



Santa Ana Regional Water Quality Control Board

August 31, 2026

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RESULTS OF THE CITY OF IRVINE STORMWATER PROGRAM AUDIT, SEPTEMBER 30, 2025

Dear Ms. Frady:

This letter transmits the Audit Report with Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) staff's findings from the City of Irvine (City) Stormwater Program audit. The audit included a review of the City's program documents, in-person interviews with City staff at your offices, and field inspections of selected sites on September 30, 2025.

The audit involved a review of the City's legal authority to regulate discharges of pollutants into its municipal separate storm sewer system (MS4), related database and tracking systems, municipal staff training programs, inspection and enforcement efforts, Water Quality Management Plans (WQMPs) related to new development and significant redevelopment, and the City's assessment of its stormwater management efforts.

You may respond to the Audit Report with clarifications you believe should be included in the record, along with a description of actions taken or planned in response to the audit findings.

If you have any questions, please contact Nam Nguyen at Nam.Nguyen@waterboards.ca.gov or (951) 321-4582.

JOHN SCANDURA, CHAIR | ERIC LINDBERG, EXECUTIVE OFFICER

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Sincerely,

Adam Fischer, Supervisor
TMDL Implementation and MS4 Section

cc: Thomas Lo, City of Irvine
Bryan Choi, City of Irvine
James Fortuna, Orange County Flood Control District
Phil Crader, Assistant Deputy Director, Surface Water/ Regulatory Branch, State
Water Resources Control Board
Amy Miller-Bowen, Enforcement and Compliance Assurance Division, US EPA
Region 9

Attachment: Audit Report, City of Irvine, August 31, 2026

MUNICIPAL SEPARATE STORM SEWER SYSTEM AUDIT REPORT
CITY OF IRVINE
FOR
LEGAL AUTHORITY, TRAINING, INSPECTIONS, NEW DEVELOPMENT
AND SIGNIFICANT REDEVELOPMENT PROGRAM ELEMENTS

BY

Nam Nguyen and Hero Alexander

TMDL Implementation and MS4 Section

Santa Ana Regional Water Quality Control Board

August 31, 2026

Nam Nguyen, Principal Author

Adam Fischer, Reviewer

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1.0 Introduction

This report describes an audit of selected elements of the City of Irvine's stormwater program. These elements are the City's legal authority to regulate discharges of pollutants into its municipal separate storm sewer system (MS4); the database and tracking system for permits and projects; the training programs; the inspection and enforcement initiatives by municipal staff; Water Quality Management Plans (WQMPs) related to new development and significant redevelopment; and internal annual program assessment. Staff from the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) conducted the audit. The audit included reviews of a sample of representative priority projects completed in the past five years, and recent projects that are nearly complete or under construction. These projects require WQMPs and are subject to post-construction monitoring and maintenance requirements.

The audit evaluates program elements that are part of the City's compliance with Order R8-2009-0030 as amended by Order R8-2010-0062, NPDES Permit No. CAS618030, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the Orange County Flood Control District, the County of Orange, and the incorporated cities of Orange County within the Santa Ana Region (Permit). The audit is conducted in accordance with 40 CFR section 122.41(i), as incorporated by Permit section XXI.

The audit aims to evaluate the City's compliance with the conditions and provisions of the Permit and to review the systems used to achieve and demonstrate compliance related to the program elements described above. Santa Ana Water Board staff examined issues such as record keeping and reporting, reviewed relevant ordinances and inspection and enforcement procedures, reviewed representative project WQMPs, and the City's monitoring of the effectiveness of its system of source controls, treatment controls, and Best Management Practices (BMPs). This report describes the audit approach, effort, and findings.

1.1 Approach

The audit occurred in two phases. The first phase involved reviewing records and conducting in-person interviews with individuals most familiar with the City's compliance systems. The second phase involved field visits with City staff to an active construction site, a commercial facility, an industrial facility, and two WQMP-related sites (three were selected). The method used to select the sites is described below.

Table 1 shows the timeline for issuing the audit notice, conducting interviews with City staff and representatives, and conducting site visits. Table 2 lists those who were interviewed and participated in site visits.

Table 1: Audit Timeline

Audit Component	Date
Notice sent to City regarding scope and schedule of audit	May 6, 2025
Interviews	September 30, 2025
Site visits	September 30, 2025

To begin the audit, Santa Ana Water Board staff sent a notice to the City on May 6, 2025. Follow-up electronic communications were sent on May 13 and May 20, 2025, requesting that the City provide a list of new development and significant redevelopment projects from the past five years (2019-2024) that required the development of a project WQMP (priority projects). The City submitted a list of 47 priority projects and their documentation to Santa Ana Water Board staff on September 15, 2025. Santa Ana Water Board staff reviewed the documents and selected three projects for further examination (see Table 3). Since electronic WQMPs were unavailable for early review, Santa Ana Water Board staff requested hard copies for the selected sites during the interview of City staff. These documents included the project WQMPs and engineering drawings.

On September 30, 2025 Santa Ana Water Board staff met with City staff. City staff were interviewed regarding the programs and processes in place to ensure compliance with the Permit's specific conditions and provisions. Later that day, the Santa Ana Water Board staff conducted site visits with City staff and representatives.

1.2 Participants

Table 2 lists participants who attended the in-person interviews on September 30, 2025, and those who attended the site visits later that day. Table 3 lists three WQMP-related sites, but only two were visited due to unforeseen circumstances at one of them.

