



City of Redondo Beach

Sewer System Management Plan Certification

July, 2022

Sanitary Sewer System Waste Discharge Requirements

The California State Water Resources Control Board (State Water Board) adopted Statewide General Waste Discharge Requirements for sanitary sewer systems in May 2006 as Water Quality Order No. 2006-0003-DWQ. In 2008, the Monitoring and Reporting Program portion of the WDRs was revised as Order No. 2008-0002-EXEC. These two Water Quality Orders are referred to as the Sanitary Sewer System Waste Discharge Requirements (SSS WDRs). The purpose of the SSS WDRs was to provide consistent statewide requirements for quantifying and reducing the number of wastewater spills and the volume of wastewater spilled in the state of California.

Water Quality Order No. 2006-0003-DWQ

Provision 11 Water Quality Order No. 2006-0003-DWQ (Order 2006-0003-DWQ), sets the requirement for the preparation of a Sewer System Management Plan that addresses proper funding, management, operation and maintenance of the sanitary sewer system:

The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the City's office and/or available on the internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

Provision 14 of Order 2006-003-DWQ requires: *The SSMP must be updated every five (5) years, and must include any significant program changes. Recertification by the City Council is required in accordance with D.14 when significant updates to the SSMP are made.*

Background

In 2015, the City conducted an audit of the program. It evaluated the effectiveness of the SSMP by individually addressing the elements listed in Provision 13 of the Order 2006-0003-DWQ. The audit reviewed elements of the SSMP, specifically, the requirements of Order 2006-0003-DWQ, implementation of SSMP requirements, and made recommendations for updating or improving the existing SSMP. All recommendations for improving the SSMP were implemented and incorporated into the City's SSMP. The following documents were included in the 2015 audit:

1. Sewer Overflow Emergency Response Plan, May 2009
2. Sewer System Management Plan, September 2009 and December 2015
3. System Evaluation and Capacity Assurance Plan and Rehabilitation and Replacement Program, December 2010
4. Operation and Maintenance Program, February 2011
5. Wastewater System SSMP Audit, May 2011

6. Conveyance System Condition Assessment Report, May 2015
7. Redondo Beach Municipal Code, Title 5 Sanitation & Health, Chapter 4 Wastewater System
8. Sewer maintenance files from the iWater program (maintenance management system)
9. GIS files
10. Sewer hydraulic model
11. Sanitary Sewer Overflow reports
12. Training records

Sewer System Management Plan Implemented Improvements

The City has made significant strides in improving its Sewer System Management Plan since the original plan was approved by City Council in 2010. The City has significantly reduced the annual number of sanitary sewer overflows over the years. The City has invested staffing and financial resources over the years on the sewer system and focused improvements on areas of concerns. Some of the most important improvements over the year include the following.

2010:

- Implementation of an ongoing sewer system piping root control program
- Sewer Manhole and Pump Station Monitoring and Alarm System Project, Job No 50150
- This project installed an additional 16 water level depth-sensing sensors in critical sanitary sewer manholes and pump stations in high priority locations with totaling 47 sensors installed throughout the City. These sensors will be monitored 24/7 and will provide early warning if water levels rise above normal operational depths. This advance warning will increase the likelihood maintenance staff will be able to correct the problem before a Sanitary Sewer Overflow (SSO) occurs.
- Existing wastewater SCADA assessment to understand existing field conditions, design issues, and City's needs. Developed a Condition Assessment report after completion of the site investigations and discussed various issues about the system. Provided SCADA hardware and software list and communication upgrade options. Created an evaluation report to outline pros/cons of each option. Upgraded SCADA software to latest version of GE iFIX. Developed new HMI graphics for each site. Provided start-up and commissioning for SCADA HMI related upgrades. Established emergency services response team with 24-hour 7-day a week dispatching of service technicians.

