CENTRAL SAN

SEWER SYSTEM MANAGEMENT PLAN

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MARCH 27, 2025

CENTRAL CONTRA COSTA SANITARY DISTRICT
SEWER SYSTEM MANAGEMENT PLAN

5019 Imhoff Place
Martinez, CA 94553

CIWQS WDID: 2SSO10105

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LIST OF ACRONYMS

ABAG	Association of Bay Area Governments
ABS	Acrylonitrile Butadiene Styrene
ACP	Asbestos Cement Pipe
AMIP	Asset Management Implementation Plan
AMP	Asset Management Program
AVL	Automatic Vehicle Location
BACWA	Bay Area Clean Water Agencies
BMP	Best Management Practices
BRS	Brass
BWF	Base Wastewater Flow
CASA	California Association of Sanitation Agencies
CCTV	Closed Circuit Television
Central San	Central Contra Costa Sanitary District
CIB	Capital Improvement Budget
CIP	Capital Improvement Plan
CI or CAS	Cast Iron
CIPP	Cured in Place Pipe
CIWQS	California Integrated Water Quality System
CLTW	Concrete Mortar Lined Coal Tar Enamel and Felt Wrapped Steel Cylinder Pipe
CLTWC	Concrete Mortar Lined Coal Tar Enamel Coated and Felt Wrapped and Concrete Mortar Coated Steel Cylinder Pipe
CML	Cement Mortar Lined Steel
CMLC	Cement Mortar Lined and Coated Steel
CMP	Corrugated Metal Pipe
CMMS	Computerized Maintenance Management System
CODE	Central Contra Costa Sanitary District Code
COF	Consequence of Failure
CSO	Collection System Operations

LIST OF ACRONYMS *(continued)*

CWEA	California Water Environment Association
CWMP	Comprehensive Wastewater Master Plan
DIP	Ductile Iron Pipe
EC	Environmental Compliance
EPA	United States Environmental Protection Agency
ESRI	Environmental Systems Research Institute
EUM	Effective Utility Management
FOG	Fats, Oils, and Grease
FRP	Fiberglass Reinforced Pipe
FSE	Food Service Establishment
FY	Fiscal Year
GARR	Gauge Adjusted Radar Rainfall
GIS	Geographic Information System
GRD	Grease Removal Devices
GWI	Groundwater Infiltration
HDPE	High-Density Polyethylene
I/I	Inflow and Infiltration
IPM	Integrated Pest Management
LGIM	Local Government Information Model
LOF	Likelihood of Failure
LRO	Legally Responsible Official for CIWQS System Reporting
MACP	Manhole Assessment Certification Program
MRP	Monitoring and Reporting Program
NIMS	National Incident Management System
NOV	Notice of Violation
NPDES	National Pollutant Discharge and Elimination System
O&M	Operations and Maintenance
OES	Office of Emergency Services

LIST OF ACRONYMS *(continued)*

OSHA	Occupational Safety and Health Administration
PC	Polymer Concrete (Polycrete)
PDWF	Peak Dry Weather Flows
PM	Preventive Maintenance
PVC	Polyvinyl Chloride
PWWF	Peak Wet Weather Flows
QA/QC	Quality Assurance and Quality Control
R&R	Rehabilitation and Replacement
RCM	Reliability Centered Maintenance
RCP	Reinforced Concrete Pipe
RDI/I	Rainfall Dependent Inflow and Infiltration
RWQCB	San Francisco Regional Water Quality Control Board
SEMS	Standard Emergency Management System
SERP	Spill Emergency Response Plan
SL-RAT	Sewer Line Rapid Assessment Tool
SOP	Standard Operating Procedure
SP	Spiral Wound Pipe
SSMP	Sewer System Management Plan
SSS	Sanitary Sewer Spill
Standard Specs	Standard Specifications for Design and Construction
SWRCB	State of California Water Resources Control Board
TCP	Technical Certification Program
USEPA	See EPA
VAR	Various Pipe Materials
VCP	Vitrified Clay Pipe
WDR	Waste Discharge Requirements
WEF	Water Environment Federation
WN	Warning Notice

CHANGE LOG

STATEWIDE WASTE DISCHARGE REQUIREMENTS – GENERAL ORDER FOR SANITARY SEWER SYSTEMS
ORDER WQ 2022-0103-DWQ

SECTION 5.5 SIX-YEAR SEWER SYSTEM MANAGEMENT PLAN UPDATE

During the time period between Plan updates, the Enrollee shall continuously document changes to its Sewer System Management Plan in a change log attached to this Plan.

CENTRAL SAN COMPLIANCE

Element	Change Description	Approving Authority (LRO)	Date
1- SSMP Goal and Introduction			
2- Organization			
3- Legal Authority			
4- Operations and Maintenance Program			
5- Design Performance Provisions			
6- Spill Emergency Response Plan			
7- Sewer Pipe Blockage Control Program			
8- System Evaluation and Capacity Assurance and Capital Improvements			

REGULATORY COMPLIANCE CHECKLIST

REGULATORY COMPLIANCE CHECKLIST (Reissued WDR)			
Target Date	**Due Date**	**Action Items (CY2024-2025)**	**Completion Date**
Jan 2024	Due Feb. 1, 2024	Cat 4/ Non-Cat Laterals Spills (<50 gallons)	☒ 1/31/24
Mar 2024	Due Apr. 1, 2024	SERP (review/update prior to completing Annual Report)	☒ 3/18/24
Mar 2024	Due Apr. 1, 2024	Annual Report (draft/final/upload by LRO)	☒ 3/21/24
May 2024	Due Jun. 5, 2024	SERP (annual review/assess effectiveness/update)	☒ 5/17/24
2024	Due May 2, 2024	SSMP 3-Year Audit (initiate audit/draft report)	☒ 5/02/24
2024/2025	Due Nov. 2, 2024	SSMP 3-Year Audit (final report/certify/upload by LRO)	☒ 9/17/24
2025	Due Jul. 1, 2024	2025 SSMP Update (initiate review/draft new SSMP)	☒ 7/01/24
2025	Due May 2, 2025	2025 SSMP Update (final report/certify/upload by LRO)	☐ _____
Jan 2025	Due Feb. 1, 2025	Cat 4/non-Cat 1 Lateral Spills (<50 gallons)	☒ 1/16/25
Mar 2025	Due Apr. 1, 2025	SERP (review/update prior to completing Annual Report)	☐ _____
Mar 2025	Due Apr. 1, 2025	Annual Report (draft/final/upload by LRO)	☐ _____
May 2025	Due Jun. 5, 2025	SERP Annual Review/assess effectiveness/update	☐ _____
Jul 2025 – Dec 2025	Due Dec. 31, 2025	Electronic Sanitary Sewer System Service Area Boundary Map	☐ _____

ELEMENT 1:
SEWER SYSTEM MANAGEMENT PLAN GOAL & INTRODUCTION

WDR REQUISITES

1. GOAL & INTRODUCTION: *The goal of the Sewer System Management Plan (Plan) is to provide a plan and schedule to: (1) properly manage, operate, and maintain all parts of the Enrollee's sanitary sewer system(s), (2) reduce and prevent spills, and (3) contain and mitigate spills that do occur.*

The Plan must include a narrative Introduction section that discusses the following items:

1.1 Regulatory Context: *The Plan Introduction section must provide a general description of the local sewer system management program and discuss Plan implementation and updates.*

1.2 Sewer System Management Plan Update Schedule: *The Plan Introduction section must include a schedule for the Enrollee to update the Plan, including the schedule for conducting internal audits. The schedule must include milestones for incorporation of activities addressing prevention of sewer spills.*

1.3 Sewer System Asset Overview: *The Plan Introduction section must provide a description of the Enrollee-owned assets and service area, including but not limited to:*

- ***1.3.1*** *Location, including county(is);*
- ***1.3.2*** *Service area boundary;*
- ***1.3.3*** *Population and community served;*
- ***1.3.4*** *System size, including total length in miles, length of gravity mainlines, length of pressurized (force) mains, and number of pump stations and siphons;*
- ***1.3.5*** *Structures diverting stormwater to the sewer system;*
- ***1.3.6*** *Data management system*
- ***1.3.7*** *Sewer system ownership and operation responsibilities between Enrollee and private entities for upper and lower sewer laterals;*
- ***1.3.8*** *Estimated number or percent of residential, commercial, and industrial service connections; and*
- ***1.3.9*** *Unique service boundary conditions and challenge(s).*

Additionally, the Plan Introduction section must provide reference to the Enrollee's up-to-date map of its sanitary sewer system, as required in section 4.1 (Updated Map of Sanitary Sewer System) of this Attachment.

RESILIENCY AND EFFECTIVENESS

Resiliency of infrastructure is integral to the intent of the Sewer System Management Plan (SSMP), and quantifying the effectiveness of the SSMP is essential to ensure the activities, procedures, and decision-making processes are effective for the size and complexity of the sanitary sewer system.

Resiliency is generally thought of as the ability to recover in a timely manner from unforeseen events, while reliability is the ability of something to perform consistently well.

For Central Contra Costa Sanitary District (Central San), **Operational Resiliency** is defined as:

Ensures utility leadership and staff work together to anticipate and avoid problems. Proactively identifies, assesses, establishes tolerance levels for, and effectively manages a full range of business risks (including legal, regulatory, financial, environmental, safety, security, and natural disaster-related) in a proactive way consistent with industry trends and system reliability goals.

Central San considers reliability to be integral to resiliency. **Goal 6 of Central San's Strategic Plan is:**

Infrastructure Reliability: Maintaining facilities and equipment to be dependable, resilient, and long-lasting.

The following Strategies are employed by Central San to support this goal:

Strategy 1: Manage Assets for Optimal Lifecycle Value

a) Incorporate asset management practices into the Capital Improvement and Maintenance Programs

b) Develop and pursue reliability-centered asset management strategies and design

Strategy 2: Execute the Approved Capital Program

a) Achieve risk-balanced prioritization using a consistent evaluation and planning framework with interdepartmental coordination

b) Improve Capital Improvement Plan delivery capability

A proof positive gauge of effective infrastructure management is to consider the performance of infrastructure during an actual major event.

From late December 2022 to mid-January 2023, six storm systems (commonly known as atmospheric rivers) brought significant hazardous weather, including widespread flooding, landslides, and wind gusts over 100 mph, to the San Francisco Bay Area. During this significant weather event, Central San maintained uninterrupted service to residents and did not incur one capacity-related spill. This is one example of the effectiveness of Central San's resiliency strategy.

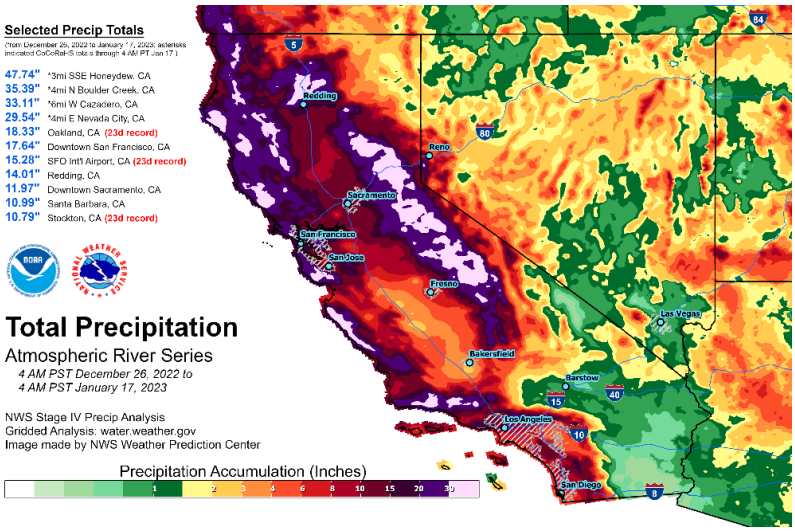


Figure 1.1: NOAA Precipitation Dec 26, 2022, to Jan 17, 2023

Central San's Goal Six Infrastructure Reliability metrics that are continuously monitored are shown in Figure 1.2 below.

KEY METRICS

GOAL SIX

INFRASTRUCTURE RELIABILITY

METRIC	TARGET
Planner Updates (work orders improved)	≥24
Planned treatment plant preventative maintenance completed on time	≥90%
Planned recycled water distribution system preventative maintenance completed on time	≥98%
Planned collection system preventative maintenance completed on time	≥98%
Pipeline cleaning quality assurance / quality control (QA/QC)	On ≥3% of pipelines cleaned on an annual basis
Pipeline cleaning QA/QC passing rate	≥95%
Pipeline inspected through Closed Circuit Television Program	10% inspected (150 miles)
Uptime for vehicles	100%
Information system outages affecting normal business operations	100% uptime
Data backup and recovery	0 lost data
Warehouse stockouts of spares linked to an asset	≤4
Time to fulfill request-to-stock items	≤30 days
Capital expenditures as a percentage of capital budgeted cash flow including carry forward	≥80%
Miles of sewers replaced	≥6.0 (running three-year average)
All large diameter gravity sewers inspected within 5 years	≥11 miles per year in FY 2024-25, ≥15 miles per year starting FY 2025-26
All large diameter siphons cleaned and inspected within 3 years	≥3 siphons per year
All pumping station forcemains inspected within 5 years	≥5 forcemains per year starting FY 2025-26
Average time to execute Engineering agreements from complete package submittal	≤2 weeks
Contract renewals executed on time for uninterrupted service	100%

Figure 1.2: Goal 6 Effectiveness Metrics, Strategic Plan 2024-2026

INTRODUCTION

Sanitary sewer systems experience periodic failures, resulting in discharges that may affect the waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance) that affect the likelihood of a sanitary sewer spill (spill). A proactive system-wide operation, maintenance, and management plan helps reduce the number and frequency of spills. The preventive maintenance program practices are detailed in Element 4.

To reduce the number and volume of spills and their impact on human health and the environment, the California State Water Resources Control Board (SWRCB) adopted the Statewide General Waste Discharge Requirements (WDR) Water Quality Order No. 2022-0103-DWQ, approved on December 6, 2022.

The order requires public agencies that own or operate sanitary sewer systems that are greater than one mile in length to develop, implement, and maintain a SSMP. The SSMP is a living document that facilitates proper funding and management of the sanitary sewer system.

WDR ITEM 1.1
REGULATORY CONTEXT

The SWRCB first introduced a WDR permit (SWRCB Order No. 2006-0003) on May 2, 2006, to regulate sanitary sewer systems. Central San has continuously maintained compliance with the Order and its subsequent revisions. This SSMP Update continues that compliance continuity and adheres to the latest regulatory required Statewide General Waste Discharge Requirements for Sanitary Sewer Systems: Water Quality Order No. 2022-0103 DWQ (Sanitary Sewer General Order), adopted by the State Water Board on December 6, 2022, and effective date of June 5, 2023.

In general, Central San's goals for the Collection System ensure the following objectives are met:

- Properly manage, operate, and maintain the wastewater collection system
- Proactively reduce infiltration and inflow
- Minimize the frequency of sanitary sewer spills
- Mitigate the impact of spills

CENTRAL SAN OVERVIEW

Central San manages and maintains approximately $2.5 billion in physical collection system assets and provides nearly 500,000 residents and more than 15,000 businesses with sanitary sewer service in the central Contra Costa area. Formed in 1946 as a Special District in Contra Costa County, California, Central San has 303 budgeted employees. Central San operates a 1500-mile network of collection system piping and a treatment plant that processes an average daily flow of 32 million gallons. Refer to Figure 1.5 for Central San's Service Area Map.

Central San also receives and treats wastewater from the City of Concord and the City of Clayton collection systems.

Central San's proven record of excellence includes more than 25 consecutive years of 100% compliance with our National Pollutant Discharge Elimination System (NPDES) permit; innovative recycled water, household hazardous waste, and pharmaceutical collection programs; and award-winning public outreach and student educational programs. We are very proud of the recognition and awards Central San has received over the years for innovation and excellence from regional, state, and national associations. These accomplishments have resulted from our skilled and knowledgeable workforce, our emphasis on continuous improvement, and our effective use of technology in all areas of operation.

A long-range goal of Central San is to provide the public with the most reliable collection system possible. To do this in a fiscally prudent manner, Central San is investing in new computer software and technological resources so that cleaning crews can maintain sewers efficiently and effectively and engineers can collect valuable data needed to prioritize sewer renovation and replacement projects. This requires a comprehensive information system with interconnected software programs and hardware tools that are user-friendly, accessible to field and office staff, and available across departments.

CENTRAL SAN MISSION, VISION & VALUES (Strategic Plan 2024-2026)

MISSION

To protect public health and the environment.

VISION

To be an industry-leading organization known for environmental stewardship, innovation, and delivering exceptional customer service at responsible rates.

VALUES

Our core values guide our daily decisions and how we fulfill our mission, vision, and goals:

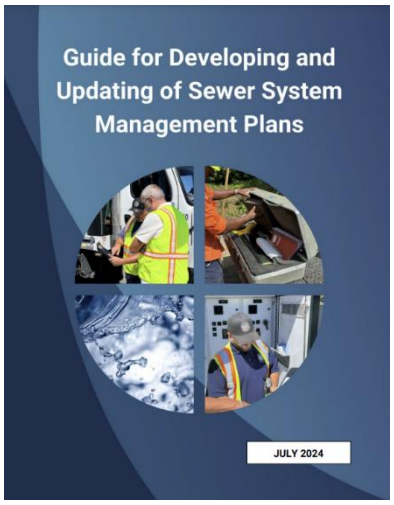
- Customer Service
- Employees
- Environmental Sustainability
- Integrity
- Innovation
- Diversity, Equity, and Inclusion

Central San has an excellent track record in preventing spills through its scheduled cleaning program, routine inspections, and careful planning. Some spills are unavoidable, such as those related to vandalism and contractor error. All spills are reported in accordance with the Regional Water Quality Control Board (RWQCB) and the California Integrated Water Quality System (CIWQS).

Central San is proud of its record and employees and looks forward to meeting future challenges.

CENTRAL SAN COMPLIANCE

To assist in the development of the 2025 SSMP Update, Central San used the "Guide for Developing and Updating of Sewer System Management Plans (SSMPs)" (2024). This guide is endorsed by the Bay Area Clean Water Association (BACWA).



In addition, Central San is an active member of BACWA. Present and past Collection System Committee Chair positions have been occupied by Central San staff.

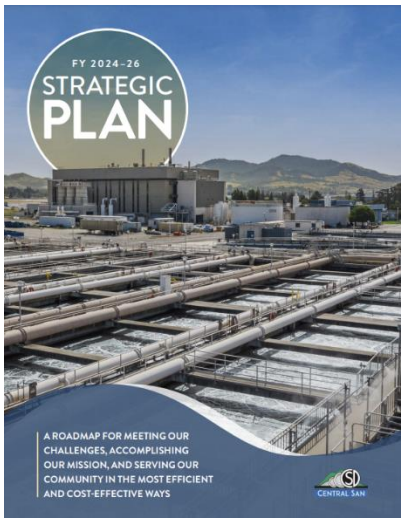
CENTRAL SAN STRATEGIC PLAN

Every two years, Central San updates its Strategic Plan, which is a roadmap to enable Central San to increase efficiencies, fulfill its mission, and continue in its role as stewards of the environment.

STRATEGIC PLAN

The Strategic Plan was developed cooperatively between staff and the Board of Directors and is revised every two years. Challenges identified through the strategic planning process include enhanced customer expectation and public awareness, aging infrastructure, continued regulatory requirements, financial constraints, expanded challenges associated with employee recruitment and retention, security and emergency response concerns, sustainable regional water supply concerns, and increased focus on resource recovery.

When developing the Strategic Plan, Central San used the Effective Utility Management (EUM) model as an overreaching tool to define attributes to be considered in implementing practices to improve our operations and move towards continued sustainability. The EUM framework was originally developed by the Environmental Protection Agency (EPA) and water industry leaders in 2007. The framework is made up of 10 attributes that provide a succinct indication of where effectively managed utilities should focus and what they should strive to achieve. The ten attributes are product quality, customer satisfaction, employee leadership and development, operational optimization, financial viability, infrastructure strategy and performance, enterprise resiliency, community sustainability, water resource sustainability, and stakeholder understanding and support. The Strategic Plan is comprised of four categories: goals, strategies, initiatives, and key success measures. Goals define where we are going, strategies define



our plan for achieving the goals, initiatives describe the tasks and actions we need to accomplish in the near term, and key success measures describe how we will evaluate our progress along the way.

Central San's Strategic Plan includes comprehensive goals and metrics for the Collection System that exceed the regulatory requirements of the WDR. Central San's Strategic Plan can be found online at:

https://www.centralsan.org/post/strategic-plans

The strategic plan metrics are continuously monitored and evaluated.

RESILENCE

Central San's Strategic Goal No. 6 is Infrastructure Reliability: *Maintain facilities and equipment to be dependable, resilient, and long-lasting.*

The US EPA defines resilience for the water sector as 'the ability of water and wastewater utilities to withstand and quickly recover from natural and human-made disasters.' It is through this lens of resilience that Central San endeavors to provide resilient service to its rate payers, with a continuous improvement approach, and reliability-centered asset performance strategies.

WDR ITEM 1.2
SEWER SYSTEM MANAGEMENT PLAN UPDATE SCHEDULE

Central San has maintained continuous regulatory compliance with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems since the inception of the requirement.

Central San's last SSMP update was in October 2022. This SSMP update includes modifications to ensure adherence to the new requirements and format of the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems: Water Quality Order No. 2022-0103 DWQ (Sanitary Sewer General Order), adopted by the State Water Board on December 6, 2022, and effective date of June 5, 2023.

The components of Central San's SSMP are implemented as stated in this document. Central San conducts periodic reviews of its entire SSMP to ensure compliance and implementation of the activities here within.

Future updates to Central San's SSMP will occur as appropriate to ensure continued compliance with Order No. 2022-0103 DWQ or any subsequent revisions to this Order. Central San's update schedule as shown on CIWQS, is as follows:

Sanitary Sewer Systems General Order
Sewer System Management Plan and Program Audit Due Dates Look Up
Transition from General Order 2006-0003-DWQ to Proposed General Order Reissuance

WDID Number:	2SSO10105 (Enter WDID Number)	Enter your Waste Discharge Identification (WDID) number in the search field to retrieve the required Sewer System Management Plan update and Audit due dates for your system.

Sewer System Management Plan and Subsequent Update Due Dates

System Name	WDID Number	Original Required Plan Due Date	Required Plan Update Due Date	Required Plan Update Due Date	Required Plan Update Due Date (per proposed Order)
Central Contra Costa Sd CS	2SSO10105	05/02/09	05/02/14	05/02/19	05/02/25

Program Audit Due Dates

System Name	WDID Number	Original Required Audit Due Date	Required Audit Due Date	Required Audit Due Date	Required Audit Due Date	Required Audit Due Date	Required Audit Due Date	Required Audit Due Date (per proposed Order)
Central Contra Costa Sd CS	2SSO10105	05/02/11	05/02/13	05/02/15	05/02/17	05/02/19	05/02/21	05/02/24

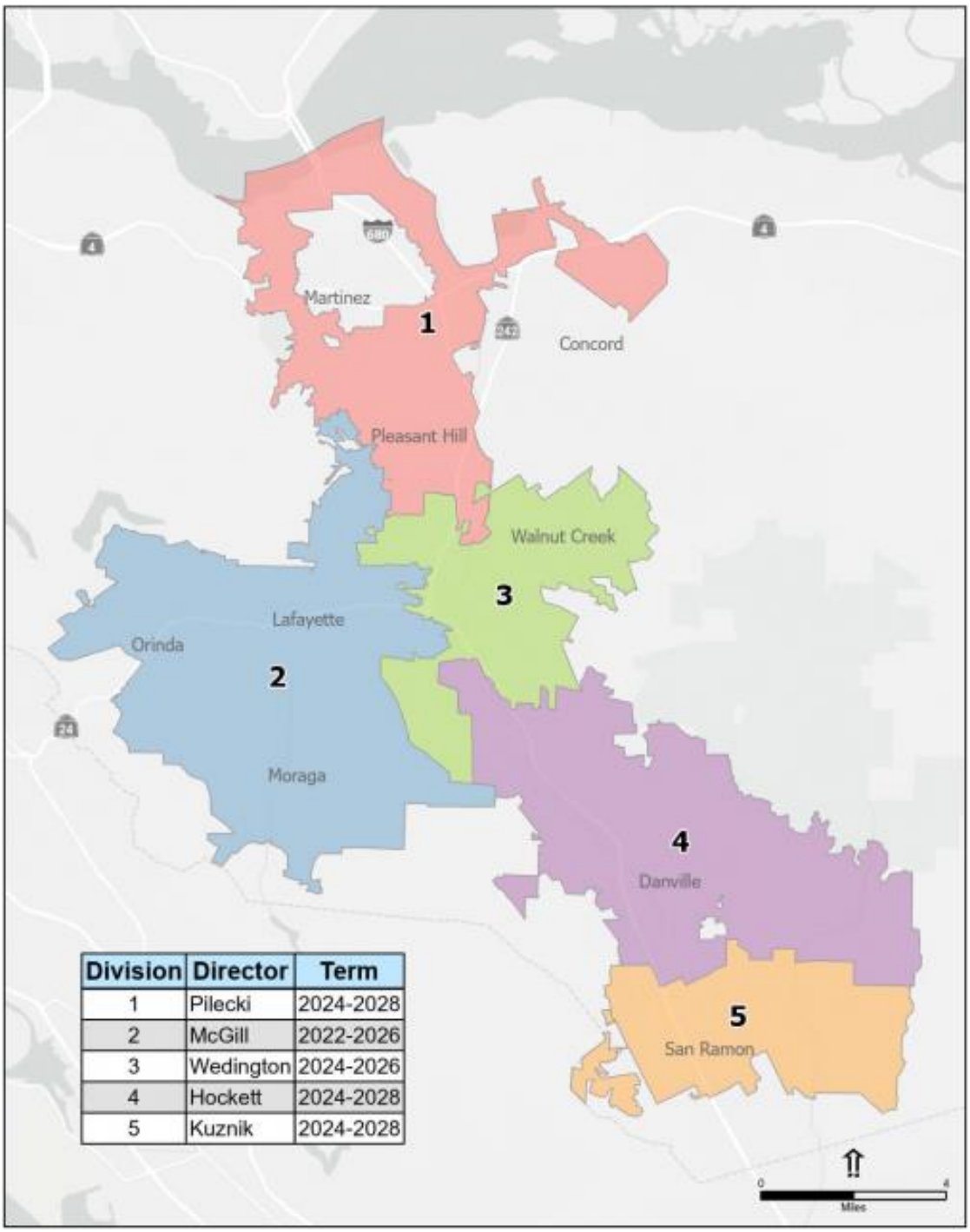
Figure 1.3: Central San SSMP & Audit Schedule from CIWQS

WDR ITEM 1.3
SEWER SYSTEM ASSET OVERVIEW

1.3.1 LOCATION, INCLUDING COUNTY(IES)

Central San's service area comprises approximately 146 square miles of central Contra Costa County; and is made up of five different divisions, each represented by a member of the Board of Directors. A five-member Board of Directors governs Central San, each elected to a four-year term. The Board of Directors holds regular Board meetings twice monthly, every first and third Thursday at 2:30 pm at 5019 Imhoff Place, Martinez, CA, unless otherwise noted on the meeting agenda. Special and continued meetings are held as needed.

In November 2020, Central San began transitioning from an at-large election system to a division-based one. Voters in each area will select one representative to serve on the Board. This new election system commenced with the 2022 election.



Division	Director	Term
1	Pilecki	2024-2028
2	McGill	2022-2026
3	Wedington	2024-2026
4	Hockett	2024-2028
5	Kuznik	2024-2028

Figure 1.4: Service Area Divisions

1.3.2 SERVICE AREA BOUNDARY

Central San's service area boundary is shown below and is available as a GIS file for the SWRCB and other entities.

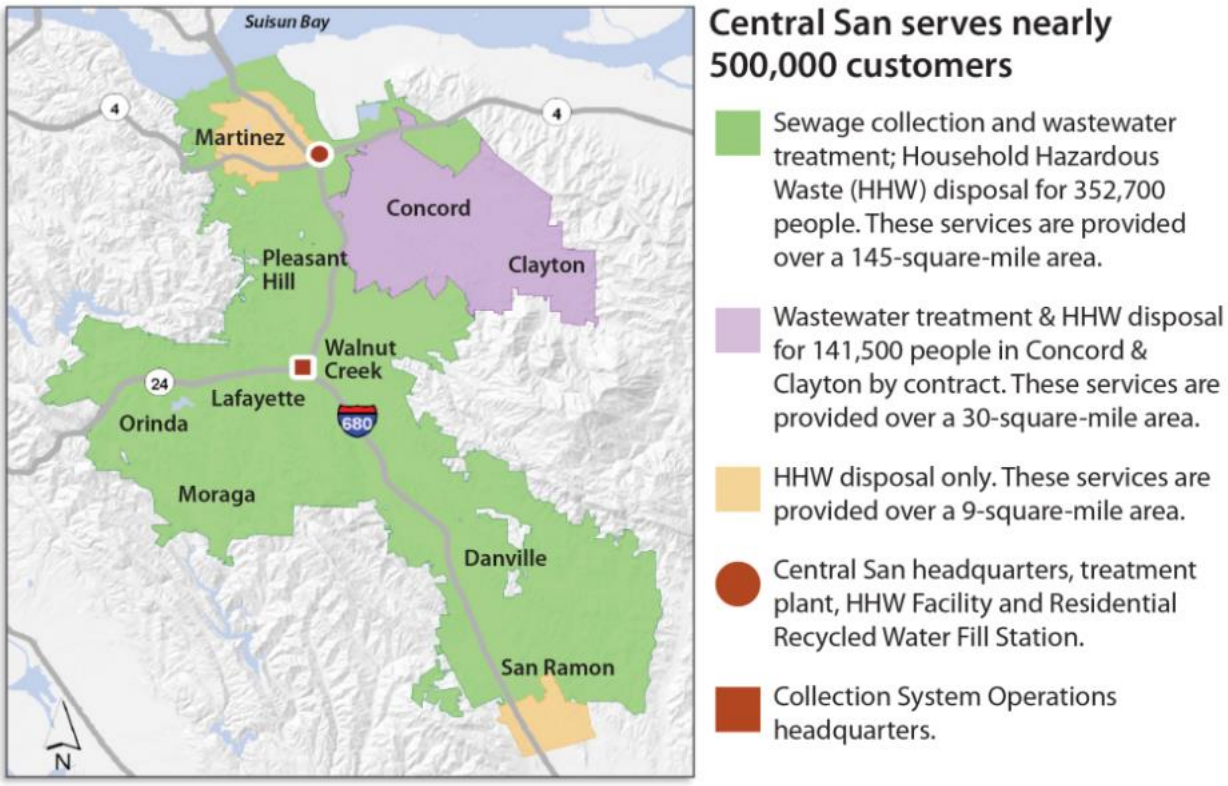


Figure 1.5: Service Area

1.3.3 POPULATION AND COMMUNITY SERVED

Central San is in Contra Costa County, California's 9th most populous county, and in the San Francisco Bay Area. Central San collects and cleans more than 13 billion gallons of wastewater each year from nearly 500,000 residents and more than 15,000 businesses within the thirteen (13) cities and towns within our 146-square-mile service area.

The communities we serve are shown in Figure 1.3.2 above, and include:

- Alamo
- Clayton
- Clyde
- Concord
- Danville
- Lafayette
- Martinez
- Moraga
- Orinda
- Pacheco
- Pleasant Hill
- San Ramon
- Walnut Creek

Note: Concord and Clayton are wastewater treatment only.

1.3.4 SYSTEM SIZE: TOTAL LENGTH, GRAVITY, FORCE MAINS, PUMPING STATIONS & SIPHONS

Table 1.1: Service Area Infrastructure 2024

Asset	Total
Pipelines, estimated miles	1,540
Structures, each	32,577
Pumping Stations, each*	18
Siphons, each	46
Force Mains	21

* 3 are private but maintained by Central San

Table 1.2: Sewer Lines Material Type Inventory 2024

Pipe Material	Total Linear Feet	Total Percent
ABS	862,289	10.60%
ACP	1,443,155	17.75%
BRS	39	0.00%
CAS	112,806	1.39%
CLTW	9,029	0.11%
CLTWC	40	0.0%
CML	1,101	0.01%
CMLC	34,650	0.43%
CMP	606	0.01%
DIP	372,295	4.58%
FRP	4,731	0.06%
HDPE	344,355	4.23%
PC	6,728	0.08%
PVC	1,749,170	21.51%
RCP	382,158	4.70%
SP	106	0.0%
VCP	2,489,843	30.62%
VAR	221,118	2.72%
Total	8,102,783	100.0%

Table 1.3: Sewer Lines Inventory by Size 2024

Pipe Size Inches	Total Linear Feet	Total Percent
<6	1,191,771	14.66%
8	5,501,198	67.65%
10	330,208	4.06%
12	242,247	2.98%
14	17,031	0.21%
15	175,292	2.16%
16	26,701	0.33%
18	137,912	1.70%
20	32,956	0.41%
21	37,926	0.47%
24	87,217	1.07%
27	35,384	0.44%
30	88,866	1.09%
32	4,803	0.06%
33	9,582	0.12%
36	48,553	0.60%
39	22,452	0.28%
42	12,323	0.15%
45	12,405	0.15%
48	11,232	0.14%
54	5,279	0.06%
60	44,739	0.55%
63	5,726	0.07%
66	13,958	0.17%
72	8,498	0.10%
78	7,726	0.10%
84	7,215	0.09%
87	90	0.0%
90	2,392	0.03%
96	4,051	0.05%
102	5,726	0.07%
Total	8,131,459	100.0%

Table 1.4: Sewer Lines Inventory by Pipe Age 2024

Age, Years	Construction Period	Total	Total
		Linear Feet	Percent
0-4	2020 - Current	154,378	1.90%
5-24	2000-2019	1,238,464	15.23%
25-44	1980-1999	2,159,593	26.56%
45-64	1960-1979	3,060,481	37.64
65-84	1940-1959	1,488,587	18.31%
85-104	1920-1939	27,191	0.33%
105-124	1900-1919	2,397	0.03%
Unknown	-	368	0.00%
Total	-	8,131,459	100%

1.3.5 STRUCTURES DIVERTING STORMWATER TO THE SEWER SYSTEM

Central San has no known structures diverting stormwater to its sewer system.

1.3.6 DATA MANAGEMENT SYSTEM

Central San uses the following data systems to support its needs for operating and maintaining its sewer system infrastructure:

- Cityworks: Computerized Maintenance Management System
- IT pipes: Closed Circuit TV Inspections
- GeoPortal (Esri Geographic Information System, GIS): mapping and asset information
- Infoworks ICM: Hydraulic Modeling
- InfoAsset Planner: Renovation forecasting
- Oracle: Financial management
- Dig-Smart: Utility Locating Work Order System
- Verizon Connect: GPS Mobile Asset Tracking System

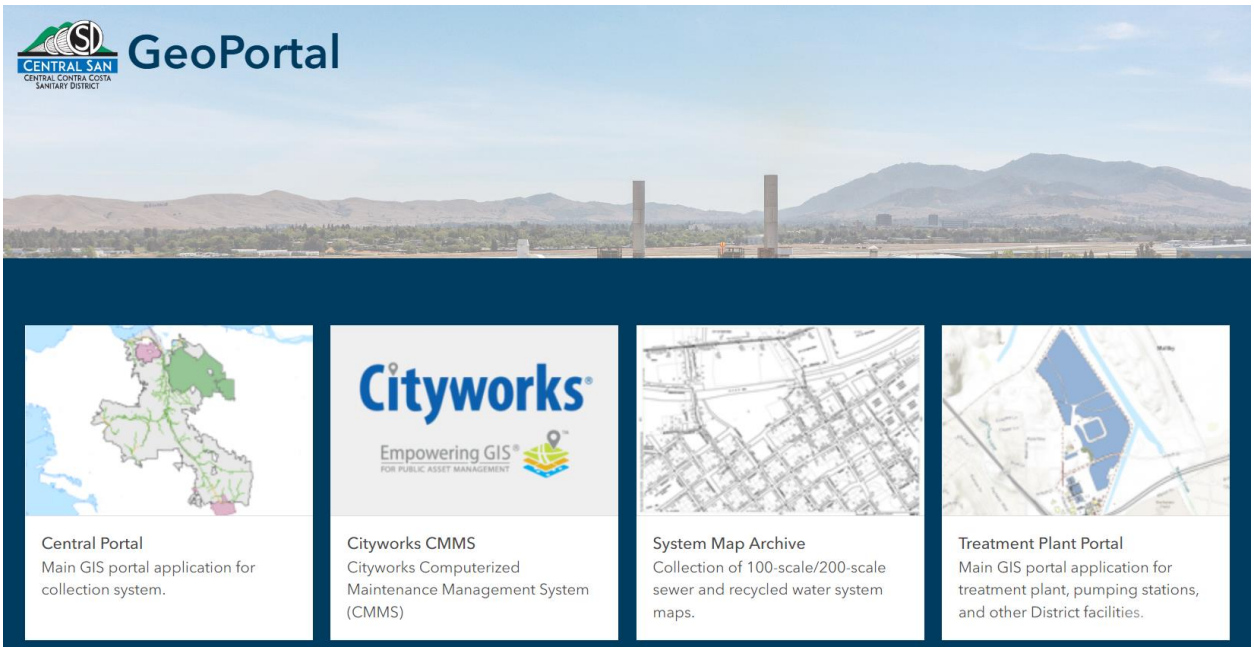


Figure 1.6: GeoPortal Landing Page

1.3.7 SEWER SYSTEM OWNERSHIP AND OPERATION RESPONSIBILITIES BETWEEN ENROLLEE AND PRIVATE ENTITIES

In Central San's service area, the property owner is responsible for the entire sewer lateral pipe from the owner's structure to where it connects to the public sewer. As a courtesy to its customers, if while televising the public sewer, it is discovered that a lateral needs cleaning, Central San staff will notify the homeowner. A picture of their lateral, a letter explaining the situation, and a request that Central San be informed when the cleaning is to be undertaken so Collection System Operations (CSO) crews can then remove that root debris from the public sewer and re-check it.

1.3.8 ESTIMATE NUMBER OR PERCENT OF RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL SERVICE CONNECTIONS

Table 1.5: Percent of Residential, Commercial, and Industrial

Connection Type	Percent of System
Residential	96.1%
Commercial	2.9%
Industrial	1%
Total	100%

1.3.9 UNIQUE SERVICE BOUNDARY CONDITIONS AND CHALLENGE(S)

Central San does not have any known unique service boundary conditions or unique challenges. While Central San has a service area of approximately 146 square miles, with diverse demographic and topological characteristics, its boundary conditions are well defined; and its challenge of providing a high level of service at responsible rates is one common to all utilities.

However, Central San is located in the San Francisco Bay Area, which is bounded by the Pacific and North American tectonic plates that can trigger seismic events and create much of the topographical features seen today in the area. The topography of the western side of Central San's service area includes numerous hills, while the northern abuts Carquinez Strait within the San Francisco Bay Delta.

Central San's Collection Systems Operations Facility (CSOF), completed in 2011, was designed to serve as an Emergency Operations Center (EOC). With its enhanced seismic resiliency structural and operational attributes, CSOF is capable of post-earthquake immediate occupancy and operation. In addition, many other key structures owned by Central San have undergone seismic improvements to meet, and sometimes exceed, the latest code requirements.

Additionally, the Plan Introduction section must provide reference to the Enrollee's up-to-date map of its sanitary sewer system, as required in section 4.1 (Updated Map of Sanitary Sewer System) of this Attachment.

Central San uses a geographic information system to map its infrastructure, service area, and other pertinent information. This information is displayed through an internal web mapping system staff have called GeoPortal. GeoPortal offers several map services, including one focused on the collection system, Central Portal. The Central Portal is continuously updated to reflect the most current information on the infrastructure. More information on the mapping system is included in section 4.1, Updated Map of Sanitary Sewer System.

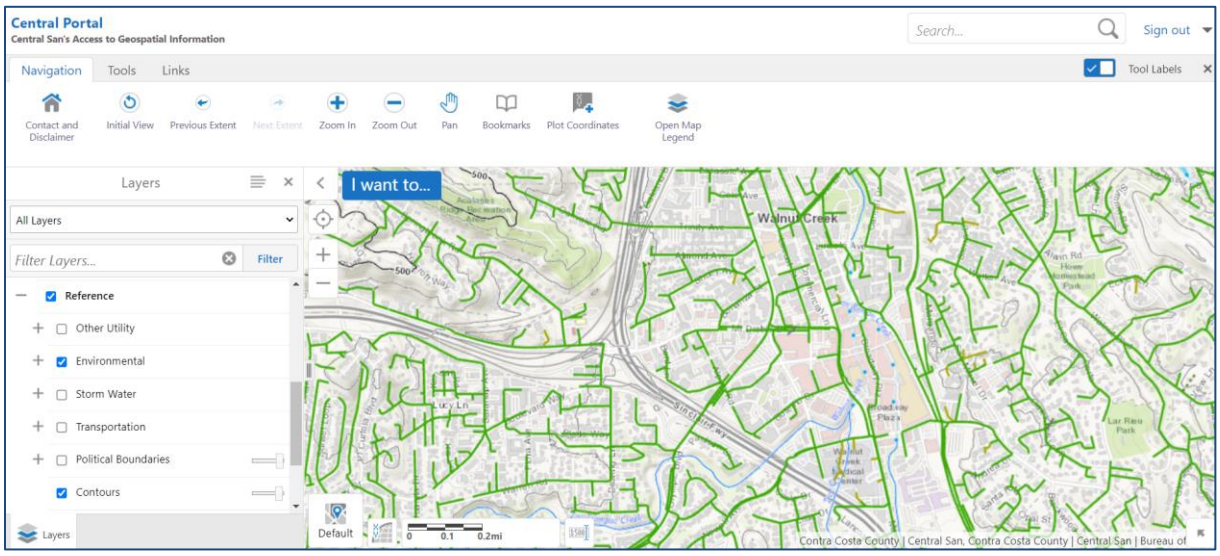


Figure 1.7: Central Portal Landing Page

SSMP ELEMENT 2: ORGANIZATION

WDR REQUISITES

2. ORGANIZATION: *The Plan must identify organizational staffing responsible and integral for implementing the local Sewer System Management Plan through an organization chart or similar narrative documentation that includes:*

2.1 The name of the Legally Responsible Official as required in section 5.1 (Designation of a Legally Responsible Official) of this General Order;

2.2 The position titles, telephone numbers, and email addresses for management, administrative, and maintenance positions responsible for implementing specific Sewer System Management Plan Elements;

2.3 Organizational lines of authority

2.4 Chain of communication for reporting spills from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Boards and other agencies, as applicable. (For example, county health officer, county environmental health agency, and State Office of Emergency Services.)

WDR ITEM 2.1:
NAMES OF LEGALLY RESPONSIBLE OFFICIALS

CENTRAL SAN COMPLIANCE

The CSO Division Manager has the overall responsibility for the development, management, and implementation of Central San's SSMP. Table 2.1 identifies Central San's Legally Responsible Official (LRO).

Table 2.1 Legally Responsible Official

LRO Position	Responsible Name	Phone Number	Email Address
CSO Division Manager	Paul Seitz	925-335-7743	pseitz@centralsan.org

Table 2.2 CIWQS Data Submitters

Position	Responsible Name	Phone Number	Email Address
CSO Superintendent	Steve Sauter	925-229-7150	Steve@centralsan.org
CSO Supervisor	Alex Benavidez	925-229-7175	ABenavidez@centralsan.org
CSO Supervisor	Justin Covington	925-459-4858	JCovington@centralsan.org
CSO Supervisor	Chris Johnsen	925-229-7162	CJohnsen@centralsan.org
CSO Supervisor	Ed Silva	925-229-7176	ESilva@centralsan.org

SSMP IMPLEMENTATION

CSO focuses on daily tasks such as cleaning, CCTV inspection, locating, repairs, maintenance, spill response, and reporting. The Engineering and Technical Services Department oversees the long-term needs of the collection system, such as renovation and capacity planning, mapping, and enforcing Central San Code and Standard Specifications for Design and Construction. While the physical activities of the CSO and the Engineering and Technical Services Department differ, management and staff share information and work together as a team.

SSMP UPDATING

The documents referred to in the SSMP are each the responsibility of a particular workgroup to maintain and update as needed. For example, the Environmental Compliance workgroup is responsible for writing and updating the Sewer Pipe Blockage Control Program, and the CSO Division is responsible for the Spill Emergency Response Plan (SERP). Refer to Table 2.3 below.

WDR ITEM 2.2:
POSITION TITLES AND CONTACT INFORMATION FOR POSITIONS RESPONSIBLE FOR IMPLEMENTING SPECIFIC SEWER SYSTEM MANAGEMENT PLAN ELEMENTS

Table 2.3 Staff Contacts Responsible for SSMP

Element	Element Name	Responsible Party	Responsible Name	Phone Number	Email Address
1	Goals	CSO Division Manager	Paul Seitz (LRO)	925-335-7743	pseitz@centralsan.org
2	Organization	CSO Division Manager	Paul Seitz (LRO)	925-335-7743	pseitz@centralsan.org
3	Legal Authority	Environmental & Regulatory Compliance Division Manager	Lori Schectel	925-229-7143	lschectel@centralsan.org
4	O&M Program	CSO Field Operations Superintendent	Steve Sauter	925-229-7150	steve@centralsan.org
5	Design & Performance Provisions	Capital Projects – Collection System Program Senior Engineer	Alexandr Mestetsky	925-229-7261	smestets@centralsan.org
6	Spill Emergency Response Plan	CSO Field Operations Superintendent	Steve Sauter	925-229-7150	steve@centralsan.org
7	Sewer Blockage Control Program	Environmental Compliance Superintendent	Colleen Henry	925-229-7347	chenry@centralsan.org
8	System Evaluation & Capacity Assurance Plan	Planning & Applied Research Associate Engineer	Justin Waples	925-229-7368	jwaples@centralsan.org
9	Monitoring, Measurement & Program Modifications	CSO Senior Engineer	Jason DeGroot	925-229-7209	jdegroot@centralsan.org
10	Internal Audits	CSO Senior Engineer	Jason DeGroot	925-229-7209	jdegroot@centralsan.org
11	Communications Program	Communication Services & Inter-governmental Relations Manager	Emily Barnett	925-229-7310	ebarnett@centralsan.org

Central San's most current version of its organizational structure is located on its website at centralsan.org.

WDR ITEM 2.3:
ORGANIZATIONAL LINES OF AUTHORITY

Central San's CSO Organization Chart (shown below) represents the lines of authority within the Division. CSO leads all sewer system regulatory compliance and coordinates with other departments and staff to address all WDR needs. The organizational chart is updated as necessary.

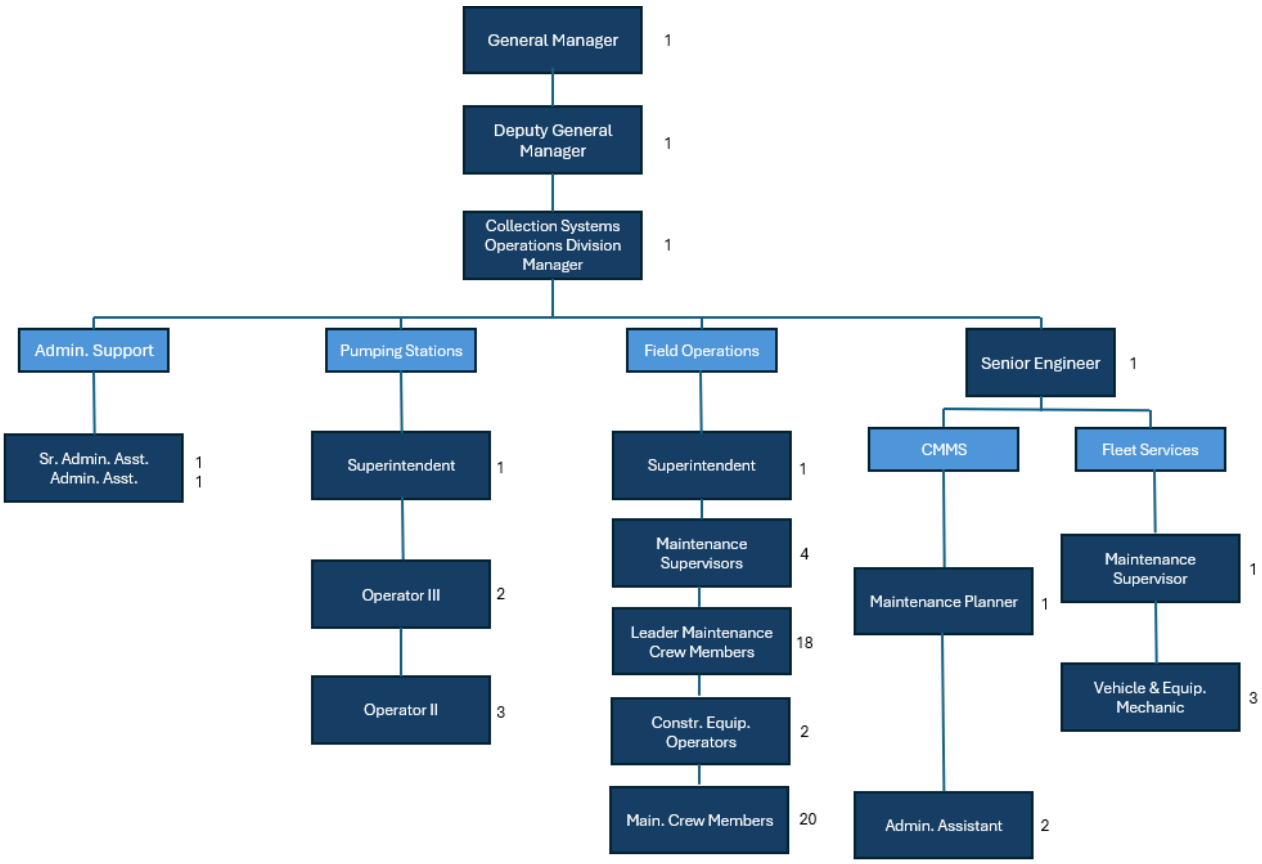


Figure 2.1: Collection System Operations Division Org Chart Schematic
(Number indicates quantity of authorized positions)

ROLE DESCRIPTIONS

The roles are briefly stated as follows:

General Manager: Directs, manages, and administers all operational, engineering, and administrative activities of Central San.

Deputy General Manager: Assists the General Manager in providing overall leadership of Central San; direct, manage, and administer all activities within the Operations Department, which includes the Plant Operations Division, Plant Maintenance Division, CSO Division, and the District Safety Program; acts as

the General Manager in his or her absence.

Collection System Operations Division Manager: The CSO Division Manager is the LRO and responsible representative for certifying all reports required by the State Water Resources Control Board Order No. 2022-0103-DWQ. The CSO Division Manager directs the activities of the CSO field operations and maintenance activities. They provide input for Engineering and Technical Services Department staff to optimize capital construction projects for sewers needing renovation or upgrade.

Collection System Operations Senior Engineer: The CSO Senior Engineer supports the CSO Division Manager in the activities of field operations and maintenance, fleet support, and facility operations and maintenance.

Field Operations Superintendent: The Field Operations Superintendent is the authorized representative for submitting data for spills to the State and Regional Water Boards and other agencies as applicable. The Field Operations Superintendent plans, organizes, directs, controls, and reports on the activities of the Field Operations Section and coordinates activities among the Section groups within the Division, the Department, and the District.

Maintenance Supervisor: The Maintenance Supervisor plans, organizes, directs, reviews, and reports on the work of field crews in the construction, repair, cleaning, locating, and inspection of the sewer collection system. Assigned as Supervisor to one of the four sections in the CSO Field Operations. In addition, the Maintenance Supervisor submits data for spills to CIWQS.

Lead Maintenance Crew Member: The Lead Maintenance Crew Member directs the work of a crew and participates in the construction, repairing, cleaning, locating, and closed circuit television (CCTV) inspection for the sewer collection system and recycled water distribution systems; performs administrative duties as assigned, such as daily reporting and monthly inventories; regularly assists in the training of Maintenance Crew Members in equipment operations, departmental procedures, and safety practices.

WDR ITEM 2.4:
CHAIN OF COMMUNICATION FOR REPORTING SPILLS, FROM RECEIPT OF COMPLAINT, INCLUDING PERSON RESPONSIBLE FOR REPORTING

KEY COMMUNICATION ELEMENTS

Central San's chain of communications for reporting spills is documented in the SERP and found online at centralsan.org. In this SSMP, Element 6: Spill Emergency Response Procedures.

To ensure continuity of communication, CSO ensures that more than one person is capable and responsible for regulatory compliance.

CSO is responsible for responding to spills, cleanup, and reporting these spills in accordance with regional and state requirements. Central San's SERP and the Pumping Station Emergency Response Plan (PSERP) contain procedures and staff responsibilities.

Key elements of these plans include:

1. Spill notification chain of command
2. First responder responsibilities
3. Documentation requirements
4. Spill tracking
5. Regional reporting requirements
6. Contact phone numbers

Central San has participated in the online reporting process, as required by the RWQCB, since September 2004 as a beta-test agency and as part of the formal required process beginning in December 2004. The document describing the requirements can be accessed from RWQCB's website. All spills are tracked in a database administered by CSO.

In addition to the notification of spills, Central San has dedicated phone numbers for other collection system issues, such as odor complaints and illegal discharges that may be associated with the sewer system. The phone numbers are answered 24 hours/day, allowing individuals to report issues to Central San immediately. Contact information is also available at centralsan.org.

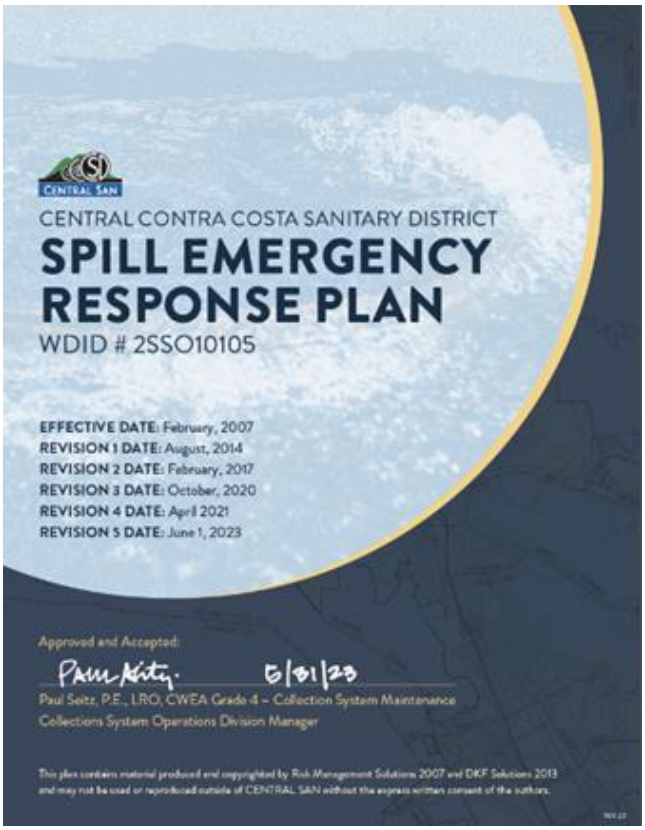


Table 2.4 Central San Emergency Contact Numbers

Emergency Contact	Phone Number
Sewer Spills	(925) 933-0990
Odors-Sewers or Treatment Plant	(925) 335-7703
Structure Adjustment & Repairs	(925) 933-0990
Reporting Illegal Discharges or Spills into Sewer System	(925) 229-7288 (during business hours) (925) 229-7214 (after business hours)

SSMP ELEMENT 3: LEGAL AUTHORITY

WDR REQUISITES

3. LEGAL AUTHORITY: *The Plan must include copies or an electronic link to the Enrollee's current sewer system use ordinances, service agreements and/or other legally binding procedures to demonstrate the Enrollee possesses the necessary legal authority to:*

3.1 Prevent illicit discharges into its sanitary sewer system from inflow and infiltration (I&I); unauthorized stormwater; chemical dumping; unauthorized debris; roots; fats, oils, and grease; and trash, including rags and other debris that may cause blockages;

3.2 Collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure to storm sewer infrastructure;

3.3 Require that sewer system components and connections be properly designed and constructed;

3.4 Ensure access for maintenance, inspection, and/or repairs for portions of the service lateral owned and/or operated by the Enrollee;

3.5 Enforce any violation of its sewer ordinances, service agreements, or other legally binding procedures; and

3.6 Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable.

CENTRAL SAN COMPLIANCE

Central San receives legal authority from the California Health & Safety Code, Division 6, Part 1. This statute is referred to as the Sanitary District Act of 1923, under which Central San was established in 1946 as a special district in central Contra Costa County.

With this authority, Central San's Board of Directors passes ordinances that are incorporated into the Central San Code (Code), and the Standard Specifications for Design and Construction (Standard Specs). These documents govern all aspects of the sewage collection system, from the connection of the private lateral to the terminus of Central San's outfall in Suisun Bay.

Central San's code, ordinances, standard specifications and agreements are monitored and reviewed periodically to ensure they continue to meet the needs of the District as well as regulatory Waste Discharge Requirements (WDR), including the SSMP. There are no known instances where Central San's code, ordinances, standard specifications or agreements did not address its needs.

In addition, a member of Central San's legal counsel attends Central San's Specifications Committee meetings, which is the committee responsible for maintaining and updating its standard specifications and contract documents for capital improvement projects.

CENTRAL SAN CODE

The Code is available on Central San's website and at the following link:

https://library.municode.com/ca/central_contra_costa_sanitary_district/codes/code_of_laws

The Code is composed of the following Titles:

Title 1	GENERAL PROVISIONS
Title 2	ADMINISTRATION
Title 3	(Reserved)
Title 4	PERSONNEL
Title 5	PERMITS AND LICENSES
Title 6	FEES AND CHARGES
Title 7	REAL PROPERTY AND IMPROVEMENTS
Title 8	(Reserved)
Title 9	SEWERS
Title 10	SOURCE CONTROL (PRETREATMENT)
Title 11	RECYCLED WATER

Title 1 of the Code grants Central San the power to enter private property to inspect sewer facilities, levy fines, and terminate service if users fail to comply with Central San's rules and policies. Other titles have additional enforcement provisions that expand upon these powers granted in Title 1. For example, Title 10 enables Central San staff to conduct inspections and obtain samples from businesses discharging to Central San's system to ensure compliance with the Source Control (Pretreatment) standards. Fat, Oil, and Grease (FOG) discharges are regulated under Title 10 (see Element 7 Sewer Pipe Blockage Control Program).

Provisions in Title 6 of the Code grant Central San the power to assess fees to recoup operating and capital costs of Central San from users.

Section 10.12.080 Rights of Entry ensures that Central San's Environmental Compliance and Development Inspection workgroup has access to private property to inspect, sample, or monitor the operations of businesses subject to Title 10 of the Code.

Chapter 10.32 of the Code contains standards specific to controlling FOG discharges to Central San's collection system. Element 7 Sewer Pipe Blockage Control Program identifies the program activities conducted to enforce the standards in Chapter 10.32.

Central San's Environmental Compliance workgroup uses the standards established in Title 10 that include Section 10.08.030, Chapter 10.32, or Discharge Permits to regulate the quantity and quality of discharges from businesses operating in Central San's service area. These standards apply to fixed facilities with permanent connections to Central San's collection system and temporary dischargers (e.g., dewatering from construction projects, mobile service providers). For additional information, refer to Element 7, Sewer Pipe Blockage Control Program.

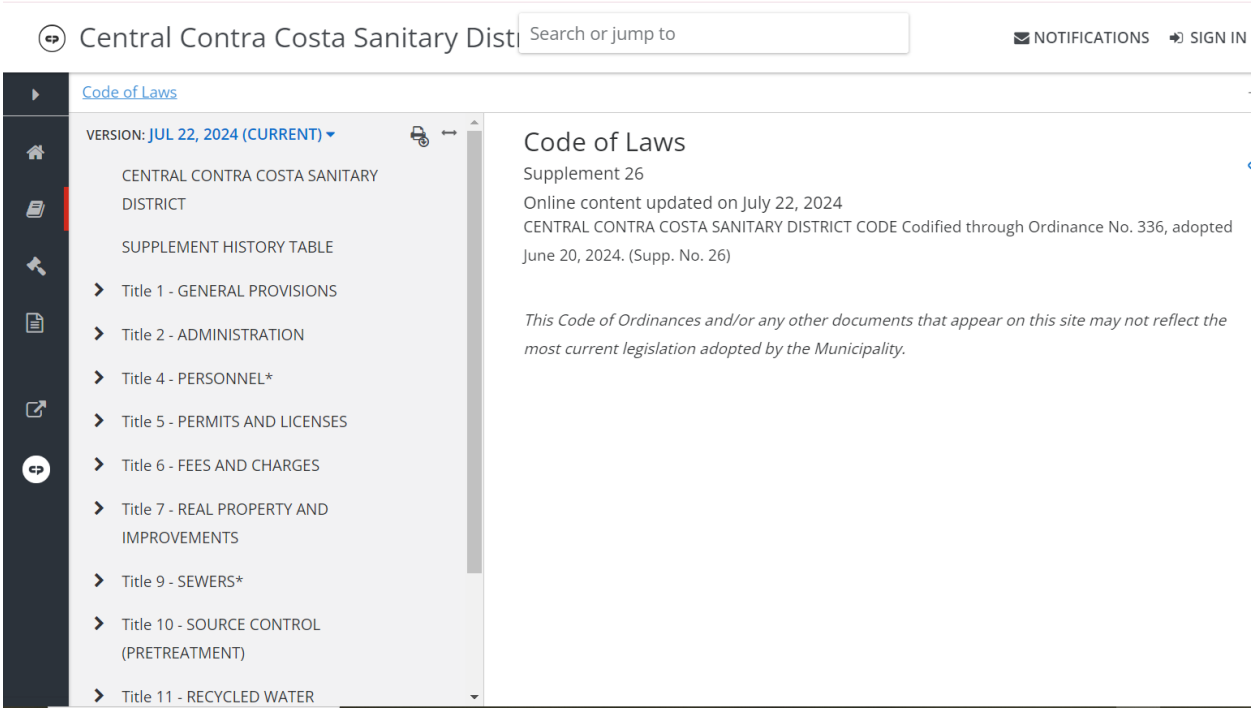


Figure 3.1: Central San Code (available online)

Central San's code is available at the following link:

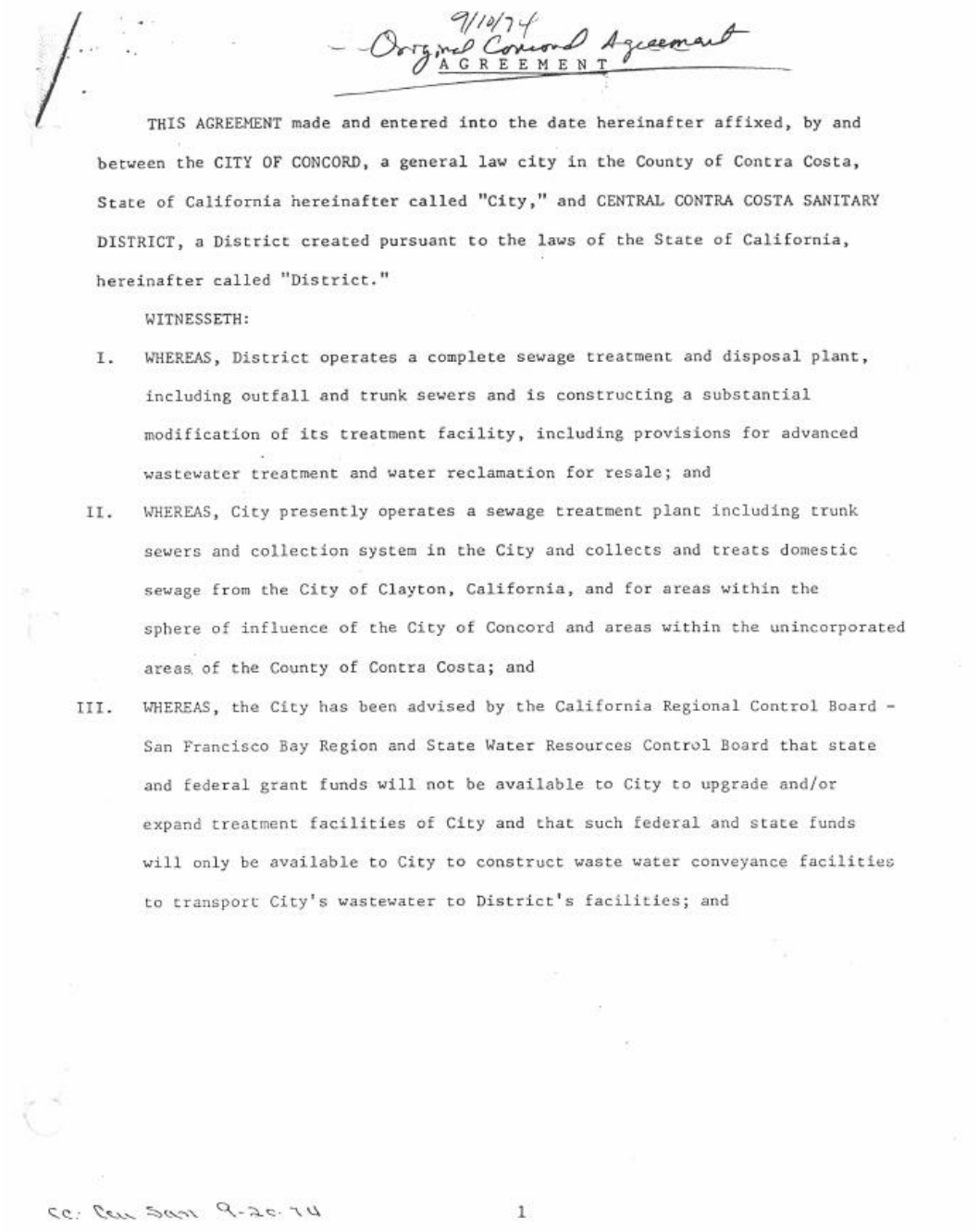
https://library.municode.com/ca/central_contra_costa_sanitary_district/codes/code_of_laws

SERVICE AGREEMENTS WITH TRIBUTARY SYSTEMS

In addition to serving its prescribed territory, Central San provides sewage treatment services for the City of Concord (Concord) and the City of Clayton (Clayton). These cities operate and maintain their own collection systems, which ultimately deliver their sewage to Central San's treatment plant in Martinez. Concord has entered into a service agreement with Central San that stipulates they must operate their collection systems in accordance with Central San codes and policies; the flow from Clayton is treated as a portion of Concord's flow since Concord performs the maintenance on the sanitary sewer collection system in Clayton. As part of this service agreement, Central San has the authority to conduct pretreatment inspections to enforce the Source Control Ordinance (Title 10) requirements in Concord and Clayton.

CITY OF CONCORD

Central San's agreement with the City of Concord dates back to 1974. The front page of this agreement is shown below.



9/10/74
Original Concord Agreement

AGREEMENT

THIS AGREEMENT made and entered into the date hereinafter affixed, by and between the CITY OF CONCORD, a general law city in the County of Contra Costa, State of California hereinafter called "City," and CENTRAL CONTRA COSTA SANITARY DISTRICT, a District created pursuant to the laws of the State of California, hereinafter called "District."

WITNESSETH:

I. WHEREAS, District operates a complete sewage treatment and disposal plant, including outfall and trunk sewers and is constructing a substantial modification of its treatment facility, including provisions for advanced wastewater treatment and water reclamation for resale; and

II. WHEREAS, City presently operates a sewage treatment plant including trunk sewers and collection system in the City and collects and treats domestic sewage from the City of Clayton, California, and for areas within the sphere of influence of the City of Concord and areas within the unincorporated areas of the County of Contra Costa; and

III. WHEREAS, the City has been advised by the California Regional Control Board - San Francisco Bay Region and State Water Resources Control Board that state and federal grant funds will not be available to City to upgrade and/or expand treatment facilities of City and that such federal and state funds will only be available to City to construct waste water conveyance facilities to transport City's wastewater to District's facilities; and

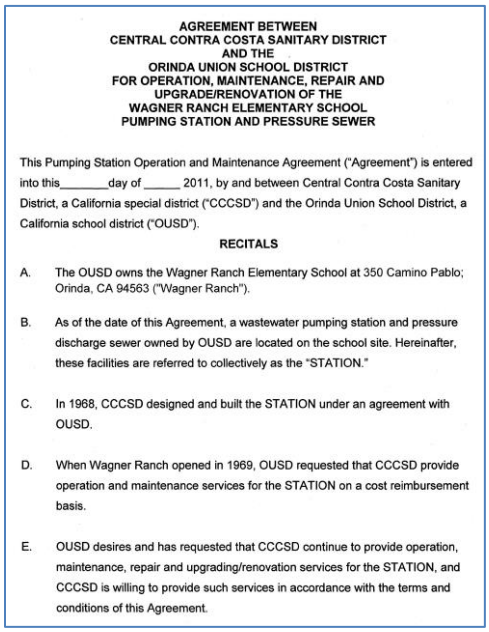
cc: Cen San 9-20-74

1

Figure 3.2: Central San – City of Concord Agreement Cover Page

CITY OF ORINDA & ORINDA UNION SCHOOL DISTRICT

Central San also has service agreements with owners of private pumping stations. The front page of these agreements is shown below. These agreements outline the obligations of the owner and the operator, Central San, such as providing Central San the authority to maintain the privately owned pumping stations, and obtaining reimbursement for costs incurred for operation and maintenance.



AGREEMENT BETWEEN
CENTRAL CONTRA COSTA SANITARY DISTRICT
AND THE
ORINDA UNION SCHOOL DISTRICT
FOR OPERATION, MAINTENANCE, REPAIR AND
UPGRADE/RENOVATION OF THE
WAGNER RANCH ELEMENTARY SCHOOL
PUMPING STATION AND PRESSURE SEWER

This Pumping Station Operation and Maintenance Agreement ("Agreement") is entered into this_____day of _____ 2011, by and between Central Contra Costa Sanitary District, a California special district ("CCCSD") and the Orinda Union School District, a California school district ("OUSD").

RECITALS

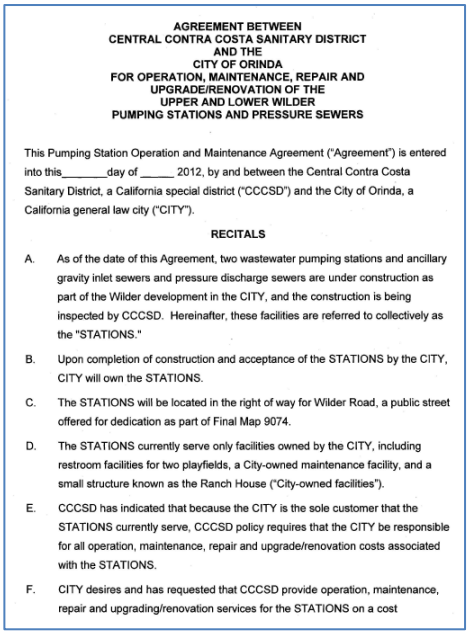
A. The OUSD owns the Wagner Ranch Elementary School at 350 Camino Pablo; Orinda, CA 94563 ("Wagner Ranch").

B. As of the date of this Agreement, a wastewater pumping station and pressure discharge sewer owned by OUSD are located on the school site. Hereinafter, these facilities are referred to collectively as the "STATION."

C. In 1968, CCCSD designed and built the STATION under an agreement with OUSD.

D. When Wagner Ranch opened in 1969, OUSD requested that CCCSD provide operation and maintenance services for the STATION on a cost reimbursement basis.

E. OUSD desires and has requested that CCCSD continue to provide operation, maintenance, repair and upgrading/renovation services for the STATION, and CCCSD is willing to provide such services in accordance with the terms and conditions of this Agreement.



