

# **POST-CONSTRUCTION STORMWATER MANAGEMENT**

## **SAN FRANCISQUITO CREEK FLOOD REDUCTION, ECOSYSTEM RESTORATION, AND RECREATION PROJECT**

**San Francisco Bay to Highway 101**

May 5, 2016



This Plan is required by the Regional Water Quality Control Board, San Francisco Bay Region (Water Board) as part of Section 401 permit approval for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, & Recreation Project (Water Board, 2015a). Specifically, Condition 401-28 requires the following:

*No later than 60 days prior to construction, JPA shall submit, acceptable to the Executive Officer, a Post-Construction Stormwater Management Plan to show how stormwater runoff from newly created impervious surfaces will be diverted away from any water of the State in the Project area and not result in water quality impacts downgradient of the impervious surfaces. The Post-Construction Stormwater Management Plan shall be consistent with the Regional Water Board's Municipal Regional Stormwater Permit (Order No. R2-2009-0074, as amended by Order No. R2 2011-0083, and as may be subsequently amended or reissued) requirements for post-construction stormwater management for new or replacement impervious surfaces.*

This Plan is consistent with the Regional Water Board's Municipal Regional Stormwater Permit Order No. R2-2015-0049, adopted November 18, 2015, which supersedes Order No. R2-2009-0074, referenced above (Water Board 2015b).

The Project is considered a Regulated Project under R2-2015-0049, Section C.3 because the Project will create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site).

Impervious surfaces as a result of the Project are primarily from the asphalt-paved Bay Trail, which is estimated to total 42,000 square feet of impervious surface (HDR 2016). Other areas of impervious surface are:

- Concrete access ramp near Palo Alto stormwater pump station (1800 square feet)
- Concrete pilings for boardwalk to Friendship Bridge (300 square feet)
- Impervious paving for bicycle/pedestrian access ramps from Geng Road, Friendship Bridge, Daphne Way, and Verbena Drive (1800 square feet).

The total of the non-Bay Trail impervious surface replacement is less than 5000 square feet. The access ramps are located outboard of the levees and floodwalls.

In accordance with Water Board Order No. R2-2015-0049C.3.b.ii(4)(d), the following projects are specifically excluded from regulation:

- Sidewalks built as part of new streets or roads and built to direct stormwater runoff to adjacent vegetated areas.
- Bicycle lanes built as part of new streets or roads but are not hydraulically connected to the new streets or roads and that direct stormwater runoff to adjacent vegetated areas.
- Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.

- Sidewalks, bicycle lanes, or trails constructed with permeable surfaces.
- Caltrans highway projects and associated facilities.

The Project is therefore excluded from regulation, because it consists of “Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.”

The 401 certification for the Project requires the San Francisquito Creek Joint Powers Authority (SFCJPA) describe how stormwater runoff from the paved Bay Trail surface will be diverted away from the Creek and other waters of the State. This is described below, and illustrated in the Figures 1a and 1b, which are based on the 100% Design Map and Construction Plans for the Project (HDR 2016).

The Project is relocating paved bicycle/pedestrian trails on newly-constructed levees and dedicated pathways outboard of new floodwalls. Impervious paving, consisting of asphaltic concrete, is planned only for the Bay Trail portion of the levees and the access ramps from city streets in East Palo Alto. Paving on the remaining levees and paths outboard of floodwalls is a pervious paving consisting of compacted Class 2 aggregate base.

The Project Design cross-sections (Typical Cross Sections C-24 through C-31 and C-33, HDR 2016), specify that all newly constructed paths and access roads must have a 2% gradient toward outboard. In addition, the Project landscaping plans (Sheets L-1 through L-29) require revegetation using planting palettes for marsh creation and erosion control. Figures 1a and 1b summarize vegetation plan from the Project Design plans. The Project Design plans and Mitigation Monitoring Plan require long term maintenance for establishment of the vegetated areas, with up to 10 years of care after planting, including an assumed number of replanting to establish vegetative cover and habitat (HDR 2016 and SCVWD 2016). The Operation and Maintenance plan describes long term care of the vegetation, including hand weeding every two weeks during growing season, annual mowing and hydroseeding sloped areas as needed one to two times each season (SFCJPA et al 2016).

