



**EOCWD**  
EAST ORANGE COUNTY  
WATER DISTRICT

**Sewer System  
Management Plan  
Volume II**

*Revised January 17, 2019*

## APPENDIX LIST & OWNER FOR VOLUME II – JANUARY 19, 2016

| <b>App.</b> | <b>Document Title</b>  | <b>Owner</b> | <b>Updated</b> |
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| <b>A</b>    | Order ( <i>SWRCB Order No. 2006-0003 DWQ</i> )                     | L. Ohlund    |                |
| <b>B</b>    | Monitoring and Reporting Requirements ( <i>MRP 2006-0003 DWQ</i> ) | L. Ohlund    |                |
| <b>C</b>    | SSMP Organization  | L. Ohlund    | 01/17/19       |
| <b>D</b>    | Ordinance No. EOCWD 2016-02 (FOG Control / FSEs)                   |              |                |
| <b>E</b>    | Ordinance No. EOCWD 2016-01 (Wastewater Discharge Regulations)     | L. Ohlund    |                |
| <b>F</b>    | FOG Management Program   | L. Ohlund    | 01/17/19       |
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| <b>R</b>    | Sewer Spill Estimation Guide                                       | L. Ohlund    |                |
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**STATE WATER RESOURCES CONTROL BOARD  
ORDER NO. 2006-0003-DWQ**

**STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS  
FOR  
SANITARY SEWER SYSTEMS**

The State Water Resources Control Board, hereinafter referred to as "State Water Board", finds that:

1. All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this Order. Such entities are hereinafter referred to as "Enrollees".
2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater, as well as industrial and commercial wastewater, depending on the pattern of land uses in the area served by the sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. SSOs may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.
3. Sanitary sewer systems experience periodic failures resulting in discharges that may affect 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), which affect the likelihood of an SSO. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.
4. Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age and construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor-caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures and operation and maintenance of the sanitary sewer system.



### **SEWER SYSTEM MANAGEMENT PLANS**

5. To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.
6. Many local public agencies in California have already developed SSMPs and implemented measures to reduce SSOs. These entities can build upon their existing efforts to establish a comprehensive SSMP consistent with this Order. Others, however, still require technical assistance and, in some cases, funding to improve sanitary sewer system operation and maintenance in order to reduce SSOs.
7. SSMP certification by technically qualified and experienced persons can provide a useful and cost-effective means for ensuring that SSMPs are developed and implemented appropriately.
8. It is the State Water Board's intent to gather additional information on the causes and sources of SSOs to augment existing information and to determine the full extent of SSOs and consequent public health and/or environmental impacts occurring in the State.
9. Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).
10. Information regarding SSOs must be provided to Regional Water Boards and other regulatory agencies in a timely manner and be made available to the public in a complete, concise, and timely fashion.
11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more

prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

## REGULATORY CONSIDERATIONS

12. California Water Code section 13263 provides that the State Water Board may prescribe general WDRs for a category of discharges if the State Water Board finds or determines that:

- The discharges are produced by the same or similar operations;
- The discharges involve the same or similar types of waste;
- The discharges require the same or similar treatment standards; and
- The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

This Order establishes requirements for a class of operations, facilities, and discharges that are similar throughout the state.

13. The issuance of general WDRs to the Enrollees will:

- a) Reduce the administrative burden of issuing individual WDRs to each Enrollee;
- b) Provide for a unified statewide approach for the reporting and database tracking of SSOs;
- c) Establish consistent and uniform requirements for SSMP development and implementation;
- d) Provide statewide consistency in reporting; and
- e) Facilitate consistent enforcement for violations.

14. The beneficial uses of surface waters that can be impaired by SSOs include, but are not limited to, aquatic life, drinking water supply, body contact and non-contact recreation, and aesthetics. The beneficial uses of ground water that can be impaired include, but are not limited to, drinking water and agricultural supply. Surface and ground waters throughout the state support these uses to varying degrees.

15. The implementation of requirements set forth in this Order will ensure the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each region and take into account the environmental characteristics of hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect

water quality in the area, costs associated with compliance with these requirements, the need for developing housing within California, and the need to develop and use recycled water.

16. The Federal Clean Water Act largely prohibits any discharge of pollutants from a point source to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. Hence, the unpermitted discharge of wastewater from a sanitary sewer system to waters of the United States is illegal under the Clean Water Act. In addition, many Basin Plans adopted by the Regional Water Boards contain discharge prohibitions that apply to the discharge of untreated or partially treated wastewater. Finally, the California Water Code generally prohibits the discharge of waste to land prior to the filing of any required report of waste discharge and the subsequent issuance of either WDRs or a waiver of WDRs.
17. California Water Code section 13263 requires a water board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.
18. California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.
19. This Order is consistent with State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) in that the Order imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than prescribed in State Water Board or Regional Water Board plans and policies.
20. The action to adopt this General Order is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment. (Cal. Code Regs., tit. 14, §15308). In addition, the action to adopt



this Order is exempt from CEQA pursuant to Cal.Code Regs., title 14, §15301 to the extent that it applies to existing sanitary sewer collection systems that constitute “existing facilities” as that term is used in Section 15301, and §15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

21. The Fact Sheet, which is incorporated by reference in the Order, contains supplemental information that was also considered in establishing these requirements.
22. The State Water Board has notified all affected public agencies and all known interested persons of the intent to prescribe general WDRs that require Enrollees to develop SSMPs and to report all SSOs.
23. The State Water Board conducted a public hearing on February 8, 2006, to receive oral and written comments on the draft order. The State Water Board received and considered, at its May 2, 2006, meeting, additional public comments on substantial changes made to the proposed general WDRs following the February 8, 2006, public hearing. The State Water Board has considered all comments pertaining to the proposed general WDRs.

**IT IS HEREBY ORDERED**, that pursuant to California Water Code section 13263, the Enrollees, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

#### **A. DEFINITIONS**

1. **Sanitary sewer overflow (SSO)** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:
  - (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
  - (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
  - (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.
2. **Sanitary sewer system** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines.

3. **Enrollee** - A federal or state agency, municipality, county, district, and other public entity that owns or operates a sanitary sewer system, as defined in the general WDRs, and that has submitted a complete and approved application for coverage under this Order.
4. **SSO Reporting System** – Online spill reporting system that is hosted, controlled, and maintained by the State Water Board. The web address for this site is <http://ciwqs.waterboards.ca.gov>. This online database is maintained on a secure site and is controlled by unique usernames and passwords.
5. **Untreated or partially treated wastewater** – Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.
6. **Satellite collection system** – The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility to which the sanitary sewer system is tributary.
7. **Nuisance** - California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.

## **B. APPLICATION REQUIREMENTS**

1. **Deadlines for Application** – All public agencies that currently own or operate sanitary sewer systems within the State of California must apply for coverage under the general WDRs within six (6) months of the date of adoption of the general WDRs. Additionally, public agencies that acquire or assume responsibility for operating sanitary sewer systems after the date of adoption of this Order must apply for coverage under the general WDRs at least three (3) months prior to operation of those facilities.
2. **Applications under the general WDRs** – In order to apply for coverage pursuant to the general WDRs, a legally authorized representative for each agency must submit a complete application package. Within sixty (60) days of adoption of the general WDRs, State Water Board staff will send specific instructions on how to

apply for coverage under the general WDRs to all known public agencies that own sanitary sewer systems. Agencies that do not receive notice may obtain applications and instructions online on the Water Board's website.

3. Coverage under the general WDRs – Permit coverage will be in effect once a complete application package has been submitted and approved by the State Water Board's Division of Water Quality.

### **C. PROHIBITIONS**

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

### **D. PROVISIONS**

1. The Enrollee must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for enforcement action.
2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:
  - (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;
  - (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;
  - (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDR, superseding this general WDR, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or
  - (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.
3. The Enrollee shall take all feasible steps to eliminate SSOs. In the event that an SSO does occur, the Enrollee shall take all feasible steps to contain and mitigate the impacts of an SSO.
4. In the event of an SSO, the Enrollee shall take all feasible steps to prevent untreated or partially treated wastewater from discharging from storm drains into



flood control channels or waters of the United States by blocking the storm drainage system and by removing the wastewater from the storm drains.

5. All SSOs must be reported in accordance with Section G of the general WDRs.
6. In any enforcement action, the State and/or Regional Water Boards will consider the appropriate factors under the duly adopted State Water Board Enforcement Policy. And, consistent with the Enforcement Policy, the State and/or Regional Water Boards must consider the Enrollee's efforts to contain, control, and mitigate SSOs when considering the California Water Code Section 13327 factors. In assessing these factors, the State and/or Regional Water Boards will also consider whether:
  - (i) The Enrollee has complied with the requirements of this Order, including requirements for reporting and developing and implementing a SSMP;
  - (ii) The Enrollee can identify the cause or likely cause of the discharge event;
  - (iii) There were no feasible alternatives to the discharge, such as temporary storage or retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, collecting and hauling of untreated wastewater to a treatment facility, or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP. It is inappropriate to consider the lack of feasible alternatives, if the Enrollee does not implement a periodic or continuing process to identify and correct problems.
  - (iv) The discharge was exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee;
  - (v) The discharge could have been prevented by the exercise of reasonable control described in a certified SSMP for:
    - Proper management, operation and maintenance;
    - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent SSOs (e.g., adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow (I/I), etc.);
    - Preventive maintenance (including cleaning and fats, oils, and grease (FOG) control);
    - Installation of adequate backup equipment; and
    - Inflow and infiltration prevention and control to the extent practicable.
  - (vi) The sanitary sewer system design capacity is appropriate to reasonably prevent SSOs.