AGREEMENT BETWEEN
CENTRAL CONTRA COSTA SANITARY DISTRICT
AND THE
CITY OF ORINDA
FOR OPERATION, MAINTENANCE, REPAIR AND
UPGRADE/RENOVATION OF THE
UPPER AND LOWER WILDER
PUMPING STATIONS AND PRESSURE SEWERS

This Pumping Station Operation and Maintenance Agreement ("Agreement") is entered into this_____day of _____ 2012, by and between the Central Contra Costa Sanitary District, a California special district ("CCCSD") and the City of Orinda, a California general law city ("CITY").

RECITALS

A. As of the date of this Agreement, two wastewater pumping stations and ancillary gravity inlet sewers and pressure discharge sewers are under construction as part of the Wilder development in the CITY, and the construction is being inspected by CCCSD. Hereinafter, these facilities are referred to collectively as the "STATIONS."

B. Upon completion of construction and acceptance of the STATIONS by the CITY, CITY will own the STATIONS.

C. The STATIONS will be located in the right of way for Wilder Road, a public street offered for dedication as part of Final Map 9074.

D. The STATIONS currently serve only facilities owned by the CITY, including restroom facilities for two playfields, a City-owned maintenance facility, and a small structure known as the Ranch House ("City-owned facilities").

E. CCCSD has indicated that because the CITY is the sole customer that the STATIONS currently serve, CCCSD policy requires that the CITY be responsible for all operation, maintenance, repair and upgrade/renovation costs associated with the STATIONS.

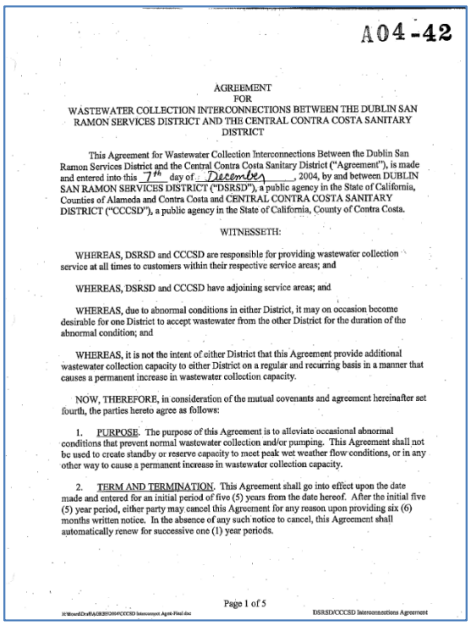
F. CITY desires and has requested that CCCSD provide operation, maintenance, repair and upgrading/renovation services for the STATIONS on a cost

Figure 3.3 Central San Agreements for Privately Owned Pumping Stations

DUBLIN SAN RAMON SERVICES DISTRICT

In addition, Central San has an Agreement with Dublin San Ramon Services District (DSRSD) that provides the option for Central San to direct wastewater should the need arise during an emergency, or should DSRSD request wastewater from Central San to serve their needs.

Central San's sewer infrastructure is connected to DSRSD near the San Ramon Pumping Station. This physical connection provides operational flexibility and redundancy for Central San and DSRSD.



A04-42

AGREEMENT
FOR
WASTEWATER COLLECTION INTERCONNECTIONS BETWEEN THE DUBLIN SAN RAMON SERVICES DISTRICT AND THE CENTRAL CONTRA COSTA SANITARY DISTRICT

This Agreement for Wastewater Collection Interconnections Between the Dublin San Ramon Services District and the Central Contra Costa Sanitary District ("Agreement"), is made and entered into this 7th day of December, 2004, by and between DUBLIN SAN RAMON SERVICES DISTRICT ("DSRSD"), a public agency in the State of California, Counties of Alameda and Contra Costa and CENTRAL CONTRA COSTA SANITARY DISTRICT ("CCCSD"), a public agency in the State of California, County of Contra Costa.

WITNESSETH:

WHEREAS, DSRSD and CCCSD are responsible for providing wastewater collection service at all times to customers within their respective service areas; and

WHEREAS, DSRSD and CCCSD have adjoining service areas; and

WHEREAS, due to abnormal conditions in either District, it may on occasion become desirable for one District to accept wastewater from the other District for the duration of the abnormal condition; and

WHEREAS, it is not the intent of either District that this Agreement provide additional wastewater collection capacity to either District on a regular and recurring basis in a manner that causes a permanent increase in wastewater collection capacity.

NOW, THEREFORE, in consideration of the mutual covenants and agreement hereinafter set fourth, the parties hereto agree as follows:

1. PURPOSE. The purpose of this Agreement is to alleviate occasional abnormal conditions that prevent normal wastewater collection and/or pumping. This Agreement shall not be used to create standby or reserve capacity to meet peak wet weather flow conditions, or in any other way to cause a permanent increase in wastewater collection capacity.

2. TERM AND TERMINATION. This Agreement shall go into effect upon the date made and entered for an initial period of five (5) years from the date hereof. After the initial five (5) year period, either party may cancel this Agreement for any reason upon providing six (6) months written notice. In the absence of any such notice to cancel, this Agreement shall automatically renew for successive one (1) year periods.

Page 1 of 5

DSRSD/CCCSD Interconnections Agreement

Figure 3.4: Central San Agreement with Dublin San Ramon Services District

WDR ITEM 3.1:
PREVENT ILLICIT DISCHARGES

Central San's Source Control ordinance in Title 10 contains section 10.08.040 (quoted below) which prohibits a wide range of illicit discharges (e.g. inflow, storm water, chemical dumping, unauthorized debris).

> *10.08.040 Prohibited substances or characteristics.*
>
> *A user shall not discharge, or cause to be discharged, directly or indirectly to a District facility any of the following:*
>
> *A. Any liquids, solids, or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or damage to District facilities or to be injurious to human health and safety or to the operation of District facilities. At no time shall a waste stream exceed a closed cup flash point of less than one hundred forty degrees (140 º) Fahrenheit or sixty degrees (60 º) Centigrade using the test method specified in 40 CFR Part 261.21. Also, at no time shall two (2) successive readings on a combustible gas meter, at the point of discharge into the system (or at any point in the system) be more than five percent (5%) nor any single reading over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. The meter shall be properly calibrated in accordance with the manufacturer's instructions using pentane as the calibration standard. The materials which may be prohibited if they cause explosive or fire dangers as defined herein include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, sulfides, or any other substance which is a fire or explosion hazard.*
>
> *B. Any solid or viscous substance in amounts or concentrations which may cause or threaten to cause obstruction to the flow in a sewer or pass-through of, or interference with, the operations of any District facilities such as, but not limited to, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastic, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, petroleum oil, non-biodegradable cutting or machine oils, products of mineral origin, mud, cement grout, glass, grinding or polishing wastes, grease, garbage with particles greater than one-half inch (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, or whole blood.*
>
> *C. Any wastewater having a pH less than 5.5 or equal to or greater than 11.5, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, humans, or animals.*
>
> *D. Any wastewater containing hazardous pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to human or animal health or safety, create an adverse effect on the waters of the State, or to exceed the limitations set forth in a national pretreatment standard.*
>
> *E. Any wastewater having a temperature which will inhibit biological activity in the treatment plant resulting in interference or pass through, but in no case wastewater which causes the temperature at the introduction into the treatment plant to exceed forty degrees (40º)*

Centigrade (one hundred four degrees (104º) Fahrenheit) or with a temperature at the point of discharge to the District's collection system which exceeds sixty-five degrees (65º) Centigrade (one hundred fifty degrees (150º) Fahrenheit).

F. *Any pollutants, including oxygen- demanding pollutants (BOD, COD, etc.) released at a flow rate and/or pollutant concentration that alone or in combination with others, may cause interference or pass through. Regardless of whether a slug load causes or will cause interference or pass through, in no case shall a slug load have a flow rate or contain concentrations or quantities of pollutants that exceed for any time period longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration, quantities, or flow during normal operation.*

G. *Any discharge which results in toxic gases, vapors, or fumes in a quantity that may cause acute worker health and safety problems within any District facility.*

H. *Any noxious or malodorous liquids, gases, or solids.*

I. *Any wastewater containing any radioactive wastes or isotopes exceeding any limits set forth in 10 CFR 20.2003.*

J. *Any storm water, groundwater, rainwater, street drainage, subsurface drainage, yard drainage, diatomaceous earth filter backwash, or swimming pool drainage, unless a specific permit is issued by the District. The District may approve such discharge only when no reasonable alternative is available or such water is determined to constitute a pollution hazard if not discharged to the sewer.*

K. *Any unpolluted water, including but not limited to cooling water, process water or blow-down from cooling towers or evaporative coolers, or any other unpolluted water unless a permit for such has been obtained from the District prior to the discharge. The District may approve the discharge of such water only when no reasonable alternative method of disposal is available or such alternative, in the determination of the District, is unacceptable.*

L. *Any septic tank waste, holding tank waste, portable toilet waste, grease interceptor waste, or oil and sand interceptor waste, unless a permit is issued by the District, or unless such sludge or waste is transported to the District by a permitted waste hauler in accordance with the regulations set forth in Chapter 10.28 of this Ordinance.*

M. *Any waste defined as hazardous, by any definition set forth in federal and/or state statutes or regulations, unless such waste has been delisted or decertified by the appropriate federal or state agency, and/or a variance has been granted by the appropriate federal or state agency, including provisions for discharge to a District facility, and said variance provisions are approved by the District.*

N. *Any substance, waste, wastewater, or constituent thereof as may be specifically prohibited or prohibited by concentration levels as may be set forth in local limits adopted by resolution of the District Board and a copy of said standards having been placed on file at the District office.*

O. *Any substance, waste, wastewater, or constituent thereof which may by itself or in combination with other discharges cause the District to violate any permit conditions related to toxicity of the effluent or otherwise cause or contribute to the potential for toxic substances being released from District facilities into the environment in toxic amounts.*

P. *The following constituents are subject to a discharge prohibition standard in lieu of setting numeric discharge limits. The presence of these constituents documented through approved analytical methods shall be a violation of this section and be subject to corrective actions by*

the user to control the discharge of the constituent present. Wastewater discharge permits may establish discharge prohibition(s) for constituents not included in this section for specific Industrial Users.

a. Cyanide for unpermitted users
b. Dioxin compounds
c. Polychlorinated Biphenyls (PCBs)
d. Tributyltin (TBT)
e. Dieldrin
f. 4,4'-DDE
g. Perchloroethylene wastes and wastewaters from dry cleaner operations

(Ord. 253 § 1(Exh. A(part)), 2008)

Infiltration is regulated in Sections 4-01 and 4-02 of Central San's Standard Specs. The area of the property and the mean annual rainfall are used to calculate an acceptable volume of infiltration flow.

Central San has entered into an interagency agreement with the City of Concord to receive and treat flow from its collection system. While this agreement does not specifically address inflow and infiltration (I/I) issues, it states that the City of Concord must follow the same practices in their collection systems that are employed in Central San's system. The City of Clayton discharges sewer flow from its collection system into the City of Concord's collection system, and a memorandum of understanding between Central San and the City of Clayton also states that Central San practices must be followed in its service territory.

In accordance with the service agreement and memorandum of understanding, the City of Concord receives bills from Central San that are based on the volume received. The City of Concord then shares these costs with the City of Clayton. Therefore, both Concord and Clayton have an incentive to control I/I flows to reduce their bills.

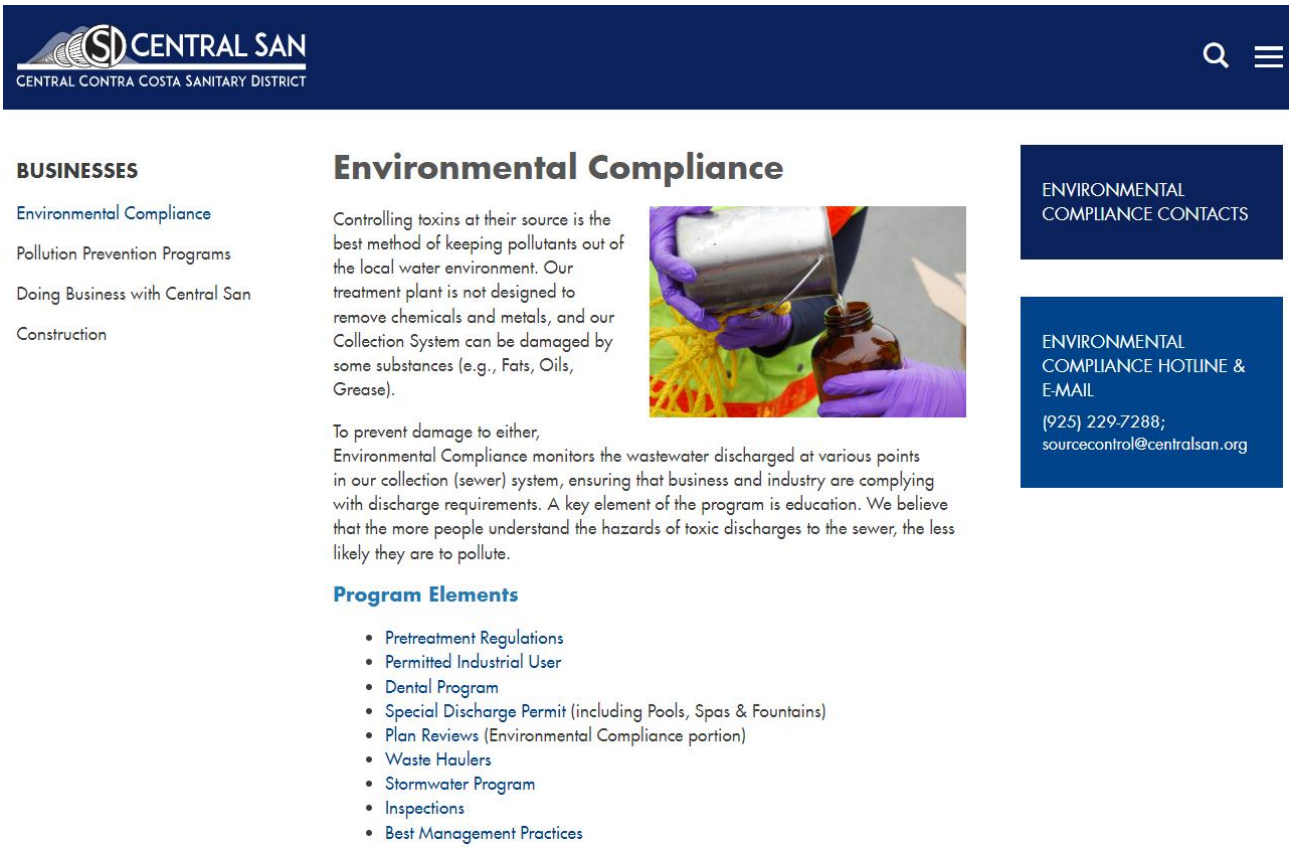


Figure 3.5: Central San's Pretreatment and Environmental Compliance Web Page

Central San's Environmental Compliance workgroup enforces the requirements of Title 10 that includes section 10.08.040 referenced above. Customers that have connections or discharges that violate this section (e.g., roof leaders connected to sanitary sewer drains) are cited and required to remedy the condition.

WDR ITEM 3.2:
COLLABORATE WITH STORM SEWER AGENCIES

Central San's CSO Division leads emergency spill responses and coordinates as appropriate with associated municipal Public Works agencies who are responsible for storm sewers. In addition, Central San's Capital Projects Division coordinates with municipal Public Works agencies during design and construction of Central San's Capital Projects to promote effective project outcomes and minimize disruption to the community. Central San has no known cross-connections with storm sewer systems.

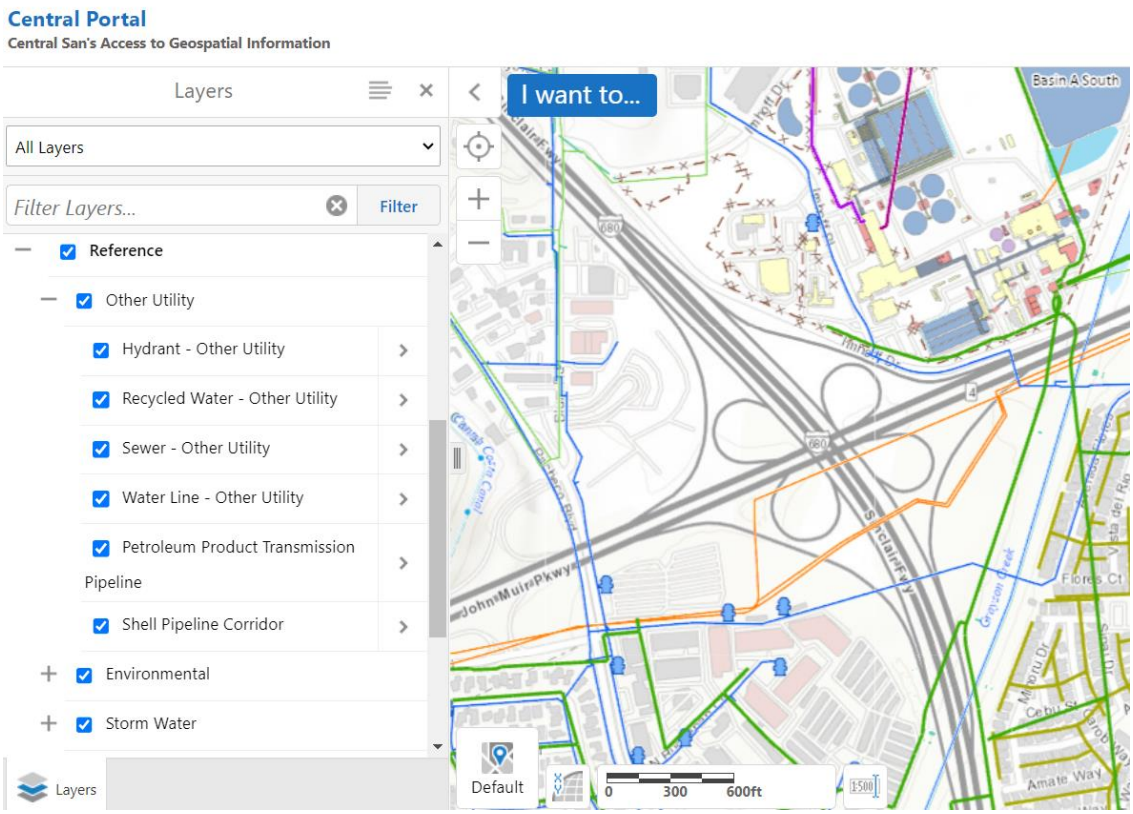


Figure 3.6: Central San Geographic System Showing Utility Layers

Central San's sharing of GIS data with other utilities and municipalities, along with the 811 Call Before You Dig program, further supports utility infrastructure coordination during infrastructure remediation responses and planned Capital Projects.

Figure 3.6 above illustrates a sample of some of the utility information available on Central San's web mapping system, which is accessible to all Central San staff. Operations crews can readily access the information on their mobile devices to assist with maintenance and incident response needs. The system also includes information on seismic fault lines, flood hazards, and liquefaction risk areas.

WDR ITEM 3.3:
PROPERLY DESIGNED AND CONSTRUCTED SEWER SYSTEM

Central San uses Title 5 (Permits and Licenses) and Title 9 (Sewers) of the Code and the Standard Specs to ensure that any changes to the collection system are properly designed and constructed. The ordinances that create this authority are Central San Ordinances 116, 154, 198, and 223.

Chapter 5.04 (General Provisions of Permits and Licenses) of the Code and Section 11 of the Standard Specs (Control of the Work) describe the requirements for installation, testing, and inspection of collection system modifications. The ordinances that create this authority are Central San Ordinances 198 and 223.

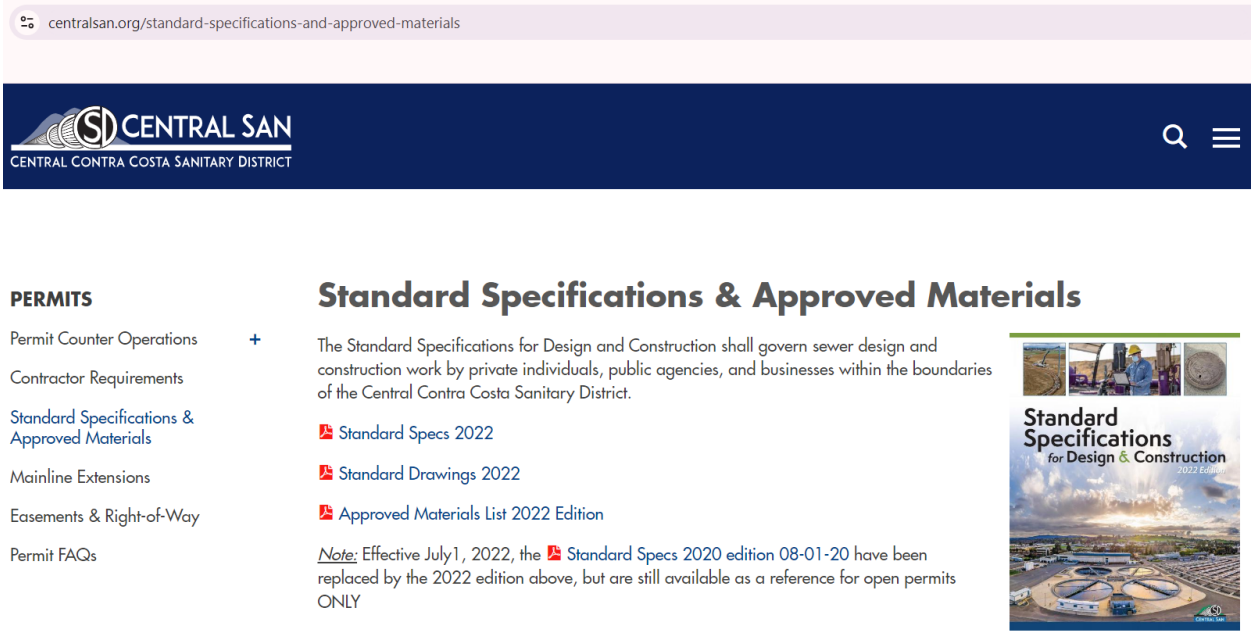


Figure 3.7: Central San Standard Specifications and Approved Materials Web Page

Central San uses its Standard Specs to describe how to properly design, install, and repair private and public sewer lines in Central San's service area. The legal authority for this document is cited from Title 9 of the Code, Section 9.08.010 – Planning, Design and Construction:

Sewers that are intended for dedication to Central San as public sewers shall be planned, designed, constructed, installed and repaired in accordance with this code and Central San's Standard Specs for Design and Construction (referred in this code as "standard Specs"). The standard Specs shall be established and may be amended from time to time by ordinance and kept on file with Central San's Secretary [of the District] in an uncodified manner. The use of any sewer facility connected to Central San system that fails to comply with the standard Specs applicable at the time of its connection to Central San sewer facilities constitutes a danger to human health and safety, public and private property and the environment, and shall be considered a public nuisance.

(Ord. 253 § 1(Exh. A(part)), 2008)

Below is a link to Central San's website that contains its standard specifications, standard drawings and approved materials list.

https://www.centralsan.org/standard-specifications-and-approved-materials

WDR ITEM 3.4:
ENSURE ACCESS FOR PORTION OF SERVICE LATERAL OWNED BY ENROLLEE

Central San has the rights to enter private property for maintenance, inspection, or repairs of Central San's collection system or for work being conducted on private laterals as specified in Section 1.08.020 of the Code. In addition, Central San establishes and maintains easements in private property where Central San's system is located to establish rights for access but also to restrict certain activities (e.g. building structures over public sewers).

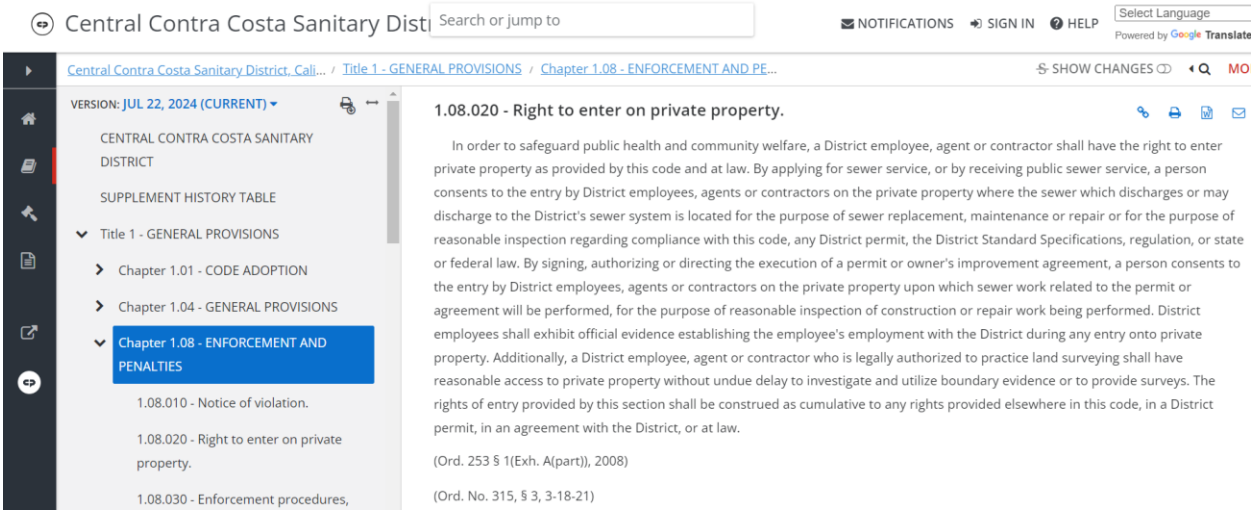


Figure 3.8 Central San Code 1.08.020 – Right to Enter on Private Property, available online

WDR ITEM 3.5:
ENFORCE VIOLATION OF ORDINANCES, AGREEMENTS OR OTHER LEGALLY BINDING PROCEDURES

1.08-1.20, 5.10, 6.24.050 and 10.16.010 of the Code prescribe the enforcement actions available to Central San when violations of the Code are documented. Central San Ordinances 117, 198, and 223 are used as the legal basis for these chapters. All enforcement and remedies are cumulative. Violation of the Code is a misdemeanor in accordance with Central San Code Sections 1.08.060A and 10.16.080A, and section 6523, Health and Safety Code, State of California.

Customers or contractors who violate the provisions of the Code or Standard Specifications will be issued a notice of violation and may be assessed penalties, charged cost recovery, have their service suspended or disconnected, or charged with a misdemeanor. Contractors may forfeit any bonds in association with their work and lose the ability to do future work with Central San. Central San may disconnect and/or correct any defective work and collect the costs from the customer or the contractor.

Any discharge that causes a broad range of prohibited effects within Central San's system is in violation of sections 10.08.030A-D of the Code (quoted below). Remedies available to Central San include assessing penalties, suspension of service, permanent disconnection, and criminal prosecution, which are described in more detail in the enforcement section of this element.

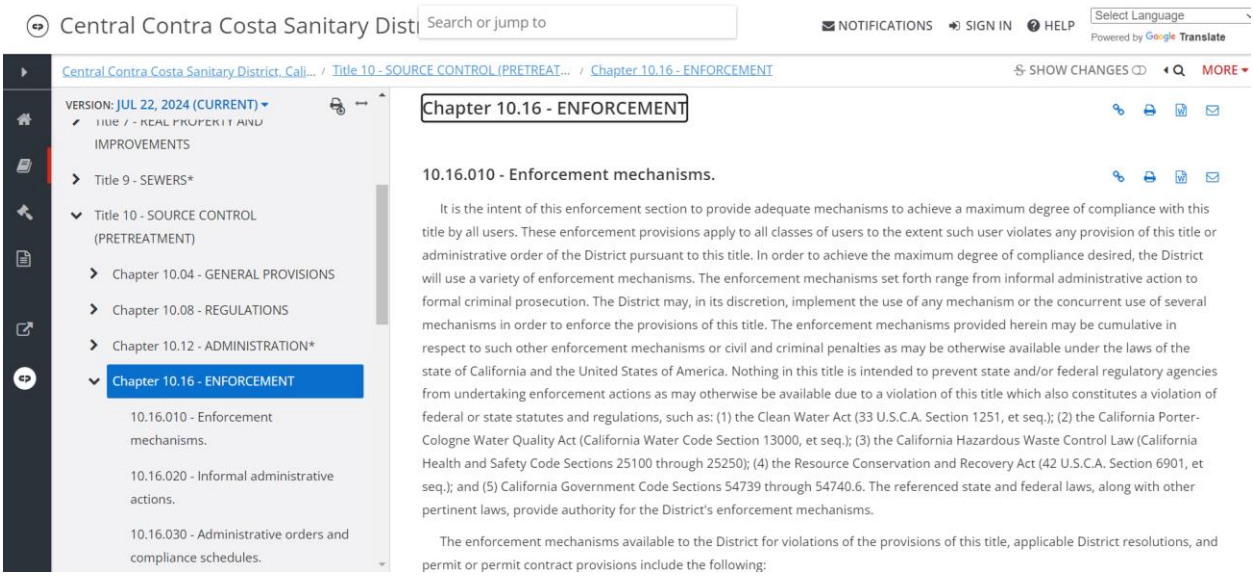


Figure 3.9 Central San Code Chapter 10 – Enforcement, available online

10.08.030 Prohibited effects.

A user may not discharge, or cause to be discharged, wastewater into any District facility if it contains substances or has characteristics which either alone or by interaction with other wastewater, cause or threaten to cause:

A. Damage to District facilities;

B. Interference or impairment of operation or maintenance of District facilities;

C. Obstruction of flow in District facilities;

D. Hazard to human life;

E. Interference with treatment plant or disposal processes, including recycling or any reclamation processes;

F. The treatment plant's effluent or any other product of the treatment plant such as residues, sludge, ash, or scum, to be unsuitable for reclamation and reuse. In no case shall substances discharged to the District facilities cause the plant to be in noncompliance with sludge use or disposal criteria, guidelines, or regulations;

G. The District to violate its National Pollutant Discharge Elimination System (NPDES) permit or the receiving water quality standards;

H. Flammable or explosive conditions;

I. A noxious or malodorous condition, a public nuisance, a hazard to life, or conditions sufficient to prevent normal entry into the sewers or other District facilities for maintenance and repair;

J. Objectionable coloration or other condition in the quality of the District's treatment plant influent which interferes with or passes through the treatment plant;

K. Conditions which violate any statue, rule, regulation, or ordinance of any public agency,

relating to releases of hazardous waste, hazardous substances, or other pollutants to the environment when such release is to a publicly owned sanitary sewer;

L. *Any alteration or change of the District's NPDES permit or any additional regulatory supervision, intervention, or oversight of the District's operations;*

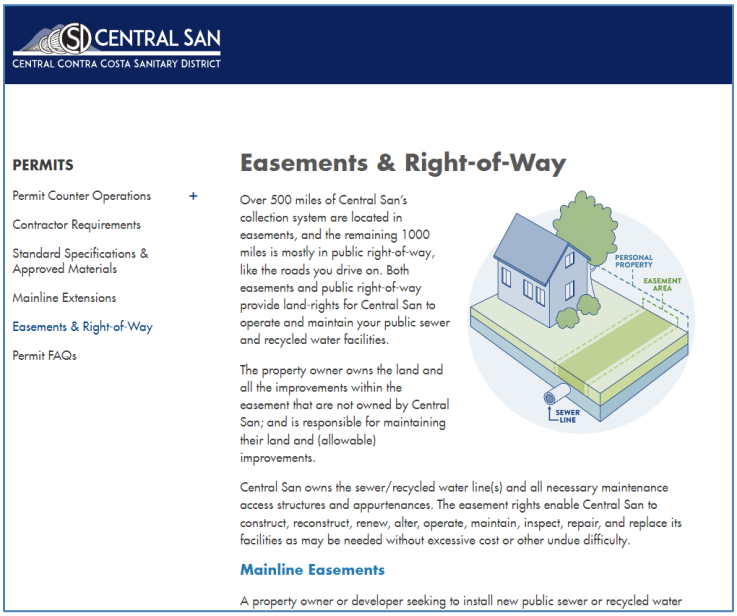
M. *Any alteration of the District's treatment plant processes; and*

N. *Any significant alteration of District operations, including but not limited to, affecting the ability of the District to procure adequate insurance and/or subjecting the District operations to significantly increased potential liability.*

WDR ITEM 3.6:
OBTAIN EASEMENT ACCESSIBILITY AGREEMENTS AS APPLICABLE

Over 500 miles of Central San's collection system are located in easements, and the remaining 1000 miles are mostly in public right-of-way. Both easements and public right-of-way provide land-rights for Central San to operate and maintain the public sewer system. The property owner owns the land and all the improvements within the easement that Central San does not own and is responsible for maintaining their land and (allowable) improvements. Central San owns the (public) sewer system and all necessary maintenance access structures and appurtenances. The easement rights enable Central San to construct, reconstruct, renew, alter, operate, maintain, inspect, repair, and replace its facilities as may be needed without excessive cost or other undue difficulty.

A property owner or developer seeking to install new public sewer facilities to serve their properties must fund, design, construct, and provide appropriate land-rights for the proposed public facilities in compliance with District Code and Standard Specifications (see District Code §7.15, Easements and Easement Encroachments).



Central San reviews improvement plans to determine if there is any potential conflict with existing right-of-way and Central San easements on the property. The local building department typically requires Central San's review prior to their first review. The plans must accurately depict the right-of-way and Central San's easements as well as the Applicant's existing and proposed improvements. Encroachments are not permissible in the right-of-way or Central San easements.

Regarding trees and other potential impediments to the public sewers, Central San Easement language contains the following statement:

The Owner reserves the right to landscape or make such other use of the lands included within the

easement which is consistent with Central San's use; however, such use by the Owner shall not include the planting of trees or construction of permanent structures, including but not limited to houses, garages, car ports, outbuildings, swimming pools, tennis courts, fountains, ponds, artificial streams, retaining walls requiring building permits (three feet or greater in height) or having pier foundations or spread footings greater than eighteen-inches wide by twelve-inches thick, decks, barbeques, patios, engineered drainage facilities (bio-swales), or other structures within or over the easement, or any other activity which may interfere with Central San's full enjoyment of the easement rights granted herein.

Central San also provides the following informational resource to customers regarding Sewer Easements:

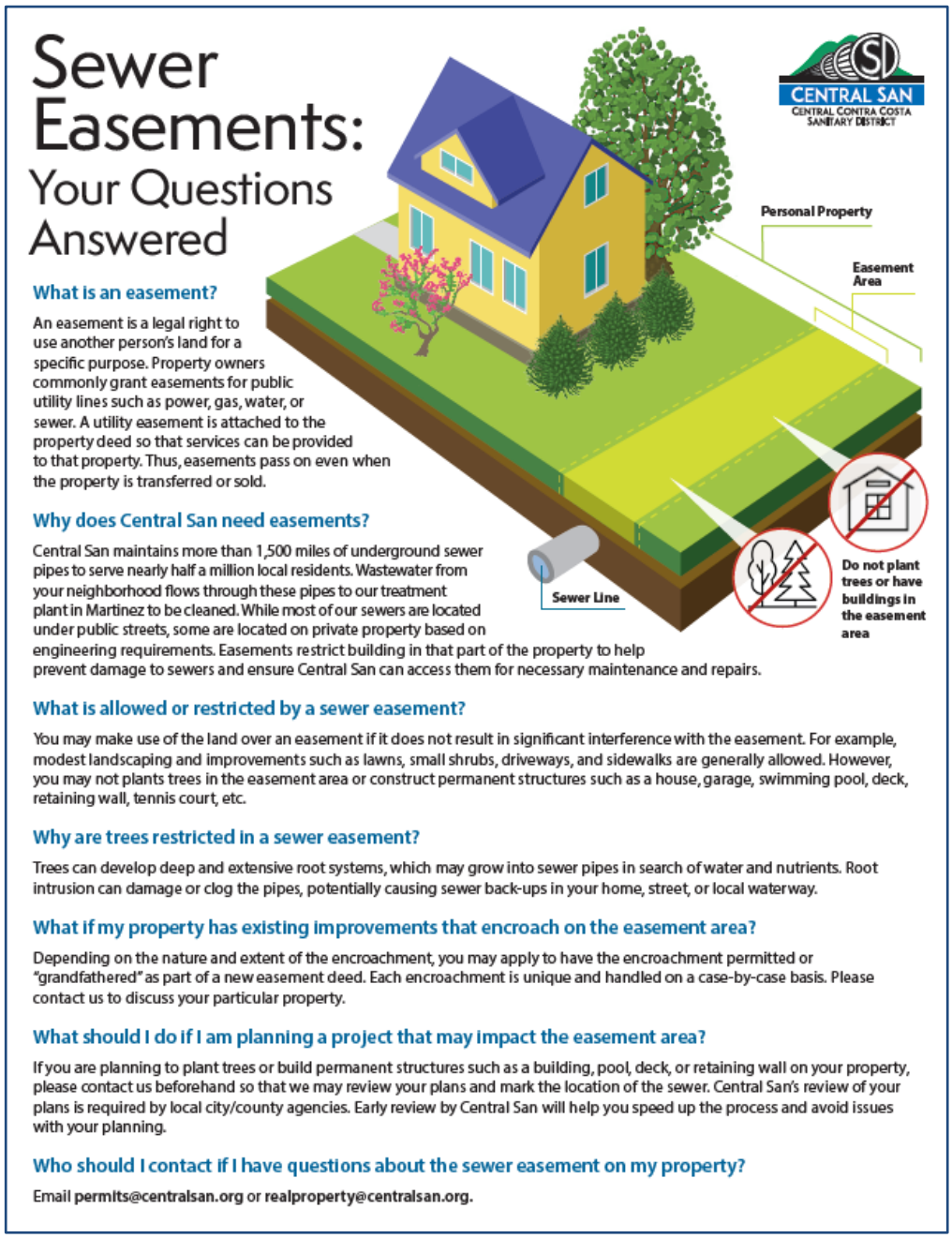


Figure 3.10: Central San Sewer Easements, Your Questions Answered

SSMP ELEMENT 4:
OPERATIONS AND MAINTENANCE PROGRAM

WDR REQUISITES

4. OPERATION AND MAINTENANCE PROGRAM: *The Plan must include the items listed below that are appropriate and applicable to the Enrollee's system.*

4.1 Updated Map of Sanitary Sewer System

An up-to-date map(s) of the sanitary sewer system, and procedures for maintaining and providing State and Regional Water Board staff access to the map(s). The map(s) must show gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities within the sewer system service area boundaries.

4.2 Preventive Operation and Maintenance Activities

A scheduling system and a data collection system for preventive operation and maintenance activities conducted by staff and contractors.

The scheduling system must include:

4.2.1 *Inspection and maintenance activities;*

4.2.2 *Higher-frequency inspections and maintenance of known problem areas, including areas with tree root problems;*

4.2.3 *Regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes.*

The data collection system must document data from system inspection and maintenance activities, including system areas/components prone to root-intrusion potentially resulting in system backup and/or failure.

4.3 Training

In-house and external training provided on a regular basis for sanitary sewer system operations and maintenance staff and contractors. The training must cover:

4.3.1 *The requirements of this General Order;*

4.3.2 *The Enrollee's Spill Emergency Response Plan procedures and practice drills;*

4.3.3 *Skilled estimation of spill volume for field operators; and*

4.3.4 *Electronic CIWQS reporting procedures for staff submitting data.*

4.4 Equipment Inventory

An inventory of sewer system equipment, including the identification of critical replacement and spare parts.

CENTRAL SAN COMPLIANCE

WDR ITEM 4.1:
UPDATED MAP OF SANITARY SEWER SYSTEM

GEOGRAPHIC INFORMATION SYSTEM

Central San uses a Geographic Information System (GIS) to manage sewer-related spatial data using ESRI® GIS software. In addition, Geocortex software links external databases to geographic data in the GIS and further enhances functionality.

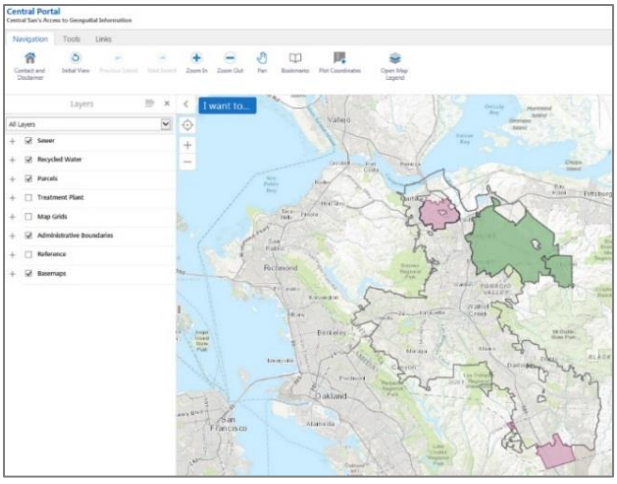
The GIS system was developed using the Environmental Systems Research Institute's (ESRI) Local Government Information Model (LGIM). The LGIM incorporates many best practices for water and wastewater utilities and is configured to meet Central San's needs. The LGIM makes deploying and updating maps and applications more efficient and promotes ease of sharing data with satellite agencies through standardization.

Central San staff refers to the internal web mapping solution as GeoPortal. Pipe segments, structures, junction structures, pumping stations, Central San-owned properties, or other fixed assets are depicted on a dynamic map.

Central San's GIS team aims to incorporate needed map updates promptly when field staff identify a discrepancy. GIS staff have procedures to ensure map changes are completed and are accurate. Continuous coordination occurs between field staff, maintenance planners, and GIS staff.

STATE & REGIONAL WATER BOARD ACCESS TO MAPS

Central San can provide State and Regional Water Board staff access to its mapping system upon written request. Appreciating the potential sensitivity of the information available in Central San's mapping system, access to State and Regional Water Board staff will be given via virtual private network (VPN) to ensure the information is maintained securely.



AVAILABLE DATA

GeoPortal allows staff to turn on/off combinations of layers and/or base maps to display the needed information.

Map layers available through GeoPortal include:

- Collection system assets:
    a. Gravity Lines
    b. Structures
    c. Pumping Facilities
    d. Force Mains (Pressure Pipes)
    e. Valves
- Waterways
- Roadways
- Administrative Boundaries
- Parcel Boundaries
- Right-of-Way and Easement Boundaries (as available)
- Other Agencies' Utilities (including water, storm water, power, and gas)

Datasets or reports associated with map features include:

- Asset-related information including:
    - Record Drawings
    - Maintenance Records
    - Hydraulic Analysis Results
    - Condition Assessment Results (i.e. CCTV data)
- Parcel-related information including:
    - Permit Records
    - Rates & Fees
    - Assessor Parcel Information
    - Environmental Compliance Activities (Source Control Program Inspections)
    - Right-of-Way and Easement Documents

Base maps available through GeoPortal include:

- Aerial Imagery
- Topographic Maps
- Street View

Staff can click on a map feature to display additional details, as shown in Figure 4.1, and access external databases such as record drawings, inspections, and maintenance history via embedded hyperlinks. In addition to panning the map to view assets or selecting the features to access linked datasets, staff can also use the search tool by entering a whole or partial address, parcel number, or facility ID.

Each asset has a unique GIS identity (ID), which is automatically assigned by the system to ensure that each asset has a unique identifier, and a facility ID, which is a semi-intelligent naming system that links the Central San's map grid, structure type, and structure number to create a common name for the asset that is familiar to staff. For example, a facility ID 75A2-M47 indicates that structure 47 is on Central San map quadrant 75A2.

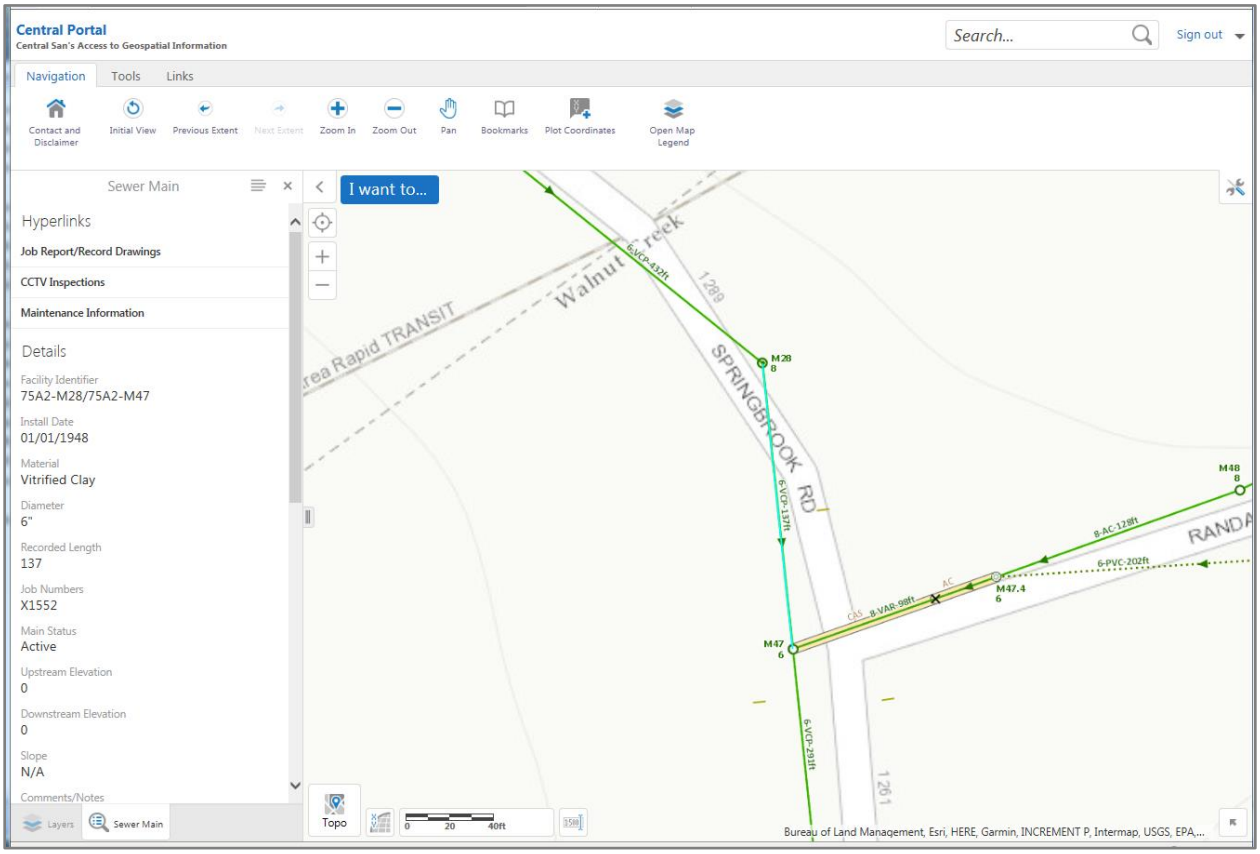


Figure 4.1: GIS - Additional Details for Asset

Another tool within GeoPortal allows staff to plot the coordinates, i.e., the latitude and longitude values of the mouse position, which staff can use when reporting SSSs to the SWRCB.

MAPPING CUSTOMIZATION FOR FIELD STAFF

During the replacement of the GIS software, GIS staff conferred with CSO staff and other workgroups to develop map "themes." These "themes" can tailor the viewable layers and labels to meet the needs of the individual work groups. In addition, feedback was solicited on symbology and labels so that the most useful attributes were easy for field staff to view. For example, the label along a pipe displays the pipe segment's diameter, material, and length from structure to structure, which is valuable information for cleaning crews.

O&M DASHBOARD

Central San's Collection System Operations Supervisors have desktop access to a geographic dashboard that provides a live summary of key operations and maintenance metrics, including:

- Spills
- Service Requests
- Cleaning
- Scheduled Maintenance
- Unscheduled Work
- CCTV Inspections

This geographic dashboard provides the management team with critical information to support optimized decision-making for operational and maintenance purposes, such as crew allocation needs. This tool also supports CSO's decision-makers in continuing to achieve Central San's asset performance metrics.

Figure 4.2: Collection System Dashboard

MAP UPDATE PROCEDURES

The collection system maps are updated when record drawings are received from Central San inspectors. Changes are usually made within a few months of the work's completion, but the maximum update interval goal is one year. Other datasets, such as aerial imagery, are updated as they become available. Any staff member can submit map updates via a common e-mail address that the GIS group monitors.

The procedure for field staff to submit map update requests is through the computerized maintenance management system (CMMS). Work Order templates include a required field where field staff must select yes or no for "GIS Update." Some examples of field staff updates are length, diameter, gate access codes, and locations of apartment structures. GIS staff monitors an inbox for these submissions and then updates GIS accordingly.

The GIS software maintains an audit log with the date, time, and staff name. This audit log is available upon request.

WDR ITEM 4.2:
PREVENTIVE OPERATION AND MAINTENANCE PROGRAM

COLLECTION SYSTEM PREVENTIVE MAINTENANCE PROGRAM

OVERVIEW

The CSO Preventive Maintenance Program involves cleaning sewers on a recurring schedule and regularly inspecting the sewers using CCTV. Depending on the pipe's physical condition, sewers are assigned a cleaning frequency from 1 to 84 months, and the appropriate equipment is assigned to clean the line. Each month, work orders are assigned to maintenance crews who complete the scheduled cleaning of pipes. The tools used and cleaning results are recorded by the crews and reviewed in the office. Cleaning frequencies are adjusted as needed, based on cleaning results and CCTV inspections, to prevent spills.

Concurrent with that cleaning activity, other sewers are inspected internally using CCTV. If the inspection reveals the sewer needs cleaning, a work order is created for the unscheduled cleaning. This process has been instrumental in our continued reduction of SSSs. CSO uses CMMS to schedule cleaning, record cleaning results and CCTV data, and create work orders for scheduled and unscheduled maintenance. Of Central San's approximately 1,500 miles of sewers, 1,250 miles are on a cleaning schedule. The remaining pipes are the larger trunk sewers and are cleaned on an as-needed basis.

In some sewers, the defect is not in the pipe but in the roots infiltrating via the structure. In those cases, limiting cleaning activity to removing roots in the structure is more efficient than using cleaning equipment through an entire sewer line. Focusing on structures with root infiltration has saved Central San considerable man-hours as most of the structures with root infiltration are in easements, requiring two crews to clean the line. There are currently 1,286 structures on a cleaning schedule.

COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM

The CMMS software for Central San is Cityworks®, a GIS-centric asset management solution platform. This software manages all horizontal assets for an effective Preventive Maintenance Program.

Cityworks® manages all Service Requests, Work Orders, and Inspections. The simple graphical user interface allows staff (depending on security and permissions) to view, edit and/or update work activities, search for assets in a table or map view, and run reports. All staff can easily retrieve and view the maintenance history and work activity associated with assets in the system.

Currently, all work (scheduled and unscheduled) flows through the Maintenance Supervisors and is assigned to Maintenance Crew Leaders through Cityworks®. All users have customized inboxes that display their current workload. Tabs are created in the user interface to track and assign Work Order priorities for each workgroup.

Scheduled preventive maintenance work orders (cleaning) are assigned in bulk at the beginning of the month, and field crews have until the end of the month to complete them. Once complete, the system

automatically generates the next work order based on the cleaning frequency assigned to that particular asset. Assets are assigned a cleaning frequency based on a variety of factors – prior cleaning results, CCTV inspections, history of spills/stoppages, and pipe age/material/diameter.

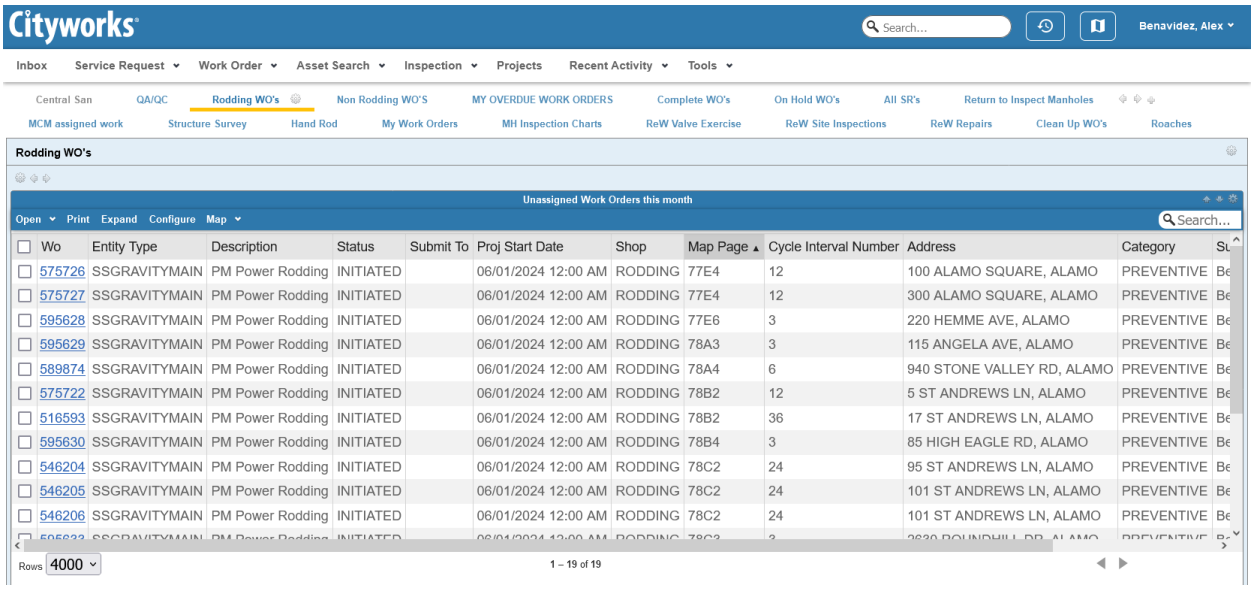


Figure 4.3: Example of a Maintenance Supervisor's Work Order Inbox

PRIVATE SEWER LATERALS

In Central San's service area, the property owner is responsible for the entire sewer lateral pipe coming from the owner's structure to where it connects to the public sewer. As a courtesy to its customers, if while televising a main line it is discovered that a lateral needs cleaning, Central San staff will notify the homeowner. A picture of their lateral, a letter explaining the situation, and a request that Central San be informed when the cleaning is completed is mailed to the homeowner.

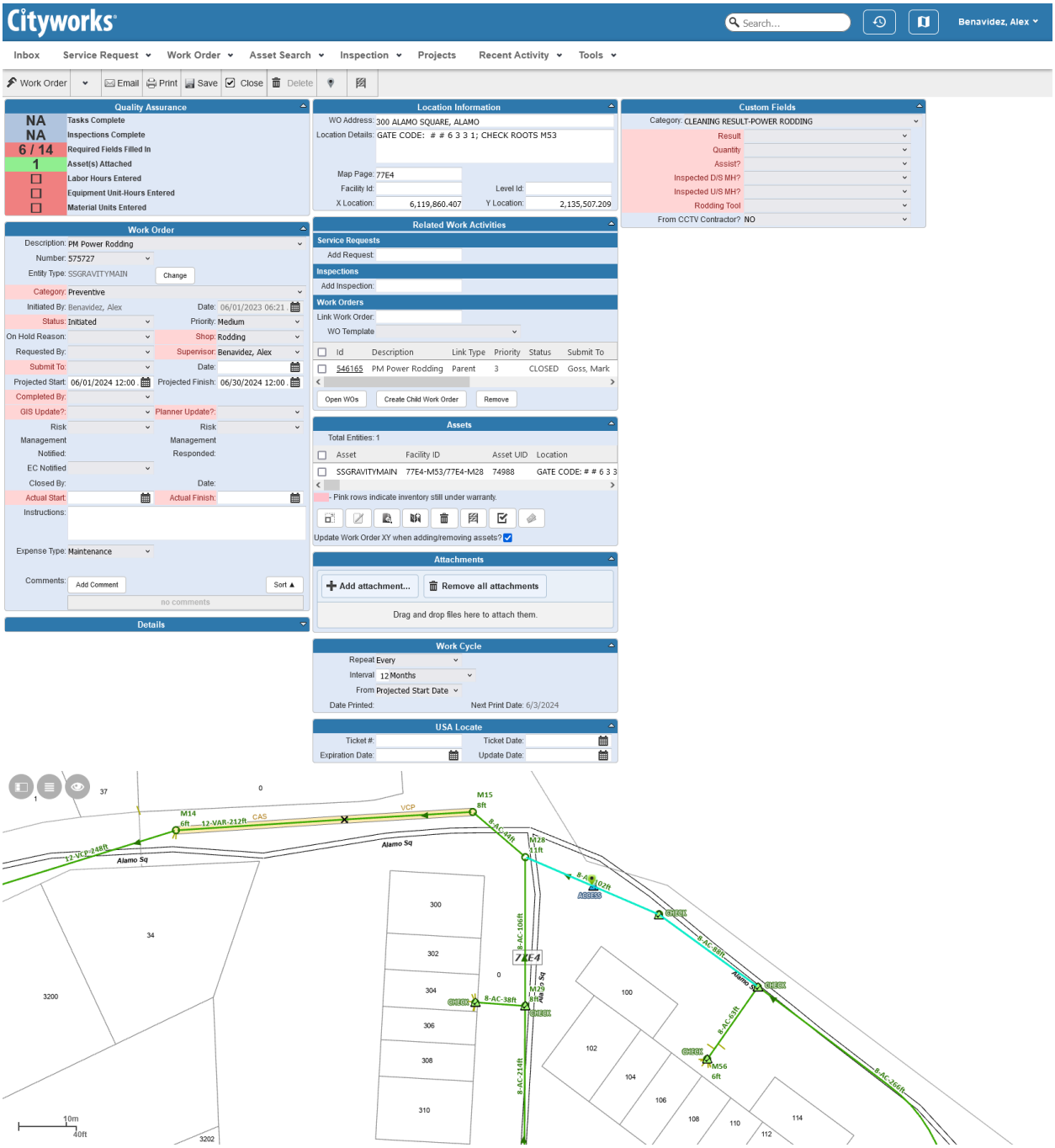


Figure 4.4: CMMS – Preventive Maintenance Work Order with Asset Mapped

The system also allows documents, pictures, or other files to be attached to the Work Order. For example, a cleaning crew may discover a repair is needed to a structure and can attach a photo to the repair Work Order.

The "Spill Response" Work Order Template was configured to include custom fields to document the information needed for reporting to CIWQS.

Within the CMMS system, comments made on Work Orders or Service Requests are stamped with the user's name, date, and time to easily pass information to subsequent staff or supervisors regarding the work activity.

Within the CMMS, there are various maintenance categories. The maintenance categories are shown in Figure 4.5.

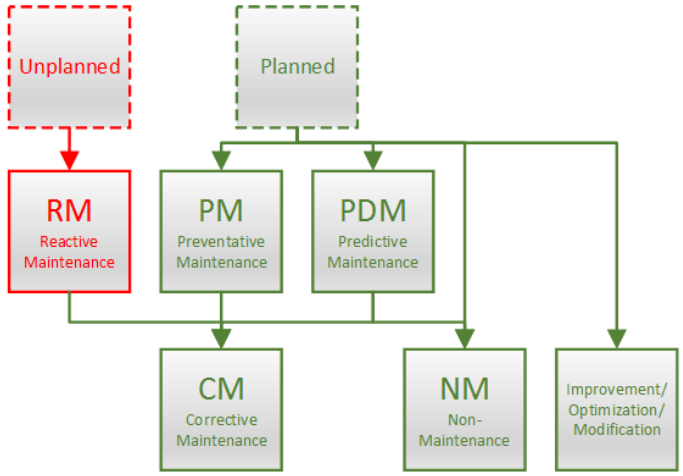


Figure 4.5: Central San Maintenance Categories

RELIABILITY-CENTERED MAINTENANCE

Central San has commenced the implementation of a Reliability-Centered Maintenance (RCM) program to further optimize the existing maintenance program for non-pipeline assets, such as mechanical, electrical, and electronic equipment found at Pumping Stations and the Treatment Plant.

The RCM program systematically focuses on asset criticality and the consequence of failure, and it is a qualitative decision methodology that identifies the most effective PM task for equipment and systems. Together with CMMS, it establishes a repeatable program with documented processes and procedures.

The benefit of RCM is having a specific maintenance strategy for each facility asset, optimizing productivity and labor resources.

The four principals of RCM are:

- Preserve system function
- Identify failure modes that can affect system function
- Prioritize failure modes
- Selection of effective tasks to control failure modes

FLEET MAINTENANCE

Central San has its own dedicated Fleet Maintenance staff who are integral to ensuring CSO field crews have reliable vehicles to perform their daily functions. Fleet Maintenance staff oversee the District's vehicle and equipment maintenance, compliance with state and federal regulations, optimization of cost savings, and improved fleet and driver safety. Fleet Maintenance staff use Cityworks for managing fleet assets, including preventive and reactive maintenance.

Fleet Maintenance staff maximize the availability of CSO vehicles with their best practices preventive maintenance program. This program allows Central San to keep trucks and equipment performing in the field and reduces vehicle repair costs and vehicle downtime.

The table below presents a summary of vehicles that directly support CSO activities.

Truck Type	No. of Vehicles
Hydro Combo trucks	3
Jetter trucks	3
Rodder trucks	7
CCTV vans	2
Construction utility trucks	2
Earth moving vehicles	5

Figure 4.6: Vehicle Fleet

WDR ITEM 4.2.1:
INSPECTION AND MAINTENANCE ACTIVITIES

APPROACH

Central San has a proactive approach to preventive maintenance. All 18 inches in diameter or less lines are on cleaning schedules ranging from 1 to 84-month intervals. The maintenance schedules are

predicated based on the lines' history, results of TV inspection, proximity to environmentally sensitive areas, as well as other factors.

Areas with a history of spills and other issues (or "hotspots") are assigned a more frequent cleaning (1 – 3 months for hotspots) schedule to prevent SSSs. Central San's approach to the cleaning and maintenance of sewer lines can be collectively described as "quality cleaning."

COLLECTION SYSTEM OPERATIONS DESCRIPTION

Central San's service area is approximately 146 square miles, with a population of over 485,700. The collection system is over 1,500 miles of pipe in sizes from 6 inch to 102 inch diameter with approximately 15% located in hilly areas and 30% in easements, many of which are adjacent to creeks. More than 50% of the system was installed over 50 years ago.

CSO is responsible for cleaning, maintenance, repair, locating, and CCTV inspection of the underground pipelines that make up Central San's sewer system, along with emergency response. In 2024, over 750 miles of sewer were cleaned by an average daily number of five crews on rodding trucks and five crews on hydro-vacuum trucks.

Maintaining this system is an ongoing process involving approximately 40 field employees. A designated crew is assigned every week to be the on-call crew for any after-hours emergencies. This on-call crew can also call in additional staff to help with emergencies.

Central San also manages the operation and maintenance of 18 pumping stations throughout its service area. A dedicated team of approximately nine employees operates and maintains these critical facilities. In addition to the daily inspections of each pumping station, staff can remotely monitor the status of each station and receive automated alerts. A designated team is assigned weekly to be the on-call crew for any after-hours emergencies. This on-call crew can also call in additional staff to help with emergencies.

METRICS

Table 4.1: Select Metrics for Operations and Maintenance Activities

	2020	2021	2022	2023	2024
Total Length of Pipes Cleaned (miles)	761	753	782	748	763
Total Length of Pipes CCTV'd (miles)	130	120	102	192	133
Total Number of Spot Repairs	64	120	43	55	74
Total Number of Structure Adjustments	198	117	103	192	140
QA/QC Pass Rate	96%	95%	96%	98%	98%

Central San aims to clean or inspect all lines every 120 months. Different cleaning tools are evaluated, and the most effective tools for various situations are identified. An overview of the cleaning frequency decision process is shown in Figure 4.7.

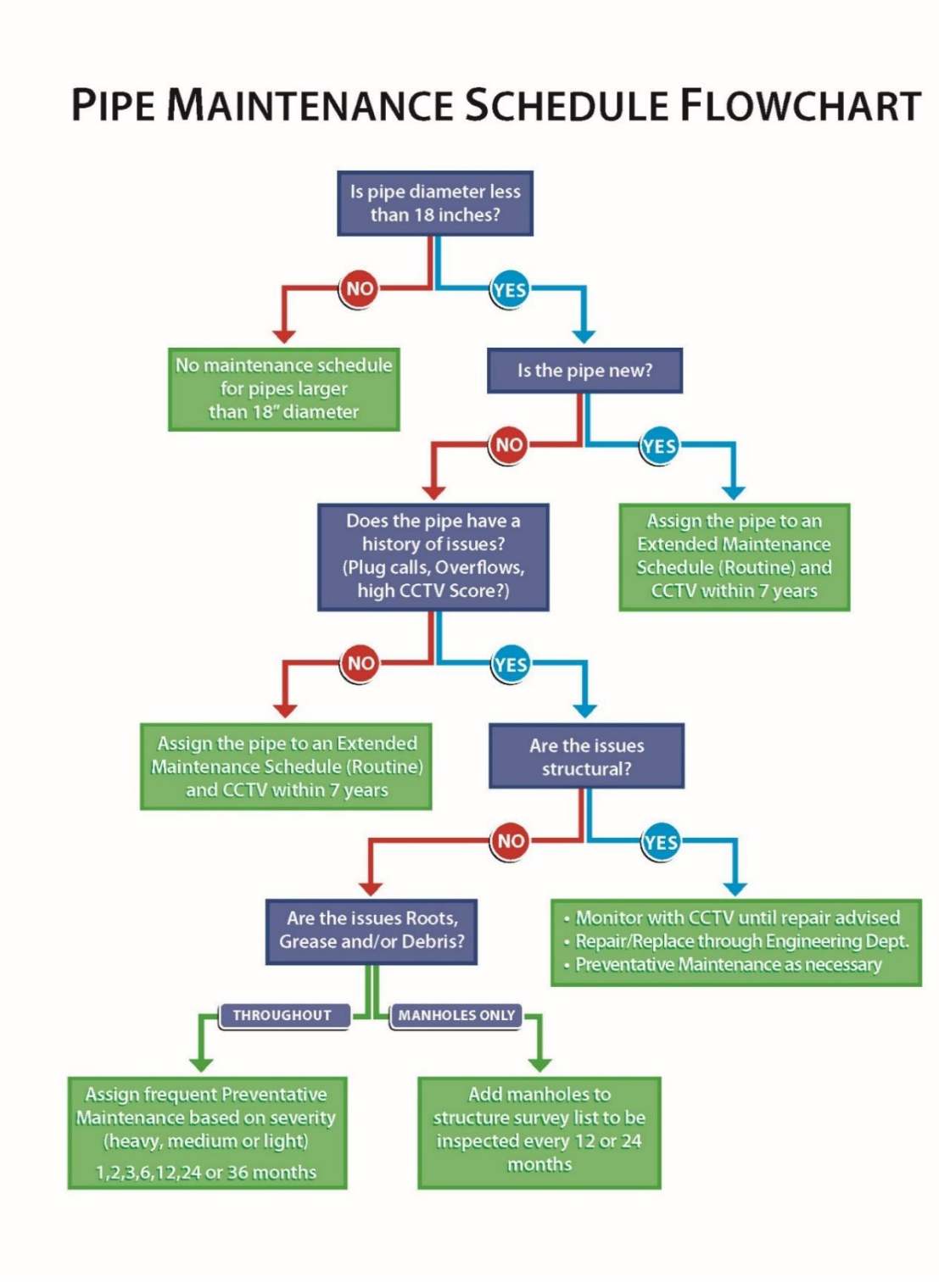


Figure 4.7: Cleaning Frequency Flow Chart

GRAVITY PIPES

Central San evaluates the condition of its 1,500-mile network using video inspection and feedback from cleaning crews. Planning engineers analyze the data to develop the Capital Improvement Plan (CIP) and the Capital Improvement Budget (CIB).

Central San cleans 6 to 18-inch sewers in the collection system and employs two types of cleaning methodologies: mechanical "rodders" (pictured in Figure 4.9) and high-pressure "hydro flush" (pictured in Figure 4.8). Rodders are effective in removing roots. Hydroflush is used mainly to remove grease and debris but can also remove roots. Cleaning crews are given a monthly schedule of locations to service and carry out the cleaning work with rodders or hydro flush equipment appropriately.

Figure 4.8 Combo Jetter/Vac Truck

Figure 4.9 Rodder Truck

LARGE GRAVITY PIPES AND LARGE SIPHONS

Large gravity pipes and large siphons benefit from specialized inspection and cleaning due to the associated challenges of these assets. In 2024, Central San commenced a dedicated inspection program for its large-diameter sewers and siphons, with a goal of inspecting all large-diameter sewers (>18"), force mains, and cleaning and inspecting all siphons within 5 years. A follow-on long-term program will commence upon completion.

CREEK CROSSINGS

Another preventive maintenance activity that CSO crews perform is regular inspections of sewers crossing creeks. Crews complete an inspection form within the CMMS, attach photos of the sewer and appurtenant supports, and look for obvious defects. If any significant changes occur since the last inspection, the Engineering and Technical Services Department is notified to complete a detailed survey and correct any problems. CSO has identified 130 locations where sewers cross creeks above ground. This proactive approach finds potential problems in environmentally sensitive areas and documents conditions for the Asset Management Program.

FORCE MAINS

Central San has approximately 21 miles of pressurized sewer pipes, which are commonly referred to as force mains. Force mains are scoured daily with high-velocity flow, and occasionally the slime layer (a precursor to hydrogen sulfide corrosion) is removed with a shock treatment of calcium nitrate or other chemical. This treatment occurs in the summer as conditions warrant.

PUMPING STATIONS

The Pumping Station Operations Staff are the primary personnel responsible for the day-to-day operation and maintenance of the Pumping Stations, 24 hours a day, 365 days a year. This includes daily, weekly, monthly, bi-annual, and annual inspections and testing of equipment and systems. Tasks include items such as:

- Monitoring the Pumping Station SCADA system and response to alarms or operational issues requiring correction
- Continually testing generators and alarms throughout the year
- Testing portable equipment once a year and routine training exercises for staff to hook up emergency portable equipment in case normal procedures fail
- Exercising all station valves once per month
- Annual servicing of all generators
- Annual servicing of transfer switches to ensure a smooth transition from PG&E to emergency power
- Watching the weather reports and staffing appropriately when needed
- Ensuring that sandbags are filled and ready to go in case of emergencies during wet weather
- Ensuring that all generators and portable fuel tanks are full and ready to go

Additional support with the maintenance and repair of the pumping station equipment and systems is provided by the Plant Maintenance Division. This comprises staff from Reliability Engineering, Electrical, Mechanical, Controls, IT and Instrumentation shops. Service contractors also assist with regular maintenance and emergency repairs of the pumping stations, such as annual generator testing. Staff from Pumping Stations, Electrical, Instrumentation and Mechanical shops are on standby 24/7 to assist with any urgent or emergency situations that require immediate response outside regular business hours.

Some of the metrics used to measure the Maintenance programs success include Key Performance Indicators (KPI) such as:

- Preventive maintenance (PM) completed to planned – target 95% completion
- Safety Work orders completed to planned – 100% completion

ODOR CONTROL

Central San has a hotline for the public to report any foul odor locations. Staff investigates each report and takes the appropriate actions to eliminate the odor source. The hotline number is (925) 335-7703, posted on Central San's website under the "Contact Us" link.

Central San employees respond to odor complaints by visiting the site and interviewing the customer. Methods of dealing with odors include carbon/permanganate air scrubber systems, pumping station operation changes, and chemicals added to the force mains (such as calcium nitrate solution).

CORROSION CONTROL

Central San's Corrosion Control Program focuses mainly on the metal piping network, pumping stations, and treatment plant facilities. The cathodic protection for metal pipes in the collection system is primarily sacrificial anodes. While at the pumping stations and some force mains, an impressed current cathodic protection system is used. Pumping Station Operators perform monthly rectifier readings, and the Engineering and Technical Services Department maintains an Access database inventory of cathodic protection locations and components, as well as annual survey and evaluation data such as pipe-to-soil potentials.