Table 2: List of Participants at Interviews and Site Visits

Name	Role	Participated in interviews? (Y/N)	Participated in site visits? (Y/N)
Stephanie Frady	Community Department Director	Y	N
Jesse Cardoza	Deputy Director, Chief Building Official	Y	N
Claudia Landeras-Sobiah	Deputy Building Director	Y	N
Thomas Lo	Water Quality Administrator	Y	Y
Bryan Cho	Senior Plan Check Engineer	Y	Y
Samantha Philips	Senior Code Enforcement Officer	Y	Y
Susan Craft	Senior Code Enforcement Officer	Y	Y
Gary Scott	Building Inspection Supervisor	Y	Y
Gabriel Castillo	Grading Inspector	Y	Y
Jose Valle	Sweeping and Drainage Operator	Y	Y
Brent Smith	WSP USA, Consultant	Y	N
Nam Nguyen	Santa Ana Water Board, TMDL Implementation Unit and MS4 Section	Y	Y
Raj Rajen	Santa Ana Water Board, TMDL Implementation Unit and MS4 Section	Y	Y

Table 3: List of Priority Projects Visited and for which Additional Details were Requested

Project Name ¹	Address	Brief description
Paseo Del Mar (Permit Number 00826642-WQMP)	2152 Alton Parkway	A development of a 5.37-acre residential tract with 93 dwelling units.
Parking Lot Expansion (Permit Number 00884227-WQMP)	6001 Oak Canyon	A redevelopment of an existing 3.71-acre commercial area to include a parking lot and a large open space area.
West Wing Irvine (Permit Number 00903745-WQMP)	16701 Aston Street	Development of an industrial warehouse totaling 1.37 acres.

Santa Ana Water Board staff reviewed the WQMPs for the sites listed in Table 3. During interviews, City staff explained their WQMP review process and answered questions from Santa Ana Water Board staff. Both Santa Ana Water Board and City staff conducted inspections at these sites.

¹ Project names shown are as submitted in the WQMPs, with City designated tracking Permit Number.

Table 4: List of Construction, Commercial, and Industrial Sites where visits were attempted

Project/Site Name ²	Address	Brief description
Orchard Hills Planning Area 1	Portola Parkway and Jeffrey Road	A 276-acre residential construction site.
Sanritsu	16701 Aston Street	A light industrial warehouse.
Solventum	2111 McGraw Avenue	An industrial manufacturing facility.

During interviews with City staff, Santa Ana Water Board staff planned to accompany City staff for inspections of the industrial and construction sites listed in Table 4.

2.0 Findings

Santa Ana Water Board staff found no violations or deficiencies in the City's ordinance maintaining proper legal authority for stormwater-related activities within the City's jurisdiction.

Section VI (Legal Authority/Enforcement) of the Permit requires the City to maintain sufficient legal authority to control pollutant discharges to its MS4, to review its water quality ordinances, and to provide annual findings on the effectiveness of its ordinances and enforcement programs.

The City adopted City Ordinance, Title 6, Division 8, Chapter 3 for Stormwater/Urban Runoff Quality, sections 6-8-301 to 6-8-307, in 2003 and amended them in 2010. The Ordinance outlines the City's general fine structure. According to City staff, the Ordinance has not required revisions since May 19, 2010, to maintain its legal authority and the effectiveness of the storm water program. City staff stated that the Ordinance is adequate to address stormwater quality issues, given the increase in population from

² Project/Facility names are as shown on signs found at the sites during inspections

200,000 to 300,000 over the past 1.5 decades. City staff indicated that inspection and enforcement procedures conform to the established iterative process outlined in the Local Implementation Plan, the County's training materials, and the Ordinance.

The City's Local Implementation Plan (LIP) Sections A-7.7 (New Development/Significant Redevelopment Program), A-8.2.6 (Construction Program), A-9 (commercial, industrial, mobile, and residential programs), and A-10 (Illegal Discharges/Illicit Connections) describe an iterative process for enforcement that inspectors are to use. The Ordinance and LIP sections provide a guideline for the municipality's progressive enforcement and general penalty structure. City staff indicated that site visits and inspection procedures conform to the established iterative process outlined in the Local Implementation Plan, the County's training materials, and the adopted ordinances. The field visits and inspections observed by the Santa Ana Water Board staff followed the iterative process.

Santa Ana Water Board staff found no violations or deficiencies in the City's implementation of management programs, its execution of plans, or coordination with internal departments within its jurisdiction.

Section II.A.1 of the Permit requires, in part, Permittees to implement the program outlined in the Permittee-specific Local Implementation Plan (LIP) and the Drainage Area Management Plan (DAMP) and take any other actions as may be necessary to meet the Maximum Extent Practicable standard. Under section II.B.2, the City is required to coordinate among its internal departments and agencies, as appropriate, to facilitate the implementation of this order and the DAMP/LIP. Section II.B.4 requires the City to conduct and coordinate with the principal permittee any surveys and characterizations needed to identify pollutant sources and drainage areas. Section III.5 requires the City to reduce the discharge of pollutants, including trash and debris, from the storm water conveyance systems to the maximum extent practicable. Section VII.4 reinforces Section III.5 by requiring the implementation of appropriate control measures to reduce and/or eliminate the discharge of trash and debris into waters of the US. These control measures shall be reported in the annual report.

Santa Ana Water Board staff discussed coordination among the City's internal departments during the interview portion of the audit. City staff explained that the City has a very "robust team" and that there have been no issues with interdepartmental coordination. City staff explained that issues identified by field staff are assigned to the appropriate departments for resolution. When issues arise that require cross-jurisdictional oversight, City departments work with external agencies to resolve them within 24 hours. City staff indicated the LIP is reviewed annually and changes are made to reflect the standard operating procedures used by City staff. When changes were made, they are reported in the annual reports.

On August 30, 2017, the City selected Track 1 to comply with the Trash Provisions. The City contracted Waste Management & Environmental Services for solid waste hauling and recycling. The City manages the street sweeping program with a combination of City resources and contracted parties. City staff indicated that the City has a fleet of vehicles to address illegal dumping. Local residents and businesses can report illegal dumping, spills, or clogged catch basins to the City via dedicated numbers at the Public Works department and Code Enforcement division, and a public online reporting application called Access Irvine.

