



Mission Creek Flood Control & Restoration Project

City of Fremont, Alameda County

Agenda

- Background
- Why are proposed improvements necessary?
- Proposed project components
- Challenges
- Construction schedule/phasing



Background (Existing Conditions/Project Reaches):

- Mission Creek between Lemos Lane and Lake Elizabeth is inadequate to convey the FEMA 100-year design peak flow
- At Reach 1, the golf course floods; the existing SFPUC abandoned 48" pipe is currently an obstruction to flow.
- At Reach 2, the 100-year flows overtop the existing top-of-banks into residential areas
- At Reach 3, the 100-year flows constricted at the undersized culverts at Lemos Lane overtop onto the street and flow into Gomes Park and Gomes Elementary School.

Why proposed improvements are necessary

- Increase flood conveyance in the creek to meet FEMA current 100-year (one percent annual chance) design storm requirement and minimize future potential flooding
- Construct the improvements before FEMA mapping and updates of the Flood Insurance Rate Map (FIRM). If the floodplain is mapped on the FIRM, the affected property owners (with federal backed mortgages) would be required by law to purchase flood insurance (estimated at \$2,500/year)
- Stabilize eroded slopes using biotechnical bank stabilization control methods, to minimize sediment deposition downstream
- Improve riparian habitat function
- Replanting trees and vegetation with native species

