

Marina Lagoon Ad-Hoc Committee



Update on Marina Lagoon and Stormwater Management Activities

November 7, 2024

Agenda

- Brief Overview of Sedimentation on Marina Lagoon (10 minutes)
- Marina Lagoon Pump Station Alternatives (30 minutes)
- Spot Dredging (15 minutes)
- Storm Drain Master Plan Update (15 minutes)
- Wet Weather Preparation (10 minutes)
- Army Corps of Engineers Visit (10 minutes)
- Q&A

Sedimentation in Marina Lagoon

- Over past 6 years, evidence of some moderate sedimentation in Marina Lagoon
- As part of the Storm Drain Master Plan Update, City's consultant prepared updated elevation model of Marina Lagoon



Marina Lagoon Pump Station

Pump Station Facts

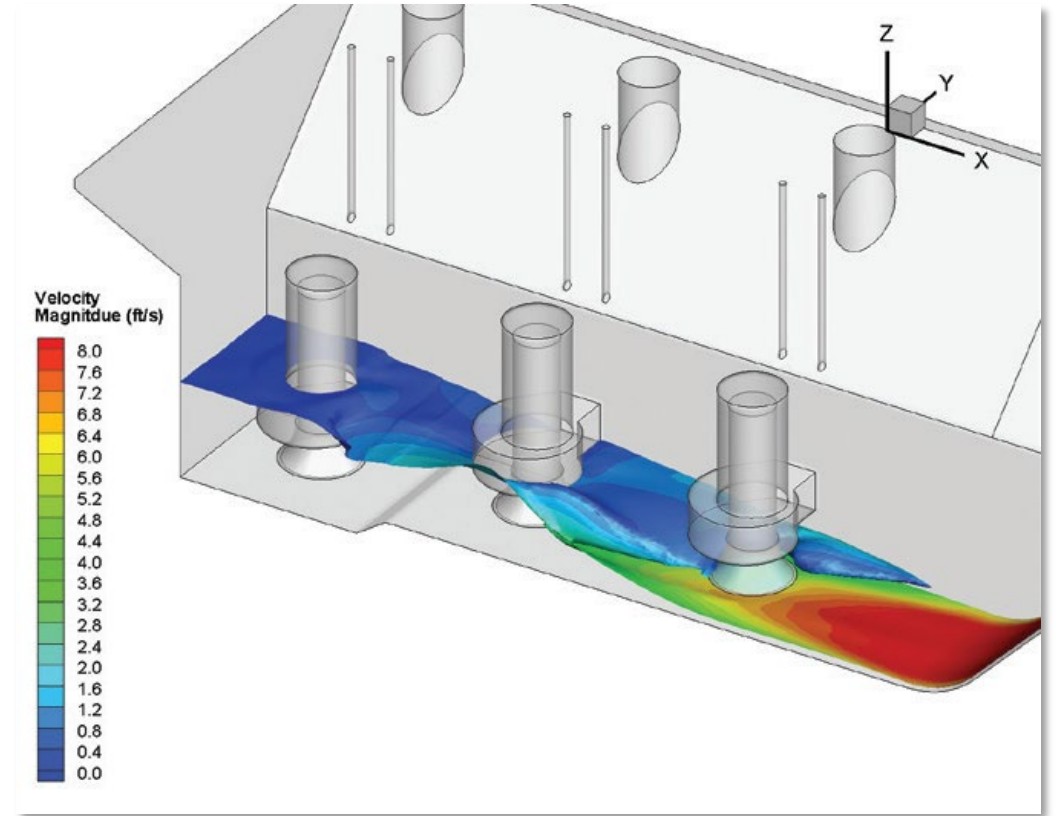
- Nearing 40 years of service
- Cannot safely draw down water elevation below Elev. 95
- 2022 NYE analysis shows minimal interior flooding if all pumps turned on

Alternatives Analyzed

- Hydraulic Intake Analysis
- Replace one pump with smaller unit
- New low-flow pump station
- Temporary Rental Pumps Pump Station

Hydraulic Intake Analysis

- Physical model of pump station hydraulics
- Benefits all operational conditions of pumps, not just low-level pumping
- Likely additional improvements required after study complete



