



San Francisco
Water Power Sewer

WWE Operations

Wastewater System Overview

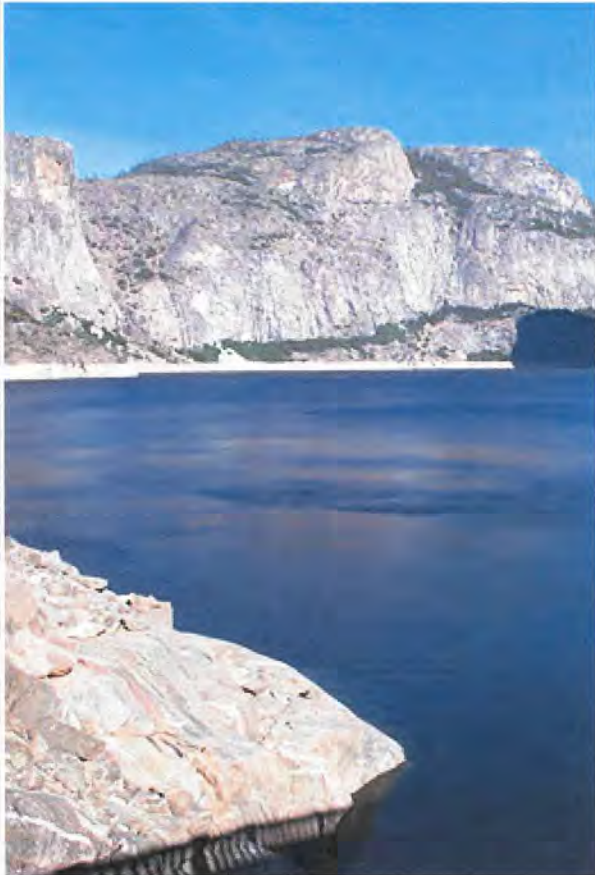
Jignesh Desai
Treatment Facilities Project Manager

