepared it. Provide a copy of delineations and endangered species surveys. See instructions.)

Biological and Essential Fish Habitat Assessment, IFC International, November 2012, Compact Disc 2
 Preliminary Delineation of Wetland and Other Waters of the United States, ICF International, June 2012, Compact Disc 2
 SWPPP and Erosion Control and Sedimentation Plan, in preparation

DREDGE & FILL INFORMATION

18. The following items must be completed for each action where fill or other material will be temporarily (T) or permanently (P) discharged to a wetland or other waterbody, and where material will be dredged from a waterway (add additional pages as necessary). Provide a map showing the location of each action (See instructions):

Map Location Number	LOCATION (show on plan & indicate waterbody)	REASON FOR ACTION (See instructions)	AMOUNT AND TYPE OF MATERIAL (in cubic yards, see instructions)	SURFACE AREA OF FILL (in acres and/or linear feet; specify (T) or (P); see instructions)
	See Additional Pages: Box 18: Dredge and Fill Information			

MITIGATION

19. MITIGATION (Describe the size, type, and functions, and values of the proposed mitigation. Describe success criteria, monitoring, and long-term funding, management, and protection of the mitigation site. Attach a Mitigation Plan if needed. See instructions and contact Regional Board staff for additional assistance.)

The SFCJPA will be responsible for restoring permanently affected riparian habitat at a mitigation-to-effect ratio of 2:1, and restoring temporarily affected habitat at a minimum effect-to-mitigation ratio of 1:1 to ensure no net loss of riparian habitat in the affected stream reach. The SFCJPA will develop a Mitigation and Monitoring Plan (MMP) to ensure that all removed habitat is replaced "in kind" with the appropriate native overstory and understory species to maintain structural complexity and habitat value. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Department of Fish and Game Code, and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. The success criteria will be met if 80 percent of the riparian plantings become established after ten years. Monitoring will occur, at a minimum, during years 1, 2, 3, 5, 7, and 10, with the plantings taking place in year 0. The initial annual monitoring will assess progress of the plantings according to predetermined success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The MMP will remain in force until the success criteria are met.

CEQA

20. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) Documents: Indicate the status of CEQA documents prepared for the project (see instructions).

TYPE OF DOCUMENT	STATUS	DATE COMPLETED (or expected to be complete)	TYPE OF DOCUMENT	STATUS	DATE COMPLETED (or expected to be complete)
Initial Study	Not Applicable		Notice of Preparation	Complete	09/13/12
Draft Environmental Impact Report	Complete	09/12/12	Final Environmental Impact Report	Complete	10/25/12
Negative Declaration	Not Applicable		Mitigated Negative Declaration	Not Applicable	
Notice of Categorical Exemption Exemption Number:	Not Applicable		Notice of Statutory Exemption Exemption Number:	Not Applicable	
Other (describe)	Not Applicable				
Notice of Determination*	Complete	10/08/12	*Note: A Notice of Determination or Notice of Exemption from the Lead Agency is required before a certification or waiver can be issued.		

Lead Agency: US Army Corps of Engineers

Contact: Ian Liffmann

Telephone: 4155036769

State Clearing House Number: 2010092048_____

ADDITIONAL INFORMATION

21. HAS ANY PORTION OF THE WORK BEEN INITIATED? YES NO
 IF YES, DESCRIBE THE INITIATED WORK, and explain why it was initiated prior to obtaining a permit. Indicate whether any enforcement action has been taken against the project.

N/A

22. HAS A FEDERAL AGENCY OR THE APPLICANT PROVIDED PUBLIC NOTICE OF THIS APPLICATION FOR WATER QUALITY CERTIFICATION?

Federal Agency: YES NO Date: _____ Type of Notification: _____ Agency Name and Contact: _____

Applicant: YES NO Date: _____ Type of Notification: _____ Media Name and Contact: _____

IF PUBLIC NOTICE HAS NOT BEEN MADE, provide the name, address, and phone number (if available) of adjacent property owners, lessees, etc., and any other parties known to be interested in the project:

23. OTHER PERMITS (List other local, state or federal licenses, permits, and agreements that will be required for any construction, operation, maintenance, or other actions associated with the project. Attach copies of all draft or final documents. See instructions.)

AGENCY	CONTACT (with phone number)	TYPE OF APPROVAL	PERMIT OR ID NUMBER	DATE APPLIED	STATUS	DATE OF ACTION
US Corps of Engrs.	Ian Liffmann (415) 5036769	404			In Review	
Ca Dept Fish Game	Tami Schane (415) 8314640	LSAA			In Review	
-Choose One-					-Choose One-	
-Choose One-					-Choose One-	
-Choose One-					-Choose One-	
SF BCDC	Ellie Knecht (415) 3523668	Coastal Development			In Review	

		Permit				
Other or Local Agency					-Choose One-	
Other or Local Agency					-Choose One-	
Other or Local Agency					-Choose One-	

24. OTHER PROJECTS (List and describe other projects implemented or planned that are related to the proposed project, or that may impact the same waterbody. See instructions. Add additional sheets if necessary.)

PROJECT NAME	DESCRIPTION	WATERBODY AND WATERSHED	DATE IMPLEMENTED/PLANNED
See Additional Pages: Box 24: Relationship to Other Projects			

25. Application is hereby made for a permit or permits to authorize the work described in this application. I certify, under penalty of perjury, that this application is complete and accurate to the best of my knowledge. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE
The application must be signed by the person who desires to undertake the proposed activity (Applicant) or a duly authorized agent if the statement in Block 7 has been filled out and signed.

Attach fee deposit (see Instructions page 7) and any additional documents and submit this application to:

**SFBRWQCB
Attention: 401 Water Quality Certification
1515 Clay Street, Suite 1400
Oakland, CA 94612**

Note: This form, FORM R2C502-E, was designed for electronic use as a Microsoft Word document or template. For assistance using this form or to relay suggestions on how it may be improved, please call 510-622-2330. If you would like a standard, non-electronic form, please call 510-622-2300 and request 401 Application FORM R2C502 – Non-electronic version.

SECTION 401 WATER QUALITY CERTIFICATION APPLICATION

**SAN FRANCISQUITO CREEK FLOOD REDUCTION, ECOSYSTEM
RESTORATION, AND RECREATION PROJECT, SAN MATEO AND SANTA
CLARA COUNTIES, CA**

SUBMITTED TO:

San Francisco Bay Regional Water Quality Control Board
Water Quality Certification
1515 Clay Street, Suite 1400
Oakland, CA 94612
Contact: Margarete Beth

APPLICANT:

San Francisquito Creek Joint Powers Authority
615 B Menlo Avenue
Menlo Park, CA 94025
Contact: Kevin Murray
650/324-1972

PREPARED BY:

ICF International
75 East Santa Clara Street, Suite 300
San Jose, CA 95113
Contact: Matthew Jones
408/216-2815

JANUARY 28, 2014



ICF International. 2014. San Francisquito Creek Joint Powers Authority. 401 Water Quality Certification Application. March. (ICF 00290.10.) San Jose, CA. Prepared for: San Francisquito Creek Joint Powers Authority, Menlo Park, CA. Submitted to: San Francisco Bay Regional Water Quality Control Board.