- (vii) The Enrollee took all reasonable steps to stop and mitigate the impact of the discharge as soon as possible.
7. When a sanitary sewer overflow occurs, the Enrollee shall take all feasible steps and necessary remedial actions to 1) control or limit the volume of untreated or partially treated wastewater discharged, 2) terminate the discharge, and 3) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water.

The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:

- (i) Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;
  - (ii) Vacuum truck recovery of sanitary sewer overflows and wash down water;
  - (iii) Cleanup of debris at the overflow site;
  - (iv) System modifications to prevent another SSO at the same location;
  - (v) Adequate sampling to determine the nature and impact of the release; and
  - (vi) Adequate public notification to protect the public from exposure to the SSO.
8. The Enrollee shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.
9. The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.
10. The Enrollee shall provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.
11. 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 Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

12. In accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, all engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Specific elements of the SSMP that require professional evaluation and judgments shall be prepared by or under the direction of appropriately qualified professionals, and shall bear the professional(s)' signature and stamp.
13. The mandatory elements of the SSMP are specified below. However, if the Enrollee believes that any element of this section is not appropriate or applicable to the Enrollee's sanitary sewer system, the SSMP program does not need to address that element. The Enrollee must justify why that element is not applicable. The SSMP must be approved by the deadlines listed in the SSMP Time Schedule below.

### **Sewer System Management Plan (SSMP)**

- (i) **Goal:** The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.
- (ii) **Organization:** The SSMP must identify:
- (a) The name of the responsible or authorized representative as described in Section J of this Order.
  - (b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and
  - (c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).
- (iii) **Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:
- (a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);



- (b) Require that sewers and connections be properly designed and constructed;
  - (c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;
  - (d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and
  - (e) Enforce any violation of its sewer ordinances.
- (iv) **Operation and Maintenance Program.** The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:
- (a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;
  - (b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;
  - (c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;
  - (d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

- (e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

(v) **Design and Performance Provisions:**

- (a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and
- (b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

(vi) **Overflow Emergency Response Plan** - Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- (b) A program to ensure an appropriate response to all overflows;
- (c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

- (vii) **FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:
- (a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
  - (b) A plan and schedule for the disposal of FOG 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 FOG generated within a sanitary sewer system service area;
  - (c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
  - (d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
  - (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;
  - (f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and
  - (g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.
- (viii) **System Evaluation and Capacity Assurance Plan:** The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:
- (a) **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs



that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

- (b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and
  - (c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.
  - (d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.
- (ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:
- (a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
  - (b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
  - (c) Assess the success of the preventative maintenance program;
  - (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and
  - (e) Identify and illustrate SSO trends, including: frequency, location, and volume.
- (x) **SSMP Program Audits** - As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the

Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

- (xi) **Communication Program** – The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

14. Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting. The Enrollee shall certify that the SSMP, and subparts thereof, are in compliance with the general WDRs within the time frames identified in the time schedule provided in subsection D.15, below.

In order to complete this certification, the Enrollee's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form, and sending the form to:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
P.O. Box 100  
Sacramento, CA 95812

The SSMP must be updated every five (5) years, and must include any significant program changes. Re-certification by the governing board of the Enrollee is required in accordance with D.14 when significant updates to the SSMP are made. To complete the re-certification process, the Enrollee shall enter the data in the Online SSO Database and mail the form to the State Water Board, as described above.

15. The Enrollee shall comply with these requirements according to the following schedule. This time schedule does not supersede existing requirements or time schedules associated with other permits or regulatory requirements.

**Sewer System Management Plan Time Schedule**

| <u>Task and Associated Section</u>  | <b>Completion Date</b>                     |  |  |  |
|---|--|--|--|--|
|   | Population > 100,000                       | Population between 100,000 and 10,000      | Population between 10,000 and 2,500        | Population < 2,500                         |
| Application for Permit Coverage<br><b>Section C</b>                           | 6 months after WDRs Adoption               |  |  |  |
| Reporting Program<br><b>Section G</b>   | 6 months after WDRs Adoption <sup>1</sup>  |  |  |  |
| SSMP Development Plan and Schedule<br><b>No specific Section</b>              | 9 months after WDRs Adoption <sup>2</sup>  | 12 months after WDRs Adoption <sup>2</sup> | 15 months after WDRs Adoption <sup>2</sup> | 18 months after WDRs Adoption <sup>2</sup> |
| Goals and Organization Structure<br><b>Section D 13 (i) &amp; (ii)</b>        | 12 months after WDRs Adoption <sup>2</sup> |  | 18 months after WDRs Adoption <sup>2</sup> |  |
| Overflow Emergency Response Program<br><b>Section D 13 (vi)</b>               | 24 months after WDRs Adoption <sup>2</sup> | 30 months after WDRs Adoption <sup>2</sup> | 36 months after WDRs Adoption <sup>2</sup> | 39 months after WDRs Adoption <sup>2</sup> |
| Legal Authority<br><b>Section D 13 (iii)</b>                                  |  |  |  |  |
| Operation and Maintenance Program<br><b>Section D 13 (iv)</b>                 |  |  |  |  |
| Grease Control Program<br><b>Section D 13 (vii)</b>                           | 36 months after WDRs Adoption              | 39 months after WDRs Adoption              | 48 months after WDRs Adoption              | 51 months after WDRs Adoption              |
| Design and Performance<br><b>Section D 13 (v)</b>                             |  |  |  |  |
| System Evaluation and Capacity Assurance Plan<br><b>Section D 13 (viii)</b>   |  |  |  |  |
| Final SSMP, incorporating all of the SSMP requirements<br><b>Section D 13</b> |  |  |  |  |

1. In the event that by July 1, 2006 the Executive Director is able to execute a memorandum of agreement (MOA) with the California Water Environment Association (CWEA) or discharger representatives outlining a strategy and time schedule for CWEA or another entity to provide statewide training on the adopted monitoring program, SSO database electronic reporting, and SSMP development, consistent with this Order, then the schedule of Reporting Program Section G shall be replaced with the following schedule:

|                                       |                               |
|---------------------------------------|-------------------------------|
| Reporting Program<br><b>Section G</b> |                               |
| Regional Boards 4, 8,<br>and 9        | 8 months after WDRs Adoption  |
| Regional Boards 1, 2,<br>and 3        | 12 months after WDRs Adoption |
| Regional Boards 5, 6,<br>and 7        | 16 months after WDRs Adoption |

If this MOU is not executed by July 1, 2006, the reporting program time schedule will remain six (6) months for all regions and agency size categories.

2. In the event that the Executive Director executes the MOA identified in note 1 by July 1, 2006, then the deadline for this task shall be extended by six (6) months. The time schedule identified in the MOA must be consistent with the extended time schedule provided by this note. If the MOA is not executed by July 1, 2006, the six (6) month time extension will not be granted.

#### **E. WDRs and SSMP AVAILABILITY**

1. A copy of the general WDRs and the certified SSMP shall be maintained at appropriate locations (such as the Enrollee's offices, facilities, and/or Internet homepage) and shall be available to sanitary sewer system operating and maintenance personnel at all times.

#### **F. ENTRY AND INSPECTION**

1. The Enrollee shall allow the State or Regional Water Boards or their authorized representative, upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the Enrollee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

## **G. GENERAL MONITORING AND REPORTING REQUIREMENTS**

1. The Enrollee shall furnish to the State or Regional Water Board, within a reasonable time, any information that the State or Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Enrollee shall also furnish to the Executive Director of the State Water Board or Executive Officer of the applicable Regional Water Board, upon request, copies of records required to be kept by this Order.
2. The Enrollee shall comply with the attached Monitoring and Reporting Program No. 2006-0003 and future revisions thereto, as specified by the Executive Director. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 2006-0003. Unless superseded by a specific enforcement Order for a specific Enrollee, these reporting requirements are intended to replace other mandatory routine written reports associated with SSOs.
3. All Enrollees must obtain SSO Database accounts and receive a "Username" and "Password" by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within 30days of receiving an account and prior to recording spills into the SSO Database, all Enrollees must complete the "Collection System Questionnaire", which collects pertinent information regarding a Enrollee's collection system. The "Collection System Questionnaire" must be updated at least every 12 months.
4. Pursuant to Health and Safety Code section 5411.5, any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

Any SSO greater than 1,000 gallons discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State shall also be reported to the Office of Emergency Services pursuant to California Water Code section 13271.



#### **H. CHANGE IN OWNERSHIP**

1. This Order is not transferable to any person or party, except after notice to the Executive Director. The Enrollee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new Enrollee containing a specific date for the transfer of this Order's responsibility and coverage between the existing Enrollee and the new Enrollee. This agreement shall include an acknowledgement that the existing Enrollee is liable for violations up to the transfer date and that the new Enrollee is liable from the transfer date forward.