May 12, 2014
RBOC

San Francisco Public Utilities Commission



Water



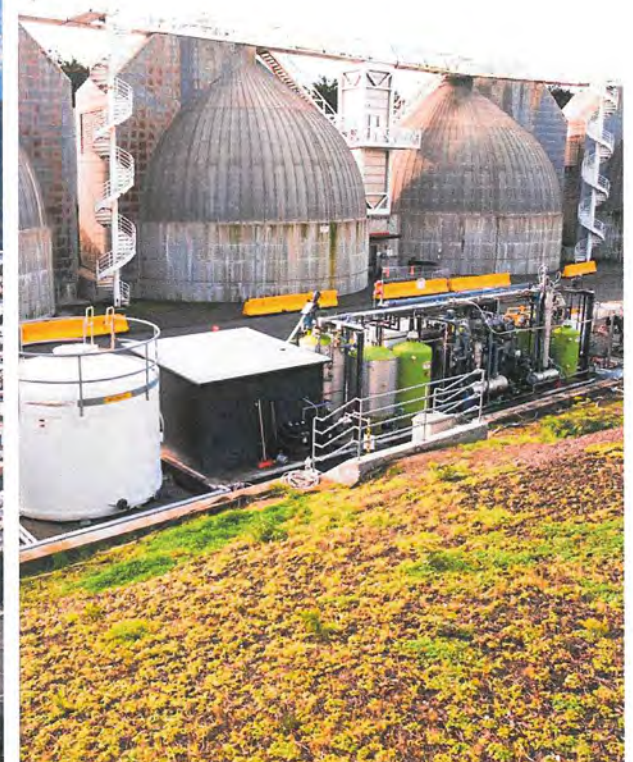
Hetch Hetchy Reservoir

Power



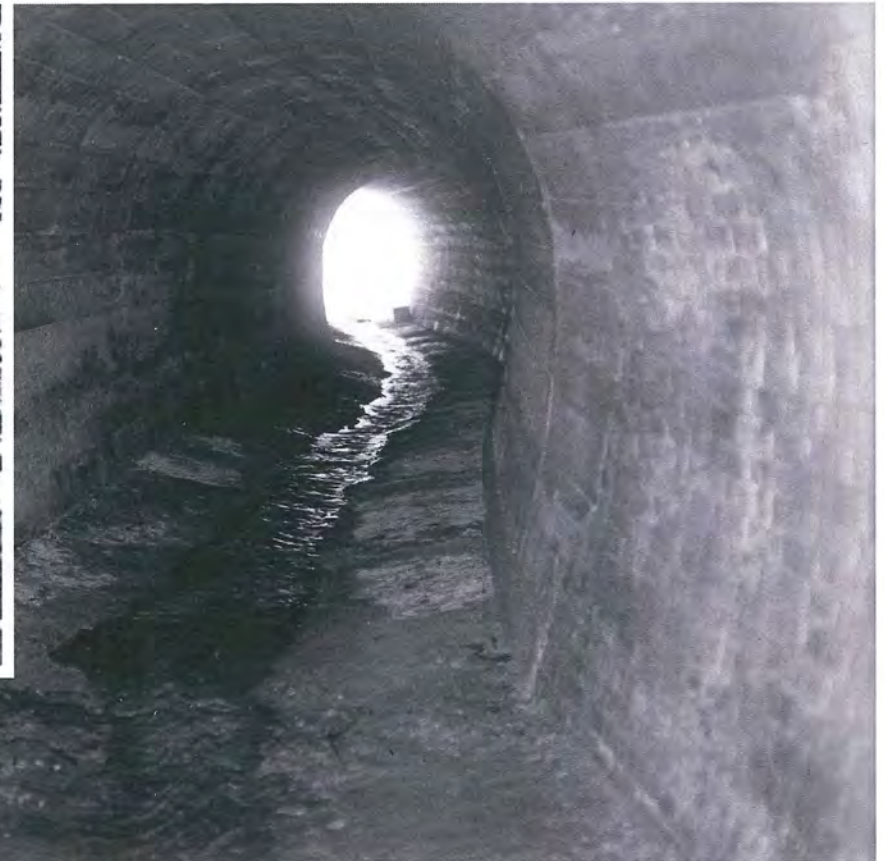
Solar Panels at Sunset Reservoir

Sewer



Oceanside Treatment Plant

Brick Sewers Built During the Gold Rush





Sewer Construction Began

Richmond-Sunset Treatment Plant

Southeast Treatment Plant

Oceanside Treatment Plant

1800's

1930

1938

1951

1952

1982

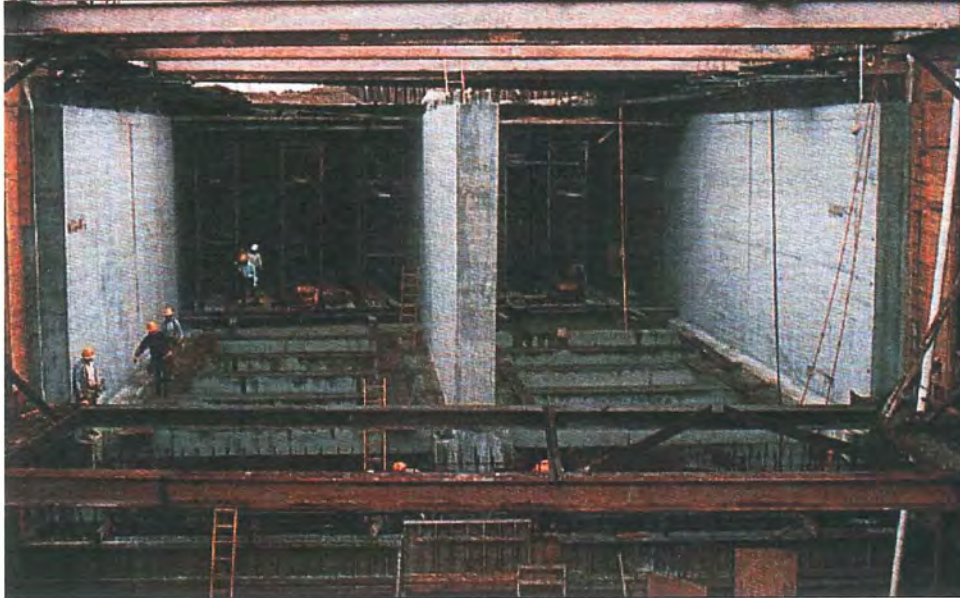
1993

McQueen Treatment Plant

North Point Wet Weather Facility

Southeast Treatment Plant Upgraded to Secondary





1972 – Federal Clean Water Act

Our Combined Sewer System

Legend

- Pump Stations
- Treatment Facilities
- Deep Water Outfalls
- Transport/Storage Structures
- Tunnels
- Force Mains
- Ridgeline
- Watershed Boundaries



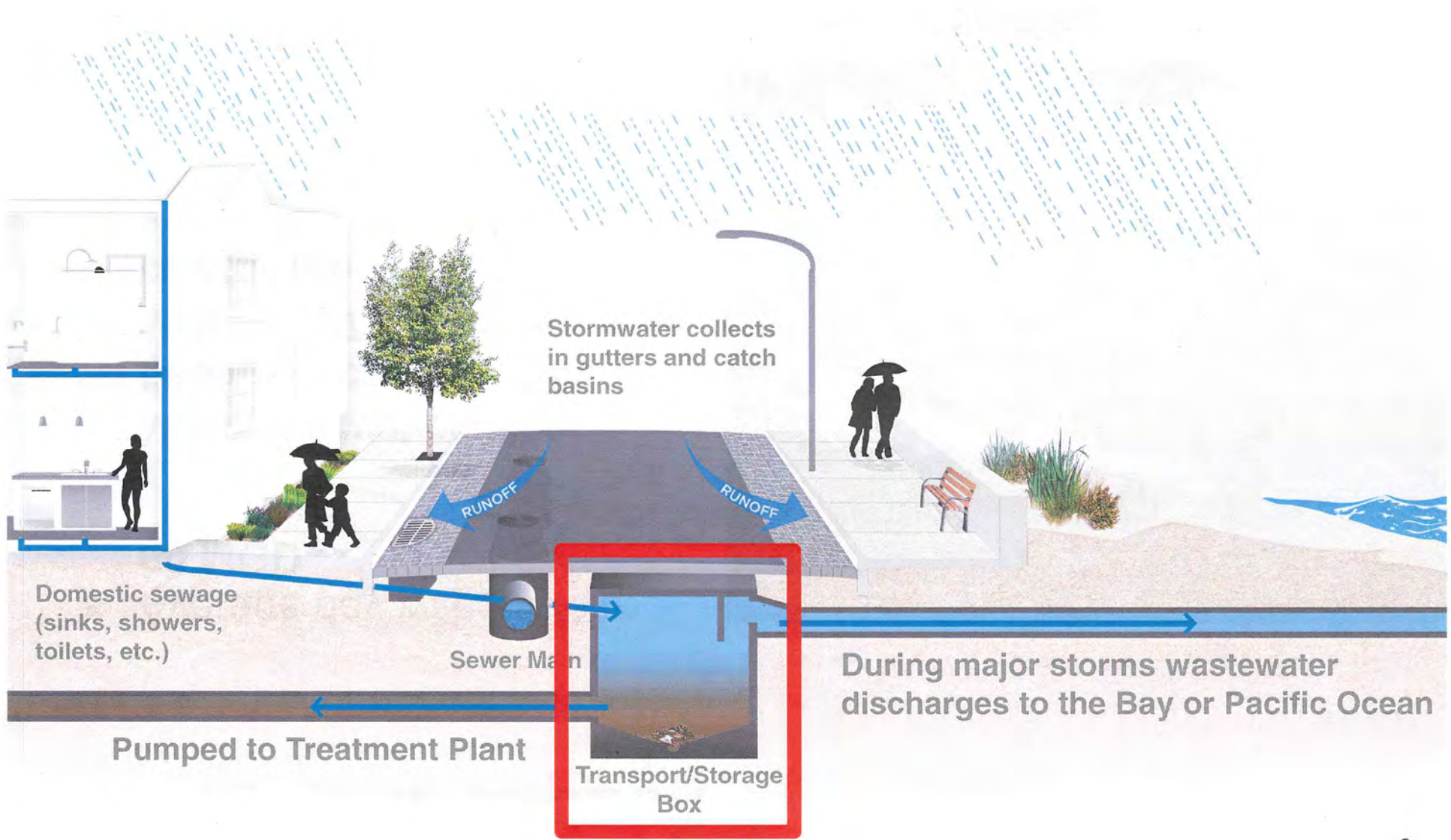
100-year-old system: 1,000 miles of pipes, 3 treatment plants and 27 pump stations

