San Francisco Bay Conservation and Development Commission
375 Beale Street, Suite 510, San Francisco, California 94105 tel 415 352 3600
State of California | Gavin Newsom – Governor | info@bcdc.ca.gov | www.bcdc.ca.gov

June 22, 2026

TO: Engineering Criteria Review Board (ECRB) Members

FROM: Harriet Lai Ross, Regulatory Director (415-352-3615; Harriet.Ross@bcdc.ca.gov)
Makena Wong, Associate Engineer (415-352-3670; Makena.Wong@bcdc.ca.gov)
Schuyler Olsson, Senior Environmental Scientist (415-352-3668; Schuyler.Olsson@bcdc.ca.gov)

SUBJECT: **Strategy to Advance Flood Protection, Ecosystems, and Recreation along San Francisco Bay (SAFER Bay) Project; Pre-Application Review**
(For Engineering Criteria Review Board consideration on July 22, 2026)

Project Summary

Project Proponents

San Francisquito Creek Joint Powers Authority (SFCJPA)
City of East Palo Alto
City of Menlo Park

Project Representatives

SFCJPA

- Denean Ni, SFJCPA, Project Manager
- Kenric Jameson, HDR, Senior Project Manager
- Environmental Science Associates

City of East Palo Alto

- Alec Nicholas, East Palo Alto, Special Projects Manager
- Sonya Gabrielson, Sherwood, Associate Principal (Civil Engineering)
- Geosyntec
- COWI

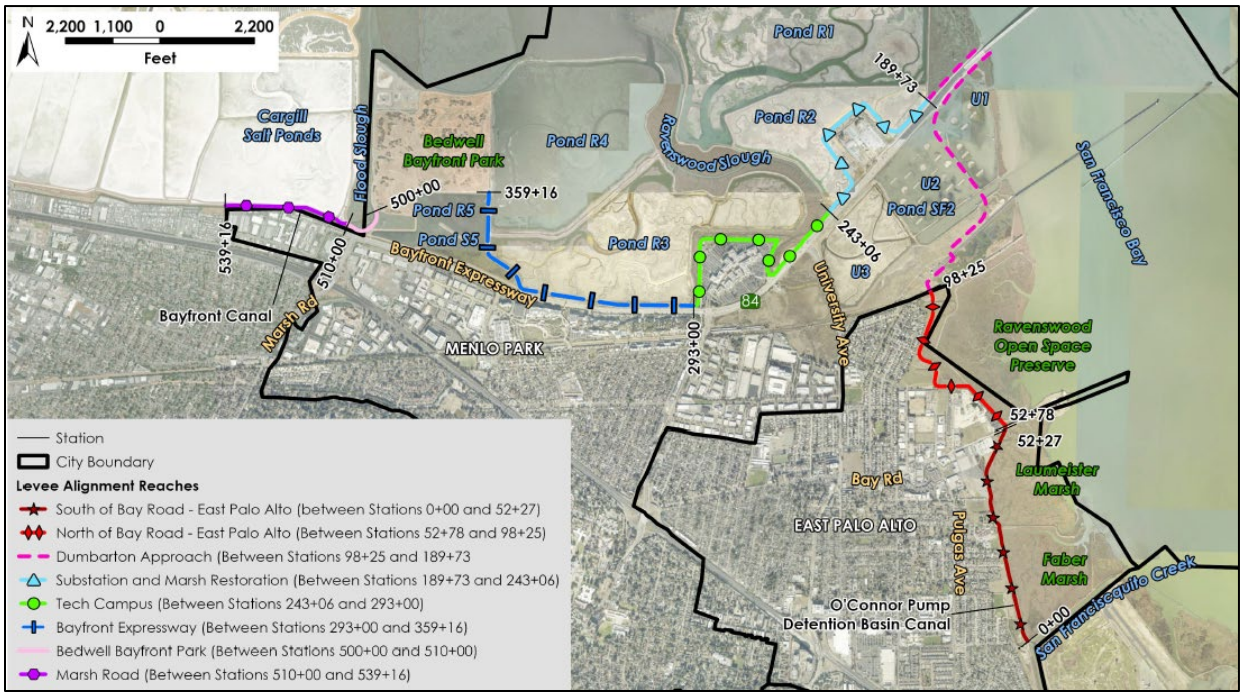
City of Menlo Park

- Azalea Mitch, Menlo Park, Public Works Director
- Eric Hinkley, Menlo Park, Associate Engineer
- Chris Nardi, Haley & Aldrich, Geotechnical Engineer
- Phil Gregory, Haley & Aldrich, Geotechnical Engineer
- Schaaf & Wheeler
- FlowWest

Project Overview

The proposed SAFER Bay Project (Project) includes shoreline flood protection, tidal habitat restoration, and trail recreational features along approximately seven miles of San Mateo County shoreline, from East Palo Alto at San Francisquito Creek to Menlo Park-Redwood City boundary. The Project is divided into eight reaches based on local geography and hydrology, shown on Figure 1.

Figure 1. Project Location and Components



The design status across these Project reaches varies, as shown in Table 1.