City staff stated that Public Works has a Vactor 2100i Combination Sewer Cleaner truck dedicated to maintain and service municipal facilities. City staff did not provide information on how many Vactor trucks the City owns during the interview. However, City staff pointed out that the Vactor trucks are primarily used for stormwater-related tasks. This is to prevent cross-contamination between sanitary sewer wastewater recovery and stormwater maintenance, preventing any sewage from entering the storm sewer system. For emergency responses involving sanitary sewers and spills, City staff indicated that the City's Vactor truck must be sanitized after the operation. Otherwise, Irvine Ranch Water District is called for sanitary sewer-related overflows and spill responses.

The City maintains and submits records to the Orange County Flood Control District (Principal Permittee) on the amount of bulk waste, trash, and debris collected from municipal facilities, and on the miles of curb serviced, for the annual reports, to comply with Section IV.2 of the Permit and Section 5.4 of the 2003 DAMP. Section IX.J of the Permit recounts that in the 2004-2005 Annual Report, the Permittees characterized trash, determined its main source(s), and developed and implemented appropriate best management practices (BMPs) to reduce and/or to eliminate the discharge of trash and debris to Waters of the US to the maximum extent practicable. The BMPs should be continued, and their effectiveness must be reported in the Annual Report.

The City submitted the annual Program Effectiveness Assessments (PEAs), summarizing the Permit's requirements and reporting program results in PEA sections C-5 (Municipal Activities) and C-10 (Illegal Discharges/Illicit Connections). The PEAs contain tonnages of debris and litter removed from the roadways and municipal facilities. The reported tonnage is not characterized by the type of materials removed.

In 2017, an On-land Visual Trash Assessment for Priority Land Use and Alternative Land Use areas by the City, including an evaluation of the trash capture effectiveness of existing natural treatment system basins operated by the Irvine Ranch Water District. The unified annual progress report submitted by the Orange County Flood Control District shows an increase in street and gutter debris and litter throughout the County and City. According to the 2023-24 Unified Annual Progress Report, the City of Irvine's records indicated a reduction in tonnage for debris and litter recovered based on total

tonnage and miles swept. City of Irvine's materials recovered from catch basins showed year-to-year variations in total tonnage without a clear trend.

City staff indicated that City Public Works has staff on hand for spill responses. City staff also noted that the fire department assists with emergency spills when Public Works cannot respond in time. For sanitary sewer overflows, the City relies on Irvine Ranch Water District and the collaborative efforts of the City's Public Works crew and the Sustainability Department. City staff also explained that the Orange County Health Department has the responsibility with the City to deal with the restaurant sanitary sewer-related issues, such as grease trap or grease blockages causing sanitary sewer to overflow. The Orange County Health Department then coordinates any cleanup efforts with the Irvine Ranch Water District and also informs the City of the event.

When the Santa Ana Water Board staff inquired whether the City has its own CCTV drain inspection system, City staff provided updated information about its Public Works department equipment to inspect and investigate the storm sewer system. Two units are being used: a GoPro camera mounted on a custom skid-jetter nozzle system, and an Envirosight QuickView AirHD, which is a pole-mounted wireless zoom camera with high-definition video. For the sanitary sewer, the City indicated it defers to the Irvine Ranch Water District, as the City does not provide sewer or water services.

Santa Ana Water Board staff found no violations or deficiencies in the City's inspection and enforcement.

Section VI.2 of the Permit requires the City to carry out inspections, surveillance, and monitoring necessary to determine compliance with its ordinances and permits. Section VI.3 requires the City's ordinances or other local regulatory mechanisms to include sanctions and follow up inspection milestones to ensure compliance. Section VI.5 requires the City to provide notification to the Santa Ana Water Board staff regarding storm water-related information gathered during site inspections of industrial and construction sites regulated by the Statewide General Storm Water Permits and at sites that should be regulated under those Statewide General Permits. Section XVII.1 requires the City to provide oral or e-mail notification to Santa Ana Water Board staff of non-compliant sites within its jurisdiction that are determined to pose an imminent threat to human health or the environment. This includes a written report submitted to the Santa Ana Water Board within 5 business days, detailing the nature of the noncompliance, any corrective action taken by the site owner, other relevant information, and the type of enforcement to be carried out by the permittee. Sections VIII.2, IX.1, and X.1 require the City to maintain an inventory of the construction, industrial, and commercial sites. Sections VIII.3, IX.2, and X.3 require the City to prioritize the inspection frequencies as determined by the threat to water quality, prioritization of high, medium, or low.

Before the interview portion of the audit, City staff provided examples of inspection records from Irvine's databases, which have been in use since 2006. During the

interview, City staff briefed on the various functions and capabilities of the various databases for different administrative operations. The databases are comprised of Eden, Atlas, GoEnforce, Virtual PM software, and staff customized Microsoft Access.

The Eden database houses records for municipal, commercial, industrial, and WQMP inventory. Staff assigns tracking identifiers for other database systems to reference back to the Eden database. The Atlas database, serves as an extension of Eden. Atlas provides field-ready access records to use on mobile devices through an application. Atlas also specializes in tracking WQMP-related inspections and manages photos, project-related documents, and invoices. The Atlas database and its mobile application are geared towards the Android platform and considered legacy software.

The GoEnforce database houses inspection information for commercial and industrial facilities, and WQMP-related inspections used by Code Enforcement division. GoEnforce creates case numbers for tracking purposes. According to City staff, GoEnforce was created for the Apple iOS platform, with friendlier interfaces for the Code Enforcement divisions to use in the field. GoEnforce also allows the City's administrative staff to generate invoices after the inspections are performed. Since Atlas and GoEnforce overlap in record-keeping, City staff indicated they are currently using both in tandem to manage records. The Virtual PM database manages all Public Works and Sustainability Department records for public projects and inspections.

According to City staff, the City is moving forward with centralizing the databases by adopting the Clariti database platform at the beginning of 2027. Clariti is being used on a trial basis for the Code Enforcement and Planning & Permitting departments. Once the Clariti database deployment and test run are successful, the records from other databases will be transferred into the Clariti database for system-wide integration. The Virtual PM software used by the Public Works and Sustainability Department may not be part of the system-wide integration.