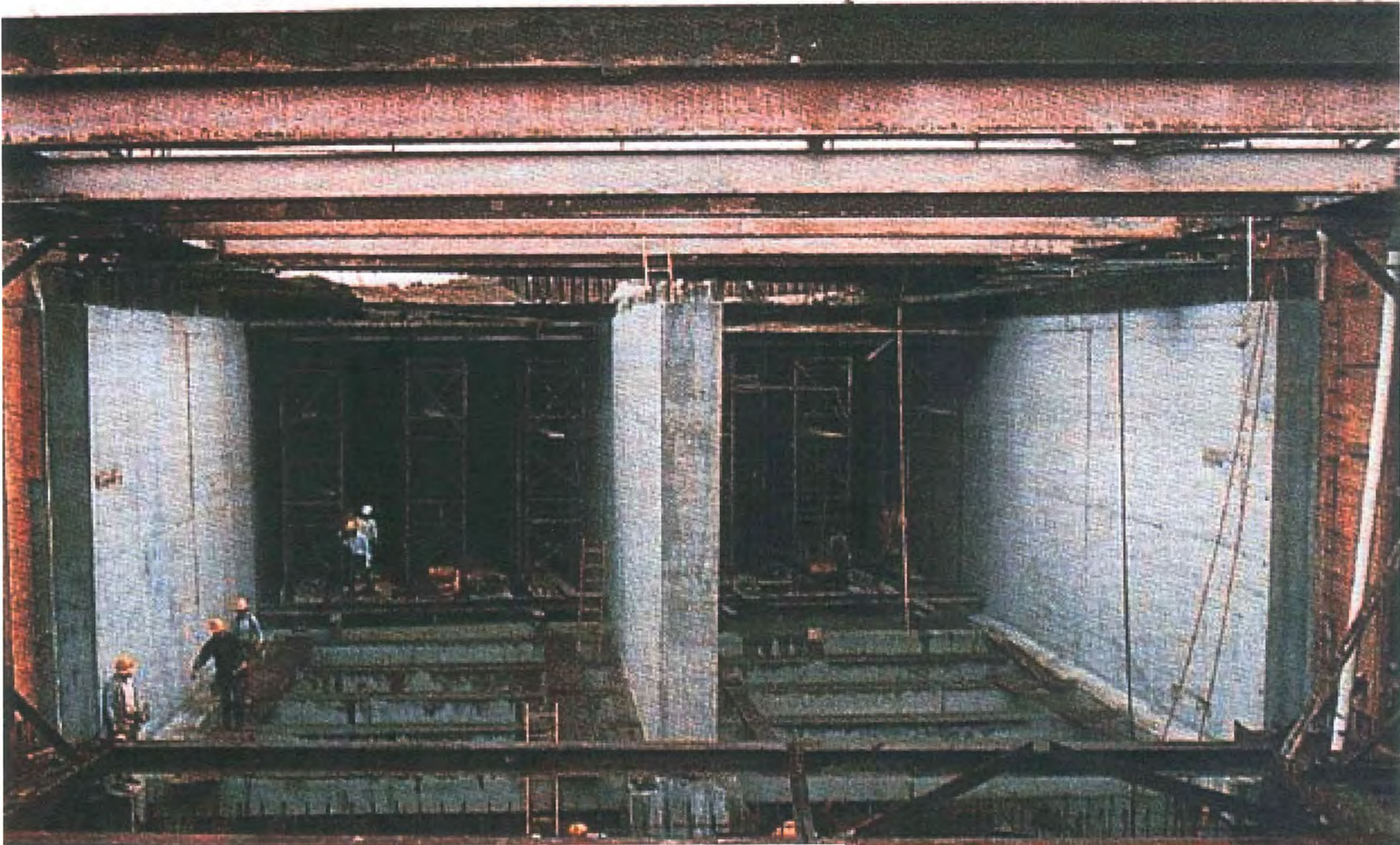
Treatment Capacity

- Average day without rain:
80 MGD
- Maximum wet-weather
treatment capacity: **583
MGD + 197 million gallons
of storage**