The vegetated area along the Bay Trail outboard levee where stormwater will flow away from the creek will be approximately 40 feet wide. As can be seen in Figure 1b, in the vicinity of East Palo Alto residential area, the outside vegetated strip is about 20 feet wide; however, this area is outside the Bay Trail. In all cases, the vegetated erosion control strip is adjacent to other vegetated areas, such as the Baylands Athletic Center, Palo Alto Golf Course, and residential yards.

The planting palette is specifically for erosion control and includes the following plants: California Brome (salt tolerant form), Blue Wild Rye, Regreen Hybrid Wheatgrass, meadow barley (salt tolerant form), and alkali barley (salt tolerant form). The levee soil is an engineered mix and must meet design criteria to minimize potential for overtopping, erosion and slides from foundation soils. As such, the bioretentive capability is not an explicit factor in design, but can be inferred to have some treatment capabilities for stormwater runoff.

Stormwater on the impervious portion of the Bay Trail will flow to the vegetated area, away from San Francisquito Creek. The vegetated areas will help retain and treat stormwater. The newly created marsh areas reclaim some of the floodplain for flood management.

## **CERTIFICATION**

The Project is located outside the area susceptible to hydromodification processes and associated requirements for hydromodification management (Water Board 2015b, Appendix C).

The project is exempt from Regional Water Board's Municipal Regional Stormwater Permit (NPDES Permit No. CAS612008; Order No. R2- 2009-0074, as amended by Order No. R2-2011-0083, and Order No. R2-2015-0049) requirements for post-construction stormwater management for new or replacement impervious surfaces.

Tess Byler, C.Hg. Stormwater QSD/QSP #25311

## **REFERENCES**

HDR 2016. *Map and Construction Plan, San Francisquito Creek Flood Reduction, Ecosystem Restoration & Recreation Project, San Francisco Bay to Highway 101, 100% Design*, February.

Regional Water Quality Control Board, San Francisco Bay Region (Water Board) 2015a. *Conditional Water Quality Certification for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project, Cities of Palo Alto and East Palo Alto, Santa Clara and San Mateo Counties* CIWQS Place No. 757384 (SG)7, April 7.

San Francisquito Creek Joint Powers Authority and Santa Clara Valley Water District (SFCJPA and SCVWD) 2016. *Operations & Maintenance Manual, San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project Operations & Maintenance Manual, San Francisco Bay to Highway 101*, April 4.

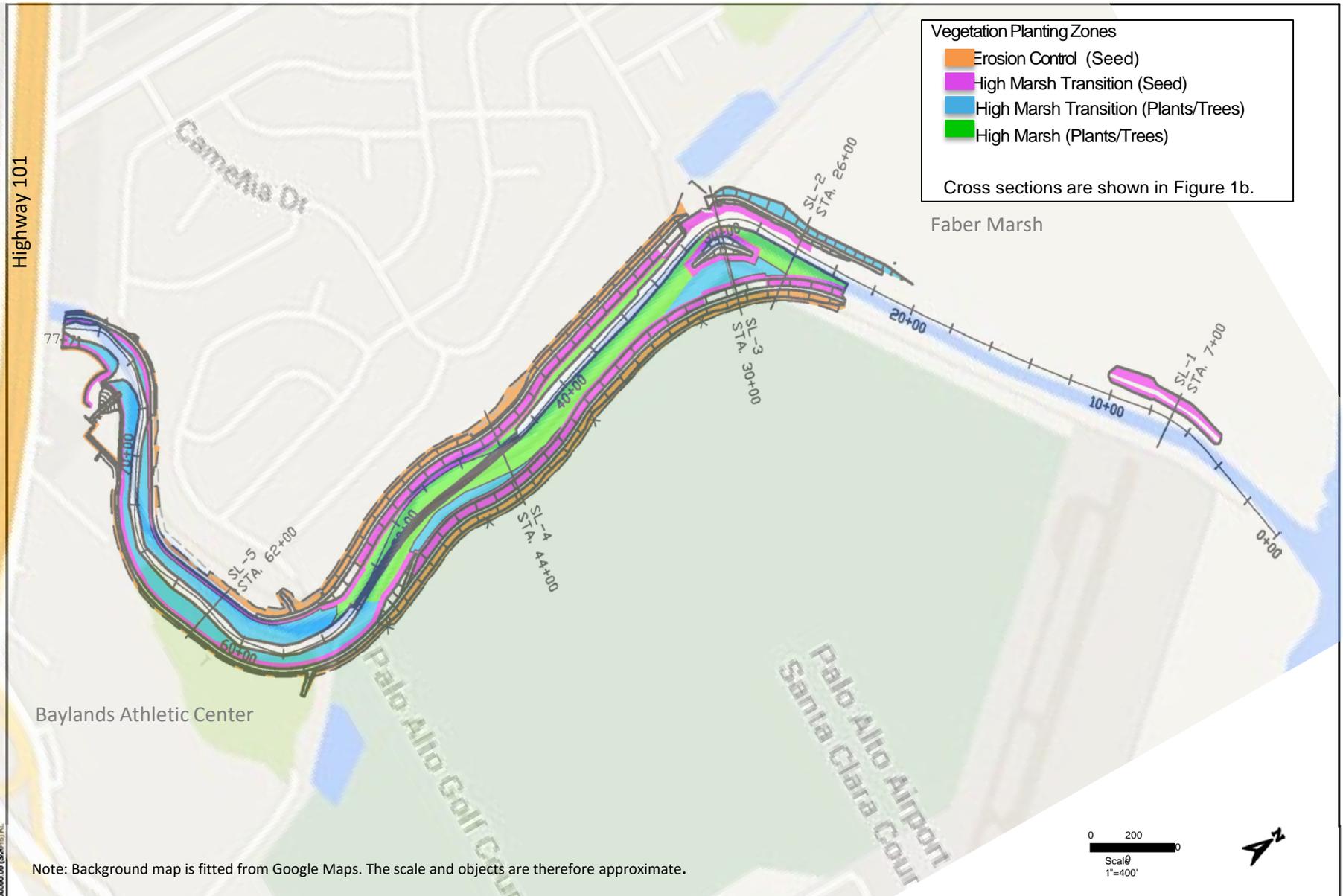
Santa Clara Valley Water District (SCVWD) 2016. *Mitigation Monitoring Plan, San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project Operations & Maintenance Manual, San Francisco Bay to Highway 101*, April 13.