City staff demonstrated the uses of the databases during the interview portion. The City staff assisted the Santa Ana Water Board staff in selecting sites for the field portion of the audit. City inspectors provided a list of construction projects, commercial, and industrial facilities. Santa Ana Water Board staff selected several sites on the list to visit during the field portion of the audit.

City and Santa Ana Water Board staff visited a commercial (light industrial warehouse and product resale) facility, Sanritsu, and an industrial manufacturing facility, Solventum. City field inspectors reported that they are knowledgeable about the facilities since their establishment, including any changes that affect water quality, contact persons, and corrective actions taken.

The construction site, Orchard Hills Planning Area 1, is under the Construction General Permit WDID No. 8 30C407444. During the site visit, City inspectors briefed attendees on changes as the project progressed. City inspectors described the City's requirements for each construction phase, the daily communication between the City's inspector and

the construction site crew, and the immediate actions required for any violation observed that day.

City staff indicated that, for off-hour non-emergency stormwater-related situations, the police department receives the incoming call and either handles the case based on the level of urgency or forwards it to the Public Works department. When hazardous spills occur, the fire department and Public Works crew respond. During off-hours, the fire department may be the responder. The police and/or fire department forwards communications to the Public Works department. City staff stated that the City had no issue recovering staff time and equipment costs through penalties for violations and emergency responses.

City staff reported that, due to the City's proactive enforcement, nearly 100 percent compliance was achieved the same day or within 10 days. City staff indicated that there are rare cases that escalate to administrative liabilities after 90 days in accordance with the progressive enforcement structure described in the LIP.

Santa Ana Water Board staff found no violations or deficiencies in the City's process for assessing project Water Quality Management Plans (WQMPs).

Permit's section XII.A.4 requires the permittees to include a summary of their review of the watershed protection principles and policies in their General Plan and related documents (such as Development Standards, Zoning Codes, Conditions of Approval, Development Project Guidance, Local Coastal Plan, etc.) to ensure that these principles and policies, including LID principles, are properly considered and are incorporated into these documents in the 2010-2011 Unified Progress Report.

Santa Ana Water Board staff reviewed the 2045 General Plan that was adopted in 2021 along with the 2021-2029 Housing Element. These describe efforts to minimize the short and long-term impacts on receiving water quality from new developments and significant re-developments, emphasizing implementation of LID principles and addressing hydrologic conditions of concern, prior to issuance of any grading or building permits and/or prior to recordation of any subdivision maps, per section XII.A.3 of the Permit. City staff discussed continuing to implement watershed protection principles and policies by advancing their Strategic Plan designs for stormwater BMPs and management. According to City staff, the City planned to install biotreatment systems, such as Filterra, and to incorporate green spaces, green infrastructure, and greenways to treat runoff from arterial roadways and address both point-source and non-point-source pollutants.

Permit section XII.B.2 requires the City to ensure that aWQMP is prepared for certain categories of new development/significant redevelopment projects (priority development projects). The WQMP shall be developed in accordance with the approved Model WQMP and shall incorporate LID principles. Section XII.B.3 requires WQMPs to include

BMPs for source control, pollution prevention, site design, Low Impact Development, and structural treatment controls. For all structural treatment controls, WQMPs shall identify the responsible party for maintenance of the treatment system, vector minimization and control measures, and a funding source or sources for its operation and maintenance. Section XII.I.2 requires the City to specify conditions of approval that require proper maintenance and operation of all structural treatment control BMPs installed in new developments, including requirements for vector control.

City staff described the process for submitting priority projects to the Planning Division, including the requirement for a preliminary WQMP checklist. They also outlined the process for storing WQMP records, which involves a specialized Microsoft Access database that tracks each step from initial submission to final approval. In addition, other databases—such as Eden, GoEnforce, and Atlas—help monitor construction inspections, maintain inventories of post-construction BMPs, and document inspection and maintenance history.

Staff from the Santa Ana Water Board also asked about challenges faced with Accessory Dwelling Unit (ADU) and Junior Accessory Dwelling Unit (JADU) expansion projects, particularly when the overall project size exceeded 5,000 square feet, which would typically require WQMP submissions. City staff reported that none of the ADU and JADU projects exceeded the 1,200-square-foot footprint threshold.

City inspectors and Santa Ana Water Board staff visited the Broadstone Paseo Del Mar residential development. Together, they met with two Broadstone administrative representatives to inspect the local vegetation for any signs of stress or dead plants, focusing on the irrigation system near the biotreatment facility. The inspection revealed that the plants were healthy and showed no signs of distress. The surface soil was dry, without any indication of water pooling. To further assess the site, city inspectors removed the covers from the proprietary vegetated biotreatment system (listed as BIO-7 under section IV.3.4 for Biotreatment BMPs. The system is identified as the Contech BioClean Modular Wetland System in the approved WQMP, sheet 18, to examine the chamber's.

During the inspection, it was noted that the water level in the pre-treatment chamber was higher than the pre-filter cartridges, and fine sediment had accumulated on them. This indicated that the filters were blocked. Santa Ana Water Board staff and City field inspectors checked both chambers—one with pre-filter cartridges and one without—and saw no vector activity during a 60-second observation period. A Broadstone representative reported that maintenance on the biotreatment system was completed 4 months prior to this visit. Based on these observations, City inspectors advised Broadstone to inspect and maintain the system more often. The Broadstone representatives agreed and decided to switch from twice-yearly to once-every-quarter servicing until sediment accumulation is reduced, after which it can be switched back to a twice-yearly servicing schedule.

During the site visit at Broadstone, one of the City field inspectors informed the Santa Ana Water Board staff that the representative for the Parking Lot Expansion project at 6001 Oak Canyon was unavailable prior to the scheduled site visit, despite arrangements made the previous week. Consequently, the Santa Ana Water Board staff decided to proceed with the next planned site visit.