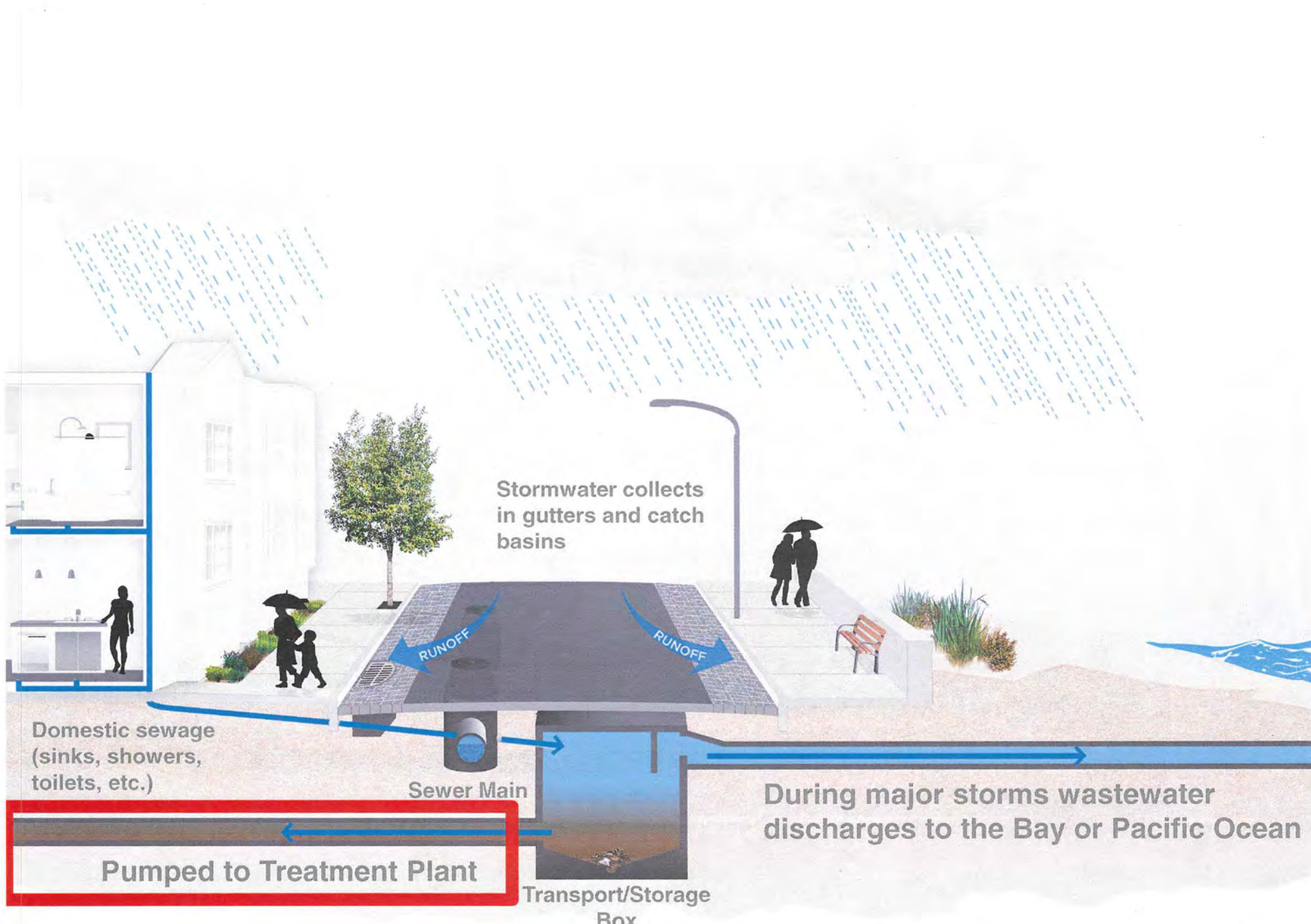
Clarifier at Southeast Treatment Plant





Westside Transport/Storage Boxes





Stormwater collects in gutters and catch basins

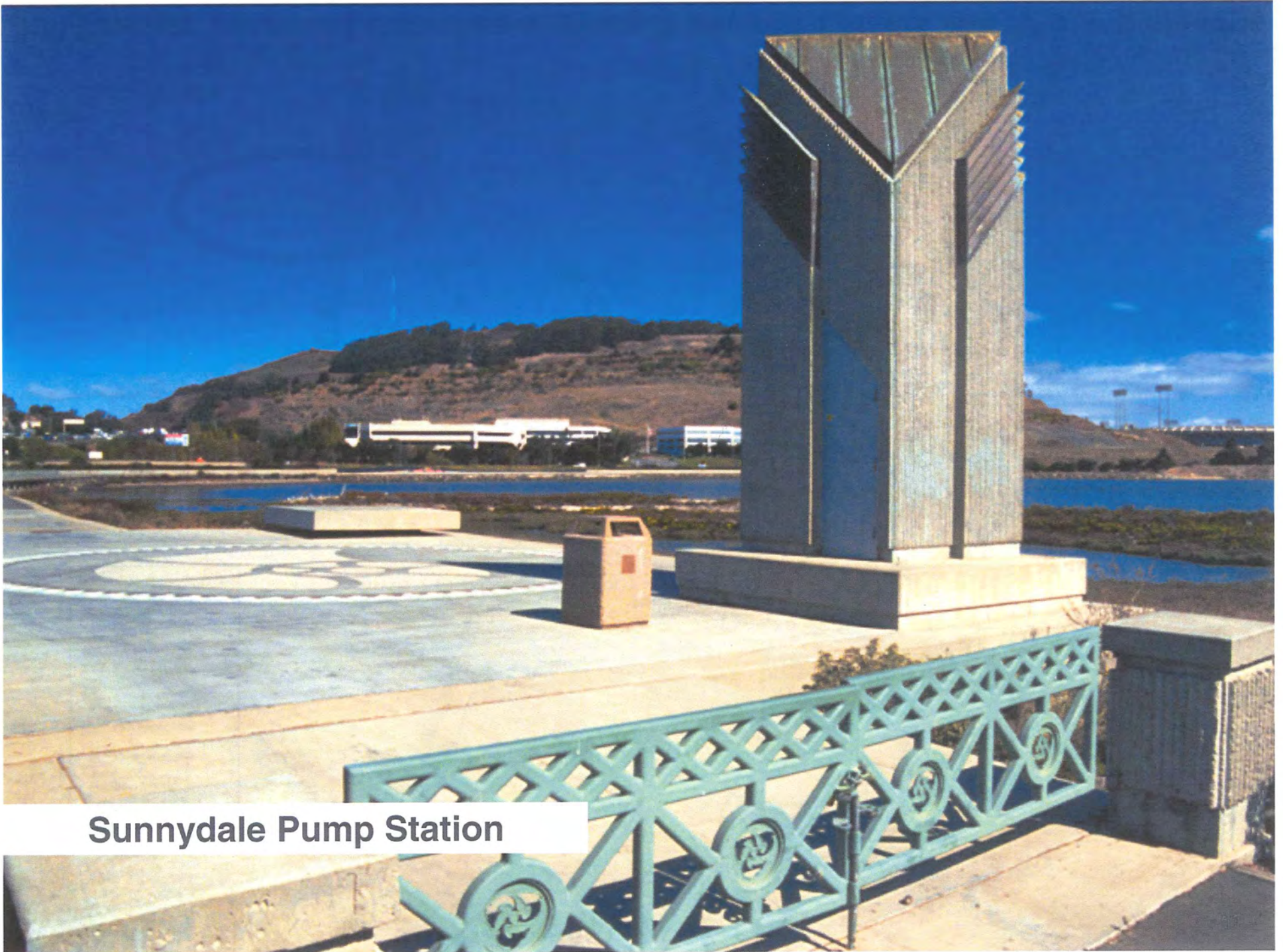
Domestic sewage (sinks, showers, toilets, etc.)

Sewer Main

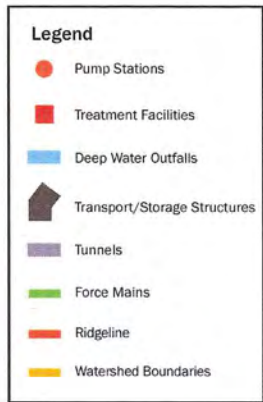
During major storms wastewater discharges to the Bay or Pacific Ocean