Water Board 2015b. *Municipal Regional Stormwater NPDES Permit* ORDER No. R2-2015-0049 NPDES PERMIT No. CAS612008.

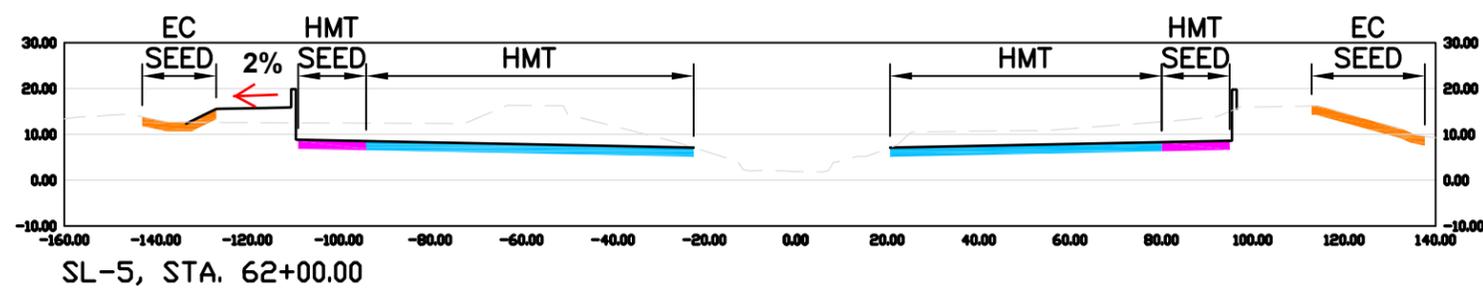
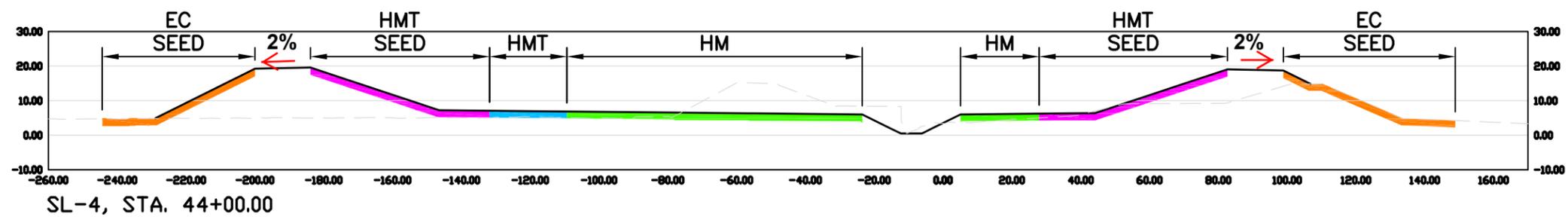
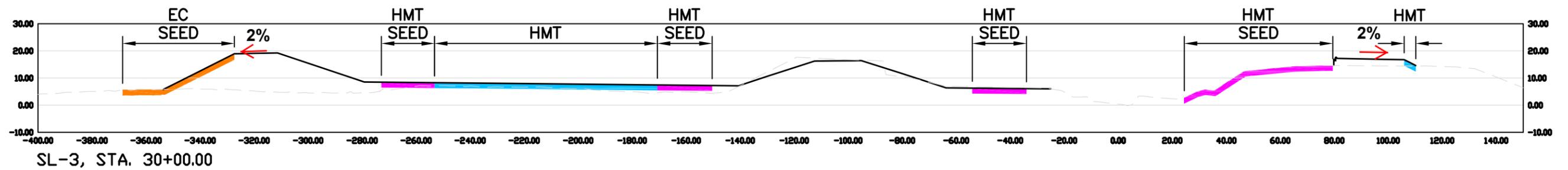
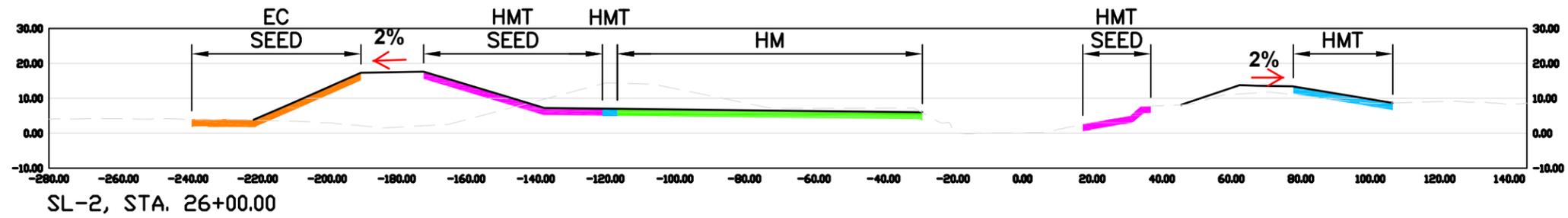
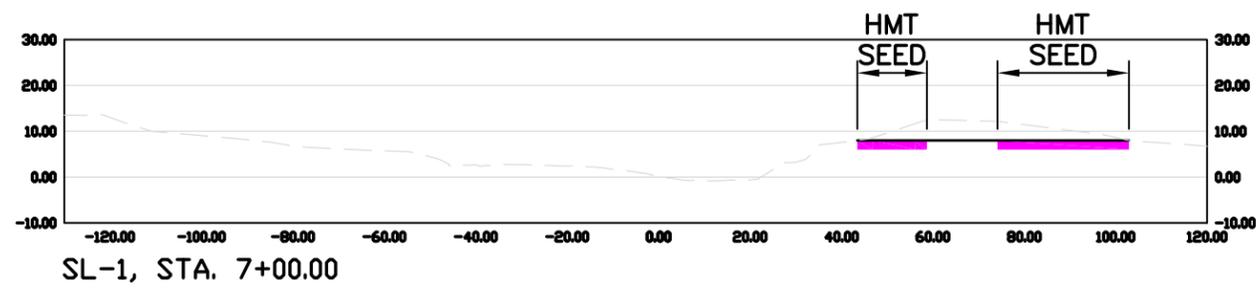
## **ATTACHMENTS**

Figure 1a Vegetation Summary

Figure 1b Cross-sections

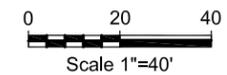


**Figure 1a Vegetation Plan Summary**  
 San Francisquito Creek Flood Reduction, Ecosystem Restoration & Recreation Project, Bay to 101



**NOTE:**  
1. ALL SECTIONS ARE LOOKING UPSTREAM.

**LEGEND**  
 EC EROSION CONTROL  
 HM HIGH MARSH  
 HMT HIGH MARSH TRANSITION  
 - - - EXISTING GRADE  
 — PROPOSED GRADE



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