Santa Ana Water Board staff and City inspectors conducted a site visit at the West Wing Irvine project, which was the Sanritsu light industrial warehouse facility. During the inspection, City personnel accessed the proprietary vegetated biotreatment system. The system is—referenced in section IV.3.4 of the project WQMP for Biotreatment BMPs, and identified as the BioClean Modular Wetlands Linear System under section IV.3.7. Representatives from both agencies met with the site's contact to review the status of the biotreatment system. The vegetation surrounding the system showed minor distress, and the chamber appeared dry, with a moderate buildup of organic material and fine sediment on the pre-filter cartridges. City field inspectors recommended increasing the cleaning frequency beyond the bi-annual interval specified in the maintenance agreement between the City and the system owner. The facility representative acknowledged this recommendation and agreed to schedule more frequent future servicing. The facility representative will return to the twice-yearly servicing schedule when the organic and sediment levels reduce.

Santa Ana Water Board staff found no violations or deficiencies in the City's tracking systems for structural treatment controls for priority projects.

Permit section XII.I.3 requires permittees to develop a database with information regarding each structural treatment control BMP installed. The database, at minimum, should include the type of BMP, the watershed where it is located, the date of construction, the party responsible for maintenance, the source of funding for operation and maintenance, maintenance verification, and any problems identified during inspections, including any vector or nuisance problems.

City staff informed Santa Ana Water Board staff that the structural treatment controls for priority projects are tracked using a combination of Eden, for its ability to sort and print detailed information on the post-construction BMP inventory, and GoEnforce, for its field accessibility and user-friendliness on mobile devices. City staff also demonstrated the use of the two databases in the office but did not demonstrate GoEnforce accessibility in the field.

City staff indicated that one dedicated City inspector was assigned for construction inspections, municipal projects, and to verify post-construction requirements. City staff noted that at least 25% of all post-construction treatment controls in the City's inventory were inspected annually.

Santa Ana Water Board staff found no violations or deficiencies in the City's training program for new development and significant redevelopment.

Section XVI.1 of the Permit requires a training program for stormwater managers, planners, inspectors, municipal contractors, and others.

City staff provided training attendance logs for 2019 to 2025 prior to the audit interview. Training, mainly in-person via Michael Baker International, covers stormwater regulations, best practices, inspections, and public education. While Orange County provided pre-wet season training to the City staff, Thomas Lo also conducted in-house training for Public Works staff on topics such as street sweeping, municipal inspection of fixed facilities, landscaping, review of pre-wet season information, and WQMP-related topics. WQMP-related topics include the triggers for WQMPs, post-construction treatment controls and BMPs, inspection of treatment controls and BMPs, and an outline of Construction General Permit regulations. New staff are trained within 60 days of hiring, while existing staff attend annual sessions. City staff receive role-specific training, with some cross-training between departments.

During a visit to the Orchard Hills Planning Area 1 construction site, the site superintendent explained that the City field inspector had briefed the staff on General Permit regulations and shared lessons from the City's training classes. Although this informal training by the City field inspector was not documented in City records, the superintendent mentioned that their site's morning pre-work meetings were recorded to include the City inspector.

Santa Ana Water Board staff discussion regarding the City's Program Effectiveness Assessment and financial resources for managing the program.

Section XX (Fiscal Analysis) requires the permittees to secure the resources necessary to meet all requirements and prepare and submit a unified fiscal accountability analysis. Section IV.2.d of the Monitoring and Reporting Program requires permittees to submit an annual report that includes an overall program assessment covering each program element required under this order, the expected outcome, and the measures used to assess the outcome. The permittees may propose any other methodology for program assessment using measurable targeted outcomes.

City staff confirmed that the City is currently able to comply with all stormwater program requirements. The City provides summaries of its program effectiveness and program changes through its annual Program Effectiveness Assessment reports. They noted that adequate financial resources are available through the general fund to support the program's implementation. Although there are no immediate financial concerns, City staff emphasized the importance of streamlining program operations and evaluating ways to reduce unnecessary cost. This is particularly due to the rising compliance-related expenses associated with Newport Bay Total Maximum Daily Loads, which may increase over time. The City is part of the program partnership that provides a portion of the funding.

In anticipation of increased overhead costs for the MS4 compliance, necessary supplies, staffing, and potential new obligations under the new MS4 Regionwide Permit,

the City of Irvine has adopted a proactive financial planning approach to source funding. This strategy aims to address future programmatic expenditure increases before they arise, rather than responding reactively.

3.0 Conclusions and Recommendations

Santa Ana Water Board staff continued to communicate with the City staff after the audit to obtain additional information that was not provided before and during the interview portion of the audit. Only on August 31, 2026, the Santa Ana Water Board staff presented the final draft of the audit report to validate all the provided information and statements made by City staff before the audit report is sent out.

Santa Ana Water Board staff did not find any deficiencies or evidence of violations in the following areas:

- City ordinances and legal authority;
- Implementing management programs and plans, and coordinating with the internal departments within its jurisdiction;
- Inspection and enforcement;
- City's process for assessing project WQMPs' completeness or compliance with applicable requirements;
- Tracking structural treatment controls for priority projects through construction and post-construction phases;
- City's training program for new development and significant redevelopment;
- And the City's Program Effectiveness Assessment and reporting.

Santa Ana Water Board staff have no recommendations for the City as a result of this audit.

4.0 Inspection Photos

Paseo Del Mar (Broadstone) WQMP at 2152 Alton Parkway



The sign for Paseo Del Mar residential development displays "Broadstone," a name not listed in the approved WQMP or recorded by the City.



The sump pump control panel for the Contech BioClean Modular Wetland System. Both the pump and the control float valve lights were observed on, indicating that the system was operating.



A City field inspector removed the lid to the chamber containing pre-filter cartridges for the biotreatment system. The nearby vegetation appears healthy despite dry topsoil.



The photo shows the chamber with pre-filter cartridges underwater and some sediment. No vector movement is observed over 60 seconds.



