May 16, 2018
Reg. Measure 413707
CIWQS Place ID 835732

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118
Email: SFerranti@valleywater.org

Subject: Supplemental Information for Sunnyvale East and West Channels Flood Protection Project, City of Sunnyvale, Santa Clara County, Water Quality Certification Application

Dear Mr. Ferranti:

Thank you for the District's submittal of supplemental information for the Sunnyvale East and West Channels Flood Protection Project (Project) Joint Aquatic Resources Protection Application (JARPA), responding to our July 7, 2017, incomplete application letter. In addition, we inspected the Project site with District staff on April 17, 2018, and we appreciate you taking the time to discuss the Project with us in the field.

In addition, we appreciate the District's collaborative efforts with Google to incorporate a sustainable, multi-purpose channel design between Caribbean Drive and Caspian Drive, and we encourage the District to incorporate a sustainable design, or maximize the degree to which such a design is incorporated, throughout the Project, which may require additional collaboration with the City of Sunnyvale. We would be willing to assist in coordinating with Sunnyvale to develop a partnership for the benefit of the Project.

We have the following comments on the Project based on our review of the Application, as supplemented, and observations and discussions during the inspection. As discussed below in more detail, the Application is still incomplete, and we are not yet able to certify that the Project will comply with State Water Quality Standards pursuant to Section 401 of the Clean Water Act. The Application lacks important required information, including, but not limited to:

- The Project design does not yet support a stable channel design;
- The Project does not meet the least environmentally damaging practicable alternative (LEDPA) requirement pursuant the San Francisco Bay Water Quality Control Plan (Basin Plan); and

- An accurate description of jurisdictional waters of the State within and affected by the Project.

COMMENTS

1. **Stable Channel Design and Bioengineering**. The proposed Project design does not yet support a stable channel morphology. As the District documented in supplemental information dated April 13, 2018, and we observed in the field during the field inspection on April 17, several locations in the East Channel have erosion at the bank toes. In many cases, our observations indicated that the erosion was most likely due to localized conditions, such as discharges from stormwater outfalls and concrete lining that directed flows towards earthen banks, rather than reach-wide geomorphic processes. As a result, lining entire reaches with rock slope protection does not appear necesssary. There are bioengineering methods available that would alleviate the erosional concerns and result in a more stable and sustainable channel design over the long-term. The District's letter of April 2018 explained that the District rejected a bioengineering design not because of velocity, which, we have noted, is well within the threshold criteria for bioengineering.[1] Rather, the bioengineering approach was rejected in the Project EIR alternatives analysis based on the Logistical Feasibility screening criterion due to: (1) slope steepness of up to 1.5:1; and (2) increase in Manning's N roughness coefficient would impact hydraulic capacity for the 100-year flow event. In addition, the District asserted that "[t]he Sunnyvale Channels do not naturally support vegetation" (April 2018 letter, pg. 16). We have permitted projects that successfully used bioengineering solutions, such as woven willow mattresses and fabric reinforced earth fill, to address bank erosion at slopes of 1.5:1.

   Additionally, those issues have been addressed in the West Channel Enhancement Project concept plan, which is proposed for the West Channel reach from Caribbean Drive to Caspian Court (about 1,100 linear feet) through a partnership between Google, and the District. This project would result in a sustainable channel design, but would require a widened channel with larger raised setback levees. The District's April 2018 letter states this would only be feasible "[w]ith Google dedicating the necessary rights of way to the District" (April 2018 letter, p.19). We encourage the District to collaborate with the City of Sunnyvale to incorporate a sustainable channel design similar to the District-Google partnership where public lands are available for the Project. Lastly, a bioengineered solution would be consistent with the District's *One Water* program, which includes partnering with other local agencies to achieve shared goals, including flood protection. In addition, a partnership with Sunnyvale would offset the detrimental effects of ongoing urbanization in Sunnyvale resulting in increased flow to the Sunnyvale East and West channels referenced in the District's

[1] Fischenich, C., 2001. *Stability Thresholds for Stream Restoration Materials*. EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-29), U.S. Army Engineer Research and Development Center, Vicksburg, MS.

A copy of Fischenich (2001) was included with our incomplete application letter (July 7, 2017).

April 2018 letter (p.17). Finally, the Sunnyvale channels, like other Bay Area creeks, naturally support vegetation. Indeed, many Bay Area flood control districts, including the District, implement vegetation control practices because creeks support vegetation. California native species thrive after the initial establishment period because they are adapted to the local climate, so we do not concur that planting vegetation for a bioengineering design is a constraint.

The letter also states that a bioengineering design would not be practicable due to the anticipated "[i]ncrease in impacts from long term continuous maintenance" of vegetation (April 2018 letter, p.7). That point seems inconsistent with the District's One Water approach, which should lead the District to develop multi-purpose project designs that appropriately maximize flood protection while simultaneously maximizing creek beneficial uses—similar to the design being developed jointly with Google. Additionally, as we discussed with District management in our April 27 meeting, we are open to flexible approaches that achieve those multi-purpose benefits, including considering how a combination of bioengineering design aspects and maintenance approaches may be considered partly or fully self-mitigating.