Table 1. Project Reach Design Status

Reach Name	City or Cooperating Partner	Design Status
South of Bay Road	East Palo Alto	60% Design - advancing to 100%
North of Bay Road	East Palo Alto / Menlo Park	10% Design
Dumbarton Bridge Approach (within Pond SF2)	SFCJPA	30% Design
Dumbarton Bridge Approach (outside Pond SF2)	Caltrans (parallel to 84) and to be determined (within SFPUC lands)	10% Design
Substation & Marsh Restoration	Menlo Park	60% Design - advancing to 90%
Tech Campus	Menlo Park	60% Design - advancing to 90%
Bayfront Expressway	Menlo Park	60% Design - advancing to 90%
Bedwell Bayfront Park	To be determined	10% Design
Marsh Road	Redwood City / San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline)	10% Design

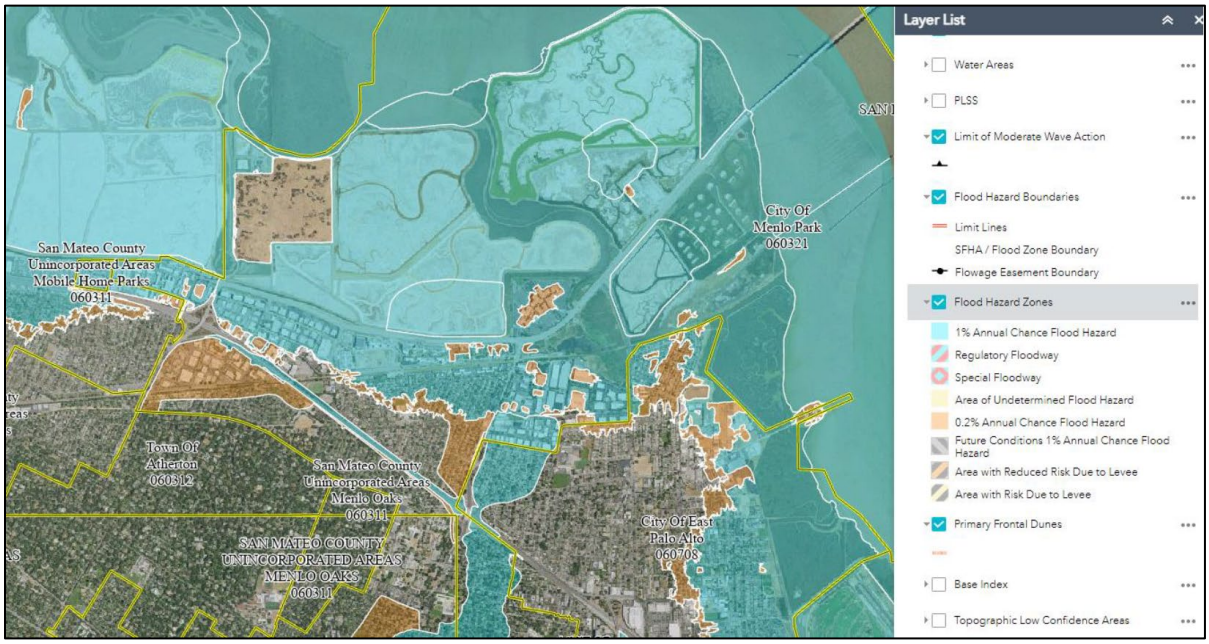
Out of the eight Project reaches, four are being brought to the ECRB for review at this meeting, as the design for these four reaches has advanced enough for useful input from the ECRB, as

shown in green in Table 1. These reaches are illustrated in Figure 2. The remaining reaches will require the same level of ECRB review once their designs have advanced.

Figure 2. Project Reaches Under Current ECRB Review

Currently, the entirety of East Palo Alto and Menlo Park shoreline are exposed to coastal flooding from San Francisco Bay, and this flood hazard is expected to worsen with sea level rise. These areas are within the existing 1-percent annual chance (commonly referred to as the 100-year flood event) flood hazard area as mapped by the Federal Emergency Management Agency (FEMA) (Figure 3).

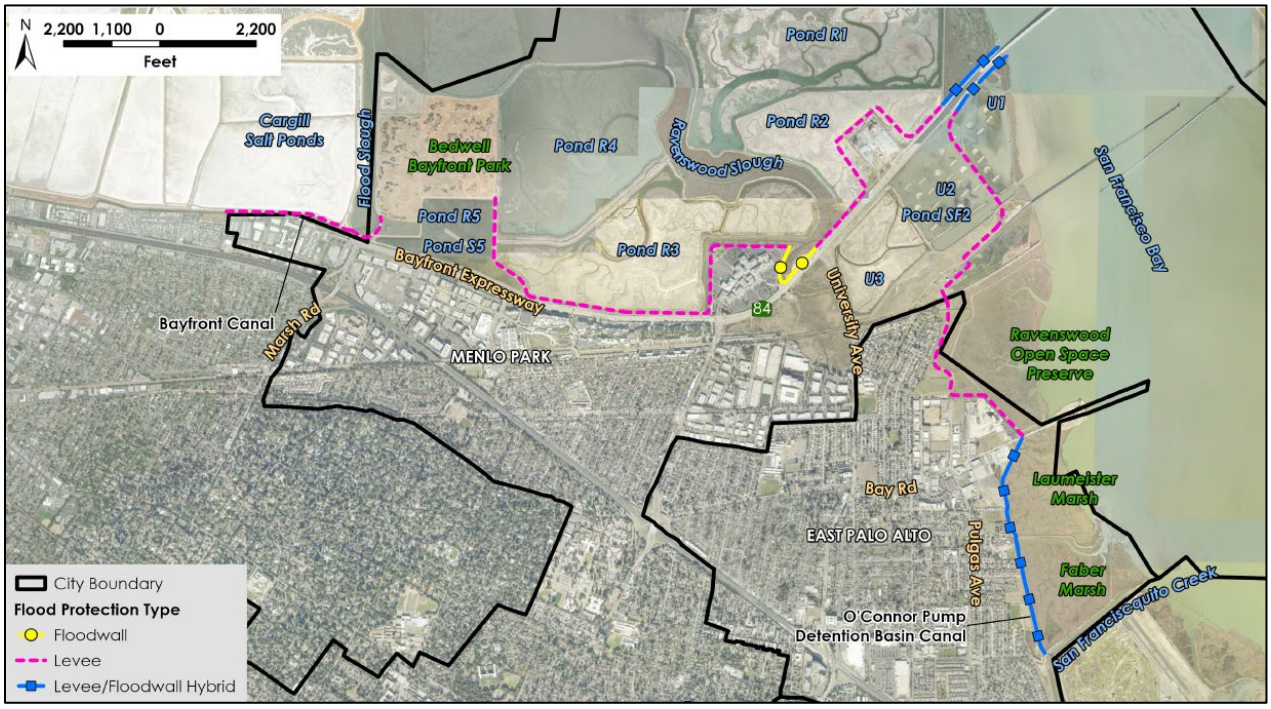
Figure 3. FEMA Flood Hazard Zones Near the Project