2011:

- Numerous SCADA system repairs and upgrades.
- Sanitary Sewer Facility Rehabilitation Project Phase 9-A, Job No 50150 - the Sewer Rehab -Phase -9A of the project included the removal and reconstruction of over 1,000 lineal feet of sewer mains throughout the City. Several of the new mains have been designed to be larger than previous mains in order to increase existing sewer system capacity and accommodate increasing current and future sewer flow. The project also included the removal and reconstruction of fifteen main line defective spot repairs and repairs at the Carnegie and Goodman Pump Stations. The tasks associated with Phase -9A included the following:
 - Replacement of 250 lineal feet of 6" Vitrified Clay Pipe with 8" Vitrified Clay Pipe

- Replacement of 1,500 lineal feet of 8" Vitrified Clay Pipe with 10" Vitrified Clay Pipe
- Replacement of 250 lineal feet of 10" Vitrified Clay Pipe with 12" Vitrified Clay Pipe
- Spot Repairs on 15 locations for an estimated length of 500 lineal feet
- Replacement of two Wastewater Pump Station wet well access hatches
- Purchase & delivery of one hundred and fifty sewer manhole covers & rings
- Replacement of 24 Inglewood Avenue manhole covers and rings
- Installation of five new sewer manhole covers
- Rehabilitation of seven manhole covers and rings

2012:

- Replaced PLC and Pump control panel interiors at Yacht Club Way Lift Station.
- Installed new PLC back plate in the existing enclosure at Yacht Club Way with Allen-Bradley processor, I/O modules, power supply, Ethernet switch, cellular modem, antenna, UPS and all necessary equipment for a completely new operating system.
- Installed new Motor Starter back plate and swingout panel in the existing enclosure. Back plate and swing out panel contained all necessary circuit breakers, starters, control transformers, pump seals, and isolation relays for a completely new operating system
- Swing out panel contained necessary selector switches, push buttons, indicating lights, ETM, and Level Indicator. Installed all new programming for communication with the City's wastewater SCADA System.

2013:

- Cleaning, root cutting, and CCTV inspection of entire system (2013 - 2015)
- Implementation of ongoing IWater program to track maintenance activities
- Sanitary Sewer Facility Rehabilitation Project Phase 10, Job No 50150 - the Sewer Rehab, Phase 10 of the project included the repair and/or replacement of 7,000 lineal feet of sewer mains citywide. Several of the new mains were designed to be larger than previous mains in order to increase existing sewer system capacity and accommodate increasing current and future sewer flow. The detailed scope of work completed in Phase 10 includes the following:
 - Installation of 6,340 linear feet of Cured-in-Place Sewer Pipe Liner
 - Replacement of 1,030 linear feet of 8-inch Vitrified Clay Pipe with 10-inch Vitrified Clay Pipe
 - Spot Repairs on twenty-three (23) locations for approximately 310 linear feet
 - Manhole replacement/repair of thirty-one (31) manholes

2014:

- Replaced PLC and Pump control panels at Portofino Way Lift Station.
- Installed new 316 Stainless steel PLC panel with Allen-Bradley processor, I/O modules, power supply, Ethernet switch, cellular modem, antenna, UPS, Ultrasonic level transmitter, backup floats and all necessary equipment for a completely new operating system.
- Installed new 316 Stainless steel Pump Control panel with Cutler-Hammer components including circuit breakers, starters, control transformers, pump seals, and isolation relays for a completely new operating system.
- Swing out panel contained new selector switches, push buttons, indicating lights, ETM, and Level Indicator.
- Installed all new programming for communication with the City's wastewater SCADA System.
- Installed new stainless steel load center to provide power to the new equipment.

2015:

- Implementation of a Fats, Oils, and Grease and National Pollutant Discharge Elimination
- System Field Inspection Program
- Upgraded SCADA communications and SCADAAlarm software to Win911.
- Replaced obsolete alarming software with new Win911 software.
- Replaced all old copper phone lines with GX440 cellular modems for a new reliable communication infrastructure for site information and personnel paging.

2015:

- City Yard Drainage, Sewer Diversion and Resurfacing Project, Job Nos. 50250 and 20700 - in order to comply with the Los Angeles County Sanitation District's Permit and Policy on Rainwater, Groundwater and other Water Discharges, significant drainage upgrades were constructed at the City's Public Works Maintenance Yard located at 531 North Gertruda Avenue. This project brought the site into compliance by limiting the amount of runoff that discharges to the sanitary sewer system during rain events through an automatic diversion system. The automatic diversion system uses a rain gauge located at the site to activate an automatic diversion of flow from the sanitary sewer into the storm drain system. The diversion system limits the rainfall discharge to only the first 0.1 inch of rainfall.