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Appendix C: Copy of Application for Section 404 Individual Permit

Appendix D: Copy of Notification of Streambed Alteration

Appendix E: Proof of Filing Fee

This package also includes two Compact Discs:

Disc 1:

- Final Environmental Impact Report
- Notice of Determination
- Statement of Overriding Considerations
- Notice of Preparation

Disc 2:

- Biological and Essential Fish Habitat Assessment
- Preliminary Delineation of Wetlands and Other Waters of the United States
- Hydrological Study

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Preconstruction Notification for San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project

Box 12: Project Location

The San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project (Project) is located within the San Francisquito Creek (Creek) watershed, which encompasses a 45-square-mile basin, extending from Skyline Boulevard to San Francisco Bay. The watershed encompasses public and private lands in the Cities of East Palo Alto, Menlo Park, Palo Alto, Portola Valley, and Woodside; the unincorporated areas of San Mateo and Santa Clara counties; and Stanford University. The San Francisquito Creek floodplain, which has almost no overlap with the watershed, comprises almost 5 square miles. San Francisquito Creek represents the boundary between San Mateo and Santa Clara counties in the lower watershed. The last relatively unaltered urban creek system in the South Bay, San Francisquito Creek begins at the confluence of Corte Madera Creek and Bear Creek, just below Searsville Lake in Stanford University's Jasper Ridge Biological Preserve. The mouth of the Creek opens to the San Francisco Bay adjacent to Palo Alto Airport of Santa Clara County (Palo Alto Airport) to the south and the Baylands Nature Preserve to the north. The system contains more than 71 miles of Creek bed; the mainstem is approximately 14 miles long.

Figure 1 displays the project site and project area. The project is located along a 1-mile stretch of the Creek from San Francisco Bay to East Bayshore Road (Highway 101). For description purposes, the Project area is divided into three reaches. A reach is a continuous part of the Creek between two specified points. The lower reach is from San Francisco Bay to Friendship Bridge, the middle reach from Friendship Bridge to Daphne Way, and the upper reach from Daphne Way to East Bayshore Road. Additionally, the right bank refers to the San Mateo County (East Palo Alto) side of the Creek and the left bank refers to the Santa Clara County (Palo Alto) side of the Creek. Table 1 provides coordinates for eastern and western extents of the Project site.

Table 1. Coordinates for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project

Project Area	Latitude	Longitude	Township/ Range/ Section	USGS Map
East Bayshore Road and US 101	37°27'11" N	122°07'39" W	N/A	Palo Alto
San Francisco Bay	37°27'157" N	122°06'57" W	N/A	Mountain View

The Project is located within the larger Santa Clara watershed basin located within the larger South San Francisco Bay Hydrologic Unit (HUC 18050004). More specifically, it is located within the San Francisquito Creek watershed along creek channel, and is bordered in the west by the Cordilleras Creek watershed, and in the east by the South San Francisco Bay. The project is located within a tidally-influenced zone.

Box 14-Project Purpose

The Project would ultimately improve channel capacity for creek flows coupled with the influence of the tides of San Francisco Bay, including projected Sea Level Rise (SLR), from the downstream face of East Bayshore Road to San Francisco Bay. It would reduce local fluvial flood risks in the Project area during storm events, provide the capacity needed for future upstream improvements, increase and improve ecological habitat, and provide for improved recreational opportunities.

The SFCJPA, formed in 1999 following the flood of 1998, is a regional government agency whose members include the Cities of Palo Alto, Menlo Park, and East Palo Alto; the San Mateo County Flood Control District, and the Santa Clara Valley Water District (District). The SFCJPA implements flood management, ecosystem restoration and recreational enhancements throughout the San Francisquito Creek watershed and floodplain.

Flooding from the Creek is a common occurrence. The most recent flood event occurred as a result of extremely high creek flows in December 22-23, 2012, when the Creek overtopped its banks in several areas. The maximum instantaneous peak flow recorded at USGS Gage 11164500 during the December 2012 event was 5,400 cfs. An even larger event occurred on a February 1998 event, with a maximum instantaneous peak flow recorded during the February 1998 event was 7,200 cubic feet per second (cfs). The U.S. Army Corps of Engineers (USACE) estimates that the 1998 flood was a 45-year flood event. A 100-year flood event is anticipated to result in flows of 9,400 cfs at the mouth of the Creek. These flows would exceed the existing capacity of the Creek (San Francisquito Creek Joint Powers Authority 2009).

The Project's goals are to improve flood protection, habitat, and recreational opportunities within the Project reach, with the following specific objectives:

- Protect properties and infrastructure between East Bayshore Road and the San Francisco Bay from Creek flows resulting from 100-year fluvial flood flows occurring at the same time as a 100-year tide that includes projected Sea Level Rise through 2065.
- Accommodate future flood protection measures that might be constructed upstream of the Project.
- Enhance habitat along the Project reach, particularly habitat for threatened and endangered species.
- Enhance recreational uses.
- Minimize operational and maintenance requirements.

The Project would increase conveyance and retention capacity of floodwaters from runoff and San Francisco Bay tides to protect residents and property from flood events along the lower section of the Creek, from East Bayshore Road to the San Francisco Bay.

Box 15: Description of Activity and Environmental Impacts

The Project will have a total of 7.99 acres of temporary impacts and 0.6 acres of permanent impacts to waters of the state. Temporary impacts include areas that will may be impacted during construction activities, but will be restored (i.e., re-graded and re-vegetated) post-construction. Permanent impacts comprise all areas that will be permanently modified as part of the Project. Table 4, *Summary of Water Bodies*, below provides detail on permanent impact areas.

Project Elements

The San Francisquito Creek Joint Powers Authority (SFCJPA) proposes the Project. This Project would increase conveyance and retention capacity of floodwaters from runoff and San Francisco Bay tides to protect residents and property from flood events along the lower section of the Creek, from East Bayshore Road to the San Francisco Bay. An Environmental Impact Report was approved October 25th, 2012 (<http://sfcjpa.org/web/documents/docs/docs-sf-bay-highway-101-project-final-eir/>). Work within the project boundary includes the following activities. The project elements are identified in Appendix A, Figure 2.

- Excavating sediment deposits within the channel to maximize conveyance.
- Rebuilding levees and relocating a portion of the southern levee to widen the channel to reduce influence of tides and increase channel capacity.
- Constructing floodwalls in the upper reach to increase capacity and maintain consistency with Caltrans' enlargement of the U.S. 101/East Bayshore Road Bridge over San Francisquito Creek (Caltrans facility).

Major Project elements include:

- Levee setback and improvements to widen the channel and increase levee height and stability between East Palo Alto and the Palo Alto Golf Course.
- Floodwalls in the upper reach downstream of East Bayshore Road.
- Extension of Friendship Bridge via a boardwalk across new marshland within the widened channel.

The Project has two main components: Levee and Floodwall Construction and Marshplain Restoration. Each component contains multiple elements summarized in Table 2 below.