#### **I. INCOMPLETE REPORTS**

1. If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database.

#### **J. REPORT DECLARATION**

1. All applications, reports, or information shall be signed and certified as follows:
  - (i) All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person, as described in paragraph (ii) of this provision. (For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.)
  - (ii) An individual is a duly authorized representative only if:
    - (a) The authorization is made in writing by a person described in paragraph (i) of this provision; and
    - (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

#### **K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS**

1. The California Water Code provides various enforcement options, including civil monetary remedies, for violations of this Order.
2. The California Water Code also provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or

falsifying any information provided in the technical or monitoring reports is subject to civil monetary penalties.

**L. SEVERABILITY**

1. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.
2. This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Enrollee from liability under federal, state or local laws, nor create a vested right for the Enrollee to continue the waste discharge.

**CERTIFICATION**

The undersigned Clerk to the State Water Board does hereby certify that the foregoing is a full, true, and correct copy of general WDRs duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 2, 2006.

AYE: Tam M. Doduc  
Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None



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Song Her  
Clerk to the Board



STATE OF CALIFORNIA  
WATER RESOURCES CONTROL BOARD  
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM  
FOR  
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR  
SANITARY SEWER SYSTEMS

The State of California, Water Resources Control Board (hereafter State Water Board) finds:

1. The State Water Board is authorized to prescribe statewide general Waste Discharge Requirements (WDRs) for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code section 13263(i).
2. Water Code section 13193 *et seq.* requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) to gather Sanitary Sewer Overflow (SSO) information and make this information available to the public, including but not limited to, SSO cause, estimated volume, location, date, time, duration, whether or not the SSO reached or may have reached waters of the state, response and corrective action taken, and an enrollee's contact information for each SSO event. An enrollee is defined as the public entity having legal authority over the operation and maintenance of, or capital improvements to, a sanitary sewer system greater than one mile in length.
3. Water Code section 13271, *et seq.* requires notification to the California Office of Emergency Services (Cal OES), formerly the California Emergency Management Agency, for certain unauthorized discharges, including SSOs.
4. On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ, "Statewide Waste Discharge Requirements for Sanitary Sewer Systems"<sup>1</sup> (hereafter SSS WDRs) to comply with Water Code section 13193 and to establish the framework for the statewide SSO Reduction Program.
5. Subsection G.2 of the SSS WDRs and the Monitoring and Reporting Program (MRP) provide that the Executive Director may modify the terms of the MRP at any time.
6. On February 20, 2008, the State Water Board Executive Director adopted a revised MRP for the SSS WDRs to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state.
7. When notified of an SSO that reaches a drainage channel or surface water of the state, Cal OES, pursuant to Water Code section 13271 (a)(3), forwards the SSO notification information<sup>2</sup> to local government agencies and first responders including local public health officials and the applicable Regional Water Board. Receipt of notifications for a single SSO event from both the SSO reporter

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<sup>1</sup> Available for download at:

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2006/wgo/Wgo2006\\_0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wgo/Wgo2006_0003.pdf)

<sup>2</sup> Cal OES Hazardous Materials Spill Reports available Online at:

[http://w3.calema.ca.gov/operational/mal haz.nsf/\\$defaultview](http://w3.calema.ca.gov/operational/mal haz.nsf/$defaultview) and <http://w3.calema.ca.gov/operational/mal haz.nsf>


and Cal OES is duplicative. To address this, the SSO notification requirements added by the February 20, 2008 MRP revision are being removed in this MRP revision.

8. In the February 28, 2008 Memorandum of Agreement between the State Water Board and the California Water and Environment Association (CWEA), the State Water Board committed to re-designing the CIWQS<sup>3</sup> Online SSO Database to allow "event" based SSO reporting versus the original "allocation" based reporting. Revisions to this MRP and accompanying changes to the CIWQS Online SSO Database will implement this change by allowing for multiple SSO appearance points to be associated with each SSO event caused by a single asset failure.
9. Based on stakeholder input and Water Board staff experience implementing the SSO Reduction Program, SSO categories have been revised in this MRP. In the prior version of the MRP, SSOs have been categorized as Category 1 or Category 2. This MRP implements changes to SSO categories by adding a Category 3 SSO type. This change will improve data management to further assist Water Board staff with evaluation of high threat and low threat SSOs by placing them in unique categories (i.e., Category 1 and Category 3, respectively). This change will also assist enrollees in identifying SSOs that require Cal OES notification.
10. Based on over six years of implementation of the SSS WDRs, the State Water Board concludes that the February 20, 2008 MRP must be updated to better advance the SSO Reduction Program<sup>4</sup> objectives, assess compliance, and enforce the requirements of the SSS WDRs.

**IT IS HEREBY ORDERED THAT:**

Pursuant to the authority delegated by Water Code section 13267(f), Resolution 2002-0104, and Order 2006-0003-DWQ, the MRP for the SSS WDRs (Order 2006-0003-DWQ) is hereby amended as shown in Attachment A and shall be effective on September 9, 2013.

\_\_\_\_\_ 25/C/11  
Date

\_\_\_\_\_  
  
Thomas Howard  
Executive Director

<sup>3</sup> California Integrated Water Quality System (CIWQS) publicly available at <http://www.waterboards.ca.gov/ciwqs/publicreports.shtml>

<sup>4</sup> Statewide Sanitary Sewer Overflow Reduction Program information is available at: [http://www.waterboards.ca.gov/water\\_issues/programs/ssol/](http://www.waterboards.ca.gov/water_issues/programs/ssol/)



## ATTACHMENT A

### STATE WATER RESOURCES CONTROL BOARD ORDER NO. WQ 2013-0058-EXEC

#### AMENDING MONITORING AND REPORTING PROGRAM FOR STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to \$5,000 a day per violation pursuant to Water Code section 13350; up to \$1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

#### A. SUMMARY OF MRP REQUIREMENTS

Table 1 – Spill Categories and Definitions

| CATEGORIES                              | DEFINITIONS [see Section A on page 5 of Order 2006-0003-DWQ, for Sanitary Sewer Overflow (SSO) definition]  |
|---|---|
| CATEGORY 1                              | Discharges of untreated or partially treated wastewater of <b>any volume</b> resulting from an enrollee's sanitary sewer system failure or flow condition that: <ul style="list-style-type: none"><li>Reach surface water and/or reach a drainage channel tributary to a surface water; or</li><li>Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).</li></ul> |
| CATEGORY 2                              | Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b>do not</b> reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.  |
| CATEGORY 3                              | All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.   |
| PRIVATE LATERAL SEWAGE DISCHARGE (PLSD) | Discharges of untreated or partially treated wastewater resulting from blockages or other problems <b>within a privately owned sewer lateral</b> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <b>voluntarily</b> reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.   |

**Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements**

| ELEMENT   | REQUIREMENT   | METHOD  |
|---|---|---|
| <b>NOTIFICATION</b><br>(see section B of MRP)             | <ul style="list-style-type: none"> <li>• Within two hours of becoming aware of any Category 1 SSO <b>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</b>, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.</li> </ul>   | Call Cal OES at:<br><b>(800) 852-7550</b>   |
| <b>REPORTING</b><br>(see section C of MRP)                | <ul style="list-style-type: none"> <li>• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.</li> <li>• Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred.</li> <li>• SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.</li> <li>• “No Spill” Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.</li> <li>• Collection System Questionnaire: Update and certify every 12 months.</li> </ul> | Enter data into the CIWQS Online SSO Database ( <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a> ), certified by enrollee’s Legally Responsible Official(s). |
| <b>WATER QUALITY MONITORING</b><br>(see section D of MRP) | <ul style="list-style-type: none"> <li>• Conduct water quality sampling <b>within 48 hours</b> after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.</li> </ul>  | Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.  |
| <b>RECORD KEEPING</b><br>(see section E of MRP)           | <ul style="list-style-type: none"> <li>• SSO event records.</li> <li>• Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.</li> <li>• Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.</li> <li>• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.</li> </ul>  | Self-maintained records shall be available during inspections or upon request.  |

## **B. NOTIFICATION REQUIREMENTS**

Although Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) staff do not have duties as first responders, this MRP is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES and obtain a notification control number.
2. To satisfy notification requirements for each applicable SSO, the enrollee shall provide the information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:
  - i. Name of person notifying Cal OES and direct return phone number.
  - ii. Estimated SSO volume discharged (gallons).
  - iii. If ongoing, estimated SSO discharge rate (gallons per minute).
  - iv. SSO Incident Description:
    - a. Brief narrative.
    - b. On-scene point of contact for additional information (name and cell phone number).
    - c. Date and time enrollee became aware of the SSO.
    - d. Name of sanitary sewer system agency causing the SSO.
    - e. SSO cause (if known).
  - v. Indication of whether the SSO has been contained.
  - vi. Indication of whether surface water is impacted.
  - vii. Name of surface water impacted by the SSO, if applicable.
  - viii. Indication of whether a drinking water supply is or may be impacted by the SSO.
  - ix. Any other known SSO impacts.
  - x. SSO incident location (address, city, state, and zip code).
3. Following the initial notification to Cal OES and until such time that an enrollee certifies the SSO report in the CIWQS Online SSO Database, the enrollee shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).
4. PLSDs: The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