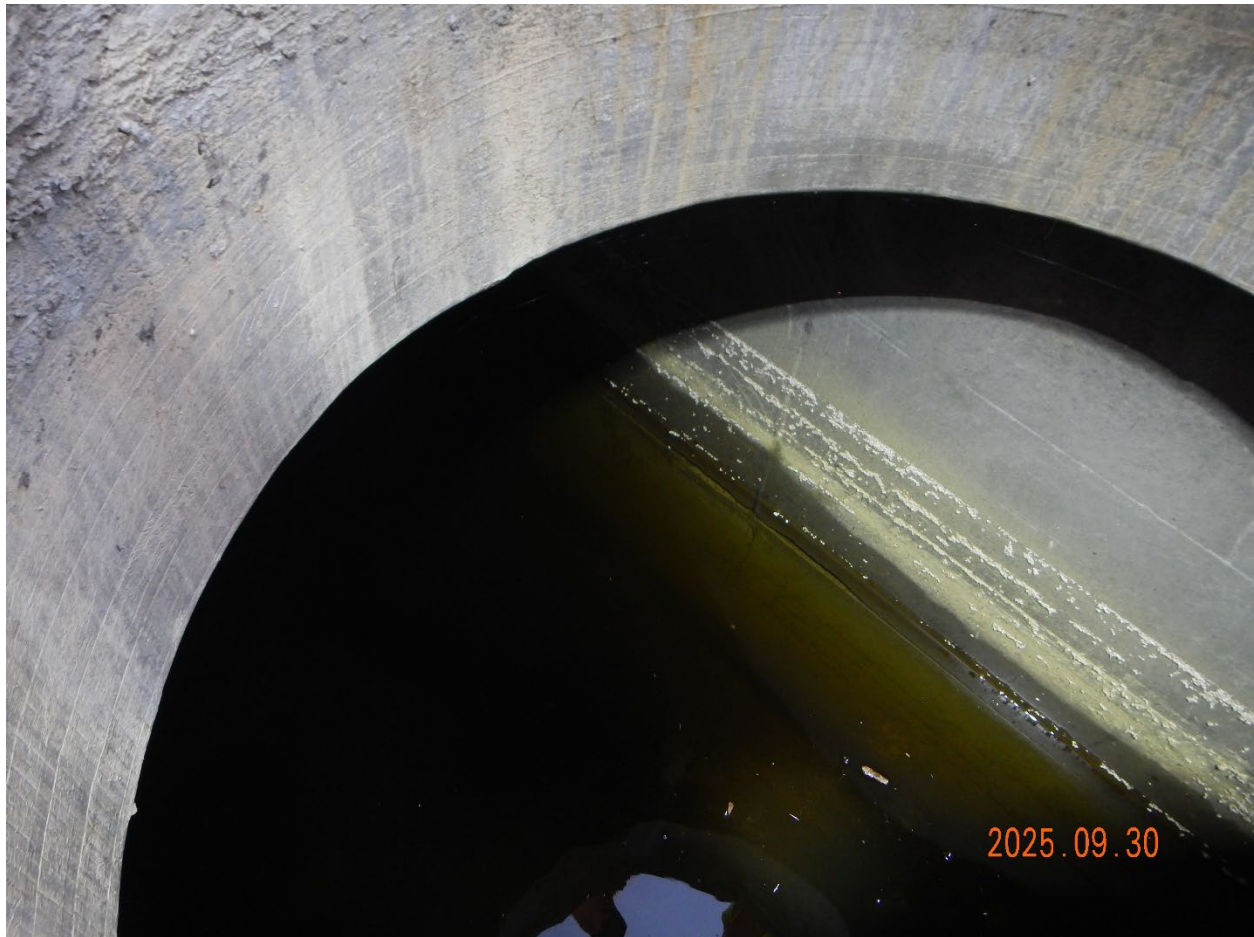
The photo displays the “BioClean” biotreatment system’s name on the lid.