Pumped to Treatment Plant

Transport/Storage Box



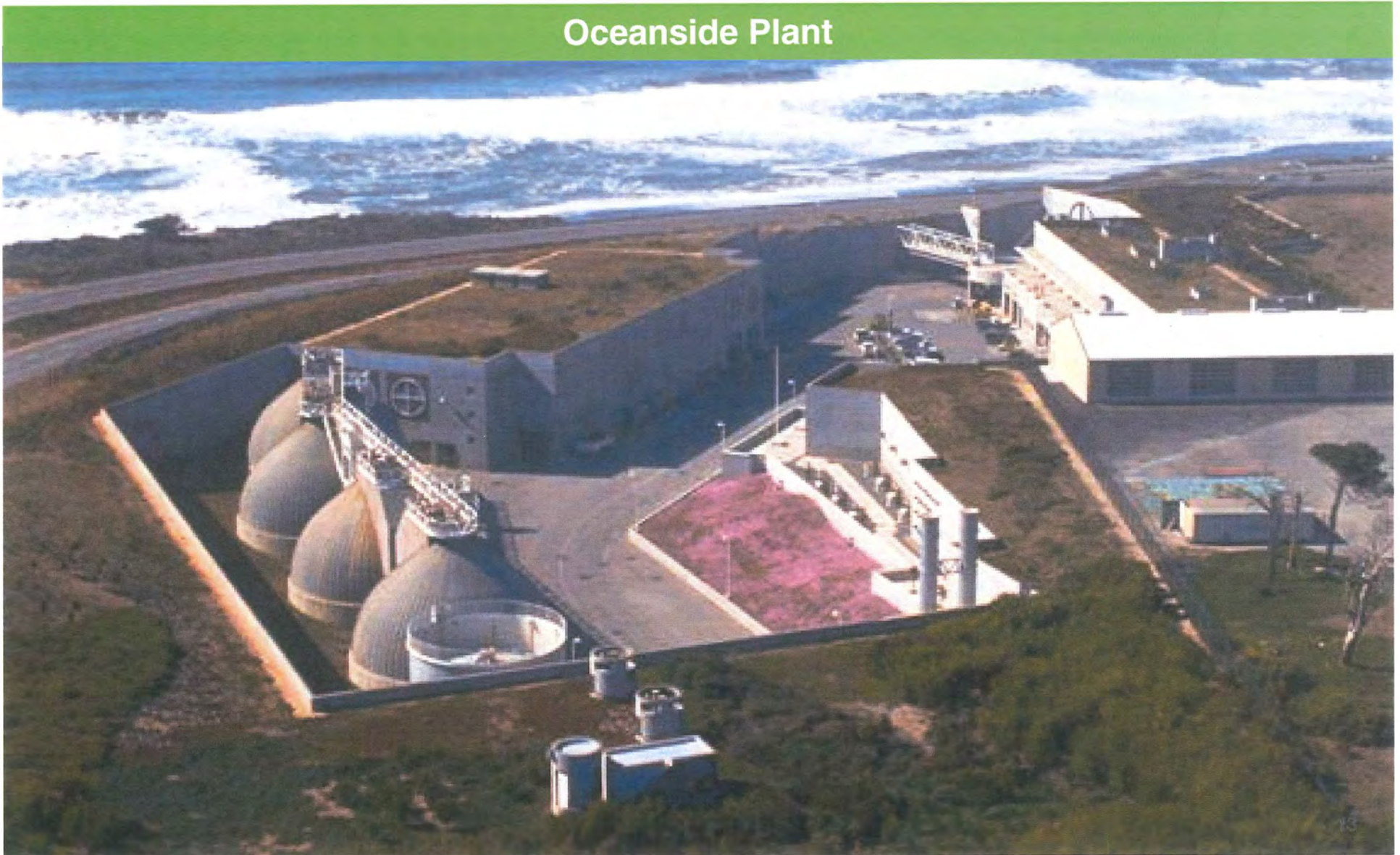
Sunnydale Pump Station

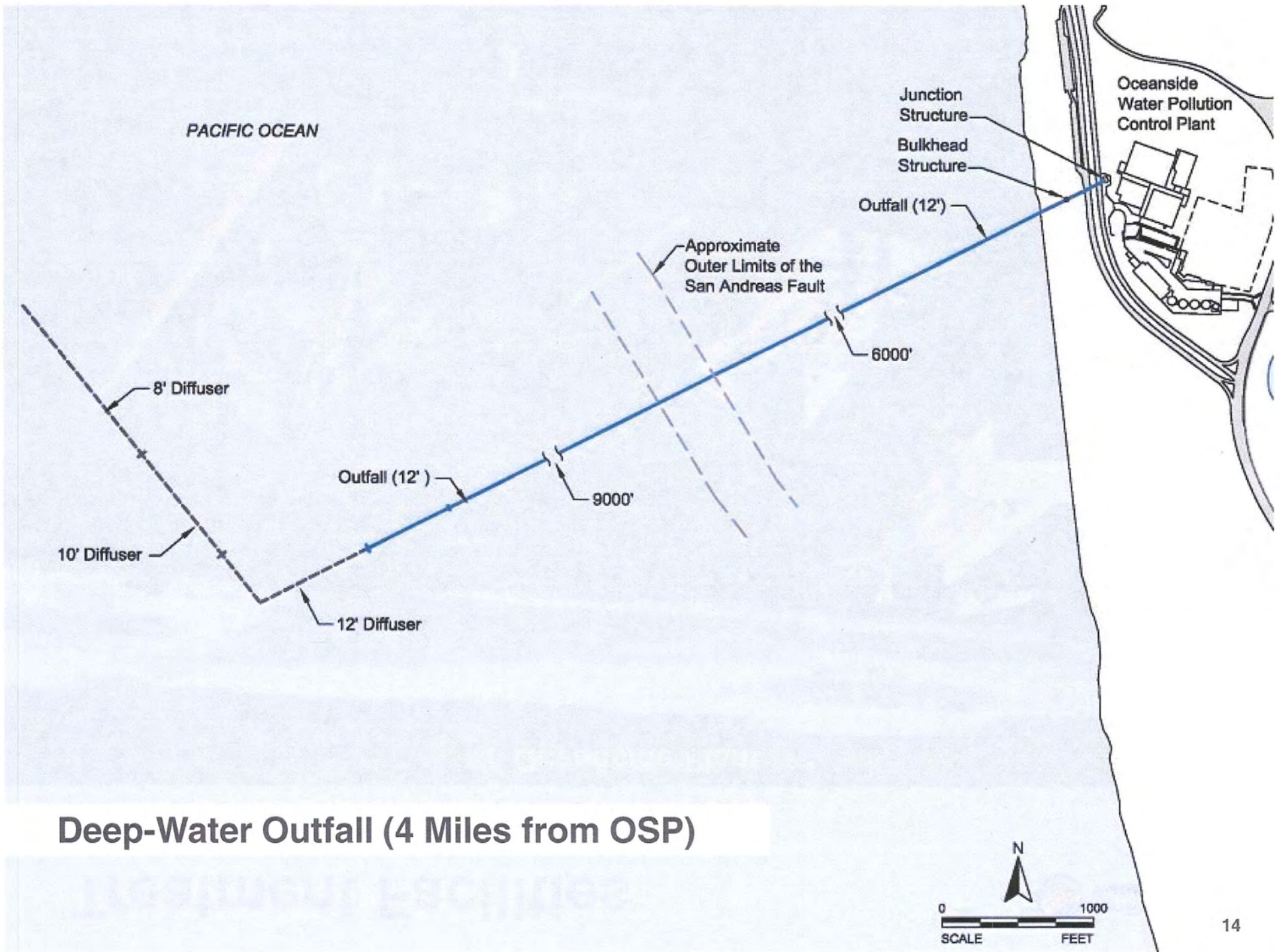


100-year-old system: 1,000 miles of pipes, 3 treatment plants and 27 pump stations

Treatment Facilities

Oceanside Plant





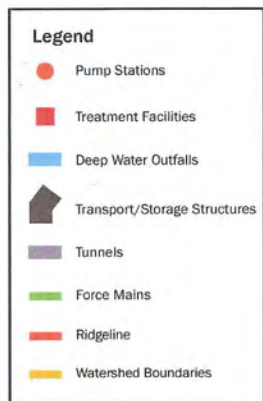


100-year-old system: 1,000 miles of pipes, 3 treatment plants and 27 pump stations