Table 2. Summary of Project Elements

Project Component	Description
Levee and floodwall construction	
Levee raising on right bank	From the O'Connor Pump Station tie-in near Friendship Bridge to the floodwall.
Floodwall on right bank	The right floodwall would extend from just downstream of Daphne Way to the end of the Project reach where it would connect with the Caltrans U.S. 101/East Bayshore Road facility.
Levee raising on left bank and levee relocation	Levee relocation of the middle reach and a small portion of the upper and lower reaches. The levee would be relocated inland (currently occupied by the Golf Course), creating space on the left bank for a marshplain terrace. Except for a section around the eastern footings of Friendship Bridge, the existing levee along this stretch would be removed.
Floodwall on left bank	The left floodwall would extend from the end of the left levee, along the streambed, around the Palo Alto Pump Station, to the end of the Project reach where it would connect with the Caltrans facility.
Downstream access road on right bank	The right bank downstream access road would be approximately 16 feet wide and extend from the crown of the right levee to street level to just downstream of Daphne Way.
Upstream access road on right bank	The right bank upstream access road would be approximately 12 feet wide and would extend from just downstream of Verbena Drive to the Caltrans facility at East Bayshore Road.
Access road on left bank	The left bank access road would be generally 12 feet wide and would extend from a point downstream of the International School of the Peninsula to the Palo Alto Pump Station. The access road would also be used as a public trail within the City of Palo Alto and would connect to the Baylands Athletic Center.
Friendship Bridge	The existing Friendship Bridge would be retained and extended as a boardwalk from the retained eastern footing across the new marshplain terrace to the relocated left bank levee.
Marshplain restoration	
Upstream of Friendship Bridge on right bank	High-marsh and transitional vegetation would be planted from the edge of the Creek channel to the toe of the levee from just upstream of Friendship Bridge to East Bayshore Road.
Left bank	High-marsh and transitional vegetation would be planted from the edge of the Creek channel to the base of the floodwall or the toe of the levee. In this area the marsh would be planted adjacent to the toe of the cut-and-fill area. The marsh would extend from the point at which the new levee would diverge inland from the existing levee to East Bayshore Road.

More detailed information for each project element can be found in Biological Assessment included on the CD's included with the package.

Utility Relocation

Project activities would require relocation or removal of electricity transmission towers and poles; abandonment of existing and construction of new gas transmission lines; and realignment or relocation of sewer lines and storm drains (Environmental Impact Report, Figure 2-4).

Construction

Construction of Project elements would likely occur in two phases. While all Project elements could be constructed at one time if sufficient funding was secured, the two-phase construction methodology is conservatively assumed to be the preferred construction approach. Phase One construction would begin in 2014 and be completed by 2016. Construction would begin with building the new levee structure outside of the existing levee, during or after completion of PG&E and EPASD modifications to existing utilities and modifications to the PAGC, and would proceed at Friendship Bridge and upstream with the excavation of the channel up to East Bayshore Road being the final Project activity. Phase Two construction of upstream floodwalls and associated maintenance roads would occur once funding was secured.

Construction activities would take place between 8 a.m. and 6 p.m. on weekdays, and 9 a.m. and 5 p.m. on Saturdays, in accordance with City of Palo Alto and City of East Palo Alto municipal codes. Final construction permits issued for the Project may place additional constraints on construction timing. Table 2 shows the Project elements, when construction on each is expected to begin, construction activities, and construction duration.

A summary of the anticipated construction methodology, the proposed starting date and duration of each activity, and the equipment to be used during each phase is listed in Table 3.

Table 3. Summary of Construction Methodology, Timing, and Equipment

Project Component	Proposed Starting Date	Activity	Proposed Duration	Equipment
Utility Relocation				
PG&E Electricity Transmission	2/2014	Construction of shoo-fly tower at T3	2 weeks	1 pickup 1 four-door pickup
	2/2014	Tower raises (T1 and T4)	2 weeks (1 week per tower)	1 2-ton tool truck with air compressor 1 dump truck
	3/2014	New tower construction and demolition of T2	4 weeks	1 70-ton crane 1 caterpillar (pile driver)
	4/2014	Demolition of shoo-fly	1 day	1 back hoe 1 concrete truck 1 pump truck
	4/2014	Gas line work	4 weeks	2 4-door pickups 1 backhoe 2 flatbed truck
	4/8/2014	directional drilling	2 weeks	1 directional drill rig
	PG&E Gas Transmission	4/18/2014	export of material	1 week
	4/25/2014	concrete	2 days	1 concrete truck
	4/27/2014	Demobilization	1 week	2 4-door pickups 1 flatbed truck
Phase One—Levees and Excavation				
Site Preparation	4/2014	Mobilization Tree Removal Clearing and Grubbing Stripping Demolition	6 weeks	4 four-door pickups 1 backhoe 1 loader 1 jackhammer 1 flat-bed truck
Construction of new left bank levee	5/2014	Site excavation Levee construction Seeding for erosion control	5 weeks	4 four-door pickups 3 excavators 1 backhoe 2 loaders 4–6 dump trucks (20 cy each) 2 water trucks

Removal of old left bank levee	7/2014	Site excavation	3 weeks	4 four-door pickups 3 excavators 1 backhoe 2 loaders 4–6 dump trucks (20 cy each) 2 water trucks
Removal of right bank levee	7/2014	Site excavation Relocation of East Palo Alto sewer line and siphon	2 weeks	4 four-door pickups 3 excavators 1 backhoe 2 loaders 4–6 dump trucks (20 cy each) 2 water trucks
Construction of right bank levee	8/2014	Levee construction Seeding for erosion control	3 weeks	4 four-door pickups 3 excavators 1 backhoe 2 loaders 4–6 dump trucks (20 cy each) 2 water trucks
Construction of downstream access road on right and left banks	9/2014	Site preparation and paving	4 weeks	4 four-door pickups 1 dump truck 1 grader 1 four-door pickup 2 concrete trucks 1 asphalt paver 1 compactor
Friendship Bridge	10/2014	Site excavation Boardwalk construction	6 weeks	4 four-door pickups 1 backhoe 1 loader 1 flat-bed truck
Channel widening and marshplain terracing	7/2014	Site excavation Terracing	10 weeks	4 four-door pickups 3 excavators 1 backhoe 2 loaders 4–6 dump trucks (20 cy each) 2 water trucks
Revegetation	10/2014	Installation of irrigation system Revegetation	6 weeks	2 four-door pickups

Phase Two—Floodwalls

Site Preparation	5/2015	Mobilization Clearing and grubbing	3 weeks	4 four-door pickups 1 backhoe 1 loader 1 jackhammer 1 flat-bed truck
Installation of right and left bank floodwalls	6/2015	Site excavation Preparation of foundation Construction of floodwalls	5 months	4 four-door pickups 1 excavator 1 trencher 1 backhoe 1 loader 1 dump truck 1 grader 2 concrete trucks 1 flat-bed truck
Construction of upstream access road on right and left banks	10/2015	Site preparation and paving	4 weeks	4 four-door pickups 1 dump truck 1 grader 1 four-door pickup 2 concrete trucks 1 asphalt paver 1 compactor
Site Restoration	11/2015	Demobilization	2 weeks	2 four-door pickups 1 loader 1 flat-bed truck

Detailed information for the construction and purpose of each element of the project can be found in Biological Assessment.

Marshplain Creation and Restoration

The Project would create approximately 15.3 acres of tidal marsh on both sides of the Creek, effectively restoring tidal influence in the Project reach (see Figure 2). Marshplain creation would span the entire Project extent on both banks from East Bayshore Road to San Francisco Bay on the right bank and from East Bayshore Road to Friendship Bridge on the left bank. Both sides of the channel would be planted from the toe of the levee or base of the floodwall to the edge of the Creek channel.

After Phase One levee construction is complete, the tidal marsh area would be terraced and revegetated with high-marsh plants. The high-marsh planting area would total 7.05 acres and the high-marsh transition planting area would total 8.34 acres. Additionally, in areas where rock slope protection is required, 10-foot vegetated shrub bands would be installed to provide refugia and promote long term vegetated protection and stability across the rock slope protection areas.

Native marsh plants would be used to revegetate the terraced land. Plants appropriate to the high marsh would be planted near the stream channel. Plants native to marsh transition areas would be planted in areas more distant from the Creek channel. The SFCJPA, or its designated contractor, will be responsible for the acquisition of plant material. All container stock will be propagated from native stock collected within the

south San Francisco Bay and tidally influenced creeks in coordination with Santa Clara Valley Water District staff.