CATHODIC PROTECTION SYSTEM

Cathodic protection is a technique used to control the corrosion of metal. Several Central San facilities and systems (Treatment Plant, Collection System, and Recycled Water) require continuous cathodic protection. Central San has a program to survey the existing cathodic protection systems, identify deficiencies and provide recommendations for required maintenance, replacement and/or addition of new cathodic protection for facilities requiring such protection.

HYDROGEN SULFIDE PROTECTION

A natural microbiological process that occurs in sewers leads to the creation of hydrogen sulfide. Corrosion due to the presence of hydrogen sulfide may arise from the biological conversion of hydrogen sulfide gas to sulfuric acid in the presence of moisture. This mechanism can cause corrosion of sewers and associated infrastructure.

Central San uses air injection and chemical additives to prolong the life of the collection system and reduce the presence of hydrogen sulfide. These preventive methods are significantly less expensive than the alternative of having Capital Projects replace the structural deficiencies caused by corrosion. Central San uses specialized instruments to monitor hydrogen sulfide levels in the collection system throughout the year.

PIPE SPOT REPAIRS

Central San has its own construction crews that make urgent open-cut or cured-in-place pipe repairs to the sewer system. CSO construction crews use Pipe Patch cured-in-place technology when making spot repairs to sewers ranging from six to ten inches. CSO crews utilize this spot repair method an average of three times per month. Central San pioneered the use of pipe bursting, directional drilling, micro tunneling, and other trenchless technologies in the late 1980s and 1990s. Central San's Engineering and Technical Services Department regularly uses trenchless technologies as part of their ongoing sewer renovation and replacement program. Large-scale pipe repairs are typically included in capital projects due to the scale of resources that are needed.

CSO supervisors meet with Central San engineers monthly to review and prioritize urgent sewer repairs to be included in capital projects. In addition, project location maps are posted so that cleaning crews can provide comments to the engineers regarding sewer cleaning access issues. Before Central San Collection System projects go out to bid, CSO staff reviews the plans and provides comments to the engineer for inclusion in the final contract documents.

In addition, CSO staff have built several on-site training facilities to ensure their staff are competently trained for Central San's various inspection and cleaning equipment. For example, CSO staff constructed a Tools Training Vault, an innovative tool that allows staff to learn best practices for cleaning and blockage removal.

This training tool helps the crew decide which tools are most applicable, giving a visual example of various cleaning methods.

The Training Vault's design uses multiple line segments, allowing staff to see cleaning tools in action as they pass through the transparent section of the pipe in the vault. It also allows staff to simulate sewer blockages, perfect their skills, practice clearing blockages, and locate pipes in a safe and controlled environment.

With Central San's involvement in the California Water Environment Association (CWEA), we have enjoyed sharing the CSO Training Vault with neighboring agencies, offering them the opportunity to train at our facility and improve their performance and best practices.

Figure 4.10: – Pipe O&M Training Vault at CSO Facility

QUALITY ASSURANCE AND CONTROL PROGRAM

Central San televised 416 lines during the past fiscal year for its Quality Assurance and Quality Control (QA/QC) Program. The Maintenance Coordinator chooses 44 lines per month to be cleaned and then televised to verify the results. Lines are selected based on the cleaning frequency, the results of the last cleaning, and the date that the line was last televised.

Of these 44 lines, 24 are for the Rodding Section with a history of roots, and 20 are for the Hydroflush Section with a history of grease or deposits. The lines are assigned a number that coincides with the line number on the cleaning schedule. The day these lines are cleaned, a work order is created for them to be televised. The results are sent to the appropriate supervisor, and the data is entered on the QA/QC spreadsheet. In addition, all QA/QC line failures are reviewed at the bi-weekly operations meeting. The results and video are then shared with the Crew Leader who cleaned that particular line segment. Of the 416 lines that were a part of the QA/QC Program, 17 failed and had to be re-cleaned. This amounts to a 95% success rate.

Since this Program was implemented in February 2007, Central San has seen an annual improvement. Crew Leaders have taken ownership and pride in all the line segments they have cleaned. Central San has been alerted to new root intrusions in sewer pipes with no previous root history through this program. It has also allowed staff to adjust the cleaning schedules accordingly and avoid stoppages and spills.

WDR ITEM 4.2.2:
HIGHER FREQUENCY INSPECTIONS AND MAINTENANCE OF PROBLEM AREAS

Each pipe has an individualized frequency of inspection to meet Central San's level of service needs. Due to the diverse nature of infrastructure: age and attributes, service area geology, demographics, and operating environment, each pipe's maintenance activities are tailored to optimize operational performance and staff resources.

While some pipes, particularly newer pipes perform well and have few maintenance needs, sometimes older pipes, or pipes in particular geological or commercial areas, require more frequent cleaning. Pipes that become particularly high maintenance are closely monitored and inspected while they await Capital Project renovation. Prioritization of pipe replacement or renovation is undertaken in coordination with the Capital Projects team and the Operations team. It includes factors such as the proximity of sensitive areas, including creeks and schools.

Sewer mains with known maintenance issues (particularly roots and FOG – fats, oils, and grease) are classified as "hot spots" and are cleaned every 1, 2, or 3 months to avoid any stoppages or spills. Structures with known issues (usually roots) are placed on a structure survey list and are inspected annually (or every other year), to ensure proper flow. All work orders require fields that must be completed prior to closing; these fields can be searched for and added to a report for tracking. For example, if a structure returns with heavy results (roots, grease, etc.) and is on a work cycle (schedule)

longer than 12 months, the result is populated in an inbox for the Maintenance Planner to review and follow up (usually with CCTV).

REMOTE AREA INSPECTION

Another inspection program focuses on Central San assets that are easements, often residential backyards, and are not readily accessible by vehicle. Central San employees walk the pipelines, inspect for damage along the pipelines, and inspect inside structures to verify proper flow conditions as well as root growth. Inspectors look for tell-tale signs of leaks such as heavy vegetation growth during the dry summer season, and inconsistent flow between structures. This program was initiated in 2005 and has been successful in detecting areas in need of maintenance.

WDR ITEM 4.2.3:
REGULAR VISUAL AND CCTV INSPECTIONS OF STRUCTURES AND SEWER PIPES

OVERVIEW: STRUCTURES (MAINTENANCE ACCESS STRUCTURES)

Inspecting and identifying structures within the collection system is a vital part in keeping the system free of defects and preventing sewage spills and stoppages.

All pipe cleaning work orders (scheduled and unscheduled) require the upstream and downstream structures to be inspected and the results recorded. For structures where a condition or maintenance issue is observed, the following procedure is undertaken:

- Medium and heavy results will automatically be funneled to an inbox for the Maintenance Planner to review for follow-up action.

- Structures inaccessible during cleaning have a follow-up Work Order created the following month to return and inspect.

- Field crews sometimes come across a structure that needs additional attention, and they make notes in the Planner update comment section of their associated Work Order for review and follow-up action. In these instances, the Planner Update in the CityWorks CMMS field would be

marked YES, and these work orders are funneled to an inbox for the Maintenance Planner to review.

Spills and stoppages that are caused by structure blockages (roots, grease, paper, etc.) are logged in the departmental Spill Analysis spreadsheet, reviewed in the bi-weekly Operations Meeting, and placed on a PM schedule to prevent future issues.

STRUCTURES INSPECTION PROGRAM

Central San is also evolving its structure inspections for its large interceptor assets to a dedicated formal inspection program using visual inspection technology. The NASSCO Manhole Assessment Certification Program (MACP) defect classification system. Central San has outsourced this inspection effort to a specialized inspection contractor.

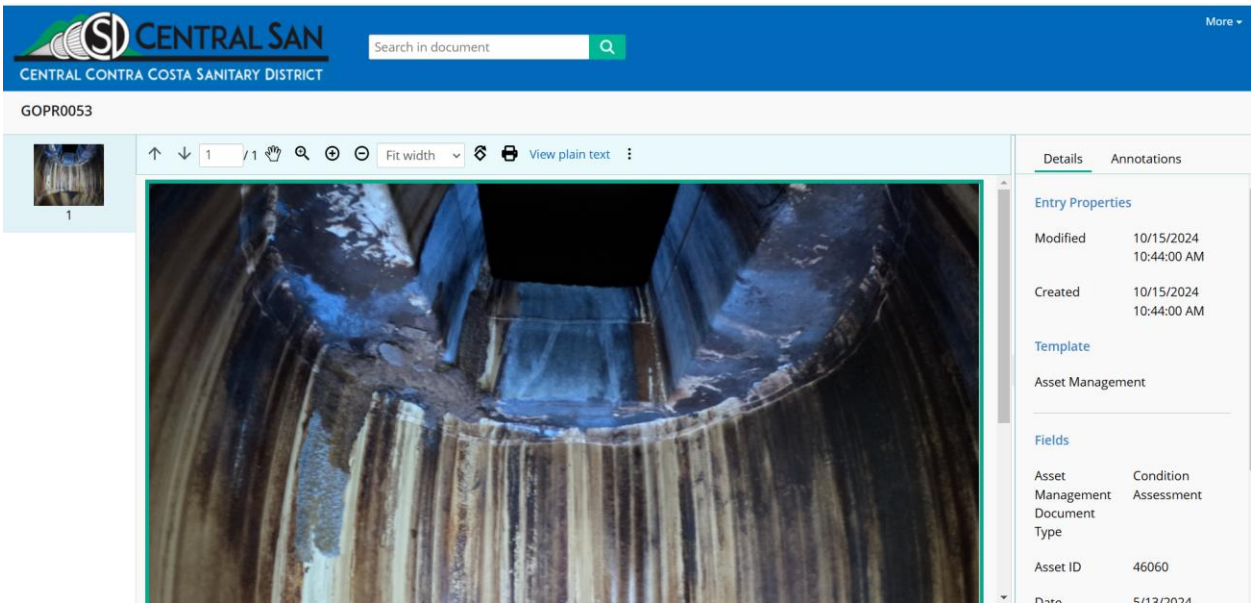


Figure 4.11: CCTV Structure Inspection Screenshot

In addition, Central San uses a dedicated geographic platform to assess and track structures for potential physical hazards to the public that may arise due to road maintenance-related issues.

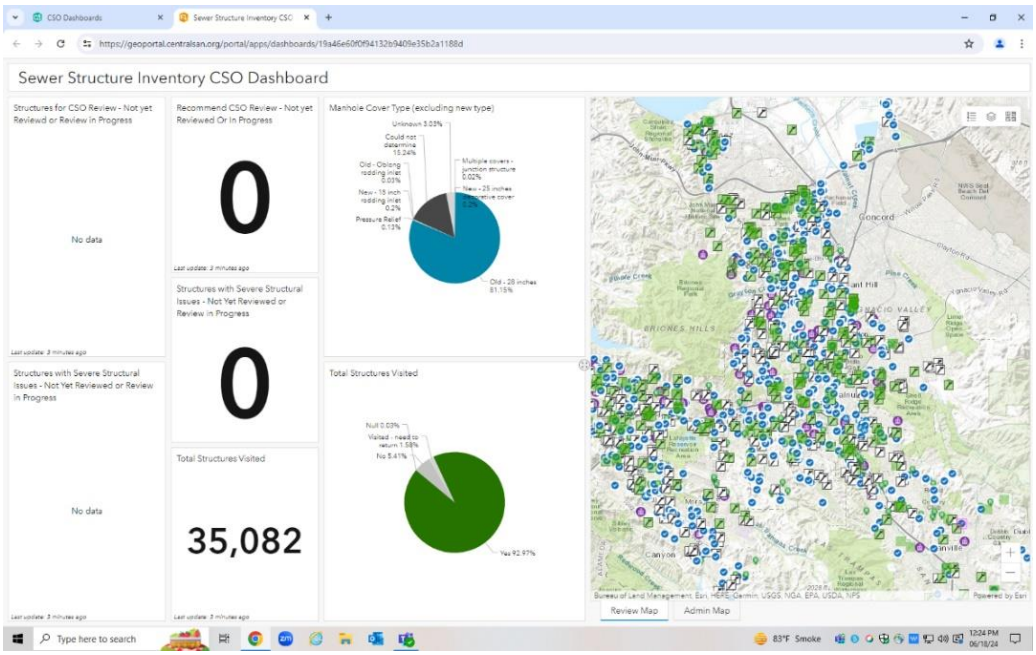


Figure 4.12: Sewer Structure Inventory Dashboard

The figure below illustrates CSO construction crews resetting a structure lid to ensure the top of the structure is flush with the repaved road surface.

Figure 4.13: – Field Crews Resetting Structure Structure Height

REMOTE STRUCTURE MONITORING

Central San has a network of remote structure level monitors that alert CSO staff to rising wastewater levels within the monitored structures. When wastewater within structures rises above the top of the sewer pipe, it indicates surcharging conditions. In such scenarios, CSO staff receive an automated alert identifying the associated structure. This early warning device provides staff the ability to quickly respond to the situation and alleviate any associated pipe blockage before an SSS occurs. Refer to Figure 4.14 for a basic overview of the system. Central San's Planning & Applied Research group also uses the remote structure level monitoring technology for validating sewer capacity and other related studies. Central San is presently using Smartcovers™ and Mission Floats™.

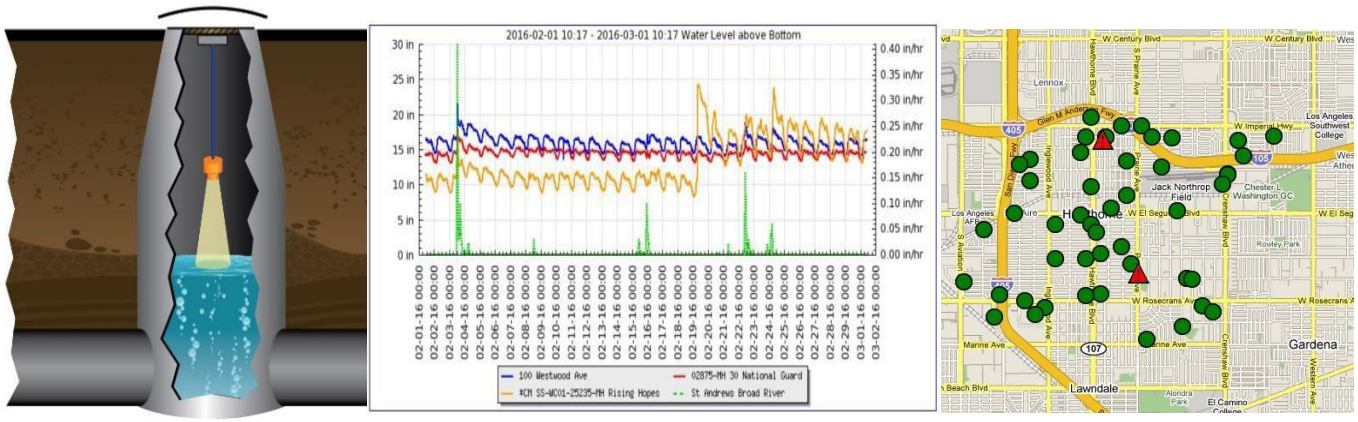


Figure 4.14: Representation of Remote Level Monitoring System in Alarm Mode

SEWER PIPES

Central San began a comprehensive CCTV inspection program for its collection system in 2002. The plan is to inspect all sewer lines by video, and structures and other structures will be visually inspected as part of the process. Central San uses a private contractor (selected by a competitive bid process) to carry out this work. Video inspection results are analyzed; sewer pipes need immediate attention, modified cleaning activities/schedules are identified, and future sewer replacements are identified.

Sewers identified for replacement are evaluated for other significant factors – maintenance accessibility, sewer capacity, sewer stoppage history, and utility/road surface renovation coordination. Pipe segments are then prioritized and organized into projects by geographic area.

Inspection schedules typically occur once every 10 years. The pipe condition is assessed using a numerical system that sums scores for each televised defect for that pipe segment.

The CCTV inspection is proof positive of existing pipe deficiencies. CSO uses CCTV information to determine the most efficient cleaning frequency and/or type of repair. By adjusting the preventive maintenance frequency, CSO can direct cleaning crews to pipelines that need cleaning the most. CCTV inspection has also prevented several spills by finding partially blocked sewers, allowing crews to clean the pipe before it becomes completely plugged.

The video is recorded in digital format, and the report and pictures of defects are accessible through GeoPortal. All data is archived and organized in a database for access.

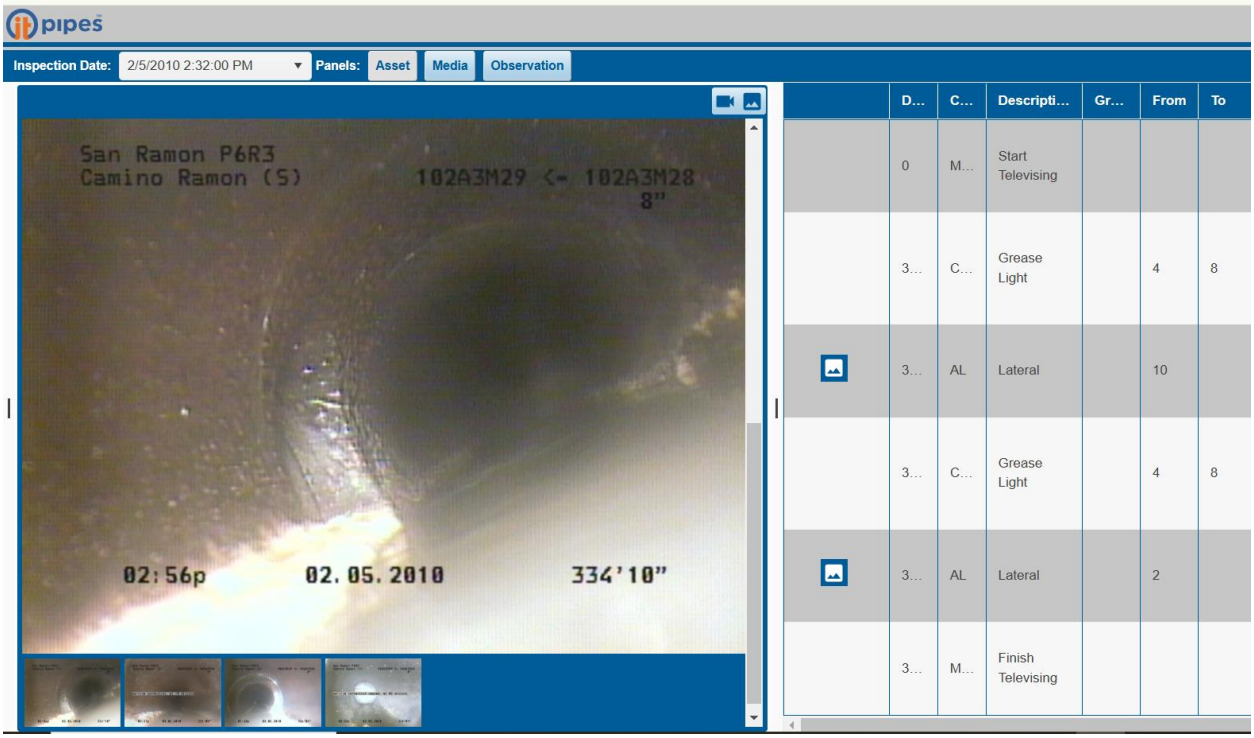


Figure 4.15: Central San's CCTV Video Capture System

In addition to the work performed by the contractor, Central San owns two trucks equipped for video inspection. These trucks inspect new installations and repairs, provide quality assurance and quality control, and assist cleaning crews.

CSO provides CCTV and maintenance data of sewers to the Engineering and Technical Services Department to determine which sewer lines are selected for renovation or replacement each year. CSO supervisors meet with Central San engineers monthly to review and prioritize collection system sewer repairs to be included in capital projects. During a project's design phase, CSO staff review the plans and provide comments to the engineers for inclusion in the final contract documents before bidding.

Central San uses IT Pipes® software for its CCTV data, which integrates with both the ESRI® GIS and Cityworks® CMMS. During this implementation, legacy data from previous CCTV software systems were migrated into IT Pipes®. The new system has a viewer plug-in that allows easy access through GeoPortal for all staff to access the CCTV data, including reports, pictures of defects, and videos.

LARGE GRAVITY PIPES AND LARGE SIPHONS

Central San has also commenced a dedicated inspection program for its larger sewer pipes (greater than 18" diameter) using high-definition imagery technology. This focused effort will further optimize Central San's condition assessment and maintenance activities for its critical larger pipes, which have different characteristics and operational considerations from the small-diameter sewer pipes. This inspection work has been outsourced to a specialized condition assessment contractor/consultant team.

SIPHONS

Central San siphons are also cleaned and inspected regularly to ensure reliable service. Where needed, Central San uses external service providers to support its own crews in this endeavor. All siphons >18 inches in diameter will be cleaned and inspected in 2025.

FORCE MAINS

Central San periodically inspects its force mains (pressurized pipes) using CCTV technology. It is also developing a dedicated inspection program to support the unique characteristics of this asset class. An external service provider will inspect the entirety of the force mains by calendar year 2029.

WDR ITEM 4.3:
TRAINING

OVERVIEW

SSMP TRAINING

CSO staff are trained quarterly on the Elements and procedures within the SSMP, including the SERP. Training consists of theory and practical exercises. A Training Log is kept for all formal training. Informal training also occurs amongst CSO staff in the form of workgroup meetings, and mentoring of new staff by experienced personnel.

COMPETENCY PROGRAM – YELLOW BOOK

Shortly after being hired, each new crew member is given a CSO-tailored training log called the "Yellow Book" because it is traditionally bound in a yellow cover. Over the years, the contents of the Yellow Book have been refined and updated as training needs change, perfecting the task checklists for each of the different CSO sections – Rodding, Hydro, Construction, CCTV/Locating, Field Ops, and On-Call. As the new crew member becomes proficient in various skills, the crew leader signs and dates the book to verify that they have observed the crew member in action and can move on to learning the next assignment. It takes approximately 18 months, the usual probationary period, for each crew member to complete their Yellow Book. During the 18-month training period, the supervisors work closely with the new employees as they rotate through the various sections.

CWEA TECHNICAL CERTIFICATION

During their initial probation period, the crew members must pass the CWEA Technical Certification Program (TCP) Grade I examination and obtain a Class A driver's license. We provide training in-house to assist them in both these efforts as well as pay for and send them to CWEA TCP preparation classes. Our driver training class for new employees is based on the Teamsters' model, and our "students" have a 100% success rate in taking and passing the California Commercial Driver test.

WDR ITEM 4.3.1:
GENERAL ORDER REQUIREMENTS

OVERVIEW

The California Steate Water Resources Control Board has a collaborative agreement with the California Water Environment Association (CWEA) titled: *Memorandum of Agreement between the California State Water Resources Control Board and the California Water Environment Association - Training Regarding Requirements Set Forth in Statewide General Waste Discharge Requirements for Saintary Sewer Systems.*

The Memorandum sets forth collaborative training necessary for regulated sanitary sewer system personnel to operate and maintain a well operating system and to ensure compliance with statewide sewer system regulations.

CENTRAL SAN COMPLIANCE

All Central San Collection System Operations staff are required to undergo CWEA training and certification programs to achieve associated sewer system qualifications necessary for compliance with the General Order Requirements. In addition, all staff are encouraged to pursue the highest level of CWEA certification, Grade IV. In addition to participating in CWEA training, Central San Collection System staff participate in in-house training to complement and expand their knowledge and competency.

Central San's in-house training program consists of both introductory and continuing education on the topics of health, safety, and O&M activities. Training is customized to serve the different needs of Central San's workers and is provided by both Central San staff and consultants. The training program has the following basic structure.

- New Employee and Contractor Orientation
- Refresher Training Programs
- Special Training Sessions
- Tailgate Training Sessions
- Emergency Response Training
- Emergency Operations Center Training
- Training Records

EMPLOYEE AND CONTRACTOR ORIENTATION

Employees and contractors who work on Central San projects receive training on safety topics to provide orientation, information on safe work practices, and background on Central San's Safety Program. The following outline lists the course subjects. Appropriate items from the outline are selected for the orientation based on the job requirements:

- District Safety Policy & Responsibilities
- New Employee Plant Orientation

- Unique Hazards
- Methane & Hydrogen Sulfide
- General Safe Work Practices
- Personal Protective Equipment
- Respirators
- Hard Hats
- Eye & Face Protection
- Safety Shoes
- Hearing & Body Protection
- Emergency Evacuation Procedure
- Fire Evacuation
- Safety Directives and Safety Directive Quiz
- Accident Prevention and First Aid
- Hazard Communication Standard (Hazardous Materials/Material Safety Data Sheets)
- District Smoking Policies
- Confined Space Training and Rescue Exercise
- First Aid
- Asbestos
- Cardio Pulmonary Resuscitation

ADDITIONAL TRAINING TOPICS

MANDATORY TRAINING TOPICS

CSO staff have the following mandatory training schedule:

- SSMP Training
- Excavation/Competent Person
- Traffic Control/Flagger Training
- SCBA/Confined Space Training
- Driver Commentary Training
- SERP

SPECIAL TRAINING TOPICS

Special topics are presented to employees on an as-needed basis. An employee's supervisor or Central San Safety and Risk Management team may determine what type and amount of training may be appropriate for an individual employee based on their work tasks, previous training, and projected work tasks. These topics vary each year but are represented by the following list:

- Respirator Care and Use
- Hazard Communication
- Ladder Safety
- Electrical Safety – Lock Out Tag Out
- Forklift/Heavy Equipment
- Ergonomics

- Cranes and Rigging
- Emergency Preparedness Drill
- Personal Protective Equipment
- Fire Drill
- Fire Extinguisher Safety
- Heat Illness Prevention
- Bloodborne Pathogens
- Hearing Testing

TRAINING SESSIONS

REFRESHER TRAINING

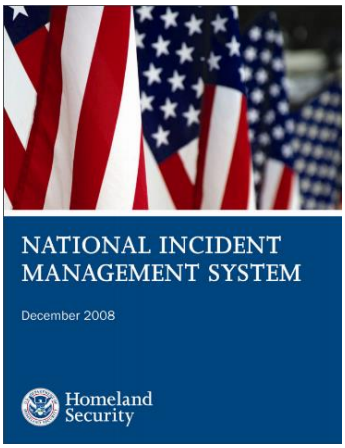
Central San employees receive periodic refresher training such as respiratory protection training, emergency response/evacuation training, and others as necessary. Refresher sessions are provided on topics when new materials or processes are added to the workplace or new regulatory requirements or hazards are identified. Ongoing refresher training is an essential element of Central San's training program.

TAILGATE TRAINING SESSIONS

Tailgate training sessions are provided at the plant, pumping stations, and remote jobsite locations to prepare crews for specific jobs and are a part of the ongoing safety training program. These sessions are logged and documented in the field. A representative list of these training sessions is included below:

- Confined Space Hazards
- Materials Handling Safety
- Hydrogen Sulfide Control
- Storage and Use of Chemicals
- Occupational Safety and Health Administration (OSHA) Asbestos Standard
- Permissible Exposure Limits
- Exposure to Hazardous Materials
- Material Safety Data Sheets

EMERGENCY RESPONSE TRAINING



Central San maintains an ongoing emergency response training program to ensure both field operations staff and management can respond to local and regional disasters. The program focuses on California's Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS) compliance, coordination with other agencies, interoperable communications, and proper documentation.

Training activities include practical exercises and training within the Operations Department (treatment plant and collections systems), damage assessment team exercises and training, emergency communications protocols and training on how to use various communications tools, joint or shared training with other agencies in the area, and training on Common Operating Picture systems.

CSO holds quarterly SERP training that is led by the Field Operations Superintendent, and includes specific hands-on training scenarios to ensure field crews are competent in responding to emergencies.

In addition, each year Central San conducts an Emergency Operations Center (EOC) exercise, which is led by the Risk Management team and a specialized consultant. The EOC training is to support Central San in responding timely and efficiently to regional emergencies that may impact its services to the community.

TRAINING RECORDS

Central San training records are kept on file for each employee. Additionally, a training database is maintained to review employee qualifications and add or modify training requirements for individual employees.

CONTRACTOR AND PLUMBER OUTREACH

Central San's outreach program consists of job site interaction between inspectors and contractors and outreach materials sent by mail. Contractors and plumbers living in Central San receive *The Pipeline*, a newsletter sent to all customers. Every issue provides valuable information on how customers can make Central San's operations run more smoothly.

Contractors and plumbers who work in Central San's service area must register with Central San. This registration list is used to send mailings to them whenever the Standards and Specifications or Central San Code are changed or there is a need to notify them of some other revision or concern. Central San keeps contractors and plumbers updated on current Best Management Practices (BMP) through these contact methods.

Central San has identified building demolition as a potential source of SSS because the contractors may not cap the sewer lateral cleanout during the demolition, and foreign material entering there may cause a blockage. Central San is establishing communications with city and county building departments to confirm their awareness of the importance of these caps and to ensure that the potential for these spills is minimized.

Capital Project contractors are provided training and specific communication procedures should they encounter an emergency. Contractors are trained in spill containment, site security, and notification procedures. Contractors are directed to call CSO dispatch immediately so CSO staff can provide appropriate response, clean-up, and documentation of a spill.

Refer to Element 11 for further information on Central San's outreach activities.

ORIENTATION

One of the unique challenges Central San has faced is the influx of new employees into field positions. Central San has developed an orientation and training process to give them the tools, knowledge, and safety awareness they need to succeed at CSO. Central San developed an in-house, CWEA award-winning video that gives an overview of the tools used in rodding and hydro work, showing each tool's functionality.

Central San has also developed an orientation program covering the fundamental administrative issues, behavior guidelines, and general safety policies that new employees need to be aware of before working in the field. The CSO Employee Training Matrix, which outlines required safety training for each job classification, works in conjunction with Central San's Training Database to track the employees' progress as they complete various training modules.

WDR ITEM 4.3.2:
SPILL EMERGENCY RESPONSE PLAN PROCEDURES AND PRACTICE DRILLS

OVERVIEW

Central San staff are regularly trained to ensure all crew members are competent in spill emergency response plan procedures.

Central San provides spill response training to staff using demonstration training facilities at the CSO Facility in Walnut Creek. Combining theory and practiced practical application of the theory ensures that staff develop competency in responding to different potential spill scenarios using Central San's variety of available equipment to support spill responses.

Utilizing demonstration facilities ensures that staff are trained in scenarios that are representative of situations they may confront in the field during a spill response while in a safe and controlled training environment.

Staff training not only supports the development of technical proficiency but also the development of effective communication practices consistent with the SERP, promotes team effectiveness, and timely responses in actual spill events. Central San's Field Superintendent leads and oversees all SERP-related training activities.

Central San's comprehensive training includes various scenario trainings at its CSO facility which include numerous topics, including but not limited to:

- SERP manual competency
- Spill response methodologies
- Spill sampling
- Spill estimation using an on-site spill simulator platform
- Creek spill containment
- Spill clean-up
- Equipment selection and use, including
    - Victaulic pipe set up
    - Creek dam set-up
    - Gorman-Rupp pumps
- Confined space entry procedures
- Bypass pumping procedures

Central San maintains two types of emergency plans to reduce the risk and consequences of such occurrences:

a) Spill Emergency Response Plan (SERP)
b) Pumping Station Emergency Response Plan (PSERP)

Central San's Spill Emergency Response Plan is implemented quarterly through recurring classroom and practical training. All Contractors are instructed to call Central San's CSO Superintendent (or Emergency hotline) to report any spill caused by their activities, regardless of size. CSO response crews will then be dispatched to the scene and respond per the SERP. Further information on the SERP can be found in Element 6 of this SSMP.

WDR ITEM 4.3.3:
SKILLED ESTIMATION OF SPILL VOLUME FOR FIELD OPERATIONS

OVERVIEW

Central San has its own on-site, in-house Spill Volume Estimation simulator training facility at its Walnut Creek facility. This simulator helps train the crews in estimating the spill rate so they can calculate the amount of wastewater spilled. The simulator helps crews learn to estimate flow rates under many different spill conditions. Central San also designed the simulator to be green, with water from the simulator flowing down the drive into a biofiltration swale system. The simulator received an Innovation of the Year award.

Staff are trained twice per year on the simulator. The training operator can adjust the flow to a wide range of possible flow scenarios, allowing staff to observe flow and spill volume estimation accurately.

The simulator has proven to be a valuable tool for Central San and our neighboring agencies. A permanent, on-site spill simulator makes scheduling training much more flexible and convenient. This valuable tool helps estimate spills much quicker and assists the crews' learning curve on spill rates for new and seasoned employees.

Figure 4.16: Spill Estimation Simulator and Containment Dam Deployment at CSO Facility

CSO has also taken photos of various flow rates spilling from various structures, including different types of structure covers. This information can be used by field staff to estimate the flow rate of the spill in gallons per minute.

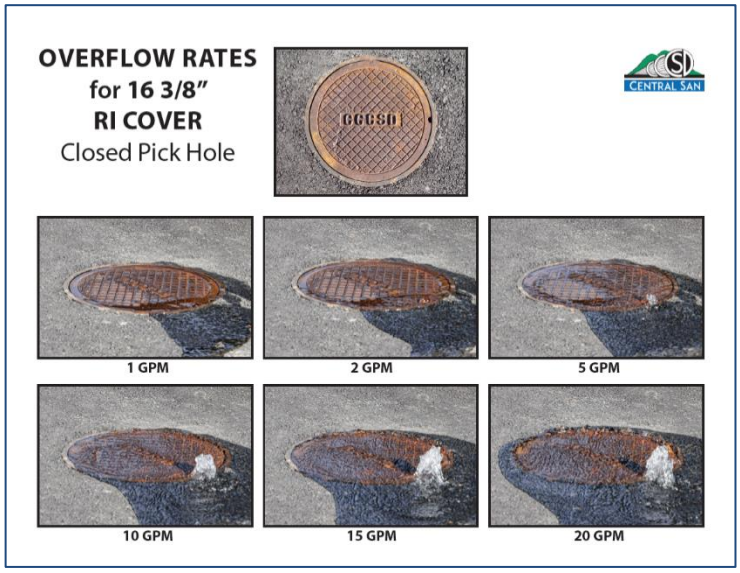


Figure 4.17: Laminated Spill Flow Diagram Example

Figure 4.18: Victaulic Pipe Coupling Training Exercise

WDR ITEM 4.3.4:
ELECTRONIC CIWQS REPORTING PROCEDURES FOR STAFF SUBMITTING DATA

REPORTING

Central San Supervisors are all trained in CIWQS data entry reporting procedures. CSO has five (5) designated CIWQS data submitters and one (1) Legally Responsible Official (LRO).

In addition, Central San has a supervisor who is designated as a lead CIWQS data-entry person. This Supervisor provides training and support to other CSO staff on CIWQS.

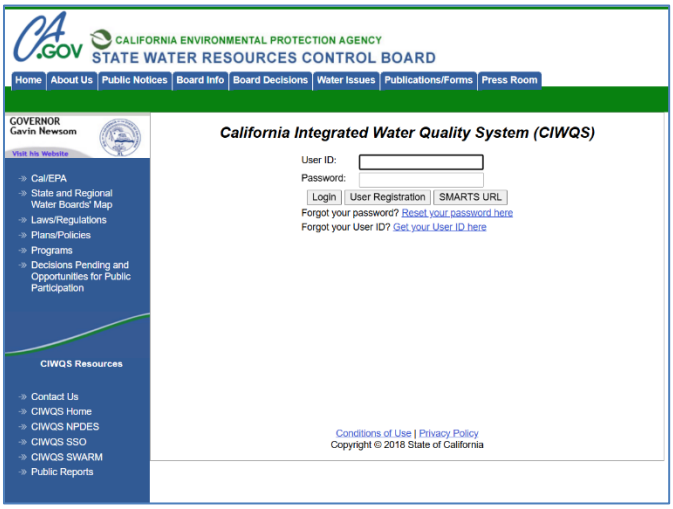


Figure 4.19: CIWQS Home Page

WDR ITEM 4.4:
EQUIPMENT INVENTORY

EMERGENCY EQUIPMENT

CSO maintains several emergency response vehicles as well as Hydrovac Combination trucks, Rodding trucks, and CCTV trucks. Collections system maintenance equipment and emergency equipment are in the Walnut Creek location, which is centrally located in Central San's service area to provide an efficient emergency response.

When an emergency call is received during normal working hours, the closest crew is dispatched to the emergency location, and a maintenance supervisor is informed of the specifics of the emergency. During non-working hours, there is a crew on standby 24 hours a day, every day of the year, ready to receive the call. Crew members are assigned on-call vehicles and tablets.

The on-call vehicles are pickup trucks that are equipped with the necessary equipment to perform routine sewer maintenance and investigations. If the situation requires a Hydrovac or Rodding truck, one crew member will pick up the piece of equipment in Walnut Creek while the other crew member drives directly to the site. The iPad contains systems maps, as-built drawings, maintenance history, and CCTV inspection data, which may be used to determine the cause of spills or stoppages.

If it is determined that additional crews or equipment is needed, the crew member relays this information to his supervisor, and additional crews are dispatched to the emergency. The additional crews are instructed to transport any additional equipment to the spill site as needed. The equipment consists of:

- Vactor Combination Trucks
- Vactor Jetter Trucks
- Champion Rodding Trucks
- CUES CCTV Trucks
- Bypass Pump Van
- Confined Space Entry Van
- 6" Gorman Rupp Portable Pump
- Bypass Pipe Trailer
- Laboratory Water Sampling Kit and Chain of Custody Forms

The purpose of these emergency vehicles and equipment is to restore flow and repair the damage in the pipe quickly. The Spill Emergency Response Plan and the Pumping Station Spill Response Plan describe how to use these vehicles to react to a spill event. Because system problems range from simple plugs to complex pipes or pumping equipment failures, not all vehicles are used in every situation.

CSO maintains a material warehouse for repairs in Walnut Creek. In addition, each pumping station maintains an inventory of spare parts such as belts, hoses, and other critical components. Pumps and other equipment are standardized whenever possible to optimize emergency response efficiency.

Central San's confined space vehicle (Figure 4.20) carries all the necessary equipment to safely enter the sewer system, including tripods and retrieval equipment. CSO staff are trained for confined space entry and rescue.

Figure 4.20: Confined Space Entry Van

Central San's emergency pump vehicle (Figure 4.21) carries various pumps ranging from two to four inches, as well as intake and discharge hoses, and Victaulic couplings. This equipment can be used to bypass failed pumping stations or areas of the collection system that are blocked/failed and cannot be quickly cleared.

Figure 4.21: Emergency Pump Truck

Central San's construction vehicle (Figure 4.22) carries tools, equipment, and parts needed for spot repairs and other construction emergencies. Central San also has two backhoe excavators and dump trucks in its inventory for repair work.

Figure 4.22: Construction Vehicle

Central San's emergency response pipe trailer (Figure 4.23) carries 20-foot sections of 6-inch aluminum pipe for emergencies. The trailer also carries street crossing equipment and flexible intake and discharge hose.

Figure 4.23: Emergency Response Pipe Trailer

Figure 4.24: CCTV Van

Central San's large pumping stations have emergency equipment on site ready to go, such as emergency bypass pumps (Figure 4.25). Other trailer-mounted equipment, such as portable generators, are kept ready to go at the Pumping Stations' Corporation Yard at the Martinez campus.

Figure 4.25: Portable Emergency Bypass Pump at Martinez Pumping Station

Central San currently owns two trailer-mounted Cornell pumps and two trailer-mounted Gorman-Rupp pumps (Figure 4.26) for bypass pumping.

Figure 4.26: Gorman-Rupp Bypass Pump at CSO

WDR ITEM 4.4:
PARTS INVENTORY

The Materials Services Group, located in Martinez, maintains the replacement part inventory for assets and equipment, except for vehicles, which is maintained in the financial system (Oracle). The Materials Services Group purchases replacement and spare parts and tracks discrete items in its inventory. Spare parts are stored in a 6,000-square-foot warehouse at the treatment plant in Martinez, the CSO warehouse in Walnut Creek, and locally at pumping stations. Operations staff collaborate with the Materials Services Group to adequately stock spare parts and identify the maximum on-hand and the minimum reorder points.

Spare parts kept at the CSO warehouse include the items in Table 4.2 below. In addition, Central San's Vehicle and Equipment Shop, located at CSO in Walnut Creek, performs maintenance on 103 vehicles and other CSO equipment, which range from backhoes to small generators, and maintains their warehouse with spare parts.

Table 4.2: CSO Warehouse Equipment Summary

Vehicle Type	Tooling
Vactor Combination and Jetter Trucks	Reels of hose, leader hose, various spare nozzles, hose splicing machine plus fittings
Champion Rodder Trucks	Continuous rod, various cutting blades
CCTV Trucks	Redundancy provided with two (2) CCTV Trucks
Construction	Pneumatic plugs sizes 4" – 36", Couplings for various materials sizes 6" – 18", Various materials of pipe sizes 6" – 18", Aluminum hydraulic shores, Mini-cams, CIPP repair kits, Grade rings (metal and concrete rings), Castings, covers, Quick set AC patch, ¾" Class II Aggregate Base, ¾" crushed rock, Various traffic signage, Generators, (10) Light towers, Trash pumps (9) Submersible pumps (6) 6" Bypass pump (2) Plywood

A complete list of parts that are at the Walnut Creek CSO Facility that can be used in emergencies is located in Appendix C – Available Parts Inventory. CSO can also call upon the Treatment Plant Operations Materials Warehouse if needed.

SSMP ELEMENT 5:
DESIGN AND PERFORMANCE PROVISIONS

WDR REQUISITES

5. DESIGN AND PERFORMANCE PROVISIONS: *The Plan must include the following items as appropriate and applicable to the Enrollee's system:*

5.1 Updated Design Criteria and Construction Standards and Specifications:

Updated design criteria and construction standards and specifications for the construction, installation, repair, and rehabilitation of existing and proposed system infrastructure components, including but not limited to pipelines, pump stations, and other system appurtenances. If existing design criteria and construction standards are deficient in addressing the necessary component-specific hydraulic capacity as specified in section 8 (System Evaluation, Capacity Assurance, and Capital Improvements) of this Attachment, the procedures must include component-specific evaluation of the design criteria.

5.2 Procedures and Standards:

Procedures, and standards for the inspection and testing of newly constructed, newly installed, repaired, and rehabilitated system pipelines, pumps, and other equipment and appurtenances.

CENTRAL SAN COMPLIANCE

WDR ITEM 5.1:
UPDATED DESIGN CRITERIA AND CONSTRUCTION STANDARD SPECIFICATIONS

Central San's design criteria include:

- Standard Specifications
- Standard Drawings
- Approved Materials List

The above documents can be found on the centralsan.org website.
In addition, hydraulic performance criteria are integral to Central San's standards. Hydraulic criteria include:

- Capacity deficiency criteria, which identify if sewer pipes or pumping stations need additional hydraulic capacity.
- Design criteria, which determine the size needed for the new sewers or facilities.

HYDRAULIC CRITERIA - PIPES

Hydraulic criteria are defined in terms of percent full pipe capacity and amount of allowable surcharge, referenced to Central San's 10-year design event peak wet weather flow (PWWF). For Central San, sewers are considered deficient and in need of capacity relief if any of the following conditions are predicted:

- Any pipe segment surcharges during Peak Dry Weather Flow
- Any surcharges resulting in less than 5 ft of freeboard (distance between ground and water surface in access structures) during the 10-year design event PWWF

HYDRAULIC CRITERIA – PUMPING STATIONS

Pumping stations are considered capacity deficient if the peak design flow exceeds the station's established reliable capacity. Reliable capacity is defined as the capacity of the station with the largest electric pump out of service during an electrical utility power outage. Pumping stations will be considered capacity deficient if the 10-year event PWWF exceeds the station's reliable capacity.

DESIGN CRITERIA – RELIEF SEWERS

The hydraulic design of relief sewers (sewers required to address capacity deficiencies) in the existing sewer system is based on Central San's design standards. The hydraulic design criteria for gravity relief sewers are:

- Minimum pipe diameter of 8 inches.
- Mannings 'n' = greater of 0.013 or pipe manufacturer's recommendation.
- Gravity pipe slope to provide a minimum velocity of 3 feet per second (fps) for main sewers (8" and 10" diameter pipes with sewer connections), and 2 fps for trunk sewers (12" and larger diameter) at full pipe flow.
- Capacity such that maximum d/D is 0.67 for main sewers and 1.0 for trunk sewers at peak design flow.
- Minimum pipe cover of 6 feet, with exceptions based on pipe material, size, and location.
- Force mains (pressurized sewer pipes) maximum velocity of 10 fps

STANDARD SPECIFICATIONS

Central San has published minimum design and construction standards for the use of customers, contractors, and engineers since 1956. The title of the document is “Standard Specifications for Design and Construction (Standard Specs)”. The legal authority for this document comes from the following section of Central San’s Code.

9.08.010 Planning, design and construction.

Sewers that are intended for dedication to Central San as public sewers shall be planned, designed, constructed, installed and repaired in accordance with this code and Central San's Standard Specifications for Design and Construction (referred in this code as "standard specifications"). The standard specifications shall be established and may be amended from time to time by ordinance and kept on file with Central San Secretary in an uncodified manner. The use of any sewer facility connected to Central San system that fails to comply with the standard specifications applicable at the time of its connection to Central San sewer facilities constitutes a danger to human health and safety, public and private property and the environment, and shall be considered a public nuisance.

(Ord. 253 § 1(Exh. A(part)), 2008)

Future revisions to the Code will occur as needed. Whenever a section or the entire document is modified, a letter is sent to all engineers and contractors who are registered with Central San.

The Standard Specs govern requirements for the design and all work regarding sewer construction and/or projects financed by private individuals within the jurisdiction of Central San in Contra Costa County, California.

The Code and all ordinances of Central San are considered a part of these Specifications. All plans, profiles, cut sheets, right-of-way documents, and specifications must conform to the established standards and requirements.

The jurisdiction of Central San includes the entire sewerage system and its appurtenances from the point of connection with the building plumbing to the discharge terminus of the treatment plant outfall. Ownership and maintenance of the building lateral to the point of connection with the sewer main is the property owner's responsibility.

Central San’s latest Standard Specifications and Approved Materials documents can be found online at:

https://www.centralsan.org/standard-specifications-and-approved-materials

The following is a list of the section titles in the 2022 Edition of the Central San Standard Specifications document:

Part I. General Requirements
Part II. Private Sewage Disposal Systems
Part III. Public Sewer Collection Systems

Part IV. Recycled Water Distribution System
Part V. Construction Requirements
Part VI. Technical Specifications
Part VII. Standard Drawings
Part VIII. Glossary
Part IX. Index

These standards ensure that infrastructure built in Central San's service area will conform to accepted practices and that equipment will operate properly. Ensuring that new pipelines constructed during new development projects adhere to Central San specifications is of primary importance because the developer is often responsible for constructing new sewer mains and then dedicating them to Central San upon project completion.

Central San must ensure that the new infrastructure will not cause any short-term or long-term operational problems once Central San has ownership of the collection assets. Adherence to the Standard Specs supports this aim. Project plans must be approved by Central San prior to issuance of a construction permit.

CENTRAL SAN PROJECTS

Central San projects, also known as capital projects, are construction or rehabilitation projects on District-owned facilities. These projects are managed by staff and are funded by Central San.

STANDARD SPECIFICATIONS

The Standard Specs are used as guidelines for Central San's projects and variance from these requirements may only be allowed when existing conditions prevent conformance to the Standard Specs and when such variance is deemed permissible. Such conditions include existing underground facilities and elevations of connection points to the existing sewer system, among others. In cases where materials and construction techniques not covered in the Standard Specs are used, Central San engineers use their best engineering judgment to approve or develop the design of the new/replacement sewers and pumping stations.

Central San uses standard General Conditions and project-modified Special Conditions and Technical Specifications for bidding and constructing Central San projects. Where there is a need to deviate from the Standard Specifications, Central San has a Special Approvals process to review and consider exceptions based on specific project circumstances.

Prior to the expiration of project warranty periods, Central San reviews each installation to re-verify that the infrastructure is performing as specified in the project documents.

Central San sewer projects may be designed by staff or by consultants. They are typically reviewed at the 10%, 50%, 95%, and 100% design completion level. Staff also conducts a scope check with CSO between 30%-50% of the design phase to ensure that all operational issues are addressed. In addition, prior to public bidding of each project, a Design Acceptance Meeting is held with the CSO and Capital Projects staff as a final quality assurance process. Construction of Central San sewer projects is managed and inspected by staff or contract staff.

Central San staff participate in local and national professional associations to ensure they are current with industry trends and developments on Standard Specifications. These associations include:

- California Association of Sanitary Agencies
- California Water Environment Association
- Bay Area Clean Water Association
- American Society of Civil Engineers

The CentralSan.org website provides the public with our Standard Specifications, Standard Drawings details, and Approved Materials List. These documents are periodically reviewed and updated by Central San's Legal Counsel. The latest version can be found on Central San's website.

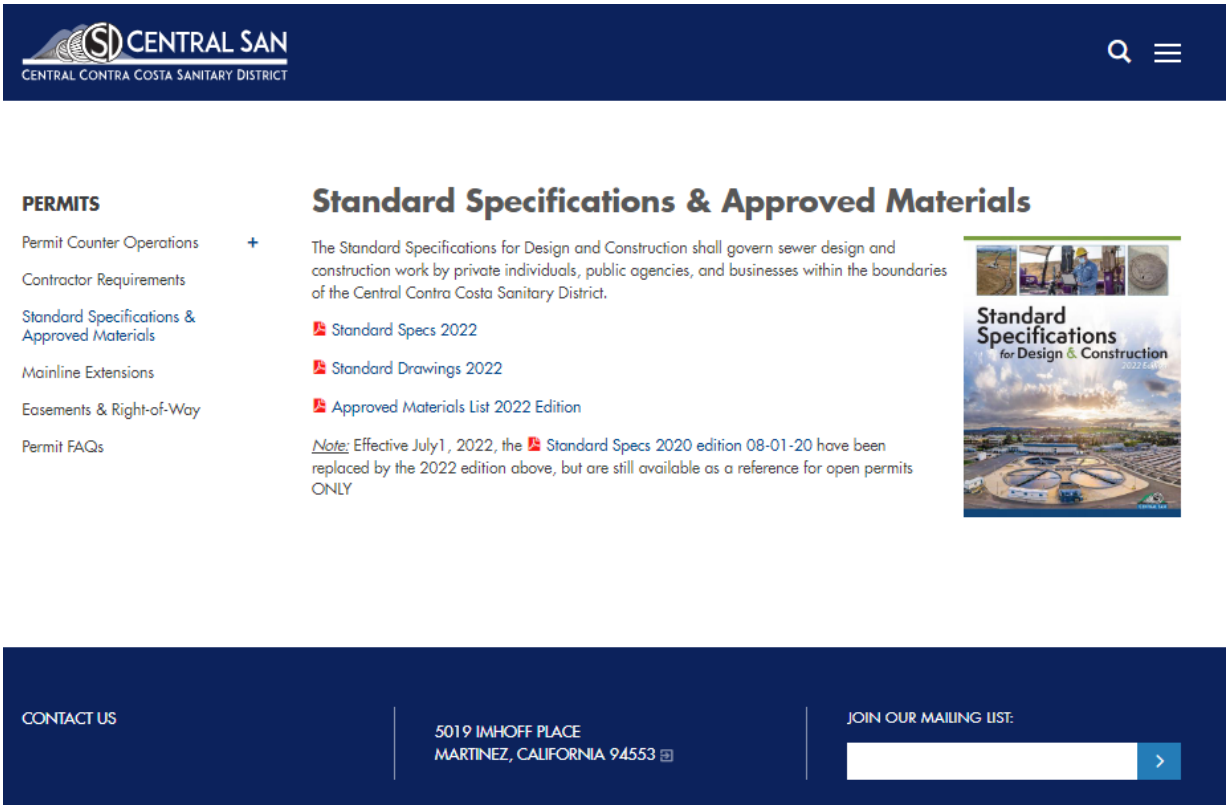


Figure 5.1: Central San Standard Specifications Web Resources Page

COLLECTION SYSTEM PROJECTS

All the construction projects performed by CSO Staff consist of spot repairs in pipe segments and structure repairs/replacements. The typical length of these spot repairs is six to ten feet. CSO staff relies on Central San Standard Specifications for Design and Construction of all projects.

CSO projects use the same design and construction standards as Developer and Central San projects.

WDR ITEM 5.2:
PROCEDURES AND STANDARDS – Pipelines, Pumps and Appurtenances

DEVELOPER AND CENTRAL SAN PROJECTS

PROCEDURES AND STANDARDS FOR INSPECTING AND TESTING SEWERS

All plans for sewer projects are reviewed for compliance with Central San design standards at several points before construction. At least two preliminary and final reviews occur before a construction permit is issued. Cut sheets are prepared by the developer's engineer and reviewed by Central San staff during the final plan review. The designed pipeline is staked in the field. The cut sheets are compared to the construction stakes in the field.

Inspectors use Central San's Standard Specs, Code, approved project plans, the permit, and the construction contract as the basis for inspection. Sewer projects are inspected during construction to determine the quality and acceptability of materials furnished, work performed, and manner of construction performance.

The following Central San standard specifications detail requirements and procedures for pipe cleaning and testing of newly constructed sewers:

- 02148 Pipe Cleaning
- 02730 Sanitary Sewer System Testing

The permit states that it is the contractor's responsibility to arrange for timely inspection throughout the project and to coordinate with Central San staff. Central San inspects and approves work in accordance with Standard Specs Section 11, "Control of the Work" and Section 15, "Technical Specifications." Inspection occurs during the construction project and prior to the end of the contractor's one-year warranty period.

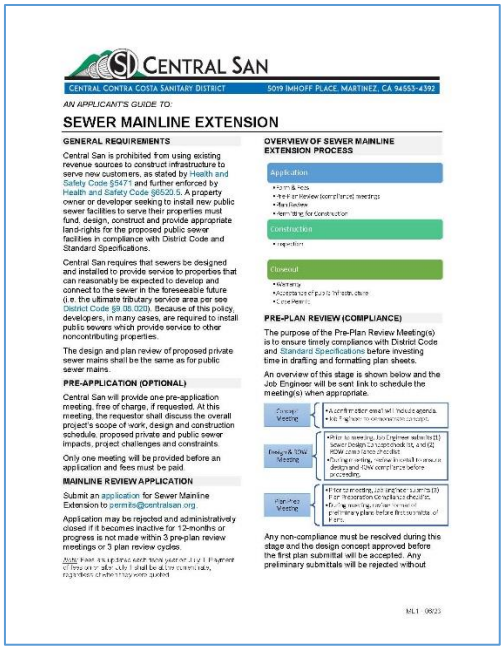
During construction, a Central San inspector will inspect the construction of a developer sewer on a regular basis. During critical construction sequences, a Central San inspector is always present, and inspection reports are prepared daily.

After trench backfilling and before final acceptance of sewer projects, all sewers are inspected by CCTV, and for new sewer installation, a low-pressure air test is conducted. Results of the test are recorded in an associated Pipe Testing Report and signed off on by both the Central San Inspector and the project contractor. After the sewer is inspected, a one-year warranty period begins. When the warranty is about to expire, the line is re-televised to determine if any defects are present. Construction files are archived following the completion of the projects.

PROCEDURES FOR MAINLINE EXTENSIONS

Central San's procedures form an integral component of ensuring sewers are designed and constructed in conformance with Central San's standards. Central San's website hosts many resources for the public, including Central San's mainline extensions web resources which include guidance documents, checklists, and step by step procedures for mainline extensions.

Figure 5.2: Central San Web Resources Page for Mainline Extensions



CENTRAL SAN

CENTRAL CONTRA COSTA SANITARY DISTRICT 5019 IMHOFF PLACE, MARTINEZ, CA 94553-4392

AN APPLICANT'S GUIDE TO:

SEWER MAINLINE EXTENSION

GENERAL REQUIREMENTS

Central San is prohibited from using existing revenue sources to construct infrastructure to serve new customers, as stated by Health and Safety Code §5471 and further enforced by Health and Safety Code §6520.5. A property owner or developer seeking to install new public sewer facilities to serve their properties must fund, design, construct and provide appropriate land-rights for the proposed public sewer facilities in compliance with District Code and Standard Specifications.

Central San requires that sewers be designed and installed to provide service to properties that can reasonably be expected to develop and connect to the sewer in the foreseeable future (i.e. the ultimate tributary service area per see District Code §9.08.020). Because of this policy, developers, in many cases, are required to install public sewers which provide service to other noncontributing properties.

The design and plan review of proposed private sewer mains shall be the same as for public sewer mains.

PRE-APPLICATION (OPTIONAL)

Central San will provide one pre-application meeting, free of charge, if requested. At this meeting, the requestor shall discuss the overall project's scope of work, design and construction schedule, proposed private and public sewer impacts, project challenges and constraints.

Only one meeting will be provided before an application and fees must be paid.

MAINLINE REVIEW APPLICATION

Submit an application for Sewer Mainline Extension to permitx@centralsan.org

Application may be rejected and administratively closed if it becomes inactive for 12-months or progress is not made within 3 pre-plan review meetings or 3 plan review cycles.

OVERVIEW OF SEWER MAINLINE EXTENSION PROCESS

Application

Construction

Closeout

PRE-PLAN REVIEW (COMPLIANCE)

The purpose of the Pre-Plan Review Meeting(s) is to ensure timely compliance with District Code and Standard Specifications before investing time in drafting and formatting plan sheets.

An overview of this stage is shown below and the Job Engineer will be sent link to schedule the meeting(s) when appropriate.

Any non-compliance must be resolved during this stage and the design concept approved before the first plan submittal will be accepted. Any preliminary submittals will be rejected without

Figure 5.3: Central San Mainline Extension Online Guide Excerpt

PROCEDURES AND STANDARDS FOR INSPECTING AND TESTING OF PUMPS

Private Individual Lot Pumping Systems

Contractors shall comply with the requirements of Central San's Standard Specifications, Section 33 32 26 – Individual Lot Pumping Systems, and the approved manufacturer's specifications for pumps.

District Pumping Station Pumps

Pumps are required to be installed in accordance with the manufacturer's recommendations. Manufacturer's installation and commissioning engineers and factory-trained and certified personnel specifically trained in the installation and commissioning of the equipment are required to assist Contractor's in the installation and commissioning of pumping and related equipment. The manufacturer is required to state in writing the installation is in accordance with the manufacturer's recommendations.

Contractors must submit a field test procedure that has been reviewed by the pump manufacturer, for approval, before testing. In addition, the manufacturer's field service engineers are required to inspect the installation prior to startup and provide the Contractor with a list of any corrections or adjustments necessary. Startup may begin only when the Contractor has made any necessary corrections to the installation and the manufacturer's engineer certifies the installation is correct and ready for operation by Central San.

In addition, all equipment, products, and their installation shall be in accordance with the latest editions of the following standards, as applicable, and as specified in each Section of these Specifications:

- American Hydraulic Institute
- Anti-Friction Bearing Manufacturers Association
- Factory Mutual Engineering Corporation
- National Electrical Manufacturers Association
- Underwriters Laboratory

PROCEDURES AND STANDARDS FOR INSPECTING AND TESTING OF APPURTENANCES

Appurtenances are required to be in conformance with the associated project specifications and installed in accordance with the manufacturer's written instructions and as shown on Contract Documents. For valves, all valves are required to be factory tested prior to shipping to the project site, and testing is required to be in accordance with the Manufacturer's Standardization and the Valve and Fittings Industry Standard MSS-SP (latest edition).

SSMP ELEMENT 6:
SPILL EMERGENCY RESPONSE PLAN

WDR REQUISITES

The Plan must include an up to date Spill Emergency Response Plan to ensure prompt detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The Spill Emergency Response Plan must include procedures to:

6a Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;

6b Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;

6c Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;

6d Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;

6e Address emergency system operations, traffic control and other necessary response activities;

6f Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;

6g Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;

6h Remove sewage from the drainage conveyance system;

6i Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;

6j Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;

6k Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;

6l Conduct post-spill assessments of spill response activities;

6m Document and report spill events as required in this General Order; and

6n Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

CENTRAL SAN COMPLIANCE

Beginning December 1, 2004, Central San was required to report spills in accordance with the San Francisco Bay Regional Water Quality Control Board (RWQCB) online reporting system. Central San also maintains an internal database of all spills to track system performance. As of May 2, 2007, Central San began reporting spills to the State's electronic reporting system (CIWQS), as required by State Board Order No. 2006-0003. The present Spill Emergency Response Plan (SERP) requirements are included in the Statewide Waste Discharge Requirements for Sewer Systems – Order WQ 2022-0103-DWQ (WDR), dated December 6, 2022.

CENTRAL SAN EMERGENCY PREPAREDNESS

While the WDR's focus is on emergency sewer spill response, it is critical that utilities are engaged with planning for regional-level incidents that may be from events such as earthquakes or wildfires, or from other triggers that may be human-caused such as technological disruptions.

Central San collaborates with Contra Costa County and other regional authorities to prepare for not only isolated sewer spills, but also for potential scenarios that may have ramifications beyond the county or regional area.

POLICY

Central San employees are required to report all wastewater spills found and to take the appropriate action to secure the wastewater spill area, relieve the cause of the spill, and ensure the affected area is cleaned as soon as possible to minimize health hazards to the public and to protect the environment.

Central San's goal is to respond to sanitary sewer spills immediately following notification and in accordance with reporting procedures set forth by the RWQCB and the SWRCB.

Central San's collection system is a sanitary sewer system that is separate from the regional storm water conveyance system. It is not a combined sewer system.

Central San strives to operate, manage, and maintain all parts of the publicly owned sanitary sewer system in a manner that will prevent spills and mitigate the impact of the spills that do occur.

Central San takes appropriate action to secure a spill-impacted area, relieve the spill's cause, and ensure the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment.

Central San responds to all spills on a Risk Basis, regardless of the size or location of the spill. High-risk areas shall include, but not be limited to:

1. The proximity of the spill to sensitive populations, specifically public and private schools, parks, and recreational areas, as well as high-density commercial and residential locales
2. Discharges to surface waters, especially during the recreational season from May to September
3. Any other location which poses an imminent and substantial endangerment to the public health or the environment

To improve our spill response, Central San has invested in an Automatic Vehicle Location (AVL) system. Office staff immediately knows which crew is nearest to a spill and will dispatch that crew to respond. The new AVL system has the added benefit of providing valuable data to our fleet maintenance group, improving vehicle maintenance scheduling, and thus keeping our cleaning trucks in the best operating condition for sewer cleaning.

To help promote quick response to any emergency spill associated with the collection system, Central San's website has a list of call-in numbers for the public:

Table 6.1: Central San Emergency Contact Numbers

Emergency Contact	Phone Number
Sewer Spills	(925) 933-0990
Odors-Sewers or Treatment Plant	(925) 335-7703
Structure Adjustment & Repairs	(925) 933-0990
Reporting Illegal Discharges or Spills into Sewer System	(925) 229-7288 (during business hours) (925) 229-7214 (after business hours)

PURPOSE OF RESPONSE PLANS

To ensure Central San personnel follow established guidelines in responding to, containing, cleaning, and decontaminating sanitary sewer spills and backups that may occur within Central San's service area to safeguard public health and the environment.

RESPONSE PLAN TYPES

Central San maintains two types of emergency plans to reduce the risk and consequences of such occurrences:

a) Spill Emergency Response Plan (SERP)
b) Pumping Station Emergency Response Plan (PSERP)

Central San's SERP contains standard procedures and guidelines for responding to, cleaning up, and reporting spills that may occur within its service area. Central San's SERP satisfies the SWRCB Statewide General WDR for Wastewater Collection Agencies, which require wastewater collection agencies to have

a spill emergency response plan.

Information contained in this Element is sourced from Central San's SERP, and is available upon request, and can also be found on our website centralsan.org.

The PSERP contains procedures for the individual pumping station. Each pumping station has a customized Pumping Station Emergency Response Plan to accommodate the presence of specific engines, fuels, chemicals, electrical equipment, and high flows of wastewater at that pumping station. A Pumping Station Emergency Response Plan is like the SERP but has additional sections to cover topics such as personnel evacuation, first aid, fire, and the specific equipment at the station.

Central San's Emergency Response Plans are available on Central San's SSMP website:

https://www.centralsan.org/post/sewer-system-management-plan

OVERVIEW

Central San's notification procedures follow the requirements outlined in the new WDR for the SERP. Pursuant to the WDR, each of the four categories of spills have specific notification procedures. In addition, Central San's SERP includes notification to California's Office of Emergency Services, as appropriate.

SPILL CATEGORIES

The WDR designates four spill categories:

CATEGORY 1

A Category 1 spill is a spill of any volume of sewage from or caused by a sanitary sewer system regulated under the General Order that results in a discharge to:

- A surface water, including a surface water body that contains no flow or volume of water; or
- A drainage conveyance system that discharges to surface waters when the sewage is not fully captured and returned to the sanitary sewer system or disposed of properly.
- Any spill volume not recovered from a drainage conveyance system is considered a discharge to surface water, unless the drainage conveyance system discharges to a dedicated stormwater infiltration basin or facility.

A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of the General Order.

CATEGORY 2

- A Category 2 spill is a spill of 1,000 gallons or greater, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

- A spill of 1,000 gallons or greater that spills out of a District-owned lateral and is caused by a failure or blockage in the sanitary sewer system, is a Category 2 spill.

CATEGORY 3

- A Category 3 spill is a spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

- A spill equal to or greater than 50 gallons and less than 1,000 gallons, that spills out of a District-owned lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 3 spill.

CATEGORY 4

- A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

- A spill of less than 50 gallons that spills out of a District-owned lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 4 spill.

WDR ITEMS:
***6a**. NOTIFY PRIMARY RESPONDERS, LOCAL & REGULATORY AGENCIES*
***6b.** NOTIFY ENTITIES OF SPILLS THAT POTENTIALLY AFFECT PUBLIC HEALTH OR WATERS OF THE STATE*

SPILL NOTIFICATION PROCEDURES

Refer to the State Water Board "General Order Attachment E1 – Notification, Monitoring, Reporting and Recordkeeping Requirements, Section 3", for detailed information pertaining to the reporting requirements for each category of spill.

Statewide Waste Discharge Requirements General Order for Sanitary Sewers web link

In brief, the times for notifying the California Office of Emergency Services are as follows:

CATEGORY 1: Notify California Office of Emergency Services no later than two (2) hours after:

- The Enrollee has knowledge of the spill, and the spill is 1,000 gallons or greater; and
- Notification can be provided without substantially impeding cleanup or other emergency measures.

CATEGORY 2: Within three (3) business days:

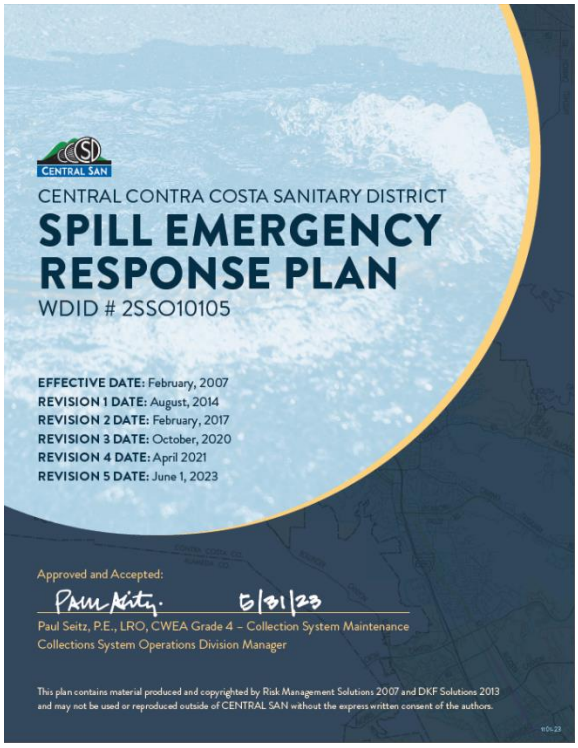
- The Enrollee has knowledge of the spill, and the spill is 1,000 gallons or greater; and
- The Enrollee shall submit for each Category 2 spill a Draft Spill Report to the online CIWQS Sanitary Sewer System Database.

CATEGORY 3: Within thirty (30) calendar days after the end of the month in which the spill occurred:

- The Enrollee has knowledge of the spill; and
- The Enrollee shall submit for each Category 3 spill a report and certify to the online CIWQS Sanitary Sewer System Database.

CATEGORY 4: Within thirty (30) calendar days after the end of the month in which the spill occurred:

- The Enrollee has knowledge of the spill; and
- The Enrollee shall submit for each Category 4 spill a report and certify to the online CIWQS Sanitary Sewer System Database.



No Spills or Category 4 Spills and/or Non-Category 1 Lateral Spills: Within thirty (30) calendar days after the end of the month in which no spill occurred:

If either (1) no spills occur during a calendar month or (2) only Category 4, and/or Enrollee-owned and/or operated lateral spills (that do not discharge to a surface water) occur during a calendar month, the Enrollee shall certify, within 30 calendar days after the end of each calendar month, either a "No-Spill" statement to the online CIWQS Sanitary Sewer System Database, or a Category 4 Spills, and/or a Non-Category 1 Lateral Spills certification statement, in the online CIWQS Sanitary Sewer System Database.

Central San takes appropriate action to secure the spill-impacted area, relieve the cause of the spill, and to ensure the affected area is cleaned as soon as possible to minimize health hazards to the public and to protect the environment.

Central San's website has emergency contact information for events such as sewer spills. Sewer spill calls are routed to CSO Dispatch during normal business hours. After-hours calls are routed through the 24-hour call service and to the On-Call Crew Leader. When an SSS to surface waters or public areas is confirmed, the CSO Division Manager notifies the Deputy General Manager, who then notifies the General Manager.

WDR ITEMS:
6c. COMPLY WITH NOTIFICATION, MONITORING & REPORTING REQUIREMENTS

Central San's notification, monitoring, and reporting and procedures follow the requirements of the SWRCB Monitoring and Reporting Program requirements for Wastewater Collection Agencies. Refer to Table 6.2 below.