### C. **REPORTING REQUIREMENTS**

1. **CIWQS Online SSO Database Account:** All enrollees shall obtain a CIWQS Online SSO Database account and receive a “Username” and “Password” by registering through CIWQS. These accounts allow controlled and secure entry into the CIWQS Online SSO Database.
2. **SSO Mandatory Reporting Information:** For reporting purposes, if one SSO event results in multiple appearance points in a sewer system asset, the enrollee shall complete one SSO report in the CIWQS Online SSO Database which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.
3. **SSO Categories**
  - i. **Category 1** – Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee’s sanitary sewer system failure or flow condition that:
    - a. Reach surface water and/or reach a drainage channel tributary to a surface water; or
    - b. Reach a MS4 and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
  - ii. **Category 2** – Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee’s sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.
  - iii. **Category 3** – All other discharges of untreated or partially treated wastewater resulting from an enrollee’s sanitary sewer system failure or flow condition.
4. **Sanitary Sewer Overflow Reporting to CIWQS - Timeframes**
  - i. **Category 1 and Category 2 SSOs** – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:
    - a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within three (3) business days of the enrollee becoming aware of the SSO. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 8.i.a. below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 8.i.c below.
    - b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 8.i.b below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 8.i.d below.

- ii. **Category 3 SSOs** – All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section 8.i.e below.
- iii. **“No Spill” Certification** – If there are no SSOs during the calendar month, the enrollee shall either 1) certify, within 30 calendar days after the end of each calendar month, a “No Spill” certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, “No Spill” certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 - April/May/June, Q3 - July/August/September, and Q4 - October/November/December.  
  
If there are no SSOs during a calendar month but the enrollee reported a PLSD, the enrollee shall still certify a “No Spill” certification statement for that month.
- iv. **Amended SSO Reports** – The enrollee may update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be amended up to 120 days after the effective date of this MRP. After 120 days, the enrollee may contact the SSO Program Manager to request to amend an SSO report if the enrollee also submits justification for why the additional information was not available prior to the end of the 120 days.

## 5. **SSO Technical Report**

The enrollee shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

- i. **Causes and Circumstances of the SSO:**
  - a. Complete and detailed explanation of how and when the SSO was discovered.
  - b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).
  - c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
  - d. Detailed description of the cause(s) of the SSO.
  - e. Copies of original field crew records used to document the SSO.
  - f. Historical maintenance records for the failure location.
- ii. **Enrollee’s Response to SSO:**
  - a. Chronological narrative description of all actions taken by enrollee to terminate the spill.
  - b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.



- c. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

iii. **Water Quality Monitoring:**

- a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
- b. Detailed location map illustrating all water quality sampling points.

6. **PLSDs**

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

- i. The enrollee is also encouraged to provide notification to Cal OES per section B above when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the enrollee is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified above and required by State law.
- ii. If a PLSD is recorded in the CIWQS Online SSO Database, the enrollee must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party (other than the enrollee), if known. Certification of PLSD reports by enrollees is not required.

7. **CIWQS Online SSO Database Unavailability**

In the event that the CIWQS Online SSO Database is not available, the enrollee must fax or e-mail all required information to the appropriate Regional Water Board office in accordance with the time schedules identified herein. In such event, the enrollee must also enter all required information into the CIWQS Online SSO Database when the database becomes available.

8. **Mandatory Information to be Included in CIWQS Online SSO Reporting**

All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS which can be reached at [CIWQS@waterboards.ca.gov](mailto:CIWQS@waterboards.ca.gov) or by calling (866) 792-4977, M-F, 8 A.M. to 5 P.M. These accounts will allow controlled and secure entry into the CIWQS Online SSO Database. Additionally, within thirty (30) days of initial enrollment and prior to recording SSOs into the CIWQS Online SSO Database, all enrollees must complete a Collection System Questionnaire (Questionnaire). The Questionnaire shall be updated at least once every 12 months.

i. **SSO Reports**

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report for each category of SSO:

- a. **Draft Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 1 SSO report:
1. SSO Contact Information: Name and telephone number of enrollee contact person who can answer specific questions about the SSO being reported.
  2. SSO Location Name.
  3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
  4. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
  5. Whether or not the SSO reached a municipal separate storm drain system.
  6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
  7. Estimate of the SSO volume, inclusive of all discharge point(s).
  8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
  9. Estimate of the SSO volume recovered (if applicable).
  10. Number of SSO appearance point(s).
  11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
  12. SSO start date and time.
  13. Date and time the enrollee was notified of, or self-discovered, the SSO.
  14. Estimated operator arrival time.
  15. For spills greater than or equal to 1,000 gallons, the date and time Cal OES was called.
  16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.
- b. **Certified Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 8.i.a :
1. Description of SSO destination(s).
  2. SSO end date and time.
  3. SSO causes (mainline blockage, roots, etc.).
  4. SSO failure point (main, lateral, etc.).
  5. Whether or not the spill was associated with a storm event.
  6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
  7. Description of spill response activities.
  8. Spill response completion date.
  9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.

10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
  11. Whether or not health warnings were posted as a result of the SSO.
  12. Name of beach(es) closed and/or impacted. If no beach was impacted, NA shall be selected.
  13. Name of surface water(s) impacted.
  14. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
  15. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
  16. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
  17. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.
- c. **Draft Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 2 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO.
- d. **Certified Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 2 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-9, and 17 in section 8.i.b above for Certified Category 1 SSO.
- e. **Certified Category 3 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 3 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-5, and 17 in section 8.i.b above for Certified Category 1 SSO.

ii. **Reporting SSOs to Other Regulatory Agencies**

These reporting requirements do not preclude an enrollee from reporting SSOs to other regulatory agencies pursuant to state law. In addition, these reporting requirements do not replace other Regional Water Board notification and reporting requirements for SSOs.

iii. **Collection System Questionnaire**

The required Questionnaire (see subsection G of the SSS WDRs) provides the Water Boards with site-specific information related to the enrollee's sanitary sewer system. The enrollee shall complete and certify the Questionnaire at least every 12 months to facilitate program implementation, compliance assessment, and enforcement response.

iv. **SSMP Availability**

The enrollee shall provide the publicly available internet web site address to the CIWQS Online SSO Database where a downloadable copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP is posted. If all of the SSMP documentation listed in this subsection is not publicly available on the Internet, the enrollee shall comply with the following procedure:

- a. Submit an **electronic** copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP to the State Water Board, within 30 days of that approval and within 30 days of any subsequent SSMP re-certifications, to the following mailing address:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
1001 I Street, 15<sup>th</sup> Floor, Sacramento, CA 95814

**D. WATER QUALITY MONITORING REQUIREMENTS:**

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO 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 SSO 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 48 hours of the enrollee becoming aware of the SSO, 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.

**E. RECORD KEEPING REQUIREMENTS:**

The following records shall be maintained by the enrollee for a minimum of five (5) years and shall be made available for review by the Water Boards during an onsite inspection or through an information request:

1. General Records: The enrollee shall maintain records to document compliance with all provisions of the SSS WDRs and this MRP for each sanitary sewer system owned including any required records generated by an enrollee's sanitary sewer system contractor(s).
2. SSO Records: The enrollee shall maintain records for each SSO event, including but not limited to:
  - i. Complaint records documenting how the enrollee responded to all notifications of possible or actual SSOs, both during and after business hours, including complaints that do not

result in SSOs. Each complaint record shall, at a minimum, include the following information:

- a. Date, time, and method of notification.
  - b. Date and time the complainant or informant first noticed the SSO.
  - c. Narrative description of the complaint, including any information the caller can provide regarding whether or not the complainant or informant reporting the potential SSO knows if the SSO has reached surface waters, drainage channels or storm drains.
  - d. Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously.
  - e. Final resolution of the complaint.
- ii. Records documenting steps and/or remedial actions undertaken by enrollee, using all available information, to comply with section D.7 of the SSS WDRs.
  - iii. Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated.
3. Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.
  4. Electronic monitoring records relied upon for documenting SSO events and/or estimating the SSO volume discharged, including, but not limited to records from:
    - i. Supervisory Control and Data Acquisition (SCADA) systems
    - ii. Alarm system(s)
    - iii. Flow monitoring device(s) or other instrument(s) used to estimate wastewater levels, flow rates and/or volumes.

## **F. CERTIFICATION**

1. All information required to be reported into the CIWQS Online SSO Database shall be certified by a person designated as described in subsection J of the SSS WDRs. This designated person is also known as a Legally Responsible Official (LRO). An enrollee may have more than one LRO.
2. Any designated person (i.e. an LRO) shall be registered with the State Water Board to certify reports in accordance with the CIWQS protocols for reporting.
3. Data Submitter (DS): Any enrollee employee or contractor may enter draft data into the CIWQS Online SSO Database on behalf of the enrollee if authorized by the LRO and registered with the State Water Board. However, only LROs may certify reports in CIWQS.
4. The enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO or DS (e.g., retired staff), including deactivation or a change to the LRO's or DS's contact information, shall be submitted by the enrollee to the State Water Board within 30 days of the change by calling (866) 792-4977 or e-mailing [help@ciwqs.waterboards.ca.gov](mailto:help@ciwqs.waterboards.ca.gov).