Treatment Facilities

North Point Facility



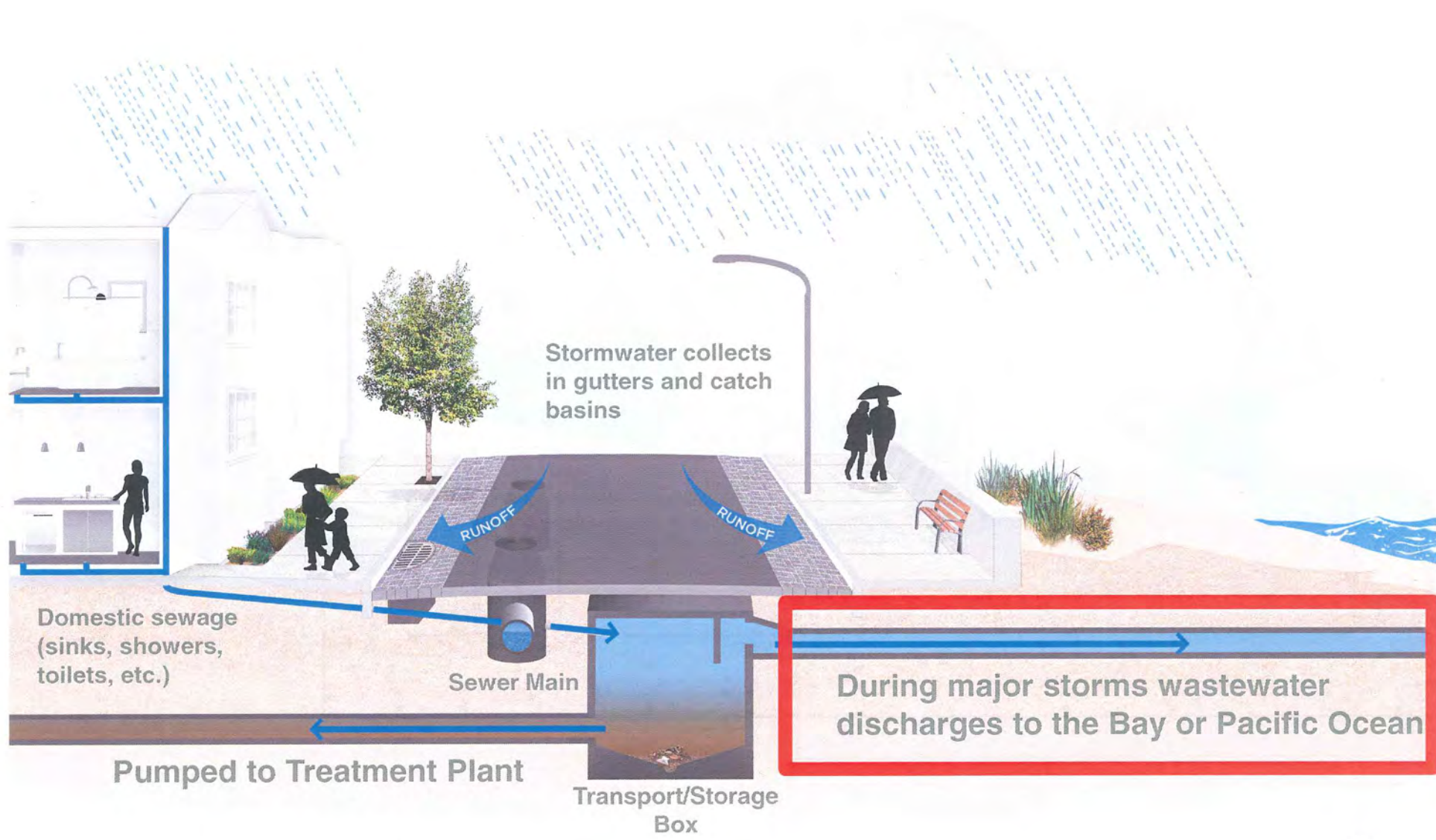


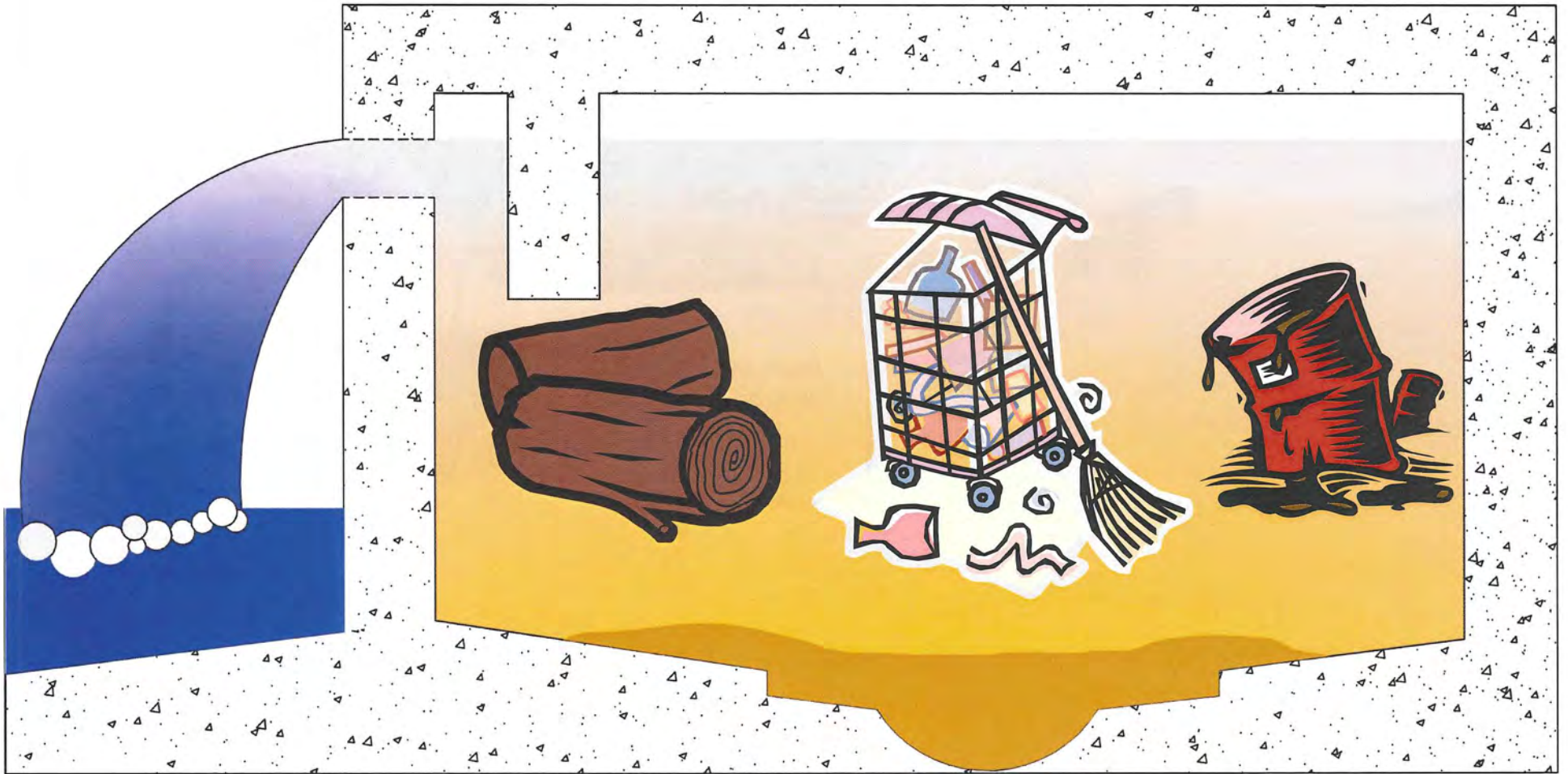