Table 6.2: Notification, Reporting, Monitoring and Record Keeping Requirements

Element	Requirement	Method
Notification	Within two hours of becoming aware of any Category 1 Spill or Category 2 Spill, greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: (800) 852-7550
Reporting	Category 1 Spill: Submit draft report within 3 business days of becoming aware of the spill and certify within 15 calendar days of SSS end date. Category 2 Spill: Submit draft report within 3 business days of becoming aware of the spill and certify within 15 calendar days of the SSS end date. Category 3 Spill: Submit certified report within 30 calendar days of the end of month in which the spill occurred. Category 4 Spill: Submit within 30 calendar days after the end of the calendar month in which the spill occurred. Upload and certify a report of all Category 4 spills into the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occur. "No Spill" Certification: Certify that no spills occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no spills occurred. Collection System Annual Report: Update and certify every 12 months.	Enter data into the CIWQS Online Spill Database certified by the Legally Responsible Official(s) (http://ciwqs.waterboards.ca.gov/)
Water Quality Monitoring	Conduct water quality sampling within 48 hours after initial spill notification for Category 1 spills in which 50,000 gallons or greater are spilled to surface waters.	Water quality results are required to be uploaded into CIWQS for Category 1 spills in which 50,000 gallons or greater are spilled to surface waters

Record Keeping	• Spill event records. • Records documenting Sewer System Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for spills of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records, if relied upon to document and/or estimate spill volume.	Self-maintained records shall be available during inspections or upon request

SPILL EMERGENCY RESPONSE PLAN EXCERPTS

The following pages include figures are excerpts from Central San's Spill Emergency Response Plan. The complete document can be found on Central San's website as follows:

https://www.centralsan.org/post/sewer-system-management-plan

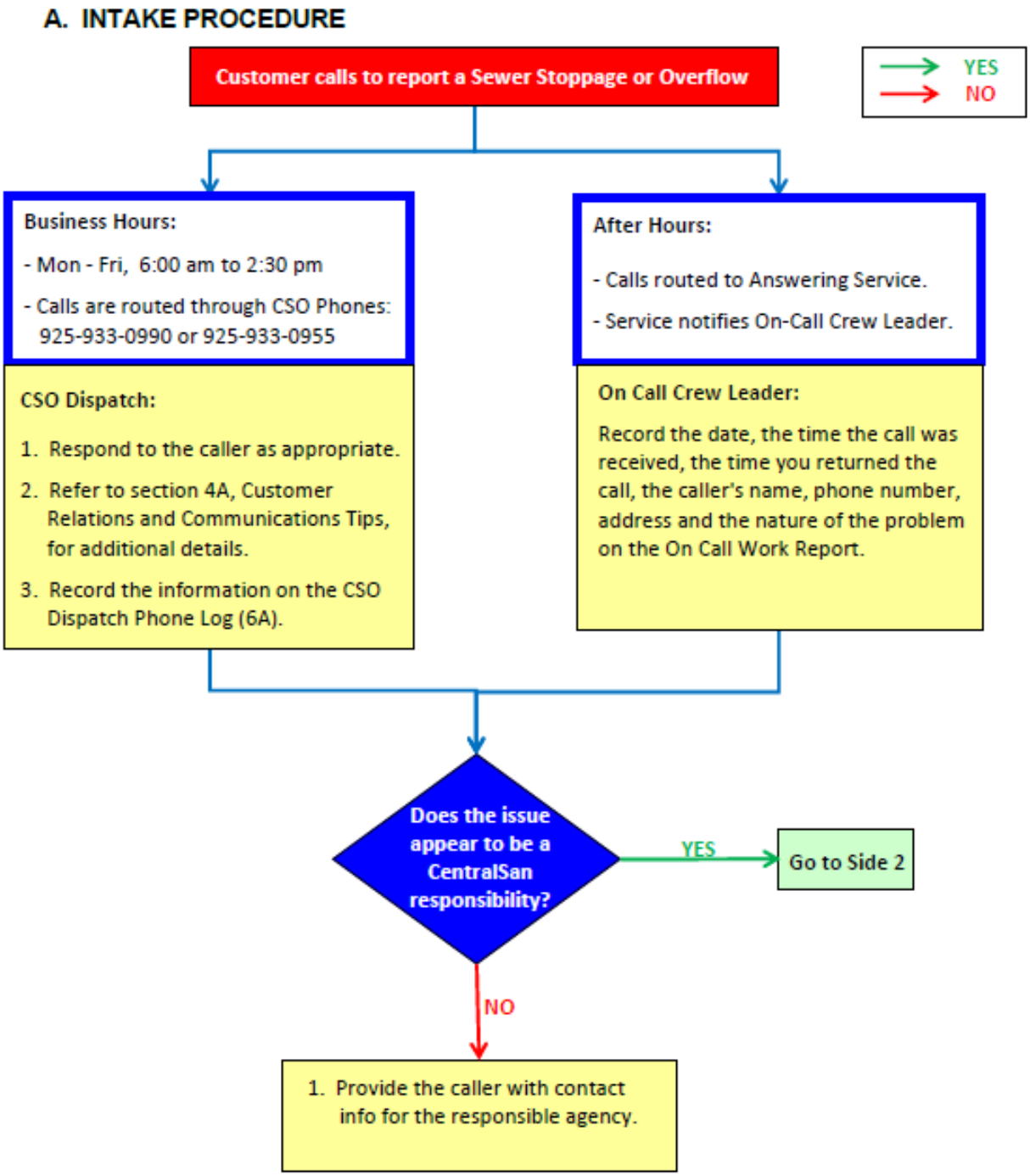


Figure 6.1: Spill Intake Procedure, Slide 1

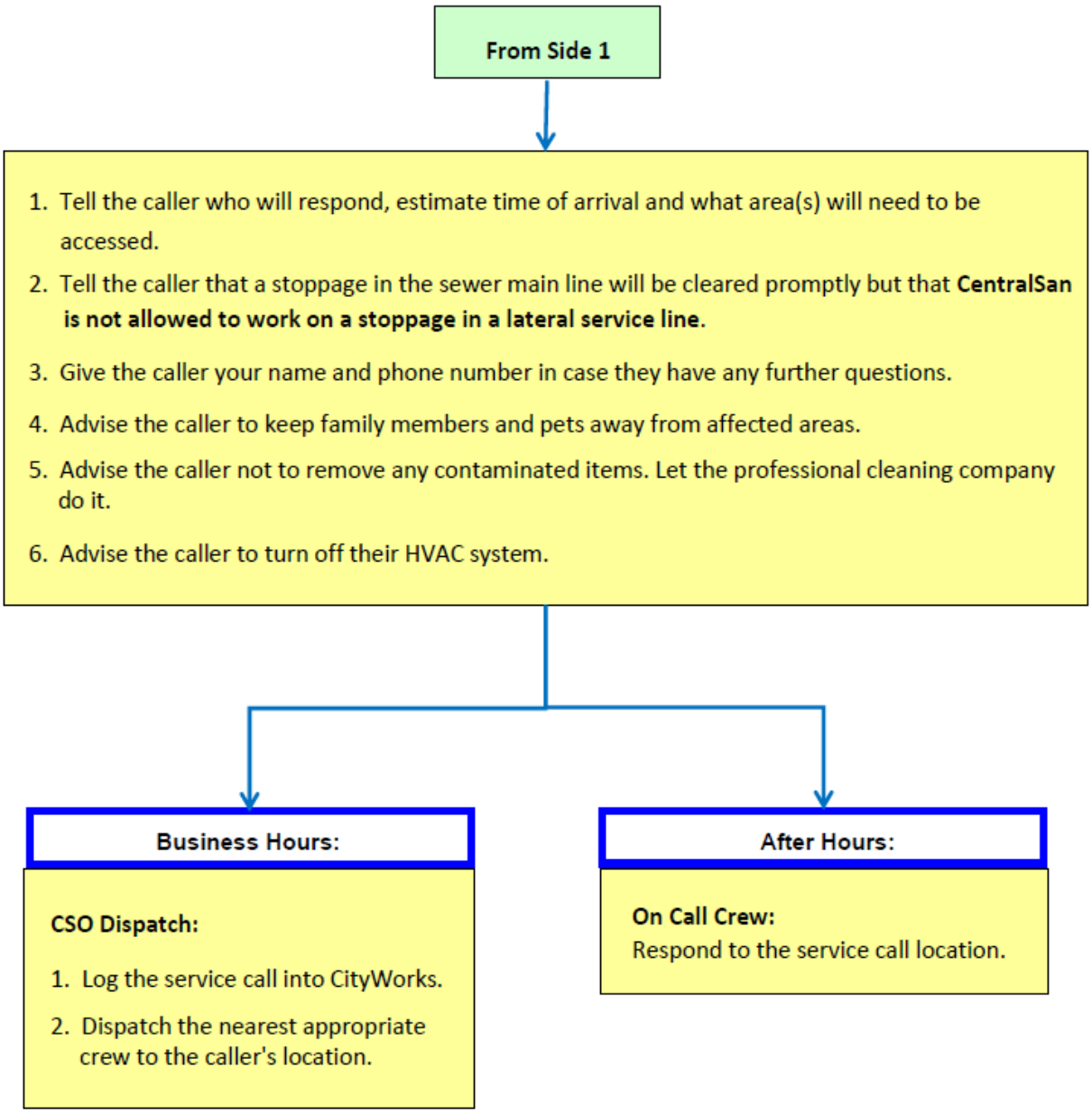


Figure 6.2: Spill Intake Procedure, Slide 2

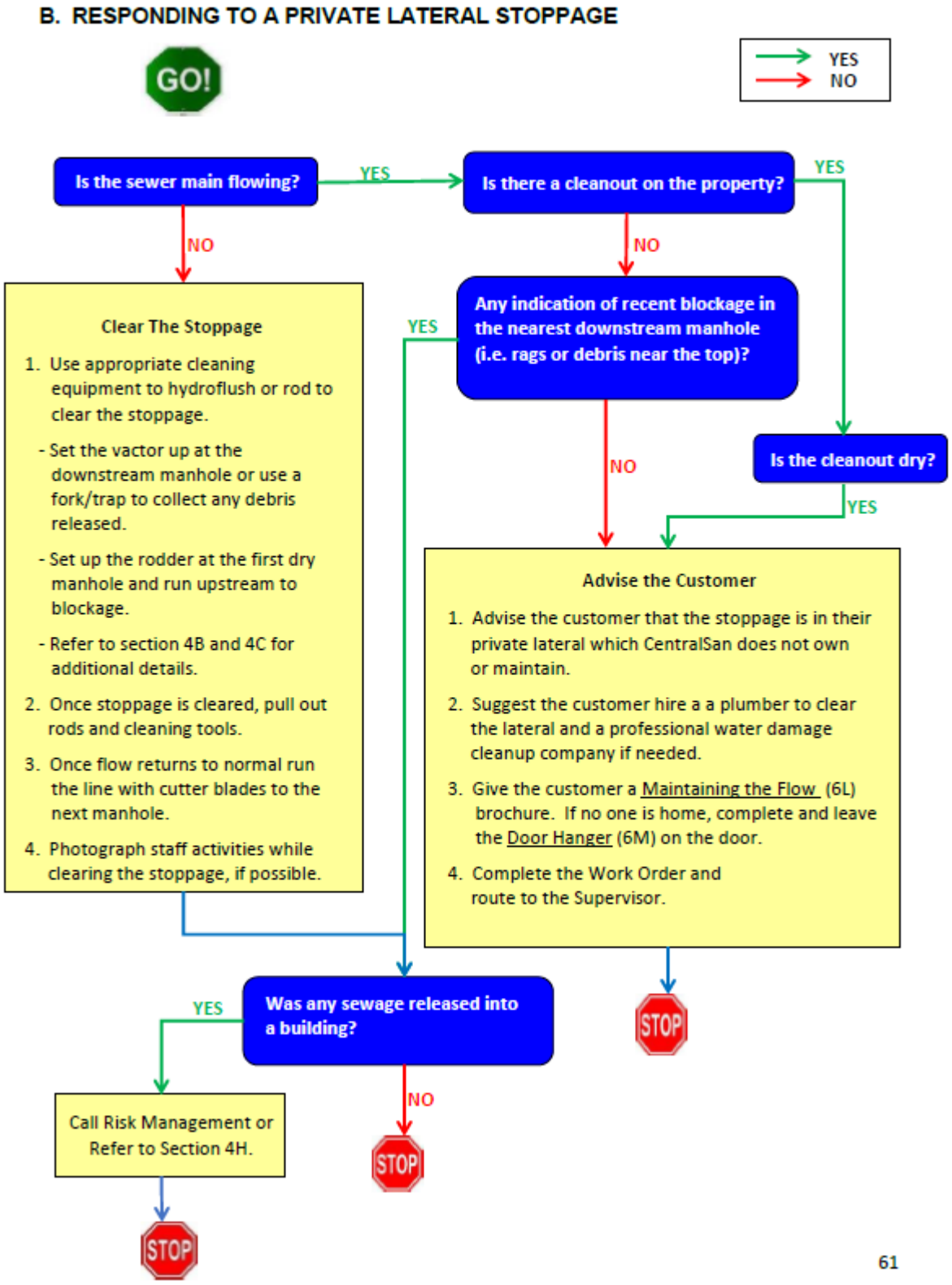


Figure 6.3: SERP Responding to Private Lateral Stoppage

C. RESPONDING TO A SANITARY SEWER SPILL

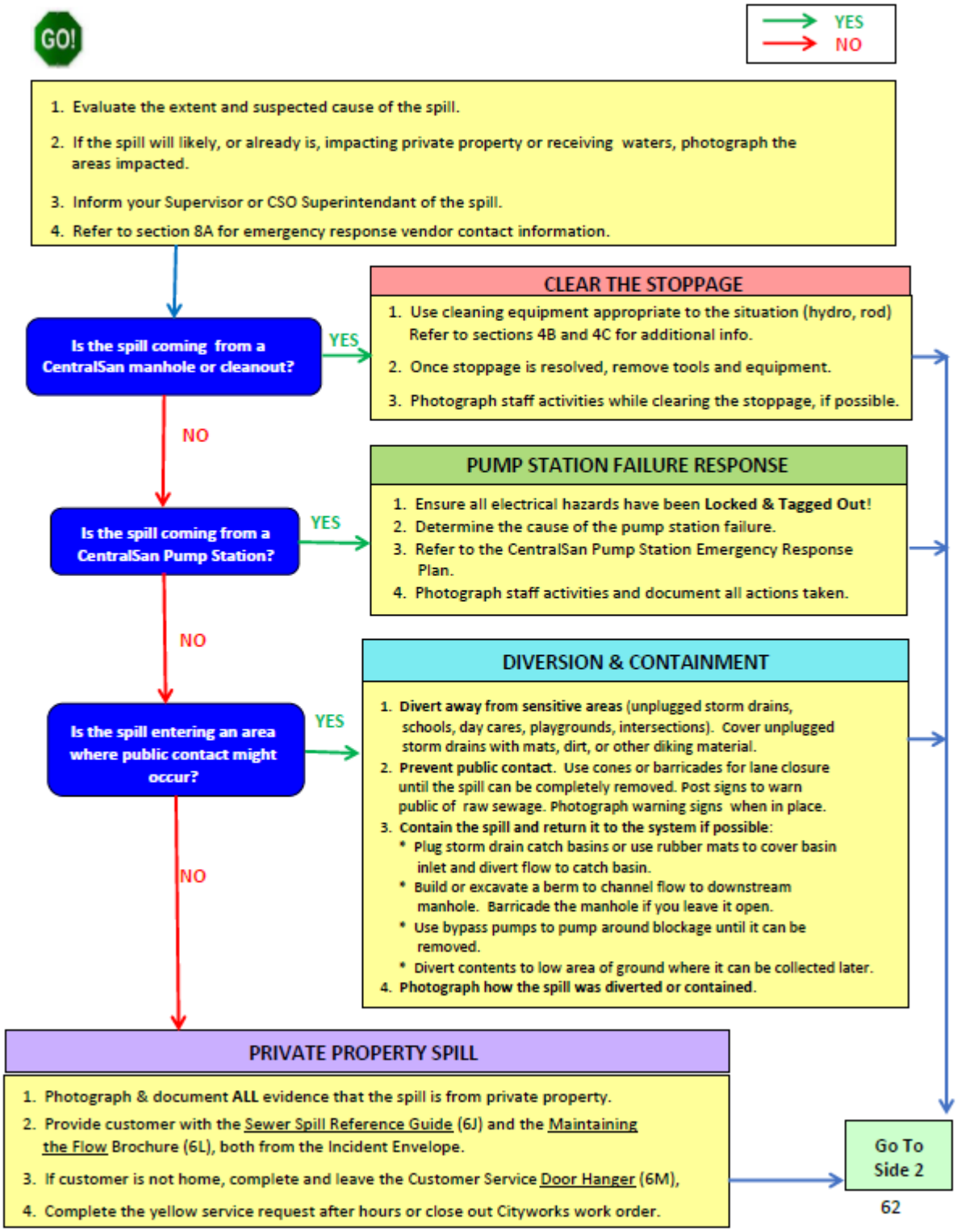


Figure 6.4: SERP Responding to Sanitary Sewer Spill

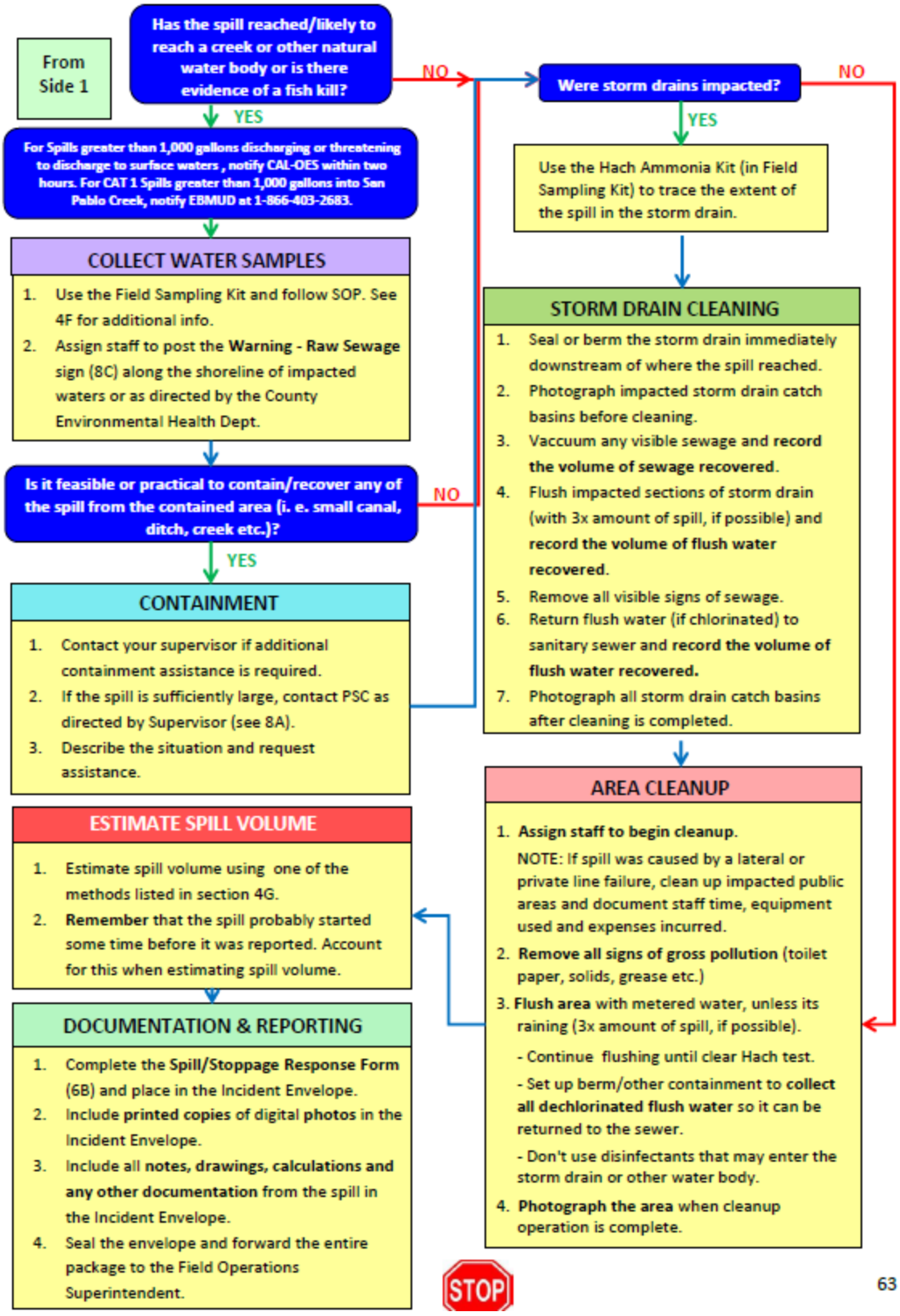


Figure 6.5: SERP Containment, Sampling, and Cleanup

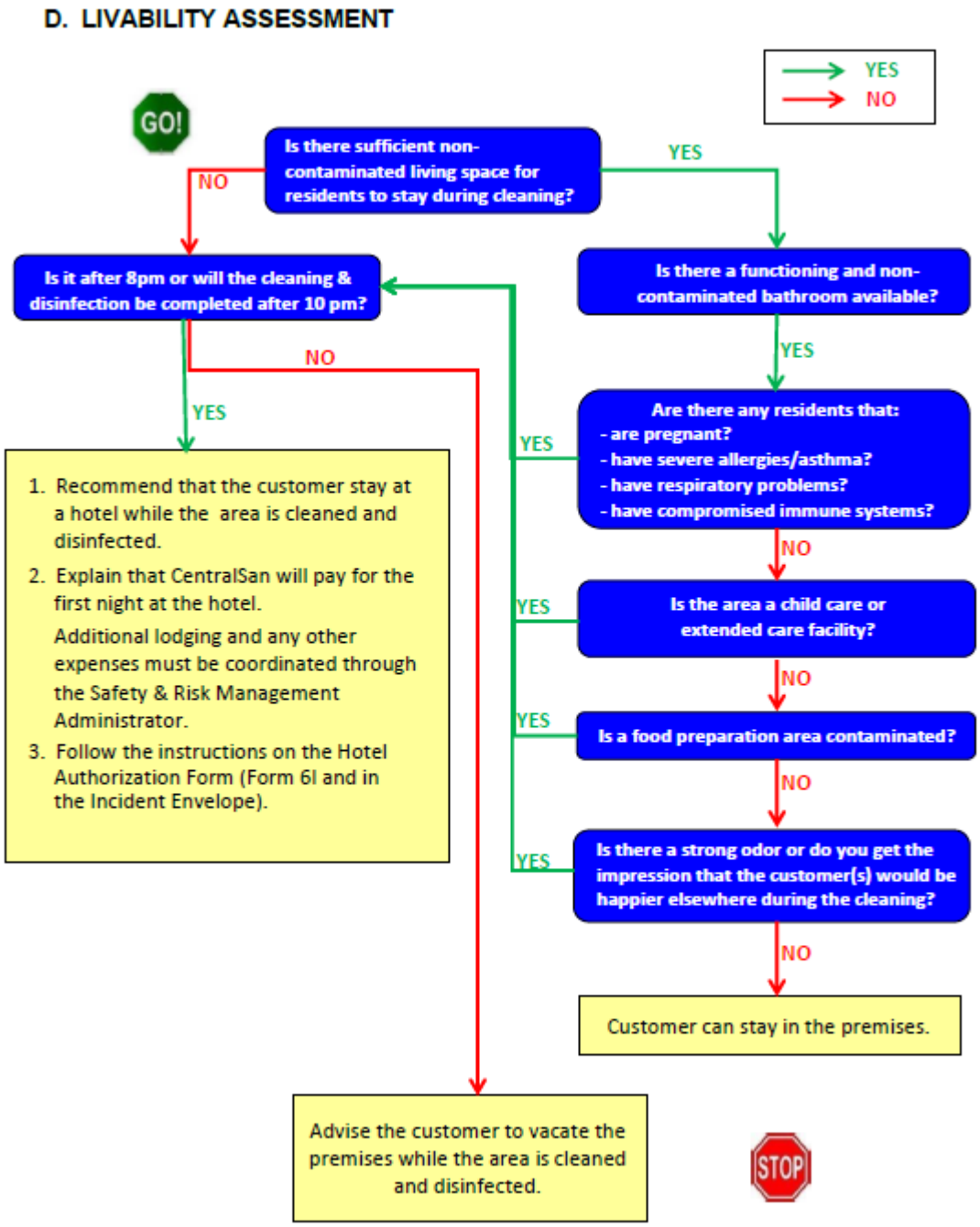


Figure 6.6: Livability Assessment

WDR ITEM:
6d. ENSURE APPROPRIATE STAFF & CONTRACTORS IMPLEMENT THE SPILL EMERGENCY RESPONSE PLAN AND ARE APPROPRIATELY TRAINED

Central San's Spill Emergency Response Plan is implemented quarterly, through recurring classroom and practical training. The SERP is reviewed annually to ensure it maintains compliance with regulatory requirements and is effective and up to date.

All Contractors are instructed to call Central San's CSO Emergency hotline, Superintendent or Supervisor to report any spill caused by their activities regardless of size. CSO response crews will then be dispatched to the scene and respond per the SERP.

SCENARIO TRAINING FACILITIES

The most important component of any emergency response plan is competent and prepared staff. Central San employees receive initial and regular training on safety and emergency response skills that cover a range of scenarios.

Central San also undertakes emergency operations training to prepare for both local and regional emergencies and natural disasters, such as earthquakes. Central San has strong relationships with its Bay Area neighboring agencies and frequently helps other agencies during times of emergency.

In addition, Central San's Intranet contains comprehensive resources for safety training and procedures, including 27 Safety Directives that are available for all staff to access.

The figure to the right shows field crews training at Central San's CSO Facility for a simulated creek spill. The yellow and black device is a rapidly deployable temporary dam system that can be used to contain sewer spills.

Central San provides spill response training to staff using demonstration training facilities at the CSO Facility in Walnut Creek. Combining theory -- and practiced practical application of the theory -- ensures staff develop competency in responding to different potential spill scenarios using the variety of equipment that Central San has available to support spill responses.

Utilizing demonstration facilities ensures that staff are trained in scenarios that are representative of situations they may confront in the field during a spill response, while in a safe and controlled training environment.

Staff training not only supports the development of technical proficiency but also supports the development of effective communication practices that are consistent with the SERP, and that promote team effectiveness, and timely responses in actual spill events.

Another important component of response effectiveness is teamwork. CSO's comprehensive training provides staff to engage with other crews and develop a rapport that assists in the department's collective response to spill events and other emergency scenarios.

In 2024, Central San's CSO Department hosted a CWEA training and education day to demonstrate leading practices in sewer system maintenance, operation and spill response, and to promote interagency collaboration and knowledge sharing.

SPILL VOLUME ESTIMATION TRAINING

CSO's challenging task when there is a sewage spill is correctly estimating the total amount of wastewater spilled and reporting the amount to the State. A CSO supervisor was inspired to construct a simulator to assist in this task. With the help of the CSO Senior Engineer, they constructed a spill simulator at our maintenance headquarters in Walnut Creek. The idea of this simulator is to help train the crews in estimating the spill rate so they can calculate the amount of wastewater spilled.

The two designed and developed this spill simulator in three months with the help of a few CSO crew members and the support of the CSO Division Manager. The simulator consists of a 2-inch water supply, a valve manifold, and flow meters, which allow the flow rate to be carefully controlled and measured. In addition, the water can be directed to various outlets, including a structure, rodding inlet, or an

above or below-ground 4" private lateral clean-out. In this way, the simulator helps crews learn to estimate flow rates under many different spill conditions. They also designed the simulator to be green, with water from the simulator flowing down the drive into a biofiltration swale system.

The simulator has proven to be a valuable tool for Central San and to our neighboring agencies. A permanent, on-site spill simulator makes scheduling training much more flexible and convenient. This valuable tool helps estimate spills much quicker and assists the crews' learning curve on spill rates for new and seasoned employees.

CONTRACTORS

Contracted staff are not provided such training because Central San does not employ contracted staff to perform emergency response work. In the case of a large spill, where outside assistance is necessary, on-site supervision and direction will be provided by trained and competent Central San staff and management.

Contractors that perform renovation and inspection services are trained at the beginning of the project. Contractors are trained and required to provide notification of a spill to CSO staff, spill containment, and documentation that includes photos and start time of spill. CentralSan Staff will provide cleanup and reporting notification to CIWQS and other agencies as necessary.

Refer to the Training Program section in Element 4 for more information on Central San's training program.

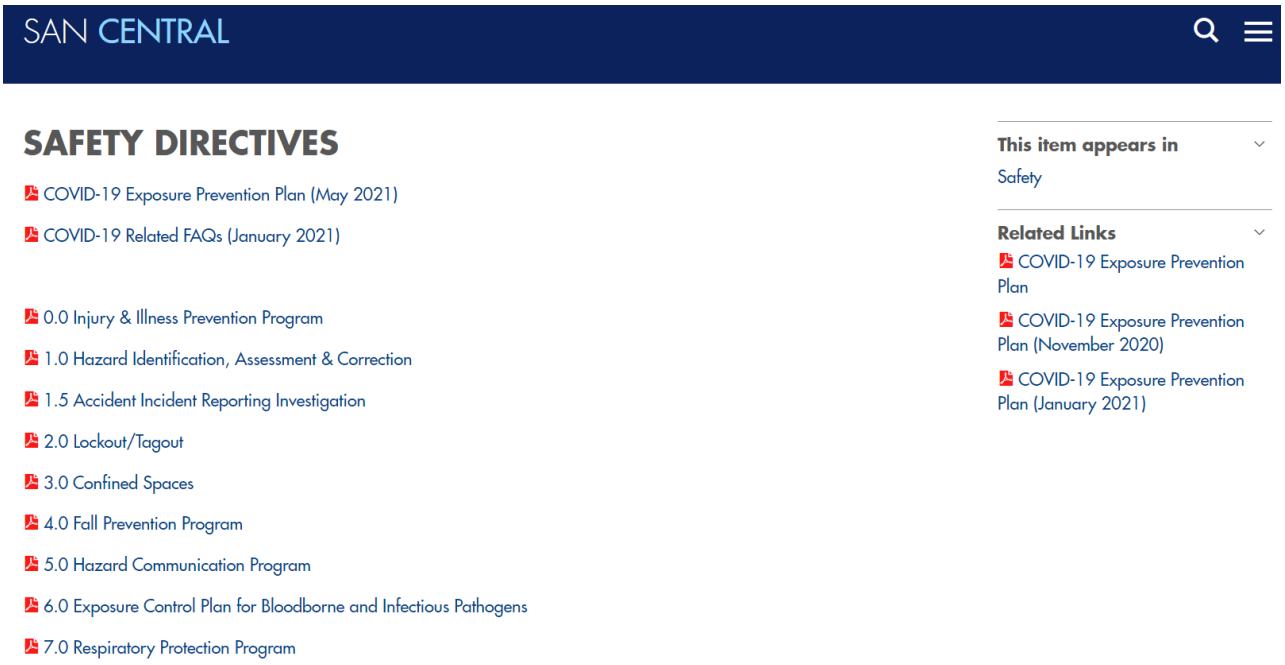


Figure 6.7: Partial Screenshot of Safety Directives Intranet Resources

MANDATORY SERP RELATED TRAINING

CSO field staff have the following mandatory training:

1. SSMP
2. Excavation/Competent Person
3. Traffic Control/Flagger
4. Self-Contained Breathing Apparatus
5. Confined Space
6. Driver Commentary
7. Spill Emergency Response Plan (SERP)

WDR ITEM:

***6e**. ADDRESS EMERGENCY SYSTEMS OPERATIONS, TRAFFIC CONTROL & NECESSARY RESPONSE ACTIVITIES*

Central San maintains a 24-hour dispatch system to ensure all spill notifications are received and responded to immediately. Field crews are trained in traffic control and interacting with emergency services and the public.

Additional crews and/or traffic control specialists are called to assist if traffic control is required in a heavily frequented main road. The safety of the field staff and the public is paramount.

WDR ITEMS:

***6f.** CONTAIN SPILL, PREVENT/MINIMIZE DISCHARGE TO WATERS OF THE STATE OR DRAINAGE CONVEYANCE*

***6g**. MINIMIZE & REMEDIATE PUBLIC HEALTH IMPACTS AND IMPACTS ON BENEFICIAL USES OF WATERS OF THE STATE*

***6h.** REMOVE SEWAGE FROM DRAINAGECONVEYANCE SYSTEM*

***6i.** CLEAN SPILL AREA AND DRAINAGE CONVEYANCE IN A MANNER THAT DOES NOT INADVERTENTLY IMPACT BENEFICIAL USES IN RECEIVING WATERS*

Central San takes appropriate action to secure the spill-impacted area, relieve the spill's cause, and ensure the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment.

Response staff work efficiently to contain spills and prevent/minimize discharges to waters of the State or any drainage conveyance system. The spill area and any affected drainage conveyance are cleaned in a manner that does not inadvertently impact beneficial uses in the receiving waters.

The detailed procedure used by Central San staff responding to the spill incident is documented in the SERP. Figures 6.4 and 6.5 above illustrate first responders' steps to contain and minimize impacts and clean affected areas.

The crews make every effort to contain the spill, reduce further damage, restore the flow, and document the event, including regulatory requirements.

All Central San field staff are trained in traffic control. Crowd control is primarily used to prevent the public from encountering the spill. Cones and signage are typically used. Central San will coordinate with regulatory agencies and the Department of Health Services to determine the need for warning signs and then post them in appropriate locations. For a large spill, a portion of the crowd control will be performed by local municipal employees, such as police and fire.

WDR ITEM:
6j. IMPLEMENT TECHNOLOGIES, PRACTICES, EQUIPMENT & INTERAGENCY COORDINATION TO EXPEDITE CONTAINMENT & RECOVERY

CSO staff have industry-leading technology, equipment, and vehicles that are well-maintained to ensure effective, resilient, and timely responses to emergencies. This equipment supports expediting spill containment and recovery.

CSO trucks have containment equipment onboard, as well as caution signs and caution tape to contain the footprint of a spill and control public exposure. Additional response equipment and spares are stored at Central San's CSO facility in Walnut Creek, which backup crews can bring to the site to support the immediate response crew, if needed.

Any spills that enter creeks are flushed and pumped into the sewer (using portable pumping equipment or hydro trucks), until water quality tests confirm the water in the creek is clean. Contaminated topsoil is hand excavated and transported to CSO's Walnut Creek facility, which then undergoes proper disposal.

CSO staff utilize mobile devices in the field. These devices are equipped with a geographic CMMS software tool containing maps that identify the location of public sewers, municipal storm drains, waterbodies, and other features throughout Central San's service area. This informational tool provides CSO staff with a valuable resource when responding to spills. It also provides the ability for staff to document the specific location of the spill accurately.

The following table (Table 6.3) is intended as a guide on how to respond to sewer spills. Each indicated response tactic may not be appropriate for a given sewer spill. Central San staff choose the tactic that best meets the circumstances at the time and the resources available. Protecting the public, employees, and environmental health are top considerations when responding to a sewer spill.

Table 6.3: Central San Spill Response Tactics

Possible Solutions	Spill Cause										
	Capacity due to Gradient	Capacity due to undersized line	Capacity due to surcharged system	Collapse	Debris in Structure	Debris in Line	Grease	Miscellaneous Plug	Roots	Pumping Station Failure	Power Failure
Hydro Jet				✓		✓	✓	✓	✓		
Rodder				✓		✓	✓	✓	✓		
Vacuum Truck	✓	✓		✓	✓	✓	✓	✓	✓		
TV Van						✓	✓	✓	✓		
Backhoe*				✓							
Hand Tools					✓						
Bypass Piping	✓	✓		✓				✓	✓		
Bypass Pumping	✓	✓		✓				✓	✓	✓	✓
Structure Entry**					✓						
Storage Tanks or Set Up Ponds	✓	✓	✓								
USA Request*				✓							
Backup Generators										✓	✓

*USA Requests: (800) 227-2600
**Confined Space Entry Procedures are required

POST-RESPONSE DEBRIEF

After a stoppage or spill, CSO crews CCTV the line within two days. Doing so ensures the line is completely clean and any defects are noted and repaired immediately.

By reviewing the inspection video in the Operations Meeting, we can discuss and decide on a proper cleaning schedule, what tool should be used for the cleaning, and any other remediation needs, such as spot repairs or pipeline renovation.

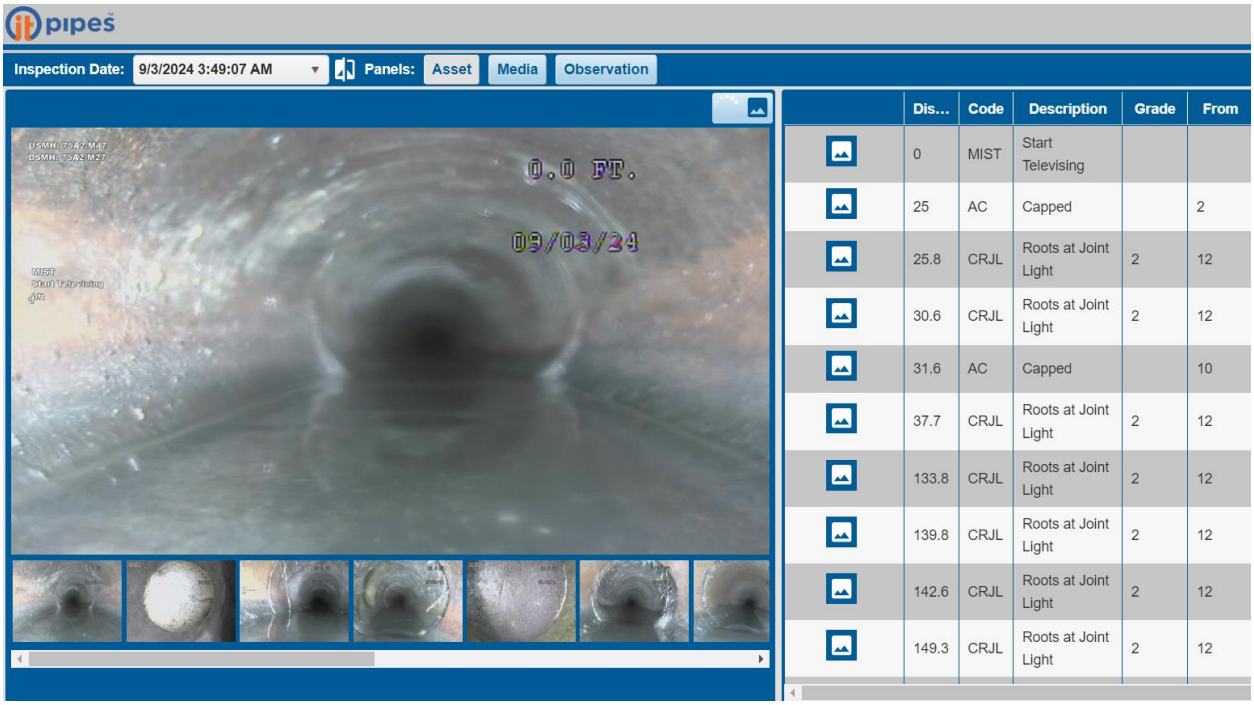


Figure 6.8: Screenshot of Post-Inspection Video Review

WDR ITEM:
6k. PRE-PLANNED COORDINATION & COLLABORATION WITH STORMWATER & OTHER UTILITIES

OVERVIEW

PRE-EVENT

Central San procedures are developed through coordination and collaboration with stormwater and other utilities within Central San's service area.

EVENT RESPONSE

Central San's SERP contains procedures for coordination with stormwater and other agencies. Central San's enduring relationships and frequent communications with agencies within its service area reinforce effective event response.

POST-EVENT

Central San staff debrief after every spill event. Any opportunities for improvement in inter-agency coordination that are identified during internal debriefs are followed up by CSO's Division Manager and Superintendent. Any identified potential enhancements to the SERP to optimize its effectiveness further are then actioned.

CalWARN – MUTUAL ASSISTANCE PROGRAM

If an emergency arises, Central San can call upon neighboring agencies for assistance or, as needed, assist other agencies as part of CalWARN: the California Water/Wastewater Emergency Response Network for mutual assistance. This program provides its member utilities with:

- A standard omnibus mutual assistance agreement and process for sharing emergency resources among Signatories statewide.
- The resources to respond and recover more quickly from a disaster.
- A mutual assistance program consistent with other statewide mutual aid programs, and the SEMS and the NIMS.
- A forum for developing and maintaining emergency contacts and relationships.
- New ideas from lessons learned in disasters.

CalWARN functions in coordination with the State Office of Emergency Services. Additional information on CalWARN is provided at www.calwarn.org.

Central San also has Purchasing procedures in place to expedite assistance from private industry professionals, service providers, and contractors as needed.

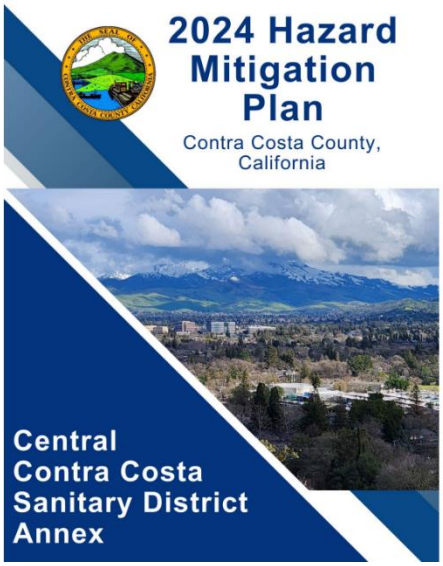
LOCAL HAZARD MITIGATION PLAN – CONTRA COSTA COUNTY

Central San coordinates with Contra Costa County to support the County's emergency preparedness planning to make the County more resilient and better prepared for emergencies that may arise from natural and human-caused hazards.

Central San's Hazard Mitigation Plan includes a hazard vulnerability and mitigation assessment, and administrative and technical capabilities that Central San comprises.

The following Contra Costa County weblink provides access to all related Hazard Mitigation Plans, including for Central San:

https://www.contracosta.ca.gov/6415/Local-Hazard-Mitigation-Plan

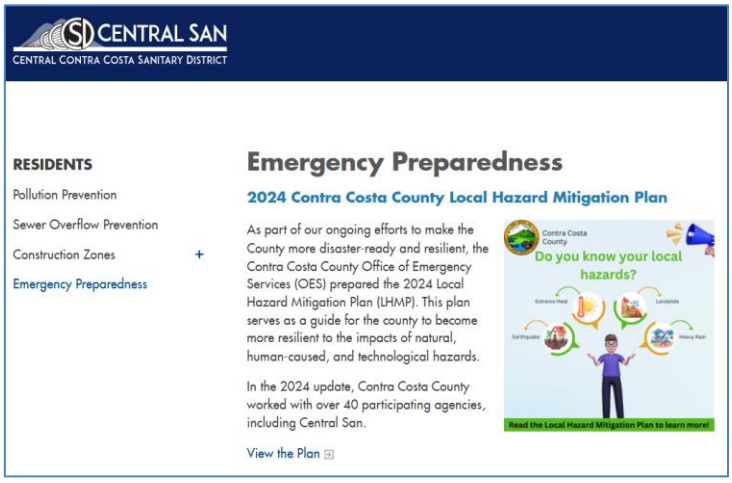


PUBLIC INFORMATION FOR EMERGENCY PREPAREDNESS

Central San's public website includes information for emergency preparedness and several resources on how residents can better prepare for and respond to emergencies, including a link to the Contra Costa County Emergency Alert website (below).

Central San's publicly available information regarding emergency preparedness can be found here:

https://www.centralsan.org/emergency-preparedness



WDR ITEM:
6l. POST SPILL ASSESSMENT & REPORTING

All stoppages and spills are inspected with CCTV within 48 hours of the incident being reported, and the associated inspection footage is reviewed at the next Operations meeting to identify any remedial or mitigation actions needed.

Central San maintains a Water Quality Monitoring Program Document that adheres to the WDR requisites. This document is an Appendix to this SSMP.

Central San collects water quality samples for Category 1 spills with a volume of 50,000 gallons or greater. The Superintendent or a Field Supervisor will collect, transport, and submit water quality samples for analysis to Central San's accredited Laboratory at our Treatment Plant in Martinez, California.

Samples are taken at or near where the spill reaches the surface water (entry point), approximately 100 feet upstream and downstream of the entry point. The samples are collected as soon as the blockage has been cleared, and if additional staff is available, the sampling activities will be completed in concurrence with clearing the blockage. If the spill enters a storm drainage system, an additional sample will be taken where the spill enters the storm drainage system.

The samples are analyzed for ammonia, total coliform, fecal coliform, enterococcus, and e-coli. Additional follow-up samples are recommended to confirm the extent that the impact reverts to baseline levels. Follow-up samples can be used to determine if the posting of warning signs should be discontinued, if signs were posted. Collaboration with the Office of Emergency Services, Fish and Wildlife, and the County Health Department shall continue until closures have been removed.

The SERP provides staff with detailed procedures and guidelines for containing spills and recovering untreated wastewater.

WDR ITEM:
6m. DOCUMENT & REPORT SPILL EVENTS AS REQUIRED IN THE GENERAL ORDER

Central San documents and reports all spill events as required by General Order WQ 2022-0103-DWQ. This process is stipulated in the SERP and shown in Figure 6.5 above. In addition, Table 6.4 *Notification, Reporting, Monitoring, and Record Keeping Requirements* on the following page reflects the General Order requirements that Central San adheres to.

Table 6.4 Notification, Reporting, Monitoring, and Record Keeping

Element	Requirement	Method
Notification	Within two hours of becoming aware of any Category 1 Spill or Category 2 Spill, greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: (800) 852-7550
Reporting	Category 1 Spill: Submit draft report within 3 business days of becoming aware of the spill and certify within 15 calendar days of SSS end date. Category 2 Spill: Submit draft report within 3 business days of becoming aware of the spill and certify within 15 calendar days of the SSS end date. Category 3 Spill: Submit certified report within 30 calendar days of the end of month in which the spill occurred. Category 4 Spill: Submit within 30 calendar days after the end of the calendar month in which the spill occurred. Upload and certify a report of all Category 4 spills into the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occur. "No Spill" Certification: Certify that no spills occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no spills occurred. Collection System Annual Report: Update and certify every 12 months.	Enter data into the CIWQS Online Spill Database certified by the Legally Responsible Official(s) (http://ciwqs.waterboards.ca.gov/)
Water Quality Monitoring	Conduct water quality sampling within 48 hours after initial spill notification for Category 1 spills in which 50,000 gallons or greater are spilled to surface waters.	Water quality results are required to be uploaded into CIWQS for Category 1 spills in which 50,000 gallons or greater are spilled to surface waters
Record Keeping	• Spill event records. • Records documenting Sewer System Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for spills of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records, if relied upon to document and/or estimate spill volume.	Self-maintained records shall be available during inspections or upon request

WDR ITEM:
6n. ANUALLY REVIEW AND ASSESS EFFECTIVENESS OF SPILL EMERGENCY RESPONSE PLAN AND UPDATE AS NEEDED

Central San staff review the Spill Emergency Response Plan annually, and any identified opportunities for improving the Plan are incorporated during that activity.

During each post-event debrief, CSO Supervisors and staff review each incident response for opportunities for continual improvement, including identifying procedural updates, needed equipment updates, new technology, or on-call procurement processes that could enhance future incident response performance.

SSMP ELEMENT 7:
SEWER PIPE BLOCKAGE CONTROL PROGRAM

WDR REQUISITES

The Sewer System Management Plan must include procedures for the evaluation of the Enrollee's service area to determine whether a sewer pipe blockage control program is needed to control fats, oils, grease, rags, and debris. If the Enrollee determines that a program is not needed, the Enrollee shall provide justification in its Plan for why a program is not needed.

The procedures must include, at minimum:

7.1 ***An implementation plan and schedule for a public education and outreach program that promotes proper disposal of pipe-blocking substances;***

7.2 ***A plan and schedule for the disposal of pipe-blocking substances generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of substances generated within a sanitary sewer system service area;***

7.3 ***The legal authority to prohibit discharges to the system and identify measures to prevent spills and blockages;***

7.4 ***Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices requirements, recordkeeping and reporting requirements;***

7.5 ***Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance;***

7.6 ***An identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section; and***

7.7 ***Implementation of source control measures for all sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.***

CENTRAL SAN COMPLIANCE

GENERAL

Central San's Sewer Pipe Blockage Control Program reduces the number of SSSs caused by fats, oils, and grease (FOG) discharged to the sewer collection system while managing the operation and maintenance costs associated with FOG control.

The FOG Control Program includes two primary components: 1) cleaning and maintenance of the collection system; and 2) inspection, enforcement, and education for sources of FOG from food service establishments (FSE). *This element provides a summary of the plans, procedures, and processes of the*

program. The FOG Control Program uses District Code Title 10 (Source Control Ordinance), the Standard Specs, and customer outreach materials as reference documents. Relevant portions of the Code and the Standard Specs are discussed in detail in Element 3 (Legal Authority) of this SSMP.

In addition, Central San keeps a log of system hotspots for debris and rags and closely monitors those locations with frequent CCTV and enhanced cleaning protocols.

WDR ITEM 7.1:
IMPLEMENTATION PLAN & SCHEDULE: PUBLIC EDUCATION & OUTREACH

Environmental Compliance (EC), with assistance from Communication Services, has created FOG pamphlets, posters, and brochures. EC staff deliver these outreach items to FSE customers by mail and at the time of inspection. Outreach is key to FOG control because it promotes preventive measures to minimize grease in the collection system. The materials are designed to educate the public about improper grease disposal and promote using BMPs.

Specific operation and maintenance documents are provided for grease traps and grease interceptors. Other documents outline proper grease disposal techniques, describe the available pretreatment devices, and explain the inspection process. Copies of materials are located at the end of this element.

EC and Communication Services are continually updating and improving outreach materials that focus on specific issues of grease, grease traps, and grease interceptors.

EC gives a FOG-focused presentation several times yearly at Contra Costa County's Food Safety Class. The audience is made up of food service industry workers.

In addition to EC outreach efforts, Communication Services does FOG outreach to residents via Central San's Pipeline newsletter, social media, and videos; and CSO leaves a door hanger for customers when they discover a spill or blockage due to grease accumulation. The door hanger has tips on preventing grease from entering laterals and information about proper grease disposal.

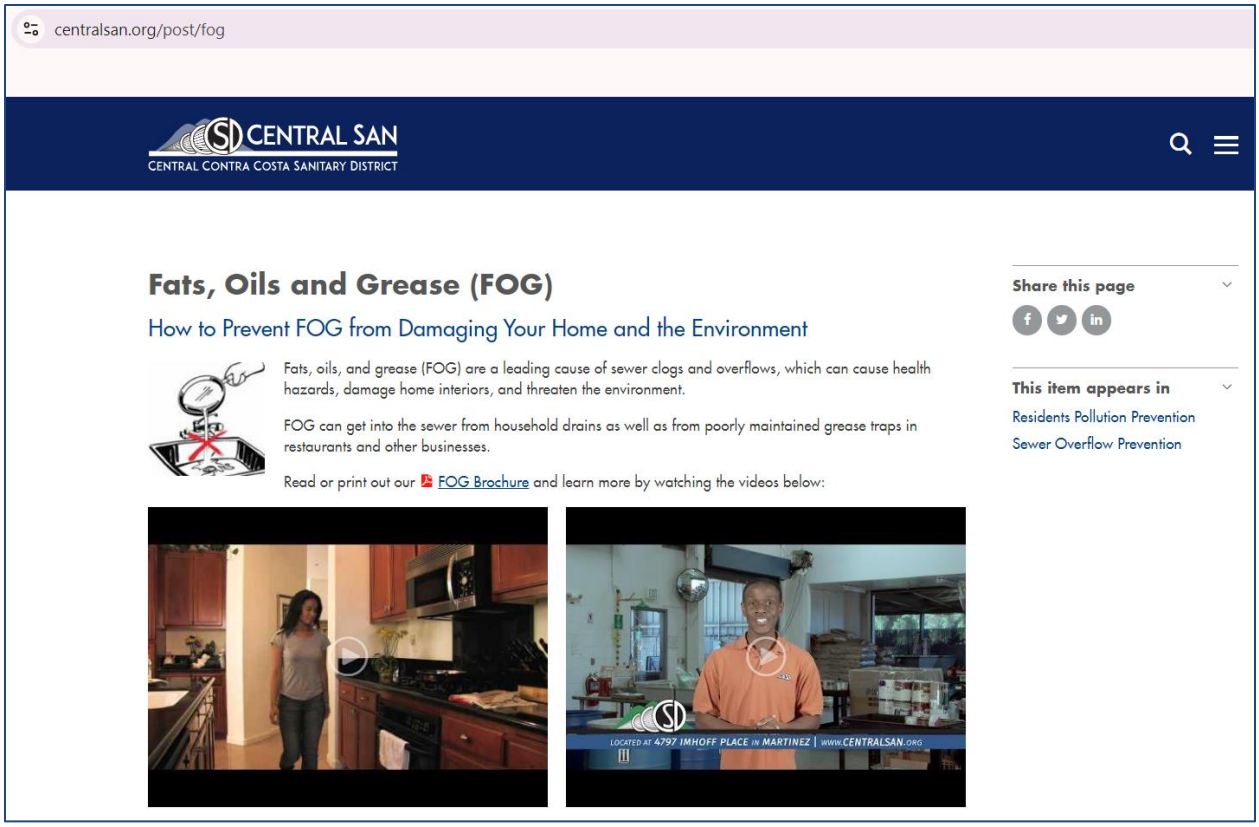


Figure 7.1: Central San's FOG Web Page Screenshot

Table 7.1: Outreach Schedule: Sewer Pipe Blockage Control Program

Outreach Activity	Frequency (e.g. yearly, qrtly, etc)	Number of People Reached
Pipeline: Public Newsletter	Twice Yearly	157,000
School Education Program	Yearly	~20,000
Central San Online Social Media	Ongoing	~170,000
Contra Costa County Food Safety Class	Monthly	~24-48
Videos	Two Campaigns, yearly	56.4% of service area population
Earth Day	Yearly	200

WDR ITEM 7.2:
PLAN & SCHEDULE FOR DISPOSAL OF PIPE-BLOCKING SUBSTANCES

Central San provides disposal options for FSE FOG wastes under its waste hauler program, which includes FOG waste haulers. In addition, Central San's Household Hazardous Waste Collection Facility accepts cooking oils from residential customers, which is frequently used during the holiday season. As part of the waste hauler program, approved and permitted waste haulers are authorized to offload FOG generated within Central San's service area at the treatment plant's headworks. The waste haulers using Central San's treatment plant for disposal must use a Central San manifest for each load documenting the generator of the waste.

District Code Title 10 was modified in 2007 to require all waste haulers to identify the disposal facility on the documentation provided to the generator of the waste. This documentation standard provides some paperwork to verify proper disposal or facilitate the investigation of illegally dumped wastes when they are discovered.

EC maintains a list of FOG waste haulers active in the Central San service area to facilitate proper disposal of FOG wastes. The list is available on Central San's website and is provided to FSEs during inspections.

Table 7.2: Schedule for Disposal of Pipe Blocking Substances

Disposal Facilities	Schedule	Number of People Reached
Central San Commercial Source Control Program (and associated cities we inspect for)	FOG-producing commercial facilities are inspected at a minimum of once every three to five years or more often as necessary to establish compliance	Central San Service Area, including cities with an MOU (Concord, Clayton)
Central San Household Hazardous Waste Collection Facility	Opening hours: Mon-Sat, 7 am -2 pm https://www.centralsan.org/hhw	Service Area
Central San RV Waste Disposal Facility	7 am to 7 pm	Countywide
Central San Waste Hauler Disposal Facility	Per Permit Conditions, typically 7:30 am to 3 pm	Countywide
Contra Costa Recycling and Waste Reduction Programs and Resources	https://www.contracosta.ca.gov/8094/Recycling-and-Waste-Reduction	Countywide

WDR ITEM 7.3:
LEGAL AUTHORITY TO PROHIBIT DISCHARGES TO SEWER; AND SPILL PREVENTION MEASURES

Central San has the authority to adopt and implement grease control regulations on public and private property under the District Code, Title 10, as discussed in Element 3 (Legal Authority) of this SSMP. The requirements presented below are imposed under this ordinance and general permit conditions. More details are available in Element 3.

Users who are currently connected or contribute to Central San's facilities or propose to connect or contribute to Central San's facilities must obtain a Connection Permit. FSEs are currently a Class IV Industrial User and are not required to obtain a wastewater discharge permit at present (District Code 1.08 and 10.12.020-030). Still, they must comply with Central San standards, including compliance with Title 10 of the District Code.

Waste haulers that discharge to Central San facilities must obtain a Central San Waste Hauler Permit and meet performance standards (District Code Chapter 10.28).

Users must install and maintain a grease pretreatment device when Central San finds it necessary to properly handle liquid waste containing grease (District Code 10.12.090 and 10.32.010). Specific standards for maintaining a grease pretreatment device (e.g., minimum cleaning frequency, minimum performance standard for cleaning, and prohibition for decanting wastes) are established in Title 10, Section 10.32.035.

WDR ITEM 7.4:
GREASE REMOVAL DEVICES: STANDARDS & MANAGEMENT PRACTICES

EC and the Permits section perform a plan review to determine if a grease pretreatment device is needed and to specify the design requirement. EC staff uses the following criteria to determine the need for a pretreatment device:

- Type of facility
- Number and type of drainage fixture units containing grease-laden wastewater and estimated flow rate
- Volume of business or operation
- Size and nature of facilities
- Type of service provided
- Type of high grease-producing equipment/practices used
- Type of foods or other materials used in cooking, processing, or manufacturing operations
- Overall potential for grease-laden discharges
- Existence of devices, procedures, or processes that are designed to minimize the amount of grease entering the sewer system

Certain types of FSEs have been identified as either requiring a grease interceptor, grease trap(s), or not requiring a grease removal device (GRD). If an FSE operator does not believe that their operation needs the designated GRD during the plan review process, they can request a variance from the standard. EC staff receives and processes the variance request to determine if it has merit. EC staff will accept, deny, or modify the variance request. The final determination of the variance request is communicated to the Permits section for processing.

Section 5 of Central San's Standard Specs was adopted using the Uniform Plumbing Code as a reference and describes the requirements, design, and installation of a grease pretreatment device. The document is described in Element 7 of this SSMP, and the entire text of Section 5 is available at the following link:

https://www.centralsan.org/standard-specifications-and-approved-materials

Section 5 is periodically revised to ensure the standards are current and protective of Central San's operations. Under the Standard Specs Section 5-01A, conditions such as the following are imposed:

- The grease pretreatment device must be installed in a suitable location (outside for a grease interceptor and inside for a grease trap) that is readily accessible for periodic cleaning, inspection, and/or sampling.
- The grease pretreatment device shall be connected to specific plumbing fixtures or drains as Central San requires.
- The size of the grease pretreatment device is determined by Central San on a case-by-case basis using criteria such as the size and type of facility, volume of business or operation, square footage of the FSE, number and type of drainage fixtures units containing grease-laden wastewater, and estimated flow rate.

WDR ITEM 7.5:
AUTHORITY TO INSPECT & ENFORCE GREASE-PRODUCING FACILITIES; ASSOCIATED STAFFING RESOURCES

Central San has the right to inspect users to ensure compliance with all standards and requirements (District Code 1.08 and 10.12.080). This inspection authority enables inspectors to evaluate both production areas and waste management areas of facilities (e.g., pretreatment equipment).

Central San may employ a variety of enforcement actions for violations of Title 10 of the District Code. The most common form of enforcement involves EC inspectors issuing written Warning Notices (WN) or Notices of Violation (NOV) to FSE operators, prompting corrective actions within a specified timeframe. This enforcement process achieves a very high rate of compliance. More structured, formal enforcement processes are used to achieve compliance when the WN and NOV processes do not achieve compliance. Formal enforcement processes range from assessing civil and administrative penalties to suspending or terminating services for any user found to be violating the ordinance.

Central San's Environmental Compliance workgroup consists of nine (9) staff, which include:

- Program Administrator (1 staff)
- Senior Environmental Compliance Inspectors (2 staff)
- Environmental Compliance Inspectors (6 staff)

Table 7.3 FOG Control Statistics

	2020	2021	2022	2023	2024
Number of SSSs caused by FOG	3	1	3	3	1
FOG Inspections for grease interceptor installation	5	9	12	5	6
FOG Inspections for discharge compliance	264	589	582	479	425
Total number of FOG Inspections completed	269	598	594	484	524

WDR ITEM 7.6:
MANAGING SEWER SECTIONS SUBJECT TO FOG

CSO maintains a database that records all maintenance and inspection events in the collection system, including repairs and cleaning. Pipe inspection is captured in video format, and key details are entered into the database as the inspection takes place. CSO notes lateral connection, debris, flow direction, pipe size, and the pipe's qualitative condition. CSO records job information as work takes place in the field using laptop computers and uploads the information to the main database at the CSO office.

CSO removes FOG from the sewer collection system. CSO also inspects pipe segments to identify problem areas and responds to service calls due to blockages and spills. CSO has the most direct interaction with grease in the system and provides valuable information for FOG control from their on-site experiences. CSO sets cleaning priorities based on pipe inspections and SSS incidence. CSO communicates the location and status of problem areas with the EC workgroup to help set pretreatment device inspection priorities.

New and upgraded pipes are placed on a seven-year cleaning frequency. If inspections reveal problems with a pipe segment, such as grease accumulation, cracks, leaks, or blockages (e.g., roots), the cleaning frequency is increased as necessary. For FOG-impacted pipes, the cleaning frequency is adjusted over time as field crews provide reports on current grease conditions in the pipe.

Central San uses Geoportal to manage geographical data. Geoportal contains maps of pipelines and structures within the service area. Parcels and pipe segments can be selected to access supplementary information, including information on permits, maintenance, and EC inspection history.

In addition, CSO field staff capture the location of FOG locations in Central San's Computerized Maintenance Management System (CityWorks™). This information is then used to inform cleaning schedules, and is shared with Central San's Environmental Compliance staff as necessary to follow-up if further investigation is needed.

WDR ITEM 7.7:
IMPLEMENTATION OF SOURCE CONTROL PROGRAM MEASURES

FSEs are inspected at a minimum of once every three to five years, or more often as necessary to establish compliance. The inspection determines if they are employing proper BMPs to control grease sources, if a grease pretreatment device is needed, and if they are correctly maintaining a grease pretreatment device already in service.

Inspection sites are prioritized using the following criteria:

- Complaint investigations
- New facilities in need of an initial compliance inspection
- Facilities with recorded violations of Title 10
- Facilities within an area defined by CSO as problematic due to FOG accumulation
- Routine cycling of FSEs to assess compliance with standards

Central San will perform a construction inspection to determine the proper grease interceptor installation. Construction inspections are done either by Central San's Construction Inspectors or the cities' building inspectors. Because Central San does not have jurisdiction over the plumbing inside a facility (Title 10 provides authority to require installation and maintenance of a grease removal device), cities' building departments are responsible for inspecting the installation of internal grease traps. EC staff follows up with the city, county building department, or the FSE to verify that a required grease trap was installed.

EC staff performs approximately 1,000 sewer and/or stormwater compliance inspections annually. These inspections include FSEs and other commercial facilities to ensure compliance with ordinances and proper operation to protect discharge quality. Compliance inspections at FSEs involve:

- Recording the number of fixtures in the facility
- Assessing the use of kitchen BMPs to control FOG discharges
- Assessing the need for grease traps or interceptors at FSEs that don't currently have a unit
- Checking the condition of the grease trap or interceptor
- Noting dates of grease interceptor/trap cleaning, means of grease disposal, and how oil is recycled when applicable

EC maintains a database of FSEs within the service area. The database contains inspection records, warning notices, notices of violation, and information about the facility's pretreatment device when applicable. In addition, files are maintained for each FSE inspected by the EC program. The files are maintained by the address of the FSE.

EC designates the number of compliance inspections needed in each city, and inspectors choose specific facilities to inspect by referring to a database that contains records of previous inspections. The frequency of inspections depends on a facility's potential for problems and compliance history.

If a facility is in compliance, the next inspection will be in three to five years depending on the potential to generate FOG wastes. A facility that is out of compliance will be inspected more frequently until EC is satisfied with customer's return to compliance and ability to maintain compliance. Compliance inspections are conducted without notifying the customer in advance so inspectors can get an accurate view of normal operating conditions.

SSMP ELEMENT 8:
SYSTEM EVALUATION, CAPACITY ASSURANCE & CAPITAL IMPROVEMENTS

WDR REQUISITES

The Plan must include procedures and activities for:

- ***Routine evaluation and assessment of system conditions;***
- ***Capacity assessment and design criteria;***
- ***Prioritization of corrective actions; and***
- ***A capital improvement plan.***

8.1 System Evaluation and Condition Assessment

The Plan must include procedures to:

a. *Evaluate the sanitary sewer system assets utilizing the best practices and technologies available;*

b. *Identify and justify the amount (percentage) of its system for its condition to be assessed each year;*

c. *Prioritize the condition assessment of system areas that:*

   1. *Hold a high level of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies;*
   2. *Are located in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas;*
   3. *Are within the vicinity of a receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List;*

d. *Assess the system conditions using visual observations, video surveillance and/or other comparable system inspection methods;*

e. *Utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system which can reasonably be expected to discharge into a water of the State;*

f. *Maintain documents and recordkeeping of system evaluation and condition assessment inspections and activities; and*

g. *Identify system assets vulnerable to direct and indirect impacts of climate change,*

including but not limited to: sea level rise; flooding and/or erosion due to increased storm volumes, frequency, and/or intensity; wildfires; and increased power disruptions.

8.2. Capacity Assessment and Design Criteria

The Plan must include procedures to identify system components that are experiencing or contributing to spills caused by hydraulic deficiency and/or limited capacity, including procedures to identify the appropriate hydraulic capacity of key system elements for:

a. *Dry-weather peak flow conditions that cause or contributes to spill events;*

b. *The appropriate design storm(s) or wet weather events that causes or contributes to spill events;*

c. *The capacity of key system components; and*

d. *Identify the major sources that contribute to the peak flows associated with sewer spills.*

The capacity assessment must consider:

e. *Data from existing system condition assessments, system inspections, system audits, spill history, and other available information;*

f. *Capacity of flood-prone systems subject to increased infiltration and inflow, under normal local and regional storm conditions;*

g. *Capacity of systems subject to increased infiltration and inflow due to larger and/or higher-intensity storm events as a result of climate change;*

h. *Increases of erosive forces in canyons and streams near underground and above-ground system components due to larger and/or higher-intensity storm events;*

i. *Capacity of major system elements to accommodate dry weather peak flow conditions, and updated design storm and wet weather events; and*

j. *Necessary redundancy in pumping and storage capacities.*

8.3. Prioritization of Corrective Action

The findings of the condition assessments and capacity assessments must be used to prioritize corrective actions. Prioritization must consider the severity of the consequences of potential spills.

8.4. Capital Improvement Plan

The capital improvement plan must include the following items:

a. *Project schedules including completion dates for all portions of the capital improvement program;*

b. *Internal and external project funding sources for each project; and*

c. Joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and Interagency coordination with other impacted utility agencies.

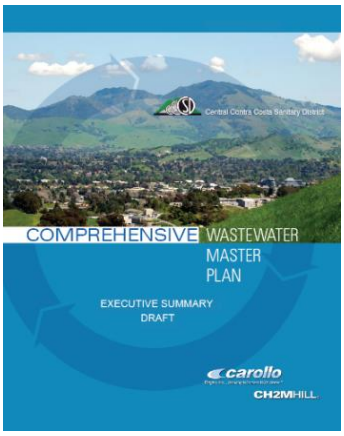
WDR ITEM 8.1:
SYSTEM EVALUATION AND CONDITION ASSESSMENT

a. Evaluate the sanitary sewer system assets utilizing the best practices and technologies available

CENTRAL SAN COMPLIANCE

Central San utilizes a multi-tiered approach to evaluate the near-term condition of its sewer assets and longer-term asset needs. This approach includes both hydraulic capacity evaluations and condition assessment evaluations.

In addition, Central San undertakes Infrastructure Planning every five to ten years to evaluate the present and future needs of the collection system. Collection system assets are evaluated in terms of hydraulics, condition, and performance. Central San uses Hydraulic modeling extensively to evaluate capacity for both dry and wet weather flows.



A GIS-integrated, risk-based asset management and capital planning software platform (InfoAsset™ Planner) assists staff in identifying and prioritizing collection system improvement needs. Infrastructure data and CMMS data is inputted into the software platform. Using GIS, staff can analyze the data collectively as a system or individually as pipe segments. Refer to Element 4 for more information.

The accumulation of roots, fats, grease, or other debris in pipes can also affect sewer capacity. CSO aims to clean all lines 18 inches and smaller at least once every 84 months. A CMMS program is utilized to track/schedule maintenance.

Based on the cleaning results, the cleaning schedules/frequencies are adjusted to optimize collection system performance and labor utilization. CMMS data is also utilized to help identify possible segments that need replacement. Refer to Element 4 for further information on Central San's collection system rehabilitation and replacement process.

Central San is currently working on a Sewer System Infrastructure Plan (SSIP) to continue optimizing infrastructure planning and budgetary needs and further enhancing the "line-of-sight" between strategic and asset management objectives.

b. Identify and justify the amount (percentage) of its system for its condition to be assessed each year

Central San employs a performance-based approach for inspection of all its sewers. Central San CCTVs 150 miles (10%) a year, and all sewer lines get CCTVs at least once every ten years. Each sewer has a customized inspection schedule based on factors such as install date, pipe material, historical operational performance, and past inspection results.

As the figure below illustrates, Central San's continuous improvement approach to its sanitary sewer infrastructure has been very successful. The 2023 Statewide average number of spills per 100 miles of sewers is 2.52, and the Regional average was 3.49 spills per 100 miles. Central San's number of spills per 100 miles for 2023 was 0.84, which is 66% less than the state average and around 75% less than the Regional spill average.

The above statistics indicate Central San has a highly effective operation, maintenance, and condition assessment program. Central San's continuous improvement culture supports its ongoing commitment to being a high-performance organization while being fiscally responsible.

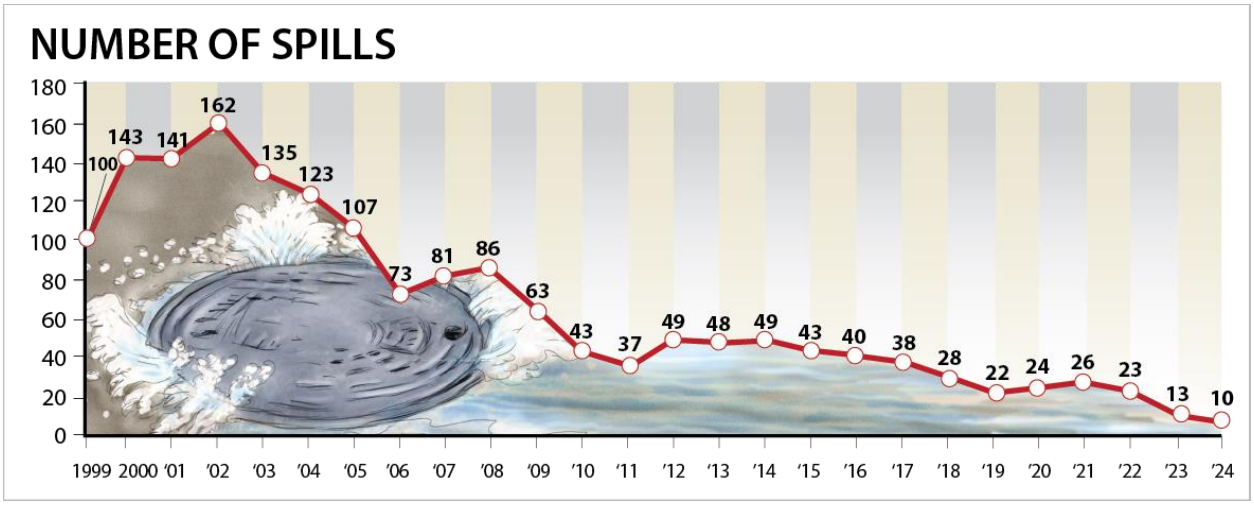


Figure 8.1: Historic Spills Trends

c. Prioritize the condition assessment of system areas that:

i. Hold a high level of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies;

Central San's pipeline planning projection software (InfoAsset Planner), referred to for condition assessment related activities, includes an algorithm to prioritize pipeline needs, taking into consideration the consequence of pipe failure in relation to its geographical and environmental context.

ii. Are located in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas;

Central San's pipeline planning projection software (InfoAsset Planner), which is referred to for condition assessment-related activities, includes an algorithm to prioritize pipe needs based on numerous factors pertaining to the probability of pipe failure and the consequence of pipe failure. The vicinity of surface waters is included in the existing projection algorithm. Central San is actively working on updating this algorithm as part of its Sewer System Infrastructure Plan (SSIP) (which is scheduled for completion in 2025), and additional factors such as steep terrain and environmentally sensitive areas will be considered for inclusion.

iii. Are within the vicinity of a receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List;

Central San prioritizes condition assessments and inspection frequency on pipes vulnerable to not meeting their expected level of service. Pipes within 200 feet of creeks or water bodies get elevated due to their potential consequence of failure. Pipes identified as vulnerable to collapse are either repaired immediately by CSO construction crews or, if needed, assigned to a Central San contractor to repair or replace.

Central San's service area includes some areas of steep terrain. The condition of pipes in these locations is closely monitored by CSO as the confluence of steep terrain and challenging geological conditions can present a higher likelihood of failure than other locations.