The Project is designed to meet current FEMA accreditation requirements plus 3.5 feet of additional elevation to account for projected sea level rise. Flood protection features include levees, floodwalls, hybrid shoreline protection, and flood gates across roadways that cannot be raised (see Figure 4 for reach-by-reach overview).

The Project also includes habitat and trail improvements; however, these do not raise safety of fill issues and are not being brought to the ECRB for review.

Figure 4. Flood Protection Type by Project Reach



Summary of Project Engagement with BCDC to Date

Project Status

The Project is currently in the preapplication phase of BCDC's permitting process. The Final Environmental Impact Report (EIR) for the Project was certified by the SFCJPA governing board on May 28, 2026. The Project team plans to complete 100% design of the East Palo Alto South of Bay Road Reach by October 2026; complete 90% design of the Menlo Park Substation and Marsh Restoration, Tech Campus, and Bayfront Expressway Reaches by December 2026; and submit permit applications to BCDC in early 2027.

Although only four of the eight Project reaches are being reviewed at this meeting, the remaining reaches will require the same level of ECRB review once their designs have advanced and would likely be the subject of a future amendment request of any issued BCDC permit. The future design of the remaining reaches will also be informed by the ECRB feedback given at this meeting.

Design Review Board

The Project is scheduled to go to BCDC's Design Review Board (DRB) on July 13, 2026. This is the Project's first DRB review. The DRB will provide feedback on appearance and design of the public access features of the Project.

Bay Restoration Regulatory Integration Team (BRRIT) Preapplication Process

The San Francisco Bay Restoration Regulatory Integration (BRRIT) is an interagency team of staff from seven different regulatory agencies, including BCDC and six other state and federal agencies, that works collaboratively to improve the permitting process for multi-benefit restoration projects in San Francisco Bay. The project team has been undergoing a pre-application review process with the BRRIT since March 2020, and has had a total of seven BRRIT meetings, including one in-person field tour of the Project.

Project Components Under ECRB Review

The purpose of the meeting is to request the ECRB's review of the engineering design criteria related to the safety of fills for the following four project reaches (illustrated in Figure 2): South of Bay Road Reach (in East Palo Alto), Substation and Marsh Restoration Reach (in Menlo Park), Tech Campus Reach (in Menlo Park), and the Bayfront Expressway Reach (in Menlo Park).

The Project is classified as a critical flood protection facility under ER 1110-2-1806 USACE (2024)[1], given the frequency of hydraulic loading (the usual water surface elevation with 3.5 feet of sea level rise is higher than the landside toe of the levee) and the significant population and property at risk in the event of a breach.[2] The project design life for the South of Bay Road Reach in East Palo Alto is 50 years.[3] For the Menlo Park project reaches, structural elements, such as floodwalls, are currently proposed to have a 100-year design life, while earthen levee fill components are designed for indefinite service life with ongoing maintenance.[4]