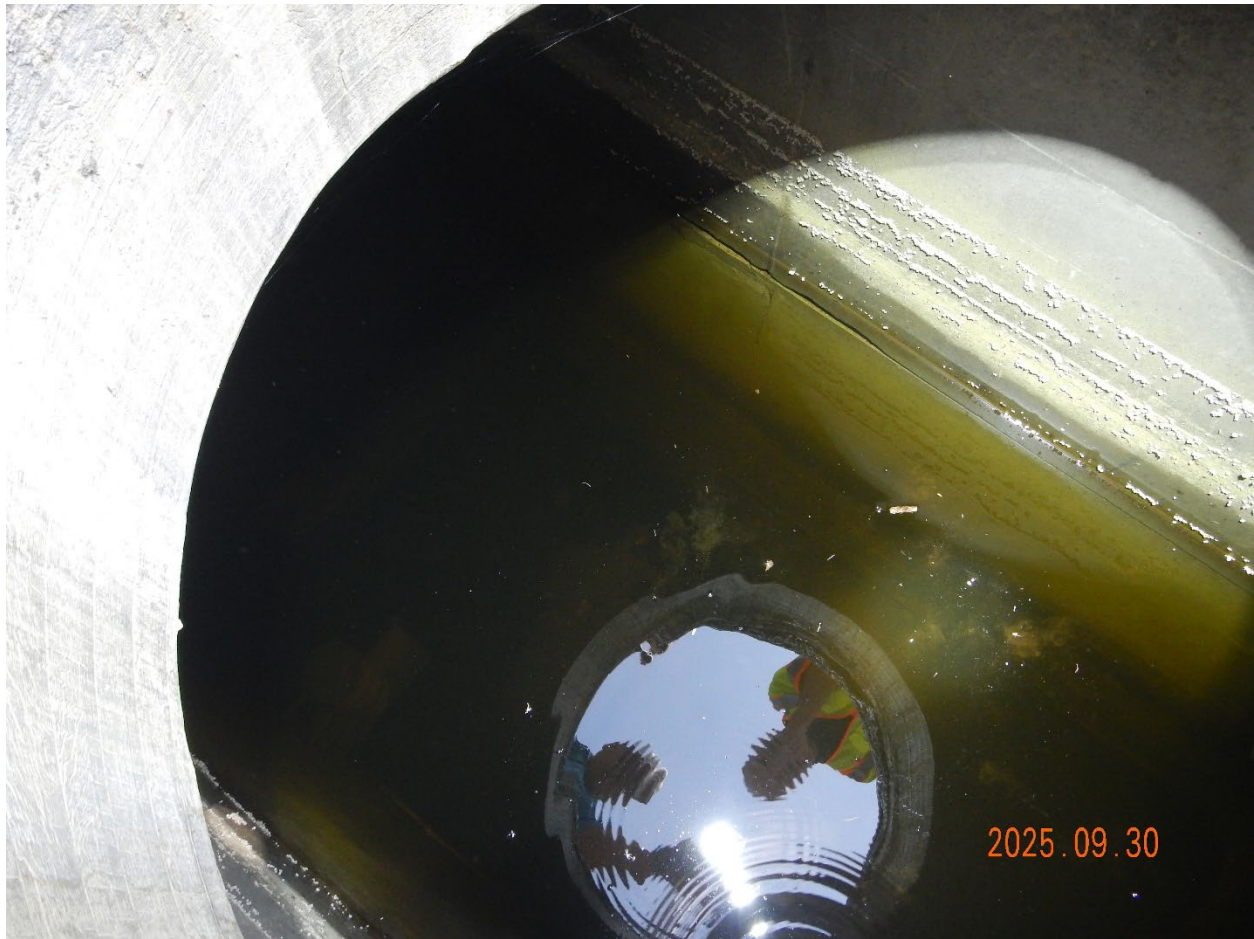
The photograph shows the BioClean Modular Wetland System, the approved biotreatment system in the WQMP, its control panel right of center, and surrounding vegetation. The vegetation did not show any signs of distress, despite the dryness of the topsoil.



The photo shows service ports for the BioClean biotreatment system under and along the sidewalk leading into the residential area. The topsoil is dry, but the plants do not display signs of distress.



A view of the lower chamber shows a lower water level without pre-filter cartridges compared to the chamber where pre-filter cartridges are present. During a 60-second observation, no vector movement was detected.



A different angle of the previous photo shows possible debris or algae at the bottom of the chamber. City inspectors spoke with Broadstone's team about increasing inspection and maintenance frequency.

West Wing Irvine WQMP at 16701 Aston Street, and Sanritsu for industrial inspection



The photo shows the company name and the light industrial warehouse.



View of the site's BioClean Modular Wetlands Linear System, specified in the WQMP, is shown with mildly distressed vegetation.



Closer view of the BioClean Modular Wetlands Linear System inlet with medallions.



The BioClean Modular Wetlands Linear System chamber is dry, contains pre-filter cartridges and has a moderate buildup of fine sediment and organic litter.



The front loading bay and driveway of the light industrial warehouse are clean, with no trash, litter, or oil stains.



A nearby business' boneyard is next to the Sanritsu facility, but a Sanritsu representative confirmed it does not belong to them.



A representative said rainwater regularly floods the rear loading bay, where it is pumped to the BioClean Modular Wetlands Linear System via a sump pump. Flooding makes the bay rarely used during the rainy season.



A closer look at the previous photo shows the sump pump at the bottom of the loading dock.

Solventum at 2111 McGraw Avenue



Industrial manufacturing signage and address number observed onsite.



Both trash and recycling containers at the facility are equipped with storm-resistant covers as shown.



View of the front northern loading bay. The site's representative states that a rubber cover seals the storm inlet to keep automotive fluid from entering the drain.



Close-up of the inlet cover at the front northern loading bay.



The front northern loading dock drain inlet and its filter insert were clear of debris and fresh automotive fluids. The facility representative stated that oil-absorbing synthetic socks will be installed, as they are on backorder.



The east outdoor area for storing empty 55-gallon containers, wood pallets and compressed paper bales. The facility representative indicated that these items are collected and disposed of on a six-week cycle.



A different view of the eastern outdoor storage area reveals additional empty 55-gallon containers.



Another different perspective of the eastern outdoor storage area reveals additional empty 55-gallon containers and tote.



The facility's northeastern storage area has large roll-off bins reportedly covered when not in use, and the sealed particulate collection system at left with a 55-gallon container at the base.



Closer view of the previous photo for the particulate collection system. The red hose on the right of the photo is an air hose.



The photo displays the rear northern loading bay with two inlets, both covered by a rubber mat like the one at the front northern loading bay.



A closer look at the front inlet shown earlier photo reveals fresh fluid near the edge of the filter insert. According to the facility's representative, all three inlets will soon be equipped with new rubber covers and synthetic socks designed for oil absorption. The maintenance of the inlets was also scheduled during the synthetic socks and cover installations.



The particulate recovery system is located along the facility's eastern perimeter. Oil residue is visible beneath the red air hose under the recovery system.



Empty 55-gallon containers at the facility's eastern perimeter. The representative stated they will be picked up by week's end as scheduled.