Central San's sewer system is not within the vicinity of a receiving water listed on the Clean Water Act section 303(d) for bacteria impairment. Contra Costa County has four listed waters for bacteria impairment all out outside Central San's Service Area, and none of them feed into waters within Central San's service area: They are as follows:

- Kellogg Creek, Brentwood/Discovery Bay
- Marsh Creek, Brentwood
- San Creek, Clayton
- Kellers Beach, Richmond

d. Assess the system conditions using visual observations, video surveillance and/or other comparable system inspection methods;

Central San was one of the earliest utilities to adopt Closed Circuit Television (CCTV) when it became commercially available in the USA. Central San has also used high-resolution CCTV and laser scanning technology to complement visual observations for condition assessment of its sewers.

In addition, Central San has also deployed in-person pipe inspection assessments and surface

penetrating radar technology to complement CCTV inspection methods. Complementary gaseous phase air testing has also been undertaken to further characterize the operating environment of various sections of Central San's sewer system.

e. Utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system which can reasonably be expected to discharge into a water of the State;

Central San has inventoried and geographically mapped its pipes that cross the waters of the State. These aerial creek crossing pipes undergo recurring scheduled inspections yearly and are carefully monitored during and after heavy storm events.

f. Maintain documents and recordkeeping of system evaluation and condition assessment inspections and activities;

Central San uses a Computerized Maintenance Management System (CMMS) to document and record system evaluations and condition inspection activities. This information can be accessed as a stand-alone system or via Central San's geographical system (Central Portal), as can other pertinent information, such as record drawings and CCTV videos through hyperlinks.

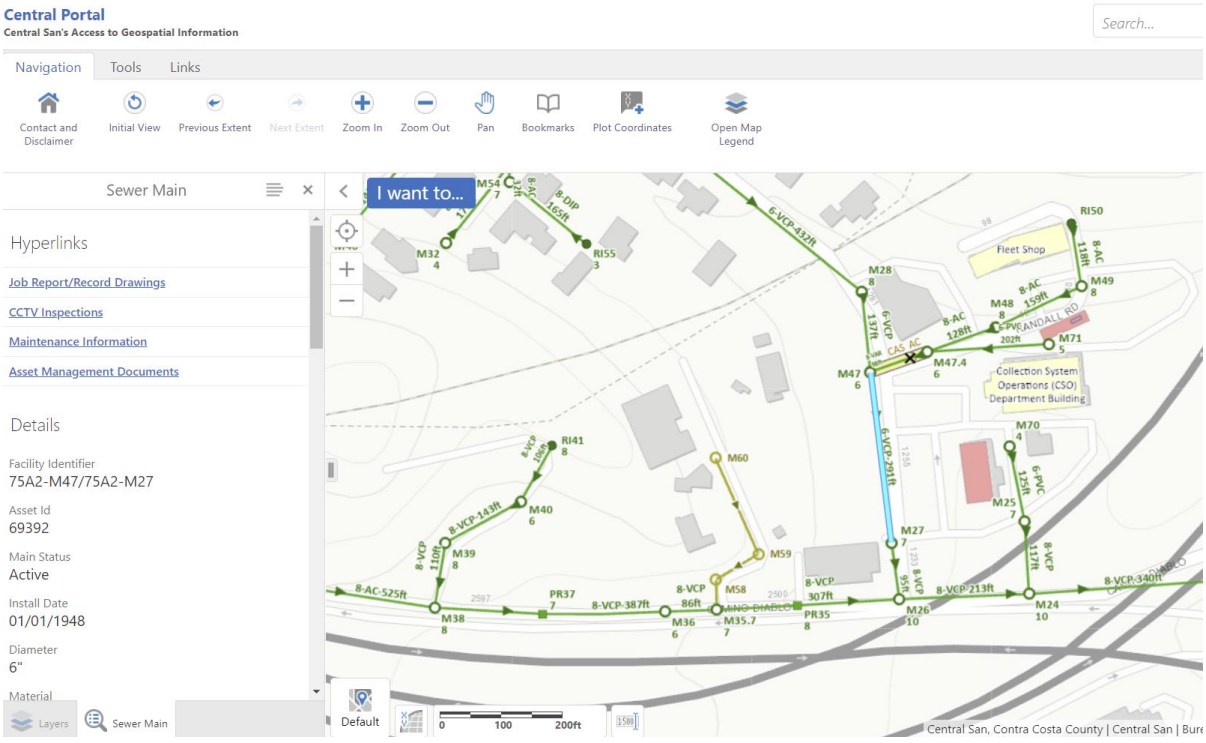


Figure 8.2: Central Portal GIS System

g. Identify system assets vulnerable to direct and indirect impacts of climate change, including but not limited to: sea level rise; flooding and/or erosion due to increased storm volumes, frequency, and/or intensity; wildfires; and increased power disruptions.

Central San assessed its system assets for vulnerability to sea-level rise, flooding, and erosion due to climate change and extreme wet weather events during its 2017 Comprehensive Wastewater Management Plan Project: Technical Memorandum No. CS-17 Resiliency Adaptation Plan. This report includes assessments on the potential impact of sea-level rise, seismic events, critical sewer system corridors, and physical and cyber vulnerabilities.

Today, Central San continues to explore the impact of extreme wet weather events in the sewer system and the treatment plant campus. Central San has implemented District Project 100071 Long-Term Wet Weather Resiliency to identify opportunities to improve the resiliency of Central San's sewer system and treatment plant assets to extreme wet weather events. Central San is also deploying 35 wireless structure level monitors to investigate further inflow and infiltration as well as to validate tentative capacity-related improvement projects. For capacity-related projects where the hydraulic improvement needs are validated through additional flow and level monitoring, associated projects will be included in the Capital Improvement Plan (CIP).

Central San has also implemented numerous separate projects throughout its infrastructure to improve resiliency to extreme wet weather events, including:

- Pumping Station Upgrades – Phase 1, District Project 8436
- Pumping Station Upgrades – Phase 2, District Project 8442
- San Ramon Pumping Station Electrical Upgrades, District Project 100017: to improve resiliency and reliable operations during emergency conditions, including severe wet weather conditions.
- Pumping Stations Equipment and Piping Replacement 2023+, District Project 100060
- Wet Weather Basin Improvements, District Project 100022: a project in partnership with Contra Costa Flood Control District to raise the height of the levee that is adjacent to Central San's treatment plant campus.

Central San's Collection System Operations Facility building, which was completed in 2012, was designed to be immediately occupiable after an earthquake.

Central San has also completed several seismic improvement projects in recent years, including:

- Headquarters Office Building Seismic Retrofit, District Project 8226
- Plant Operations Building Seismic Retrofit, District Project 7362
- Solids Handling Facility Improvements – Phase 1A, District Project 7348
- Laboratory Roof & Seismic Upgrades, District Project 100008
- Aeration Basins Diffuser Replacement & Seismic Upgrades, District Project 100019
- Warehouse Seismic Upgrades, District Project 100048
- Pump & Blower Building Seismic Upgrades, District Project 7291
- Steam and Aeration Blow System Renovation, District Project 7349

As part of ongoing efforts to become more resilient to hazards, Central San continues to engage in recurring review and updates to the countywide Local Hazard Mitigation Plan led by Contra Costa County. In 2024, Central San, Contra Costa County, and other governmental agencies in the county submitted an update to the Local Hazard Mitigation Plan to CalOES and FEMA for review and approval.

WDR ITEM 8.2:
CAPACITY ASSESSMENT & DESIGN CRITERIA

CAPACITY ASSESSMENT OVERVIEW

Central San assess its hydraulic capacity with the following key activities:

Special Discharge Permits: to ensure temporary discharges to the sewer adhere to water quality requirements and hydraulic capacity limitations.

Capacity Relief Assessments: to ensure related Capital Projects address any existing capacity deficiencies.

Capacity Expansion Assessments: to ensure future growth-related hydraulic needs triggered from new development (residential or commercial) projects can be appropriately accommodated by the sewer system and associated pumping stations.

Rainfall Dependent Inflow and Infiltration Assessments: to identify (using remote monitoring equipment) areas of the sewer system that experience high levels of inflow and infiltration during rain events to support subsequent remedial actions.

Real-Time Monitoring & Control: pursue endeavors that support Central San's future vision of having real-time monitoring and control functionality of the sewer system.

HYDRAULIC MODELING

Central San has used hydraulic modeling for years to simulate collection system flows for different scenarios. In 2016, Central San enhanced its modeling capabilities by creating a new, fully dynamic model using the InfoWorks® ICM software. Large-scale, multi-year flow monitoring and Gauge Adjusted Radar Rainfall (GARR) data was used to calibrate the model and provide insight into Rainfall Dependent Inflow and Infiltration (RDI/I) in Central San's service area.

The model estimates diurnal dry weather and peak wet weather flows for the design storm event under current and projected growth scenarios. Growth scenarios incorporate projections from the Association of Bay Area Government regional planning agency for the nine-county San Francisco Bay Area.

The new hydraulic model is currently being updated and covers approximately 290 miles of pipe, including:

- All pipes included in the model network developed during the 2017 CWMP

- All other pipes identified as 10 inches in diameter or larger
- Pipes smaller than 10 inches that are downstream of pipes 10 inches or larger, or are in areas with active development, or near predicted capacity deficiencies.

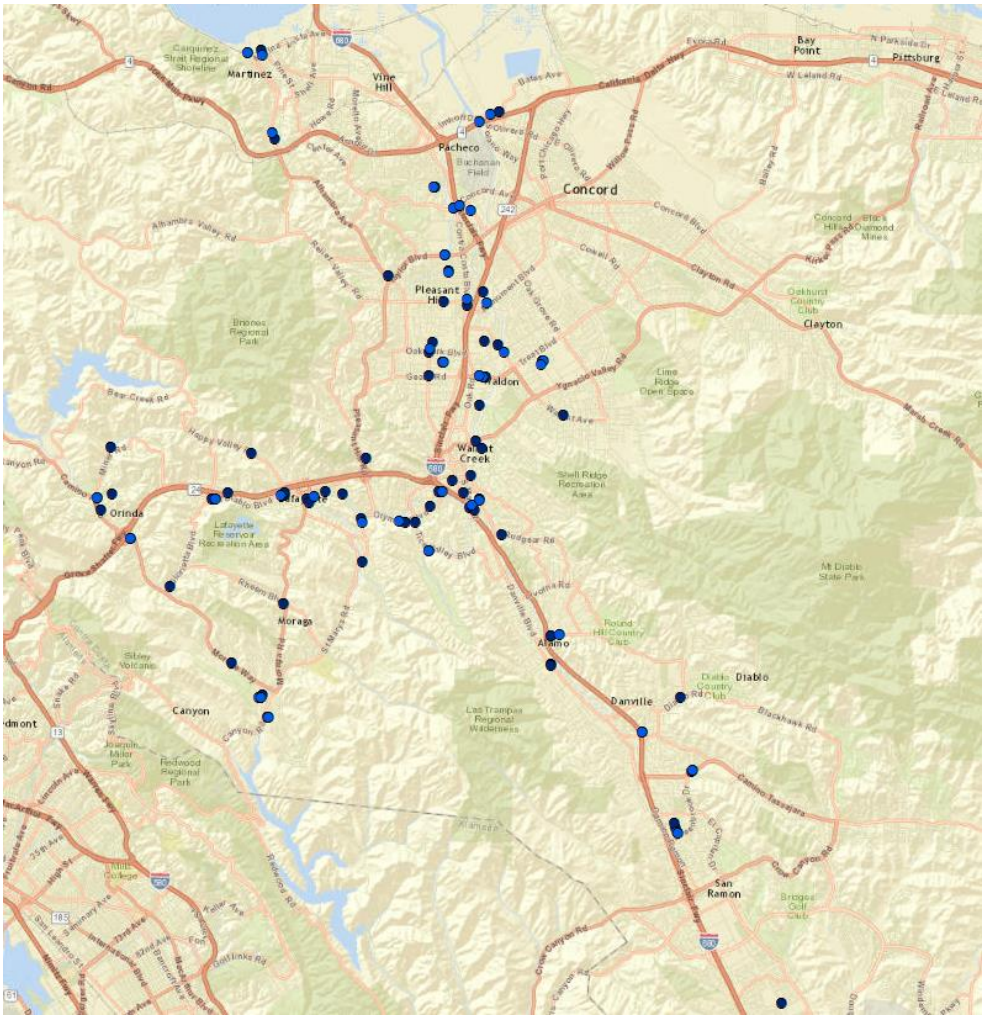


Figure 8.3: 2015-2016 Flow Monitoring Locations

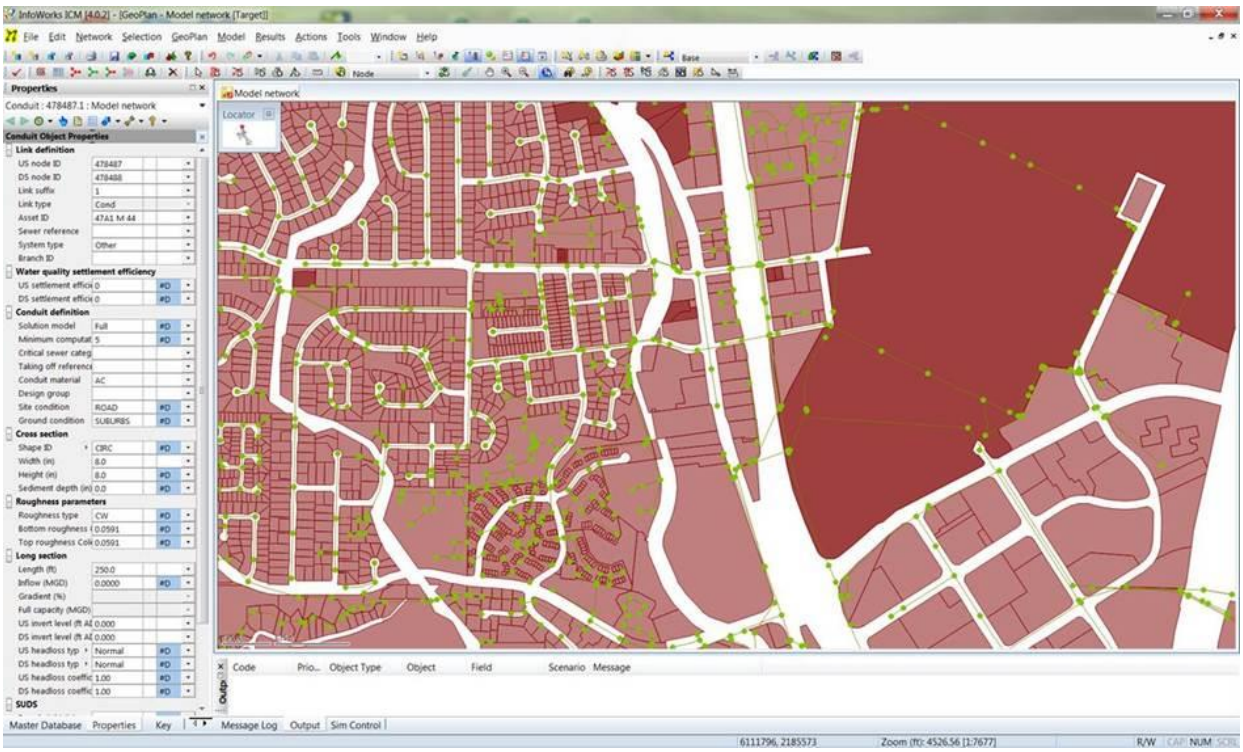


Figure 8.4: Hydraulic Model Screenshot

Central San uses a 10–year recurrence frequency storm event as the basis for capacity evaluations and design flow estimates. A design storm rainfall pattern is based on an extensive historical storm that significantly impacted the collection system: the December 30-31, 2005 rainfall event. The spatial rainfall variation across the service area for the design event is based on historical mean annual precipitation.

The December 30-31 storm was approximately 24 hours in duration, with rainfall increasing gradually up to a high peak-hour intensity, then receding in intensity toward the end of the storm.

The timing of peak RDI/I was adjusted to coincide with peak dry weather flows (PDWF) to ensure the model was conservative and that the design peak wet weather flows (PWWF) would always be greater than PDWF.

Central San generates base wastewater flow (BWF) on calibrated residential unit flow factors and estimated non-residential flows taken from Central San's SunGard database.

Groundwater infiltration (GWI) response parameters and RDI/I response parameters are based on 2015-2016 flow monitoring data used for model calibration.

The model also confirmed that the capacity of the 10 largest pumping stations is adequate for a 10-year design event, with the exception of one pumping station, which may require expansion when projected future flows are realized.

The Plan must include procedures to identify system components that are experiencing or contributing to spills caused by hydraulic deficiency and/or limited capacity, including procedures to identify the appropriate hydraulic capacity of key system elements for:

- **Dry-weather peak flow conditions that cause or contributes to spill events;**
- **The appropriate design storm(s) or wet weather events that causes or contributes to spill events;**
- **The capacity of key system components; and**
- **Identify the major sources that contribute to the peak flows associated with sewer spills.**

Central San does not have dry-weather spill events attributed to sewer capacity constraints.

Central San undertakes a comprehensive hydraulic capacity analysis of its sewer system every five years or so. Central San's model predicts that a few existing locations do not meet Central San's capacity deficiency criteria of maintaining at least five feet of freeboard during the 10-year wet weather design event. However, Central San has not observed spills or elevated surcharges at these locations during severe wet weather events.

Central San is currently pursuing efforts to update the Model and to field monitor and validate conditions at the locations predicted by the model to be deficient. A testament to Central San's long-term history of robust hydraulic analyses of its sewer system was its ability to accommodate the severe 2022-2023 winter storms in the San Francisco Bay Area without a capacity related spill.

In addition to modeling the hydraulic capacity of its sewers, Central San also ensures its pumping stations have the capacity to reliably pump design storm event flows.

As the cities within Central San's service area continue to higher density development, and as the Concord Community Reuse project nears, Central San maintains vigilant research and analysis to ensure any potential new developments that could adversely impact its sewer system are identified and addressed.

Central San has worked hard to address past hydraulic constraints within its sewer system and in recent years it has not had sewer spills due to inadequate hydraulic capacity. The cause of sewer spills for Central San fall into one of the following categories:

- Roots
- Grease
- Other Plug
- Physical Defect

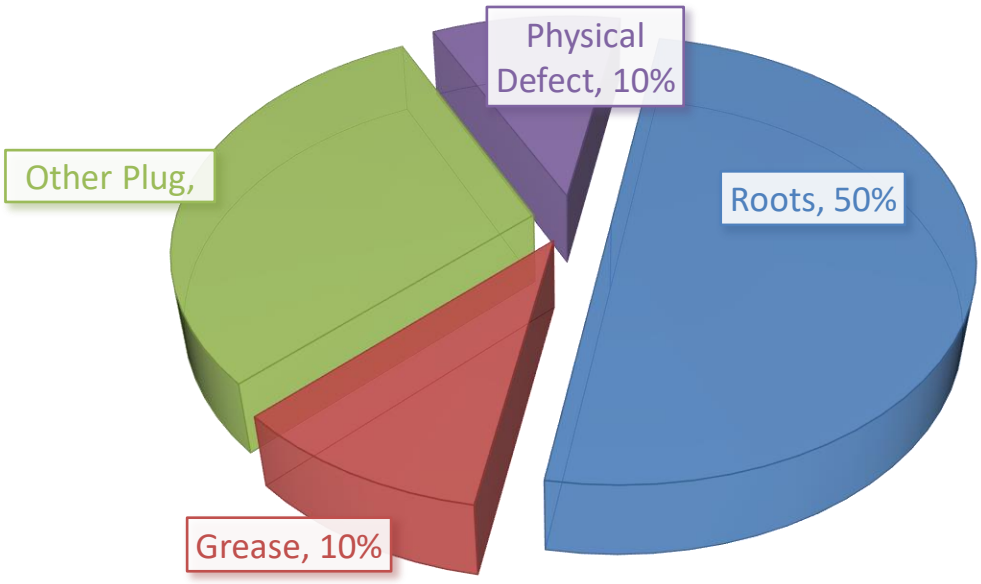


Figure 8.5: 2024 Spill Causes

The capacity assessment must consider:

- **Data from existing system condition assessments, system inspections, system audits, spill history, and other available information;**
- **Capacity of flood-prone systems subject to increased infiltration and inflow, under normal local and regional storm conditions;**

Central San's approach to hydraulic capacity assessment of its sewer system is based on best industry practices, including:

- industry-leading dynamic hydraulic simulation modeling software
- calibration using comprehensive flow monitoring data
- sewer network model based on as-built drawings and field-verified data
- ongoing comprehensive land use development and water consumption data updates

Model simulations are cross-referenced with spill history and other available information to validate the hydraulic outputs further. System inspections and institutional knowledge provide additional ground-truthing of model outputs. Any sewer inspections that identify a hydraulic obstruction due to structure degradation or in-pipe debris are addressed with the highest priority. Where sewer repairs require temporary bypassing of pipe segments, the Planning & Applied Research workgroup's modeling team assists Operations and Capital Project staff to ensure bypass plans are designed to meet Central San criteria.

Central San operates a separate sewer system that does not harvest stormwater flows by design, unlike combined systems. Central San's sewer system has been hydraulically mapped to identify sewer sheds with higher infiltration and inflow. Central San's ongoing sewer renovation program continues to replace several miles of old pipe segments each year, reducing infiltration into its sewers. While Central San aspires to continued operational improvements and efficiencies, the ability of its sewer to accommodate severe wet weather without triggering capacity related spills is testament to Central San's very conservative approach to sewer capacity design.

Central San has one pumping station (Martinez), situated near an area that has historically experienced occasional flooding during extreme wet weather and tidal events. Central San's Martinez Pumping Station has been designed to reliably pump design storm event flows, which accounts for inflow and infiltration contributions characterized by comprehensive sewer flow monitoring.

Other pumping stations at elevated risk of flooding include Maltby and Fairview Pumping Stations. As part of the Pumping Station Upgrades Phase 2A Project, Central San is replacing these dry pit Pumping Stations with submersible pumping station configurations that are more resilient to flooding. Similar to the Martinez Pumping Station, these pumping stations are also being designed to reliably pump design storm event flows.

WDR ITEM 8.3:
PRIORITIZATION OF CORRECTIVE ACTIONS

The findings of the condition assessments and capacity assessments must be used to prioritize corrective actions. Prioritization must consider the severity of the consequences of potential spills.

PRIORITIZATION OF ACTIONS

Emergency sewer repairs that pose a risk to the environment or the public are undertaken immediately by CSO crews or contractors, as necessary. In addition to using condition and capacity assessments, non-emergency corrective actions are prioritized using the principals of infrastructure asset management risk: Probability of Failure (POF) and Consequence of Failure (COF).

Asset Business Risk Exposure (BRE) = POF x COF

Probability of Failure: considerations include pipe age, material type, maintenance history, and inspection results.

Consequence of Failure: considerations include proximity of asset to water bodies, potential public exposure, and sewer flow rate.

In addition, Central San considers other contextual factors, such as the proximity to other utility or municipal projects that may be planned for locations that share an overlapping or near a project footprint.

PROJECT PRIORITIZATION

Pipes identified for renovation are prioritized by CCTV defect coding, maintenance history, and proximity to sensitive areas such as creeks and public spaces. Other factors, such as coordination with anticipated neighboring utility or municipality projects, are also brought into project timing and prioritization.

Pipes identified for upsizing or hydraulic relief are prioritized by model-estimated SSS volume under design storm event conditions and the proximity to and relative elevation of the nearest water body.

CAPACITY PROJECT DEVELOPMENT

Capacity-related projects are developed during the Infrastructure Planning process. Preliminary upsizing and relief project corridors are determined by running alternative scenarios in the hydraulic model with upsized pipes and/or adding relief sewers. Projects are further refined during pre-design to address constructability and long-term operation and maintenance needs. Any pipe size or alignment changes made during the design process are analyzed in the model to satisfy hydraulic design criteria.

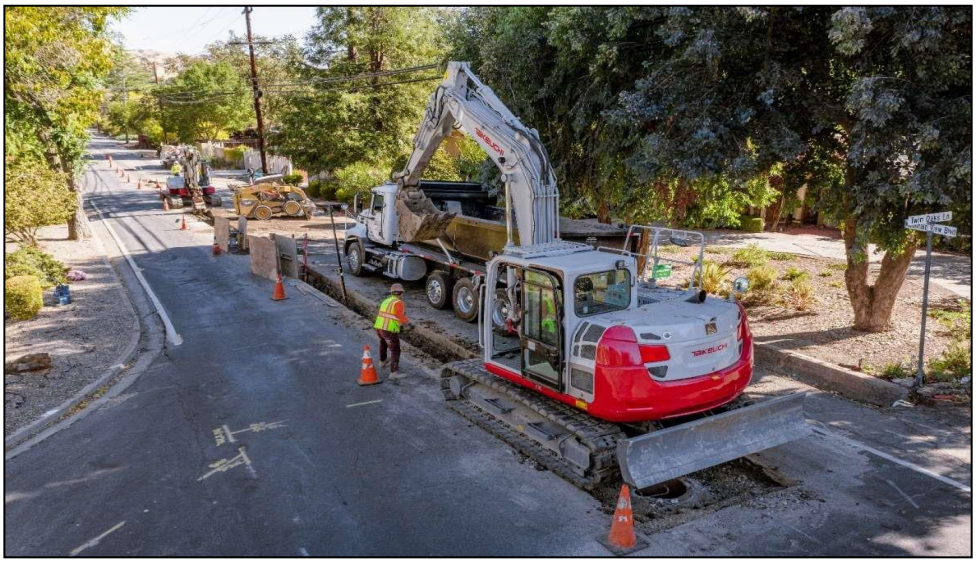


Figure 8.6: Sewer Construction

Figure 8.7: Capacity Enhancement Process

Refer to Element 5 – Design Performance Provisions, WDR Item A and B, for information on Central San's Design and Construction Process for Capital Projects.

WDR ITEM 8.4:
CAPITAL IMPROVEMENT PLAN

The capital improvement plan must include the following items:

a. Project schedules including completion dates for all portions of the capital improvement program;

PROGRAM SCHEDULE

Based on analysis of historical SSS data and InfoAsset™ Planner projections, Central San's current collection system priorities are focused towards replacing small diameter vitrified clay pipe (VCP). Criteria for selection of these pipes are presented in Element 4.

Timing and budget estimates for all collection system projects are subject to change, due to potential additional information becoming available that may influence the need and scope of each project, such as new condition assessment data and/or flow monitoring data, as well as potential changes to collection system infrastructure priorities. As model-predicted capacity related deficiencies are validated through flow and level monitoring, capacity relief projects will be included in the CIB and CIP. A schedule and budget estimate for Central San capacity improvement projects is provided below in Table 8.1.

BASIS OF COST ESTIMATES

Cost estimates are prepared to guide project evaluation and implementation and establish CIP budgets. Cost estimates are developed from several sources with bid tabulations, cost curves, and unit costs obtained from previous studies. Actual project costs will depend on labor and material costs at the time of bidding, competitive market conditions, the final project scope, and detailed utility and topography surveys.

Table 8.1: Capital Project Schedule and Funding

Project No.	Project Name	10 Year Budget	Anticipated Completion Date
8443	Large Diameter Pipeline Inspection Program - Phase 1	$4,400,000	2029
8444	Force Main Inspection Program - Phase 1	$1,250,000	2028
8447	Pumping Station Security Improvements	$100,000	2025
8450	Development Sewerage Support	$2,781,000	2027
8457	Pumping Station Upgrades - Phase 2A	$13,350,000	2027
100006	Central San Sewer Financing Programs	$700,000	2031
100007	39-Inch Main Trunk No. 1 Renovation	$3,500,000	2027
100037	Orinda-Moraga PS Arch. Improvements	$1,100,000	2027
100039	Collection System Sewer Renovation - Phase 2	$51,400,000	2027
100041	Buchanan Lift Stations Abandonment & Sewer	$5,350,000	2027
100042	Pumping Station Upgrades - Phase 2B	$4,831,000	2026
100044	Collection System Modeling Support	$1,140,000	2035
100059	Collection System Planning	$1,800,000	2035
100060	Pumping Station Equipment & Piping Replacement 2023+	$1,800,000	2035
100061	Maintenance Access Cover Modifications	$3,000,000	2035
100070	Cedar Lane Sewer Modifications	$600,000	2025
CS-TBD12	Collection System Renovation Program - All Pipelines	$185,500,000	2035
CS-TBD13	Development Sewerage Support 2027+	$7,650,000	2035
100062	Pumping Station SCADA & PLC Upgrades	$2,300,000	2029
CS-TBD10	Collection System Master Plan (2034 Update)	$500,000	2035
CS-TBD14	Contractual Assessment District Project (2034)	$1,050,000	2035
	Collection System Total	$294,102,000	

b. Internal and external project funding sources for each project; and

OVERVIEW

Central San funds an extensive Capital Improvement Program (CIP) designed to preserve, maintain, and enhance Central San's assets; meet regulatory requirements; accommodate the community's needs; and protect public health and the environment. Capital improvements are construction or renovation activities that add value to Central San's fixed assets (pipelines, buildings, facilities, and equipment) or significantly extend their useful life.

Central San Capital Projects are jointly coordinated between operation and maintenance staff and

engineering consultants (as needed) during planning, design, and construction. The project team undertakes interagency coordination with impacted utilities and municipalities during the initial phases of design through to project completion.

CIP FUNDING SOURCES

The CIP is funded by the Sewer Construction Fund's fees and charges listed below, which are discussed in detail in the Financial Summary of Central San's Fiscal Year Budget document which can be found online at the following link:

https://www.centralsan.org/financial-information

- Capacity Fees
- Pumped Zone Fees
- Property Taxes
- Interest
- Sewer Service Charges
- Reimbursement from Others
- Potential Federal Grant Funding

While Central San generally follows a pay-as-you-go philosophy, Sewer Service Charge rate increases can be mitigated by utilizing the Clean Water State Revolving Fund Program which offers low-cost financing for a wide variety of water quality projects to spread the payment over time.

PROCESS

Annually, Central San updates its Ten-Year Capital Improvement Plan (Ten-Year CIP). The CIP identifies and prioritizes capital projects needed to accomplish Central San's Strategic Plan and provides the basis for project scheduling, staffing, and long-range financial planning. The CIP also serves as the framework for rate setting and decisions based on planned expenditures. The CIP undergoes several levels of review by Central San as detailed in the Ten-Year CIP section. Once a project is determined to be necessary, usually based on operational or maintenance needs or condition assessments, the project is listed in the Capital Improvement Budget (CIB). In addition, new or rescheduled projects may occur during any given year due to urgent requirements or unforeseen circumstances. These projects are referred to as new or contingency projects and are included in the CIB as needed.

a. Joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and Interagency coordination with other impacted utility agencies.

JOINT COORDINATION & PRIORITIZATION

The FY 2024-25 CIB projects have been prioritized to ensure the best use of Central San funds. Each project was evaluated using a prioritization scoring system that includes input from stakeholders within the

Operations and Engineering Departments. Central San staff also coordinate with municipal Public Works departments to optimize scheduling wherever possible to ensure the timely completion of projects while minimizing disruption to communities.

The prioritization scoring system uses existing Central San prioritization strategies, including guidelines developed by past scoring methods using the Water Environment & Reuse Foundation and prioritization procedures from the National Association of Clean Water Agencies' member agencies. Scoring for each project uses weighted criteria, emphasizing projects currently under construction, those associated with asset management, regulatory requirements, commitments, and simplified this fiscal year and all projects reprioritized. The criteria used to develop the scores take into consideration six weighted criteria: aging infrastructure - reliability, capacity - redundancy, regulatory compliance, safety, sustainability optimization, and project phase (near-term planning, final design, or construction) as summarized below:

Table 8.2: CIP Prioritization Criteria

Aging Infrastructure – Reliability (Max. 20 points)
Key Asset Replacement
Consistent with the Asset Management Program
Improves Reliability and System Performance
Capacity – Redundancy (Max. 10 points)
Increases Capacity to Meet Projected Build-out
Improves Facility-Wide Resiliency
Regulatory Compliance (Max. 10 points)
Driven or Complies with Regulatory Requirements and Mandates
Impacts or Needed Improvements to Continue Meeting Regulatory
Safety (Max. 20 points)
Required for Safe & Reliable Operations
Reduces Potential Health or Safety Hazards
Sustainability – Optimization (Max. 10 points)
Optimizes Capital and/or Operations and Maintenance Costs
Increases Sustainable Use of Natural or Existing Resources
Reduces Social and or Environmental Impacts
Supports Timely Adoption of Technology Improvements
Project Phase and commitments (Max. 30 points)
Meets Commitment with Outside Agency or Existing Contract
Implements Board of Directors' Policy/Priority
Impacts Phasing or Implementation Schedule for Other Projects

Capacity-related projects are phased according to simulated SSS predictions using Central San design event criteria and future flow predictions. Refer to Table 8.1 for the current schedule and estimated budget allocation for the identified capacity improvement projects.

SSMP ELEMENT 9:
MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

WDR REQUISITES

The Plan must include an Adaptive Management section that addresses Plan- implementation effectiveness and the steps for necessary Plan improvement, including:

9.1 Maintaining relevant information, including audit findings, to establish and prioritize appropriate Plan activities;

9.2 Monitoring the implementation and measuring the effectiveness of each Plan Element;

9.3 Assessing the success of the preventive operation and maintenance activities;

9.4 Updating Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations; and

9.5 Identifying and illustrating spill trends, including spill frequency, locations and estimated volumes.

CENTRAL SAN COMPLIANCE

ADAPTIVE MANAGEMENT APPROACH

Central San's sewer system performance continues to improve and evolve by:

- leveraging industry-leading operations and maintenance practices,
- using quantitative capital planning practices
- employing best practices for pipe renovation and replacement

Central San's Adaptive Management consists of:

1) Maintaining relevant information to establish and prioritize activities
2) Monitoring and measuring the effectiveness of each Element
3) Assess the success of preventive O&M activities
4) Updating procedures and activities as appropriate, based on performance evaluation
5) Interpreting data to identify trends and opportunities for improvement

These five components of Central San's Adaptive Management approach are presented in more detail below, in sections 9.1 through 9.5. Central San's ongoing approach of Plan, Do, Check, Act ensures that all aspects of how it manages its infrastructure performance are periodically reviewed for effectiveness.

WDR ITEM 9.1:

MAINTAINING RELEVANT INFORMATION, INCLUDING AUDIT FINDINGS, TO ESTABLISH AND PRIORITIZE APPROPRIATE PLAN ACTIVITIES

GENERAL

The Planning and Applied Research workgroup within the Engineering and Technical Services Department is responsible for updating and reviewing the SSMP. Engineering staff have ongoing communications with CSO staff to review the SSMP effectiveness and identify areas of improvement and change.

Central San is committed to ensuring staff are kept well-informed with changes in the regulatory environment and the latest developments in the wastewater industry. Central San staff are actively engaged in professional industry organizations, including CWEA, BACWA, CASA, and WEF. In addition to Central San's continuous improvement approach to maintaining the collection system, the performance of the collection system is presented annually to Central San's Board of Directors.

Central San's new Capital Planning software tool (InfoAsset Planner) is periodically updated with the latest CMMS, CCTV, and hydraulic data to support proactive decision-making and objective prioritization of Capital Project needs.

Meetings and workshops with all pertinent staff are undertaken to revise the SSMP as necessary and to obtain consensus on those changes. External review by a consultant or another wastewater agency could occur if staff deems necessary or helpful.

APPROACH

CSO Supervisors, Division Manager, and Senior Engineer meet bi-monthly to:

- Review operational performance of the collection system, including QA/QC results
- Plan ahead for coordination with construction projects or other anticipated field activities
- Debrief any SSS and/or stoppages, incidences, including causes and mitigation
- Prioritize work

Pertinent metrics associated with the performance of the collection system are collated and posted at CSO facility every month to identify trends and the overall performance of the collection system. These metrics are also presented and discussed during the crew's monthly meetings, which all CSO staff attend.

AVAILABLE DATA

Central San tracks the following metrics on a monthly and annual basis:

- Number of spills
- Cause of spills
- Volume of spills by SWRCB category
- Location of spills
- Amount of spill liquid recovered
- Pipe size and pipe material

- Number of spills per 100 miles
- Miles of pipe cleaned
- Miles of pipe CCTV'd
- Number of QA/QC checks completed on cleaned pipe
- QA/QC pass rate for cleaned pipe
- Number of spot repairs completed
- Number of work orders completed
- Number of Underground Service Alerts completed
- Number of customer satisfaction surveys completed for emergency calls
- Average customer service rating
- Average response time to spills

In addition, Central San participates in the SWRCB's online self-monitoring and reporting system, commonly referred to as CIWQS. This online data platform tracks information about collection system performance for agencies within the state of California.

WDR ITEM 9.2:

MONITORING THE IMPLEMENTATION AND MEASURING THE EFFECTIVENESS OF EACH PLAN ELEMENT

APPROACH

Central San has been monitoring the effectiveness of how it manages its collection system infrastructure for decades. Central San continually reviews and optimizes how it manages the infrastructure.

Table 9.1 below summarizes the performance indicators Central San uses for tracking the effectiveness of each of its SSMP Elements.

Table 9.1 Performance Indicator Summary

SSMP Element	Summary of Element Purpose	Performance Indicator for Tracking Effectiveness
Goal and Introduction	Establish priorities of Enrollee and provide focus for Enrollee staff	Annual review of goals based upon results of performance evaluations
Organization	Document organization of Enrollee staff and chain of command/communication for SSS response	Review of Organization Chart and all contact information, making any changes identified
Legal Authority	Ensure the Enrollee has sufficient legal authority to properly maintain and protect the integrity of the system	Annual review of codes and/or ordinances for revisions, including schedule for identified updates

Table 9.1 continued

SSMP Element	Summary of Element Purpose	Performance Indicator for Tracking Effectiveness
Operations and Maintenance Program	Minimize blockages and SSSs by properly operating and maintaining the system	• Total number and volume of SSSs • Number of repeat SSSs (from same location as any previous SSS) • Total volume spilled • Total amount recovered • Total amount estimated to reach surface waters • Percent reaching surface water • Number of pipe failures • Total length of pipe CCTV'd • Total length of pipe cleaned • Total number of spot repairs • Total length of pipe repaired or replaced
Design & Performance Provisions	Ensure new facilities are properly designed and constructed	Annual review of new technologies and materials for collection systems assets
Spill Emergency Response Plan (SERP)	Provide timely and effective response to SSS emergencies and comply with regulatory reporting requirements	• Average response time from call to arrival • Percent of total SSS volume contained or returned to sewer
Sewer Pipe Blockage Control Program	Minimize blockages and spills due to FOG	• Number of blockages due to FOG • Number of SSSs due to FOG • Number of FOG-producing facilities inspected
System Evaluation & Capacity Assurance, and Capital Improvements	Evaluate portions of the sewer system that are capacity deficient and implement measures to mitigate deficiencies	Periodic large-scale flow monitoring and system capacity analysis
Monitoring, Measurement & Program Modifications	Evaluate effectiveness of SSMP, keep SSMP up-to-date and identify necessary changes to SSMP Elements	• Prepare and update performance results in Elements 4, 6 & 7 • Review and update callout forms as needed • Conduct annual review of CIWQS data
Internal Audits	Formally identify SSMP effectiveness, limitations, and necessary changes on an annual basis	Date of completion of last annual audit
Communication Program	Communicate with the public and satellite agencies	Ongoing review of public outreach activities Ongoing review of communication and collaboration with satellite and neighboring agencies

WDR ITEM 9.3:

ASSESSING THE SUCCESS OF THE PREVENTIVE OPERATION AND MAINTENANCE ACTIVITIES

OVERVIEW

Central San's continued success in reducing SSSs is best captured in Figure 9.1 below, which illustrates the annual SSS rate for the past 24 years. The figure illustrates Central San's significant success in reducing SSSs in the early years of the new millennium due to substantial investment in sewer renovation projects.

Following this success is a trend of diminishing returns, even though Central San has continued to improve the practice of managing the collection system infrastructure and implementing new tools and initiatives. This point of diminishing returns is characteristic of managing any engineered asset. It is not unlike the diminishing returns on investment for Water Resource Recovery Facilities in terms of water quality improvement per dollar invested. That aside, Central San is committed to significantly increasing its investment in sewer renovation projects in the coming years to ensure its SSS trends continue to diminish. Please refer to Element 4 for more information.

Table 9.2 Annual SSS Statistics

	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Number of Dry Weather SSS's (occurring May - Oct)	12	12	10	10	6
Number of Wet Weather SSS's (occurring Nov - April)	12	14	13	3	4
Total Number of SSS's	24	26	23	13	10
Number of SSS's per 100 miles of sewer	1.56	1.69	1.49	0.84	0.65
Number of SSS's <100 gallons	14	15	11	8	3
Number of SSS's 100 to 999 gallons	5	10	6	4	4
Number of SSS's 1,000 to 9,999 gallons	3	1	6	1	2
Number of SSS's > 10,000 gallons	0	0	0	0	1
Total Volume of SSS's (1,000 gallons)	49.09	6.81	50.6	4.0	19.5
Total Volume Recovered (1,000 gallons)	23.65	2.33	45.3	0.73	7.4
Net Volume of SSS's (total minus recovered - 1,000 gallons)	25.44	4.48	5.3	3.27	12.1
% Volume not recovered	51.8%	65.8%	10.5%	81.8%	62%
SSS's caused by:					
Roots	18	23	12	9	5
Grease	3	1	1	2	1
Debris	0	0	6	0	0
Pipe Failure	0	0	0	0	1
Pumping Station Failure	0	1	0	0	0
Capacity - limited pipe segments, no debris	0	0	0	0	0
Other	3	1	4	2	3
Number of locations with more than one SSS in the past year	0	0	0	0	0
Average Response Time (minutes) - during business hours	32	28.5	20.3	21.5	24.6
Average Response Time (minutes) - after business hours	33	33	36	39.0	34.1

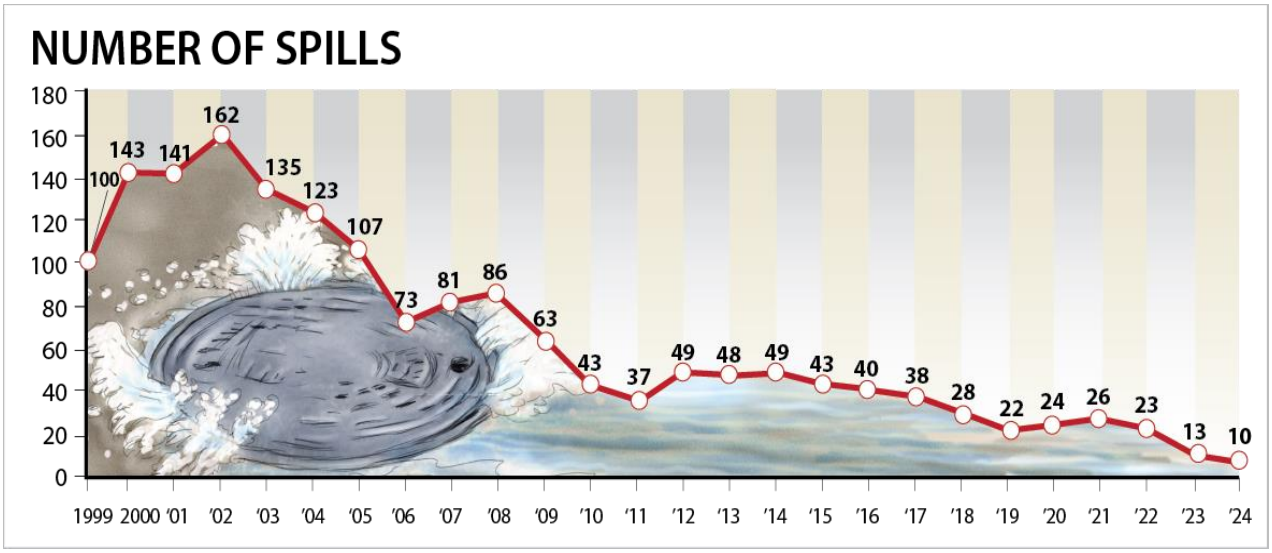


Figure 9.1 Central San's Annual SSS Trends

STATEWIDE AND REGIONAL COMPARISON

Central San's performance compares very favorably to the state and our region (Region 2), both in terms of SSSs per 100 miles of sewer owned and the average volume spilled per SSS. Refer to Table 9.3 below for calendar years 2022-24.

Table 9.3 Comparative Data from CIWQS - Calendar Years 2022-2024

Comparative Data from CIWQS - Calendar Year 2022

	Statewide	Region 2	Central San
Number of Spills	2,652	749	23
Total Volume - Gallons	110,297,941	103,704,436	50,605
Spills per 100 miles	3.44	4.65	1.49
Average Volume per SSS - Gallons	41,591	138,457	2,200

Comparative Data from CIWQS - Calendar Year 2023

	Statewide	Region 2	Central San
Number of Spills	1,860	549	13
Total Volume - Gallons	67,420,590	16,868,036	4,043
Spills per 100 miles	2.52	3.49	0.84
Average Volume per SSS - Gallons	36,248	30,752	311

Comparative Data from CIWQS - Calendar Year 2024

	Statewide	Region 2	Central San
Number of Spills	993	324	10
Total Volume - Gallons	60,998,668	33,691,301	19,517
Spills per 100 miles	1.47	2.16	0.65

WDR ITEM 9.4:

UPDATING PLAN PROCEDURES AND ACTIVITIES, BASED ON MONITORING AND PERFORMANCE EVALUATIONS

Average Volume per SSS - Gallons	61,429	103,985	1,952

APPROACH

In the last ten years, Central San has made significant investments to optimize how it manages its infrastructure further, identify and plan for future needs to support its Strategic Plan goals, and further reduce the occurrence of SSSs (Table 9.3). Refer to Element 4 for further information on the above initiatives.

Table 9.4 Central San Program Element Updates

Initiative	Element Updated
Comprehensive Wastewater Master Plan	4 – Operations & Maintenance Program 8 – System Evaluation, Capacity Assurance, and Capital Improvements
Tablets for Field Crews	4 – Operations & Maintenance Program
Acoustic Rapid Sewer Inspection Equipment	4 – Operations & Maintenance Program
Enterprise GIS System	4 – Operations & Maintenance Program
CMMS Software System	4 – Operations & Maintenance Program
CCTV Software System	4 – Operations & Maintenance Program
Analytical Capital Planning Software System	4 – Operations & Maintenance Program
Standard Specifications Amendment	5 – Design & Performance Provisions
Spill Emergency Response Plan	6 – Spill Emergency Response Plan
Large-scale Sewer Flow Monitoring	8 – System Evaluation, Capacity Assurance, and Capital Improvements
New Hydraulically Dynamic Sewer Model	8 – System Evaluation, Capacity Assurance, and Capital Improvements

WDR ITEM 9.5:

IDENTIFYING AND ILLUSTRATING SPILL TRENDS, INCLUDING FREQUENCY, LOCATIONS AND ESTIMATED VOLUMES

APPROACH

To reduce the likelihood of future SSSs, Central San analyzes data to identify trends, which are then leveraged to revise cleaning frequencies and strategically plan for Capital Projects. The following charts illustrate trends for various data associated with SSSs.

DATA TRENDS 2020 – 2024

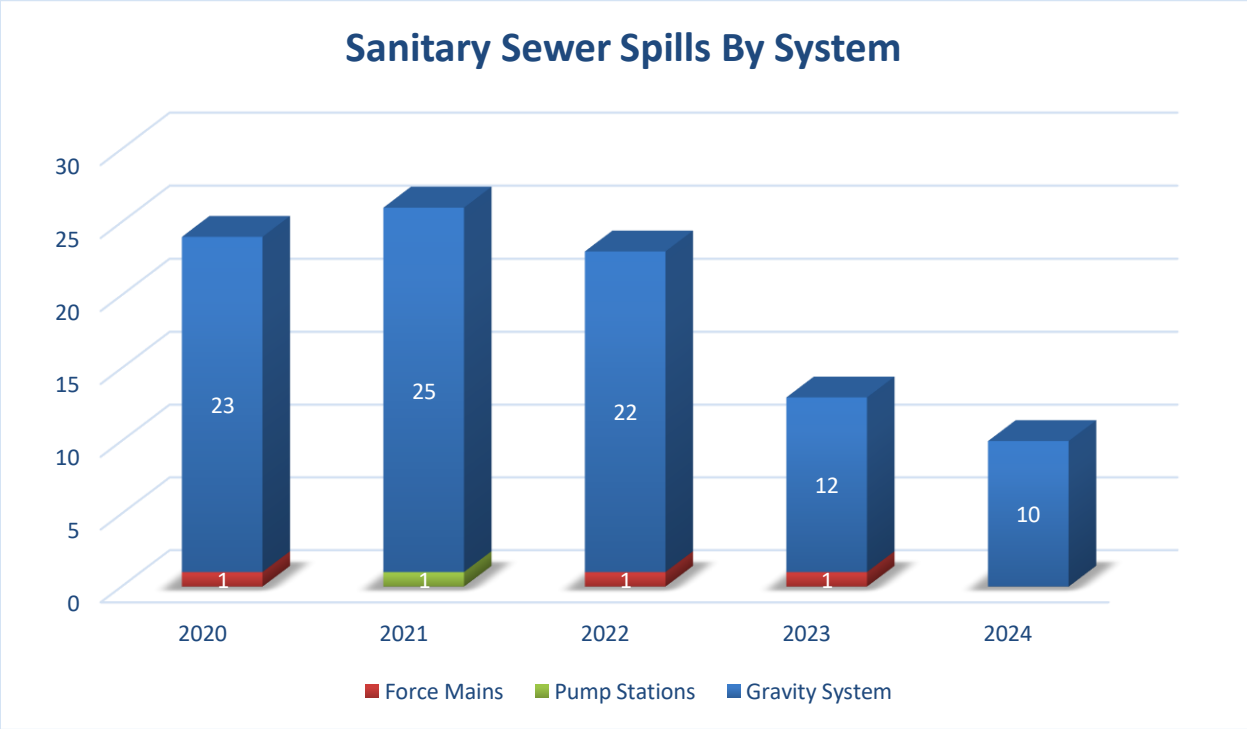


Figure 9.2 SSSs Per Year by System

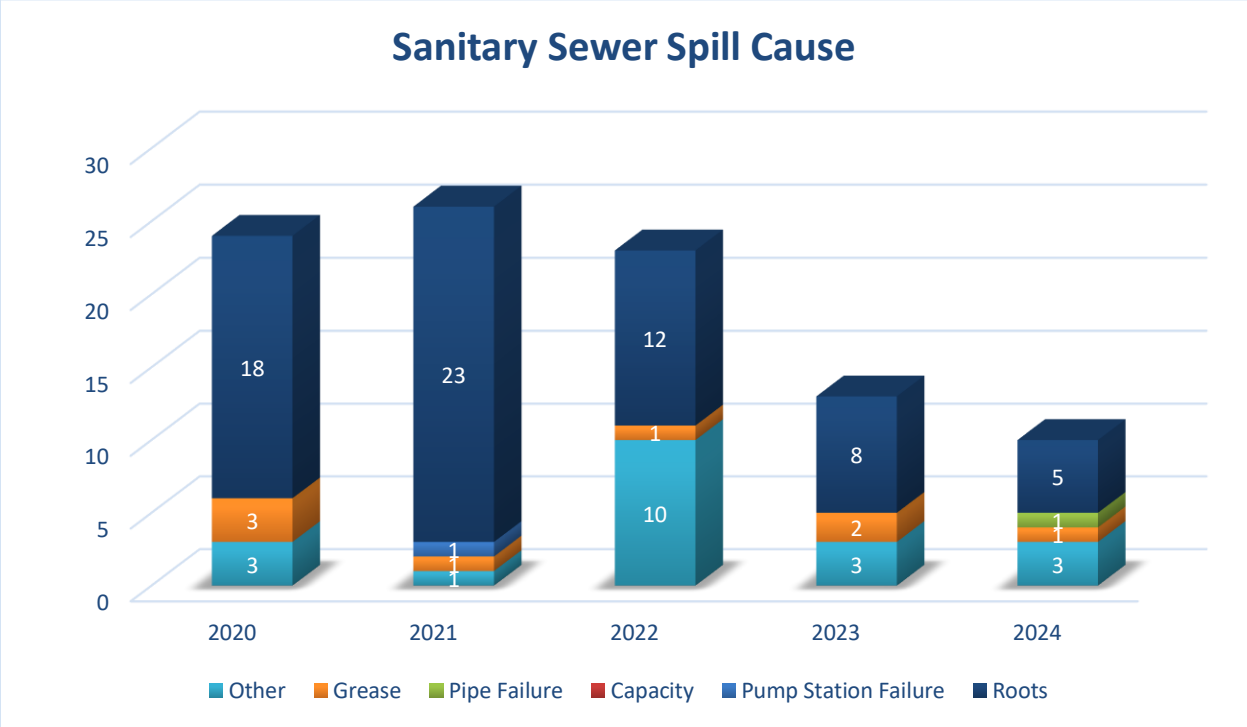


Figure 9.3 SSSs Per Year by Cause

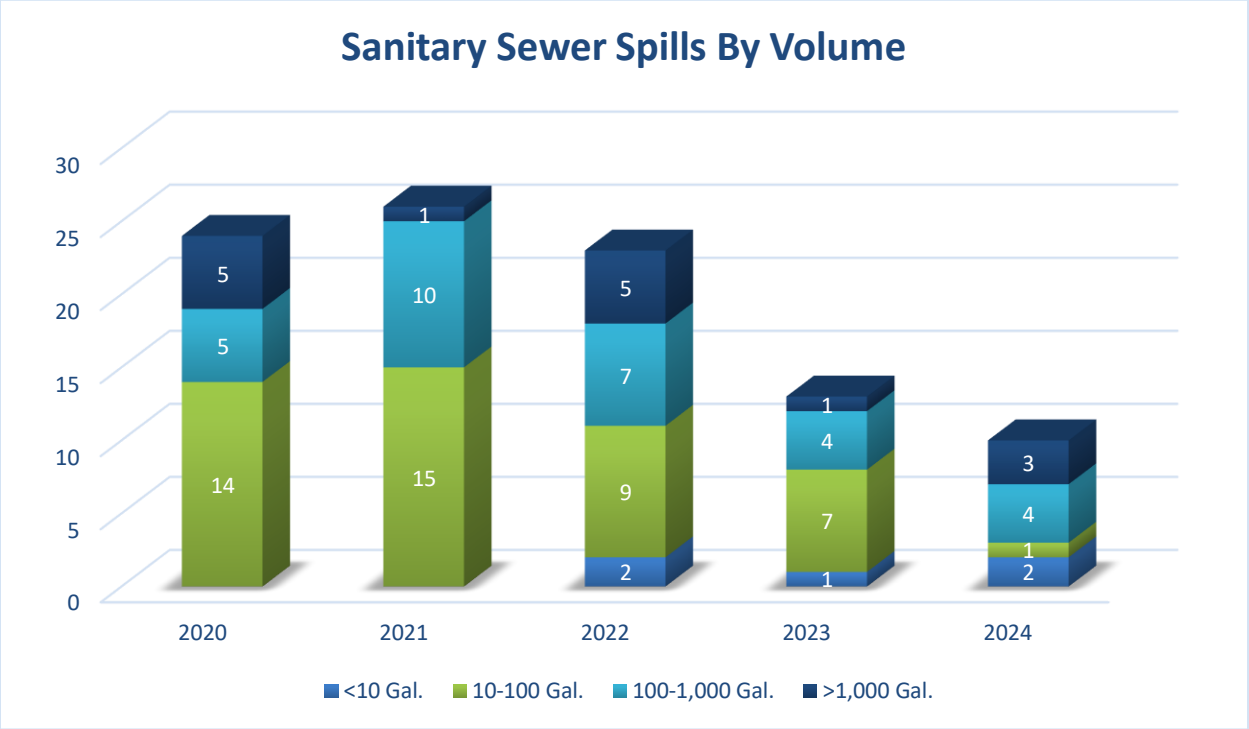


Figure 9.4 SSSs by Volume

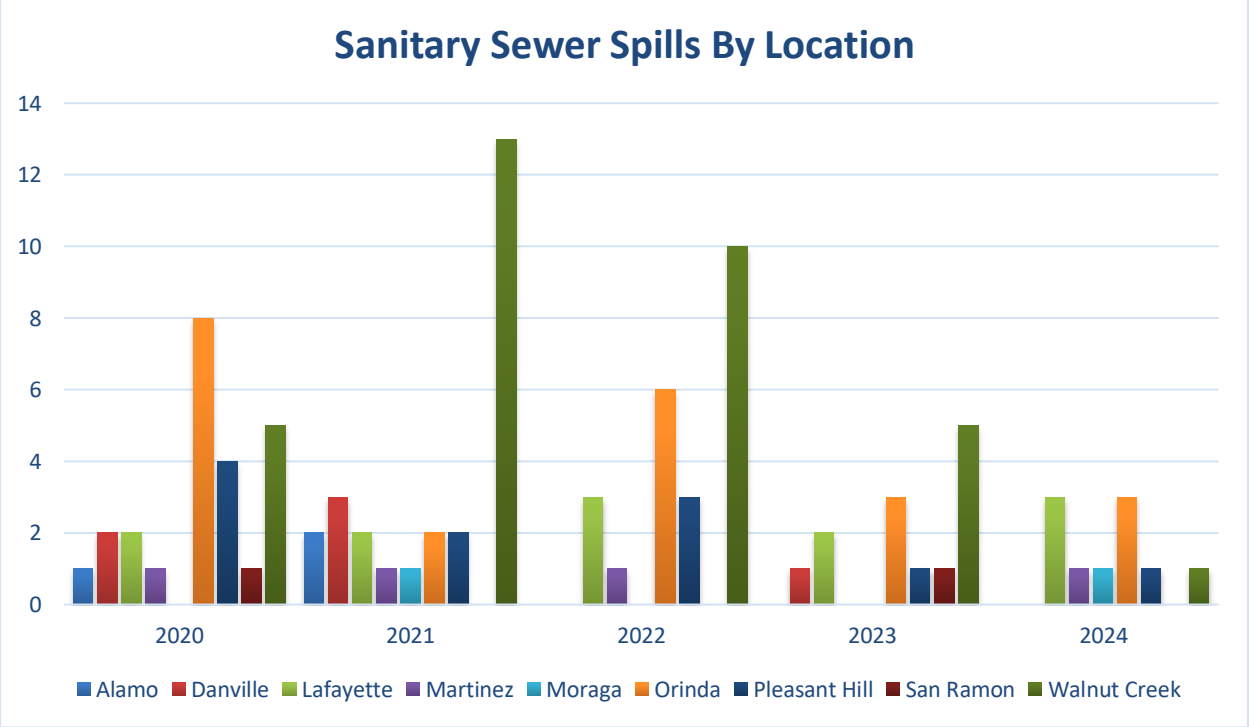


Figure 9.5 SSSs by Location

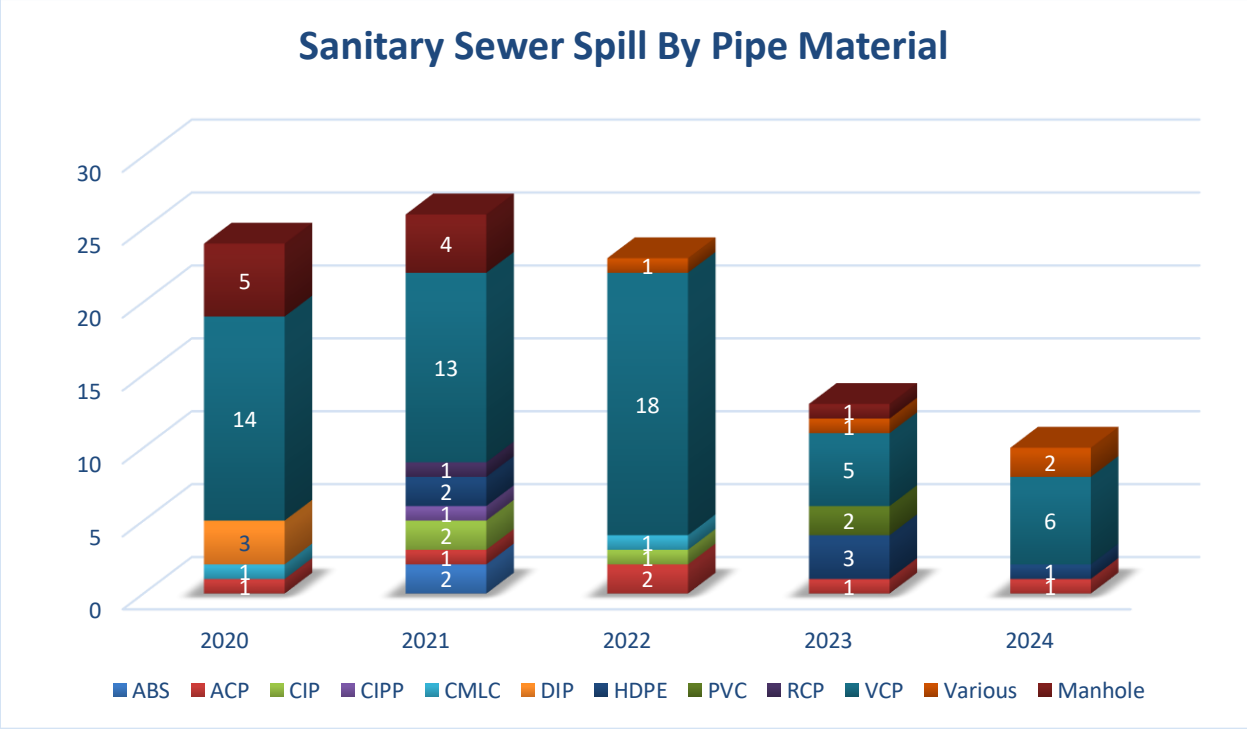


Figure 9.6 SSSs by Pipe Material

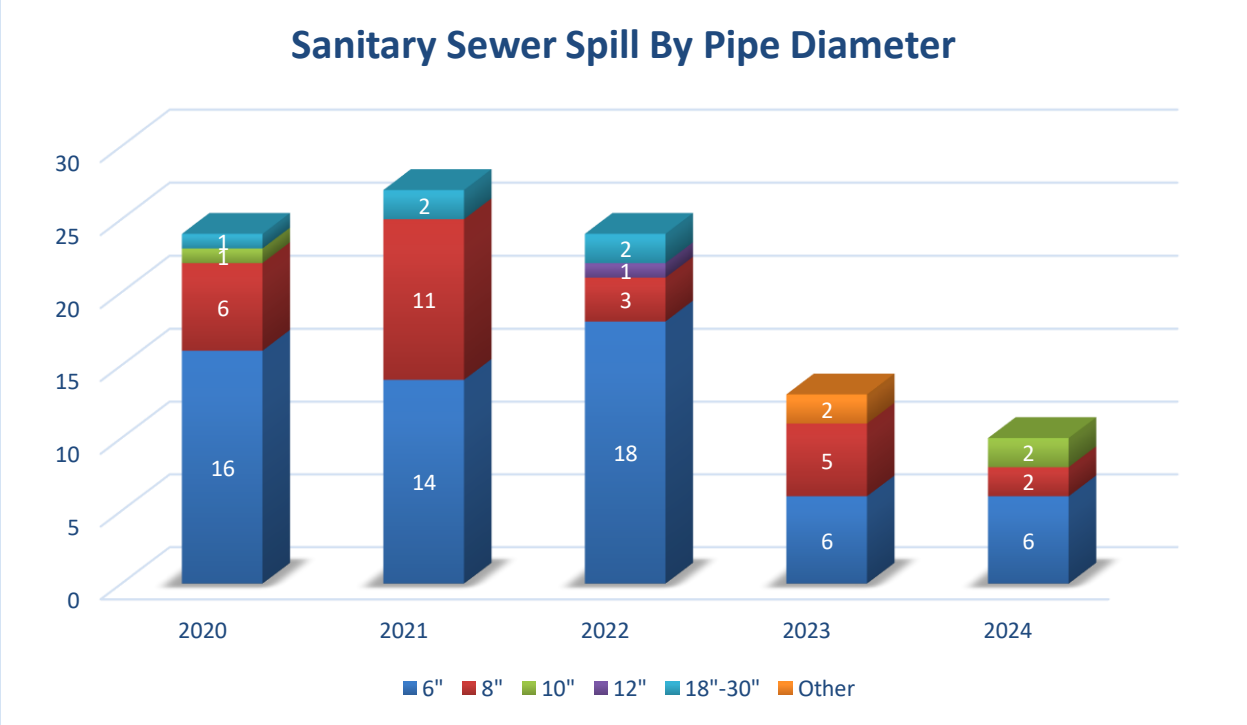


Figure 9.7 SSSs by Pipe Diameter

PERFORMANCE REFLECTION

GENERAL

Overall, Central San continues to consistently reduce the number of SSSs that occur within its service area. During the last five years, SSSs have typically been caused by roots. Moreover, most SSSs occur on six- and eight-inch diameter VCP, within Lafayette, Orinda, and Walnut Creek communities.

In alignment with the trends identified in the Central San data above, the pipe renovation work completed within the last five years primarily focused on six- and eight-inch diameter VCPs and within communities with the highest SSS rates. In total, over 35 miles of sewer pipe was renovated in the last five years.

Since 1960, Central San's Standard Specifications have required a minimum pipe size of eight inches in diameter for gravity pipes. This is primarily due to the maintenance issues associated with small-diameter pipes and their susceptibility to blockage. For new public sewers, Central San engineers carefully specify pipe materials and construction techniques to optimize the long-term performance of the sewers. Moreover, Central San engineers carefully design alignments to minimize future maintenance challenges wherever possible. Capital Projects are developed as a team effort between Engineering and CSO staff.

Central San's robust FOG Inspection program ensures that FOG-related SSSs are minimal.

STRATEGIC SSS REDUCTION APPROACH

STRATEGY TO FURTHER REDUCE SSSs

Central San uses a multi-layered approach to improve its infrastructure performance continually. This approach leverages teamwork, technology, and asset management best practices.

Teamwork

O&M staff debriefs after every SSS and stoppage to review causes and, if appropriate, revise cleaning frequencies. When pipe repair or replacement is needed, it is either undertaken by CSO staff or with a Central San contractor, depending on the scope and urgency of the work. Central San engineers design and manage the construction of collection system renovation projects. This expertise is leveraged to ensure the best engineering solution is provided for each situation.

Technology

Central San has been an early implementer of numerous collection system technologies over the years, including:

- Sonar Rapid Assessment Tools
- Remote Manhole Surcharge Monitoring
- H_2S Monitoring and Controls
- CCTV Tools, Software, and Scoring Methodology
- Tablets and Smart Phones
- Trenchless Construction Techniques
- Innovative Cleaning Methods for Easements
- Analytical Capital Planning Software
- Smart Covers

WAY FORWARD

The primary cause of spills for Central San is roots in 6” and 8” vitrified clay pipe (VCP). Consequently, Central San is accelerating near-term renovations for 6” and 8” VCP schedules. In addition, Central San is undertaking the following initiatives in the near term:

- Continue to pilot technology that may enhance existing condition assessment and operational performance
- Refine analytical Capital Planning software to identify candidate pipes using a risk-based assessment that comprises the likelihood of failure and consequence of failure
- Continue to increase the maturity of the overall asset management program and develop asset-specific asset management plans
- Pilot grease removal technology
- Continue assessing the condition of small-diameter pipelines
- Continue to perform and complete maintenance activities on time with a 95% successful completion date
- Continue to assess the condition of large-diameter pipelines, siphons, and force mains

SSMP ELEMENT 10:
INTERNAL AUDITS

WDR REQUISITES

The Plan shall include internal audit procedures, appropriate to the size and performance of the system, for the Enrollee to comply with section 5.4 (Sewer System Management Plan Audits) of this General Order.

CENTRAL SAN COMPLIANCE

GENERAL

The audit aims to evaluate the compliance and effectiveness of Central San's SSMP with the Waste Discharge Requirements General Order for Sanitary Sewers and to identify opportunities to improve existing practices further. The audit procedure consists of an audit worksheet, provided in the next section of this document. The audit worksheet is a step-by-step procedure to review all sections of the SSMP to evaluate the effectiveness and compliance with the General Order and correct deficiencies. The audit team completes the worksheet reviewing past data trends to determine the effectiveness of the SSMP and collection system programs. Additions or improvements to collection system operations and any planned additions or improvements are documented. Any changes needed are documented and reflected in the Change Order log.

INTRODUCTION

In accordance with the General Order, WQ 2022-0103-DWQ, the SSMP Audit needs to be appropriately scaled to the size of the system and the number of spills; and the Enrollee operators need to be involved in completing the audit. At a minimum, the Audit must:

- Evaluate the implementation and effectiveness of the Enrollee's SSMP in preventing spills;
- Evaluate the Enrollee's compliance with the General Order;
- Identify SSMP deficiencies in addressing ongoing spills and discharges to waters of the State; and
- Identify necessary modifications to the SSMP to correct deficiencies.

CENTRAL SAN SEWER SYSTEM PERFORMANCE OVERVIEW

Central San's 25-year spill trend (Figure 10.1 below) illustrates the effectiveness of Central San's SSMP and its infrastructure management program. While the audit template and audit questions used for a small utility are also applicable to large utility owners, what is key to utility effectiveness is scaling an

infrastructure management program to the size of the utility and tracking the maturity (or competency) of that program.

Central San is meeting its own strategic goals and levels of service targets for the sewer system and the SSMP. As Central San's spill trend illustrates below, Central San's infrastructure management program is achieving its aim.

Historically, Central San's spills have been attributed to the characteristics of old, small-diameter clay pipe that was installed many decades ago. Associated failure triggers for this pipe material include:

- material fractures
- joint displacement
- root intrusion

Over the last 20 years, Central San has focused on replacing its clay pipe with newer materials, such as high-density polyethylene (HDPE). The benefits of newer pipe material technology and newer installation methods include increased resilience to cracking, joint displacement, and root intrusion.

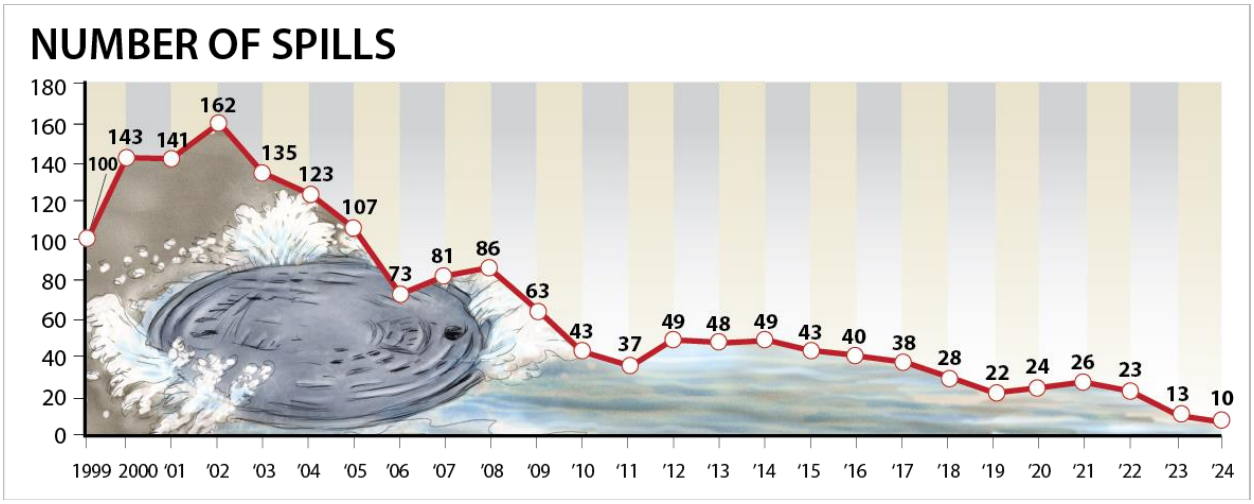


Figure 10.1: Central San's Long-Term Sewer Spill Trends

CENTRAL SAN CONTINUOUS IMPROVEMENTS

Central San was an early adopter of trenchless technologies in the wastewater industry, which not only improves the performance of the sewer but also significantly reduces the disruption to the community during construction.