Project Components: Reach 1

NEW TOP

NEW TOE

NEW WETLAND TERRACES NORTH AND SOUTH OF CHANNEL

CLASS 2 AB

REPLACE BRIDGE

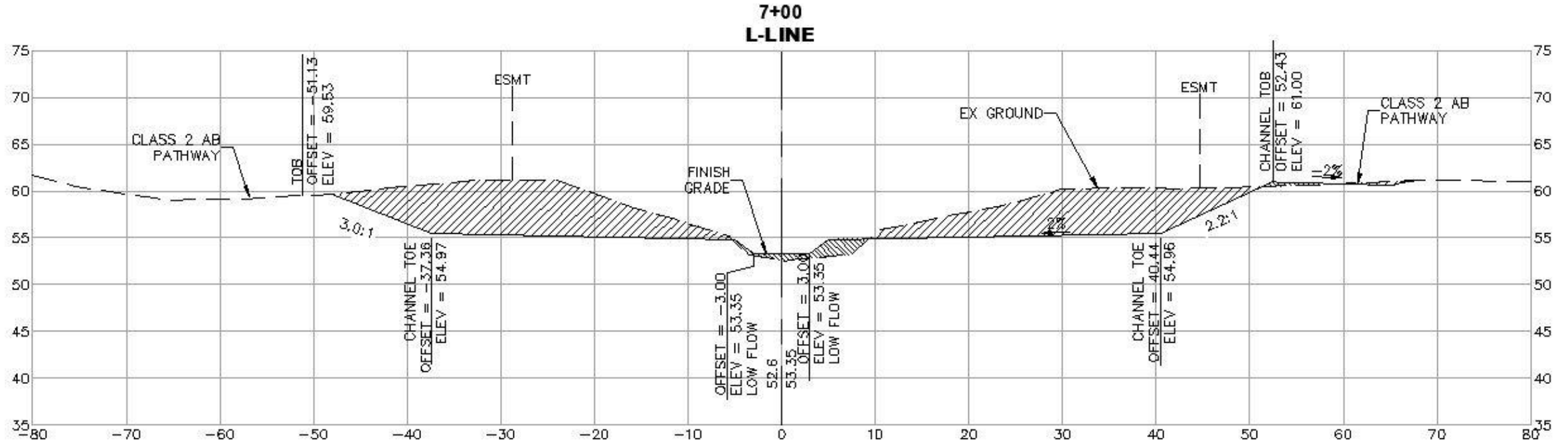
ROCK SLOPE PROTECTION

IMPROVE CONFLUENCES WITH M-1, L-2

0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50 9+00

-
- REMOVE
ABANDONED
SFPUC PIPE**

Reach 1 Cross-section

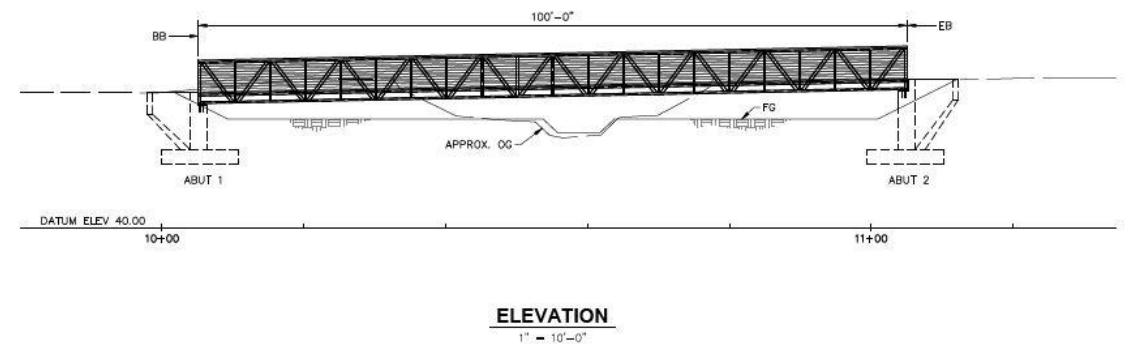


Reach 1 New Features

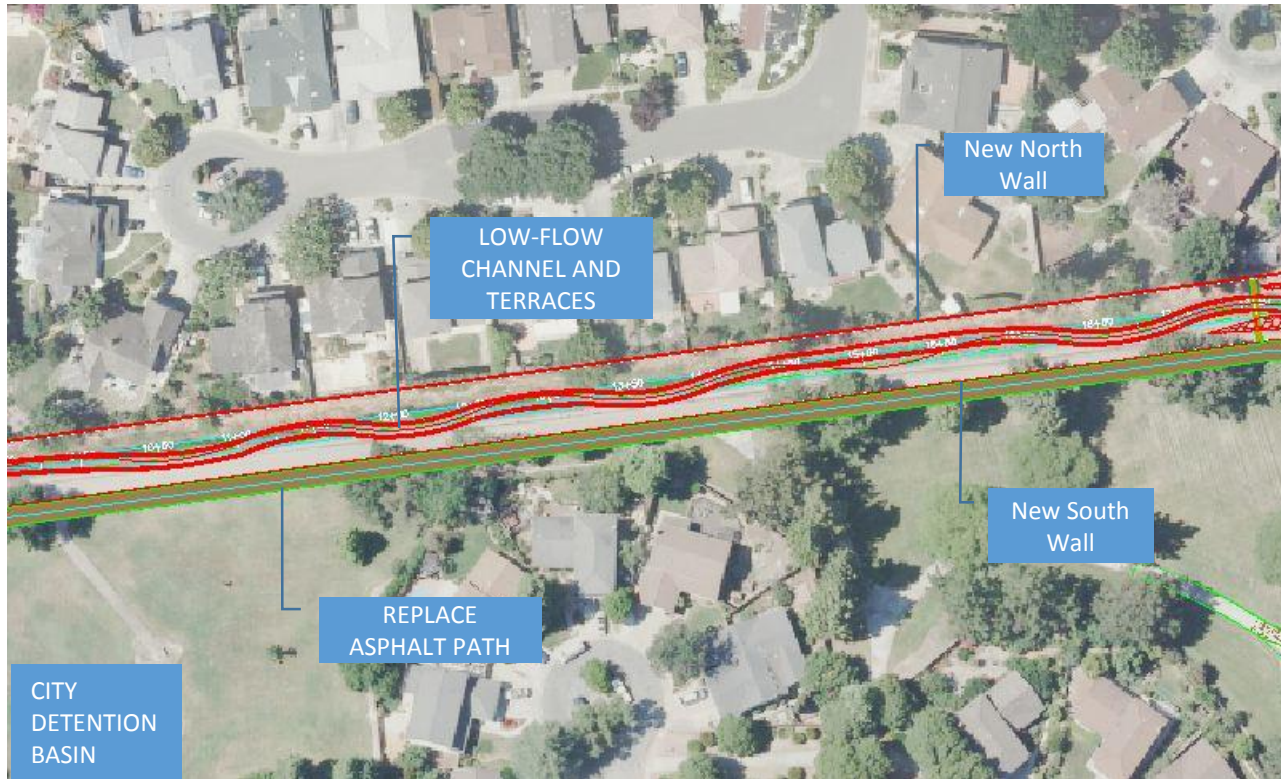
- Existing Golf Course Bridge