Box 16: Avoidance of Impacts

1. The following measures will be implemented as necessary to reduce and minimize stormwater pollution during ground disturbing maintenance activities:
 - Soils exposed due to maintenance activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall.
 - The preference for erosion control fabrics will be to consist of natural fibers.
 - Appropriate measures include, but are not limited to, the following:
 - Silt Fences.
 - Straw Bale Barriers.
 - Brush or Rock Filters.
 - Storm Drain Inlet Protection.
 - Sediment Traps.
 - Sediment Basins.
 - Erosion Control Blankets and Mats.
 - Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.).
 - Wood chips.
 - Straw mulch.
 - All temporary construction-related erosion control methods will be removed at the completion of the Project (e.g., silt fences). (Santa Clara Valley Water District Water Quality BMP 41)
2. The following measures will be implemented to ensure sediments will be stored and transported in a manner that minimizes water quality effects:
 - Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal.
 - This measure applies to saturated, not damp, sediments and depends on the availability of a stockpile site.
 - For those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the Creek or into local storm drains that enter the Creek, unless water quality protection measures recommended by RWQCB are implemented.
 - Trucks may be lined with an impervious material (e.g., plastic), or the tailgate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out.
 - Water will not drain directly into channels (outside of the work area) or onto public streets without providing water quality control measures
 - Streets and affected public parking lots will be cleared of mud and/or dirt by street sweeping (with a vacuum-powered street sweeper), as necessary, and not by hosing down the street. (Santa Clara Valley Water District Water Quality BMP 4)

3. Oily, greasy, or sediment-laden substances or other material that originate from the Project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.
4. The following measures will be implemented to ensure the Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:
 - Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent.
 - Where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent.
 - Where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the Project.
 - Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of Project discharges, preferably at least 2 days prior to commencement of operations. (Santa Clara Valley Water District Water Quality BMP 40)
5. No washing of vehicles will occur at job sites. (Santa Clara Valley Water District Hazards & Hazardous Materials BMP 9).
6. No fueling will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).
 - For stationary equipment that must be fueled on the site, containment will be provided in such a manner that any accidental spill of fuel will not be able to enter the water or contaminate sediments that may come in contact with water.
 - Any equipment that is readily moved out of the waterway will not be fueled in the waterway or immediate flood plain.
 - All fueling done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation. (Santa Clara Valley Water District Hazards & Hazardous Materials BMP 10)
7. No equipment servicing will be done in a stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
 - Any equipment that can be readily moved out of the channel will not be serviced in the channel or immediate flood plain.
 - All servicing of equipment done at the job site will provide containment to the degree that any spill will be unable to enter any channel or damage stream vegetation.
 - If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain.
 - If emergency repairs are required, containment will be provided equivalent to that done for fueling or servicing.

8. Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.
 - Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.
 - The discharge of any hazardous or nonhazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations (CCR) will be conducted in accordance with applicable state and federal regulations.
 - In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1 800 510 5151. (Santa Clara Valley Water District Hazards & Hazardous Materials BMP 12)
9. Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water.
 - Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills.
 - No fueling, repair, cleaning, maintenance, or vehicle washing will be performed in a creek channel or in areas at the top of a channel bank that may flow into a creek channel. (Santa Clara Valley Water District Hazards & Hazardous Materials BMP 13)
10. Spill prevention kits appropriate to the hazard will always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
 - Prior to entering the work site, all field personnel will know the location of spill kits on crew trucks and at other locations within District facilities.
 - All field personnel will be advised of these locations and trained in their appropriate use. (Santa Clara Valley Water District Hazards & Hazardous Materials BMP 14)
11. Runoff from soil stockpiles will be avoided. If soil is to be stockpiled, no runoff will be allowed to flow to a creek.
12. Cofferdams will be used for tidal work areas. For tidal areas, a downstream cofferdam will be constructed to prevent the work area from being inundated by tidal flows. By isolating the work area from tidal flows, water quality effects are minimized. Downstream flows continue through the work area and through pipes within the cofferdam.
 - Installation of coffer dams will begin at low tide.
 - Waters discharged through tidal coffer dam bypass pipes will not exceed 50 NTU over the background levels of the tidal waters into which they are discharged.
 - Cofferdams shall not be constructed of earthen fill due to potential adverse water quality impacts in the event of a failure.
 - Cofferdams constructed of gravel shall be covered by a protective covering (e.g., plastic or fabric) to prevent seepage.

13. Groundwater will be managed at work sites. If high levels of groundwater in a work area are encountered, the water will be pumped out of the work site. If necessary to protect water quality, the water will be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a receiving water body. Water pumped into vegetated areas will be pumped in a manner that will not create erosion around vegetation.
14. Sanitary/septic waste will be managed. Temporary sanitary facilities will be located on jobs that last multiple days in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 CCR 1526. All temporary sanitary facilities will be placed outside of the Creek channel and flood plain and removed when no longer necessary.
15. SFCJPA will be responsible for ensuring compliance with all local and State regulations, including the RWQCB NPDES permits and local BMPs for jurisdictions adjoining the Project site. As part of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and the San Mateo Countywide Stormwater Pollution Prevention Program (SM-STOPPP), required under San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Order R2-2009-0074), all construction sites are required to have site-specific and seasonally and phase-appropriate effective BMPs (San Francisco Bay Regional Water Quality Control Board 2009). SFCJPA shall be covered under the new National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activities (Order 2009-0009-DWQ as amended by 2010-0014-DWQ)(Construction General Permit), which became effective on July 1, 2010. The Project specifications require that the Project construction contractor prepare a SWPPP and erosion control and sedimentation plan showing placement of BMPs at various stages of construction in conformance with requirements, and all SWPPP documents and plans will be approved by a State-certified Qualified SWPPP Developer (QSD) and compliance with the Construction General Permit will be overseen by by a State-certified Qualified SWPPP Practitioner (QSP) . The Project will implement measures to accomplish objectives specified in SFCJPA's San Francisquito Creek Watershed Analysis and Sediment Reduction Plan, which fulfills NPDES permit provisions that require the co-permittees of the SCVURPPP and SM-STOPPP within the Creek watershed to assess and implement sediment management measures in the watershed (San Francisquito Creek Joint Powers Authority 2004). Water quality protection standards during construction will comply with the most protective and effective BMPs of the local jurisdictions and the State of California.

Box 20: CEQA

The Final Environmental Impact Report (EIR) for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project San Francisco Bay to Highway 101 was certified by the lead agency, the SFCJPA, in November 2012 (SCH 2010092048). The Notice of Preparation can be found online at: <http://www.ceqanet.ca.gov/DocDescription.asp?DocPK=645951> and the Draft EIR is available online at: <http://www.ceqanet.ca.gov/DocDescription.asp?DocPK=663670>. The Final EIR is available on the SFCJPA's website at: <http://sfcjpa.org/web/documents/docs/docs-sf-bay-highway-101-project-final-eir/>. The Notice of Determination (NOD) and Findings of Fact and Statement of Overriding Considerations (SOC) are provided in the enclosed CD's.

Box 24: Dredge and Fill Information

Wetlands affected by the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project include diked marsh, freshwater marsh, and tidal salt marsh habitat and “other waters” include San Francisquito Creek, one freshwater pond in the golf course. All affected water bodies were determined to be waters of the State. Table 4 provides a summary of all water bodies within the project area and those affected by the proposed project. With removal of the rock slope protection associated with the levee degrade, the permanent impacts associated with TSM-4 were the only changed conditions.