In addition, Central San staff are active participants and representatives of technology and regulatory professional associations, such as the Northern California Pipe User's Group and the Bay Area Clean Water Association. Central San staff use these organizations to share their expertise and learn new techniques for enhancing its sewer system construction and management practices.

Moreover, Central San has modified its standard specifications progressively over the decades to improve the performance of its sewers, including the performance of its associated structures and the resiliency of its pumping stations and associated force mains.

In 2009, Central San was awarded Project of the Year Runner-Up by Trenchless Technology™ for its large-diameter sewer project, which used pipe-jacking, micro-tunneling, and open-cut techniques to complete a complex and critical sewer infrastructure improvement project. In addition, the innovative project eliminated the need for a 50 MGD pumping station.

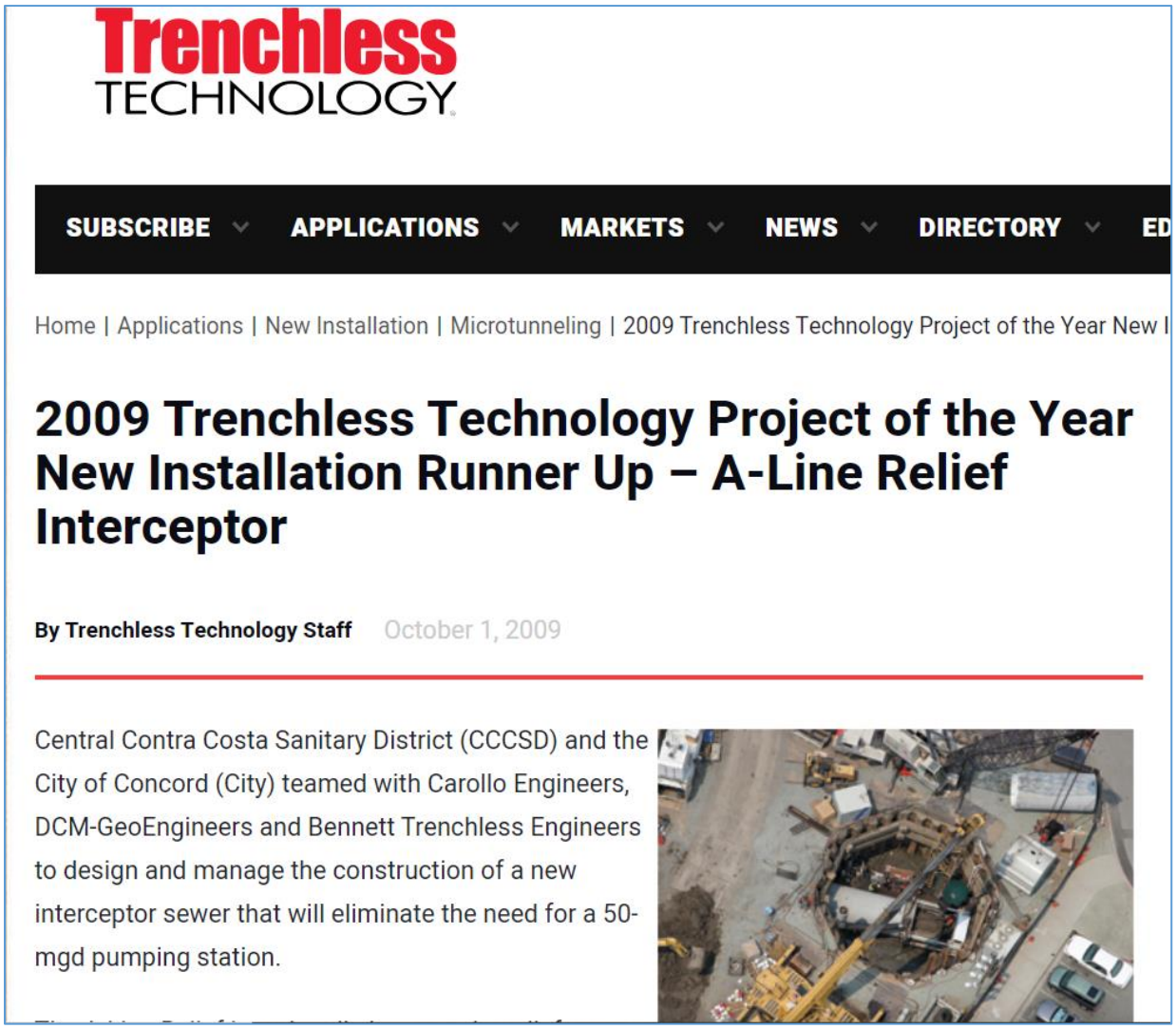


Figure 10.2 Central San's 2009 Trenchless Technology Project Award

FORMAL PEER RECOGNITION AND EXCELLENCE AWARDS

Since 2012, Central San has received regional peer recognition, awarded three (3) times with the Collection System of the Year Award - Clean Water Environment Association, San Francisco Bay Section. The awards were given after comprehensive peer reviews of Central San's processes, procedures, sewer performance, and facilities.

CWEA
PROTECTING CALIFORNIA'S MOST CRITICAL RESOURCE

WDR ITEM 10.1:
ANNUAL AUDIT TEMPLATE

Central San will be transitioning from the existing template that was developed by BACWA several years ago to a new Audit Template in response to the new General Order WDR changes. Central San's Audit Template below was used for the most recent audit for its October 2022 SSMP.

Central Contra Costa Sanitary District
Sewer System Management Plan Annual Audit Report
Date:

The purpose of the SSMP Audit is to evaluate the effectiveness of the Central San's (District's) SSMP and to identify any needed improvements to assure the effective operation of the sanitary sewer collection system to achieve the goals of the SSMP

Audit Team: *Paul Seitz, P.E. – Collection System Operations Division Manager*
Jason DeGroot, P.E. – Collection System Operations Senior Engineer
Steve Sauter – Superintendent Operations and Maintenance

Directions**:** Please check YES or NO for each question. If NO is answered for any question, describe the updates/changes needed and the timeline to complete those changes.

		YES	NO
ELEMENT 1 - GOALS			
A.	Have there been any changes to the system that require updates to the System Overview summary in the Introduction?	☐	☐
B.	Is Figure 1.1, Service Area and Geographic Features up-to-date?	☐	☐

C.	Have the boundaries of the District's service area changed since the last Audit? If so, describe the changes.	☐	☐
D.	Have there been any changes in the regulations that should be identified and described in the Introduction?	☐	☐
E.	Are the goals stated in Element 1 still appropriate and accurate?	☐	☐
Discussion:			
ELEMENT 2 - ORGANIZATION			
A.	Is the List of District Staff Responsible for SSMP, Table 2.2 current?	☐	☐
B.	Is the Sanitary Sewer Spill Responder List current?	☐	☐
C.	Is Figure 2.1 of the SSMP, the District Organization Chart, current?	☐	☐
D.	Are the position descriptions an accurate definition of staff responsibilities?	☐	☐
E.	Is the Table for the Chain of Command for Reporting and Responding to SSS's section accurate and up-to-date?	☐	☐
F.	Is the list of LRO officials and data submitters in the CWIQS System current? Are all legally responsible officials and data submitters identified in the SSMP? Have all terminated officials been removed from the CIWQS System on the required timeline as required by the GWDR?	☐	☐
Discussion:			

ELEMENT 3 - LEGAL AUTHORITY			
Does the SSMP contain current references to the District Code and the City of Concord Municipal Code documenting the Districts' legal authority to:			
A.	Prevent illicit discharges?	☐	☐
B.	Require proper design and construction of sewers and connections?	☐	☐
C.	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the District?	☐	☐
D.	Limit discharges of fats, oils, and grease?	☐	☐
E.	Enforce any violation of its sewer ordinances?	☐	☐
F.	Were any changes or modifications made in the past year to District Sewer Ordinances, Regulations, or Standards? If so, please state below.	☐	☐
G.	Are the sewer service charge provisions current and provide the authority for full funding of the sanitary sewer operations?	☐	☐
H.	Has there been documented and regular communications with other agencies such as City of Concord and other cities in the District's service area in the past year? If so, are these meetings and communications documented appropriately?	☐	☐
I.	Are all report forms used during sanitary sewer system cleaning and CCTV inspection current or require changes to mirror current operations?	☐	☐
J.	Have the Annual Pumping Station Inspections been conducted and are necessary improvements scheduled and being implemented?	☐	☐

Discussion:			
ELEMENT 4 - OPERATIONS AND MAINTENANCE PROGRAM			
Collection System Maps			
A.	Does the SSMP reference the current process and procedures for maintaining the District's wastewater collection system maps?	☐	☐
B.	Are the District's collection system maps complete, current, and sufficiently detailed?	☐	☐
C.	Are storm drainage facilities identified on the collection system maps? If not, are SSS responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state?	☐	☐
Prioritized Preventive Maintenance			
D.	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	☐	☐
E.	Based upon information in the Annual SSS Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSS's and blockages?	☐	☐
Scheduled Inspections and Condition Assessments			
F.	Is there an ongoing condition assessment program sufficient to develop a capital improvement plan addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP?	☐	☐
G.	Does the SSMP contain a prioritized capital improvement plan for future rehabilitation and replacement of the sanitary sewer system for the next five years? Is it current?	☐	☐
Contingency Equipment and Replacement Inventory			

H.	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system and documents the procedures for inventory management?	☐	☐
I.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	☐	☐
Training			
J.	Has all annual training been conducted as required?	☐	☐
Outreach to Plumbers and Building Contractors			
K.	Does the SSMP document current outreach efforts to plumbers and building contractors?	☐	☐
Discussion:			
ELEMENT 5 - DESIGN AND PERFORMANCE PROVISIONS			
A.	Does the SSMP reference current design and construction standards for the installation for new sanitary sewer systems, pumping stations, and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	☐	☐
B.	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines? Have any changes to the standards been implemented since the last audit?	☐	☐
Discussion:			

ELEMENT 6 - SPILL EMERGENCY RESPONSE PLAN			
A.	Does the District's Spill Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSS's? Have any changes in past practices been implemented since the last audit? If so, please explain.	☐	☐
B.	Are District staff and contractor personnel appropriately trained and verified on the procedures of the Spill Emergency Response Plan?	☐	☐
C.	Considering SSS performance data, is the Spill Emergency Response Plan effective in handling SSS's to safeguard public health and the environment?	☐	☐
D.	Are all SSS and claims reporting forms current or do they require revisions or additions?	☐	☐
E.	Does all SSS event recordkeeping meet the GWDR requirements? Are all SSS event files complete and have they been certified in the CIWQS system?	☐	☐
F.	Is all information in the CIWQS system current and correct? Have periodic reviews of the data been made during the year to assure compliance with GWDR? Have all Technical Report and Water Quality Sampling requirements of the GWDR been uploaded to the CIWQS data management system?	☐	☐
G.	Are all SSS Response Procedure Flow Charts current and have all contact information been checked and certified correct?	☐	☐
H.	Were all large SSS's evaluated for "root cause" and did they identify corrective actions required to assure reductions or elimination of future SSS's? Were post SSS debriefing events held with appropriate staff and all responders?	☐	☐

I.	Were all Technical Reports and Water Quality Monitoring results of SSS's greater than 50,000 gallons submitted to the CIWQS System according to the required timeline?	☐	☐
J.	Were all No Spill Certifications provided as required by the WDR regulations completed and certified in CIWQS? Was the Annual Collection System Questionnaire completed?	☐	☐
K.	Are all SSS records complete and maintained for five-years from the date of the SSS? Have all files older than five years been disposed of according to District records management system and Regional Board requirements or directions?	☐	☐
L.	Is staff properly trained on appropriate methods for spill volume estimation and start time requirements for all SSS's? Has this training been documented appropriately?	☐	☐
Discussion:			
ELEMENT 7 - FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM			
A.	Does the FOG Control Program include efforts to educate the residential customers on proper handling and disposal of FOG?	☐	☐
B.	Does the FOG Control Program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule, and address source control measures to minimize these blockages?	☐	☐
C.	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the District's FOG Control Program?	☐	☐
D.	Does the District have sufficient legal authority to implement and enforce the FOG Control Program? Are all enforcements effective and resulting in appropriate compliance with requirements?	☐	☐

E.	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	☐	☐
Discussion:			
ELEMENT 8 - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN			
A.	Does the District's Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria, and recommend both short and long-term capacity enhancement, improvement projects, and schedules?	☐	☐
B.	Does the District's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long-term improvements, and is the schedule reviewed and updated to reflect current budgetary capabilities and accomplishments?	☐	☐
Discussion:			
ELEMENT 9 - MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS			
A.	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	☐	☐
B.	Is the District able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information?	☐	☐
Discussion:			

ELEMENT 10 - SSMP PROGRAM AUDITS			
A.	Was the SSMP Audit completed, reviewed, and filed in the Appendix?	☐	☐
B.	Have the collection system performance results been provided to the Board of Directors and the public annually? Are the results available on the District website?	☐	☐
C.	Have the performance results been evaluated for specific changes to meet targeted goals for SSS reduction? Have changes in procedures been implemented to enhance the District sanitary sewer operations?	☐	☐
D.	Has the Change Log been updated with all changes made to the SSMP during the past year?	☐	☐
E.	Do District SSS performance results agree with all CIWQS information?	☐	☐
Discussion:			

ELEMENT 11 - COMMUNICATION PROGRAM			
A.	Does the District effectively communicate with the public and other agencies about the implementation and performance results of the SSMP and continue to address any feedback?	☐	☐
B.	Did the District receive and review the Annual Sewer System Report? Was the annual report uploaded to the District Sewer Section website and added to Appendix B?	☐	☐
C.	Did District staff conduct and document meetings with the City of Concord? Are all agreements current or are changes necessary to these agreements?	☐	☐
Change Log			

A.	Is the SSMP Change Log current and up to date?	☐	☐
Discussion:			

Paul Seitz, P.E. Date
Collection System Operations
Division Manager
Legally Responsible Official

Jason De Groot, P.E. Date
Senior Engineer

Steve Sauter Date
Superintendent - Operations and Maintenance
Legally Responsible Official

SSMP ELEMENT 11: COMMUNICATION PROGRAM

WDR REQUISITES

The Plan must include procedures for the Enrollee to communicate with:

11.1 The public for:

11.1.1. Spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and

11.1.2. The development of, implantation, and update of its Plan, including opportunities for public input to Plan implementation and updates.

11.2 Owners/operators of systems that connect into the Enrollee's system, including satellite systems, for: system operation, maintenance, and capital improvement-related activities.

CENTRAL SAN COMPLIANCE

The SSMP is presented to the Central San Board of Directors (Board) for approval at a regularly scheduled Board Meeting. The draft SSMP will be available to the public as a part of the agenda on Central San's website (centralsan.org). While the Board considers approval of the SSMP, there will be an opportunity for the public to comment on the document.

Central San is an active member of the communities it serves and has a comprehensive community outreach program. Staff employ various methods to communicate with and provide information to the public. The goal of the program is to increase public awareness, understanding, and support of the vision, mission, goals, and values of Central San. Keeping the public informed, promoting pollution prevention, and encouraging feedback about our activities helps us to more efficiently and effectively manage our wastewater and environmental responsibilities. Elements of our communication program in all departments of Central San include:

WDR ITEM 11.1:
PROCEDURES TO COMMUNICATE WITH THE PUBLIC

11.1.1. SPILLS AND DISCHARGES RESULTING IN CLOSURE OF PUBLIC AREAS, OR THAT ENTER SOURCE OF DRINKING WATER

Central San's Spill Emergency Response Plan (SERP) complies with notification requirements as stipulated in the WDR General Order and applicable Regional Water Board Orders. It includes communication procedures in the event of a spill. The SERP contains Central San's detailed

procedures, including decision flow charts and contact information for key agencies. The general procedures are:

- Notify primary responders and appropriate local officials and regulatory agencies.
- Notify other potentially affected entities (e.g., health agencies, potable water purveyors, stormwater agencies).
- Within two (2) hours of a Category 1 or Category 2 spill of 1,000 gallons or greater, notify the California Office of Emergency Services and obtain a Notification Control Number.

Section 4 of Central San's SERP provides procedures for staff to follow when responding to spill events that impact customers and private dwellings, such as providing:

- Signs and Barricades
- Damage Claim Form
- Hotel Authorization Form
- Affected Personal Property Inventory Log

Refer to Element 6 – Spill Emergency Response Plan section for more information and Central San's SERP for specific procedures. Central San's SERP can be found online at:

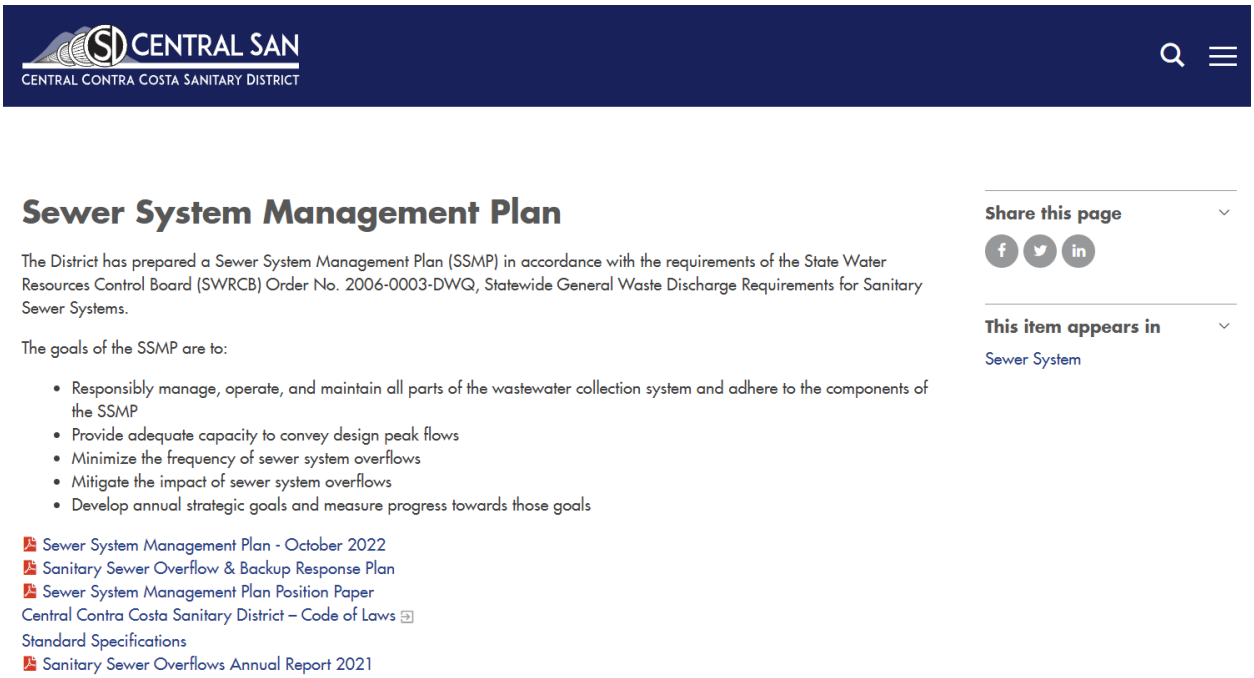


Figure 11.1: Screenshot of Central San's Web Page with the SERP Document

11.1.2. DEVELOPMENT, IMPLEMENTATION, AND UPDATE OF SSMP, INCLUDING OPPORTUNITIES FOR PUBLIC INPUT TO IMPLEMENTATION AND UPDATES

Central San invites public input to its SSMP by posting the draft document on its public website (CentralSan.org) and providing a banner on the home page inviting comments by emailing it to SSMP@centralsan.org. The invitation for comments was posted on the website on Friday, October 18, 2024.

In addition, Central San provides an opportunity for public comment during Board Meetings.

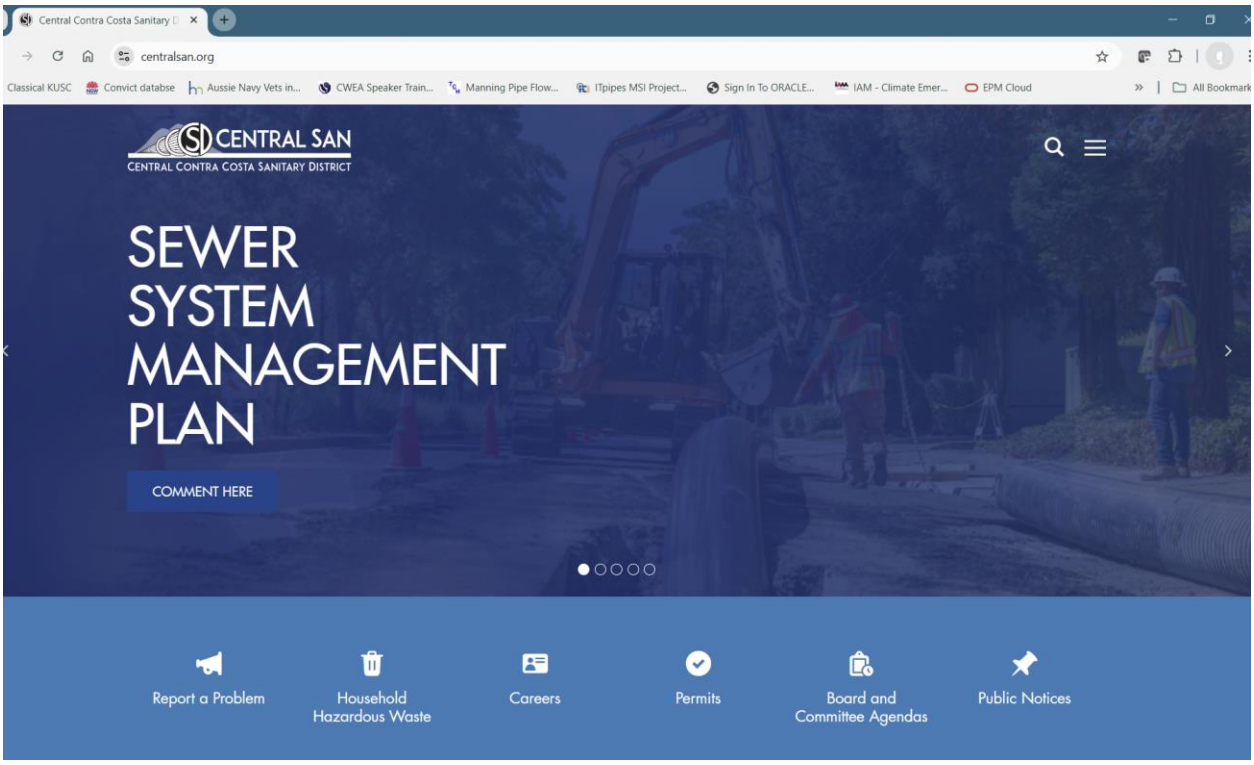


Figure 11.2: Screenshot of Central San's web page with the SSMP document

WDR ITEM 11.2:
PROCEDURES TO COMMUNICATE WITH OWNERS/OPERATORS OF TRIBUTARY SYSTEMS FOR O&M AND CAPITAL IMPROVEMENTS

Central San's SERP includes communication procedures with Owners and Operators of Tributary Systems in the event of spills.

For non-urgent matters, Central San leads formal and informal communication with Tributary System Owners and Operators.

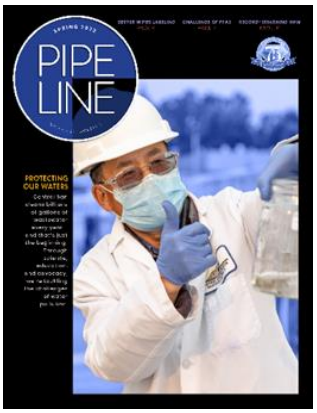
TRIBUTARY SYSTEMS

The City of Concord and Clayton collection systems are tributaries to Central San's collection system. There are regular communications between Central San and each city's management and staff on joint projects and other topics of importance.

Central San provides environmental compliance inspections for permitted businesses in Concord and Clayton. Residents from these communities also participate in Central San's pollution prevention, student education, household hazardous waste, pharmaceutical collection, and FOG programs. Refer to Element 3 – Legal Authority for additional information.

CENTRAL SAN's GENERAL COMMUNICATIONS OUTREACH SUMMARY

PIPELINE CUSTOMER NEWSLETTER



The *Pipeline* is a newsletter published twice yearly and mailed to approximately 157,000 households and businesses in our service area. The newsletter describes how Central San protects public health and the environment, how readers can help prevent pollution, and how their sewer service charge fees are spent. Topics regularly include FOG; "flushable" wipes; overflow protection devices; our Household Hazardous Waste Collection Facility; the Pharmaceutical Disposal Program; and infrastructure improvements. The work done by CSO is often highlighted, and Central San's emergency number is published to help expedite reporting of a spill. Along with disseminating information, the newsletter builds support in our communities and maintains open communication with the people Central San serves.

PERMIT COUNTER

The Permit staff are available to answer questions regarding how to connect to Central San's sewer system. The staff issue permits and educate homeowners, builders, and plumbers on design standards for our collection system and private laterals. Plumbers registered with our permit counter receive updated information after every fee increase or change in design standards. Customers can also find information for ongoing or future projects or inquire about their sewer lateral or nearby public sewer at the permit counter.

DOOR HANGERS

Door hangers inform residents and businesses when an infrastructure replacement project will be coming

to their neighborhood and request access to easements when homeowners are not home. They include basic information and a phone number to call if they have questions. Door hangers may also be placed where high amounts of grease have been found in the adjacent sewers. These provide information on proper grease handling and disposal.

In addition, CSO staff may use a door hanger to provide information when they have responded to a service call, so the customer knows how Central San responded to their request. Door hangers are also used when crews notice that a home may not have a spill protection device, instructing the homeowner on the importance of the device and where it can be purchased.

FOG MAILERS

FOG blockages are a leading cause of sewer spills in the United States. Communication staff distribute FOG brochures to large apartment complexes, Chambers of Commerce, and municipal permit counters throughout the services area and areas where grease is known to accumulate. Central San also runs a public service announcement (PSA) on proper grease disposal on local television stations leading up to the holiday season.

CONSTRUCTION LIAISON OUTREACH

Outreach begins with a mailed notice of anticipated work anywhere from nine to twelve months in advance of the project. These notices are followed by letters, phone calls, public meetings, and face-to-face meetings in the months prior to the start of the project. Site visits by a Community Affairs Representative and the Project Engineer occur before construction to discuss the project's potential impacts with affected home and business owners. These methods also provide an opportunity to educate customers about Central San's overall activities and mission.

ENVIRONMENTAL COMPLIANCE INSPECTIONS

The Environmental Compliance workgroup also conducts site visits and inspections of businesses for proper grease disposal or required industrial pre-treatment. In addition, they provide plan reviews for new food service businesses to ensure grease traps and grease interceptors are installed per Central San requirements. Refer to Element 7 for more information.

BOARD MEETINGS AND PUBLIC HEARINGS

We encourage the public to attend all Board meetings and public hearings to provide input on issues important to them.

SOCIAL MEDIA AND WEBSITE

Our website (centralsan.org) provides current, detailed information on a wide variety of topics such as Central San's structure, description of the wastewater treatment process, education programs for children and adults, pollution prevention activities, Green and Integrated Pest Management (IPM) recommendations, current construction projects, employment opportunities, and public notices. Website viewers are encouraged to provide feedback, and a phone number for reporting a sewer spill is posted at the top of the homepage.

Central San also uses social media (Facebook, Twitter, YouTube, and a blog) to share similar information, as well as pollution prevention tips and timely announcements of interest to the community and customers.

MEDIA RELEASES

Media releases about Central San activities are sent to local media outlets in our service area to help keep the public informed about major projects, water quality issues, awards, or other items of interest.

STUDENT EDUCATION PROGRAMS

Central San maintains the most active student programming of any wastewater district in the San Francisco East Bay.

Central San's Pipe Protectors program is presented each year to thousands of elementary school students in grades K-5 throughout Central San's service area. The program includes several 60-minute classroom lessons with various activities that teach how our complex system transports, cleans, and tests our wastewater. The goal of all of our Pipe Protectors lessons is to help students consider what happens to our dirty water after it goes down the drain. The program is designed to leave students with a better understanding that the stuff we put in our water (and down our drains) does not disappear.

Central San also partners with our local water district, Contra Costa Water District, to bring the "Go with the Flow" assembly into elementary schools. This interactive show tells where water comes from and where it goes after usage. Thousands of students each year learn about the sources of their freshwater, how their water is treated before entering their homes, different strategies for conserving water usage, what happens to their dirty water after it goes down the drain, and why flushing wipes and other pollutants are harmful to the sewer system. This focus on a "One Water" message has been a wonderful opportunity to collaborate with the neighboring water agency on local education programming.

The Sewer Science program is presented yearly to hundreds of high school students in Central San's service area. It comprises a five-day laboratory experience integrating biology, chemistry, physics, and

math with water quality and pollution prevention concepts. Wrap-up sessions link the lessons from the lab to what Central San does for the community and how students can take actionable steps to help protect the environment. Water sector career opportunities are also discussed.

Central San is also a major sponsor of the Marine Science Institute's Discovery Voyage Program. This science program targets 5th-grade students and takes them aboard a research vessel, the RV Brownlee, which was custom-built to provide a safe floating laboratory for students. On this three-and-a-half-hour excursion on the Sacramento-San Joaquin Delta, an annual average of 4,000 students learn about the water in the Delta, its aquatic life, water conservation, the effects of pollution, and the work of wastewater agencies to prevent that pollution. In FY 2023-24, Central San reached over 21,500 students through our various education programs.

CENTRAL SAN ACADEMY

Participants in the Central San Academy learn about almost everything Central San does, including how engineering, chemistry, and technology are used to turn waste into worth by cleaning their community's water and returning it to their customers as recycled water. The interactive and informative curriculum includes a tour of the treatment plant, laboratory, recycled water fill station, and household hazardous waste collection facility.

This award-winning program (California Special Districts Association honored Central San with the 2016 Exceptional Public Outreach and Advocacy Award) is offered free of charge to all customers. It is a rare glimpse into how used water gains new life.

Central San Academy

Sharing Resources, Strengthening Community

ENVIRONMENTAL AND COMMUNITY FAIRS

The Communication Services staff participates in community fairs and special celebrations such as Earth Day events. A staffed booth helps promote public awareness of wastewater issues, pollution prevention tips, and other topics important to Central San's wastewater conveyance and treatment.

TREATMENT PLANT TOURS

Central San's treatment plant tour program shows employees, students, and members of the public the critical role their wastewater treatment plant provides in the community, particularly as it relates to protecting waterways. Each year, hundreds of people tour the treatment plant.

To maintain our ability to educate customers on how we collect and treat wastewater during the pandemic, we developed a virtual experience. Central San's 75th Anniversary Experience features an

interactive 360-degree wastewater treatment plant tour, videos, photo galleries, fun facts, and a learning hub with hands-on science activities for kids. You will also find information on how to protect your pipes, safely dispose of household hazardous waste, and get free recycled water for your garden. Additionally, we schedule live events with a guided tour and interactive Q&A session.

SPEAKERS BUREAU

Central San's Speakers Bureau provides speakers at no cost to local organizations. Topics covered range from how the wastewater system works to pollution prevention. The Speakers Bureau is promoted on Central San's website, Pipeline newsletter, press releases, and social media. In FY 2023-24, Central San presented to over 700 attendees.

HOUSEHOLD HAZARDOUS WASTE COLLECTION

Central San's household hazardous waste facility collects over two million pounds of products annually, that may otherwise find their way into the sewer and harm the environment. Residents within Central San's service area can drop off potentially harmful substances for free, such as paints and pesticides, pool chemicals, and cleaning products. Refer to centralsan.org for more information.

Appendix A – Completed SSMP Audit

SSMP INTERNAL AUDIT REPORT

CENTRAL CONTRA COSTA SANITARY DISTRICT

WDID#: 2SS010105

September 9, 2024

Central Contra Costa Sanitary District (Central San)

Sewer System Management Plan Audit Report

Date: September 9th, 2024

The purpose of the SSMP Audit is to evaluate the effectiveness of the Central San's (District's) SSMP and to identify any needed improvements to assure the effective operation of the sanitary sewer collection system to achieve the goals of the SSMP.

Audit Team: *Paul Seitz, P.E. – Collection System Operations Division Manager*
Jason De Groot, P.E. – Collection System Operations Senior Engineer
Steve Sauter – Field Operations Superintendent

Directions: **Please check** YES **or** NO **for each question. If** NO **is answered for any question, describe the updates/changes needed and the timeline to complete those changes.**

		YES	NO
ELEMENT 1 - GOALS			
A.	Have there been any changes to the system that require updates to the System Overview summary in the Introduction? • There have not been any significant changes to the System Overview Summary. • The System Overview Summary is on pages 1-1 thru 1-5 and is up to date. • *The four tables listed below are included in the SSMP. These tables are up to date.* o *Table 1.1 Service Area Infrastructure Estimates* o *Table 1.2 Inventory of Sewer Lines by Size* o *Table 1.3 Inventory of Sewer Lines by Material Type* o *Table 1.4 Inventory of Sewer Line by Pipe Age*	☐	☒
B.	Is Figure 1.1, Service Area and Geographic Features up to date? • Yes, shown on page 1-2 – Service Area map is up to date	☒	☐
C.	Have the boundaries of the District's service area changed since the last Audit? If so, describe the changes. • No, shown on page 1-2 – The service area has not changed	☐	☒
D.	Have there been any changes in the regulations that should be identified and described in the Introduction? o No, the State has adopted new Statewide Waste Discharge Requirements (WDR). The WDR does not require any changes to the current Sewer System Management Plan but will require an updated SSMP in May 2025.	☐	☒

E.	Are the goals stated in Element 1 still appropriate and accurate? • Yes, shown on page 1-6 –The goals shown are still appropriate and accurate	☒	☐

Discussion:

Element 1 – Goals, provides accurate and up to date information for the District and its collection system. The goals for the District are to provide adequate capacity to convey peak flows, minimize the frequency of sanitary sewer spills, and mitigate the impact of sanitary sewer spills. The System Overview Summary accurately shows that the District, as well as the Collections System Operations Department, are committed to properly managing, operating, and maintaining the collection system to prevent and mitigate SSS's

In addition, as mentioned above, the SWQCB has adopted new Waste Discharge Requirements that will require a revised Sewer System Management Plan in May 2025. In the updated SSMP, it will include the schedules for governing board adoption, auditing requirements, and incorporation of activities for the prevention of sewer spills.

ELEMENT 2 – ORGANIZATION			
A.	Is the List of District Staff Responsible for SSMP, Table 2.2 current? • No, shown on page 2-2 – Maintenance Supervisor Tifton Gantt has retired and Justin Covington has been promoted to the Position. This change will be made as part of this audit.	☐	☒
B.	Is the Sanitary Sewer Spill flow Responder List current? • No, Maintenance Supervisor Tifton Gantt has retired and Justin Covington has been promoted to the Position.. The list is shown on page 2-5, Table 2.3 This change will be made as part of this audit.	☐	☒
C.	Is Figure 2.1 of the SSMP, the District Organization Chart, current? • No, The Director of Operations has been changed to Deputy General Manager-Operations and Pump Stations has been moved under CSO Division Manager. This change will be made as part of this audit. • Names of employees are not shown on organizational chart, only number of employees in each section. Due to training purposes staff regularly rotates through the different sections.	☐	☒
D.	Are the position descriptions an accurate definition of staff responsibilities? • Yes, shown on page 2-3 – Position descriptions are accurate, however, the title of Director of Operations has been changed to Deputy General Manager-Operations. Pumping Stations is no longer under Plant Maintenance Division Manager. This change will be made as part of this audit.	☒	☐
E.	Is the Table for the Chain of Command for Reporting SSS's section accurate and up to date? • No, Tifton Gantt has retired and Justin Covington has been promoted. It is shown on page 2-5, Table 2.4 This change will be made as part of this audit.	☐	☒

F.	Is the list of LRO officials and data submitters in the CWIQS System current? Are all legally responsible officials and data submitters identified in the SSMP? Have all terminated officials been removed from the CIWQS System on the required timeline as required by the GWDR. • Yes, the LRO's and data submitters in CIWQS are accurate and up to date. • No, the list of LRO's and data submitters identified in the SSMP have changed. This change will be made as part of this audit. • Yes, the LRO's that are no longer employed with the District have a "Relationship End Date" in CIWQS.	☐	☒

Discussion:

Element 2 – Organization, accurately reflects the current information for the District. The locations for key tables and figures are:

- Legally Responsible Officials – page 2-1, Table 2.1
- Staff Contacts Responsible for SSMP – page 2-2, Table 2.2
- Sewer Spill Responder List – page 2-5, Table 2.3
- Chain of Command for Reporting – page 2-5, Table 2.4
- CSO Organizational Chart – page 2-6, Figure 2.1

With the adoption of the new Waste Discharge Requirements, the LRO's and data submitters have changed. This change will be made as part of this audit.

ELEMENT 3 – LEGAL AUTHORITY

Does the SSMP contain current references to the District Code documenting the Districts' legal authority to:

A.	Prevent illicit discharges? • Yes, shown on pages 3-3 thru 3-5	☒	☐
B.	Require proper design and construction of sewers and connections • Yes, shown on page 3-5	☒	☐
C.	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the District? • Yes, shown on page 3-6. The District does not own or maintain any portion of the private lateral including the connection to the main. • Access to the public main and appurtenances are shown in the District code, Section 10.12.080 – Right of Entry	☒	☐
D.	Limit discharges of fats, oils and grease? • Yes, shown on pages 3-6 and 3-7	☒	☐
E.	Enforce any violation of its sewer ordinances? • Yes, shown on page 3-7	☒	☐

F.	Were any changes or modifications made in the past year to District Sewer Ordinances, Regulations or standards? If so, please state below. • No, there were no changes to sewer ordinances, regulations or standards in the past year	☐	☒
G.	Are the sewer service charge provisions current and provide the authority for full funding of the sanitary sewer operations? • Yes, sewer service charge does provide full funding for the sanitary sewer operations. • In June 2014, Central San hired Raftelis Financial Consultants, Inc. to asses and evaluate the District's existing wastewater rates. The study can be found at www.centralsan.org. • The current residential rate for FY 2023-24 is $697 per year for a single-family residence and $622 per year for a multi-family residential unit. For FY 2024-25, the residential rate will be $725 and the multi-family residential rate will be $647.	☒	☐
H.	Has there been documented and regular communications with other agencies and other cities in the District's service area in the past year? If so, are these meetings and communications documented appropriately? • Yes, the Field Operations Superintendent and Construction Supervisor have constant communication with the cities, counties and towns within our service area. • Coordination consists of acquiring encroachment permits for sewer construction, attending pre-construction meetings, mutual inspection of facilities and planning for future paving projects that will impact the District's facilities.	☒	☐
I.	Are all report forms used during sanitary sewer system cleaning and CCTV inspection current or require changes to mirror current operations? • Yes, all forms used for cleaning and televising are current. They were updated when Cityworks Computerized Maintenance Management System (CMMS) was installed in January 2017	☒	☐

J.	Have the Annual Pump Station Inspections been conducted and are necessary improvements scheduled and being implemented? 1. Annual inspections a. Generator and transfer switch inspections/servicing - complete b. Annual UST inspection and testing - complete c. PM PS Telemetry/UPS battery – complete d. PS Emergency Lights - complete e. Safety inspections – scheduled to be completed by the end of September f. MCC/IR inspections – partially complete, remaining stations scheduled for October 2. PS CIP work over the next few years is based on the condition assessment that were part of the master plan and current operational and maintenance needs. See the following TM's: a. TM 14A Pump Station Condition assessment b. TM 14B Pump Station Force Main Condition assessment c. TM 14C Large diameter pipe management d. TM 14 CS Asset management plan e. TM CS 18 Optimization f. TM CS 22 CIP draft 3. Several major PS upgrades are included in the current CIP: a. Orinda Crossroads and Moraga Pumping Stations upgrades were completed in 2022. b. Martinez, Fairview, and Maltby Pumping Station upgrades are currently in construction. 4. Other O&M needs are covered by Pump Stations and Treatment Plant maintenance staff as part of routine preventative maintenance and corrective work throughout the year.	☒	☐

Discussion:

Element 3 - Legal Authority is effective in outlining the ordinances and regulations that provide the District legal authority to prevent illicit discharges, to provide proper design and construction standards, to ensure access to facilities, to limit the discharges of FOG and to enforce the violations of sewer ordinances.

ELEMENT 4 – OPERATIONS AND MAINTENANCE

Collection System Maps

A.	Does the SSMP reference the current process and procedures for maintaining the District's wastewater collection system maps? Yes, shown on pages 4-2 thru 4-5 – The SSMP references The District's current practice for updating maps	☒	☐
B.	Are the District's collection system maps complete, current and sufficiently detailed? • Yes, shown on pages 4-2 thru 4-5 the collection system maps are complete, current and sufficiently detailed	☒	☐

C.	Are storm drainage facilities identified on the collection system maps? If not, are SSS responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state? • Yes, the available data is shown on page 4-3. The utility information includes potable and recycled water, storm water, and power	☒	☐
Prioritized Preventive Maintenance			
D.	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers? • Yes, pages 4-6 thru 4-16 detail The District's Collection System Preventative Maintenance Program as well as provide a description of The District's CMMS.	☒	☐
E.	Based upon information in the Annual SSS Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSSs and blockages? • Yes, the District's preventative maintenance activities are sufficient and effective in reducing SSS's and blockages • The District continues to be below the state and regional averages for SSS's and the average volume per SSS • The spill rate for the last three calendar years (2021 – 2023) were 1.69, 1.49 and 0.84 spills per hundred miles of sanitary sewer. • *Table 9.2 – Annual SSS Statistics is included in Element 9 of the SSMP on pages 9-4 and 9-5.*	☒	☐
Scheduled Inspections and Condition Assessments			
F.	Is there an ongoing condition assessment program sufficient to develop a capital improvement plan addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP? • Yes, there is an ongoing CCTV Condition Assessment Program that is performed by District staff as well as augmented with a CCTV contractor. • This Condition Assessment Program has been in place since 2002 • Yes, shown on pages 4-12 and 4-13	☒	☐

G.	Does the SSMP contain a prioritized capital improvement plan for future rehabilitation and replacement of the sanitary sewer system for the next five years? Is it current? • Yes, shown on pages 4-17 thru 4-19. This includes a 10-year Estimated Expenditure and a Draft 100-year Sewer Renovation Forecast • Figures 4.9 and 4.10 in the SSMP were provided as part of the Comprehensive Wastewater Master Plan (CWMP) completed in June 2017 by Carollo Engineers • The CWMP can be viewed in its entirety at www.centralsan.org	☒	☐
Contingency Equipment and Replacement Inventory			
H.	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system and documents the procedures for inventory management? • Yes, shown on pages 4-28 thru 4-32 • *Appendix B—Available Equipment Inventory is included in the SSMP.*	☒	☐
I.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance? • Yes, shown on pages 4-27 thru 4-32 • *Appendix C—Available Parts Inventory is included in the SSMP*	☒	☐
Training			
J.	Has all annual training been conducted as required? • Yes, annual training has been conducted. • The District's Safety Officer provides monthly safety training. • Additionally, The Field Operations Superintendent provides training on SSMP, WDR, SERP AND MRP as well as volume estimation annually to all field staff as a best management practice.	☒	☐
Outreach to Plumbers and Building Contractors			
K.	Does the SSMP document current outreach efforts to plumbers and building contractors? • Yes, shown on pages 4-27 and 4-28	☒	☐

Discussion:

Element 4 – Operations and Maintenance section of the SSMP discusses the various aspects with regards to operating and maintaining the District's collection system. This section is effective in outlining the District's compliance with the WDR requisites for: mapping, preventative maintenance, rehabilitation and replacement, training, and equipment and replacement parts.

ELEMENT 5- DESIGN AND PERFORMANCE STADARDS			
A.	Does the SSMP reference current design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems? • Yes, shown on pages 5-1 thru 5-3 • The District's Standard Specification can also be found at www.centralsan.org	☒	☐
B.	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines? Have any changes to the standards been implemented since the last audit? • Yes, shown on pages 5-3 and 5-4 • No, there have not been any changes to the Standard Specifications since the last audit	☒	☐
Discussion: Element 5 – Design and Performance Standards is effective in providing standards for the installation of sanitary sewer facilities. The District's standard specifications are located at www.centralsan.org. Chapters 11 and 12 of the standard specifications are titled, "Control of the Work" and "Control of the Materials" and provide the necessary means for all needed inspection and testing for sewer facilities.			
ELEMENT 6 – SANITARY SEWER SPILL AND BACKUP RESPONSE PLAN			
A.	Does the District's Sanitary Sewer Spill and Backup Response Plan establish procedures for the emergency response, notification, and reporting of SSSs? Have any changes in past practices been implemented since the last audit? If so, please explain. • Yes, procedures are established for emergency response, notification, and reporting SSS's. • No. The initial plan was completed in February 2007 and the plan was revised in May 2023 due to the addition of a 4th category of spills, and the new requirements of WQ 2022-0103-DWQ.	☒	☐
B.	Are District staff and contractor personnel appropriately trained and verified on the procedures of the Sanitary Sewer Spill and Backup Response Plan? • Yes, annual training is provided by the Field Operations Superintendent to all collection system field staff. • Yes, shown on pages 6-9 and 6-10. Emergency contact information is provided to all contractors who will be working in the collections system. Contractors are instructed to immediately report any spills to CSO staff. CSO will provide response, notification and clean-up activities.	☒	☐

C.	Considering SSS performance data, is the Sanitary Sewer Spill and Backup Response Plan effective in handling SSSs to safeguard public health and the environment? • Yes, from the District's experience, the plan is effective in providing safeguards to the public when an SSS has occurred. • Shown on pages 6-10 and 6-11 of the SSMP • Shown on pages 9 thru 19 of the SERP	☒	☐
D.	Are all SSS and claims reporting forms current or do they require revisions or additions? • Yes, all claim forms and customer handouts are current and shown in Section 4 – Claims Handling. Shown on pages 57 thru 74 of the SERP • The claim forms were updated in April 2017 when the SERP was revised.	☒	☐
E.	Does all SSS event recordkeeping meet the GWDR requirements? Are all SSS event files complete and have they been certified in the CIWQS system? • Yes, shown on pages 6-8 and 6-9 – Record Keeping Requirements. The Spill / Stoppage Response Form is shown on pages 55 and 56 of the Sanitary Sewer Spill Backup and Response Plan • Yes, all SSS event files are complete and they have been certified in CIWQS. As part of this audit, the Field Operations Superintendent verified that all events in CIWQS were certified. • This verification is also performed every January for the prior calendar year	☒	☐
F.	Is all information in the CIWQS system current and correct? Have periodic reviews of the data been made during the year to assure compliance with GWDR? Have all Technical Report and Water Quality Sampling requirements of the GWDR been uploaded to the CIWQS data management system? • Yes, as part of this audit the Field Operations Superintendent verified that all information in CIWQS was current and correct. This check was completed in June 2024 • Yes, reviews are made every January and prior to the Annual Sanitary Sewer Spill Report that is presented to the Board of Director's in the first quarter of each calendar year • Yes, all Technical Reports and Water Quality Sampling requirements have been uploaded to CIWQS. Again, this information is reviewed by the Field Operations Superintendent every January for the prior calendar year.	☒	☐

G.	Are all SSS Response Procedure Flow Charts current and have all contact information been checked and certified correct? • Yes, shown on pages 6-3 thru 6-6 in the SSMP. These flow charts are taken from the Sanitary Sewer Spill and Backup Response Plan • Yes, shown on page 6-3— The correct phone numbers are listed to report an SSS. This phone number is also listed at www.centralsan.org under the tab, "Report a Problem"	☒	☐
H.	Were all large SSSs evaluated for "root cause" and did they identify corrective actions required to assure reductions or elimination of future SSSs? Were post SSS debriefing events held with appropriate staff and all responders? • Yes, every SSS, backup and stoppage regardless of size are evaluated for root cause analysis. A post occurrence follow-up CCTV child work order is created, and the video is reviewed at the bi-weekly Operations Meeting. Preventative actions are also agreed upon and any changes are made to the CMMS system. • Yes, Post SSS's details such as notification, response and clean up are reviewed at the bi-weekly Operations Meetings with CSO staff.	☒	☐
I.	Were all Technical Reports and Water Quality Monitoring results of SSSs greater than 50,000 gallons submitted to the CIWQS System according to the required timeline? • Yes, this is verified at the beginning of each calendar year and prior to the Annual Sanitary Sewer Spill Report that is presented to the Board of Director's in the first quarter of each calendar year. This activity was also performed in July 2024 as part of this audit process.	☒	☐
J.	Were all No Spill Certifications provided as required by the WDR regulations completed and certified in CIWQS? Was the Annual Collection System Questionnaire completed? • Yes, this is verified at the beginning of each calendar year and prior to the Annual Sanitary Sewer Spill Report that is presented to the Board of Director's in the first quarter of each calendar year. This activity was also performed in July 2024 as part of this audit process. • Yes, the Annual Questionnaire has been completed and submitted to CIWQS. The questionnaire is completed in January every year.	☒	☐

K.	Are all SSS records complete and maintained for five-years from the date of the SSS? Have all files older than five years been disposed of according to District records management system and Regional Board requirements or directions? • Yes, all records are complete, and they are kept on file for five years. • Yes, the files are disposed of per the District Record Retention Schedule. The District Records retention schedule meets the Regional Board requirements for retention of SSS records.	☒	☐
L.	Is staff properly trained on appropriate methods for spill volume estimation and start time requirements for all SSSs? Has this training been documented appropriately? • Yes, Volume estimation training for field staff is performed on an annual basis. Start time requirements are reviewed in this class. In addition, Collection System Supervisors and field staff regularly attend industry wide training that includes volume and start time estimation. • Yes, sign in sheets are available for in house training. Training certificates are available for training that was performed outside of the District.	☒	☐
Discussion: Element 6 – The Sanitary Sewer Spill and Backup Response Plan was first drafted in February 2007. There was a major revision in August 2014 that brought the plan current to how the District responds to sanitary sewer spills. In 2017, the District was in the process of updating the SSMP, while performing the update, the Sanitary Sewer and Backup Response Plan was revised to match the changes that were being made to the SSMP. In addition, another revision was made in May 2023 to include the new requirements for the revised WDR. Based on the District's experience in responding to SSS's and backups, this plan is effective in responding to spill events. This plan meets the regulatory requirements that is set forth in the revised WDR and MRP.			
ELEMENT 7 – FATS, OILS AND GREASE (FOG) CONTROL PROGRAM			
A.	Does the FOG Control Program include efforts to educate the residential customers on proper handling and disposal of FOG? • Yes, shown on page 7-2	☒	☐
B.	Does the FOG Control Program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages? • Yes, shown on pages 7-4 thru 7-6	☒	☐
C.	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the District's FOG Control Program? • Yes, shown on pages 7-3 and 7-4 – Requirements for grease removal devices • Yes, shown on pages 7-5 and 7-6 – Requirements for BMP's • Yes, shown on pages 7-4 thru 7-6 – Requirements for Record Keeping and Reporting	☒	☐

D.	Does the District have sufficient legal authority to implement and enforce the FOG Control Program? Are all enforcements effective and resulting in appropriate compliance with requirements? • Yes, shown on page 7-4 – The District has the right to enforce the FOG Control Program • Yes, shown on page 7-4 – The enforcements are effective and have resulted in compliance	☒	☐
E.	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system? • Yes, the FOG Program is effective in preventing SSS's o In 2019 there were 3 SSS's caused by FOG o In 2020 there were 3 SSS's caused by FOG o In 2021 there was 1 SSS caused by FOG o In 2022 there was 1 SSS caused by FOG o In 2023 there were 2 SSS's caused by FOG o *Table 7.1, Fog Control Statistics is included in the SSMP and will updated in the May 2025 SSMP Update.*	☒	☐
Discussion: Element 7 – FOG Control Program provides information on The District's FOG Control Program which has been in place for over 25 years. Based on the numbers stated above in Item E., it has been determined that the FOG Control Program is effective in reducing SSS's in the District's collection system.			
ELEMENT 8- SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN			
A.	Does the District's Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short and long-term capacity enhancement and improvement projects and schedules? • Carollo Engineers completed a CWMP for the District in June 2017. Information regarding System Evaluation and Capacity Assurance can be found there. This document can be located at www.centralsan.org • Yes, shown on pages 8-1 thru 8-6 – Discusses hydraulic deficiencies, design criteria and provides recommendation for short and long-term projects. While not split into categories, Table 8.1 covers both short and long-term projects.	☒	☐
B.	Does the District's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and accomplishments? • Yes, shown on pages 8-6 and 8-7 • The costs in Table 8.1 of the SSMP were updated as part of the CWMP. The CWMP was completed in June 2017 and the costs were calculated based on present value at that time. • Additionally, the District is currently working with Woodward and Curran on another Collection System Master Plan that is scheduled for completion in 2025.	☒	☐

Discussion:

Element 8— System Evaluation and Capacity Assurance Plan, is addressed in the SSMP using The District's completed CWMP from June 2017. The CWMP was completed by Carollo Engineers and addressed System Evaluation and Capacity Assurance. The information from the CWMP was incorporated into the SSMP update completed in November 2017. This element of the SSMP, as well as the information from the CWMP, provides The District valuable information to effectively evaluate and provide the needed capacity for the collection system.

ELEMENT 9- MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

A.	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators? • Yes, shown on pages 9-1 thru 9-4 • Shown on pages 9-2 thru 9-10, there are metrics to identify trends and performance of the collection system	☒	☐
B.	Is the District able to sufficiently evaluate the effectiveness of the SSMP elements based on relevant information? • Yes, methods used to track effectiveness of the SSMP are shown in Table 9.1 • Figure 9.1 shows the District's Annual SSS trends and Table 9.3 compares the District to State and Regional performance.	☒	☐

Discussion:

Element 9— discusses the various methods that the District uses to evaluate the collection system and the SSMP. Monthly reports are prepared and submitted to the Deputy General Manager-Operations, General Manager and various other staff. The reports include the available data shown on page 9-2. Annual reports are presented to the Board of Directors in the first quarter of the calendar year which reviews and compares the performance of the collections to other agencies in the region and state of California. The Strategic SSS Reduction Approach section on page 9-11 will be reviewed and revisions to this section will be made as they are incorporated into operations of the collection system. All Figures and Tables will be updated in the May 2025 SSMP Update.

ELEMENT 10 – SSMP AUDITS

A.	Was the SSMP Audit completed, reviewed and filed in the Appendix • Yes, Previous audits were completed in 2016, 2018, 2020 and 2022. • Previous Audit from 2022 is included in Appendix A and will be replaced by this audit. • The District is using a revised audit form included in *the SSMP on page 10-1 – Annual Audit Template* • The SSMP was updated in 2017 and revised in 2018, 2019, 2020, 2021, and 2022.	☒	☐

B.	Have the collection system performance results been provided to the Board of Directors and the public annually? Are the results available on the District website? • Yes, the Annual Sewer Spill Presentation is given to the Board of Directors in the first quarter of each calendar year • Yes, each Board Meeting is videotaped and can be viewed by the public at www.centralsan.org	☒	☐
C.	Have the performance results been evaluated for specific changes to meet targeted goals for SSS reduction? Have changes in procedures been implemented to enhance the District sanitary sewer operations? • Yes, performance goals and metrics are reviewed by CSO staff monthly, quarterly and annually. • The SSMP was revised in 2018, 2019, 2020, 2021, and 2022. There have been no new changes to sanitary sewer operations since the last update in 2022.	☒	☐
D.	Has the Change Log been updated with all changes made to the SSMP during the past year? • Yes, the change log is up to date. • The change log will be updated to include this audit	☒	☐
E.	Do District SSS performance results agree with all CIWQS information? • Yes, our information agrees with what is found in CIWQS • The Field Operations Superintendent at CSO reviews the CIWQS information in January to make sure the information in CIWQS is correct	☒	☐

Discussion:

Element 10 – Audits, Previous audits of the SSMP were completed in 2016, 2018, 2020, and 2022. The SSMP was updated in 2017 and revised in 2018, 2019, 2020, 2021, and 2022. The completed 2022 SSMP Audit has been included in Appendix A of the SSMP and will be replaced by this audit.

ELEMENT 11 – COMMUNICATION PROGRAM

A.	Does the District effectively communicate with the public and other agencies about the implementation and performance results of the SSMP and continue to address any feedback? • Yes, Section 11 of the SSMP discusses the outreach to the public. A yearly presentation is given to the Board of Directors which the Public can attend and provide comment.	☒	☐

B.	Did the District receive and review the Annual Sewer System Report? Was the annual report uploaded to the District Sewer Section website and added to Appendix B? • Yes, the Sewer System Spill Annual Report is presented at a board meeting in the first quarter of every calendar year. • Yes, each Board Meeting is videotaped and can be viewed at www.centralsan.org • The Annual Sanitary Sewer Spill Report has been added to the District's Sewer System section of the website. The Annual Report has not been added as an appendix.	☒	☐
C.	Did District staff conduct and document meetings with the City of Concord? Are all agreements current or are changes necessary to these agreements? • Yes, the District Staff meets with the City of Concord • Yes, the agreement with the City of Concord is current	☒	☐
Change Log			
A.	Is the SSMP Change Log, current and up to date? • Yes, the change log was updated for the January 23, 2024 revised Capital Projects repair list and will be revised to include this audit.	☒	☐

Discussion:

Element 11— Communication Program, the District communicates regularly with the public and outside agencies. Any comments or issues that arise for the collection system are addressed as needed. The SSMP change log will be updated to include this audit.

Paul Seitz 9/9/24

Paul Seitz, P.E. Date
CSO Division Manager
Legally Responsible Official
CWEA Grade IV – Collection System Maintenance

9/9/24

Jason De Groot, P.E. Date
CSO Senior Engineer
CWEA Grade IV – Collection System Maintenance

9.09.24

Steve Sauter Date
CSO Field Operations Superintendent
Data Submitter
CWEA Grade IV – Collection System Maintenance

Appendix B – Available Equipment Inventory

Equipment

Legacy ID	Name	Type	Make	Model	Year	Fuel Type
M156	Air Compressor M156 (on #119)	Air Compressor	Ingersoll Rand	P175WJDU	1996	Diesel
M158	Trash Pump M158	Pump	Wacker	CE 96	1996	Gasoline
M159	Trash Pump M159	Pump	Wacker	CE 96	1996	Gasoline
M161	Tamper M161	Compactor	Wacker	BS62Y	1996	MG
M168	Generator M168	Generator	Honda	EX1000	1997	Gasoline
M169	Generator M169	Generator	Honda	EX1000	1997	Gasoline
M170	Generator M170	Generator	Honda	EM2500X	1997	Gasoline
M172	Light Tower M172	Light Tower	Coleman	MH 4000 QLKH	1997	Diesel
M173	Trash Pump M173	Pump	Honda	WT40X	1998	Gasoline
M174	Trash Pump M174	Pump	Honda	WT30X	1998	Gasoline
M176	Pump M176	Pump	Gorman Rupp	T6A3-F4L-SPA	0	
M177	Tamper M177	Compactor	Wacker	BS700	2000	
M178	Easement Hydrojet Reel M178	Hydrojet	Vactor		2000	Gasoline
M180	Generator M180	Generator	Honda	EU1000	2002	Gasoline
M181	Hydraulic Shoring Pump M181	Pump			0	
M182	Hydraulic Shoring Pump M182	Pump			0	
M184	Generator M184	Generator	Honda		2002	Gasoline
M185	Generator M185	Generator	Honda		2002	Gasoline
M187	Arrow Board M187	Traffic Control	Solar	Arrow Board	2003	
M188	Jackhammer M188	Jackhammer	American	190 DVG BRKR 5239	2003	
M195	Pressure Washer M195	Pressure Washer	Honda	GX200	0	Gasoline
M196	Generator M196	Generator	Honda	EU1000	0	Gasoline
M197	Sand Blaster M197	Blaster	Snap On		0	
M199	Hydraulic Impact Hammer M199	Pnuematic Tools	Allied	725	0	
M200	Viberplate M200 (backhoe)	Compactor	Allied	14087	0	
M202	Breaker M202	Breaker	BTI Braker	BT750	2007	
M205	Portable CCTV Unit M205	CCTV Unit	Envirosight	Outpost	2008	Gasoline
M208	Generator M208	Generator	Ingersoll Rand	G40	2007	Diesel
M210	Pressure Washer M210	Pressure Washer	Alkota	3255X4	0	
M213	Rammer/Soil Compactor M213	Compactor	Wacker	BS70-2I	2012	MG
M214	Rammer/Soil Compactor M214	Compactor	Wacker	BS70-2I	2012	Gasoline
M215	Tamping Rammer M215 (esmt)	Compactor	Milasa	MTR-40SF	2012	Gasoline
M216	Generator M216	Generator	Honda	EU2000I	2012	Gasoline
M217	Generator M217	Generator	Honda	EU2000I	2012	Gasoline

Equipment *(continued)*

Legacy ID	Name	Type	Make	Model	Year	Fuel Type
M218	Pressure Washer M218	Pressure Washer	Alkota	A-311X4	2012	Diesel
M220	Generator M220	Generator	Ingersoll Rand	E-50-WC	1989	Diesel
M223	Auger/ Hole Diger M223	Auger	General	330	0	Gasoline
M224	Weed Eater M224	Garden Tools	Shindaiwa	S350/CARB	0	MG
M226	Trash Pump M226	Pump	Multi-Quip	QP-2H	2014	Gasoline
M227	Trash Pump M227	Pump	Multi-Quip	QP-2H	2014	Gasoline
M240	Generator M240	Generator	Honda	EU1000I	2020	Gasoline
M241	Tamper M241	Compactor	Wacker	BS60-4A	2021	Gasoline
M242	Tamper M242	Compactor	Wacker	BS60-4A	2021	Gasoline
M246	Generator M246	Generator	Generac	GP3300I	2023	Gasoline
M247	Road Surface Planer M247	Planer	Caterpillar	PC306	2023	
M250	Viberplate M250	Compactor	Mikasa	MVC-88VTHW	2024	Gasoline
M251	Asphalt Hotbox	Hotbox	KM International	KM-4000SXPX M1		Propane

Mobile Equipment

Legacy ID	Name	Location	Type	Make	Model	Year
M115	Trailer M155	CSO	Trailer	Trail King	TK10U-1600	1989
M123	Mixer, Concrete M123	CSO	Mixer	Stone	65CMED	1992
M124	Krapper M124 (portable toilet)	CSO	Toilet	Ed Head	KK	1992
M125	Trailer M125	CSO	Trailer	Trail King		1992
M151	Backhoe Loader M151	CSO	Heavy Equipment	John Deere	510D	1995
M154	Mini-Excavator M154	CSO	Heavy Equipment	Bobcat	331E*D	2001
M157	Trailer M157	CSO	Trailer			1996
M163	Mini-Excavator M163	CSO	Heavy Equipment	Takeuchi	TB0015	1997
M164	Tilt Trailer M164	CSO	Trailer	Zieman	1125-S	1997
M167	Pipe Trailer M67	CSO	Trailer	Big Tex	70PI-20	1997
M175	Loader M175	CSO	Heavy Equipment	John Deere	544H	1999
M179	Trailer M179	CSO	Trailer			2000
M183	Pump M183	CSO	Pump	Cornell		2000
M186	Pump M186	CSO	Pump	Cornell		2000
M191	Off-Road Utility Vehicle M191	CSO	Heavy Duty Truck	Coot	CH740S	2005
M192	Fork Lift M192	CSO	Forklift	Toyota	7FGV-187FSV	2005
M201	Loader-Backhoe M201	CSO	Heavy Equipment	John Deere	410J	2007
M203	Pump M203	CSO	Pump	Gorman Rupp	J07198	2007
M204	Pump M204	CSO	Pump	Gorman Rupp	J07197	2007
M206	Trailer M206	CSO	Trailer			2008
M207	Trailer M207	CSO	Trailer	Carry-On	6X10GW	2008
M209	Generator M209	CSO	Generator	Generac	GR085X	2007
M212	Scissor Lift M212	CSO	Man Lift	Genie	GS 1930	2007
M219	Equipment Trailer M219	CSO	Trailer	Trail King	TK32LP	2012
M221	Bypass Pump M221	CSO	Pump	Pioneer	PP88S12L71-JD4024-GB	2012
M222	Trailer M222	CSO	Trailer	Trail King	TK32LP-242	2013
M225	Mixer M225	CSO	Mixer	Cart-Away	CMK-175	2014
M228	Safety Trailer M228	CSO	Trailer	DIAMOND C	3RBTL10X60	2016
M229	Bypass Pump M229	CSO	Pump	Gorman Rupp	X711-141	2016
M230	Trailer M230	CSO	Trailer	Big Tex	70CH-16	2017
M232	Trailer M232	CSO	Trailer	Felling	FT-14I	2018
M238	Track Loader M238	CSO	Loader	Caterpillar	259D3	2020
M244	Mini-Excavator M244	CSO	Heavy Equipment	Bobcat	E35	2022
M248	Light Tower M248	CSO	Light Tower	Generac	MLT4060KV	2024

Appendix C – Available Parts Inventory

MaterialUid	Description	Part Number	Manufacturer	Unit Cost
CS-007 001 00001	Allcrete, 5 gallon	007 001 00001		24.9
CS-013 001 00002	O/F device clamp on, 4"	013 001 00002		26.58
CS-013 002 00001	O/F device screw on, 4"	013 002 00001		19.89
CS-032 012 00016	Asphalt Concrete Pavement by Contractor	032 012 00016		75
CS-032 012 00016b	Permaliner, 6", 4 feet	032 012 00016b	Permaliner	386
CS-032 012 00016c	Permaliner, 6", 6 feet	032 012 00016c	Permaliner	457
CS-032 012 00016d	Permaliner, 8", 4 feet	032 012 00016d	Permaliner	422
CS-032 012 00016e	Permaliner, 8", 6 feet	032 012 00016e	Permaliner	526
CS-032 012 00016f	Permaliner, 10", 6 feet	032 012 00016f	Permaliner	572
CS-032 012 00016g	Permaliner, 12", 6 feet	032 012 00016g	Permaliner	618
CS-049 005 00001	Repair clamp full, 6"	049 005 00001		84.64
CS-049 005 00002	Repair clamp full, 8"	049 005 00002		161.55
CS-049 005 00003	Repair clamp full, 10"	049 005 00003		195.07
CS-057 010 00004	CI coupling metal band, 4"	057 010 00004		3.2419
CS-057 010 00005	CI coupling metal band, 6"	057 010 00005		10.0758
CS-057 010 00006	CI coupling metal band, 8"	057 010 00006		6.8
CS-059 004 00001	RI cover	059 004 00001		35.18
CS-103 001 00001	Grade ring (cement), 3"	103 001 00001		12.88
CS-103 001 00002	Grade ring (cement), 6"	103 001 00002		22.16
CS-103 001 00003	Grade ring (cement), 2"	103 001 00003		8.59
CS-141 001 00005	Shoring fluid	141 001 00005		1
CS-141 004 00001	Pipe lube	141 004 00001		4.09

MaterialUid	Description	Part Number	Manufacturer	Unit Cost
CS-143 001 00001	MH barrel, 1	143 001 00001		46.91
CS-143 001 00002	MH barrel, 2	143 001 00002		103.97
CS-143 001 00003	MH barrel, 3	143 001 00003		151.72
CS-143 002 00001	Cone (eccentric), 3	143 002 00001		155.9
CS-143 002 00001b	Cone (eccentric), 2	143 002 00001b		103.93
CS-143 002 00001c	Cone (eccentric), 4	143 002 00001c		155.9
CS-143 002 00002	Cone, 2	143 002 00002		103.93
CS-143 002 00002b	Cone, 3	143 002 00002b		155.9
CS-143 002 00002c	Cone, 4	143 002 00002c		207.86
CS-143 003 00002	MH cvr/frm (boltdown)	143 003 00002		146.138
CS-143 003 00003	MH cover 25"	143 003 00003		57.5
CS-143 004 00001	MH frame 25"	143 004 00001		62.244
CS-143 004 00002	RI frame	143 004 00002		35.198
CS-163 001 00013	Green paint	163 001 00013		3.0933
CS-163 001 00014	White paint	163 001 00014		3.0973
CS-163 002 00002	Black paint	163 002 00002		18.9333
CS-171 009 00003	SDR 35 plastic pipe, 6" x 13	171 009 00003		55.51
CS-171 009 00003b	SDR 35 plastic pipe, 8" x 13	171 009 00003b		74.013333
CS-197 014 00002	Paving ring 28x1. 5â€, OLD	197 014 00002		20
CS-197 014 00003	Paving ring 28x2â€, OLD	197 014 00003		20
CS-197 014 00004	Paving ring 28x2.5â€, OLD	197 014 00004		20
CS-197 014 00005	Paving ring 25x2â€, NEW	197 014 00005		20
CS-197 014 00006	Paving ring 25x2.5â€, NEW	197 014 00006		20
CS-197 014 00007	Paving ring 16.5x1.5â€, RI	197 014 00007		20

MaterialUid	Description	Part Number	Manufacturer	Unit Cost
CS-197 014 00008	Paving ring 16.5x2â€, RI	197 014 00008		20
CS-197 014 00009	Paving ring 16.5x2.5â€, RI	197 014 00009		20
CS-197 014 00010	Paving ring 25x1.5â€, NEW	197 014 00010		20
CS-197 014 00011	Paving ring 28x1.25â€, OLD	197 014 00011		20
CS-197 014 00012	Paving ring 28x3â€, OLD	197 014 00012		20
CS-217 001 00005	Ram neck	217 001 00005		3.139
CS-261 024 00004	Wood wedge	261 024 00004		0.4574
CS-269 005 00018	Check valve, 4"	269 005 00018		62.702
CS-269 008 00010	SRVA (flush mount), 4"	269 008 00010		21.938
	4" ARC clay-CI/PL coupling			
	6" ARC clay-CI/PL coupling			
	8" ARC clay-CI/PL coupling			
	4" SDR26 22.5 bend			
	4" SDR26 45 bend			
	compostie man hole frame and cover (bolt down)			
	6" x 4" SDR26 wye			
	8" x 4" SDR26 wye			
	4" ARC AC-CI/PL coupling			
	6" ARC AC-CI/PL coupling			
	8" ARC AC-CI/PL coupling			

Appendix D – Water Quality Monitoring Plan

WDR REQUISITES

This Water Quality Monitoring Program provides the District's response activities and standard operating procedures to be utilized in the Spill Emergency Response Plan (SERP), in the event a sanitary sewer spill (SSS) is 50,000 gallons or greater discharged to surface waters. This program is reviewed periodically and may be updated as necessary.

State Water Resources Control Board Order No. WQ 2022-0103-DWQ, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR), effective June 5, 2023, requires the following:

WDR Attachment E-1 – Notification, Monitoring, Reporting and Recordkeeping Requirements

To comply with subsection 2.32 – Receiving Water – Water Quality Sampling and Analysis, 2.3.3 - Water Quality Analysis Notifications, and 2.34 – Receiving Water Sampling Locations, Central San has developed and implemented an SSS Water Quality Monitoring Program to assess impacts from SSSs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSS Water Quality Monitoring Program, shall, at a minimum:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSS Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 18 hours of the enrollee becoming aware of the SSS, require water quality sampling for, at a minimum, the following constituents:
    i. Ammonia
    ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction which may include total and fecal coliform, enterococcus, and e-coli.