Replacement Pump

Option 1: Utilization of Existing Pump to Pump Below Elevation 95

- Operate one of the existing pumps as permanent lead pump when lowering the Lagoon level below Elevation 95
- Pump is termed “sacrificial” as the existing pump is anticipated to be operated outside of the original designed operating parameters and risk severe damages to the pump and individual pump assemblies
 1. Below pump manufacturer’s “aggressive” minimum submergence at 95.0 ft CSM
 2. Increased HP requirement above the rated power output of the existing engine and gear box



Replacement Pump

Option 2: Replacement of Existing Pump to Pump Below Elevation 95

- Replace one existing pump and gear box with new smaller unit
- New pump power requirement is below engine max horsepower
- New pump can safely pump the lagoon to a lower level



New Low Flow Pump Station

- Construct a new low-flow pump station adjacent to the existing Marina Lagoon Pump Station
- The pump station is anticipated to consist of:
 - Two (2) new electric pumps with a combined pump capacity of approximately one (1) existing pump capable of lowering the Lagoon below Elevation 95
 - Total pump capacity is anticipated to be 124,000-138,000 gpm
- Designed in accordance with Hydraulic Institute (HI) ANSI/HI 9.8.7.1-2018
- Adds redundancy, equivalent to an extra-large pump



Temporary Rental Pumps

- Significantly lower capacity than existing pump
- Significant infrastructure to install and operate
- Minimum 2 pumps needed
- Skid mounted pump (15,000 lbs)
- HDPE piping (suction and discharge) 18-inch or larger
- Fuel Tank (24 gallons per hour fuel consumption per pump)
- Pump Control System and Monitoring

Temporary Rental Pumps

- 56 hours to lower lagoon 2 feet (no inflow)
- 2,600 gallons of fuel (2 pumps) for 56 hours of pumping
- Refuel tanks every 4 hours
- Consideration for permitting required



Spot Dredging

Status Update

- LiDAR and sonar data generated from SDMP Update used to generate elevation model of Lagoon
- Current permits allow for dredging 2,000 cubic yards
 - Breakdown: 500 CY from 16th Ave Channel, 750 CY from 19th Ave Channel, 750 CY from Laurel Creek