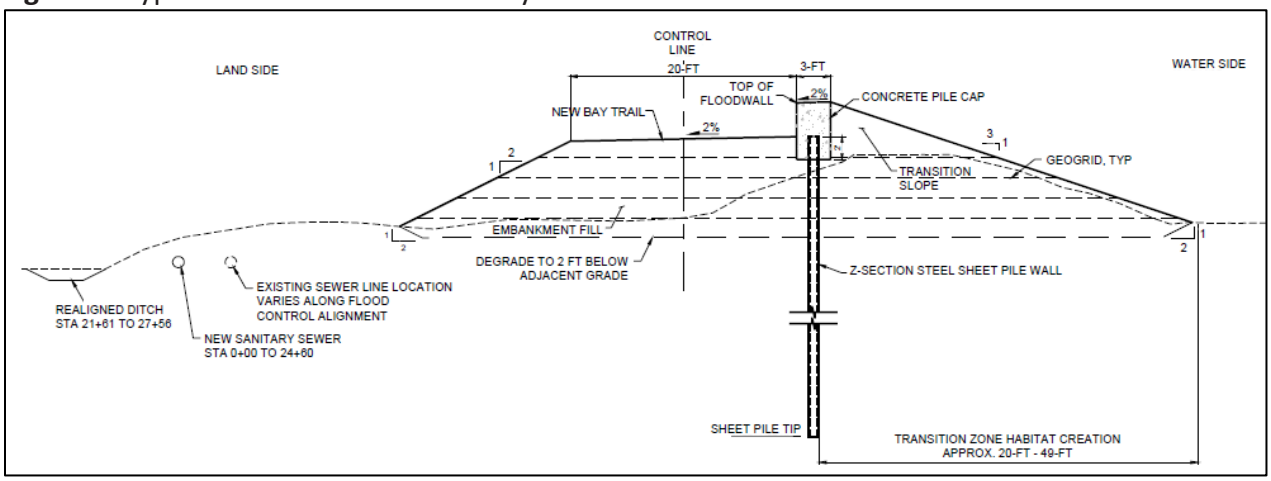
East Palo Alto: South of Bay Road Reach

The South of Bay Road Reach is in the City of East Palo Alto and generally follows the existing levee/Bay Trail from O'Connor Street north to Bay Road. The proposed shoreline protection system is a levee and floodwall hybrid consisting of a concrete capped sheet pile floodwall embedded within a soil embankment, with a 20-foot crown width, 3H:1V waterside slopes, and 2H:1V landside slopes stabilized with geogrid (Figure 5). The top elevation of the floodwall is proposed at 16.5 feet NAVD88.[5] The alignment is constrained by PG&E transmission towers,

[1] ER 1110-2-1806, effective June 29, 2024, supersedes ER 1110-2-1806, dated May 31, 2016; access online here: https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER%201110-2-1806%20effective%2029%20June%202024.pdf
[2] East Palo Alto Basis of Design Report, Seismic Hazard, PDF page 11
[3] East Palo Alto Basis of Design Report, PDF page 5
[4] Menlo Park Basis of Design Report, Section 3.5 Project Life, PDF page 29
[5] East Palo Alto Basis of Design Report, PDF page 16

which require landside retaining walls and Bayward deviations into the marsh to maintain the 15 feet of clearance,[6] and by remediation measures to address arsenic contaminated soils and groundwater on adjacent landside properties (including a capped containment cell).[7]

Figure 5. Typical Section for South of Bay Road Reach[8]



Menlo Park: Substation and Marsh Restoration Reach

The Substation and Marsh Restoration Reach is within the City of Menlo Park adjacent to SR 84 (Dumbarton Bridge approach) and wraps around the PG&E Ravenswood Substation, with the alignment passing through Pond R2. Pond R2 is owned and managed by the US Fish and Wildlife Service as part of the Don Edwards National Wildlife Refuge. The portion of Pond R2 outboard of the SAFER levee, as well as Pond R1, will be restored to tidal marsh as part of SAFER's wetland mitigation approach. The shoreline protection consists of earthen levees with waterside slopes that would transition from 3H:1V to 10H:1V to support marsh restoration in Pond R2 with an ecotone slope with transition zone habitat[9] (Figure 6). For portions of the reach that do not include ecotone elements, the shoreline protection consists of an earthen levee with 3H:1V side slopes (Figure 7). The levee crest elevation is proposed at 19 feet NAVD88.[10] The levee alignment is offset around the substation to reduce the number of PG&E towers that may need to be relocated or modified when exposed to restored tidal exchange, with an additional 10-foot horizontal offset clearance from transmission facilities.[11] SR 84 and PG&E substation drainage requires additional study to identify an interior drainage solution.[12]

[6] East Palo Alto Basis of Design Report, PG&E Infrastructure, PDF page 20
[7] East Palo Alto Basis of Design Report, Contaminated Soil and Remedial Infrastructure, PDF page 21
[8] This typical section was taken from the Project's Draft Environmental Impact Report (Figure 2-8 on Page 2-24); more detailed sections for this reach can be found in the East Palo Alto 60% Plans (Pages 98-100).
[9] Menlo Park Basis of Design Report, PDF page 15
[10] Menlo Park Coastal Hydraulics Study, PDF page 5
[11] Menlo Park Basis of Design Report, PDF page 38
[12] Menlo Park Basis of Design Report, PDF page 38

Figure 6. Typical Section for Ecotone in Substation and Marsh Restoration Reach[13]