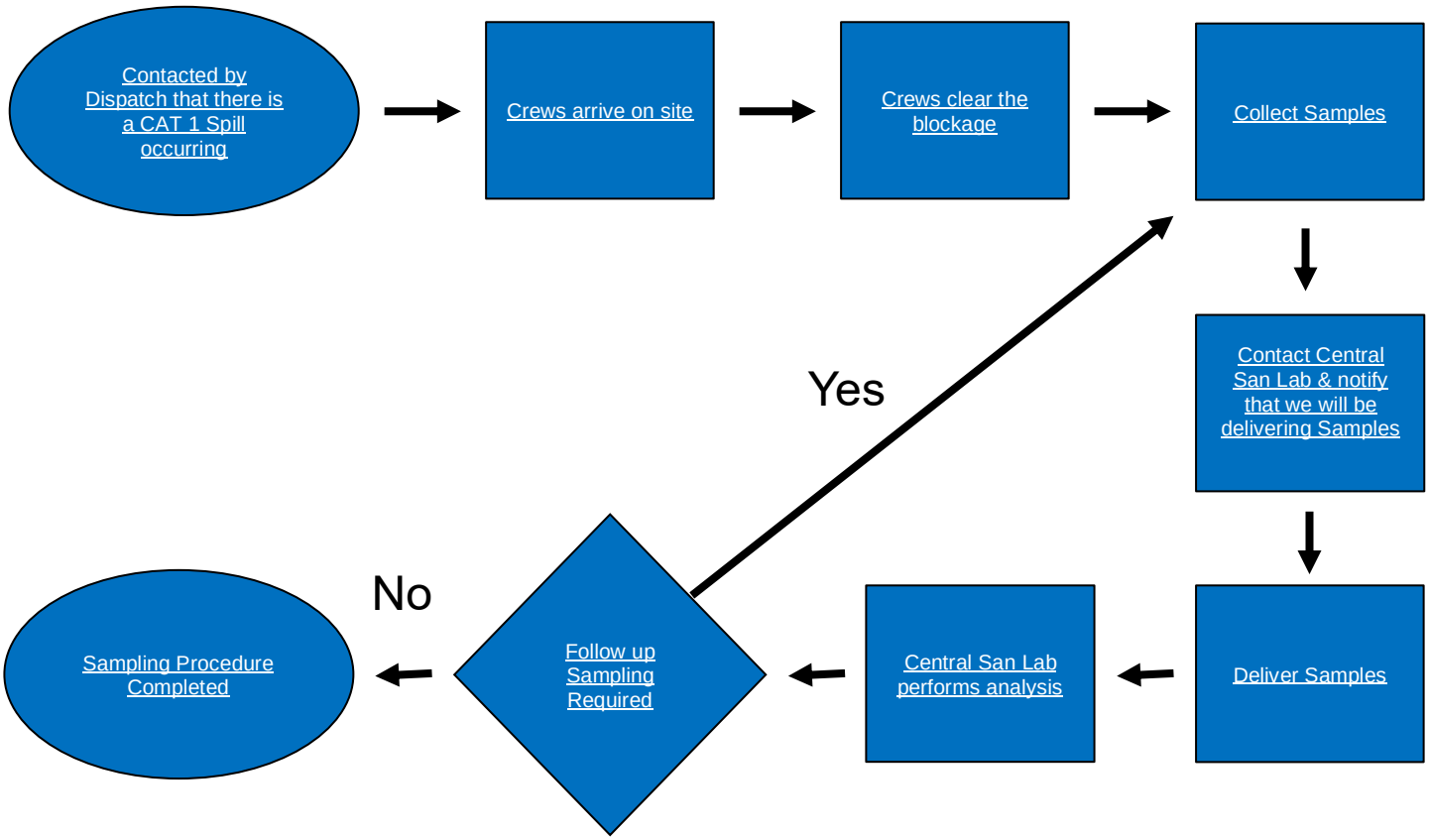
Additionally, for spills greater than 50,000 gallons, an SSS Technical Report is required and must be submitted within 45 calendar days from the SSS end date. The SSS Technical Report requirements are described in Attachment E-1 – Notification, Monitoring, Reporting and Recordkeeping Requirements, Section 3.1.3, Page E1-10 of the WDR.

CENTRAL SAN COMPLIANCE

1.0 CONTAIN PROTOCOLS FOR WATER QUALITY MONITORING

Central San collects water quality samples for Category 1 SSS's with a volume of **50,000 gallons or greater**. The Field Superintendent or a Field Supervisor will collect, transport, and submit water quality samples for analysis to Central San's Laboratory at our Treatment Plant in Martinez, California. Samples are taken at or near where the SSS reaches the surface water (entry point), approximately 100 feet upstream, and downstream of the entry point. The samples are collected as soon as the blockage has been cleared or if additional staff is available the sampling activities will be completed in concurrence with clearing the blockage. The samples are analyzed for ammonia, total coliform, fecal coliform, enterococcus and e-coli. Additional follow up samples are recommended to confirm the extent that the impact reverts to baseline levels. Follow up samples can be used to determine if posting of warning signs should be discontinued, if signs were posted. Collaboration with the Office of Emergency Services, Fish and Wildlife and the County Health Department shall continue until closures have been removed.

In addition, Central San has contracted with Environmental Science Associate to provide a certified Biologist to review and provide recommendations for **ALL** Category 1 SSS's. Central San staff performs the creek cleanup and the biologist is required, within 48-hours, to inspect the site for any additional cleanup activities. The Biologist then submits a report to Central San outlining the findings. Biologist reports are attached to the SSS backup documentation and kept at the Collection System Operations location in Walnut Creek.



2.0 ACCOUNT FOR SPILL TRAVEL TIME IN THE SURFACE WATER AND SCENARIOS WHERE MONITORING MAY NOT BE POSSIBLE

The following methods are recommended to estimate spill travel time and direction:

Method 1: Use a **velocity probe** (such as a Global Water FP111-S Flow Probe). To determine the rate of flow in the surface water or

Method 2: **Visual ft/sec measurement.** This may be done by observing or dropping floatable debris in the surface water and timing how long it takes to travel over a measured distance (e.g., 100 feet). Include sections in the surface water where there are bends, bottlenecks, or other characteristics that may slow down the flow. If the first measurement is uncertain, this estimate may be performed three to five times, and the values averaged to determine an estimated travel time.

Method 3: **Hach Ammonium Field Test.** The Field Superintendent, Supervisors and maintenance staff are equipped with Ammonium Filed Test kits. This allows staff to determine the extent of the spill in the surface water which assists them in determining where to setup pumps to clean the waterway.

Either of these methods will provide a means to estimate the distance traveled and identify where the SSS may be headed within the waterway.

The following are scenarios where monitoring may not be possible.

Be aware of safety issues and do not subject personnel to unsafe conditions in order to comply with this Water Quality Monitoring Plan. Sampling will not be conducted if there are any concerns regarding field crew safety. These concerns may include:

- Heavy rain events that compromise access points through flooding and swift currents
- Rain events that include lightning
- Steep creekbanks that limit access
- Large flows in creek that are not conducive to sampling

3.0 REQUIRE WATER QUALITY ANALYSIS FOR AMMONIA AND BACTERIAL INDICATORS TO BE PERFORMED BY AN ACCREDITED OR CERTIFIED LABORATORY

Central San is required to meet dozens of stringent water quality regulations. We operate a laboratory at our wastewater treatment plant, 5019 Imhoff Place in Martinez, CA. Central San's laboratory is certified by the California State Environmental Laboratory Accreditation Program. Approximately 35,000 tests are conducted annually to identify various wastewater constituents, including ammonia, bacteria, metals, toxic organic compounds, and pathogens.

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Central Contra Costa Sanitary District, Dr. Mario M. Menesini Environmental Laboratory

5015 Imhoff Place

Martinez, CA 94553

Scope of the certificate is limited to the "Fields of Testing" which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

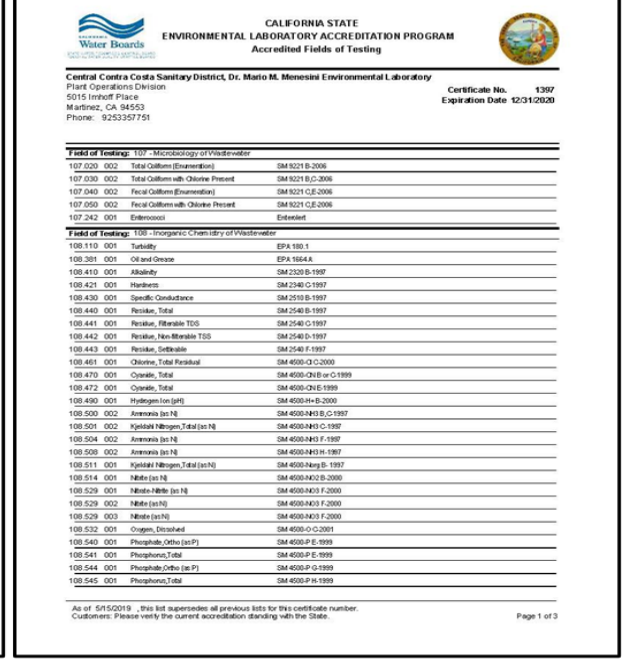
Certificate No.: **1397**

Expiration Date: **12/31/2020**

Effective Date: **1/1/2019**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program



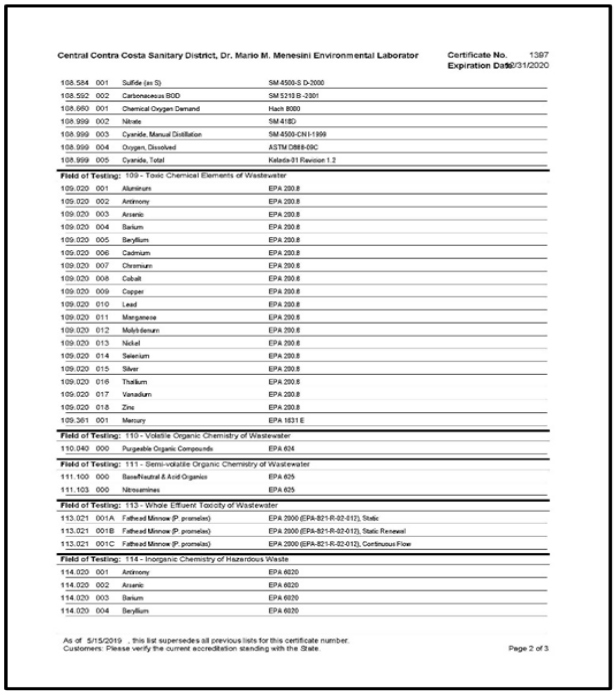
CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Central Contra Costa Sanitary District, Dr. Mario M. Menesini Environmental Laboratory
Plant Operations Division
5015 Imhoff Place
Martinez, CA 94553
Phone: 9253357751

Certificate No. 1397
Expiration Date 12/31/2020

Field of Testing:	107 - Microbiology of Wastewater		
107.020	002	Total Coliform (Enumeration)	SM 9221 B-2006
107.030	002	Total Coliform with Chlorine Present	SM 9221 B,C-2006
107.040	002	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
107.050	002	Fecal Coliform with Chlorine Present	SM 9221 C,E-2006
107.242	001	Enterococci	Enterolert
Field of Testing:	108 - Inorganic Chemistry of Wastewater		
108.110	001	Turbidity	EPA 180.1
108.381	001	Oil and Grease	EPA 1664 A
108.410	001	Alkalinity	SM 2320 B-1997
108.421	001	Hardness	SM 2340 C-1997
108.430	001	Specific Conductance	SM 2510 B-1997
108.440	001	Residue, Total	SM 2540 B-1997
108.441	001	Residue, Filterable TDS	SM 2540 C-1997
108.442	001	Residue, Non-filterable TSS	SM 2540 D-1997
108.443	001	Residue, Settleable	SM 2540 F-1997
108.461	001	Chlorine, Total Residual	SM 4500-Cl O-2000
108.470	001	Cyanide, Total	SM 4500-CN B or C-1999
108.472	001	Cyanide, Total	SM 4500-CN E-1999
108.490	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
108.500	002	Ammonia (as N)	SM 4500-NH3 B,C-1997
108.501	002	Kjeldahl Nitrogen,Total (as N)	SM 4500-NH3 C-1997
108.504	002	Ammonia (as N)	SM 4500-NH3 F-1997
108.508	002	Ammonia (as N)	SM 4500-NH3 H-1997
108.511	001	Kjeldahl Nitrogen,Total (as N)	SM 4500-Norg B- 1997
108.514	001	Nitrite (as N)	SM 4500-NO2 B-2000
108.529	001	Nitrate-Nitrite (as N)	SM 4500-NO3 F-2000
108.529	002	Nitrite (as N)	SM 4500-NO3 F-2000
108.529	003	Nitrate (as N)	SM 4500-NO3 F-2000
108.532	001	Oxygen, Dissolved	SM 4500-O C-2001
108.540	001	Phosphate,Ortho (as P)	SM 4500-P E-1999
108.541	001	Phosphorus,Total	SM 4500-P E-1999
108.544	001	Phosphate,Ortho (as P)	SM 4500-P G-1999
108.545	001	Phosphorus,Total	SM 4500-P H-1999

As of 5/15/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.



108.584	001	Sulfide (as S)	SM 4500-S D-2000
108.592	002	Carbonaceous BOD	SM 5210 B -2001
108.660	001	Chemical Oxygen Demand	Hach 8000
108.999	002	Nitrate	SM 418D
108.999	003	Cyanide, Manual Distillation	SM 4500-CN I-1999
108.999	004	Oxygen, Dissolved	ASTM D888-09C
108.999	005	Cyanide, Total	Kelada-01 Revision 1.2
Field of Testing:	109 - Toxic Chemical Elements of Wastewater		
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.361	001	Mercury	EPA 1631 E
Field of Testing:	110 - Volatile Organic Chemistry of Wastewater		
110.040	000	Purgeable Organic Compounds	EPA 624
Field of Testing:	111 - Semi-volatile Organic Chemistry of Wastewater		
111.100	000	Base/Neutral & Acid Organics	EPA 625
111.103	000	Nitrosamines	EPA 625
Field of Testing:	113 - Whole Effluent Toxicity of Wastewater		
113.021	001A	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static
113.021	001B	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static Renewal
113.021	001C	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Continuous Flow
Field of Testing:	114 - Inorganic Chemistry of Hazardous Waste		
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020

As of 5/15/2019 , this list supersedes all previous lists for this certificate number.
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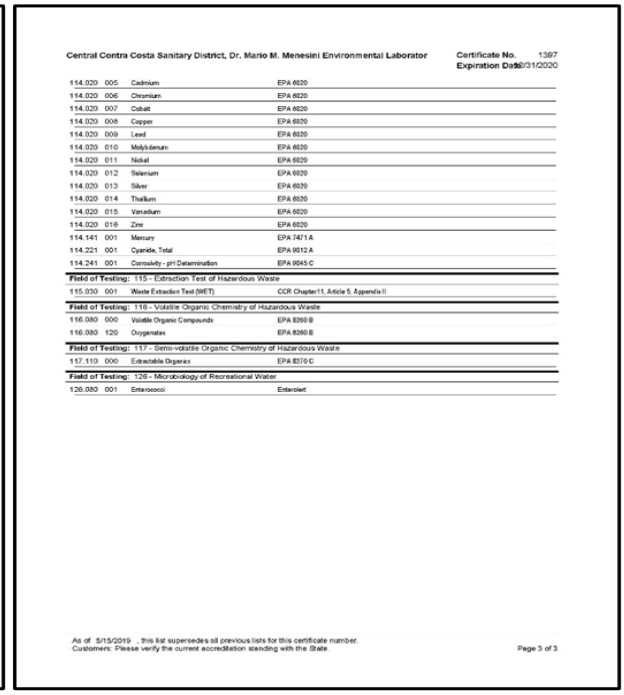

114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.141	001	Mercury	EPA 7471 A
114.221	001	Cyanide, Total	EPA 9012 A
114.241	001	Corrosivity - pH Determination	EPA 9045 C
Field of Testing:	115 - Extraction Test of Hazardous Waste		
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
Field of Testing:	116 - Volatile Organic Chemistry of Hazardous Waste		
116.080	000	Volatile Organic Compounds	EPA 8260 B
116.080	120	Oxygenates	EPA 8260 B
Field of Testing:	117 - Semi-volatile Organic Chemistry of Hazardous Waste		
117.110	000	Extractable Organics	EPA 8270 C
Field of Testing:	126 - Microbiology of Recreational Water		
126.080	001	Enterococci	Enterolert

As of 5/15/2019 , this list supersedes all previous lists for this certificate number.
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CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Fields of Accreditation

Central Contra Costa Sanitary District, Dr. Mario M. Menesini Environmental Laboratory
Environmental and Regulatory Compliance
5015 Imhoff Place
Martinez, CA 94553
Phone: 9253357751

Certificate Number: 1397
Expiration Date: 12/31/2024

Field of Accreditation: 107 - Microbiological Methods for Non-Potable Water and Sewage Sludge			
107.001	001	Total Coliform (Enumeration)	SM 9221 B,C-2006
107.001	002	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
107.017	001	Enterococci	Enterolert
Field of Accreditation: 108 - Inorganic Constituents in Non-Potable Water			
108.009	001	Turbidity	EPA 180.1
108.053	001	Oil & Grease, Total Recoverable	EPA 1664 A
108.063	001	Alkalinity	SM 2320 B-2011
108.067	001	Hardness	SM 2340 C-2011
108.069	001	Specific Conductance	SM 2510 B-2011
108.071	001	Residue, Total	SM 2540 B-2011
108.073	001	Residue, Filterable TDS	SM 2540 C-2011
108.075	001	Residue, Non-filterable TSS	SM 2540 D-2011
108.079	001	Residue, Settleable	SM 2540 F-2011
108.105	001	Chlorine, Total Residual	SM 4500-Cl C-2011
108.137	001	Hydrogen Ion (pH)	SM 4500-H+ B-2011
108.139	001	Ammonia (as N)	SM 4500-NH3 C-2011
108.139	002	Kjeldahl Nitrogen,Total (as N)	SM 4500-NH3 C-2011
108.149	001	Ammonia (as N)	SM 4500-NH3 H-2011
108.159	001	Nitrate-Nitrite (as N)	SM 4500-NO3 F-2011
108.159	002	Nitrite (as N)	SM 4500-NO3 F-2011
108.165	001	Oxygen, Dissolved	SM 4500-O C-2011
108.175	002	Phosphorus,Total	SM 4500-P E-2011
108.179	001	Phosphate,Ortho (as P)	SM 4500-P G-2011
108.181	001	Phosphorus,Total	SM 4500-P H-2011
108.201	001	Sulfide (as S)	SM 4500-S D-2011
108.207	002	Carbonaceous BOD	SM 5210 B-2011
108.251	001	Oxygen, Dissolved	ASTM D888-09C
108.325	001	Chemical Oxygen Demand	Hach 8000
108.335	001	Cyanide, Total	Kelada-01
Field of Accreditation: 109 - Metals and Trace Elements in Non-Potable Water			
109.625	002	Antimony	EPA 200.8
109.625	003	Arsenic	EPA 200.8
109.625	004	Barium	EPA 200.8

As of 1/1/2023, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

109.625	005	Beryllium	EPA 200.8
109.625	007	Cadmium	EPA 200.8
109.625	008	Chromium	EPA 200.8
109.625	009	Cobalt	EPA 200.8
109.625	010	Copper	EPA 200.8
109.625	013	Lead	EPA 200.8
109.625	014	Manganese	EPA 200.8
109.625	015	Molybdenum	EPA 200.8
109.625	016	Nickel	EPA 200.8
109.625	017	Selenium	EPA 200.8
109.625	018	Silver	EPA 200.8
109.625	019	Thallium	EPA 200.8
109.625	022	Vanadium	EPA 200.8
109.625	023	Zinc	EPA 200.8
109.635	001	Mercury	EPA 245.1

Field of Accreditation: 110 - Volatile Organic Constituents in Non-Potable Water

110.040	003	Acrolein	EPA 624.1
110.040	004	Acrylonitrile	EPA 624.1
110.040	005	Benzene	EPA 624.1
110.040	006	Bromodichloromethane	EPA 624.1
110.040	007	Bromoform	EPA 624.1
110.040	008	Bromomethane (Methyl Bromide)	EPA 624.1
110.040	010	Carbon Tetrachloride	EPA 624.1
110.040	011	Chlorobenzene	EPA 624.1
110.040	012	Chloroethane	EPA 624.1
110.040	013	2-Chloroethyl vinyl Ether	EPA 624.1
110.040	014	Chloroform	EPA 624.1
110.040	015	Chloromethane (Methyl Chloride)	EPA 624.1
110.040	016	Dibromochloromethane (Chlorodibromomethane)	EPA 624.1
110.040	017	1,2-Dichlorobenzene	EPA 624.1
110.040	018	1,3-Dichlorobenzene	EPA 624.1
110.040	019	1,4-Dichlorobenzene	EPA 624.1
110.040	020	1,1-Dichloroethane	EPA 624.1
110.040	021	1,2-Dichloroethane (Ethylene Dichloride)	EPA 624.1
110.040	022	1,1-Dichloroethylene (1,1-Dichloroethene)	EPA 624.1
110.040	023	trans-1,2-Dichloroethylene (trans- 1,2 Dichloroethene)	EPA 624.1
110.040	024	1,2-Dichloropropane	EPA 624.1
110.040	025	cis-1,3-Dichloropropylene (cis 1,3 Dichloropropene)	EPA 624.1
110.040	026	trans-1,3-Dichloropropylene (trans-1,3 Dichloropropene)	EPA 624.1
110.040	029	Ethylbenzene	EPA 624.1
110.040	031	Methylene Chloride (Dichloromethane)	EPA 624.1
110.040	034	1,1,2,2-Tetrachloroethane	EPA 624.1

110.040	035	Tetrachloroethylene (Tetrachloroethene)	EPA 624.1
110.040	037	Toluene	EPA 624.1
110.040	038	1,1,1-Trichloroethane	EPA 624.1
110.040	039	1,1,2-Trichloroethane	EPA 624.1
110.040	040	Trichloroethylene (Trichloroethene)	EPA 624.1
110.040	041	Vinyl Chloride	EPA 624.1
110.040	043	o-Xylene	EPA 624.1
110.040	045	Trichlorofluoromethane	EPA 624.1
110.040	046	m+p-Xylene	EPA 624.1

Field of Accreditation:111 - Semi-volatile Organic Constituents in Non-Potable Water

111.160	001	Acenaphthene	EPA 625.1
111.160	002	Acenaphthylene	EPA 625.1
111.160	003	Anthracene	EPA 625.1
111.160	004	Benzidine	EPA 625.1
111.160	005	Benzo(a)anthracene	EPA 625.1
111.160	006	Benzo(a)pyrene	EPA 625.1
111.160	007	Benzo(b)fluoranthene	EPA 625.1
111.160	008	Benzo(g,h,i)perylene	EPA 625.1
111.160	009	Benzo(k)fluoranthene	EPA 625.1
111.160	010	Bis(2-chloroethoxy) Methane	EPA 625.1
111.160	011	Bis(2-chloroethyl) Ether	EPA 625.1
111.160	012	bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 625.1
111.160	013	Bis(2-ethylhexyl)phthalate (Di(2-ethylhexyl) phthalate)	EPA 625.1
111.160	014	4-Bromophenyl Phenyl Ether	EPA 625.1
111.160	015	Butyl Benzyl Phthalate	EPA 625.1
111.160	016	2-Chloronaphthalene	EPA 625.1
111.160	017	4-Chlorophenyl Phenyl Ether	EPA 625.1
111.160	018	Chrysene	EPA 625.1
111.160	019	Dibenz(a,h)anthracene	EPA 625.1
111.160	020	3,3'-Dichlorobenzidine	EPA 625.1
111.160	021	Diethyl Phthalate	EPA 625.1
111.160	022	Dimethyl Phthalate	EPA 625.1
111.160	023	Di-n-butyl Phthalate	EPA 625.1
111.160	024	2,4-Dinitrotoluene	EPA 625.1
111.160	025	2,6-Dinitrotoluene	EPA 625.1
111.160	026	Di-n-octyl Phthalate	EPA 625.1
111.160	027	Fluoranthene	EPA 625.1
111.160	028	Fluorene	EPA 625.1
111.160	029	Hexachlorobenzene	EPA 625.1
111.160	030	Hexachlorobutadiene	EPA 625.1
111.160	031	Hexachloroethane	EPA 625.1
111.160	032	Indeno(1,2,3-c,d)pyrene	EPA 625.1

111.160	033	Isophorone	EPA 625.1
111.160	034	Naphthalene	EPA 625.1
111.160	035	Nitrobenzene	EPA 625.1
111.160	036	N-nitroso-di-n-propylamine	EPA 625.1
111.160	037	Phenanthrene	EPA 625.1
111.160	038	Pyrene	EPA 625.1
111.160	039	1,2,4-Trichlorobenzene	EPA 625.1
111.160	040	4-Chloro-3-methylphenol	EPA 625.1
111.160	041	2-Chlorophenol	EPA 625.1
111.160	042	2,4-Dichlorophenol	EPA 625.1
111.160	043	2,4-Dimethylphenol	EPA 625.1
111.160	044	2,4-Dinitrophenol	EPA 625.1
111.160	045	2-Methyl-4,6-dinitrophenol	EPA 625.1
111.160	046	2-Nitrophenol	EPA 625.1
111.160	047	4-Nitrophenol	EPA 625.1
111.160	048	Pentachlorophenol	EPA 625.1
111.160	049	Phenol	EPA 625.1
111.160	050	2,4,6-Trichlorophenol	EPA 625.1
111.160	098	Hexachlorocyclopentadiene	EPA 625.1
111.160	108	N-nitrosodimethylamine	EPA 625.1
111.160	110	N-nitrosodiphenylamine	EPA 625.1
111.160	143	1,2-Diphenylhydrazine	EPA 625.1
Field of Accreditation: 113 - Environmental Toxicity Methods			
113.011	001C	Fathead Minnow (P. promelas)	EPA 2000.0, Continuous Flow
Field of Accreditation: 114 - Inorganic Constituents in Hazardous Waste			
114.335	002	Antimony	EPA 6020
114.335	003	Arsenic	EPA 6020
114.335	004	Barium	EPA 6020
114.335	005	Beryllium	EPA 6020
114.335	006	Cadmium	EPA 6020
114.335	007	Chromium	EPA 6020
114.335	008	Cobalt	EPA 6020
114.335	009	Copper	EPA 6020
114.335	010	Lead	EPA 6020
114.335	012	Nickel	EPA 6020
114.335	013	Silver	EPA 6020
114.335	014	Thallium	EPA 6020
114.335	015	Zinc	EPA 6020
114.335	016	Molybdenum	EPA 6020
114.335	017	Selenium	EPA 6020
114.335	018	Vanadium	EPA 6020
114.535	001	Mercury	EPA 7471 A

Field of Accreditation:115 - Leaching/Extraction Tests and Physical Characteristics of Hazardous Waste			
115.135	001	Corrosivity - pH Determination	EPA 9045 C
Field of Accreditation:116 - Volatile Organic Compounds in Hazardous Waste			
116.265	001	Benzene	EPA 8260 B
116.265	004	Bromodichloromethane	EPA 8260 B
116.265	005	Bromoform	EPA 8260 B
116.265	006	Bromomethane (Methyl Bromide)	EPA 8260 B
116.265	010	Carbon Disulfide	EPA 8260 B
116.265	011	Carbon Tetrachloride	EPA 8260 B
116.265	012	Chlorobenzene	EPA 8260 B
116.265	013	Chlorodibromomethane (Dibromochloromethane)	EPA 8260 B
116.265	014	Chloroethane	EPA 8260 B
116.265	015	Chloroform	EPA 8260 B
116.265	016	Chloromethane (Methyl Chloride)	EPA 8260 B
116.265	018	Dichlorodifluoromethane (Freon 12)	EPA 8260 B
116.265	019	cis-1,2-Dichloroethylene (cis 1,2 Dichloroethene)	EPA 8260 B
116.265	020	trans-1,2-Dichloroethylene (trans- 1,2 Dichloroethene)	EPA 8260 B
116.265	021	cis-1,3-Dichloropropylene (cis 1,3 Dichloropropene)	EPA 8260 B
116.265	022	trans-1,3-Dichloropropylene (trans-1,3 Dichloropropene)	EPA 8260 B
116.265	023	Ethylbenzene	EPA 8260 B
116.265	025	Methyl tert-butyl Ether (MTBE)	EPA 8260 B
116.265	026	Methylene Chloride (Dichloromethane)	EPA 8260 B
116.265	030	Styrene	EPA 8260 B
116.265	031	Tetrachloroethylene (Tetrachloroethene)	EPA 8260 B
116.265	032	Toluene	EPA 8260 B
116.265	033	Trichloroethylene (Trichloroethene)	EPA 8260 B
116.265	034	Trichlorofluoromethane	EPA 8260 B
116.265	035	Vinyl Chloride	EPA 8260 B
116.265	036	m+p-Xylene	EPA 8260 B
116.265	037	o-Xylene	EPA 8260 B
116.265	040	1,1-Dichloroethane	EPA 8260 B
116.265	041	1,1-Dichloroethylene (1,1-Dichloroethene)	EPA 8260 B
116.265	042	1,1,1-Trichloroethane	EPA 8260 B
116.265	044	1,1,2,2-Tetrachloroethane	EPA 8260 B
116.265	045	1,1,2-Trichloroethane	EPA 8260 B
116.265	046	1,2-Dichlorobenzene	EPA 8260 B
116.265	047	1,2-Dichloroethane (Ethylene Dichloride)	EPA 8260 B
116.265	050	1,2-Dichloropropane	EPA 8260 B
116.265	053	1,3-Dichlorobenzene	EPA 8260 B
116.265	054	1,4-Dichlorobenzene	EPA 8260 B
116.265	055	2-Chloroethyl vinyl Ether	EPA 8260 B
116.265	057	4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	EPA 8260 B

Field of Accreditation:117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.435	001	Acenaphthene	EPA 8270 C
117.435	002	Acenaphthylene	EPA 8270 C
117.435	004	Anthracene	EPA 8270 C
117.435	005	Benzidine	EPA 8270 C
117.435	007	Benzo(a)anthracene	EPA 8270 C
117.435	008	Benzo(b)fluoranthene	EPA 8270 C
117.435	009	Benzo(k)fluoranthene	EPA 8270 C
117.435	010	Benzo(g,h,i)perylene	EPA 8270 C
117.435	011	Benzo(a)pyrene	EPA 8270 C
117.435	013	Bis(2-chloroethoxy) Methane	EPA 8270 C
117.435	014	Bis(2-chloroethyl) Ether	EPA 8270 C
117.435	015	Bis(2-ethylhexyl)phthalate (Di(2-ethylhexyl) phthalate)	EPA 8270 C
117.435	016	Butyl Benzyl Phthalate	EPA 8270 C
117.435	017	Chrysene	EPA 8270 C
117.435	018	Dibenz(a,h)anthracene	EPA 8270 C
117.435	020	Di-n-butyl Phthalate	EPA 8270 C
117.435	021	Diethyl Phthalate	EPA 8270 C
117.435	022	Dimethyl Phthalate	EPA 8270 C
117.435	023	Di-n-octyl Phthalate	EPA 8270 C
117.435	024	Fluoranthene	EPA 8270 C
117.435	025	Fluorene	EPA 8270 C
117.435	026	Naphthalene	EPA 8270 C
117.435	027	Nitrobenzene	EPA 8270 C
117.435	029	Pentachlorophenol	EPA 8270 C
117.435	034	2-Chloronaphthalene	EPA 8270 C
117.435	035	2-Chlorophenol	EPA 8270 C
117.435	036	2,4-Dichlorophenol	EPA 8270 C
117.435	037	2,4-Dimethylphenol	EPA 8270 C
117.435	038	2,4-Dinitrophenol	EPA 8270 C
117.435	039	2,4-Dinitrotoluene	EPA 8270 C
117.435	041	2,6-Dinitrotoluene	EPA 8270 C
117.435	043	2-Nitrophenol	EPA 8270 C
117.435	045	3,3'-Dichlorobenzidine	EPA 8270 C
117.435	047	4-Chloro-3-methylphenol	EPA 8270 C
117.435	048	4-Bromophenyl Phenyl Ether	EPA 8270 C
117.435	049	4-Chlorophenyl Phenyl Ether	EPA 8270 C
117.435	051	4-Nitrophenol	EPA 8270 C
117.435	088	N-nitrosodimethylamine	EPA 8270 C
117.435	089	N-nitrosodiphenylamine	EPA 8270 C
117.435	090	N-nitroso-di-n-propylamine	EPA 8270 C
117.435	091	Indeno(1,2,3-c,d)pyrene	EPA 8270 C

117.435	092	Isophorone	EPA 8270 C
117.435	094	Phenanthrene	EPA 8270 C

4.0 REQUIRE MONITORING INSTRUMENTS AND DEVICES USED TO IMPLEMENT THE SSS WATER QUALITY MONITORING PROGRAM TO BE PROPERLY MAINTAINED AND CALIBRATED, INCLUDING ANY RECORDS TO DOCUMENT MAINTENANCE AND CALIBRATION, AS NECESSARY, TO ENSURE THEIR CONTINUED ACCURACY

The below list references documents where persons reviewing SSS data would look to answer questions about calibration and maintenance of equipment used to measure parameters for an SSS sample. The three documents listed below are kept at Central San's Laboratory in Martinez, California. Records pertaining to maintenance and calibration of equipment used to analyze SSS samples are available by request.

1. Central Contra Costa Sanitary District Dr. Mario M. Menesini Environmental Laboratory Quality Assurance Manual.

2. Standard Operating Procedures for methods used to analyze sanitary sewer spill samples. (These will have calibration procedures/frequency along with quality control frequencies and acceptance limits.)

3. Instrument logbooks where preventative or reactive maintenance along with software updates are described.

5.0 WITHIN 18 HOURS OF THE ENROLLEE BECOMING AWARE OF THE SSS, REQUIRE WATER QUALITY SAMPLING FOR, AT A MINIMUM, THE FOLLOWING CONSTITUENTS:

- AMMONIA
- APPROPRIATE BACTERIAL INDICATOR(S) PER THE APPLICABLE BASIN WATER PLAN WATER QUALITY OBJECTIVE OR REGIONAL BOARD DIRECTION WHICH MAY INCLUDE TOTAL AND FECAL COLIFORM, ENTEROCOCCUS, AND E-COLI

SSS Sampling Contact Information

Company	Contact Person	Phone #
Central San Laboratory Program Administrator	Blake Brown	925-229-7237 925-324-5721 cell
Central San Collection System Superintendent	Steve Sauter	925-229-7150 925-260-2046 cell
Central San Collection System Supervisor	Alex Benavidez	925-229-7175 925-383-0795 cell
Central San Collection System Division Manager	Paul Seitz	925-335-7743 925-383-0033 cell
Environmental Science Associates Biologist	Garrett Leidy	510-463-6738
Environmental Science Associates Vice President	Erich Fischer	916-564-4500

FIELD EQUIPMENT SUPPLIES NEEDED FOR SAMPLING

The following list describes equipment that should be stocked and readily available for each water quality sampling event.

1. Personnel protective equipment including latex/nitrile gloves and eye protection
2. Four Coolers for samples –
    a. Storm drain entry point (DCS-001)
    b. entry point sample (RSW-001)
    c. upstream sample (RSW-001U)
    d. downstream sample (RSW-001D)
3. Ice for coolers to keep samples cold
4. 12 –290mL Sterile plastic containers (containing sodium thiosulfate preservative) for Bacteria sample collection –
    a. Bottle 1 for Coliform & Enterococcus (1 bottle per kit)
    b. Bottle 2 for E. coli (1 bottle per kit)
    c. Sacrificial sterile bottle for sample collection (1 bottle per kit)
5. 4 Sets of dechlor/preservation kits (3a & 3b) –
    a. Bottle 3a (290mL sterile container containing sodium thiosulfate preservative) (1 per kit)
    b. Bottle 3b (250mL plastic bottle with Sulfuric Acid) (1 per kit)
6. 8 –1 L plastic containers (2 bottles per kit)
7. 1 — Sampling apparatus with 10' extension handle
8. 1 Gallon plastic bags used for any trash
9. Chain of Custody Forms

Ensure that there are adequate quantities of sample containers-kits if there are more than three sample locations

SAMPLE COLLECTION BEST PRACTICE

1. Collect all grab samples approximately 3"- 6" below the surface (or if shallower, as close as possible to this depth) to avoid sampling debris or scum from the surface.
2. Collect the sample in a safe manner in the middle of the flow, against the direction of water flow.
3. Once the lid is opened for the individual sample bottle, do not touch the inside surface of the bottle or lid.
4. For sample bottles that contain a preservative, take care to keep the preservation material in the container and do not overfill.
5. Once samples have been gathered, immediately place all sample bottles on ice.
6. Deliver samples to Centra San's Laboratory.

SAMPLING TIME CONSTRAINTS

Bacteria samples have a 6-hour (preserved and cooled) regulatory holding time. Samples will not be analyzed if the holding time has been exceeded. Central San's Laboratory needs about 1 hour to set up the tests.

Samples must be maintained at 6°C/ 43°F (on ice or refrigerated) from the time of collection until receipt by Central San's Laboratory.

SAMPLING PROCEDURE

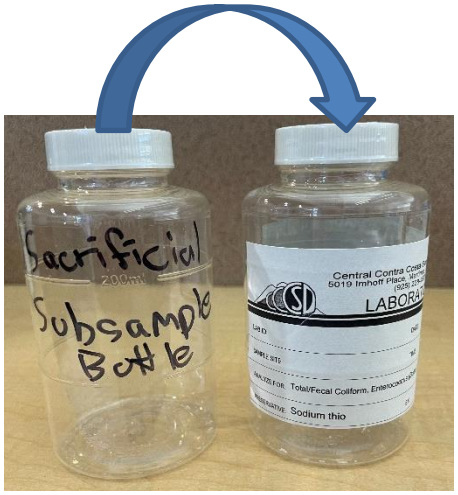
1. Remove four (4) ice chests from Spill Response Cabinet located in the CSO Warehouse.
2. Verify all four ice chests each have the following:

   - (1) – Sacrificial sterile sampling bottle (for pouring) with sterility seal intact
   - (2) – 290ml bottle (Bottles 1 & 2) (with dichlorination reagent already inside and plastic sterility seal intact)
   - (1) dechlor/preservation kit taped together (Bottles 3a & 3b)
     - 1 290mL sterile bottle with dechlorination agent
     - 1 250mL plastic bottle with Sulfuric acid
   - (2) 1L unpreserved, plastic bottles (Bottles 4 & 5)

3. Fill ice chests approximately half-full of ice.

4. Spill location samples should be taken at the entry point (site) of spill (RSW-001), approximately 100' upstream of entry point (RSW-001U) and 100' downstream of entry point location (RSW-001D). If the spill enters a drainage conveyance system, additionally collect at the entry point to the drainage conveyance system (DCS-001).

5. Sampling Instructions
    - Bottles 1 & 2 (2)-290mL sterile plastic bottles & (1) 290mL sacrificial sterile pouring bottle

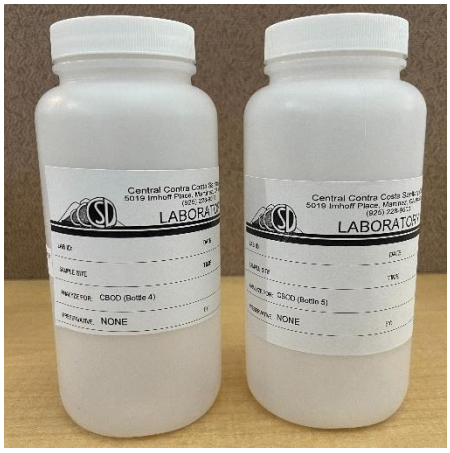


        - Remove the plastic sterility seal
        - Remove the cap of bottle 1 and do not allow the inside of the cap to touch anything (to prevent contamination)
        - Use sacrificial 290mL sterile container to fill bottles 1 and 2 to the 250mL fill line taking caution not to overfill.
        - Replace the lid and retain the sacrificial bottle to fill sample 3a.
        - Fill in the label with collection date/time
    - Sample bottles 3a & 3b (3a is a 290mL Dechlor container and 3b is a 250mL preservation container)

        - Fill bottle 3a with the sacrificial bottle used above without overfilling, this bottle contains dechlorination agent.
        - Cap 3a and shake to dissolve the dechlorination agent.
        - Pour the contents of bottle 3a into bottle 3b without overfilling. Bottle 3b contains sulfuric acid to preserve the sample. Use caution, Sulfuric acid could cause acid burns.
        - Cap 3b.

- Fill in the label with collection date/time.

- Sample bottles 4 & 5 (2-1L plastic bottles)



- Fill both 1L bottles with sample leaving 1-inch of headspace in the sample bottle.
- Fill in the label with collection date/time.

6. Repeat Step 5 for each of the sampling locations.
7. Fill out labels with appropriate information (see below). Use Sharpie ultra-fine point or similar, to avoid smearing.

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553-4392
(925) 228-9500

LABORATORY

LAB ID: DATE

SAMPLE SITE TIME

ANALYZE FOR: Total/Fecal Coliform, Enterococcus (Bottle 1)

PRESERVATIVE: Sodium thio BY:

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553-4392
(925) 228-9500

LABORATORY

LAB ID: DATE

SAMPLE SITE TIME

ANALYZE FOR: e.coli (Bottle 2)

PRESERVATIVE: Sodium thio BY:

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553-4392
(925) 228-9500

LABORATORY

LAB ID: DATE

SAMPLE SITE TIME

ANALYZE FOR: NH3 (Bottle 3a & 3b)

PRESERVATIVE: H2SO4+ Sodium thio BY:

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553-4392
(925) 228-9500

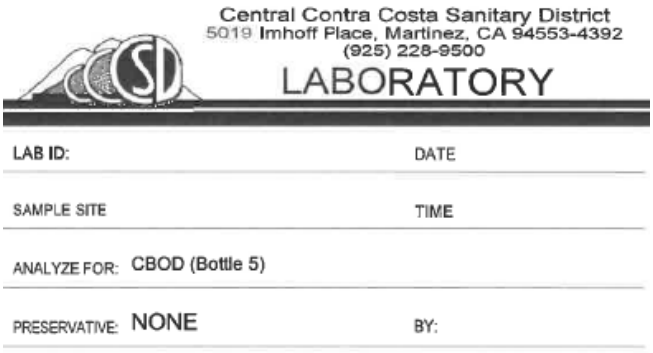
LABORATORY

LAB ID: DATE

SAMPLE SITE TIME

ANALYZE FOR: CBOD (Bottle 4)

PRESERVATIVE: NONE BY:



8. Put all sample bottles in their corresponding ice chests and deliver to lab within 5 hours
9. Fill out Chain of Custody Form for each location where samples were taken

Chain of Custody

Central Contra Costa Sanitary District
5019 Imhoff Place
Martinez, CA 94553

ERC-LAB-CSO-SAM-COC-FOR
Revision: 3
Effective: 05/01/23

Cityworks Workorder:

Report To: Steve Sauter, Alex Benavidez, Paul Seitz
Steve@centralsan.org, abenavidez@centralsan.org, pseitz@centralsan.org

Sampled by:

Sampler Signature:

Site Address:

Instructions:
Bottle 1 & 2:
Remove the seal from the container and pour sample into bottle using the sacrificial sterile bottle without touching the rim of the bottle. Fill the bottle to the 250mL line. Do not overfill, the bottle contains dechlorination agent. (fill both bottles 1 and 2)
Bottle 3a & 3b:
Fill bottle 3a first, cap and invert to dissolve sodium thiosulfate. (do not over fill the bottle)
Pour contents of bottle 3a into bottle 3b. Use caution when pouring, bottle 3b contains concentrated acid.
Bottle 4 & 5:
Fill bottles.

							Parameters To Be Analyzed																	Preservative					
Sample ID	UMS ID	Sample Type1	Collection Date	Collection Time	Bottle Type2	Number of Bottles	CBOD	Dissolved Oxygen	pH	Total Residual Chlorine	Ammonia	COD	Enterococcus	Total Fecal Coliform	E. Coli (subcontract)									H2SO4 (Preservation upon collection)	Temp 0-6C	Sodium Thiosulfate dechlorination tablet			
Drainage Conveyance DCS-001 (Bottle 1)		G			P	1							x	x											x	x				
Drainage Conveyance DCS-001 (Bottle 2)		G			P	1									x										x	x				
Drainage Conveyance DCS-001 (Bottles 3a & 3b)*		G			P	1					x													x	x	x				
Drainage Conveyance DCS-001 (Bottles 4 & 5)		G			P	2	x																		x					
Upstream-RSW-001U (Bottle 1)		G			P	1							x	x											x	x				
Upstream-RSW-001U (Bottle 2)		G			P	1									x										x	x				
Upstream-RSW-001U (Bottles 3a & 3b)*		G			P	1					x													x	x	x				
Upstream-RSW-001U (Bottles 4 & 5)		G			P	2	x																		x					
Site-RSW-001 (Bottle 1)		G			P	1							x	x											x	x				
Site-RSW-001 (Bottle 2)		G			P	1									x										x	x				
Site-RSW-001 (Bottles 3a & 3b)*		G			P	1					x													x	x	x				
Site-RSW-001 (Bottles 4 & 5)		G			P	2	x																		x					
Downstream-RSW-001D (Bottle 1)		G			P	1							x	x											x	x				
Downstream-RSW-001D (Bottle 2)		G			P	1									x										x	x				
Downstream-RSW-001D (Bottles 3a & 3b)*		G			P	1					x													x	x	x				
Downstream-RSW-001D (Bottles 4 & 5)		G			P	2	x																		x					

[1] Sample Type: C= Composite, G = Grab, CG = Composite Grab

[2] Bottle Type: AG = Amber Glass, CG = Clear Glass, P = Poly, V = VOA

*Time of preservation is the same as collection.

Total Number of Bottles

Comments:

Reviewed: _____ Date: _____

Relinquished by:	Date	Time	Received by:	Date	Time

CHAIN OF CUSTODY FORM – INSTRUCTION PAGE

Instructions

ERC-LAB-CSO-SAM-COC-FOR
Revision: 3
Effective: 05/01/23

Remove seal and lid from **Sacrificial Subsampling Bottle** and fill the bottle with sample. Remove the lid and seal from **Bottle 1** and do not set the lid down. Pour sample from the **Sacrificial Subsampling Bottle** into **Bottle 1** and avoid touching anything to the rim of the bottle. Fill to the 250 mL line, **but do not overfill!**

Refill the **Sacrificial Subsampling Bottle** with sample. Remove the lid and seal from **Bottle 2** and do not set the lid down. Pour sample from the **Sacrificial Subsampling Bottle** into **Bottle 2** and avoid touching anything to the rim of the bottle. Fill to the 250 mL line, **but do not overfill!**

Using either the **Sacrificial Subsampling Bottle**, or another sampling device, collect the sample. Remove lid and seal from **Botle 3a** and fill to the 250 mL line with sample, **but do not overfill!** Replace the lid and shake to dissolve the sodium thiosulfate to dechlorinate sample. Remove the lid from **Bottle 3b**, but take caution as the bottle contains strong acid. Pour sample from **Bottle 3a** into **Bottle 3b** and replace the lid on Bottle 3b.

Fill **Bottle 4** and **Bottle 5** with sample. The containers can either be filled using another container, or dipped directly into the sample location.

Appendix E – Repair List for Lines within 200' of Surface Waters

Facility Identifier	Install Date	Material	Diameter	Recorded Length	Address of Asset	Latest CCTV Inspection Date	Latest Total CCTV Score	Notes/Comments
47B7-RI1/47A7-M38	1/1/51	Vitrified Clay	6"	565	2056 ELINORA DR, PLEASANT HILL	5/21/14	22750	Will be repaired in a future project.
72A5-M16/72A5-M15	1/1/48	Vitrified Clay	6"	465	817 MORAGA RD, LAFAYETTE	7/18/17	15370	Will be repaired in a future project.
72D7-M18/72D7-M4	1/1/48	Vitrified Clay	15"	323	638 GLENSIDE DR, LAFAYETTE	8/17/17	15210	Will be repaired in a future project.
46E3-M51/46E3-M50	1/1/48	Vitrified Clay	6"	328	1890 VICKI LN, PLEASANT HILL	6/9/17	14320	Will be repaired in a future project.
71E2-M19/71E3-M24	1/1/48	Vitrified Clay	6"	477	1036 DOLORES DR, LAFAYETTE	8/19/22	13840	Will be repaired in a future project.
72B3-M22/72B3-M20	1/1/13	Vitrified Clay	6"	408	3455 MORAGA BLVD, LAFAYETTE	9/1/17	13440	Will be repaired in a future project.
72C3-RI19/72C3-M18	1/1/48	Vitrified Clay	6"	701	3332 VICTORIA AVE, LAFAYETTE	8/17/17	13270	Will be repaired in a future project.
75D5-M47/75D5-M46	1/1/50	Vitrified Clay	8"	424	2550 SAN MIGUEL DR, WALNUT CREEK	10/31/17	13140	Will be repaired in a future project.
72B4-M52.5/72B4-M5	1/1/48	Vitrified Clay	6"	388	872 MORAGA RD, LAFAYETTE	8/7/17	12090	Will be repaired in a future project.
78A1-M49/78A1-M48	1/1/64	Vitrified Clay	8"	556	2748 FALCON VIEW CT, ALAMO	10/14/16	11450	Will be repaired in a future project.
71C2-RI33/71C2-M31.	1/1/49	Vitrified Clay	6"	259	4125 LOS ARABIS DR, LAFAYETTE	11/9/11	11330	Will be repaired in a future project.
73B1-M32/73B1-M31	1/1/49	Vitrified Clay	6"	317	127 GLORIETTA BLVD, ORINDA	1/23/18	10380	Will be repaired in a future project.

* Lines within 200ft of surface water with significant defects

Appendix F – Resiliency Adaptation Plan

Prepared By: Matthew Huang, PE
Carollo Engineers
CA No. C65343

Reviewed By: Mike Britten, PE
Carollo Engineers
CA No. C27729

08/07/2017

CENTRAL CONTRA COSTA SANITARY DISTRICT

COMPREHENSIVE WASTEWATER MASTER PLAN

TECHNICAL MEMORANDUM NO. CS-17
RESILIENCY ADAPTATION PLAN

FINAL
June 2017

2700 YGNACIO VALLEY ROAD, SUITE 300 • WALNUT CREEK, CALIFORNIA 94598 • P. 925.932.1710 • F. 925.930.0208

CENTRAL CONTRA COSTA SANITARY DISTRICT

COMPREHENSIVE WASTEWATER MASTER PLAN

TECHNICAL MEMORANDUM
NO. CS-17
RESILIENCY ADAPTATION PLAN

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RESILIENCY ADAPTATION PLAN

1.0 INTRODUCTION

This technical memorandum (TM) provides a summary assessment of the resiliency of the District's collection system facilities to withstand the effects of future climate changes and flooding from high tides and precipitation events. The resiliency of the critical collection system corridors is also assessed, including potential re-routing strategies. This TM is based on studies by others.

2.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

The following conclusions and recommendations are made in this TM CS-17 to increase resiliency of the District's collection system:

- Monitor sea level rise and the status of, and efforts to address rising sea levels in Suisun Bay, especially in the downtown Martinez area. Martinez, Fairview, Maltby, and Clyde Pumping Stations and their tributary sewers are susceptible to rising sea levels, and may, at some future time, require increase in wet well and dry pit walls and ancillary equipment elevation, installation of dry pit submersible pumps and sealing of manhole covers on tributary sewers.
- For future studies, consider the use of a larger design storm on the collection system hydraulic model. The design storm in year 2100 would be 10 percent higher in total precipitation, and have a peak that is 15 percent higher.
- There are several critical collection system corridors (A-Line, Orinda tunnel, Dougherty Valley tunnel). Perform CCTV inspection and a condition assessment of the Orinda Tunnel. Proactively monitor the condition of the Dougherty Valley Tunnel.
- The District has ongoing plans to monitor operational vulnerabilities, including the District’s Contingency and Spill Prevention Plan, Emergency Action Plan, and Sanitary Sewer Overflow and Backup Response Plans. Develop contingency plans to bypass the Orinda Tunnel, A-Line, Dougherty Valley Tunnel, and other tunnels and large diameter pipelines in an emergency by procuring an on-call emergency pumping and pipeline contract with an outside vendor. Coordinate with CalTrans and the City of Orinda to bypass the Orinda Tunnel in an emergency.
- The District previously evaluated five pumping stations for seismic vulnerability. For those facilities in which recommendations have not been completed, complete the retrofits. Water-retaining structures as well as 11 other pumping stations were not previously evaluated; it is recommended that the District evaluate those pumping stations for seismic vulnerability.

- The District has performed security and cyber related studies. It is recommended that the District implement the improvements previously identified as part of these studies in addition to completing a more comprehensive security study for all major District facilities that utilizes the principles of AWWA J100 Risk Analysis and Management for Critical Asset Protection methodology (RAMCAP® J100).

3.0 PREVIOUS STUDIES

Previous studies relevant to the resiliency of the collection system are described below.

3.1 2016 Adapting to Rising Tides: Contra Costa County Sea Level Rise Vulnerability Assessment

The Contra Costa County Adapting to Rising Tides (ART) Program was developed to help agencies and organizations understand, communicate, and begin to address climate change impacts, in particular, sea level rise (SLR) and storm surge (BCDC, 2016). The report presents an assessment of Contra Costa County's shoreline exposure to flooding or inundation from sea level rise scenarios of 0 to 66 inches and extreme tide events from the 1-year to the 500-year extreme tide event. This assessment for Contra Costa County led to the development of various geo-spatial tools and data layers that can be used to assist with the next steps of identifying shoreline vulnerabilities and formulating and implementing adaptation strategies, where necessary. The tools and data layers include the following: SLR inundation maps; shoreline overtopping potential maps; SLR and extreme tide matrix; shoreline type delineation maps; daily and extreme tide elevations; normalized shoreline elevation maps; and normalized existing and future extreme tide curves. This data is used to determine which pump stations may be inundated during a 100-year storm event due to sea level rise.

4.0 POTENTIAL EFFECTS OF SEA LEVEL RISE

In the future, the operation of some of the collection system pump stations and their tributary sewers could be threatened by flooding from sea level rise and intensified wet weather events. Long-term regional precipitation models indicate that the total annual rainfall amounts will not change significantly during the 20-year planning period. However, climatologists predict that extreme peak wet weather events will be more frequent - as much as doubling by the year 2050 and tripling by year 2100 (Kharin and Zwiers 2005, Kharin *et al*. 2007, Walsh *et al*, 2014). Rising sea levels combined with a series of severe storms could produce a storm surge that could inundate some pump stations.

4.1 Sea Level Rise Projections and Potential Flooding of Pump Stations

In 2012, the National Research Council (NRC) completed the first California Sea Level Rise Assessment Report. The report, entitled *Sea Level Rise for the Coasts of California,*

Oregon, and Washington: Past, Present, and Future, confirmed the projections by the California Independent Science Board. This projection took into account factors such as coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates. For areas south of Cape Mendocino (which is relevant to the District), plate tectonics have significant impacts on vertical land motion causing the coast to sink at an average rate of about 0.04 inches per year. As a result, the sea level south of Cape Mendocino (and at Suisun Bay) is expected to rise between 5 to 24 inches by 2050 and between 17 to 66 inches by 2100.

In response to a Governor's Executive Order, the California Coastal Commission developed the Sea Level Rise Policy Guidance in August 2015. The guidance document provides an approach for adapting to sea level rise in future planning and recommends using the projections presented in the 2012 NRC report (California Coastal Commission, 2015). Following the release of the guidance document, the San Francisco Bay Conservation and Development Commission led the completion of the Contra Costa County Sea Level Rise Vulnerability Assessment (February 2016). This is a broad assessment of Contra Costa County's shoreline exposure to flooding or inundation from sea level rise using the 2012 NRC projections for areas south of Cape Mendocino, as well as considering extreme tide events with return periods ranging from 1 year to 500 years.

The Contra Costa sea level study showed that a 12-inch sea level rise was the most likely sea level rise scenario for 2050, with a 24-inch sea level rise at the upper end of the sea level rise scenario. The data also shows that a 36-inch sea level rise was the most likely sea level rise scenario for 2100, with a 66-inch sea level rise at the upper end of the sea level rise scenario. The 100-year extreme tide adds an additional 42-inches above the sea level.

Pump stations in the District's system that are susceptible flooding are listed in Table 17.1 and Figure 17.1. Extreme high tides could flood the Fairview Pump Station by 2050 and could flood other pump stations by 2100 as shown below. Maps in Appendix A show the shoreline overtopping potential from Contra Costa County's report at maximum sea level rise in a 100-year flood, with the locations of the District's pump stations.

Rising sea levels and storm surges could impact not only the District's pump stations and their tributary sewers, but also the Martinez Marina, Shell Martinez refinery, Tesoro Golden Eagle refinery, and much of Port Chicago. Based on conversations with the FCD, there are currently no plans to raise levees in this area (except in the area surrounding the wastewater treatment plant). If the District were to address the potential impacts of rising sea levels on their own, the District could raise wet well and ancillary equipment elevations and seal manhole covers. However, it is recognized that flood control is a regional effort and not confined to the District. It is, therefore, recommended that the District continue to monitor and track efforts by the FCD and Contra Costa County to address the potential impacts of rising sea levels on the pump stations and tributary sewers and ensure the District's efforts are in coordination with flood control in the surrounding areas.

Table 17.1 Pump Stations Susceptible to Rising Sea Levels
Comprehensive Wastewater Master Plan
Central Contra Costa Sanitary District

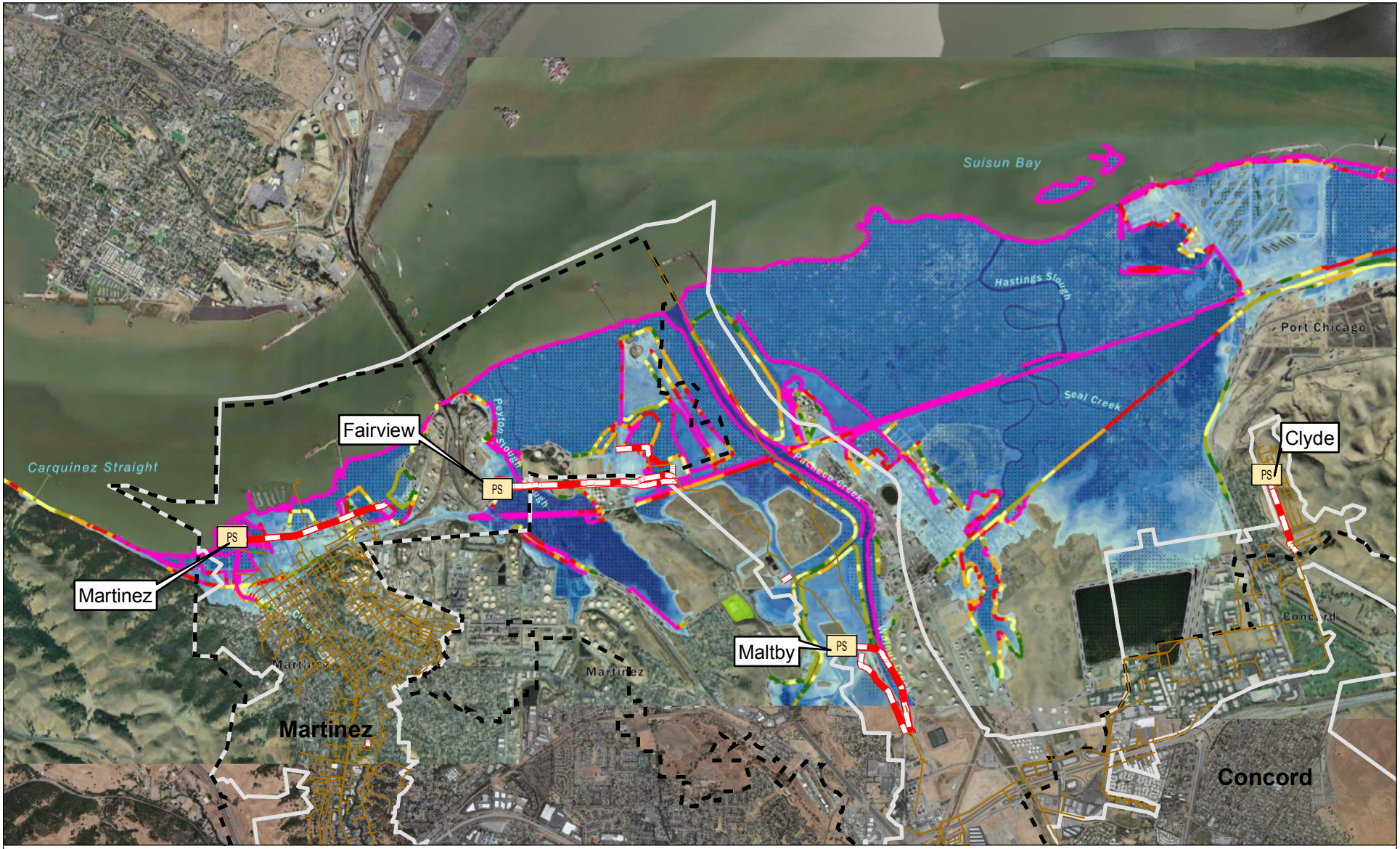
Lift Station	Top of Wetwell Elevation (ft MSL)	Historical Mean High Water Level (ft MSL NAVD88)(1)	Year 2100 Maximum High Tide Level (ft MSL)(2)	Year 2100 Maximum 100-year Storm Surge Elevation(2) (ft MSL)	Susceptibility to Rising Sea Levels
Martinez	10.5	6.09	11.59	14.59	Possible impact; top of wet well is below projected year 2100 maximum high tide level.
Fairview	7.5	6.09	11.59	14.59	Probable impact; top of wet well is below projected year 2050 maximum high tide level.
Maltby	10.7	6.12	11.62	14.62	Possible impact; top of wet well is below projected year 2100 maximum high tide level.
Clyde	13.75	6.12	11.62	14.62	Top of wet well below sea level rise during year 2100 flood event (100-year storm).

Notes:
(1) Mean High Water (MHHW) is the average height of the higher high tides of each day. The baseline year used to calculate this is 1983 to 2001. Data points at Martinez Marina and the mouth of Pacheco Creek (Contra Costa County, 2016).
(2) Maximum High Tide Level and Maximum Storm Surge Elevations assume the high end of the sea level rise projections.

Martinez, Fairview, and Maltby Pumping Stations currently have non-clog dry pit pumps, while Clyde Pump Station has submersible non-clog pumps. Due to the potential for damage in a flooding event, it is further recommended that, at the end of the useful life of the existing pumps, the District consider replacing the existing pumps with dry-pit submersible pumps at Martinez, Fairview, and Maltby Pumping Stations to increase resiliency.

4.2 Intensified Wet Weather Events

Global climate change may also affect future precipitation patterns. The changes in flows due to climate change should be considered in the peak wet weather events used for future collection system evaluations.



Legend

- PS — Pump Station
- Force Main
- Gravity Sewer
- City Boundaries
- CCCSD Service Area

MHHW + 108" Sea Level Rise Shoreline Overtopping Potential

Depth in Feet

- .5 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- > 5
- No Overtopping

MHHW + 108" Sea Level Rise

Depth in Feet

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16+
- Disconnected Areas > 1 Acre
- Major Wetlands and Water Bodies

N

0 2,000 4,000 Feet

LIFT STATIONS WITH POTENTIAL FOR FLOODING DUE TO CLIMATE CHANGE

FIGURE CS 17.1

CENTRAL CONTRA COSTA SANITARY DISTRICT
COLLECTION SYSTEM MASTER PLAN

carollo

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4.2.1 Annual Precipitation

Projected annual precipitation amounts vary for current climate models and emissions scenarios (Kiparsky and Gleick, 2003; Madsen and Figdor, 2007). Most regional studies performed in California have focused on Northern California (Dettinger, 2005; Cayan *et al.*, 2006; Mauer, 2007). These show little change in future projections of annual precipitation. Therefore, it is expected that average annual precipitation will not change significantly for the District's service area.

4.2.2 Increased Frequency of Extreme Precipitation Events

Most regional climate models project that extreme rainfall events will occur more often during a season. The Environment California Research and Policy Center (ECRPC) evaluated historical trends in the frequency of extreme precipitation events (rainfall or snowfall) across the U.S. (Madsen and Figdor, 2007). Patterns in the timing of heavy precipitation indicate a 26 percent increase in frequency of extreme precipitation events in California since 1948 (Madsen and Figdor, 2007).

To evaluate current and future precipitation in Contra Costa County, information was obtained from the North American Regional Climate Change Assessment Program NARCCAP, 2016). As shown in Figure 17.2, future storms are expected to have an average 24-hour storm volume that is 10 percent higher by year 2100. Figure 17.3 shows the relationship between a peak 1-hour storm volume and storm recurrence interval. Based on the results of the two models, future storms are expected to have a peak 1-hour rainfall rate that is approximately 15 percent higher than current storms by year 2100.

Figure 17.2 Relationship between Historical and Projected Year 2100 24-Hour Storm Volume and Recurrence Interval

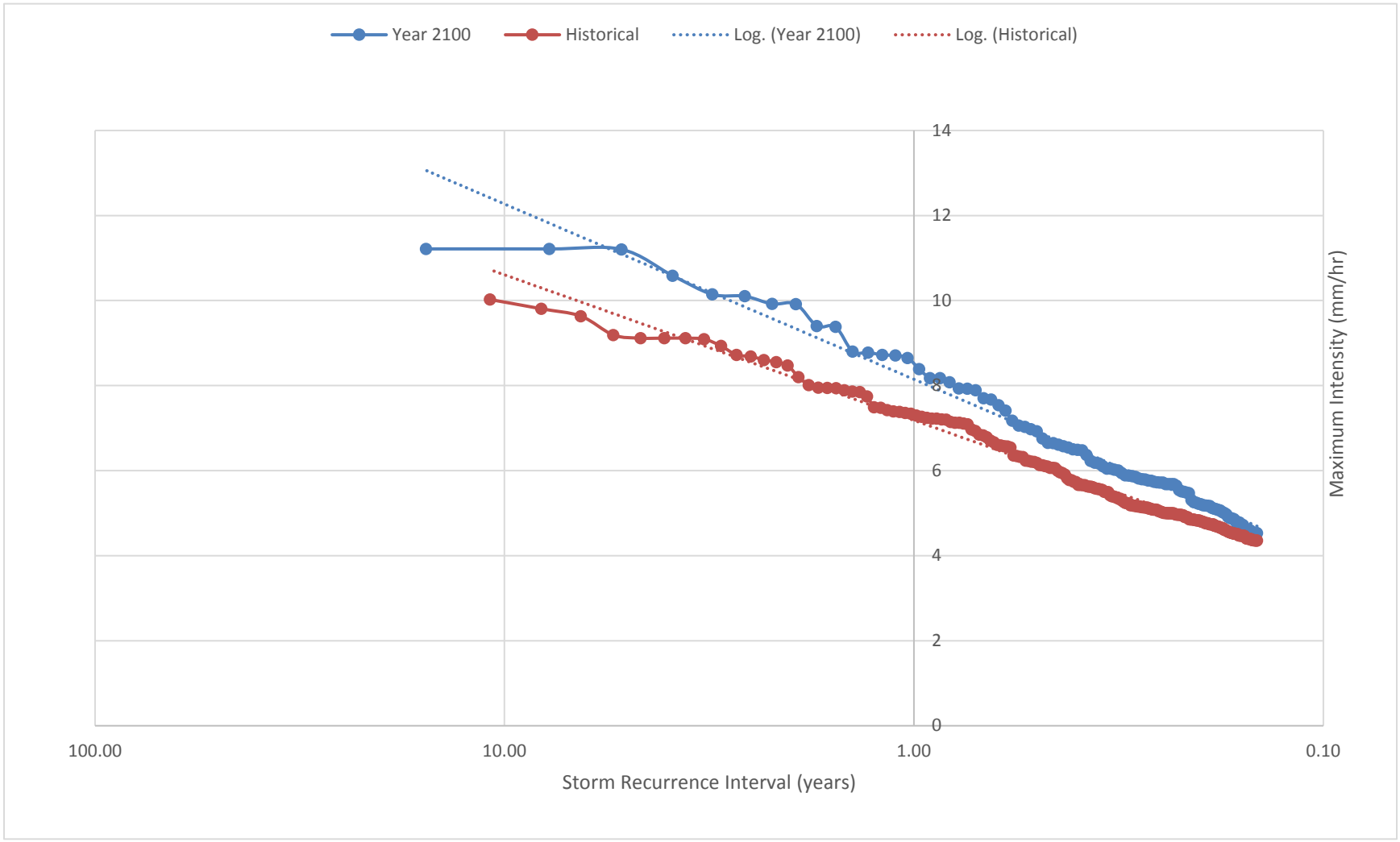


Figure 17.3 Relationship between Historical and Projected Year 2100 Peak 1-Hour Storm Volume and Recurrence Interval

While more intense storms are not an immediate threat, a hydraulic modeling simulation could be performed for year 2100, with climate change. This 24-hour storm event would be 10 percent higher in total precipitation and a 15 percent higher peak hour flow. The evaluation could be performed to evaluate the impacts of climate change on the collection system.

5.0 CRITICAL COLLECTION SYSTEM CORRIDORS

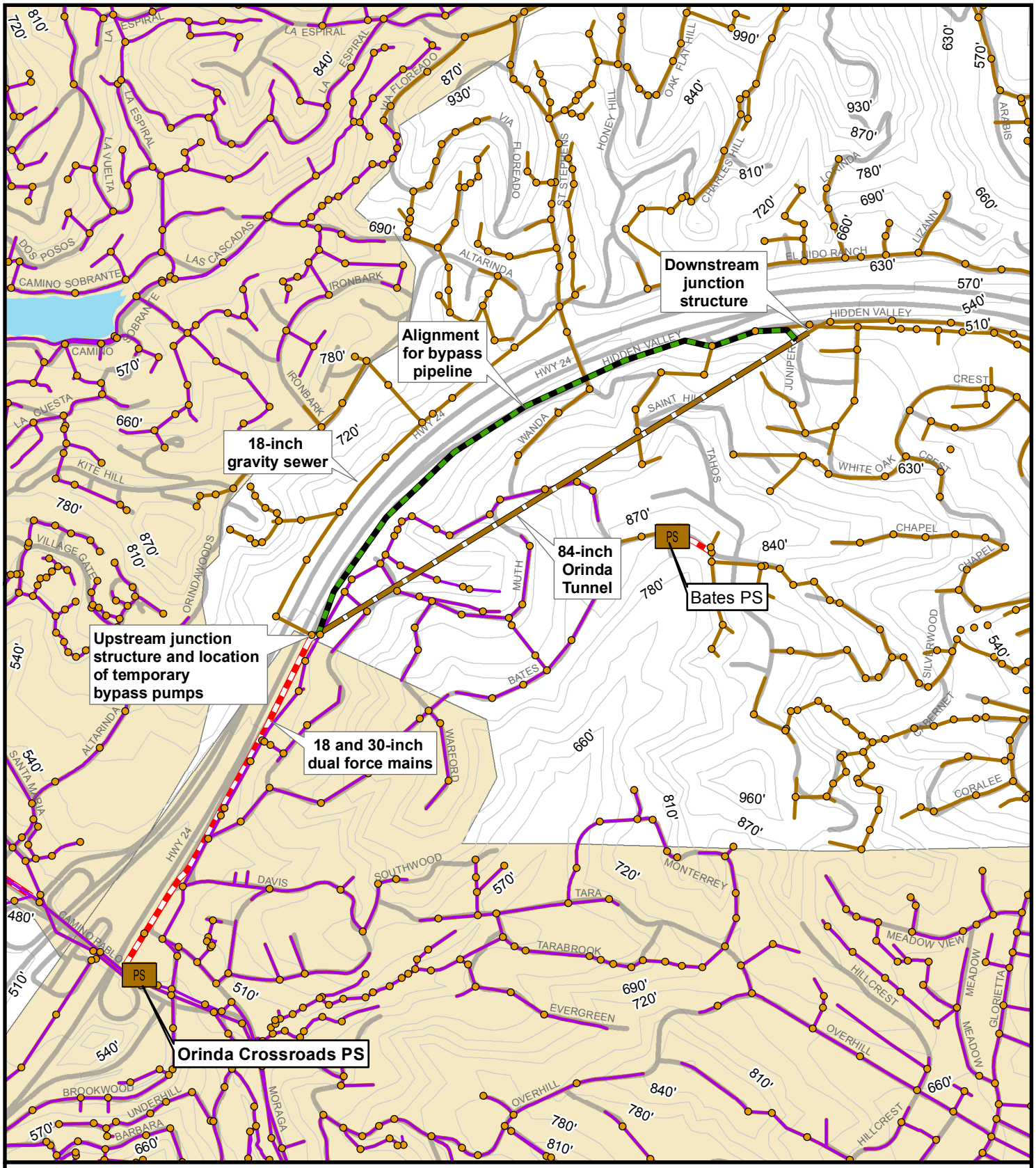
The District's pipelines could be damaged from seismic events, failures, landslides or other potential hazards. Within the District's service area, there are three collection system corridors that are identified as critical to wastewater conveyance:

- Orinda Tunnel: conveys flows from the City of Orinda (through Orinda Crossroads Pump Station).
- A-Line: conveys flows from the Cities of Danville, Lafayette, Moraga, Orinda, San Ramon, and Walnut Creek to the District's wastewater treatment plant.
- Dougherty Valley Tunnel: conveys flows from the eastern portion of the City of San Ramon to the San Ramon Pump Station.