Table 4. Summary of Water Bodies

Water Body Type	ID	Reason For Action	Amount and Type of Material Cut (CY)	Amount and Type of Material Fill (CY)	Surface Area Affected (P acre)	Surface Area Affected (T acre)
Diked Marsh	DM-1	Levee	0	0	0.001	0.15
Diked Marsh	DM-2	Levee	0	0	0	0.01
Diked Marsh	DM-3	Levee	0	2	0.001	0.03
Diked Marsh	DM-4	Levee	0	0	0.001	0.01
Diked Marsh	DM-5		0	0	0	0
Diked Marsh	DM-6		0	0	0	0
Diked Marsh	DM-7	Levee	0	0	0.02	0
Diked Marsh	DM-8	Levee, Pavement, Cut of Floodplain Bench (CFB)	461	11,383	1.33	0
Diked Marsh	DM-9	Levee, Rock(RSP), Gravel	0	1,246	0.18	0
Diked Marsh	DM-10	Levee, RSP, CFB	308	2,552	0.80	0
Diked Marsh	DM-11	Levee	0	2,296	0.24	0
Diked Marsh	DM-12	Levee	0	1,346	0.10	0
Diked Marsh	DM-13	Levee, CFB	40	573	0.21	0

Freshwater Marsh	FM-1	Levee	0	881	0	0
Freshwater Marsh	FM-2	Levee	0	742	0.14	0
Tidal Salt Marsh	TSM-1	Levee, CFB	3,229	1,592	1.51	0
Tidal Salt Marsh	TSM-3	Levee, RSP, CFB	337	140	0.06	
Tidal Salt Marsh	TSM-4	Levee, RSP, CFB	1,223	1490	0.14	0.58
Tidal Salt Marsh	TSM-5	Levee	0	0	0.0003	0
Tidal Salt Marsh	TSM-6		0	0	0	0
Tidal Salt Marsh	TSM-7	Levee, RSP, CFB	225	103	0.02	0.002
Tidal Salt Marsh	TSM-8		0	0	0	0
Tidal Salt Marsh	TSM-9	Levee, RSP, CFB	1,987	2,518	1.03	0
Tidal Salt Marsh	TSM-10	Levee, CFB	3	0	0.002	0
Tidal Salt Marsh	TSM-11	Levee, RSP, CFB	191	64	0.04	0
Tidal Salt Marsh	TSM-12	Levee, CFB	30	0	0.01	0
Subtotal Wetlands			8,034	26,928	5.84	0.78
Freshwater Pond	FP-1	Levee	0	5,605	1.13	0
Tidal Channel and Bay Waters	TC-1	Levee	0	0	0	0.02
Tidal Channel and Bay Waters	TC-2	Levee, RSP, CFB	1,048	3,080	0.78	0
Tidal Pan	TP-1		0	0	0	0
Tidal Pan	TP-2		0	0	0	0
Tidal Pan	TP-3		0	0	0	0
Subtotal Other Water Bodies			1,048	8,685	1.91	0.02
PROJECT TOTAL			9,082	35,613	7.93	0.80

Verification of Water Bodies

During July 6,7, 8, 2010 and February 22, 2012, an ICF soil and wetland scientist and ICF botanist delineated a total of 140.11 acres of potential waters of the United States within the project area, including 13 diked marsh wetlands (4.34 acres), two freshwater marsh wetlands (0.33 acre), 11 tidal salt marsh wetlands (112.26 acres), one freshwater pond (1.13 acres), three tidal channel and bay waters (1.13 acres), and three tidal pans (0.37 acre) using the routine onsite determination method described in the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and where applicable, criteria specified in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement) (U.S. Army Corps of Engineers 2008). On February 5, 2013, Ian Liffmann from the USACE, San Francisco District, conducted a field visit to verify the results of the delineation, accompanied Joel Butterworth of ICF International.

Box 24: Relationship to Other Projects

Concurrently, the California Department of Transportation (Caltrans) is in the process of planning and design to replace the U.S. Highway 101 (U.S. 101), East Bayshore Road, and West Bayshore Road crossings over the Creek, and will improve the Creek conveyance capacity of the structures to the SFCJPA's design standards. The SFCJPA is also working as the local sponsor with USACE to initiate a comprehensive flood management plan for San Francisquito Creek. The Project also adjoins areas of the San Francisco Bay covered by the South Bay Salt Ponds Restoration Project and the South San Francisco Bay Shoreline Study.

The South Bay Salt Ponds Restoration Project will restore tidal connectivity to some 15,000 acres of former salt evaporation ponds recently acquired from Cargill Inc. by a coalition of federal and state resource agencies and private foundations. Additional goals include providing opportunities for public access and recreational use and improving South San Francisco Bay flood management. For more information on the South Bay Salt Ponds Restoration Project, see the project web page at <http://www.southbayrestoration.org/index.html>.

The South San Francisco Bay Shoreline Study is a joint undertaking by USACE, the California Coastal Conservancy, and the District, and is aimed at identifying one or more projects for flood damage reduction and ecosystem restoration to be recommended for federal funding. Other participating agencies are the U.S. Fish and Wildlife Service (USFWS), DFG, and the Alameda County Flood Control District. For more information on the South San Francisco Bay Shoreline Study, see the project web page at <http://www.southbayshoreline.org/index.html>.

Since the fall of 2009, staff from the SFCJPA and one of its member agencies, the District, have been analyzing capital improvements necessary to provide 100-year flood protection for the flood-prone reach of San Francisquito Creek upstream of U.S. 101. Creek capacity improvements under analysis include bridge replacement, channel widening and naturalization, floodwall construction or enhancement, a bypass culvert, and an upstream detention facility. It is likely that a suite of these

alternatives will be required to address the flooding problem. This analysis is being conducted locally, but adheres to USACE's planning standards. It is important to note that upstream improvements to flow capacity cannot not be constructed until project improvements at U.S. 101 and downstream to the San Francisco Bay are completed.

The Palo Alto Municipal Golf Course (Golf Course) Reconfiguration Project is an effort being undertaken by the City of Palo Alto, in response to the planning of this Project, to determine how to reconfigure the Golf Course to accommodate the San Francisquito Creek Flood Protection and continue to maintain the Golf Course's number of holes and par rating. The Golf Course Project also contemplates other recreational improvements at the Golf Course site. For more information on the Palo Alto Municipal Golf Course Reconfiguration Project, see the Golf Course web page at <http://www.cityofpaloalto.org/gov/depts/csd/golf/default.asp>.

Appendix A: Figures

Appendix B: Representative Photographs

Appendix C: Copy of Application for Section 404 Individual Permit

Appendix D: Copy of Notification of Streambed Alteration

Appendix E: Fee Calculator Spreadsheet

Responses to Incomplete Application for Water Quality Certification for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project, City of Palo Alto, Santa Clara and San Mateo Counties

Project Description

1. The application materials only describe impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (Corps). The application needs to be revised to also include jurisdictional waters of the State.

Response. Waters of the U.S. as mapped for this Project are inclusive of all Waters of the State and equivalent within the project footprint (See Attachment G, Wetland Delineation Report and Map; also see Attachment D Mitigation and Monitoring Plan, 5.1 Impacts to Waters). The Corps has issued a Preliminary Jurisdictional Determination inclusive of all water mapped within the Project.

2. The Project is considered a linear design project. As such, the impacts (permanent and temporary) need to be listed in linear feet, as well as acres, for all linear features (e.g. floodwalls, levees, boardwalk, channel rock slope protection, etc.) throughout the total Project footprint.