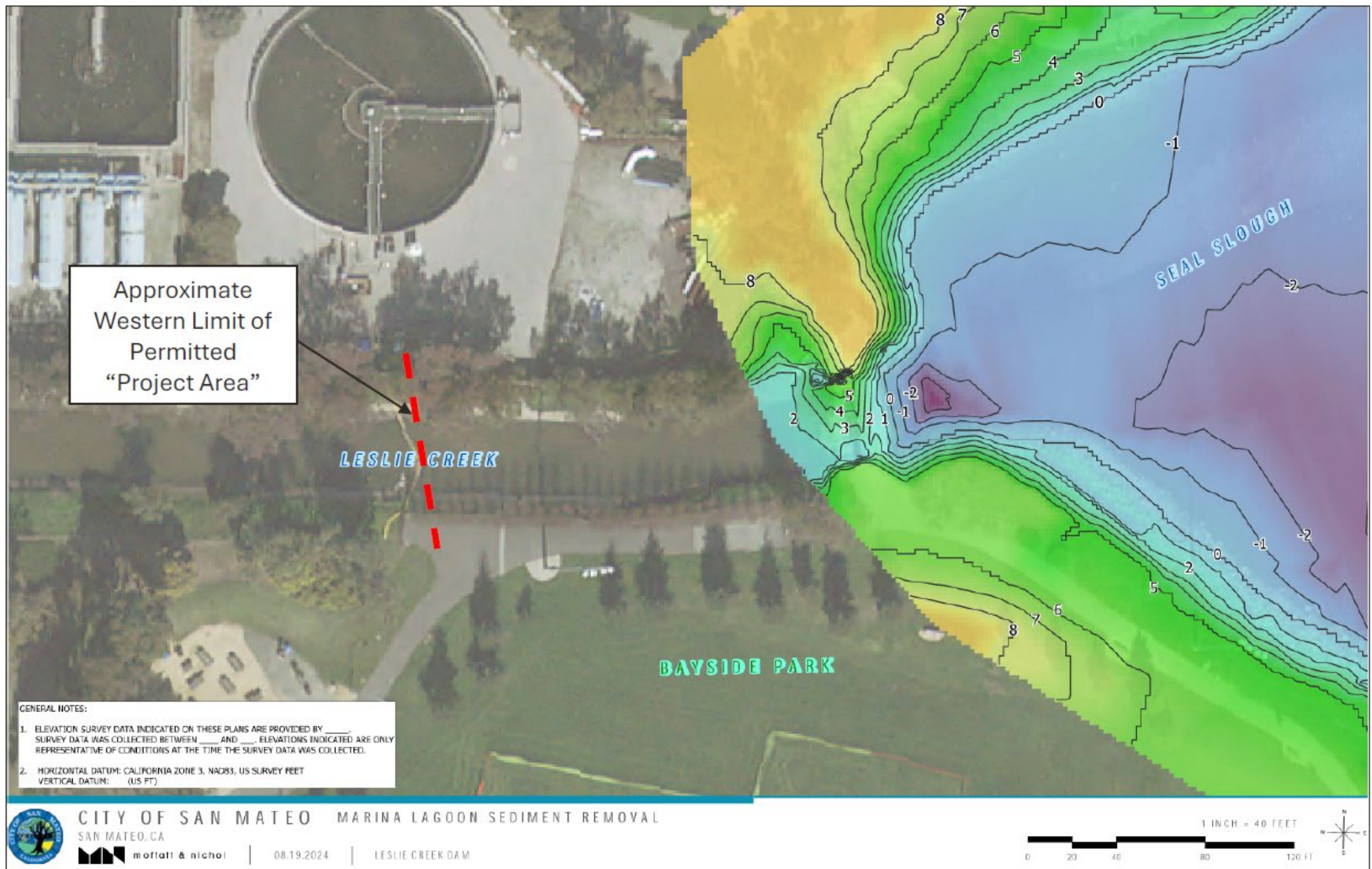


Figure 3: Sediment Removal Location #1: Leslie Creek Inlet (16TH Avenue)