- Proposed Golf Course Bridge



Project Components: Reach 2

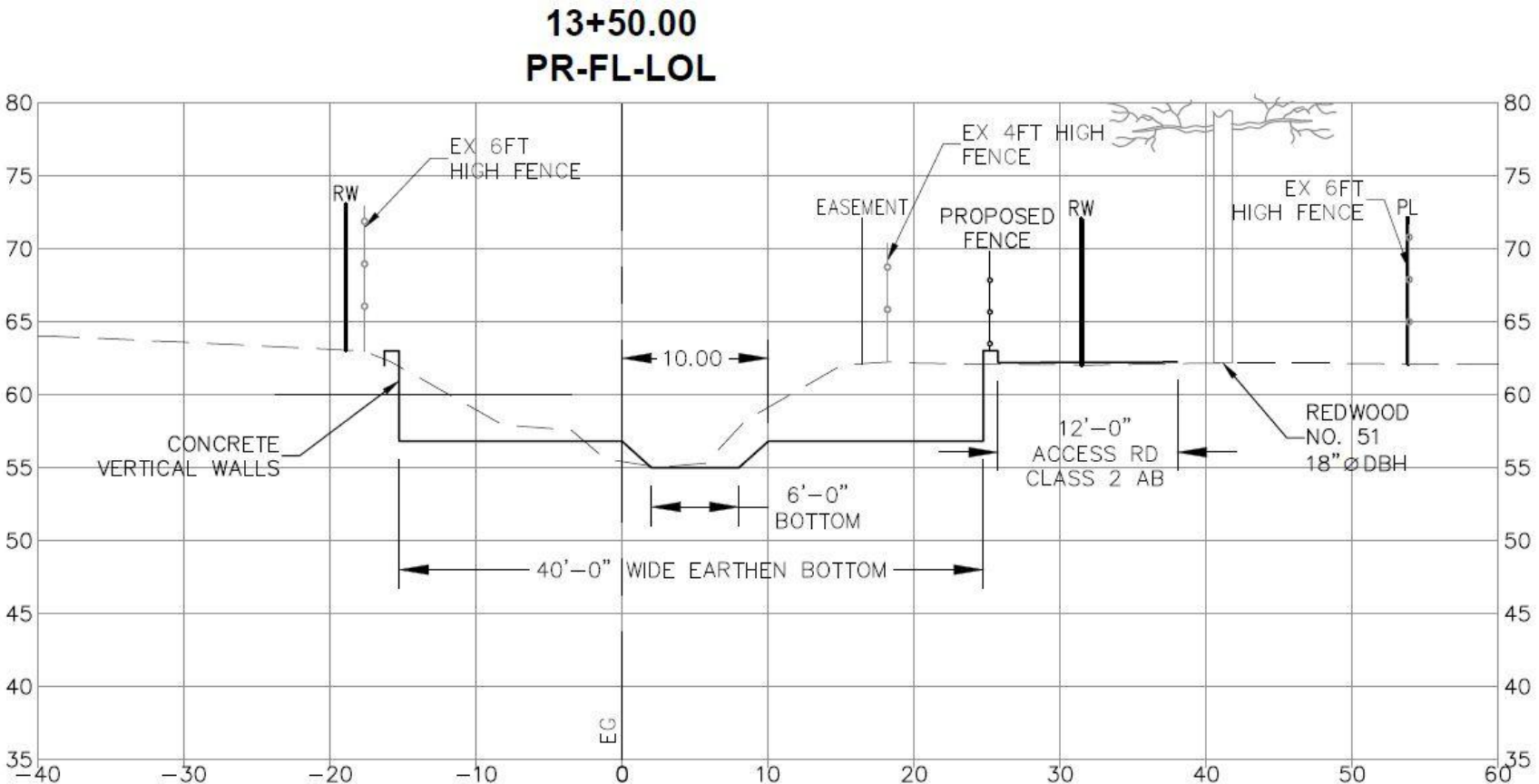


- Existing V-shaped gabion mattress-lined channel will be replaced with vertical channel retaining walls to provide increased width for the channel, earthen bottom with meandering low flow channel and terraced floodplains;
- New low flow channels and terraces;
- Relocation of asphalt pathway;



Reach 2 Typical Cross-section

(Looking Upstream)