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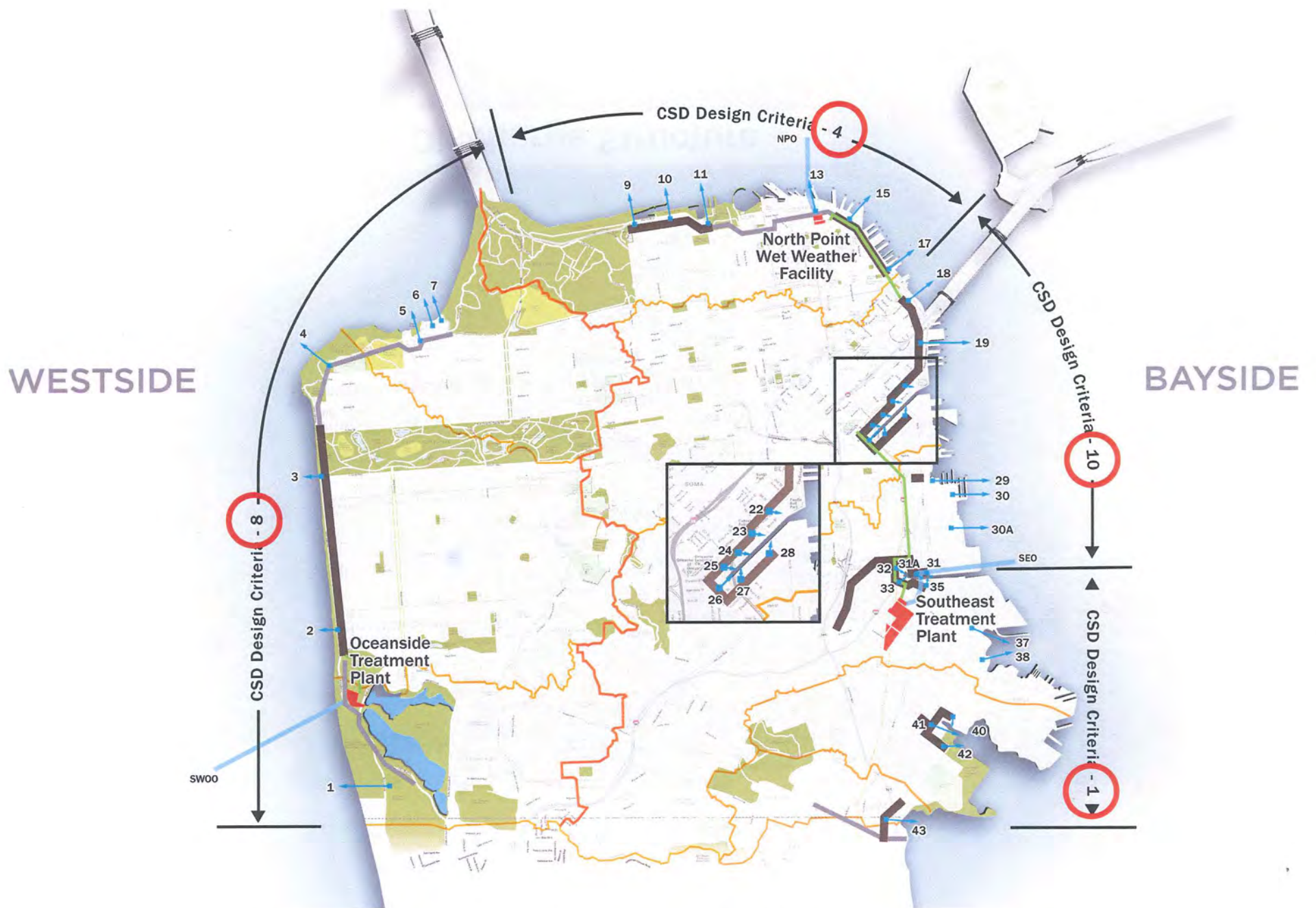
Treatment Facilities