Linear Impacts:

Right Levee 2846 linear feet

Left Levee 2727 linear feet

Right floodwall 2154 linear feet

Left floodwall 2729 linear feet

Wetlands/Waters	Earthwork		FILL		Total Total Impact Area (sf)	Total Impact Volume (cy)
	CUT					
	Total Impact Area (sf)	Impact Volume (cy)	Total Impact Area (sf)	Impact Volume (cy)		
Diked Marsh	10,306	457	105,374	18,269	115,680	17,811
DM 1	0	0	19	0	19	0
DM 10	7	0	35,336	2,169	35,343	2,169
DM 11	1	0	10,307	2,303	10,308	2,303
DM 12			4,412	1,337	4,412	1,337
DM 3			22	1	22	1
DM 4			12	0	12	0
DM 8	10,297	457	47,572	11,247	57,869	10,790
DM 9			7,694	1,212	7,694	1,212
Freshwater Marsh	33	0	14,101	1,610	14,135	1,610
FM 1			8,110	883	8,110	883
FM 2	33	0	5,992	727	6,025	727
Freshwater Pond			49,074	5,601	49,074	5,601
FP 1			49,074	5,601	49,074	5,601
Tidal Channel and Bay Waters	5,042	396	24,903	2,329	29,946	1,933
TC 2	5,042	396	24,903	2,329	29,946	1,933
Tidal Salt Marsh	93,791	4,700	34,786	3,816	128,577	883
TSM 1	51,160	3,119	16,761	1,220	67,921	1,900
TSM 10	94	7			94	7
TSM 11	1,264	172			1,264	172
TSM 12	606	50			606	50
TSM 3	2,002	153	12	0	2,014	153
TSM 4	2,350	23	5,416	925	7,766	903
TSM 7	5,337	96			5,337	96
TSM 9	30,978	1,080	12,596	1,671	43,574	592
Grand Total	109,172	5,553	228,239	31,626	337,411	26,072

3. The Additional Pages for Box 12 of the application refers to the Biological Assessment (BA) for more detailed information on each project element. The Project description as presented in the BA does not include sufficient details to clearly understand all the Project elements. Therefore, it is difficult to determine if the Project as proposed will be protective of water quality and beneficial uses. The application needs to provide more in-depth details related the following Project elements.

Page 9

- i. The right bank levee at the Faber Tract marsh will be lowered from a 5-year rain event overflow to a 2.5-year rain event overflow to allow flood flows to enter the marsh. Please provide the total height the overflow area will be lowered and the volume of sediment to be removed.

Response: Lowering the right bank levee at the Faber Tract marsh is no longer part of the proposed project.

- ii. The application materials state that the proposed boardwalk will be constructed to extend from the existing Friendship Bridge into the area where marsh restoration is proposed, and will be constructed of timber with concrete pilings. The description does not indicate the dimensions of the boardwalk and pilings, including the number of concrete pilings to be located in the proposed marsh restoration area. The application needs to fully describe the boardwalk design and associated impacts to waters of the State, as well as any avoidance and minimization measures.

Response: The Project would include the addition of a new public boardwalk extending from the eastern footing of Friendship Bridge, across the new marshplain terrace, to the relocated left bank levee. The boardwalk would be the same width as Friendship Bridge and would be constructed of timber deck and concrete piles. The elevation of the low mark of the boardwalk would be set above the highest anticipated flood elevation, with the lowest point of the bridge a minimum of 5 feet above the marshplain terrace beneath it. The boardwalk would be designed in accordance with the Palo Alto Baylands Nature Preserve Design Guidelines (City of Palo Alto 2005) and the San Francisco Bay Trail Design Guidelines (Association of Bay Area Governments 1999). These Guidelines are intended to help provide a consistent approach to design, placement, and construction of common landscape elements that respects the landscape character, established a distinctive identity, and sets a standard of quality within the Baylands. The boardwalk would provide views similar to views from Friendship Bridge. The boardwalk would appear to be a visual extension of the Bridge and would not substantially alter the visual character of the Project site; therefore, impacts would be less than significant (See Figure 6, Public Access, following this response document).

The boardwalk is overall 202 feet long and 10 feet wide with 21 by 26 foot platforms at each end. Construction of the bridge will require 20, 18 inch diameter Cast In Drilled concrete piles. The proposed boardwalk does not cross existing waters of wetlands. The existing Friendship Bridge, which crosses existing waters and wetlands, is 140 feet long and 10 feet wide.

- i. The Project activities listed under “Additional Construction” do not include sufficient design details or identify resulting impacts to waters of the State. Provide a detailed description of all activities listed under “Additional Construction” that will impact waters of the State, including, but not limited to, specifications related to each activity, associated impacts to waters of the State (in linear feet and acres), impact avoidance and minimization measures, and mitigation measures. Associated activities required to complete the Project include the following.

Response: Tie-ins are the engineered transitions at levee and floodwall connections and connections to Caltrans and Friendship Bridge abutments. All of these tie-ins are within the construction footprint already accounted for in the impact calculations. Details for these transitions are shown within the Plan Sheets in Attachment A

Construction of Friendship Bridge boardwalk is shown in detail in Attachment C and discussed in detail above.

Installation of channel rock slope protection is also shown in detail in Sheets C-1 through C-17 of the Plan Set in Attachment A. Rock slope protection is only used in areas where necessary due to channel velocities at the ultimate design flow. See Attachment F San Francisquito Creek Draft Erosion Protection Analysis and Design Report for additional rock slope protection detail and justification.

- ii. The Project proposes to place a significant amount of rock slope protection (RSP) as shown in the Figure 2.x series. The Water Board considers the RSP to be a permanent impact. Since the Project proposes to widen the channel with the intent to accommodate flood flows and reduce velocity, the application needs to include sufficient engineering calculations demonstrating the rock slope protection is necessary to avoid and minimize channel erosion and that other more natural bio-technical methods would not be feasible to achieve erosion control.

Response: See Attachment F San Francisquito Creek Draft Erosion Protection Analysis and Design Report for additional RSP detail. In addition, linear feet and dimensions of RSP are detailed on Sheets C-1 through C-17 of the Plan Set (Attachment A).

Row Labels	Average of AVG_DEPTH	Sum of Sq_Ft		
ROAD-GRAV	0.5	50,125		
ADD	0.5	50,125		
ROAD-PAVE	0.5	43,981		
ADD	0.5	43,981		
ROCK-2FT	2.0	30,906		
ADD	2.0	30,906		
ROCK-3FT	3.0	21,977		
ADD	3.0	21,977		
ROCK-FLDWALL	4.7	42,684		
SUBSURF	4.7	42,684		
ROCK-LEVEETOE	3.7	85,697		
SUBSURF	3.7	85,697		
Grand Total	2.4	275,369		

Rock/Paths	Volume Relative to Earth	Average Dept	Total Area (sq	Volume (CY)
Gravel Road	Additional	0.5	50125	928
Paved Road	Additional	0.5	43981	814
Rock Slop Protectic	Additional	2	30906	2,289
Rock Slop Protectic	Additional	3	21977	2,442
Rock - Floodwall To	Subsurface	4.7	42684	7,430
Rock - Levee Toe	Subsurface	3.7	85697	11,744

Page 14: The application states that large vehicles are not allowed on roadways that will be used to access two of the three staging areas. How will these vehicles access all the staging areas and haul routes?

Response: Site access and a construction staging area would be located at the end of O'Connor Street near the intersection with Daisy Lane in East Palo Alto. The haul route would be along O'Connor Street to Pulgas Avenue, East Bayshore Road, and Embarcadero Road to U.S. 101. This is the designated route for large vehicles, including dump trucks and flatbed trucks, in the City of East Palo Alto. Large vehicles will not need to access the other staging areas.