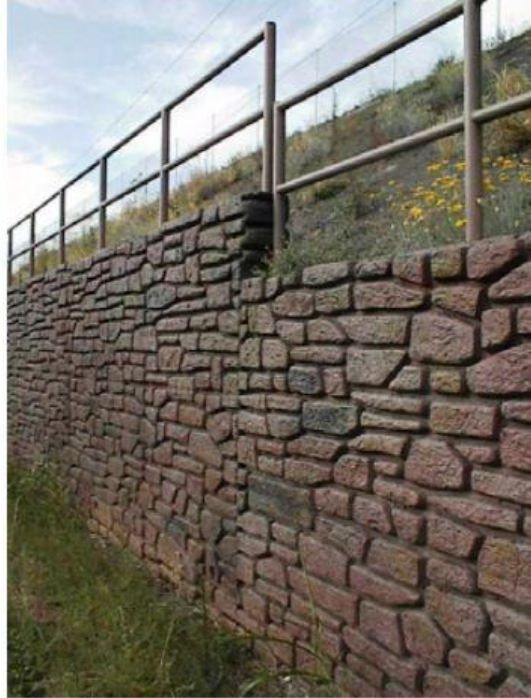


Reach 2 New Low Retaining Wall

- Sample Vertical Channel Walls Finishes



Colorado Split Slate

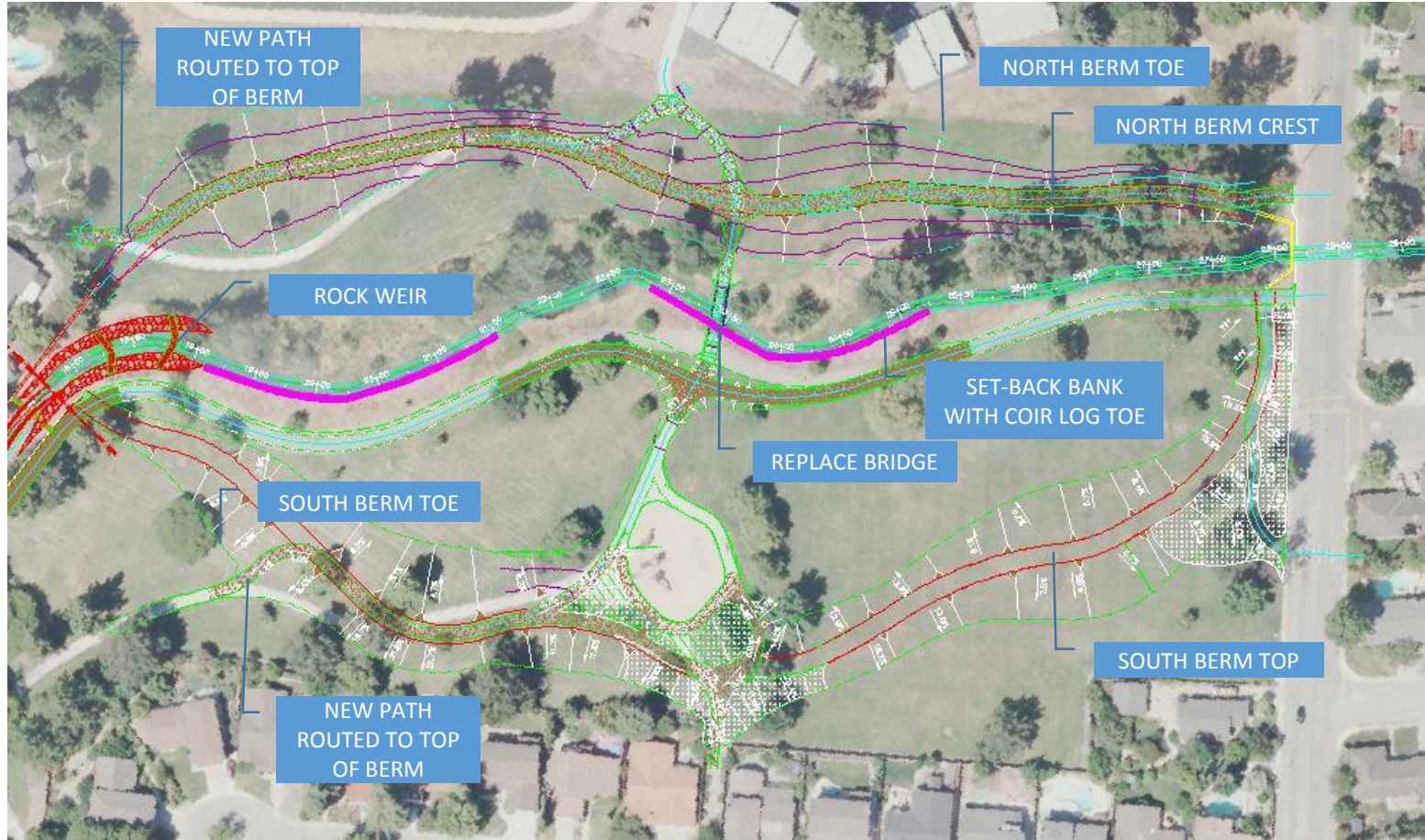


Antietam Drystack



Yosemite Rock

Project Components: Reach 3



Existing Creek (Looking Downstream)