2016:

- Updated of the Sanitary Sewer Overflow Emergency Response Plan to comply with the current State Water Board Monitoring and Reporting Program.
- Added stormwater sites, Alta Vista and Sapphire to SCADA.
- Installed new cellular modems and antennas at the two sites. Provided alarming and data retrieval into the existing SCADA system.
- Replaced PLC and Pump control panels at Basin III Lift Station.
- Installed new 316 Stainless steel PLC panel with Allen-Bradley processor, I/O modules, power supply, Ethernet switch, cellular modem, antenna, UPS, backup floats and all necessary equipment for a completely new operating system.
- Installed new 316 Stainless steel VFD Pump Control panel with Allen Bradley PowerFlex drives, Cutler-Hammer components including circuit breakers, control transformers, pump seals, and isolation relays for a completely new operating system. Swing out panel contained new selector switches, push buttons, indicating lights, speed controls, ETM, and Level Indicator. Installed all new programming for communication with the City's wastewater SCADA System.
- Installed new stainless steel load center to provide power to the new equipment.
- Migrated physical SCADA servers to virtual servers.
- Moved the SCADA system to virtual servers to allow for better reliability and data backup.
- Upgraded the GE iFIX software and Win911 alarm software to the latest version during this migration.

2017:

- Sanitary Sewer Facilities Rehabilitation Project Job No 50150 - the 2017 Sanitary Sewer Facilities Rehabilitation Project included the repair, replacement and/or upgrade of over 6,232 lineal feet of sewer mains citywide and construction of a new 8" sewer main line

along Camino Real west of Juanita Avenue. Several of the replacement mains were upsized in order to increase existing sewer system capacity and accommodate increasing current and future sewer flows. The detailed scope of work completed in 2017 Sewer Rehab includes the following:

- Installation of 600 linear feet of new 8-inch Vitrified Clay Pipe
- Construction of fourteen (14) new manhole structures
- Removal of six (6) existing manhole with new manhole structures
- Replacement of 2,286 linear feet of 8"/10" Vitrified Clay Pipe with 10"/12" Vitrified Clay Pipe
- Spot Repairs on twenty-three (25) locations for approximately 3,346 linear feet
- Manhole frame and cover replacement/repair of thirty-one (56) manholes
- Manhole restoration/ lining
- Rindge Sanitary Sewer Pump Station Project, Job No 50290 - the Rindge Pump Station is the City's largest sanitary sewer pumping plant. It serves a net tributary area of 224 acres with an estimated peak dry weather flow rate of 540 gallons per minute and a peak wet weather flow rate of 775 gallons per minute. The project included replacing the existing sewer lift station within the existing facility's site footprint. The new facility construction consists of a new pump station with a new electrical building and an emergency generator enclosure, complete with all architectural, structural, mechanical, HVAC, plumbing, and electrical elements. The Project awarded in December 2017 and completed in June 2020.

2018:

- New VFDs and controls at Flagler Lift Station. In the existing motor control center, installed new Allen Bradley PowerFlex drives and Cutler-Hammer components including circuit breakers, control transformers, pump seals, and isolation relays for a completely new operating system. Installed new selector switches, push buttons, indicating lights, speed controls, and Ultrasonic Level transmitter. Installed new backup floats in the wet well. Modified PLC programming for new components to communicate with the City's wastewater SCADA System.
- Installed new exhaust fan in the pump vault to provide proper ventilation for City personnel.
- Rindge Lift Station complete remodel.

2019:

- Citywide CIPP lining program- City Council approved an On call service contract with Sancon. The City hired Sancon Technologies, Inc for 5-year on-call maintenance and repair service to the wastewater underground piping networks through a trenchless technology called Cured-In-Place Pipe (CIPP) to minimize cost and disruption to the community. Phase 1 in 2019 included approximately 1830 LF for sewer lining, and Phase 2 in 2020 included about 600 LF. Phase 3 is included approximately 6,700 sewer linings along the easement areas. This task is anticipated to complete by the end of 2022.

2020:

- Sanitary Sewer Rehab - 2020 Upgrades to PCH/Vista Del Mar Project, Job No 50150 - the Sanitary Sewer Rehab - 2020 Upgrades to PCH/Vista Del Mar Project, Job No 50150, is designed to divert and relieve the existing sewer system by diverting sewer flow from Avenue I sewer shed into a new 12-inch sewer line. The project improvements included

the installation of 550 LF of new conveyance pipe and five (5) new manhole structures. The new pipe segment was constructed southeast of the intersection of PCH and Palos Verdes Boulevard, crossing PCH, and connecting to the existing sewer system on Vista Del Mar. The Project awarded in August 2020 and completed in August 2021.