Southeast Plant









Combined Sewer Discharge Points



Islais Creek North Discharge Structure

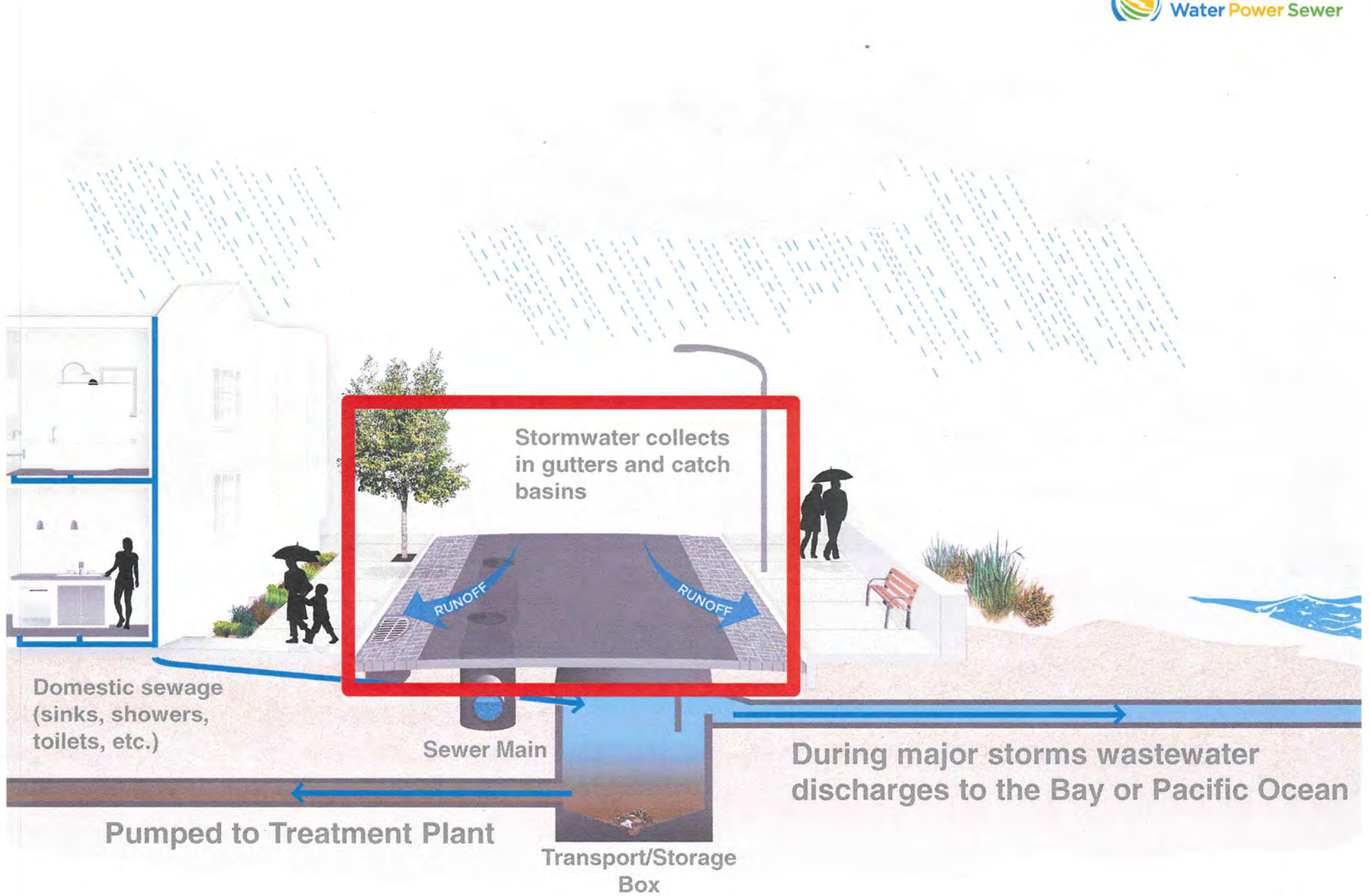




Example of Rising Sea Level



Effects of Climate Change: King Tide at the Embarcadero December 2012





0 Minutes into Treatment Process



5 Minutes into Treatment Process



10 Minutes into Treatment Process



15 Minutes into Treatment Process



20 Minutes into Treatment Process



25 Minutes into Treatment Process



30 Minutes into Treatment Process



120 Minutes into Treatment Process



Biosolids (Byproduct of Digestion)

Biosolids for Beneficial Reuse



Biosolids used for land application and non-food crops





Cogeneration (Byproduct of Digestion)



Southeast Plant - a Work-Horse for the City is Vulnerable to Failure



Our Sewer System is Aging and Failing: Waller St. at Divisadero St.



May 6, 2013: Sinkhole Lake St. at 2nd Ave.

Sewer System Improvement Program (SSIP)

Grey

Green

Clean



SYSTEM & SEISMIC
RELIABILITY & REDUNDANCY



INNOVATIVE STORMWATER
MANAGEMENT SOLUTIONS



PROTECTING PUBLIC HEALTH
& THE ENVIRONMENT

Sewer System Improvement Program: Phase 1 Projects \$2.7B

Citywide Collection System Projects

- Advanced Rainfall Prediction
- Collection System Interceptors and Odor Control
- Pump Station Upgrades and Force Main Improvements
- Combined Sewer Discharge Structure (CSD) Improvements



WESTSIDE

BAYSIDE



LEGEND

- Treatment Facilities
- Major Pump Stations
- ▤ Transport/Storage Structures
- ▬ Tunnels
- ▬ Major Force Mains
- ▬ Ridgeline
- ▬ Watershed Boundaries
- ▬ Deep Water Outfalls
- Green Infrastructure Projects

ACRONYMS

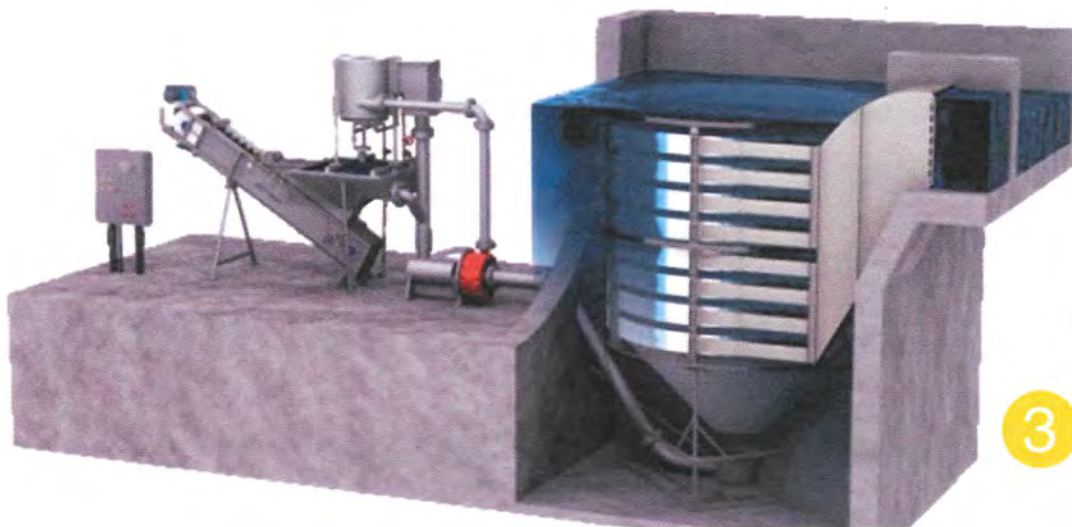
- BFS Bruce Flynn Pump Station
- CHS Channel Pump Station
- GFS Griffith Pump Station
- MPS Mariposa Pump Station
- NPO North Point Bay Outfalls
- NSS North Shore Pump Station
- SDS Sunnydale Pump Station
- SEO Southeast Bay Outfall
- SWOO Southwest Ocean Outfall
- WSS Westside Pump Station

SSIP Phase 1 Projects: Southeast Treatment Plant Upgrades



Treatment Facilities

Southeast Plant – Upcoming Projects



Treatment Facilities

Oceanside Plant & Westside Pump Station



Treatment Facilities

North Point Facility



THANK YOU.

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