Existing AC Pathway (Looking Downstream)

- Work in this reach minimizes impacts to the channel to retain the well-developed riparian corridor
- Low, contoured earthen berms proposed for outside the existing top-of-banks to contain the 100-year flow
- Existing Gomes Park footbridge which currently obstructs 100-year flow will be replaced with single span bridge
- Biotechnical bank stabilization at bank erosion sites along meander bends
- Rock gradient control weirs to stabilize longitudinal profile
- New maintenance access on north side from Lemos Lane

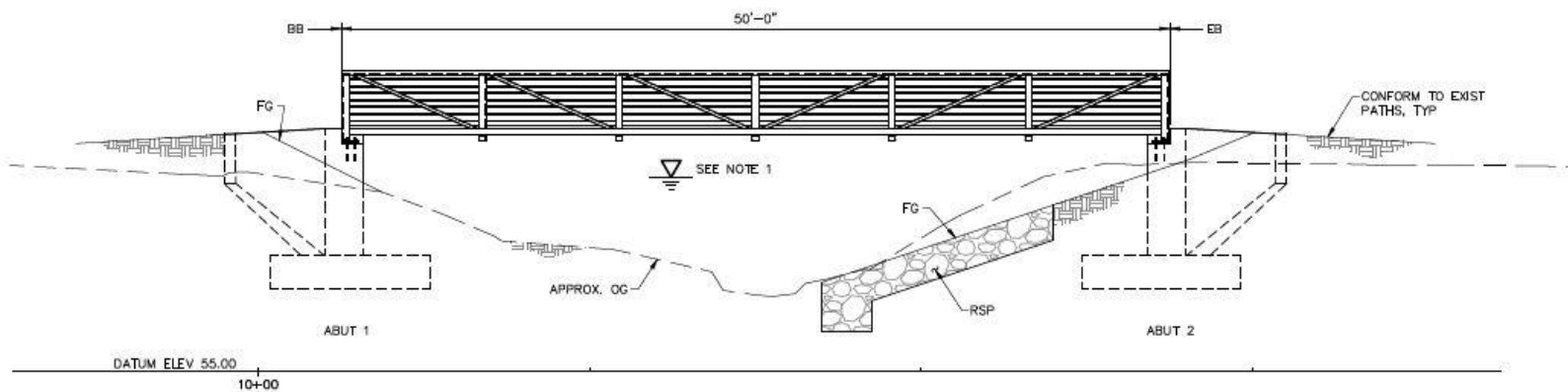
Reach 3 Cross-section

- City park pathways where they intersect new berms will be replaced and will run along the crest of the berms.
- South berm was re-routed south of the playground to retain open space for sports practices in the park

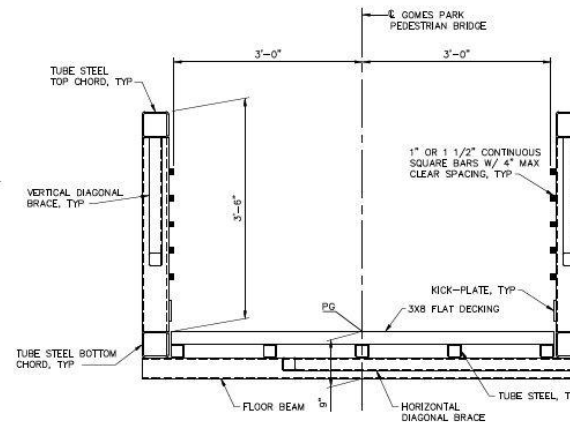


Reach 3 Gomes Footbridge

- Existing footbridge will be replaced with single-span steel bridge



ELEVATION
1" = 5'-0"



TYPICAL SECTION
1" = 1'-0"



Reach 3 Bank Stabilization

- Existing bank erosion will be stabilized by setting the top-of-bank back at two outside meander bends
- Biotechnical coir logs will be installed at bank toes of set-back portions