2021:

- Upgraded all wastewater SCADA cellular modems. To keep the wastewater cellular communications up to date with the latest technology, replaced the aging Sierra Wireless cellular modems to a new Cradlepoint model. This new modem allows for remote configuration and diagnostics. Used the same model as police and fire to standardize the City's communications to remote facilities.
- Alta Vista Sewer Pump Station Project, Job No 50300 - the Alta Vista Sewer Pump Station Project will be replacing two small existing pump stations and constructing a new one larger station with an emergency stand-by generator. The new pump station will replace the existing Alta Vista Ball Park Pump Station and Alta Vista Park Community Center Pump Station, both located near high activity areas in Alta Vista Park. The new pump station will be constructed within Alta Vista Park north of the Community Center parking lot in the hillside adjacent to Camino Real. Replacement of these older and less efficient stations with one designed to meet all current safety and building codes for the protection and preservation of life and property is considered an important part of maintaining the City's sanitary sewer system as recommended in the City's Sewer System Master Plan. The Project awarded in November 2021 and its correctly under construction.
- Basin 2 Sewer Pump Out Station Upgrade Project & Harbor Patrol Dock Replacement Project, Job No. 50310 & 70690 - this combined project will provide a needed rehabilitation of the City's Harbor Patrol dock and rebuild and expand the City's vessel sewage pump-out facilities. The Harbor Patrol facilities are located at the most southern tip of Mole B in the Redondo Beach King Harbor area. The facility consists of the Fire Station No. 3 building and parking lot area on the landside, waterside facilities including the Harbor Patrol floating docks, public vessel sewage pump-out facility, and the administrative observation tower. The Project awarded in December 2021 and it's currently under construction.

2022:

- Upgrades at Goodman Lift Station - installed new Ultrasonic level transmitter and wet well floats. Wired new control relays and wiring to allow for the ultrasonic level transmitter and floats as a backup to the PLC.
- Upgrades at Marina Way Lift Station - installed new wet well floats. Wired new control relays and wiring to allow for the ultrasonic level transmitter and floats as a backup to the PLC.
- New Pump Control Panel at Carnegie Lane lift station. Installed new 316 Stainless steel Pump Control panel at Carnegie with Cutler-Hammer components including circuit breakers, starters, control transformers, pump seals, and isolation relays for a completely new operating system. New wet well floats were installed.
- Swing out panel contained new selector switches, push buttons, indicating lights, ETM, and Level Indicator. New controls include relays and wiring for floats to act as a backup to the PLC. Installed added programming for communication with the City's wastewater SCADA System.

Upcoming Project listed in Current CIP 2022-2027 List

1) Sanitary Sewer System Closed-Circuit Television Inspection / Updated Rehabilitation & Replacement Program:

Sanitary Sewer Closed-Circuit Television (CCTV) inspection and Update to the Citywide Sanitary Sewer Collection System Rehabilitation and Replacement Program. The Goal of the CIP project to Update the Sanitary Sewer Rehabilitation and Replacement Program for the entire system based on current CCTV data.

2) 2023 Sanitary Sewer Facilities Rehabilitation Project Job no 50150

City began lining high priority pipes (sanitary sewer pipes located in private property easements) to significantly extend the life of the system. The pipe lining program will be significantly expanded in FY 2022/23 and 2023/24 to include priority sewershed areas and protect and maintain the system.

3) Yacht Club Way Wastewater Pump Station

The project will result in a new and improved Yacht Club Way Pump Station; replacing the existing deficient and damaged pump house, discharge & suction pipes, valves, wet and dry wells, controls, electronics and mechanical components. Project design features will update the existing station to current industry standards associated with pumping capacity, wet well capacity and emergency stand-by power requirements. The rebuild will correct serious areas of concern identified, greatly improve the reliability of continuous operations, and reduce the potential threat of Sanitary Sewer Overflows. Project Design is completed and schedule to construct in 2023.

4) Portofino Way Sanitary Wastewater Pump Station

The project will replace the existing sanitary pump station components, including relocating the wet and dry wells and centralizing the pump station components for ease of maintenance and access. Project design will update the station to current industry standards with regards to emergency storage and power stand-by requirements. This project will address the aging infrastructure, improve the reliability of continuous operations and as a result reduce the potential threat of Sanitary Sewer Overflows. Project Design is completed and schedule to construct in 2023.