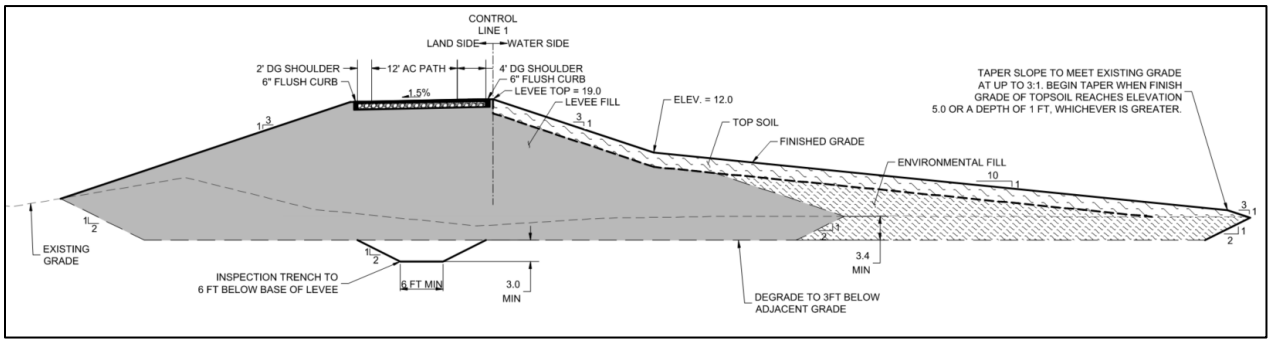
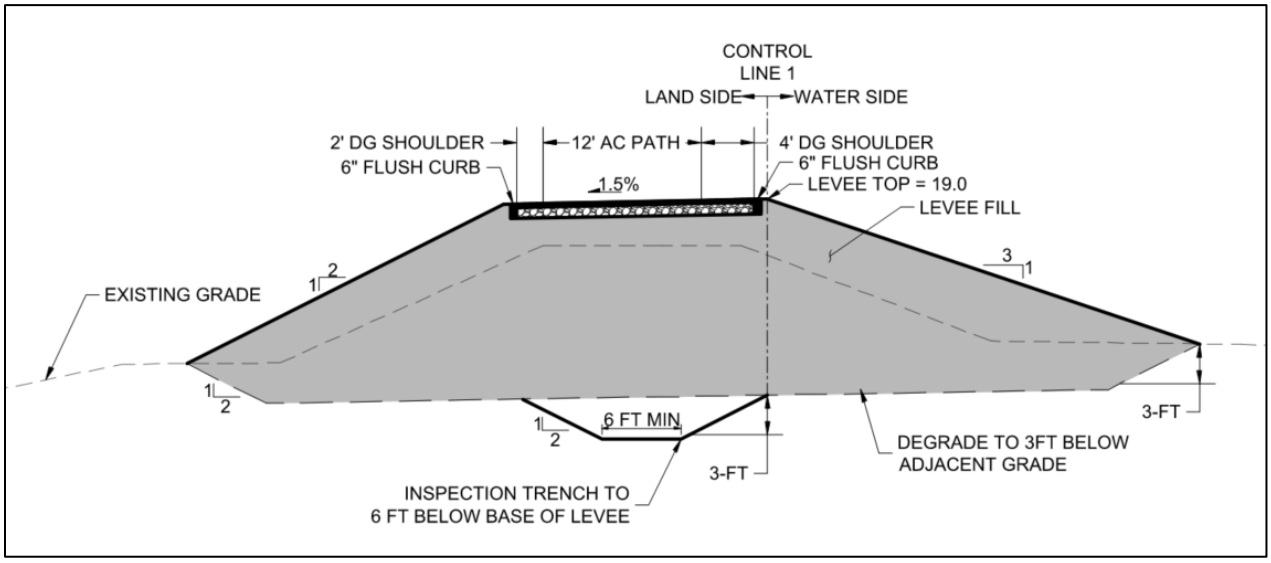


Figure 7. Typical Section without Ecotone Slope in Substation and Marsh Restoration Reach[14]



Menlo Park: Tech Campus Reach

The Tech Campus Reach is within the City of Menlo Park and parallels the westbound lanes of SR 84 (Dumbarton Bridge approach) and a pedestrian trail that surrounds Meta Headquarters. The Bayward side of the reach is bordered by Ravenswood Slough and Pond R3. The proposed protection system transitions from an earthen levee with 3H:1V side slopes along SR 84 (Figure 8), to a sheet pile floodwall around Ravenswood Slough (Figure 9), and back to 3H:1V side slopes along the rest of Meta Headquarters (Figure 8). The top of floodwall elevation is proposed at 19 feet NAVD88.[15] Key constraints include the Ravenswood Pump Station outfall, which would be reconfigured to cross the new levee alignment.

[13] Menlo Park 60% Plans, Typical Section 8, Sheet TCX01 (Page 134); Plan views on Sheets PP17 – PP22 (Pages 83-88)
[14] Menlo Park 60% Plans, Typical Section 3, Sheet TCX01 (Page 134); Plan views on Sheets PP09 – PP12 (Pages 75-78)
[15] Menlo Park Coastal Hydraulics Study, PDF page 5

Figure 8. Typical Section for Tech Campus Reach along SR 84 and Meta Headquarters[16]