- i. The Project description states that excavated sediment will be reused within the Project site. The application needs to also explain that the reuse of sediment will be subject to sediment characterization to identify any pollutants that may impact water quality and beneficial uses.

Response: The Best Management Practices Handbook, found with the diversion plan in Attachment E, defines sediment removal and reuse BMP's

Page 15: The application states that PG&E Tower T13 will be located in the creek after the channel is widened. The application needs to include sufficient details of the design specifications and associated impacts to waters of the State, and avoidance measures related to the PG&E tower.

Response: T3 would be located approximately 25 feet north of T2 and would replace T2. T3 would be 25 feet taller than T2, but would otherwise have the same design. Following completion of the Project, T3 would be located within the Creek. Therefore, there would be a fortified concrete pier supporting each leg of the tower. A shoo-fly structure would be built to allow for the construction of the new tower. The shoo-fly structure would have two wooden poles; one pole would be approximately 25 feet south of the existing tower and the second pole would approximately 75 feet north of the existing tower. The shoo-fly poles would be placed in the toe of the existing levee and would be removed once the new tower is fully operational (Figure 2-4, from the EIR).

a. Page 19-22

- i. Provide a definition for "significant rainfall" related to implementing BMPs to stabilize the Project site in the event of rain.

Response: Significant rainfall is defined as a forecast of 30% chance of rain, or at the onset of any precipitation. The 72 hour forecast from the National Weather Service will be monitored.

- ii. The application needs to also clarify that the Project will be subject to the requirements of the construction general NPDES permit.

Response: The Project will be subject to the requirements of the construction general NPDES permit, which is currently being developed

4. The application needs to include figures that identify waters of the State as well as Corps jurisdictional waters. In addition, the following figures contain minor errors with the legend/labeling.

- a. Figure 2.2 appears to be part of the Figure 4.x series and not the Figure 2.x series.

Response: See Updated Figure 2.2

- b. Figure 4.2 show two TSM 1 and TSM 9 areas.

Response: Figure 4.2 was tiled across the project site makes it appear that there are two TSM1 areas when in fact they are connected, as are TSM9. Additionally, at the time of the wetland delineation, there were disconnected section TSM1 and TSM9.

- c. Figure 1.3 shows existing and simulated view, but doesn't show the restored marsh.

Response: This figure shows the restored marsh area on the simulated view between the open water and levee walls. Because the restored plan palette consists of salt marsh grasses and other non-woody vegetation, visual simulations do not do a good job of showing vegetation.

5. The proposed Project will impact an existing mitigation area established as part of separate projects previously constructed adjacent to the City of Palo Alto Pump Station. The application needs to include specific details related to the impacts to the mitigation area, including, but not limited to, (1) Project name(s) and mitigation requirements for the existing mitigation site to be impacted; (2) proposed areal extent and type of impact(s); and (3) detailed description of proposed mitigation design to compensate for the impacts to the pre-existing mitigation areas.

Response: See the Mitigation and Monitoring Plan Section 5.2 (Attachment D) *Impacts to Riparian Habitat* discuss impacts to riparian habitat along San Francisquito Creek which constitute a portion of two mitigation areas; one for Santa Clara Valley Water District for impacts along Matadero Creek in 2004 and the other for a storm water pump station constructed adjacent to San Francisquito Creek in 2009.

6. The application materials need to include a dewatering plan that details how the channel will be dewatered including, but not limited to, the following information:

- a. Design specifications including the size of storm event for which it will be designed, special considerations for tidal and freshwater environments, groundwater, and wildlife habitats
- b. Method of dewatering:
- c. Discharge features to avoid and minimize water quality impacts
- d. BMPs
- e. Contingency plan
- f. Water quality monitoring plan that clearly explains the process of monitoring and treatment methods to ensure water quality objectives identified in the Basin Plan will be met.

Response: Refer to the dewatering plan and BMP handbook in Attachment E.

Project Alternatives

The Water Board requires that the least damaging practicable alternative (LEDPA) be defined for the Project in accordance with the EPA's 404(b)(1) Guidelines.

Response: The LEDPA Analysis was included in Chapter 6, *Alternatives*, of the Draft and Final EIR under the discussion of the "Identification of Environmentally Superior Alternative". While relative costs associated with alternatives were considered, no alternative was eliminated or selected over any other because of cost. The Proposed Project was selected as it was the least environmentally damaging alternative that met the purpose and need.

While the Golf Course Bypass Alternative did meet the purpose and need, the impacts associated with that alternative were similar to or worse than those associated with the Proposed Project. The Golf Course Bypass Alternative does not perform as well as channel widening for hydraulic conveyance. The assertion that the Bypass Alternative would reduce impacts to State Waters is inaccurate, as channel excavation, impacts to state waters on the Golf Course, and lowering of the Faber Tract Levee would all also occur under the Bypass Alternative and while potentially slightly lessened, these impacts roughly similar in overall impact to that of the Proposed Project. Additionally, the Bypass Alternative would have significantly greater traffic, air quality, and greenhouse gas emission impacts due to the extensive nature of earthwork necessary to build the bypass and would have significant recreational impacts associated with the impacts on the Golf Course.

As shown in Table 6-1 in the Final EIR (reprinted below), the overall impacts associated with the Golf Course Bypass Alternative are greater than those associated with the Proposed Project. As such, the Proposed Project was selected as the least damaging practicable alternative.

Table 6-1. Anticipated Environmental Impacts of Alternative 1 and the No Project Alternative

Resource	Alternative 1 (Golf Course Bypass)	No Project
	<p>Direct bypass channel from Geng Road terminus to edge of Palo Alto Municipal Airport.</p> <p>Allows for existing channel to largely be retained with floodwalls in upper reach.</p> <p>Reduced overflow into Faber Tract Baylands in comparison to the proposed Project.</p>	<p>No flood protection improvements to San Francisquito Creek.</p>
	<i>Approach to Analysis</i>	<i>Approach to Analysis</i>
	<p>The key difference between Alternative 1 and the proposed Project is that Alternative 1 would not widen the existing channel, but rather would divert flows across the existing Golf Course and input flow closer to San Francisco Bay, resulting in reduced overflow fluvial inputs into Faber Tract in comparison to the proposed Project.</p> <p>For the most part, impact mechanisms and construction durations would be similar under Alternative 1 to those identified for the proposed Project. Floodwalls would still be necessary upstream of Geng Road, and all levees would still need to be rebuilt to USACE standards.</p> <p>Analysis therefore concentrated on new impacts created by the bypass channel and the effects of moving flood flows away from residences and reduced fluvial flows into Faber Tract.</p>	<p>Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek.</p> <p>For the immediately foreseeable future, the channel would remain in its present condition, and operations and maintenance (i.e., inspections and minimal vegetation management) would be similar to current activities. Over the longer term, properties within the floodplain would continue to be at risk regardless of upstream improvements. The full timing, details, and outcomes of future upstream projects are not foreseeable at this time.</p> <p>Analysis therefore concentrated primarily on the impacts that would be avoided by not constructing new flood protection infrastructure.</p>
Aesthetics	<p>For the most part, aesthetic impacts of the elements included in Alternative 1 would be the same as those identified for the proposed Project. Overall visual impacts would be similar under Alternative 1 to those described for the proposed Project but could be somewhat greater on balance due to the new bypass channel proposed under Alternative 1. Both Alternative 1 and the proposed</p>	<p>The No Project Alternative would not alter the visual characteristics of the Project corridor. If the proposed Project is not implemented, existing infrastructure in the Project corridor would continue to age, becoming less visually intact</p>