2. **Sediment Maintenance**. One of the stated goals of the Project is to reduce sediment maintenance. The District maintains that a primary source of sediment to the lower reaches (i.e., downstream of Caribbean Drive) is bank erosion in the upper reaches of the East and West channels. Other than the bank toe erosional areas, we noted during the field inspection that the erosional hotspots are at predictable areas downstream, across from and next to stormwater outfalls and existing concrete structures. Additionally, District staff stated during the field inspection that maintenance within the channels has not occurred for 10 years, which suggests that internal sources of sediment are not a significant issue. It is likely that the primary source of sediment in the lower reaches is from tidal flows. As such, project design should focus on addressing hot spots. It seems likely that the currently-proposed hardscaping would not significantly reduce maintenance, because those areas are likely not significant sources of sediment. At the same time, that proposed hardscaping would result in significant impacts to existing and potential beneficial uses. As such, by evaluating alternatives to proposed hardscaping, there is an opportunity to improve the project design and reduce impacts without affecting sediment maintenance.

3. **Least Environmentally Damaging Practicable Alternative (LEDPA).** For the Application to be complete, the District must evaluate alternatives that would support bioengineering methods consistent with Fischenich (2001), which we attached to the incomplete application letter (July 7, 2017), or comparable techniques. This is necessary to meet the Water Board's requirement for the Project design to be the least environmentally damaging practicable alternative, pursuant to the San Francisco Bay Basin Water Quality Control Plan (Basin Plan), or meet the goals of the California Wetlands Conservation Policy (Executive Order W-59-93), also called the No Net Loss Policy (San Francisco Bay Basin Water Quality Control Plan (Basin Plan) Section 4.23.4). During our site inspection and follow-up telephone

conversation, we discussed an option for rock riprap to be placed in the channel bed and bank to provide toe protection up to about two feet in height, and covered by two feet of soil and native vegetation. The basis of the soil depth is to provide enough depth for the native vegetation roots to establish the networks and densities necessary to provide structural integrity to the system, in addition to the enhanced habitat value and function. This is consistent with a channel modifications project in Livermore the Water Board recently authorized, in which rock riprap will be covered by two feet of soil. The LEDPA analysis should include analyses necessary to demonstrate feasibility of state-of-the art bioengineering methods. Please include the roughness coefficient data and water surface elevation diagrams, and other criteria necessary to fully characterize such designs. In addition, the LEDPA analysis should include the steps the District has taken to maximize the potential to set back levees or flood walls and lay back the banks to allow for bioengineered design, including any collaborative efforts to use Sunnyvale's rights-of-way.

4. **Impacts to Jurisdictional Waters of the State and Mitigation Requirements.** We disagree with the District's assertion that the East and West channels are merely stormwater drainages (response letter, pp. 3-4). The Water Board's jurisdiction encompasses "Any surface water or groundwater, including saline waters within the boundaries of the state" (Porter-Cologne Water Quality Control Act), including, but not limited to waters of the U.S. as well as the area up to the tops of the banks in both the East and West channels. Basin Plan section 2.2.1 states (italics added for emphasis): "Table 2-1 contains the beneficial uses *for many* surface water bodies in the Region, organized geographically by the Region's seven Hydrologic Planning Areas." It is not possible to list every tributary in the Basin Plan, and the absence of Sunnyvale East and West channels from Table 2-1 does not mean they are not waters of the State. The District's initial Application correctly identifies the channels as state waters (Application Appendix A, Figure 4). As proposed, the Project would have significant impacts that would need to be mitigated. To determine appropriate mitigation, we require the Application to be revised with an accurate accounting of the waters of the State, and the amounts of impacts from hardscaping by RSP and concrete in the East and West channels. Please note, however, that if a bioengineering approach is incorporated in the Project design, compensatory mitigation may be reduced.

   The proposed Project would have significant impacts to waters of the State that would need to be mitigated to meet the Basin Plan Fill Policy and No Net Loss Policy. The District suggested that the mitigation package would include the enhancements from the West Channel Enhancement Project (i.e., the Google project). We would not object to the District including that project in the mitigation package for the subject Project. However, the 1,100 linear-foot West Channel Enhancement Project would not be sufficient by itself to mitigation for the Project's impacts as currently proposed, and additional mitigation would be necessary to fully compensate for the currently-proposed 3.5 miles of RSP in the East Channel and 0.5 miles in the West Channel. The District maintains that purchasing credit from the San Francisco Wetland Mitigation Bank would be the only other recourse for

mitigation, and asserts that the lack of perennial flow in the upper reaches, constraints by urbanization, and low-value ecological conditions preclude onsite mitigation. As we stated in our July 7, 2017, letter, the District should evaluate on-site options prior to considering purchasing credit from the mitigation bank. Our observations during the site visit are that there are likely project design measures that would achieve flood management goals while reducing impacts and perhaps enhancing ecological conditions within the Project boundaries. These include designs similar to, or that incorporate elements from, the West Channel Enhancement Project.

We look forward to continuing to work with you on this project. Please contact Susan Glendening at (510) 622-2462 or susan.glendening@waterboards.ca.gov with any questions or to discuss this matter further. All future correspondence regarding this Project should reference CIWQS Place ID No. 835732.

Sincerely,

Digitally signed by Keith H. Lichten, Division Chief
Date: 2018.05.16 17:57:32 -07'00'

for Bruce H. Wolfe
Executive Officer

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