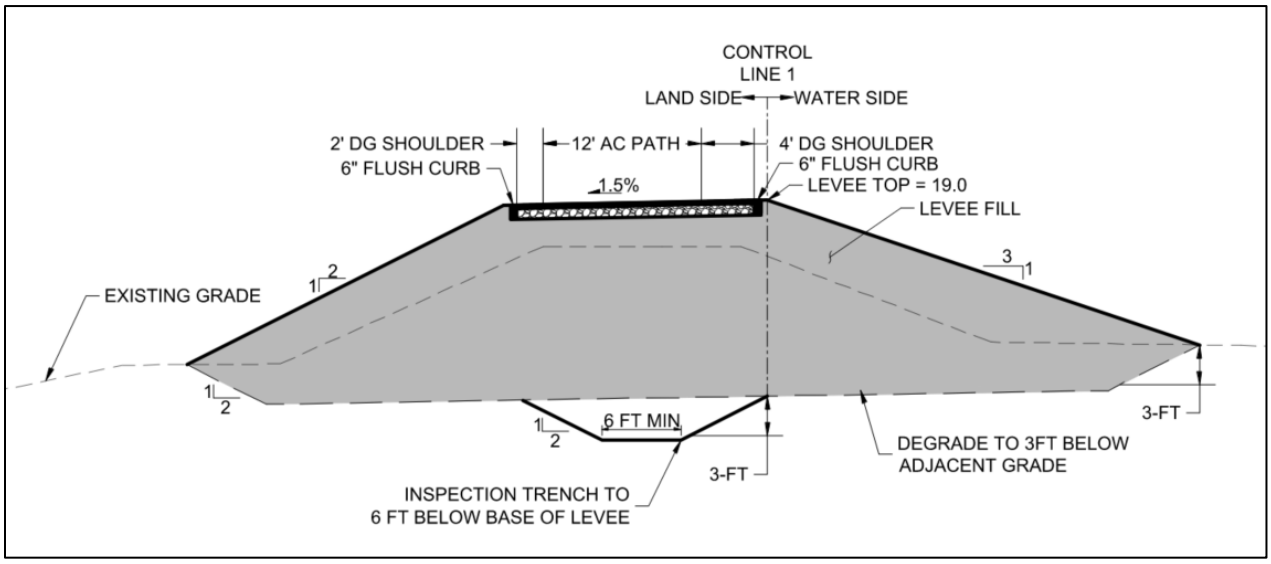
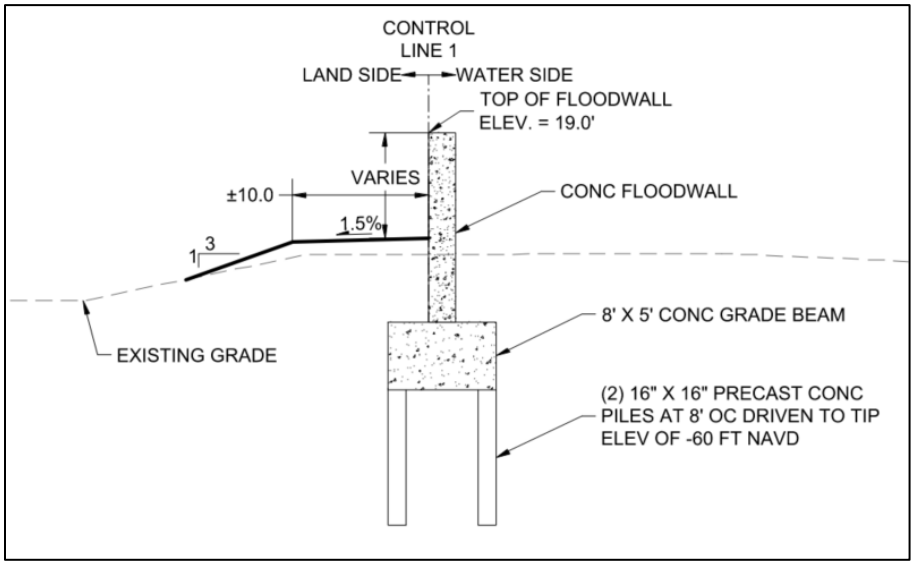


Figure 9. Typical Section for Tech Campus Reach along Ravenswood Slough[17]



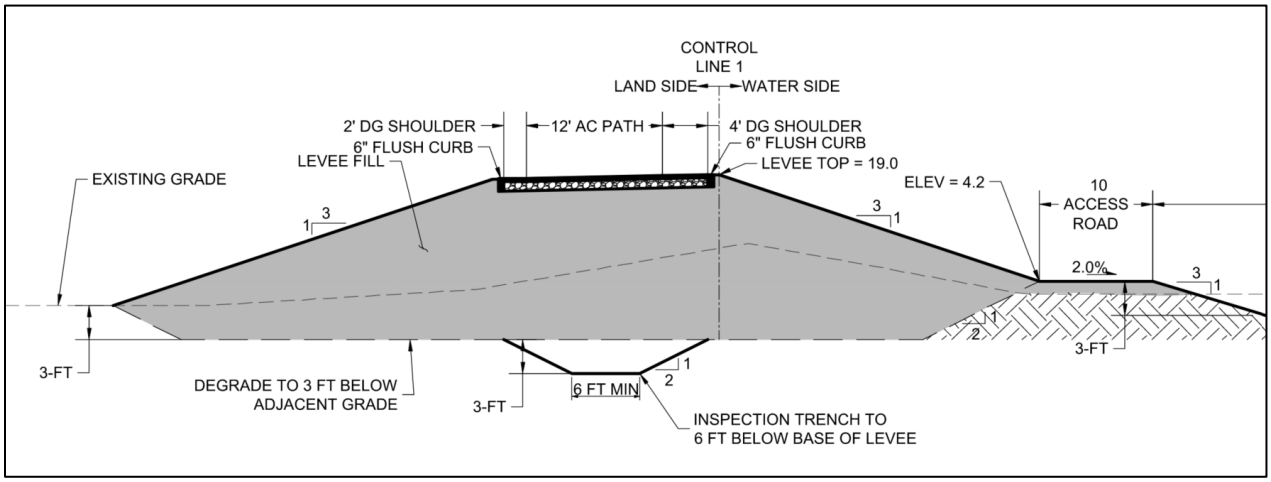
Menlo Park: Bayfront Expressway Reach

The Bayfront Expressway Reach is within the City of Menlo Park, largely within the Don Edwards San Francisco Bay National Wildlife Refuge, and extends between the Meta Headquarters and Bedwell Bayfront Park (owned by the City of Menlo Park) along the Bay Trail. The eastern segment of the reach parallels SR 84 (referred to in this area as the Bayfront Expressway), and the western segment of the reach extends between Ponds R3 and R4 to the east and Ponds S5 and R5 to the west, to connect to the high ground created by the former landfill underlying