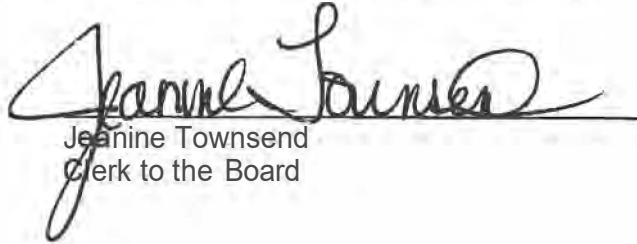
5. A registered designated person (i.e., an LRO) shall certify all required reports under penalty of perjury laws of the state as stated in the CIWQS Online SSO Database at the time of certification.

### CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order amended by the Executive Director of the State Water Resources Control Board.

7/30/13

Date



Jeanine Townsend  
Clerk to the Board



# 2019 Organizational Structure

Figure 1 presents the District’s current organizational structure. The roles and responsibilities are described in Table 1. The District’s organizational chart identifies District staff positions responsible for implementing, managing, and updating the SSMP. The organization structure chart is updated as necessary.

The SSO Emergency Response Plan (Appendix P) includes the chain of communication for responding to and reporting SSOs.

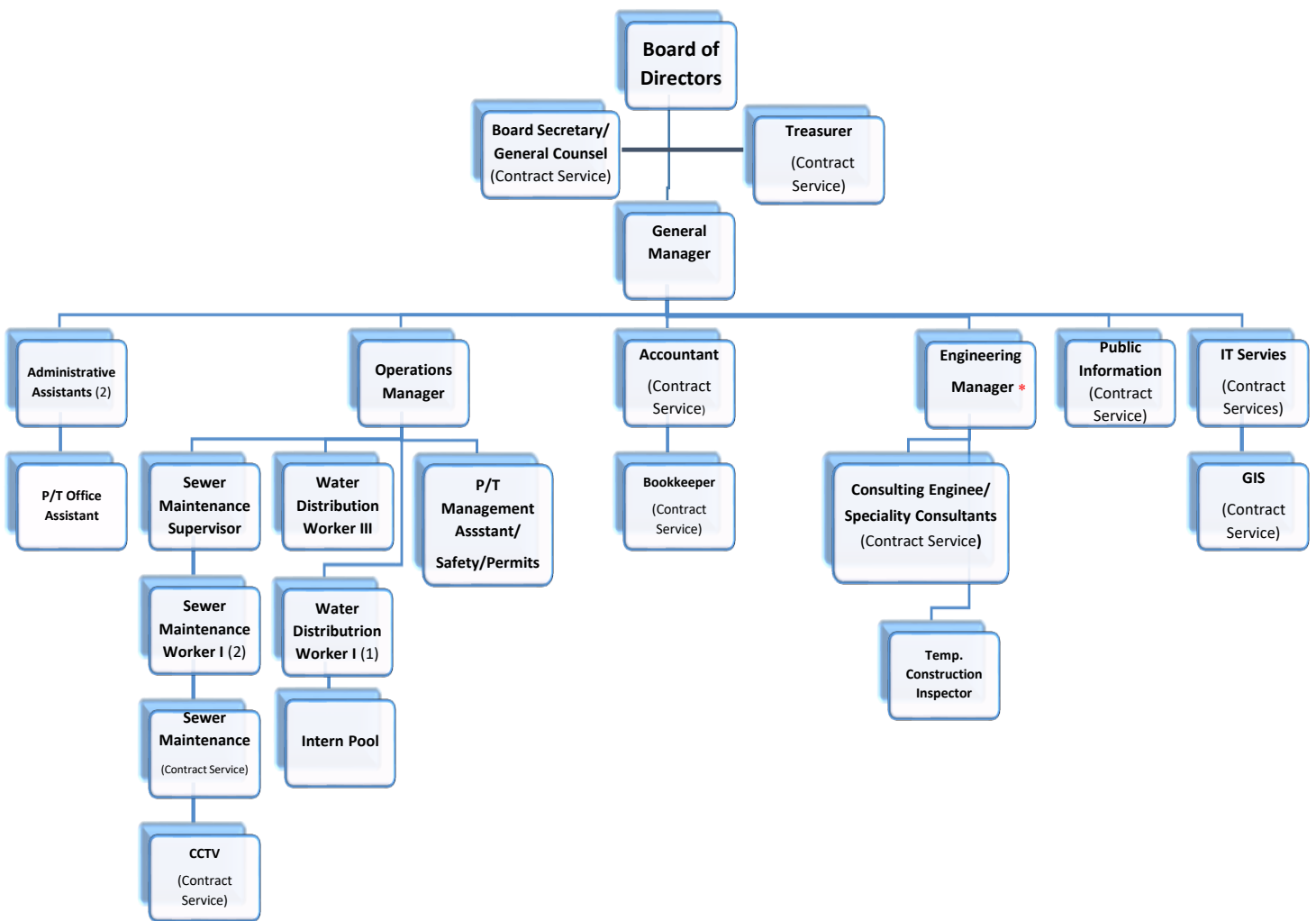


Figure 1. EOCWD 2019 Organizational Structure

\* District Engineer

TABLE 1-District SSMP ORGANIZATIONAL ROLES AND RESPONSIBILITIES

| Roles and Responsibilities   |
|--|
| <b><u>Board of Directors:</u></b> Establishes policy.  |
| <b><u>General Manager:</u></b> Plans, organizes and directs the overall administrative activities and operations of the District. Advises and assists the Board, represents the District's interest with other governmental agencies, business interests, and the community.   |
| <b><u>General Counsel/Board Secretary:</u></b> Provides legal guidance and support for District Board of Directors, management and operation; also provides District Secretary services.   |
| <b><u>Operations Manager:</u></b> Provides direct oversight of the utility operations to ensure compliance with local, state and federal laws and regulations.   |
| <b><u>District Engineer:</u></b> Plans, coordinates, supervises, and participates in the performance of professional engineering activities of a complex nature involving engineering planning and design, construction project  |
| <b><u>Finance Director/Treasurer:</u></b> Plans, organizes and directs all financial aspects of District operations. Prepares operating and capital budgets, including financing plans for capital projects and monthly financial statements.  |
| <b><u>Administrative Assistants:</u></b> Perform general and technical office work in support of District administrative, engineering and operations divisions; oversees records management system.  |
| <b><u>Bookkeeper:</u></b> Assists Finance Director in day-to-day accounting tasks for District. Assists with purchasing and contract management tasks.   |
| <b><u>Collections Supervisor:</u></b> Manages, plans, directs, coordinates, and evaluates all aspects of the operation, maintenance, and construction of the Wastewater Division; coordinates assigned activities with other divisions and departments. Operates CCTV equipment and prepares PACP reports.   |
| <b><u>Collection System Maintenance Field Crew:</u></b> Performs semi-skilled and skilled labor in the construction, maintenance, repair, and inspections of wastewater collection systems. Cleans, unplugs, and repairs wastewater lines. Operates power equipment including hydraulic cleaning truck, sewer rodder, and closed circuit television system.  |
| <b><u>Water Distribution Operators/Stand-by Field Crew:</u></b> Performs semi-skilled and skilled labor in the construction, maintenance, repair, and inspections of water utility systems. Responds to service requests outside of department normal work week hours. Secures site in the event of an overflow, and performs initial mitigation as needed. Operates power equipment including hydraulic cleaning truck, sewer rodder, backhoe, and other heavy equipment. |
| <b><u>Contract Cleaning Crew (Performance Pipe):</u></b> Performs semi-skilled and skilled labor in the maintenance, repair, and inspections of wastewater collection systems. Cleans, unplugs, and repairs wastewater lines. Operates power equipment including hydraulic cleaning truck, sewer rodder, and closed circuit television system. Responds to service requests outside of departmental normal work hours and assists with sewer overflows if needed.          |



**ORDINANCE NO. 2016-02**

**AN ORDINANCE OF THE BOARD OF DIRECTORS OF  
EAST ORANGE COUNTY WATER DISTRICT  
ADOPTING FATS, OILS AND GREASE CONTROL  
REGULATIONS APPLICABLE TO FOOD SERVICE  
ESTABLISHMENTS ADOPTING FATS, OILS AND  
GREASE CONTROL REGULATIONS APPLICABLE TO  
FOOD SERVICE ESTABLISHMENTS**

WHEREAS, pursuant to the California Water Code Section 30000 et. seq., the East Orange County Water District ("District") has the authority to adopt ordinances relating to the provision of sewer services and facilities, and regulations of those services and facilities; and

WHEREAS, the Regional Water Quality Control Board ("RWQCB") for the Santa Ana Region adopted Order RB-2002-0014, which prescribes general waste discharge requirements prohibiting sanitary sewer overflows ("SSOs") by sewer collection agencies; and