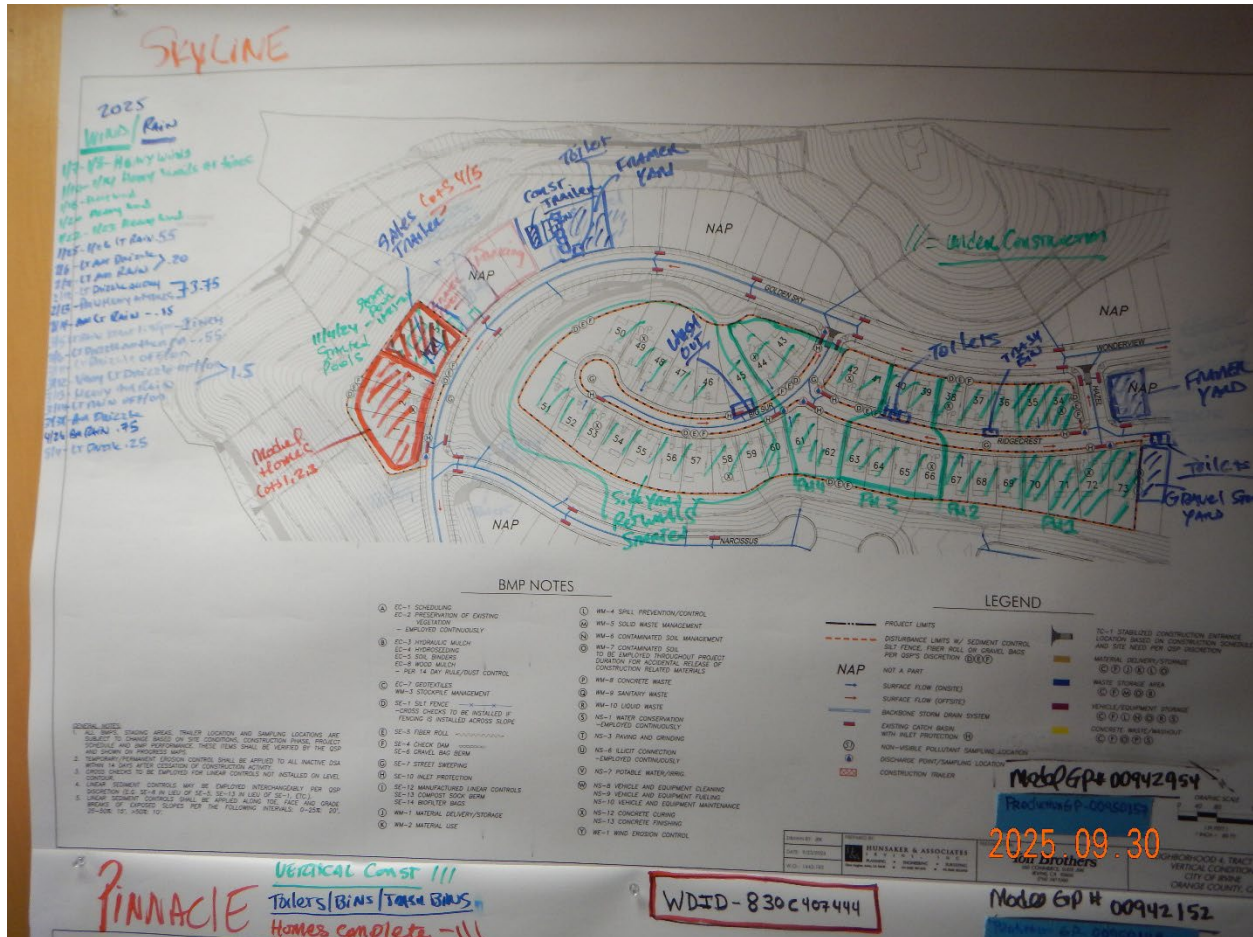
This is a different view of the eastern perimeter storage area. Covered, unused equipment is kept here, and facility representatives report that the empty 55-gallon containers and wood pallets serve as anchoring for the tarp.



A view of the eastern storage area shows empty 55-gallon containers ready for pickup.



A portable stormwater treatment container is stored onsite. The facility representative stated it was used during construction for the expansion and has remained at the location since then.

Orchard Hills Planning Area 1 construction site at Portola Parkway and Jeffrey Road

Current construction facility map showing ongoing activities. The City's field inspector requires that the site map be updated to match current work, as mandated by the Construction General Permit Section III.F.



A view of the current construction site map.



The photo shows the entrance and exit for the storage area as well as the superintendent's construction trailer. The superintendent noted that this spot also serves as the gathering point for daily pre-construction meetings with employees.



The photo shows ongoing construction at the site. The roadway remains free of sediment due to sweeping by an assigned employee. Gravel beds on each residential lot help prevent sediment from reaching the road.



The photo shows perimeter BMPs in place; straw wattles, sediment filter fences, and gravel bags are stored onsite for quick use before rain as directed by the superintendent according to the City's field inspector.



A view of the gravel bed on a residential lot under vertical development, with extra gravel bags added to prevent sediment from leaving, as noted by the superintendent.



The city's field inspector has stated that any roll-off bins at construction sites which are not in use for more than one day must be properly covered.



Portable potties shown on pervious surfaces within secondary containment. The City field inspector stated that spills must be actively contained for portable potties.



The photo shows soil excavated for utility installation.



The photo shows the construction crew installing utilities. No sediment tracking observed at the cul de sac.

Appendix A: List of Documents Reviewed

Waste Discharge Requirements for The County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff, Order R8-2009-0030, NPDES No. CAS618030, As Amended by Order No. R8-2010-0062

North Orange County Model WQMP (May 2011)

North Orange County Technical Guidance Document (December 2013)

Orange County Drainage Area Management Plan, 2003, and proposed 2007 version

Orange County Annual Progress Reports for 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025

City of Irvine Program Effectiveness Assessment reports for 2010-2011, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025

City of Irvine Legal Authority 2010 letter

City of Irvine adopted Ordinance, Title 6, Division 8, Chapter 3

City of Irvine Local Implementation Plan, April 2025

City of Irvine inspection and enforcement records for commercial, industrial, construction, and WQMP post-construction BMPs

City of Irvine training records from 2021 to 2024

Water Quality Management Plans for Paso Del Mar (Broadstone residential development), Permit Number 00286642-WQMP, Parking Lot Expansion, Permit Number 00884227-WQMP, and West Wing Irvine (Sanritsu), Permit Number 00903745-WQMP

City of Irvine quarterly reports for non-compliances, observed violations, or threats of potential violations of the General Permits from 2019 to 2025

City of Irvine General Plan 2045