5.1 Orinda Tunnel

The Orinda Tunnel, shown on Figure 17.4, is an 84-inch diameter, 4,550 feet long gravity sewer that was constructed by tunneling through a hillside along the south side of US Highway 24. The tunnel is fed by two force mains from the Orinda Crossroads Pump Station and an 18-inch gravity sewer from the north part of Orinda. At the downstream end of the tunnel, it transitions to a conventional 30-inch gravity sewer. As shown in Figure 17.5, the tunnel is constructed of reinforced concrete walls that were poured in place against the tunnel casing. The tunnel interior is not lined with corrosion-resisting materials (such as "T-Lock"). As-built plans, profiles, and cross-sections of the Orinda Tunnel are shown in Appendix B.

If the Orinda tunnel were to fail, the consequences would be severe. The tunnel serves most of Orinda, and the Orinda Crossroads Pump Station is located next to San Pablo Creek, which feeds into EBMUD's San Pablo Reservoir, which is a drinking water source. If service were interrupted, raw wastewater would overflow from manholes in numerous places in the collection system, and the overflows would drain to environmentally sensitive creeks and contaminate water supplies.



Legend

- Manhole
- Pump Station (PS)
- Force Main
- Gravity Sewer
- Tunnel
- Alignment for Bypass Pipelines
- Contributing Gravity Main
- Elevation Contours (30 ft interval)
- Contributing Sewershed

N

0 525 1,050 Feet

ORINDA TUNNEL

FIGURE CS 17.4

CENTRAL CONTRA COSTA SANITARY DISTRICT
COLLECTION SYSTEM MASTER PLAN

carollo

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Although the consequence of failure can be quantified, the likelihood and overall risk of failure is less defined. The tunnel was originally constructed in 1967, and it has never been inspected with CCTV. The tunnel is oversized for the current flows it carries, and because of the low flows, there could be low velocity conditions that could be causing sulfide generation and corrosion of the tunnel crown. Other risks include shifting of the tunnel during a major earthquake, a landslide at either end of the tunnel, or a collapse of the tunnel. These risks, although likely remote, could be elevated if the tunnel's structural strength is weakened by corrosion.

A tunnel bypass contingency plan for the Orinda Tunnel is recommended to mitigate risks. Flow would need to be diverted from the upstream junction structure of the tunnel to the downstream junction structure. This would require installing special temporary pumps capable of overcoming an elevation rise of 80 feet. A temporary pipeline, approximately 5,000 feet long, would also need to be installed. A possible location for the temporary pumping station and pipeline is shown on Figure 17.4. The pipeline would be routed along the hiking trail and Hidden Valley Road. Coordination with the City of Orinda and CalTrans would be required to obtain a right-of-way. The bypass plan could be implemented through outside vendors under an on-call contract. The District should also consider purchasing materials necessary for emergency bypassing to reduce response time.

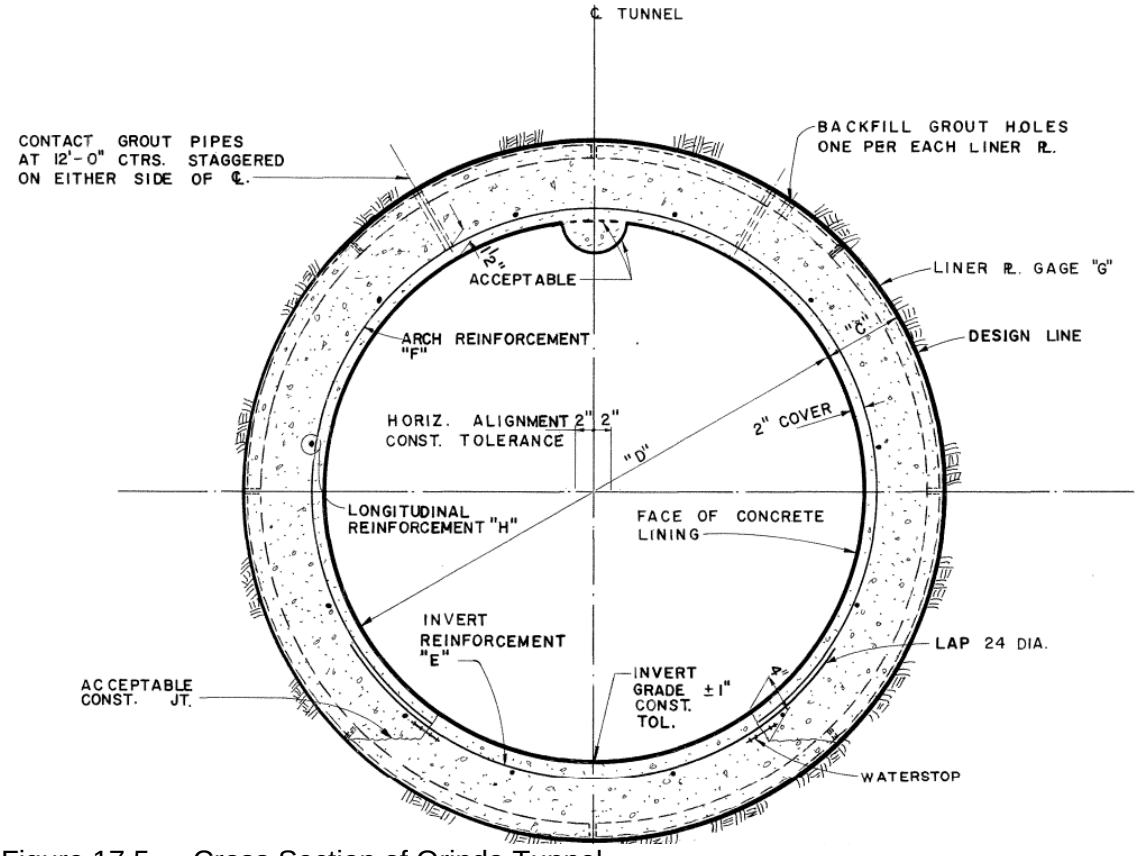


Figure 17.5 Cross Section of Orinda Tunnel

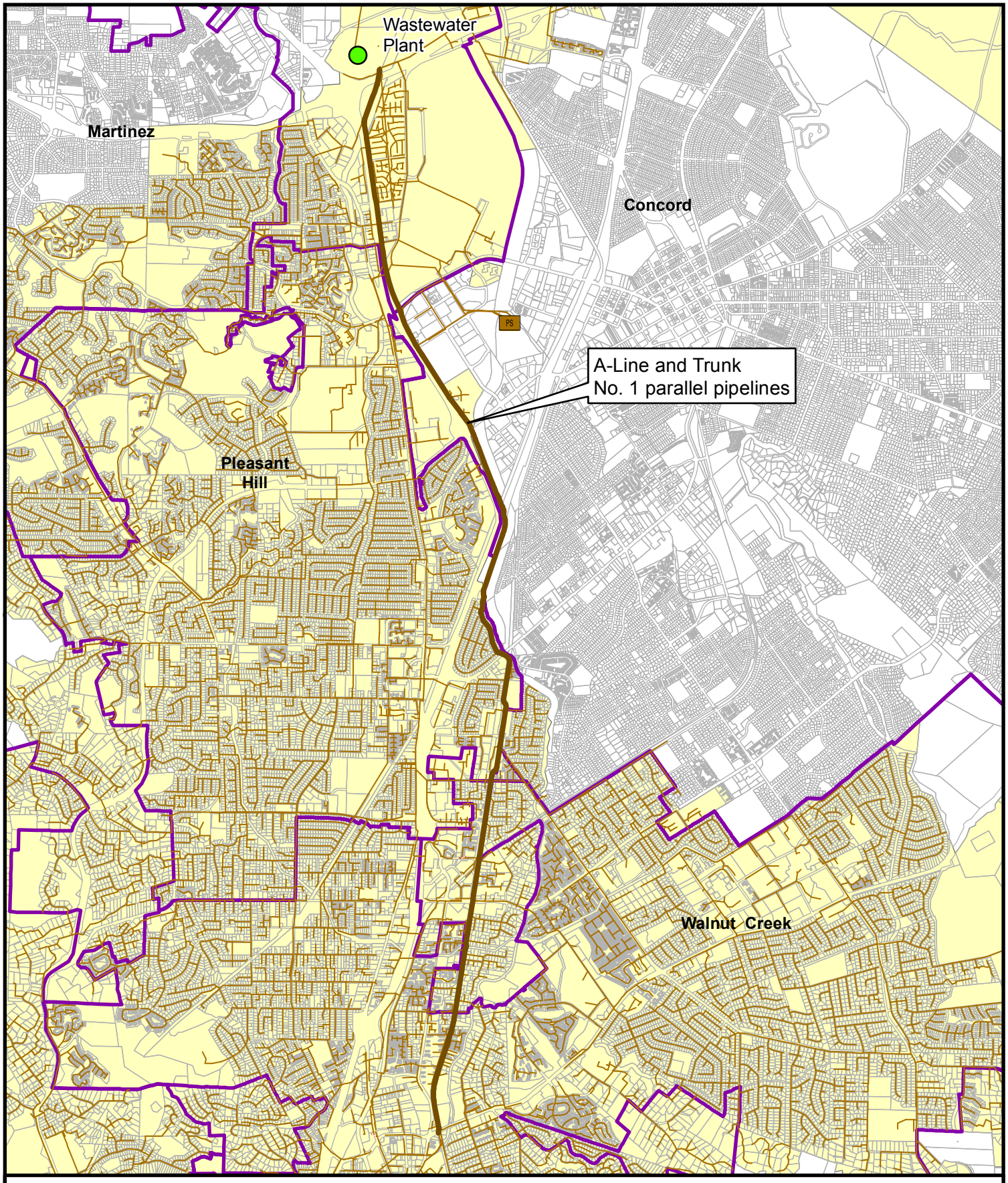
In addition, a CCTV inspection of the tunnel interior should be conducted soon to better understand its condition and plan for future rehabilitation, if necessary. Due to its long length, extra-long CCTV cables may be required to inspect the entire tunnel, with entrance from both the upstream and downstream ends of the tunnel. An option would be to inspect as much as allowed by conventional equipment at each end and assume the condition is representative of the entire length. Another option would be to bypass the tunnel to gain access for a walk-through inspection. Considering the potential risks of a bypass, this should be done only if the CCTV inspection indicates significant corrosion of the tunnel interior.

5.2 A-Line

Flows from the cities of Danville, Lafayette, Moraga, Orinda, San Ramon, and Walnut Creek together flow into the A-Line, which carries the flow to the District's wastewater treatment plant shown on Figure 17.6. The A-Line is approximately 7 miles long. The 60-inch to 90-inch diameter A-Line was constructed in 1960. The A-Line parallels Trunk No. 1 which was constructed in 1948 and ranges from 30-inch to 39-inch in diameter. If the A-Line were to fail, temporary bypass pumping and piping will be necessary and/or flows could also be bypassed to Trunk No. 1. The A-Line and Trunk No. 1 have been inspected by CCTV. Results show that the pipeline condition ranges from poor to good condition, with the risk rating ranging from low to high. An on-call services contract is recommended to implement the bypass plan.

5.3 Dougherty Valley Tunnel

Due to its age, the Dougherty Valley Tunnel has never been inspected by CCTV. Figures 17.7 and 17.8 illustrate the tunnel. Since there are multiple pipelines in the Dougherty Valley Tunnel and it is not likely that all the pipelines in the tunnel will simultaneously fail, the Tunnel is fairly reliable. Furthermore, the tunnel has a 300 degree PVC T-lock lining, and the flows do not reach the bottom of the T-Lock. However, the pipeline has a high consequence of failure since the community it serves is not close to other pipelines apart from this tunnel. Therefore, it is recommended that the District develop a bypass plan for this and other tunnels.



Legend

- PS Pump Station
- City Boundaries
- Costa Conta County Parcels
- CCCSD Service Area
- Gravity Sewer

N

0 0.5 Miles

A-LINE

FIGURE CS 17.6

CENTRAL CONTRA COSTA SANITARY DISTRICT
COLLECTION SYSTEM MASTER PLAN

carollo

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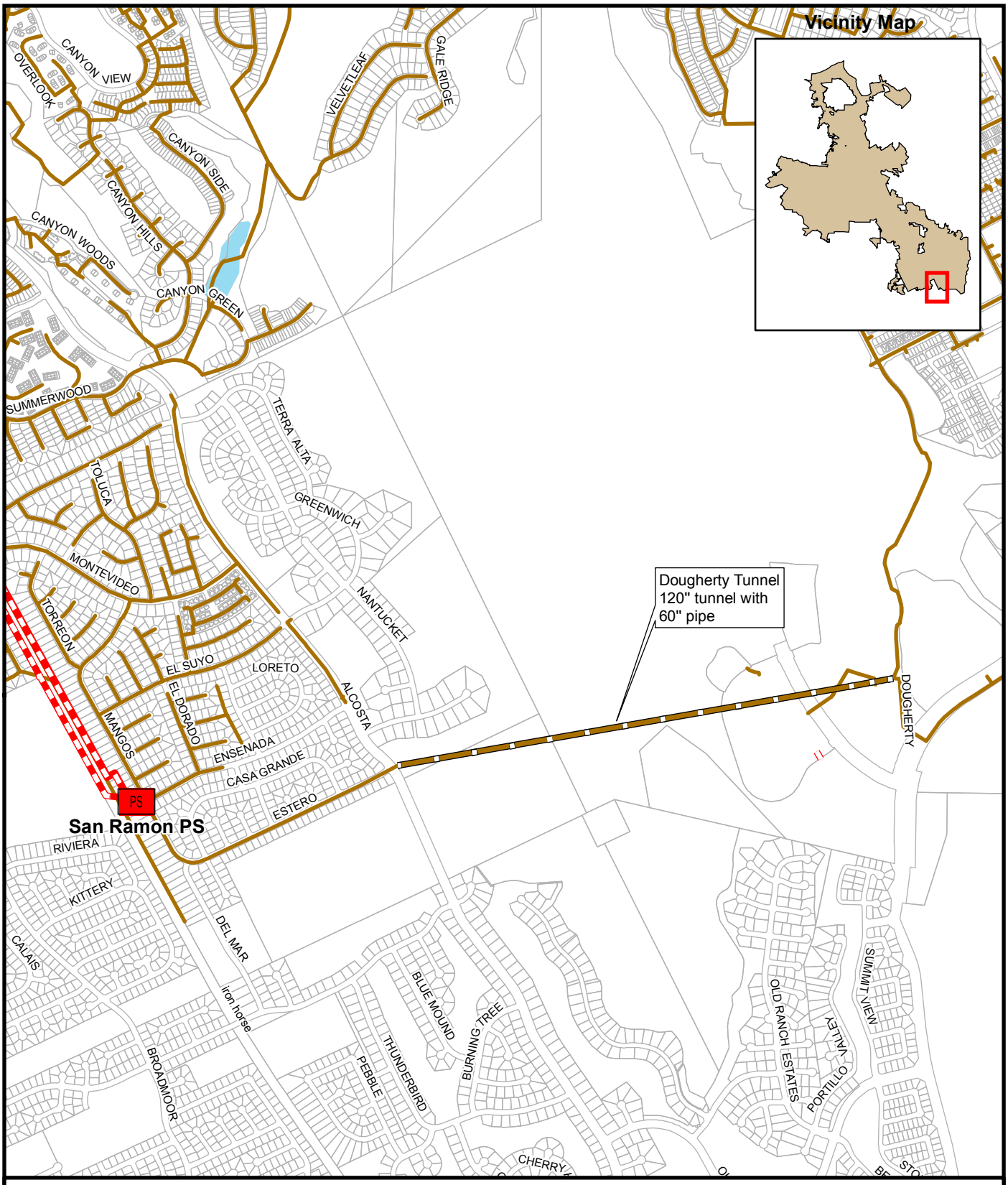

DOUGHERTY TUNNEL

FIGURE CS 17.7

CENTRAL CONTRA COSTA SANITARY DISTRICT
COLLECTION SYSTEM MASTER PLAN

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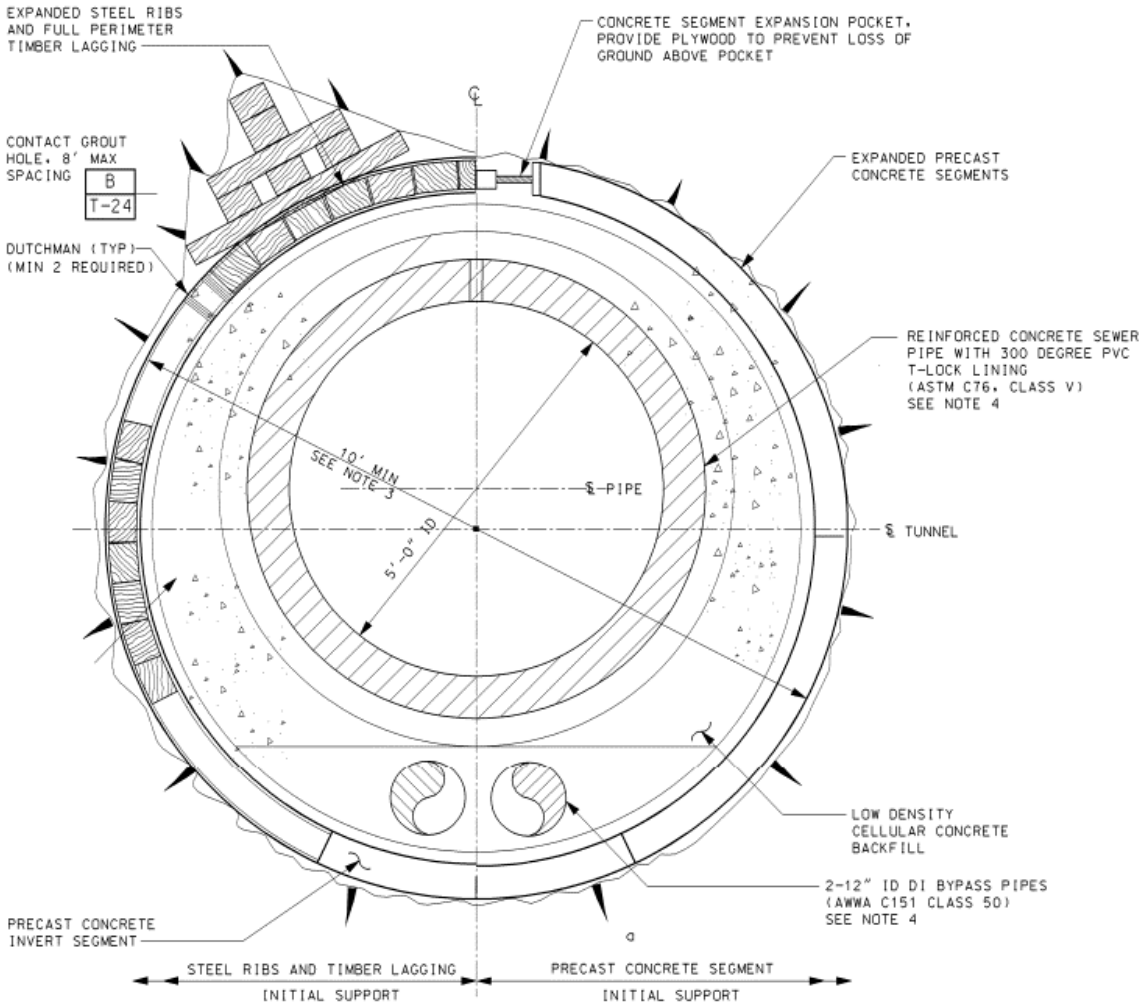

Figure 17.8 Cross Section of Dougherty Valley Tunnel

6.0 OPERATIONAL VULNERABILITIES

Each year, the District updates its Contingency and Spill Prevention Plan in accordance with the requirements of Attachment G of the District's National Pollutant Discharge Elimination System (NPDES) permit (Order No. R2-2012-0016). The NPDES permit requires that the District maintain a contingency plan that describes procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire.

Contingency Plan – The NPDES permit requires that the contingency plan include at a minimum the following:

- Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

- Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.
- Provisions of emergency standby power.
- Protection against vandalism.
- Expeditious action to repair failures of, or damage to, equipment and sewer lines.
- Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.
- Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

Spill Prevention Plan - The NPDES permit requires that the spill prevention plan include at a minimum the following:

- Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;
- Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and
- Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

In addition to the Contingency and Spill Prevention Plan, the District also maintains the following emergency related guidelines and plans:

- Safety Directive 13.0 – Emergency Action Plan – to reduce risk to people and property and to mitigate the effect of hazards during an emergency situation.
- Sanitary Sewer Overflow and Backup Response Plan – to ensure that District personnel follow established guidelines in responding to, containing, cleaning and decontaminating sanitary sewer overflows and backups which may occur within the District's service area in order to safeguard public health and the environment.

The District's existing plans are a good resource for addressing operational resiliency. If the District were to experience a significant equipment failure that cannot be addressed for several weeks or months, bypass plans or contract should be put in place to shorten the duration of the major outage. The following approach is recommended for maintaining and improving operational resiliency for the District's collection system:

- Continue annual updates of the District's Contingency and Spill Prevention Plan and routine updates of the District's Emergency Action Plan and Sanitary Sewer Overflow and Backup Response Plans.
- Develop emergency bypass plans for the Orinda Tunnel, A-Line, Dougherty Tunnel and other major pipelines or tunnels to mitigate the risk of failure should it occur.

- Procure an on-call services contract with a vendor that can supply temporary pumps and pipelines for emergency bypassing.

7.0 POTENTIAL SITE IMPACTS FROM SEISMIC EVENTS

The District has proactively considered the potential impacts of a code-specified design earthquake to some of their key pump stations. This section provides a summary of findings from the Seismic Vulnerability Assessment (Complete Project Solutions, 2010), describing the potential seismic damage to the five selected pumping stations due to a major earthquake. The five pumping stations evaluated were Martinez, Lower Orinda, Orinda Crossroads, Moraga, and San Ramon.

To better understand the impact of a major earthquake on the pumping stations, an assessment of potential damage to pumping station structures for the specified earthquake (discussed in the previous section) was prepared. Both structural and non-structural recommendations were made for the pumping stations evaluated. The seismic evaluation evaluated the impact of a 6.9 moment magnitude earthquake if it were to occur on the Calaveras Fault or a 7.2 moment magnitude earthquake if it were to occur on the Hayward-Rogers Creek Fault. The results are summarized below.

7.1 Selected Facilities

Table 17.2 shows a summary of findings from the 2010 Seismic Vulnerability Assessment on the selected facilities, updated to reflect which retrofits that have already been completed.

Table 17.2 Findings from the 2010 Seismic Vulnerability Assessment of Selected Facilities
Comprehensive Wastewater Master Plan
Central Contra Costa Sanitary District

Facility	Description of Findings	Retrofit Status
Martinez PS	Only minor damage is expected after a seismic event. Some non-structural elements require anchorage.	Not Completed Yet
Lower Orinda PS	In 2003, the pump station was expanded, and there is no positive connection between old and new roof diaphragms. Some non-structural elements require anchorage.	Not Completed Yet
Orinda Crossroads PS	A couple piers in the east wall are overstressed and anticipated to fail in a seismic event. Some non-structural elements require anchorage.	Not Completed Yet
Moraga PS	Some non-structural elements require anchorage.	Not Completed Yet
San Ramon PS	Some non-structural elements require anchorage.	Not Completed Yet

7.2 Recommended Seismic Protection Improvements

The recommended retrofits from the 2010 Seismic Vulnerability Assessment are listed in Table 17.3. The District has not completed any of the recommended retrofits.

Table 17.3 Recommendations from the 2010 Seismic Vulnerability Assessment of Selected Facilities
Comprehensive Wastewater Master Plan
Central Contra Costa Sanitary District

Pump Station	Recommendations
Martinez PS	• Brace sluice gates in wet well, and pump pipe • Reinforce anchorage of generator • Strengthen anchorage of caustic tank
Lower Orinda PS	• Install steel plates and anchorage bolts to create a positive connection between old and new diaphragms at roof level • Brace sluice gates in wet well, bypass pipe in wet well, and pump pipe
Orinda Crossroads PS	• Retrofit in east wall, adding concrete between piers and connecting to foundation • Brace sluice gates in wet well, bypass pipe in wet well, pump pipe, and generator exhaust • Reinforce anchorage of generator
Moraga PS	• Brace sluice gates in wet well, pump pipe, generator exhaust pipe, and odor control pipe • Reinforce anchorage of generator
San Ramon PS	• Brace sluice gates in wet well

The 2010 evaluation was based on 2010 seismic codes and did not include the assessment of water-retaining structures. The evaluation also only evaluated five of the collection system pump stations; no evaluation was performed on the remaining 11 pump stations. Based on review of the 2010 study, the following is recommended:

- An update to current seismic codes is recommended during predesign of the retrofits.
- A seismic evaluation of the water-retaining structures.
- A seismic evaluation of the remaining 11 pump stations not previously evaluated.

8.0 PHYSICAL SECURITY VULNERABILITIES

As part of the CWMP, CH2M completed an initial review of physical security measures at the District's WWTP in Martinez, California and at two of the District's pump stations. The Martinez Pump Station was selected as a representative large pump station and the Maltby Pump Station was selected as a representative small pump station. The intent of the initial security review was to provide the District with an initial estimate of capital improvements

required to improve physical security for inclusion into the draft Capital Improvement Plan, and for initiating further evaluation of security enhancements.

After conducting the site visits in February 2016, a confidential report was provided to the District with a comparison of observed District security versus industry standards based on the following standards:

- American Society of Civil Engineers, American Water Works Association, and Water Environment Federation (ASCE/AWWA/WEF) “Guidelines for the Physical Security of Water Utilities.”
- AWWA G430-14 “Security Practices for Operation and Management.”

The report summarized observed security measures, identified strengths, opportunities for improvement, and recommendations for mitigating the observed security risks and preliminary cost estimates. The findings at the District’s two representative pump stations were then used to estimate the potential total cost of implementing security improvements at the remainder of the District’s 19 pump stations. In addition to specific recommendations for the WWTP and the two representative pump stations, the report included overall security program recommendations and further security evaluation.

Based on the findings of the initial review of physical security measures, the following is recommended:

- Implement the security-related capital improvements identified for the Martinez and Maltby pump stations.
- Complete a more comprehensive security study for all major District facilities that utilizes the principles of AWWA J100 Risk Analysis and Management for Critical Asset Protection methodology (RAMCAP® J100). The RAMCAP method is a 7-step process including: 1) Asset Characterization; 2) Threat Characterization; 3) Consequence Analysis; 4) Vulnerability Analysis; 5) Threat Analysis; 6) Risk/Resilience Analysis; and 7) Risk/Resilience Management. This study will include recommendations for improving the District’s overall security program.

9.0 CYBER SECURITY VULNERABILITIES

Within the last two decades cyber security threats including cyber terrorism has grown from the esoteric practice of a few specialists to a problem of general concern (AWWA, 2014). Clean Water agencies similar to the District have acknowledged these threats and have been collaborating over the last several years to develop recommended cyber security practices. It is important the District maintain robust cyber security controls.

In July 2016, a consultant completed penetration tests to identify the District’s primary cyber vulnerabilities. A confidential report was delivered to the District in August 2016 summarizing the results of the tests. The report is being used as a check list to ensure the District’s networks are as secure as possible. The cyber security goals are to:

- Enhance the security and resilience of critical information technology infrastructure;
- Protect District data and critical systems by deploying and maintaining appropriate security controls; and
- Promote security awareness among District employees.

It is recommended that the District:

- Continue to track the latest trends in cyber security threats and prevention,
- Continue to actively assess its cyber security controls, and
- Implement cyber security improvements as required. An ongoing project to address cyber security threats should be included in the Capital Improvement Plan.

10.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made in this TM CS-17 to increase reliability of the District's collection system:

- Perform CCTV inspection of the Orinda Tunnel to assess its condition and plan for a future rehabilitation project if necessary. Proactively monitor the condition of the Dougherty Valley Tunnel. Conduct similar inspections for other tunnels, if they have not been previously inspected.
- Monitor the status of rising sea levels, and efforts to address rising sea levels in San Pablo Bay, especially in the downtown Martinez area. Martinez, Fairview, Maltby, and Clyde Pumping Stations and their tributary sewers are susceptible to rising sea levels. Raising the wet well and dry well wall elevations and preventing storm water inflow into manholes by sealing the covers may be required in the future. At the end of their useful life, replace existing pumps with dry pit submersible pumps at Martinez, Fairview, and Maltby Pumping Stations.
- For future studies, consider the use of a larger design storm on the collection system hydraulic model. The design storm in year 2100 would be 10 percent higher in total precipitation and have a peak that is 15 percent higher than historical storms.
- Develop bypass contingency plans to bypass the Orinda Tunnel, A-Line, Dougherty Valley Tunnel, or other large diameter pipelines in an emergency. Procure an on-call emergency pumping and pipeline contract with an outside vendor. Coordinate with CalTrans to use the CalTrans right-of-way to bypass the Orinda Tunnel in an emergency.
- Continue annual updates of the District’s Contingency and Spill Prevention Plan and routine updates of the District’s Emergency Action Plan and Sanitary Sewer Overflow and Backup Response Plans.
- Complete seismic upgrades per the 2010 Seismic Vulnerability Assessment, considering an update to current seismic codes is recommended during predesign of

the retrofits. Perform a seismic evaluation of the water-retaining structures, and the remaining 11 pump stations not previously evaluated.

- Implement the security-related capital improvements identified for the Martinez and Maltby pump stations. Complete a more comprehensive security study for all major District facilities that utilizes the principles of AWWA J100 Risk Analysis and Management for Critical Asset Protection methodology (RAMCAP® J100).
- Implement cyber security improvements as recommended by other previous studies.

11.0 REFERENCES

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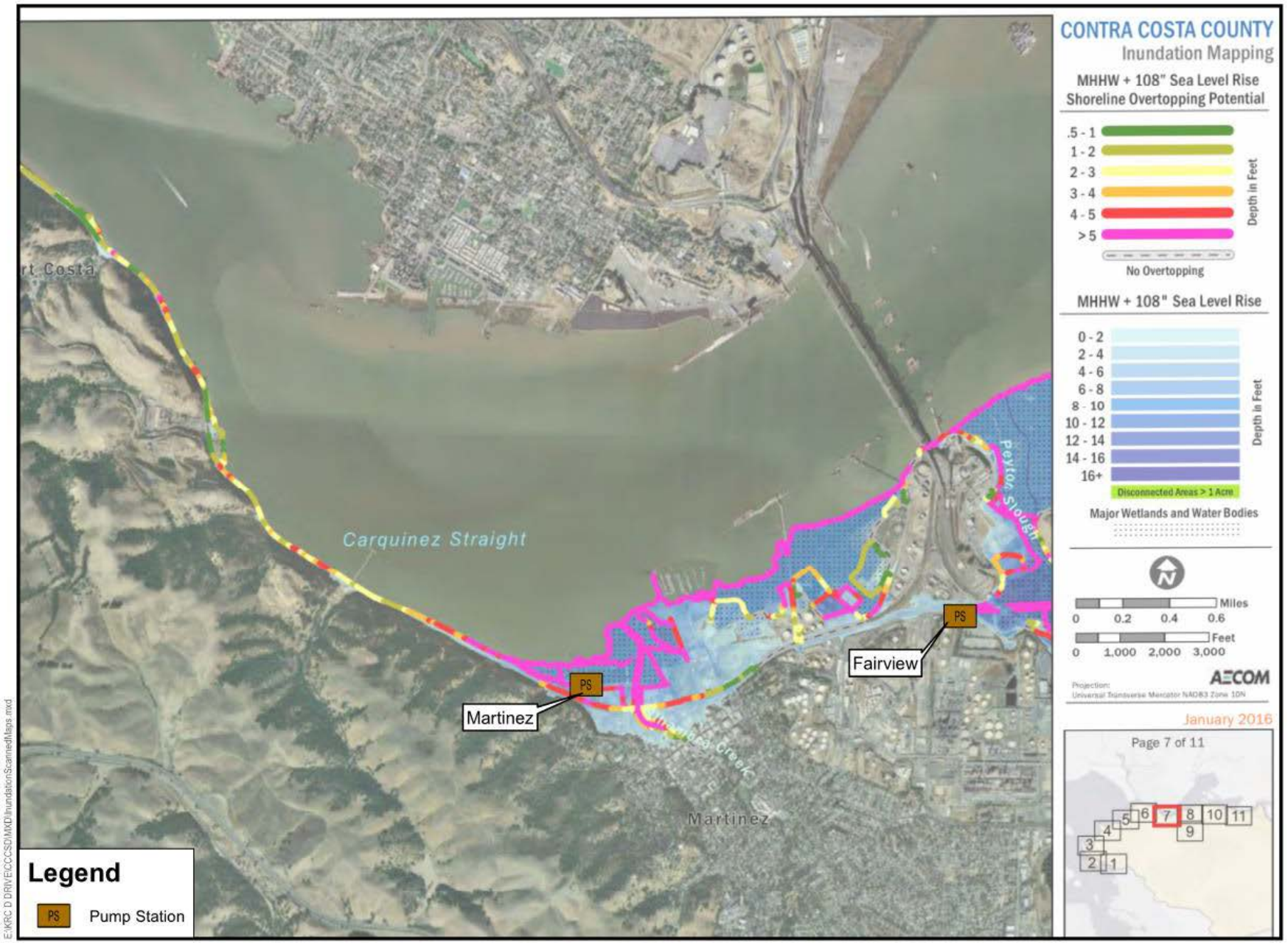
APPENDIX A – PROJECTED YEAR 2100 STORM SURGE LEVELS


CONTRA COSTA COUNTY
Inundation Mapping
MHHW + 108" Sea Level Rise
Shoreline Overtopping Potential
.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5
> 5
Depth in Feet
No Overtopping
MHHW + 108" Sea Level Rise
0 - 2
2 - 4
4 - 6
6 - 8
8 - 10
10 - 12
12 - 14
14 - 16
16+
Depth in Feet
Disconnected Areas > 1 Acre
Major Wetlands and Water Bodies
Miles
0 0.2 0.4 0.6
Feet
0 1,000 2,000 3,000
AECOM
Projection:
Universal Transverse Mercator NAD83 Zone 10N
January 2016
Page 7 of 11
Carquinez Straight
Martinez
Fairview
PS
PS
PS
Peyton Slough
Legend
PS Pump Station
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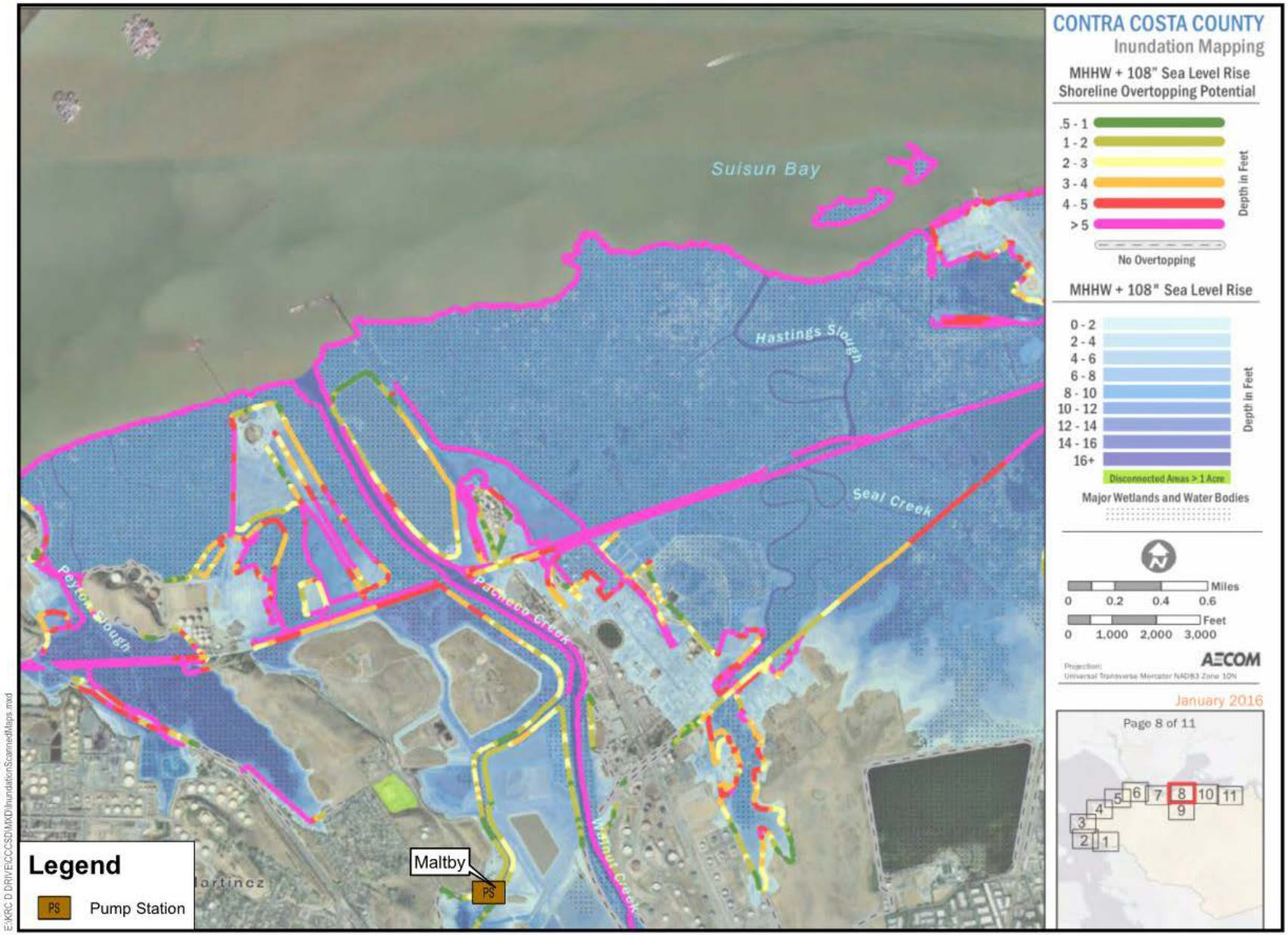
CONTRA COSTA COUNTY
Inundation Mapping
MHHW + 108" Sea Level Rise
Shoreline Overtopping Potential
.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5
> 5
Depth in Feet
No Overtopping
MHHW + 108" Sea Level Rise
0 - 2
2 - 4
4 - 6
6 - 8
8 - 10
10 - 12
12 - 14
14 - 16
16+
Depth in Feet
Disconnected Areas > 1 Acre
Major Wetlands and Water Bodies
Miles
0 0.2 0.4 0.6
Feet
0 1,000 2,000 3,000
AECOM
Projection:
Universal Transverse Mercator NAD83 Zone 10N
January 2016
Page 8 of 11
1 2 3 4 5 6 7 8 9 10 11
Suisun Bay
Hastings Slough
Seal Creek
Peyton Slough
Pacheco Creek
Walnut Creek
Maltby
PS
Legend
PS Pump Station
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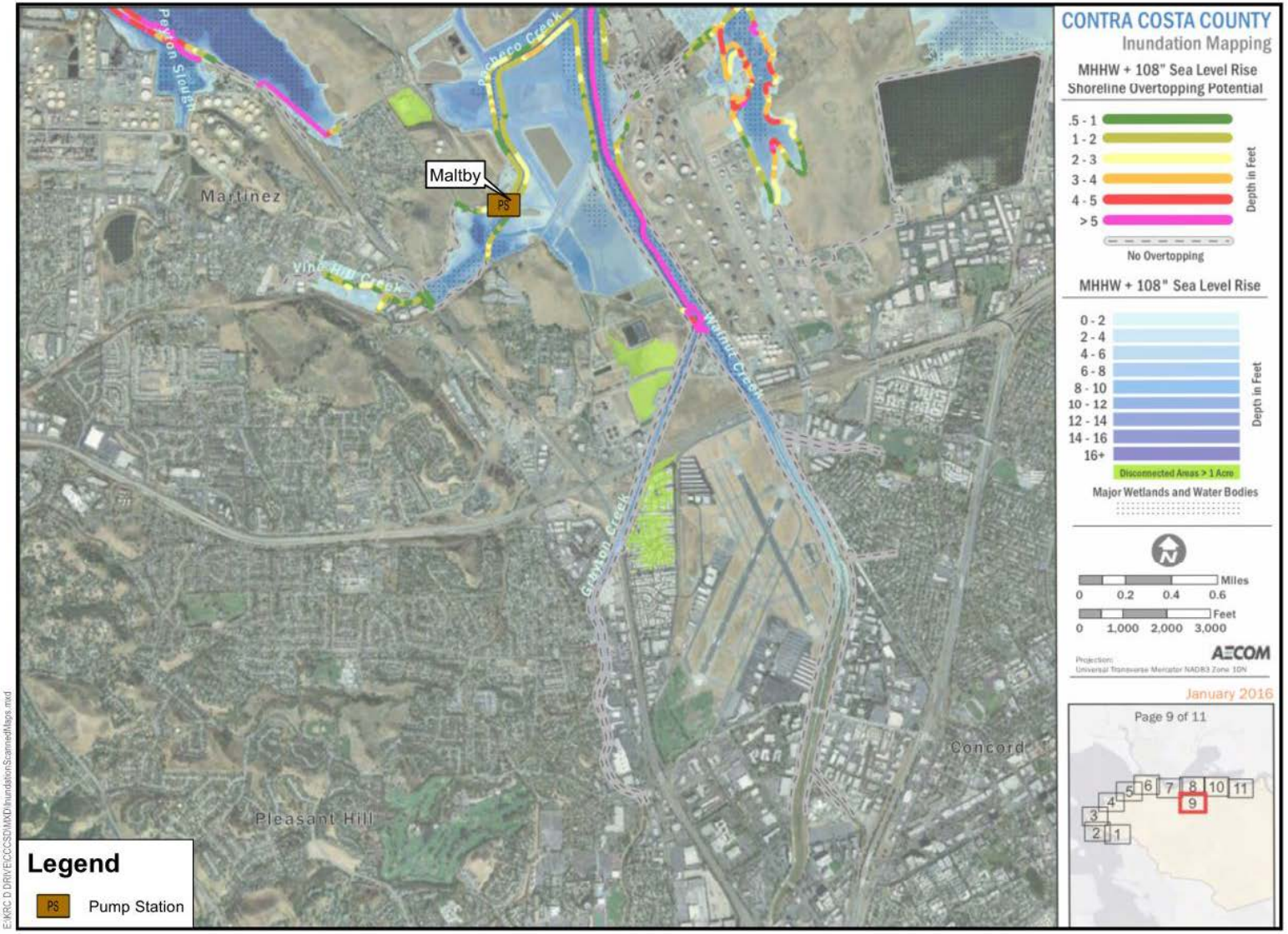
CONTRA COSTA COUNTY
Inundation Mapping
MHHW + 108" Sea Level Rise
Shoreline Overtopping Potential
.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5
> 5
Depth in Feet
No Overtopping
MHHW + 108" Sea Level Rise
0 - 2
2 - 4
4 - 6
6 - 8
8 - 10
10 - 12
12 - 14
14 - 16
16+
Depth in Feet
Disconnected Areas > 1 Acre
Major Wetlands and Water Bodies
Miles
0 0.2 0.4 0.6
Feet
0 1,000 2,000 3,000
AECOM
Projection:
Universal Transverse Mercator NAD83 Zone 10N
January 2016
Page 9 of 11
1 2 3 4 5 6 7 8 9 10 11
Maltby
PS
Martinez
Pleasant Hill
Concord
Peyton Slough
Pacheco Creek
Walnut Creek
Grayson Creek
Legend
PS
Pump Station
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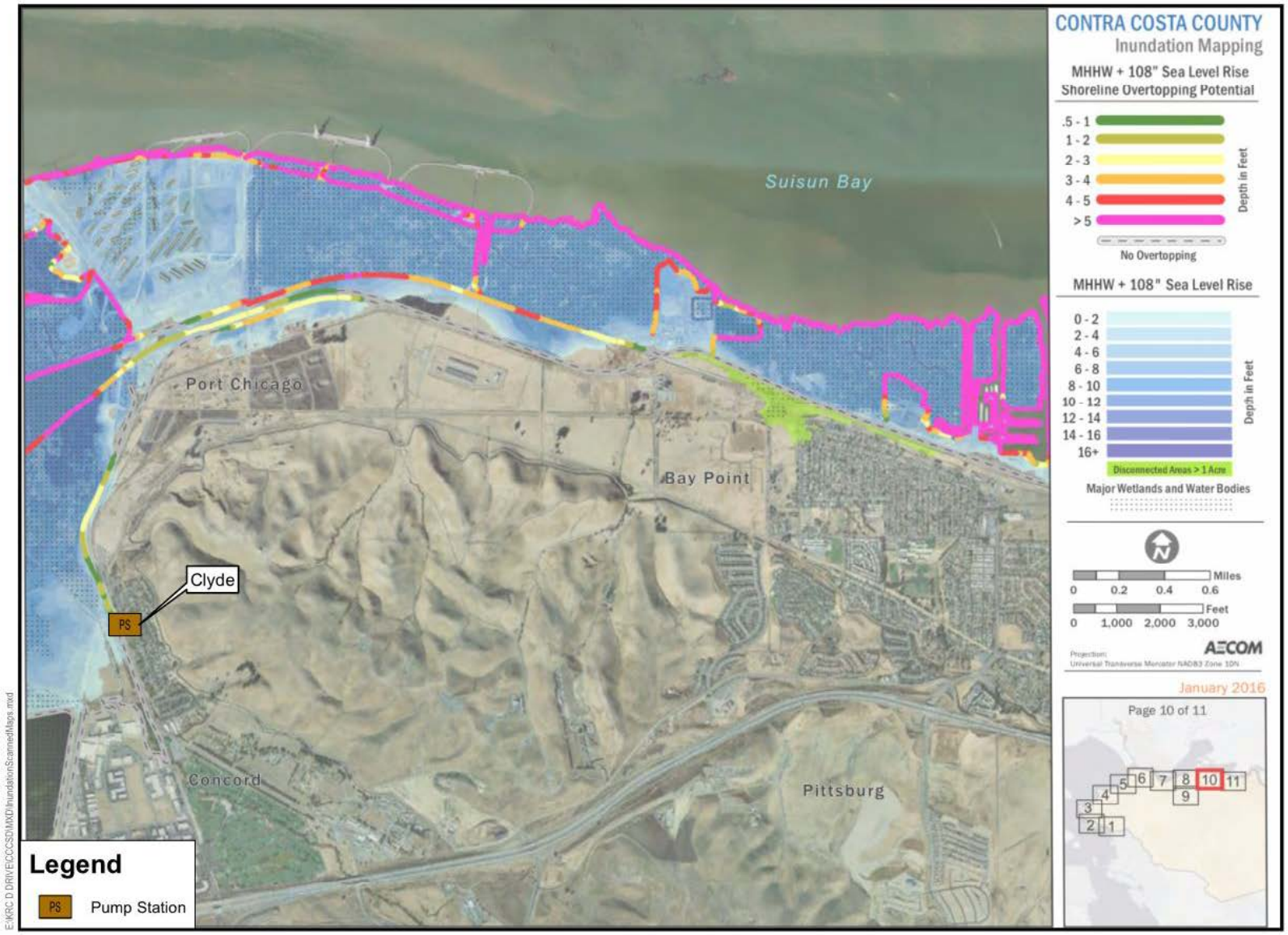
CONTRA COSTA COUNTY
Inundation Mapping
MHHW + 108" Sea Level Rise
Shoreline Overtopping Potential
.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5
>5
Depth in Feet
No Overtopping
MHHW + 108" Sea Level Rise
0 - 2
2 - 4
4 - 6
6 - 8
8 - 10
10 - 12
12 - 14
14 - 16
16+
Depth in Feet
Disconnected Areas > 1 Acre
Major Wetlands and Water Bodies
Miles
0 0.2 0.4 0.6
Feet
0 1,000 2,000 3,000
AECOM
Projection:
Universal Tranverse Mercator NAD83 Zone 10N
January 2016
Page 10 of 11
1 2 3 4 5 6 7 8 9 10 11
Suisun Bay
Port Chicago
Bay Point
Clyde
PS
Concord
Pittsburg
Legend
PS
Pump Station
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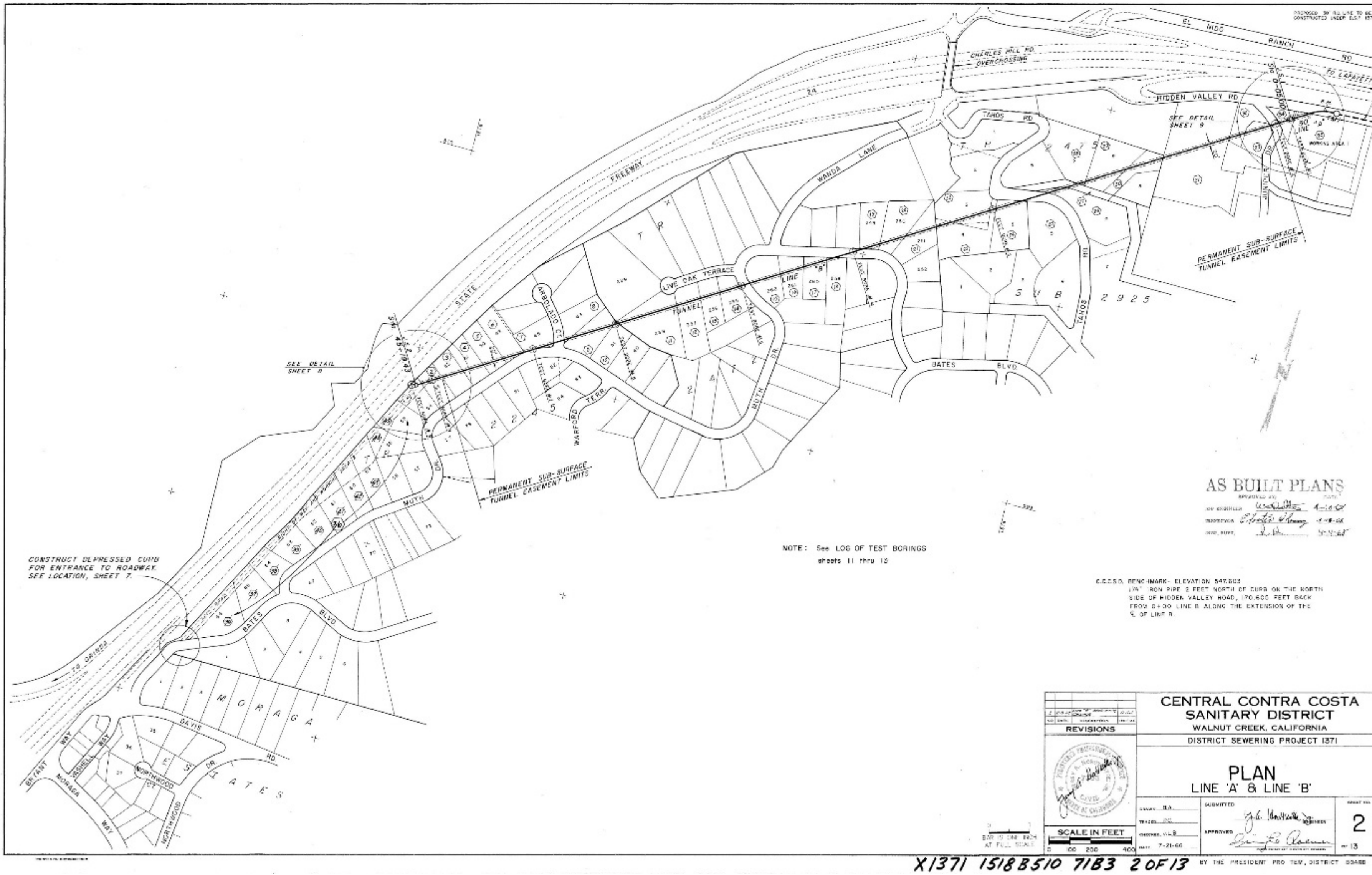
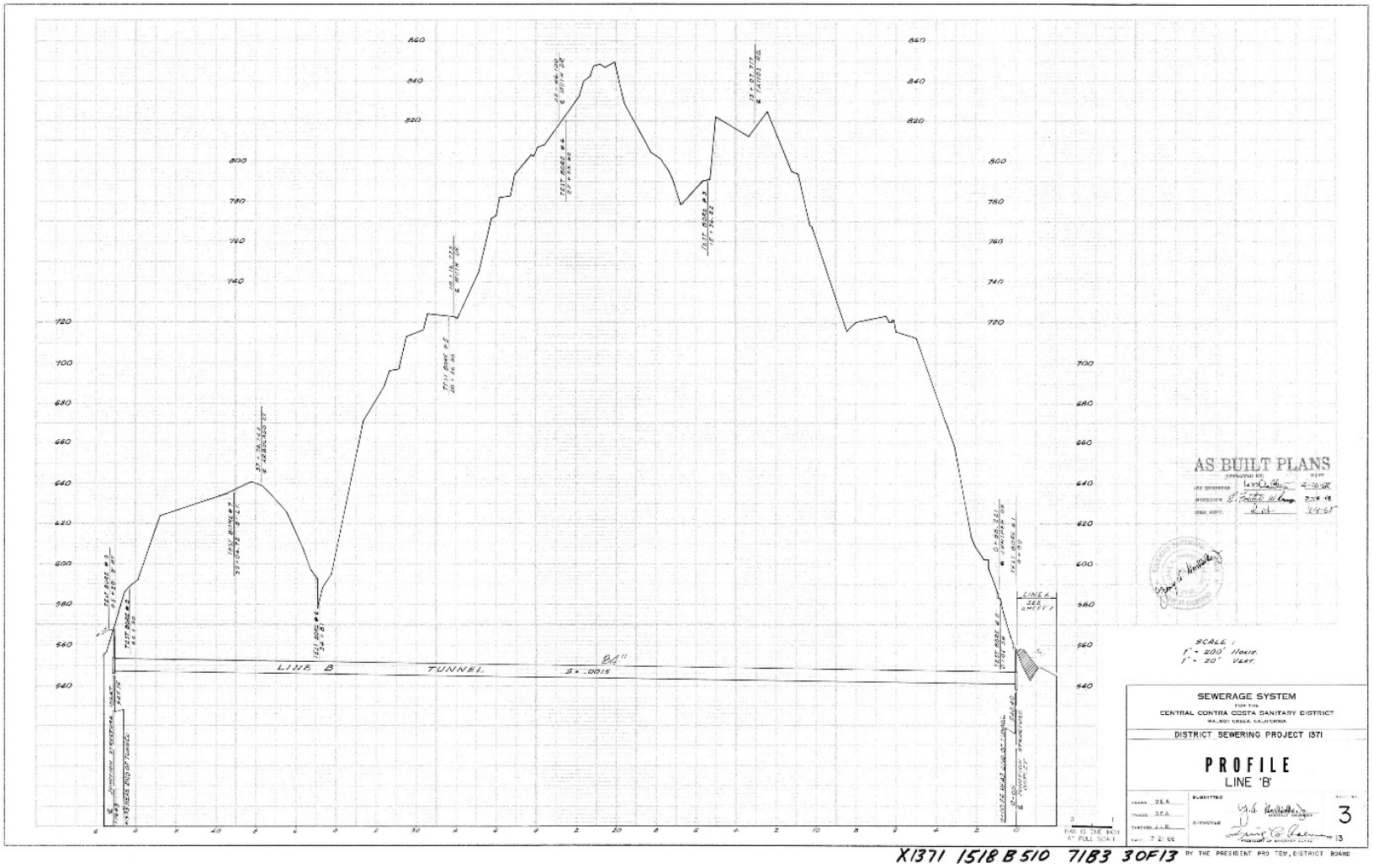
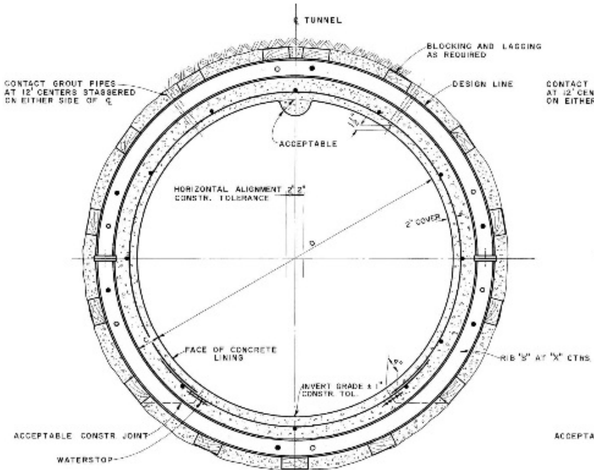
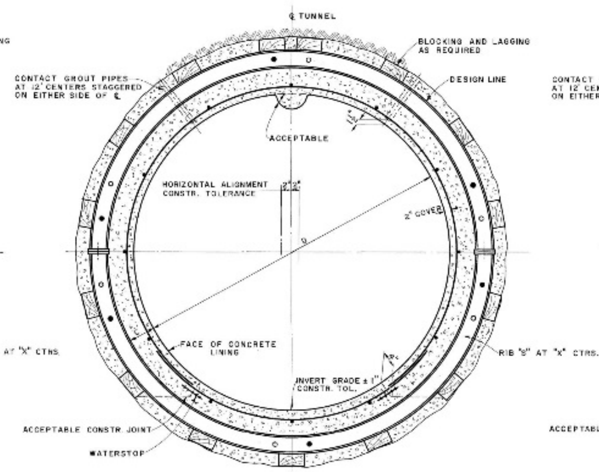
APPENDIX B – ORINDA TUNNEL DRAWINGS


CENTRAL CONTRA COSTA
SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA
DISTRICT SEWERING PROJECT 1371
PLAN
LINE 'A' & LINE 'B'
REVISIONS
SCALE IN FEET
AS BUILT PLANS
NOTE: See LOG OF TEST BORINGS sheets 11 thru 13
CONSTRUCT DEPRESSED CURB FOR ENTRANCE TO ROADWAY. SEE LOCATION, SHEET 7.
SEE DETAIL SHEET 8
SEE DETAIL SHEET 9
PERMANENT SUB-SURFACE TUNNEL EASEMENT LIMITS
CHARLES HILL RD. OVERCROSSING
HIDDEN VALLEY RD
TO LAFAYETTE
TO ORINDA
FREEWAY
STATE
WANDA LANE
LIVE OAK TERRACE
TANOS RD
OATES BLVD
MUTH DR
WARFORD TERR.
BATES BLVD
MORAGA
DAVIS RD
NORTHWOOD
2
X1371 1518B510 71B3 2 OF 13

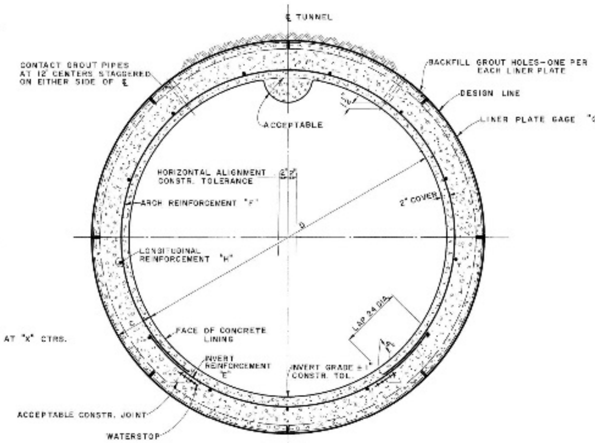

AS BUILT PLANS
LINE B
TUNNEL
S = .0015
SCALE :
1" = 200' Horiz.
1" = 20' Vert.
SEWERAGE SYSTEM
FOR THE
CENTRAL CONTRA COSTA SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA
DISTRICT SEWERING PROJECT 1371
PROFILE
LINE 'B'
3
X1371 1518 B 510 7183 30F13



TUNNEL SECTION "A"
TYPE I SUPPORT
NO SCALE



TUNNEL SECTION "A"
TYPE II SUPPORT
NO SCALE



TUNNEL SECTION "A"
TYPE III SUPPORT
NO SCALE

TUNNEL SECTION	TYPE I SUPPORT D	C	S	X
A - 60	60"	5"	4 WF 10	4'
A - 72	72"	5"	4 WF 10	4'
A - 84	84"	6"	4 WF 13	4'

TUNNEL SECTION	TYPE II SUPPORT D	C	S	X
A - 60	60"	5"	4 WF 10	3'
A - 72	72"	7"	4 WF 10	3'
A - 84	84"	9"	4 WF 13	2'

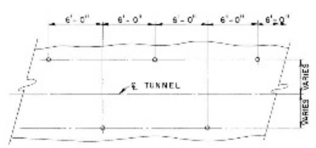
TUNNEL SECTION	TYPE III SUPPORT D	C	G	E	F	H
A - 60	60"	11"	9 GAGE	#4 @ 12" #6 @ 12"	#5 @ 13"	#4 @ 18"
A - 72	72"	13"	7 GAGE	#4 @ 12" #9 @ 12"	#6 @ 12"	#4 @ 18"
A - 84	84"	15"	5 GAGE	#4 @ 12" #7 @ 12"	#7 @ 12"	#4 @ 18"

AS BUILT PLANS
APPROVED BY: DATE
JOB ENGINEER 4-10-68
INSPECTION 2-1-68
DIST. SUPT. 4-4-68

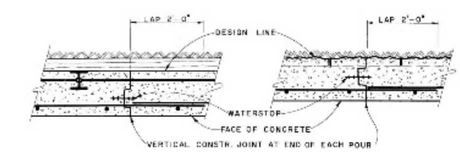
TUNNEL CONSTRUCTION
PREPARED BY: JACOBS ASSOCIATES
ENGINEERS & CONSULTANTS
DATE 7/20/66 APPROVED
R.E. WICKHAM - CIVIL ENGINEER 0624

NOTES:

1. LOCATION OF THE VARIOUS TYPES OF SUPPORT TO BE AS DIRECTED BY THE ENGINEER
2. ALL VOIDS BEHIND DESIGN LINE SHALL BE BACKFILLED AS DIRECTED BY THE ENGINEER
3. BACKFILL GROUT FOR TYPE III SUPPORT AS DIRECTED BY THE ENGINEER
4. SEE SHEETS 8 AND 9 FOR DETAILS AT STATIONS 0+05.50 AND 45+03.80
5. REINFORCEMENT FOR TYPE I AND II SUPPORT TO BE AS DIRECTED BY THE ENGINEER
6. CONSTRUCTION TOLERANCES SHOWN ARE MAXIMUM ALLOWABLE VARIATIONS FROM TRUE ℄ AND GRADE IN ANY 200-FOOT LENGTH OF TUNNEL



TYPICAL PATTERN OF CONTACT GROUT HOLES
TYPES I, II AND III SUPPORT



FOR TYPE I AND II SUPPORT ONLY
FOR TYPE III SUPPORT ONLY

TYPICAL VERTICAL CONSTR. JOINT

BAR IS ONE INCH AT FULL SCALE

REVISIONS
NO. DATE DESCRIPTION INITIAL

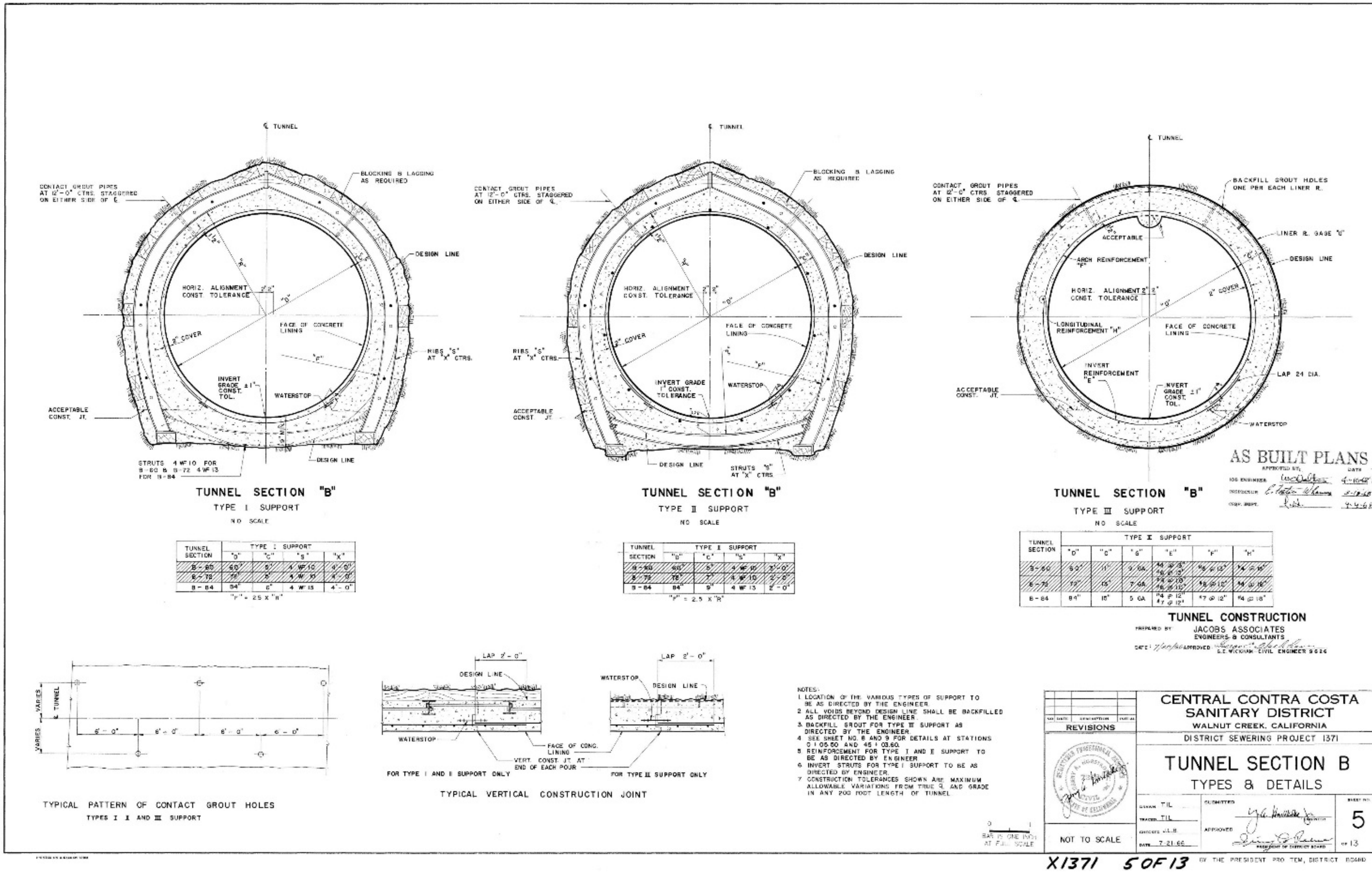
NOT TO SCALE

CENTRAL CONTRA COSTA SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA
DISTRICT SEWERING PROJECT 1371

TUNNEL SECTION A
TYPES & DETAILS

DRAWN FK
TRACED FK
CHECKED JLS
DATE 7-21-66
SUBMITTED
APPROVED
PRESIDENT OF DISTRICT BOARD
SHEET NO. 4 OF 13

X1371 4OF13 BY THE PRESIDENT PRO TEM, DISTRICT BOARD



TUNNEL SECTION "B"

TYPE I SUPPORT

NO SCALE

TUNNEL SECTION	TYPE I SUPPORT "D"	"C"	"S"	"X"
B-60	60"	5"	4 WF 10	4'-0"
B-72	72"	5"	4 W 10	4'-0"
B-84	84"	6"	4 WF 13	4'-0"

"F" = 2.5 X "R"

TUNNEL SECTION "B"

TYPE II SUPPORT

NO SCALE

TUNNEL SECTION	TYPE II SUPPORT "D"	"C"	"S"	"X"
B-60	60"	5"	4 WF 10	3'-0"
B-72	72"	7"	4 WF 10	2'-0"
B-84	84"	9"	4 WF 13	2'-0"

"F" = 2.5 X "R"

TUNNEL SECTION "B"

TYPE III SUPPORT

NO SCALE

TUNNEL SECTION	TYPE III SUPPORT "D"	"C"	"G"	"E"	"F"	"H"
B-60	60"	11"	9 GA.	#4 @ 8" #6 @ 13"	#6 @ 12"	#4 @ 16"
B-72	72"	13"	7 GA.	#4 @ 10" #6 @ 11"	#8 @ 12"	#4 @ 16"
B-84	84"	15"	5 GA.	#4 @ 12" #7 @ 12"	#7 @ 12"	#4 @ 16"

AS BUILT PLANS
APPROVED BY: DATE
JOB ENGINEER 4-18-68
INSPECTOR 4-19-68
ENGR. SUPT. 4-9-68

TUNNEL CONSTRUCTION
PREPARED BY JACOBS ASSOCIATES ENGINEERS & CONSULTANTS
DATE: 7/20/66 APPROVED: G.E. WICKHAM CIVIL ENGINEER 9626

NOTES:
1. LOCATION OF THE VARIOUS TYPES OF SUPPORT TO BE AS DIRECTED BY THE ENGINEER.
2. ALL VOIDS BEYOND DESIGN LINE SHALL BE BACKFILLED AS DIRECTED BY THE ENGINEER.
3. BACKFILL GROUT FOR TYPE III SUPPORT AS DIRECTED BY THE ENGINEER.
4. SEE SHEET NO. 8 AND 9 FOR DETAILS AT STATIONS 0+06.60 AND 45+03.60.
5. REINFORCEMENT FOR TYPE I AND II SUPPORT TO BE AS DIRECTED BY ENGINEER.
6. INVERT STRUTS FOR TYPE I SUPPORT TO BE AS DIRECTED BY ENGINEER.
7. CONSTRUCTION TOLERANCES SHOWN ARE MAXIMUM ALLOWABLE VARIATIONS FROM TRUE ℄ AND GRADE IN ANY 200 FOOT LENGTH OF TUNNEL.

BAR IS ONE INCH AT FULL SCALE

REVISIONS

CENTRAL CONTRA COSTA SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA
DISTRICT SEWERING PROJECT 1371

TUNNEL SECTION B
TYPES & DETAILS

NOT TO SCALE
DRAWN TIL
TRACED TIL
CHECKED J.L.B.
DATE 7-21-66
SUBMITTED
APPROVED
PRESIDENT OF DISTRICT BOARD
SHEET NO. 5 OF 13

X1371 5 OF 13 BY THE PRESIDENT PRO TEM, DISTRICT BOARD