WHEREAS, in Order RB-2002-0014, the RWQCB found that one of the leading causes of SSOs within the Santa Ana Region, which encompasses the District's service area is "grease blockages;" and

WHEREAS, SSOs often caused by discharge of wastewater containing high levels of fat, oils and grease ("FOG"), suspended solids, pathogenic organisms, and other pollutants, may cause temporary exceedances of applicable water quality objectives, pose a threat to the public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters within the District's service area; and

WHEREAS, General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ requires the District to monitor and control SSOs and to develop a FOG Control Program; and

WHEREAS, the Marcy 26, 2015 Statewide Sanitary Sewer Overflow Reduction Program Annual Compliance Report identifies FOG as one of the primary causes of Sanitary Sewer Overflows in California; and

WHEREAS, in light of the overwhelming evidence that FOG is a primary cause of SSOs, the District desires to implement a FOG Control Program to prevent SSOs; and

WHEREAS, Section 1014 of the 2001 California Plumbing Code, applicable to all occupancies in the State pursuant to the California Building Standards Law, requires the installation of grease traps or interceptors when in the opinion of the Building Official waste pretreatment is required; and

WHEREAS, the foregoing findings indicate that a FOG Control Program is required for Food Service Establishments within the District's jurisdiction to comply with waste discharge regulations and prevent the harmful effects of SSOs; and

WHEREAS, the regulations adopted herein will require existing Food Service Establishments to install grease control devices or interceptors no later than three years from the



effective date of this Ordinance, and the Board finds that three years is a reasonable amortization period for existing Food Service Establishments that are operating without a grease control device or grease interceptor; and

WHEREAS, the Board of Directors finds that specific enforcement provisions must be adopted to govern discharges of wastewater to the District's system by Food Service Establishments.

**NOW, THEREFORE,** the Board of Directors does hereby ordain as follows:

## ARTICLE 1 - GENERAL PROVISIONS

### 1.1 PURPOSE AND POLICY

- A. The purpose of this Ordinance is to facilitate the maximum beneficial public use of the District's sewer services and facilities while preventing blockages of the sewer lines resulting from discharges of FOG to the sewer facilities, and to specify appropriate FOG discharge requirements for Food Service Establishments.
- B. This Ordinance shall be interpreted in accordance with the definitions set forth in Section 1.2. The provisions of this Ordinance shall apply to the direct or indirect discharge of all wastewater or waste containing FOG carried to the sewer facilities of the District.
- C. To comply with Federal, State, and local policies and to allow the District to meet applicable standards, provisions are made in this Ordinance for the regulations of wastewater or waste containing FOG discharges to the sewer facilities.
- D. This Ordinance establishes quantity and quality standards on all wastewater and/or waste discharges containing FOG, which may alone or collectively cause or contribute to FOG accumulation in the sewer facilities causing or potentially causing or contributing to the occurrence of SSOs.

### 1.2 DEFINITIONS

- A. Unless otherwise defined herein, terms related to water quality shall be as adopted in the latest edition of Standard Methods for Examination of Water and Wastewater, published by the American Public Health Association, the American Water Works Association and the Water Environment Federation. The testing procedures for waste constituents and characteristics shall be as provided in 40 CFR 136 (Code of Federal Regulations).
- B. Other terms not herein defined are defined as being the same as set forth in the latest adopted applicable editions of the California Codes applicable to building construction adopted pursuant to the California Building Standards Law.
- C. Subject to the foregoing provisions, the following definitions shall apply in this Ordinance:

|                                       |  |
|---------------------------------------|--|
| <b>Best Management Practices</b>      | Schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the introduction of FOG to the sewer facilities.  |
| <b>Board</b>                          | The Board of Directors of the District.  |
| <b>Change in Operations</b>           | Any change in the ownership, food types, or operational procedures that have the potential to increase the amount of FOG generated and/or discharged by Food Service Establishments in an amount that alone or collectively causes or creates a potential for SSOs to occur.                                 |
| <b>Composite Sample</b>               | A collection of individual samples obtained at selected intervals based on an increment of either flow or time. The resulting mixture (composite sample) forms a representative sample of the wastestream discharged during the sample period. Samples will be collected when a wastewater discharge occurs. |
| <b>Discharger</b>                     | Any person who discharges or causes a discharge of wastewater directly or indirectly to a public sewer. Discharger shall mean the same as User.  |
| <b>District</b>                       | The East Orange County Water District.   |
| <b>Sewer Facility or System</b>       | Any property belonging to the District used in the treatment, reclamation, reuse, transportation, or disposal of wastewater, or sludge.  |
| <b>Effluent</b>                       | Any liquid outflow from the Food Service Establishment that is discharged to the sewer.  |
| <b>Fats, Oils, and Grease ("FOG")</b> | Any substance such as a vegetable or animal product that is used in, or is a by-product of, the cooking or food preparation process, and that turns or may turn viscous or solidifies with a change in temperature or other conditions.  |
| <b>FOG Control Program</b>            | The FOG Control Program required by and developed pursuant to General WDR 2006-0003-DWQ, Section (13)(viii).   |

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| <b>FOG Control Program Manager</b>     | The individual designated by the District to administer the FOG Control Program. The FOG Control Program Manager is responsible for all determinations of compliance with the program, including approval of discretionary variances and waivers.   |
| <b>FOG Wastewater Discharge Permit</b> | A permit issued by the District subject to the requirements and conditions established by the District authorizing the permittee or discharger to discharge wastewater into the District's facilities or into sewer facilities which ultimately discharge into a District facility.   |
| <b>Food Service Establishment</b>      | Facilities defined in California Uniform Retail Food Service Establishments Law (CURFFL) Section 113785, and any commercial entity within the boundaries of the District, operating in a permanently constructed structure such as a room, building, or place, or portion thereof, maintained, used, or operated for the purpose of storing, preparing, serving, or manufacturing, packaging, or otherwise handling food for sale to other entities, or for consumption by the public, its members or employees, and which has any process or device that uses or produces FOG, or grease vapors, steam, fumes, smoke or odors that are required to be removed by a Type I or Type II hood, as defined in CURFFL Section 113785. A limited food preparation establishment is not considered a Food Service Establishment when engaged only in reheating, hot holding or assembly of ready to eat food products and as a result, there is no wastewater discharge containing a significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food. |
| <b>Food Grinder</b>                    | Any device installed in the plumbing or sewage system for the purpose of grinding food waste or food preparation by products for the purpose of disposing it in the sewer system.   |
| <b>Grease Control Device</b>           | Any grease interceptor, grease trap or other mechanism, device, or process, which attaches to, or is applied to, wastewater plumbing fixtures and lines, the purpose of which is to trap or collect or treat FOG prior to it being discharged into the sewer system. "Grease control device" may also include any other proven method to reduce FOG subject to the approval of the District.  |

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|---------------------------------------|--|
| <b>Grease Disposal Mitigation Fee</b> | A fee charged to an Owner/Operator of a Food Service Establishment when there are physical limitations to the property that make the installation of the usual and customary grease interceptor or grease control device for the Food Service Establishment under consideration, impossible or impracticable. The Grease Disposal Mitigation Fee is intended to cover the costs of increased maintenance of the sewer system for inspection and cleaning of FOG and other viscous or solidifying agents that a properly employed grease control device would otherwise prevent from entering the sewer system. |
| <b>Grease Interceptor</b>             | A multi-compartment device that is constructed in different sizes and is generally required to be located, according to the California Plumbing Code, underground between a Food Service Establishment and the connection to the sewer system. These devices primarily use gravity to separate FOG from the wastewater as it moves from one compartment to the next. These devices must be cleaned, maintained, and have the FOG removed and disposed of in a proper manner on regular intervals to be effective.  |
| <b>Grease Trap</b>                    | A grease control device that is used to serve individual fixtures and have limited effect and should only be used in those cases where the use of a grease interceptor or other grease control device is determined to be impossible or impracticable.   |
| <b>General Manager</b>                | The individual duly designated by the Board of Directors of the District to administer this Ordinance.   |
| <b>Grab Sample</b>                    | A sample taken from a waste stream on a one-time basis without regard to the flow in the waste stream and without consideration of time.   |
| <b>Hot Spots</b>                      | Areas in sewer lines that have experienced sanitary sewer overflows or that must be cleaned or maintained frequently to avoid blockages of sewer system.   |
| <b>Inflow</b>                         | Water entering a sewer system through a direct stormwater/ runoff connection to the sanitary sewer, which may cause an almost immediate increase in wastewater flows.  |
| <b>Infiltration</b>                   | Water entering a sewer system, including sewer service connections, from the ground through such means as defective pipes, pipe joints, connections, or manhole walls.   |