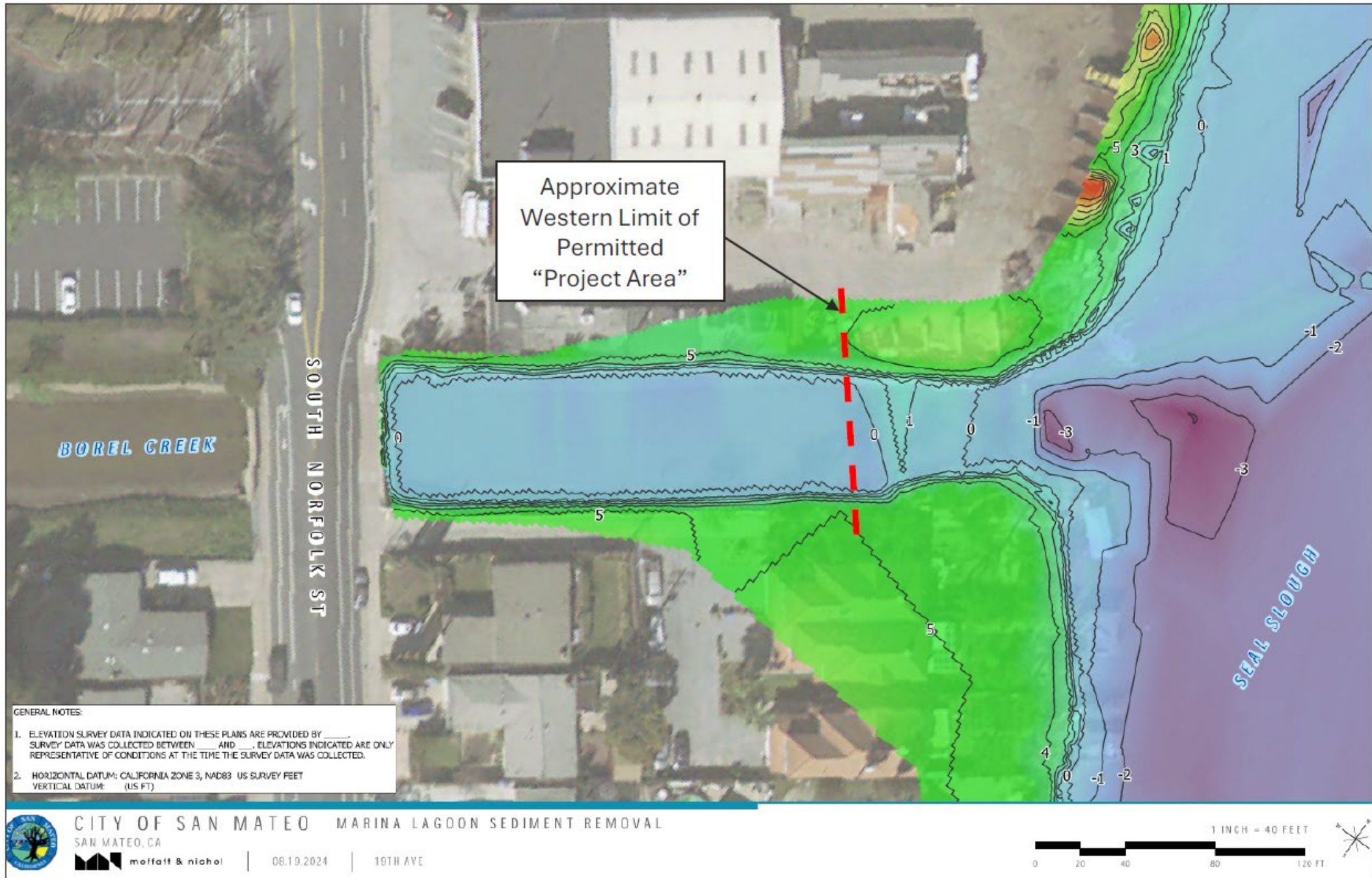


Figure 4: Sediment Removal Location #2: Borel Creek Inlet (19TH Avenue)