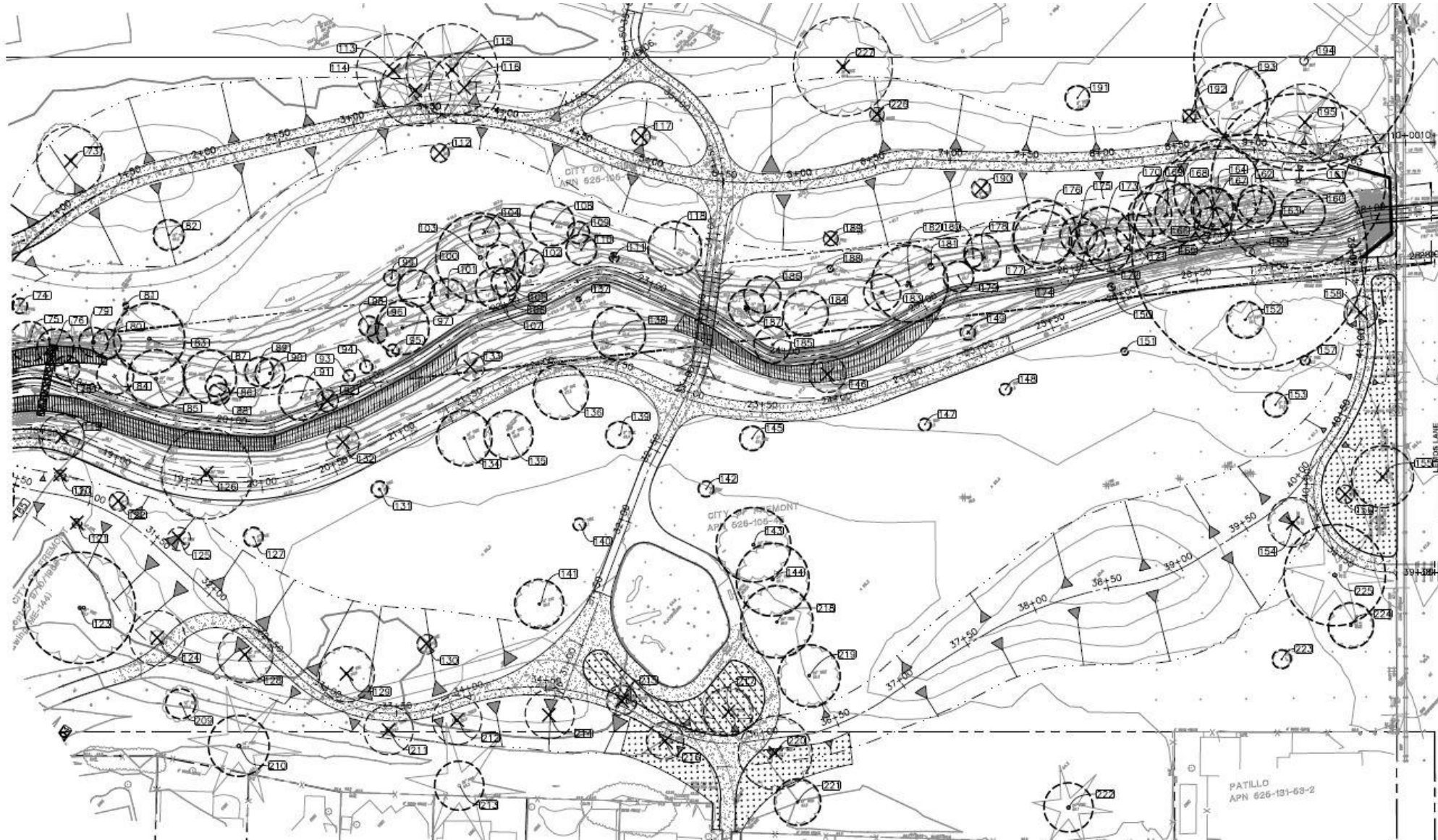
Reach 3 Rock Weirs

- Rock weirs are proposed for gradient control between Reaches 2 and 3



Tree Removal and Replacement

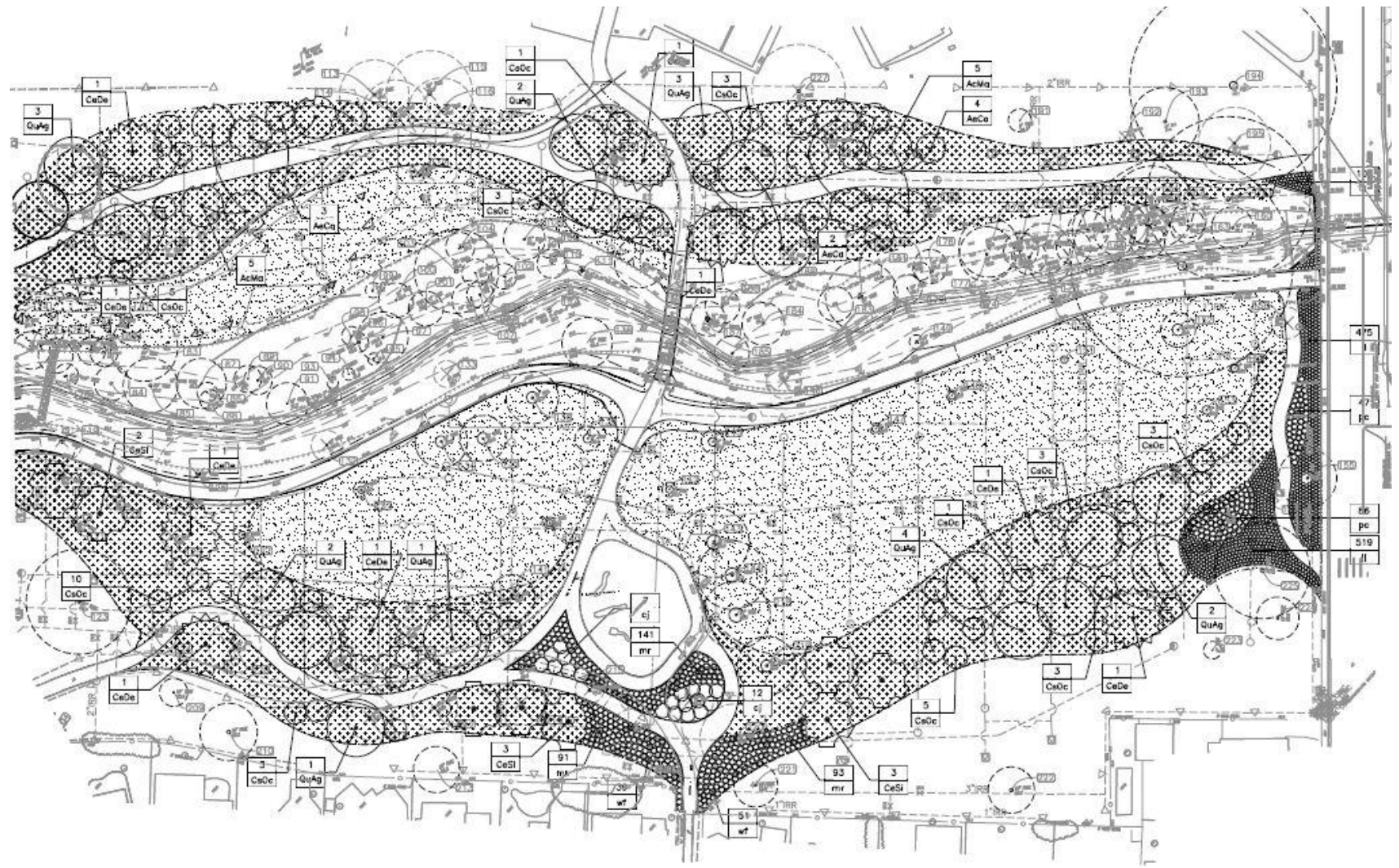
- 15 trees to be removed from Reach 1
- 8 trees to be removed from Reach 2
- 34 trees to be removed from Reach 3



Reach 3 Concept



Preliminary Park Landscaping Plan



LEGEND

QTY ABER	QUANTITY OF PLANTS — SEE PLANT LIST SPECIES ABBREVIATION	PROPOSED PLANT — SEE PLANT LIST		ACER MACROPHYLLUM — SEE PLANT LIST		CELTIS SINENSIS — SEE PLANT LIST		SHRUBS AND PERENNIALS — SEE PLANT LIST
	EXISTING TREE TO REMAIN — SEE TREE PRESERVATION PLANS			AESCHULUS CALIFORNICA — SEE PLANT LIST		CERCIS OCCIDENTAUS — SEE PLANT LIST		
-----	LANDSCAPE HEADER			CELRUS DECORATA — SEE PLANT LIST		QUERCUS AGRIFOUA — SEE PLANT LIST		"BOLERO PLUS" TURF — SEE PLANT LIST