|                              |   |
|------------------------------|---|
| <b>Inspector</b>             | A person authorized by the District to inspect any existing or proposed wastewater generation, conveyance, processing, and disposal facilities.   |
| <b>Interceptor</b>           | A grease interceptor.   |
| <b>Interference</b>          | Any discharge which, alone or in conjunction with discharges from other sources, inhibits or disrupts the District's sewer system, treatment processes or operations; or is a cause of violation of the District's NPDES or Waste Discharge Requirements or prevents lawful sludge use or disposal. |
| <b>Local Sewering Agency</b> | Any public agency or private entity responsible for the collection and disposal of wastewater to the District's sewer facilities duly authorized under the laws of the State of California to construct and/or maintain public sewers.  |
| <b>NPDES</b>                 | The National Pollutant Discharge Elimination System; the permit issued to control the discharge of liquids or other substances or solids to surface waters of the United States as detailed in Public Law 92-500, Section 402.  |
| <b>New Construction</b>      | Any structure planned or under construction for which a sewer connection permit has not been issued.  |
| <b>Permittee</b>             | A person who has received a permit to discharge wastewater into the District's sewer facilities subject to the requirements and conditions established by the District.   |
| <b>Person</b>                | Any individual, partnership, firm, association, corporation or public agency, including the State of California and the United States of America.   |
| <b>Public Agency</b>         | The State of California and/or any city, county, special district, other local governmental authority or public body of or within this State.   |
| <b>Public Sewer</b>          | A sewer owned and operated by the District, or other local Public Agency, which is tributary to the District's sewer facilities.  |



|                                   |  |
|-----------------------------------|--|
| <b>Regulatory Agencies</b>        | <p>Regulatory Agencies shall mean those agencies having regulatory jurisdiction over the operations of the District, including, but not limited to:</p> <ul style="list-style-type: none"> <li>a) United States Environmental Protection Agency, Region IX, San Francisco and Washington, DC (EPA).</li> <li>b) California State Water Resources Control Board (SWRCB).</li> <li>c) California Regional Water Quality Control Board, Santa Ana Region (RWQCB).</li> <li>d) South Coast Air Quality Management District (SCAQMD).</li> <li>e) California Department of Health Services (OOHS).</li> </ul>   |
| <b>Remodeling</b>                 | <p>A physical change or operational change causing generation of the amount of FOG that exceed the current amount of FOG discharge to the sewer system by the Food Service Establishment in an amount that alone or collectively causes or create a potential for SSOs to occur; or exceeding a cost of \$50,000 to a Food Service Establishment that requires a building permit, and involves any one or combination of the following: (1) Under slab plumbing in the food processing area, (2) a 30% increase in the net public seating area, (3) a 30% increase in the size of the kitchen area, or (4) any change in the size or type of food preparation equipment.</p> |
| <b>Sample Point</b>               | <p>A location approved by the District, from which wastewater can be collected that is representative in content and consistency of the entire flow of wastewater being sampled.</p>   |
| <b>Sampling Facilities</b>        | <p>Structure(s) provided at the user's expense for the District or user to measure and record wastewater constituent mass, concentrations, collect a representative sample, or provide access to plug or terminate the discharge.</p>  |
| <b>Sewage</b>                     | <p>Wastewater.</p>   |
| <b>Sewer Facilities or System</b> | <p>Any and all facilities used for collecting, conveying, pumping, treating, and disposing of wastewater and sludge.</p>   |

|                                       |  |
|---------------------------------------|--|
| <b>Sewer Lateral</b>                  | A building sewer as defined in the latest edition of the California Plumbing Code. It is the wastewater connection between the building's wastewater facilities and a public sewer system.   |
| <b>Sludge</b>                         | Any solid, semi-solid or liquid decant, subnate or supernate from a manufacturing process, utility service, or pretreatment facility.  |
| <b>Twenty-five percent (25%) Rule</b> | Requirement for grease interceptors to be maintained such that the combined FOG and solids accumulation does not exceed 25% of the design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system. |
| <b>User</b>                           | Any person who discharges or causes a discharge of wastewater directly or indirectly to a public sewer system. User shall mean the same as Discharger.   |
| <b>Waste</b>                          | Sewage and any and all other waste substances, liquid, solid, gaseous or radioactive, associated with human habitation or of human or animal nature, including such wastes placed within containers of whatever nature prior to and for the purpose of disposal.   |
| <b>Manifest</b>                       | That receipt which is retained by the generator of wastes for disposing recyclable wastes or liquid wastes as required by the District.  |
| <b>Waste Minimization Practices</b>   | Plans or programs intended to reduce or eliminate discharges to the sewer system or to conserve water, including, but not limited to, product substitutions, housekeeping practices, inventory control, employee education, and other steps as necessary to minimize wastewater produced.  |
| <b>Wastehauler</b>                    | Any person carrying on or engaging in vehicular transport of waste as part of, or incidental to, any business for that purpose.  |
| <b>Wastewater</b>                     | The liquid and water-carried wastes of the community and all constituents thereof, whether treated or untreated, discharged into or permitted to enter a public sewer.   |

**Wastewater  
Constituents and  
Characteristics**

The individual chemical, physical, bacteriological, and other parameters, including volume and flow rate and such other parameters that serve to define, classify or measure the quality and quantity of wastewater.

- D. Words used in this Ordinance in the singular may include the plural and the plural the singular. Use of masculine shall mean feminine and use of feminine shall mean masculine. Shall is mandatory; may is permissive or discretionary.

## **ARTICLE 2 - GENERAL LIMITATIONS, PROHIBITIONS, AND REQUIREMENTS ON FATS, OILS, AND GREASE ("FOG") DISCHARGES**

### **2.1 FOG DISCHARGE REQUIREMENT**

No Food Service establishment shall discharge or cause to be discharged into the sewer system FOG that exceeds a concentration level adopted by the Board or that may accumulate and/or cause or contribute to blockages in the sewer system or at the sewer system lateral which connects the Food Service Establishment to the sewer system.

### **2.2 PROHIBITIONS**

The following prohibitions shall apply to all Food Service Establishments:

- A. Installation of food grinders in the plumbing system of new constructions of Food Service Establishments shall be prohibited. Furthermore, all food grinders shall be removed from all existing Food Service Establishments within 180 days of the effective date of this Ordinance, except when expressly allowed by the FOG Control Program Manager.
- B. Introduction of any additives into a Food Service Establishment's wastewater system for the purpose of emulsifying FOG or biologically/chemically treating FOG for grease remediation or as a supplement to interceptor maintenance, unless a specific written authorization from the FOG Control Program Manager is obtained.
- C. Disposal of waste cooking oil into drainage pipes is prohibited. All waste cooking oils shall be collected and stored properly in receptacles such as barrels or drums for recycling or other acceptable methods of disposal.
- D. Discharge of wastewater from dishwashers to any grease trap or grease interceptor is prohibited.
- E. Discharge of wastewater with temperatures in excess of 140°F to any grease control device, including grease traps and grease interceptors, is prohibited.
- F. Discharge of wastes from toilets, urinals, wash basins, and other fixtures containing fecal materials to sewer lines intended for grease interceptor service, or vice versa, is prohibited.
- G. Discharge of any waste including FOG and solid materials removed from the grease control device to the sewer system is prohibited. Grease removed from grease interceptors shall be wastehauled periodically as part of the operation and maintenance requirements for grease interceptors.

- H. Operation of grease interceptors with FOG and solids accumulation exceeding 25% of the design hydraulic depth of the grease interceptor (25% Rule)

### **2.3 FOG WASTEWATER DISCHARGE PERMIT REQUIRED**

No person shall discharge, or cause to be discharged any wastewater from Food Service Establishments directly or indirectly into the sewer system without first obtaining a FOG Wastewater Discharge Permit pursuant to this Ordinance.

### **2.4 BEST MANAGEMENT PRACTICES REQUIRED**

All Food Services Establishments shall implement Best Management Practices in its operation to minimize the discharge of FOG to the sewer system. Detailed requirements for Best Management Practices shall be specified in the permit. This may include kitchen practices and employee training that are essential in minimizing FOG discharge.

### **2.5 FOG PRETREATMENT REQUIRED**

Food Service Establishments are required to install, operate and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of this Ordinance, subject to the variance and waiver provisions of Section 2.6. The grease interceptor shall be adequate to separate and remove FOG contained in wastewater discharges from Food Service Establishments prior to discharge to the sewer system. Fixtures, equipment, and drain lines located in the food preparation and clean up areas of Food Service Establishments that are sources of FOG discharges shall be connected to the grease interceptor. Compliance shall be established as follows:

#### **A. New Construction of Food Service Establishments**

New construction of Food Service Establishments shall include and install grease interceptors prior to commencing discharges of wastewater to the sewer system.

#### **B. Existing Food Service Establishments**

1. For existing Food Service Establishments, the requirement to install and to properly operate and maintain a grease interceptor may be conditionally stayed, that is, delayed in its implementation by the FOG Control Program Manager for a maximum period of three years from the effective date of this Ordinance (3-year Amortization Period). Terms and conditions for application of a stay to a Food Service Establishment shall be set forth in the permit. The Board finds that three years is a reasonable amortization period for existing Food Service Establishments that are operating without a grease interceptor.

2. Existing Food Service Establishments, which have caused or contributed to grease-related blockage in the sewer system, or which have sewer laterals connected to hot spots, or which have been determined to contribute significant FOG to the sewer system by the FOG Control Program Manager based on inspection or sampling, shall be deemed to have reasonable potential to adversely impact the sewer system, and shall install grease interceptors within 180 days upon notification by the District.
3. Existing Food Service Establishments or Food Service Establishments that change ownership, that undergo remodeling or a change in operations as defined in Section 1.2 of this Ordinance, shall be required to install a grease interceptor.