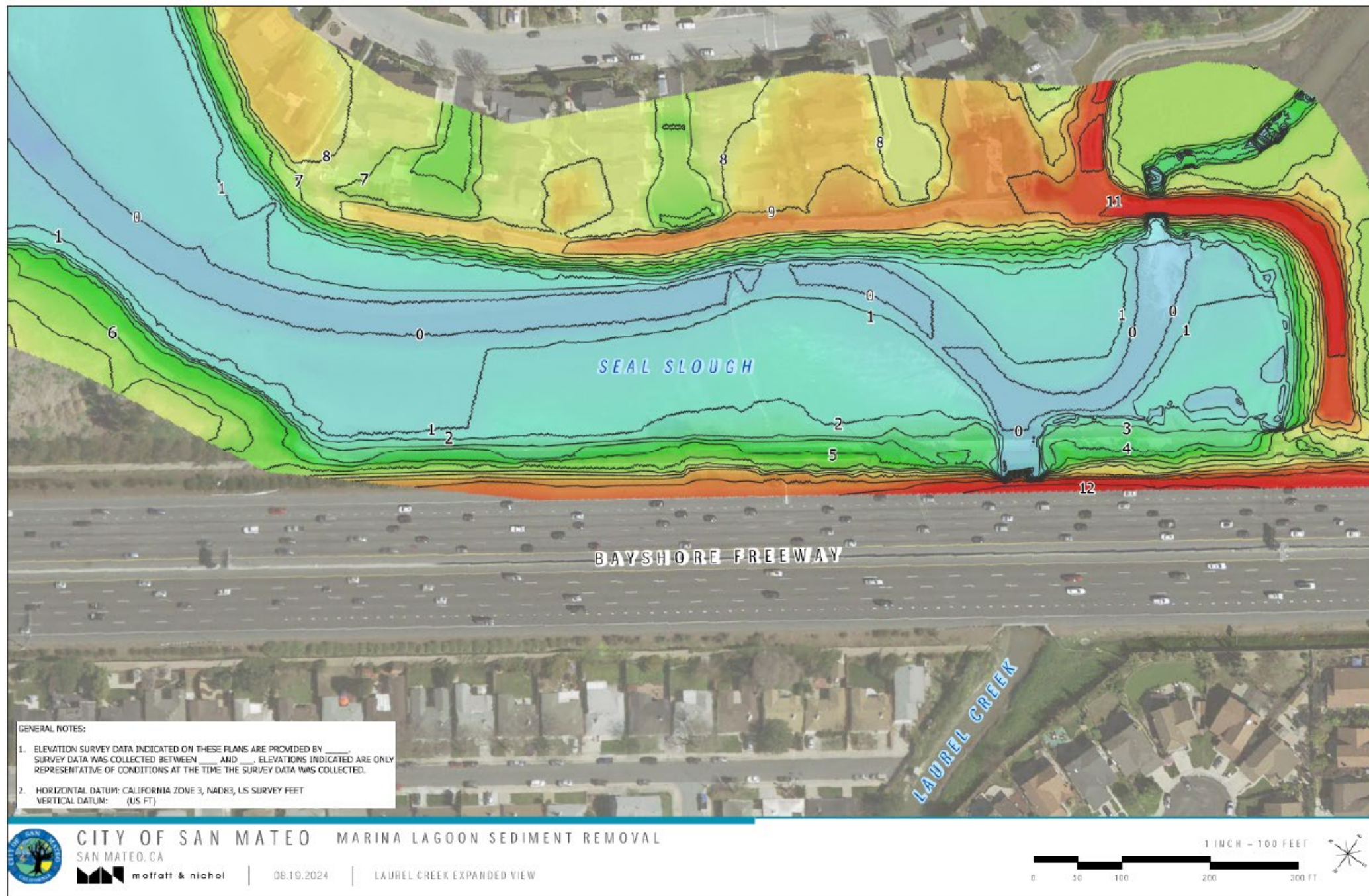


Figure 6: Sediment Removal Location #3: Laurel Creek Inlet and Marina Lagoon Expanded View

Spot Dredging

Next Steps

- After review of elevation model, 16th and 19th Avenue Drainage Channels prioritized for dredging
- Dredging in Laurel Creek will be reserved for a large-scale dredge
 - Large-scale dredge project was submitted and included as an authorization in the 2025 Water Resources Development Act. Next step is for funding to be earmarked for the project.

Storm Drain Master Plan Update

Current Status

- LiDAR and sonar data obtained for updating elevation model
- Condition Assessment of existing storm drain infrastructure ongoing
 - CCTV of known problem areas performed
 - Summary of CCTV data being prepared
 - Laurel Creek survey completed (from Marina Lagoon to Alameda De Las Pulgas)

Next Steps

- Stormwater Fee is coming in this FY on the property tax bills
- Updating hydrology and hydraulics City-wide (including analysis of Marina Lagoon as a channel)
- Assessment of pipes adjacent to the Marina Lagoon once water levels are drawn down
- Identification and prioritization of future capital improvement projects, with cost info and recommendations on potential funding sources

Wet Weather Preparation

Summary of Activities

- All 5 engines at Marina Lagoon Pump Station have been rehabilitated. One minor oil leak on 1 engine will be repaired by end of November.
- Inspection and cleaning of all City-owned trash capture devices & trash racks will be complete by mid November
- Catch basin cleaning began on a full-time basis on October 1. PW observed improved performance of SD infrastructure after last season's catch basin cleaning effort.
- Several storm drain projects completed, as well as several in planning/design
- Remote cameras will be installed this winter to observe recurring areas of ponding

Army Corps Visit

Marina Lagoon Boat Tour on 10.31.24

- Army Corps of Engineers staff (4)
- Staff from Congressman Mullin, Senator Padilla
- Staff from Senator Becker and Assemblymember Papan
- Mayor, Vice-Mayor, Councilmember Hedges
- Follow-up call to discuss options on 11.05.24
- Will work to secure funding to start a study with ACOE

Thank You

Questions?