[16] Menlo Park 60% Plans, Typical Section 3, Sheet TCX01 (Page 134); Plan views on Sheets PP09 – PP12 (Pages 75-78)
[17] Menlo Park 60% Plans, Typical Section 5, Sheet TCX01 (Page 134); Plan views on Sheets PP13 (Page 79)

Bedwell Bayfront Park. The shoreline protection is an earthen levee with 3H:1V side slopes (Figure 10). The levee crest elevation is proposed at 19 feet NAVD88.[18] A notable design constraint is the presence of recently constructed water control structures interconnecting Ponds R5/S5 and R4/R3 - the alignment has been adjusted from earlier JPA plans to preserve these structures in place rather than demolish and replace them. Bayfront Expressway is another significant constraint; the current alignment was selected to avoid additional loading on the highway's foundation, which would accelerate settlement and potentially lead to pavement deformation, structural damage, and long-term maintenance and safety issues for the highway.

Figure 10. Typical Section for Bayfront Expressway Reach[19]



Summary of Submitted Materials

The following materials have been submitted to the ECRB to support the Board's review of the engineering design criteria for the four Project reaches that are the focus of this meeting.

For All Reaches

1. Coastal Hazard Analysis (Environmental Science Associates | dated June 11, 2026)
2. SAFER Bay Geotechnical Challenges Memo (HDR | dated June 8, 2026)

For East Palo Alto

1. EPA Final Design Criteria Report (Sherwood Design Engineers | dated June 5, 2026)
2. EPA Basis of Design Report (Sherwood Design Engineers | dated June 18, 2026)
3. EPA 60% Plans (Sherwood Design Engineers | dated June 5, 2026)
4. EPA Geotechnical Data Report, Draft (Geosyntec | dated April 30, 2026)

[18] Menlo Park Coastal Hydraulics Study, PDF page 5
[19] Menlo Park 60% Plans, Typical Section 2, Sheet TCX01 (Page 134); Plan views on Sheets PP04 – PP08 (Pages 70-74)

For Menlo Park

1. MLPK ECRB Synopsis (Schaaf & Wheeler | dated June 5, 2026)
2. MLPK Basis of Design Report, 60% Update (Schaaf & Wheeler | dated June 5, 2026)
3. MLPK 60% Plans (Schaaf & Wheeler | dated April 30, 2026)
4. MLPK Coastal Hydraulics Study (FlowWest | dated April 24, 2026)

To support the ECRB's review of the materials, BCDC staff have prepared the attached SAFER Bay Engineering Design Criteria Crosswalk, which outlines where in the submitted materials reviewers can find information on key engineering design criteria.

Commission Plans, Policies, and Guidelines

The authority to review and revise engineering criteria and any safety provisions is justified for the ECRB through the McAteer-Petris Act, codified at Government Code section 66605(e), which requires that all fill must be constructed "in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters."

Additionally, the Bay Plan policies provide additional authority, particularly Safety of Fills Policies No. 1 and 2:

> **Safety of Fills Policy 1:** The Commission has appointed the Engineering Criteria Review Board consisting of geologists, civil engineers specializing in geotechnical and coastal engineering, structural engineers, and architects competent to and adequately empowered to: (a) establish and revise safety criteria for Bay fills and structures thereon; (b) review all except minor projects for the adequacy of their specific safety provisions, and make recommendations concerning these provisions; (c) prescribe an inspection system to assure placement and maintenance of fill according to approved designs; (d) with regard to inspections of marine petroleum terminals, make recommendations to the California State Lands Commission and the U.S. Coast Guard, which are responsible for regulating and inspecting these facilities; (e) coordinate with the California State Lands Commission on projects relating to marine petroleum terminal fills and structures to ensure compliance with other Bay Plan policies and the California State Lands Commission's rules, regulations, guidelines and policies; and (f) gather, and make available performance data developed from specific projects. These activities would complement the functions of local building departments and local planning departments, none of which are presently staffed to provide soils inspections.
>
> **Safety of Fills Policy 2:** Even if the Bay Plan indicates that a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the Engineering Criteria Review Board.

Staff Report Attachment: SAFER Bay - Engineering Design Criteria Crosswalk

SAFER Bay - Engineering Design Criteria Crosswalk

Note: Both the City of East Palo Alto and the City of Menlo Park operate under shared programmatic engineering criteria established in the Design Criteria TM for 10% & 30% Designs (HDR, Sept 2024, located in Appendix A of the MLPK Basis of Design Report). East Palo Alto is farther ahead in its design, with completed 60% structural calculations (COWI) and a geotechnical data report (Geosyntec). Menlo Park structural calculations and a geotechnical report are targeted for August 2026.