Resource	Alternative 1 (Golf Course Bypass)	No Project
Air Quality	<p>Project include floodwalls.</p> <p>Air quality impacts would be similar under Alternative 1 to those described for the proposed Project. Both would result in significant NO_x emissions.</p>	<p>and eventually requiring repair or replacement under separate project efforts. However, although it is reasonable to project that repairs or replacements may be needed, the timing, details, and visual outcomes of such projects cannot be foreseen at this time.</p> <p>Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no new impact on air quality under the No Project Alternative.</p>
Biological Resources	<p>Impacts on biological resources would be similar under Alternative 1 to those identified for the proposed Project. The potential for impacts to mammals and birds that occur in the Faber Tract would be lessened due to the greater fluvial flow being diverted down the bypass channel and overflow into the Faber Tract could potentially be lessened. Alternative 1 would likely result in greater creation of waters resulting from the new bypass channel, but these waters would not be as beneficial as in channel creation. Overall, Alternative 1 would be slightly superior to the proposed Project.</p>	<p>Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no new or substantially altered impact on biological resources under the No Project Alternative.</p>
Cultural and Paleontological Resources	<p>Impacts on cultural and paleontological resources would be similar under Alternative 1 to those identified for the proposed Project. Because Alternative 1 would have a similar overall footprint to the proposed Project (with the exception that it would result in a large new bypass channel), all of the areas subject to ground disturbance under Alternative 1 have some level of sensitivity for buried cultural resources. Significant impacts on cultural resources are therefore possible under this alternative and would be mitigated by the same strategy identified for the Project.</p> <p>Because of the overall similarity in footprint and geologic substrate, impacts on paleontological</p>	<p>Under the No Project Alternative, there would be no immediate Project-related ground disturbance. Over the long-term, repair and/or piecemeal replacement of aging flood protection infrastructure could result in ground disturbance, with some potential to disturb buried cultural and paleontological resources. The extent and severity of disturbance are not foreseeable at this time, but there would likely be some potential for significant impacts</p>

Resource	Alternative 1 (Golf Course Bypass)	No Project
	resources under Alternative 1 would be similar to those described for the proposed Project.	on cultural and paleontological resources, although it is unclear whether this potential would increase relative to the current baseline.
Geology and Soils	Impacts related to geology, soils, and geologic hazards would be similar under Alternative 1 to those identified for the proposed Project. Impacts for Alternative 1 would be the same as those described for the proposed Project, and the same mitigation approaches would apply.	Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no impact related to geology or soils.
Greenhouse Gases and Climate Change	Greenhouse gas and climate change impacts would be similar under Alternative 1 to those described for the proposed Project.	Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no new or substantially altered impact on greenhouse gases or climate change.
Hazardous Materials and Public Health	Public health and safety impacts under Alternative 1 would be similar to those described for the proposed Project, and the same mitigation strategies would apply. The principal concerns related to known hazardous materials contamination focus on the floodwall reach upstream of Geng Road. Alternative 1 would entail the same activities in this area as would the proposed Project.	The No Project Alternative would not result in any foreseeable activities expected to release hazardous materials or change public health conditions relative to the current baseline.
Hydrology and Water Quality	Although the Project footprint would differ somewhat, overall impacts related to hydrology and water quality would be similar under Alternative 1 to those described for the proposed Project.	Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no new or substantially altered impact on hydrologic function or water quality under the No Project Alternative. Under the No Project Alternative, flood protection would not be improved, and the Project area would not have the capacity to accommodate proposed future improvements.

Resource	Alternative 1 (Golf Course Bypass)	No Project
Land Use	Alternative 1 land use impacts are greater, potentially substantially greater, than overall impacts for the proposed Project. Alternative 1 would involve more significant impacts at the Palo Alto Municipal Golf Course and thus would require substantial evaluation of land use in the vicinity of the Project, including the long term viability of recreation within the designated land use area occupied by the Golf Course.	Under the No Project Alternative, no new flood protection infrastructure would be installed in San Francisquito Creek. There would be no new or substantially altered impact on land uses in the Project Area.
Noise and Vibration	Alternative 1 construction noise impacts are likely to be similar to or slightly greater than impacts for the proposed Project. Alternative 1 would affect impact the same sensitive receptors as the proposed Project. However, the duration of impacts resulting from bypass construction would be longer than under the proposed Project because of the expanded facility footprint.	Over the short-term, there would be no new construction and thus no impact on noise generation under the No Project Alternative. Over the longer term, as existing infrastructure continues to age, more extensive and frequent maintenance, repairs, and/or replacement are likely to be needed, and noise generation would increase. As with traffic, increases could be less than under the proposed Project, until or unless replacement of facilities becomes necessary.
Public Services	Overall impacts related to public services would be very similar under Alternative 1 to those described for the proposed Project.	The No Project Alternative would not place any immediate demands on public services. If the proposed Project is not implemented, existing infrastructure in the Project corridor would continue to age, becoming less viable over time and eventually requiring emergency repair or result in emergencies from future floods that require increased public service response. However, although it is reasonable to project that repairs or emergencies may occur, the timing, details, and visual outcomes of such projects cannot be foreseen at this time.

Resource	Alternative 1 (Golf Course Bypass)	No Project
Recreation	<p>Overall Alternative 1 recreation impacts would be substantially greater than overall impacts for the proposed Project.</p> <p>Alternative 1 would involve more significant construction and requisite mitigation at the Palo Alto Municipal Golf Course. Alternative 1, as with the proposed Project, would result in significant and unavoidable impacts to recreation resulting from impacts to the Golf Course for which replacement would ultimately be the responsibility of another agency.</p> <p>Further, impacts related to construction staging at the Baylands Athletic Center and disruption of that facility's use would likely be increased somewhat due to the larger bypass channel and longer construction window.</p>	<p>The No Project Alternative would have no foreseeable impact on recreational facilities or uses and thus would have reduced recreational impacts in comparison with the proposed Project.</p>
Transportation and Traffic	<p>In general, impacts on traffic and transportation would be similar under Alternative 1 to those described for the proposed Project. Traffic impacts related to construction staging at the Baylands Athletic Center would likely be increased somewhat due to the larger bypass channel and longer construction window.</p>	<p>Over the short-term, the No Project Alternative would have no impact on traffic or transportation because there would be no new construction and thus no construction-related traffic. Over the longer term, as existing infrastructure continues to age, more extensive and frequent maintenance, repairs, and/or replacement are likely to be needed, so traffic related to flood protection operations could increase by comparison with the current baseline condition. Increases could be less than under the proposed Project, until replacement of facilities becomes necessary. Future replacement of aging facilities could generate enough construction traffic to result in significant impacts on traffic and transportation, but details are not foreseeable at this time.</p>
Utilities and Service	<p>Although the Project footprint would differ between Alternative 1 and the proposed Project,</p>	<p>The No Project Alternative would have no foreseeable</p>

Resource	Alternative 1 (Golf Course Bypass)	No Project
Systems	overall impacts related to utilities and service systems would be similar under Alternative 1 to those described for the proposed Project.	impact on utilities and service facilities and thus would reduce impacts by comparison with the proposed Project.

Mitigation and Monitoring Plan

Response: The MMP is included in Attachment D

Hydraulic Study by PWA

Response: The Alternatives Analysis, including Project Hydraulic Modeling are included in Attachment H. Of equal value is the Erosion Protection Analysis and Design included in Attachment F.