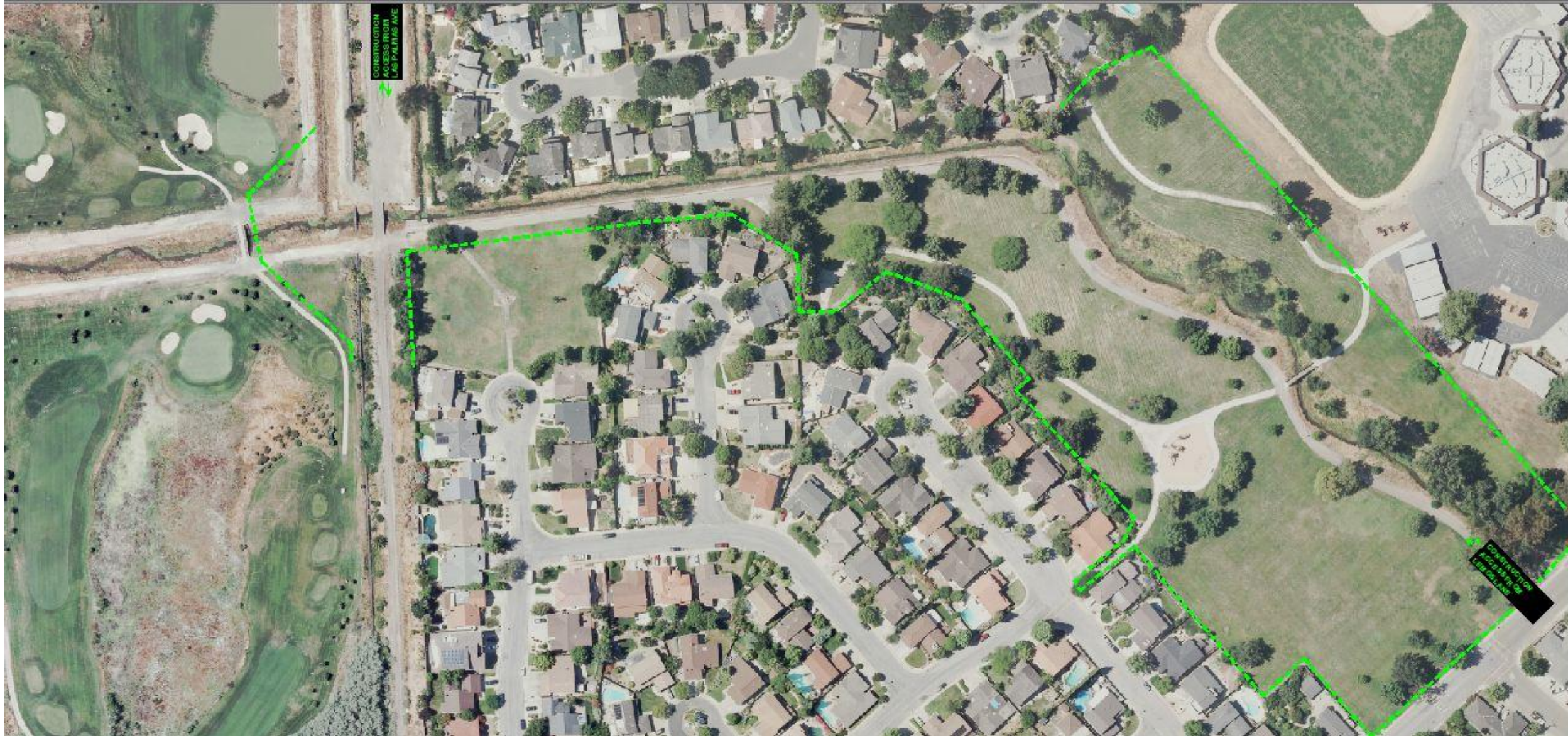
Challenges

- Construction safety
- Constrained Right-of-Way
- Available construction period
- Lots of major construction activities within small constrained areas
- Maintain golf course operations
- Maintain park usage to the extent feasible
- Adjacent to Elementary School
- Adjacent to residential homes
- Lead time for pre-fabricated bridges

Anticipated Construction Schedule

- Advertisement (Pending receipt of all environmental permits): January 13, 2015
- Bid Opening: February 24, 2015
- Award: March 17, 2015
- On-site Construction to begin: April 2015
- Project Completion: December 2015
- Entire work period: April – December 2015
- Construction Duration: 130 Working Days (Mondays thru Fridays)
- Construction Hours: 8:00 AM to 5:30 PM
- Construction Parking will be confined to Lemos Lane and will not interfere with school drop-off and pick-up times
- Traffic control may be needed on west side of Lemos Lane and will not interfere with school drop-off and pick-up times (9 am -2 pm only)

Construction Fencing



Stakeholders

Alameda County Flood Control and Water Conservation District

City of Fremont Parks and Recreation

Fremont Park Golf Course

San Francisco Public Utility Commission

Union Pacific Railroad

California Department of Fish and Wildlife

U.S. Army Corps of Engineers

Regional Water Quality Control Board

Questions

Project Engineer: Ms. Chien Wang, P.E.

Office Phone No.: 510-670-5552

E-mail: chien@acpwa.org