Design Criteria Category	East Palo Alto *South of Bay Road Reach*	Menlo Park *Substation & Marsh / Tech Campus / Bayfront Expressway Reaches*

Geotechnical	**EPA Geotechnical Data Report, Draft** (Geosyntec | dated April 30, 2026)
	SAFER Bay Geotechnical Challenges Memo (HDR | dated June 2026)
	EPA Final Design Criteria Report (Sherwood | dated June 5, 2026)
	• §2.0 - Levee Design Criteria
	EPA Basis of Design Report (Sherwood | dated June 5, 2026)
	• §2.0 - Geotechnical Basis of Design
	• §4.0 - Civil Basis of Design (for fill material specifications)
	• Appendix A.1 - Settlement Evaluation + Settle3 Outputs (Geosyntec | June 2026)
	• Appendix A.4 - Sheet Pile Wall 60% Design (COWI | May 2026):
	  • §3 - Geotechnical Analysis
	  • §4.7 - Sheet Pile Wall Settlement Analysis
	  • Appendices B.2 - B.5 (seepage GeoStudio outputs)
	  • Appendix C (settlement calculations)
		MLPK ECRB Synopsis
		SAFER Bay Geotechnical Challenges Memo (HDR | dated June 2026
		MLPK Basis of Design Report, 60% Update (Schaaf & Wheeler | June 2026)
		• §3.6 - Geotechnical Hazards and Design Considerations
		• §7.3.1 - Hydraulic Loading Conditions
		• §7.6.1 - Factors of Safety and Design Targets (Levee Stability; Seepage & Underseepage; Floodwall Stability)
		• §9.1 - Levee Fill Materials
		• §9.2 - Settlement Mitigation
		• §9.3 - Seepage Control
		• Appendix A - Design Criteria TM for 10% & 30% Designs (HDR | Sept 2024): §2.0 - Levee Design Criteria
		
		[Geotechnical report in progress — targeted August 2026]

Coastal	**Coastal Hazard Analysis** (ESA | dated June 11, 2026)
	EPA Final Design Criteria Report (Sherwood | dated June 5, 2026)
	• §2.0 - Hydraulic Loading (Usual / Unusual / Extreme WSE definitions)
	• §5.0 - Hydraulic Design Criteria
	EPA Basis of Design Report (Sherwood | dated June 5, 2026)
	• §4.0 - Civil Basis of Design (stormwater, interior drainage)
	• Appendix A.4 - Sheet Pile Wall 60% Design (COWI | May 2026):
	  • §1.4 - Water Levels, including Table 1-1 (hydraulic loading scenarios)
	  • §2.3 - Hydrostatic load
		Coastal Hazard Analysis (ESA | dated June 11, 2026)
		MLPK Coastal Hydraulics Study (FlowWest | dated April 24, 2026); note: this report is replicated in Appendix D of the MLPK Basis of Design Report
		MLPK Basis of Design Report, 60% Update (Schaaf & Wheeler | June 2026)
		• §3.4 - Flood Protection Elevations
		• §7.3.1 - Hydraulic Loading Conditions
		• Appendix A - Design Criteria TM for 10% and 30% Designs (HDR | Sept 2024): §5.0 - Hydraulic Design Criteria

Structural	**EPA Final Design Criteria Report** (Sherwood | dated June 5, 2026) • §2.0 - General Levee and Embankment Cross-Sectional Geometry • §4.0 - Structural Design Criteria **EPA Basis of Design Report** (Sherwood | dated June 5, 2026) • §3.0 - Structural Basis of Design • §6.0 - References: Structural Design Codes • Appendix A.4 - Sheet Pile Wall 60% Design (COWI | May 2026) • Appendix A.5 - Retaining Wall 60% Design (COWI | May 2026)	**MLPK ECRB Synopsis** **MLPK Basis of Design Report, 60% Update** (Schaaf & Wheeler | June 2026) • §3.5 – Project Life (for steel corrosion) • §7.0 – Other Design Considerations (including §7.3 - Loading Conditions and §7.5 - Summary of Governing Load Cases) • Appendix A - Design Criteria TM for 10% & 30% Designs (HDR | Sept 2024): §4.0 - Structural Design Criteria [Structural calculations in progress — targeted August 2026]

Seismic	**EPA Final Design Criteria Report** (Sherwood | dated June 5, 2026)
	• §2.0 - Seismic Stability Analysis
	EPA Basis of Design Report (Sherwood | dated June 5, 2026)
	• §2.0 - Geotechnical Basis of Design (Seismic Hazard starting on PDF page11; Liquefaction Evaluation starting on PDF page 12)
	• Appendix A.2 - Seismic Hazard (PSHA/DSHA results) (Geosyntec | May 2026)
	• Appendix A.3 - Liquefaction Evaluation (Geosyntec | June 2026)
	• Appendix A.4 - Sheet Pile Wall 60% Design (COWI | May 2026):
	  • §1.6 - Seismic parameters
	  • §1.7 - Liquefaction
	  • §2.4 - Seismic load (EQ)
	  • §3.2 - Evaluation criteria
	  • §3.6 - Seismic stability analysis
	  • §4.3 - FLAC2D models and analyses results
	  • §4.5 - Sheet pile structural design
	  • §5 - Limitations
	  • Appendix A.3 - Liquefaction potential for OBE & MDE (CLiq outputs)
	  • Appendices B.6 - B.8 (Seismic slope stability)
	  • Appendix D - FLAC2D outputs
		MLPK ECRB Synopsis
		MLPK Basis of Design Report, 60% Update (Schaaf & Wheeler | June 2026)
		• §3.6.2 - Seismic Hazards
		• §7.3.2 - Seismic Loading Conditions
		• §7.4 - Structural Modeling Approach (FLAC dynamic modeling)
		• §7.6.4 - Deformation-Based Criteria
		• §7.7 - Risk-Informed Framework and Fragility Assessment
		• Appendix A - Design Criteria TM for 10% & 30% Designs (HDR | Sept 2024):
		  • §2.5 - Seismic Stability Analysis
		  • §4.3 - Structural Codes, Standards, and Regulations