## 2.6 VARIANCE AND WAIVER OF GREASE INTERCEPTOR REQUIREMENT

### A. Variance from Grease Interceptor Requirements

An existing Food Service Establishment may obtain a variance from the grease interceptor requirement to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of a grease interceptor, if the Food Service Establishment demonstrates that it is impossible or impracticable to install, operate or maintain a grease interceptor. The FOG Control Program Manager's determination to grant a variance will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.
2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease interceptor and/or between the grease interceptor and the private collection lines or the public sewer.
3. The Food Service Establishment can justify that the alternative pretreatment technology is equivalent or better than a grease interceptor in controlling its FOG discharge. In addition, the Food Service Establishment must be able to demonstrate, after installation of the proposed alternative pretreatment, its effectiveness to control FOG discharge through downstream visual monitoring of the sewer system, for at least three months, at its own expense. A Variance may be granted if the results show no visible accumulation of FOG in its lateral and/or tributary downstream sewer lines.

### B. Conditional Waiver from Installation of Grease Interceptor

An existing Food Service Establishment may obtain a conditional waiver from installation of a grease interceptor, if the Food Service



Establishment demonstrates that it has negligible FOG discharge and insignificant impact to the sewer system. Although a waiver from installation of grease interceptor may be granted, the Food Service Establishment may be required to provide space and plumbing segregation for future installation of grease interceptor. The FOG Control Program Manager's determination to grant or revoke a conditional waiver shall be based upon, but not limited to, evaluation of the following conditions:

1. Quantity of FOG discharge as measured or as indicated by the size of Food Service Establishment based on seating capacity, number of meals served, menu, water usage, amount of on-site consumption of prepared food and other conditions that may reasonably be shown to contribute to FOG discharges.
2. Adequacy of implementation of Best Management Practices and compliance history.
3. Sewer size, grade, condition based on visual information, FOG deposition in the sewer by the Food Service Establishment, and history of maintenance and sewage spills in the receiving sewer system.
4. Changes in operations that significantly affect FOG discharge.
5. Any other condition deemed reasonably related to the generation of FOG discharges by the FOG Control Program Manager.

C. Waiver from Grease Interceptor Installation with a Grease Disposal Mitigation Fee

For Food Service Establishments where the installation of grease interceptor is not feasible and no equivalent alternative pretreatment can be installed, a waiver from the grease interceptor requirement may be granted with the imposition of a Grease Disposal Mitigation Fee as described in Section 2.8. Additional requirements may be imposed to mitigate the discharge of FOG into the sewer system. The FOG Control Program Manager's determination to grant the waiver with a Grease Disposal Mitigation Fee will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.
2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease interceptor and/or between the grease interceptor and the private collection lines or the public sewer.
3. A variance from grease interceptor installation to allow alternative pretreatment technology cannot be granted.

D. Application for Waiver or Variance of Requirement for Grease Interceptor

A Food Service Establishment may submit an application for waiver or variance from the grease interceptor requirement to the FOG Control Program Manager. The Food Service Establishment bears the burden of demonstrating, to the FOG Control Program Manager's reasonable satisfaction, that the installation of a grease interceptor is not feasible or applicable. Upon determination by the FOG Control Program Manager that reasons are sufficient to justify a variance or waiver, the permit will be issued or revised to include the variance or waiver and relieve the Food Service Establishment from the requirement.

E. Terms and conditions

A variance or waiver shall contain terms and conditions that serve as basis for its issuance. A waiver or variance may be revoked at any time when any of the terms and conditions for its issuance is not satisfied or if the conditions upon which the waiver was based change so that the justification for the waiver no longer exists. The waiver or variance shall be valid so long as the Food Service Establishment remains in compliance with their terms and conditions until the expiration date specified in the variance or waiver.

2.7 **COMMERCIAL PROPERTIES**

Property owners of commercial properties or their official designee(s) shall be responsible for the installation and maintenance of the grease interceptor serving multiple Food Service Establishments that are located on a single parcel.

2.8 **GREASE DISPOSAL MITIGATION FEE**

Food Service Establishments that operate without a grease control interceptor may be required to pay an annual Grease Disposal Mitigation Fee to equitably cover the costs of increased maintenance of the sewer system as a result of the Food Service Establishments' inability to adequately remove FOG from its wastewater discharge. This Section shall not be interpreted to allow the new construction of, or existing Food Service Establishments undergoing remodeling or change in operations to operate without an approved grease interceptor unless the District has determined that it is impossible or impracticable to install or operate a grease control interceptor for the subject facility under the provisions of Section 2.6 of this Ordinance.

- A. The Grease Disposal Mitigation Fee shall be established by ordinance or resolution of the Board of Directors, and shall be based on the estimated annual increased cost of maintaining the sewer system for inspection and removal of FOG and other viscous or solidifying agents attributable to the Food Service Establishment resulting from the lack of a grease interceptor or grease control device.

- B. The Grease Disposal Mitigation Fee may be waived or reduced on a no less than an annual basis when the discharger demonstrates to the reasonable satisfaction of the FOG Control Program Manager that they had used best management and waste minimization practices on a regular basis that has significantly reduced the introduction of FOG into the sewer system.
- C. The Grease Disposal Mitigation Fee may not be waived or reduced when the Food Service Establishment does not comply with the minimum requirements of this Ordinance and/or its discharge into the sewer system in the preceding 12 months has caused or potentially caused or contributed alone or collectively, in sewer blockage or SSO in the sewer downstream, or surrounding the Food Service Establishment prior to the waiver request.

2.9 **SEWER SYSTEM OVERFLOWS, PUBLIC NUISANCE, ABATEMENT ORDERS AND CLEANUP COSTS**

Notwithstanding the three-year amortization period established in Section 2.5, Food Service Establishments found to have contributed to a sewer blockage, SSOs or any sewer system interferences resulting from the discharge of wastewater or waste containing FOG, shall be ordered to install and maintain a grease interceptor, and may be subject to a plan to abate the nuisance and prevent any future health hazards created by sewer line failures and blockages, SSOs or any other sewer system interferences. SSOs may cause threat and injury to public health, safety, and welfare of life and property and are hereby declared public nuisances. Furthermore, sewer lateral failures and SSOs caused by Food Service Establishments alone or collectively, are the responsibility of the private property owner or Food Service Establishment, and individual(s) as a responsible officer or owner of the Food Service Establishment. If the District must act immediately to contain and clean up an SSO caused by blockage of a private or public sewer lateral or system serving a Food Service Establishment, or at the request of the property owner or operator of the Food Service Establishment, or because of the failure of the property owner or Food Service Establishment to abate the condition causing immediate threat of injury to the health, safety, welfare, or property of the public, the District's costs for such abatement may be entirely borne by the property owner or operator of the Food Service Establishment, and individual(s) as a responsible officer or owner of the Food Service Establishment(s) and may constitute a debt to the District and become due and payable upon the District's request for reimbursement of such costs.

## **ARTICLE 3 - FOG WASTEWATER DISCHARGE PERMITS FOR FOOD SERVICE ESTABLISHMENTS**

### **3.1 FOG WASTEWATER DISCHARGE PERMIT REQUIRED**

- A. Food Service Establishments proposing to discharge or currently discharging wastewater containing FOG into the District's sewer system shall obtain a FOG Wastewater Discharge Permit from the District.
  
- B. FOG Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other regulations, charges for use, and fees established by the District. The conditions of FOG Wastewater Discharge Permits shall be enforced by the District in accordance with this Ordinance and applicable State and Federal Regulations.

### **3.2 FOG WASTEWATER DISCHARGE PERMIT APPLICATION**

- A. Any person required to obtain a FOG Wastewater Discharge Permit shall complete and file with the District prior to commencing or continuing discharges, an application in a form prescribed by the District. The applicable fees shall accompany this application. The applicant shall submit, in units and terms appropriate for evaluation, the following information at a minimum:
  - 1. Name, address, telephone number, assessor's parcel number(s), description of the Food Service Establishment, operation, cuisine, service activities, or clients using the applicant's services.
  - 2. (Whichever is applicable) Name, address of any and all principals/owners/major shareholders of the Food Service Establishment; Articles of Incorporation; most recent Report of the Secretary of State; Business License.
  - 3. Name and address of property owner or lessor and the property manager where the Food Service Establishment is located.
  - 4. Any other information as specified in the application form.
  
- B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, FOG control device, grease interceptor or other pretreatment equipment and appurtenances by size, location, and elevation for evaluation.
  
- C. Other information related to the applicant's business operations and potential discharge may be requested to properly evaluate the permit application.
  
- D. After evaluation of the data furnished, the District may issue a FOG Wastewater Discharge Permit, subject to terms and conditions set forth in

this Ordinance and as otherwise determined by the FOG Control Program Manager to be appropriate to protect the District's sewer system.

### **3.3 FOG WASTEWATER DISCHARGE PERMIT CONDITIONS**

The issuance of a FOG Wastewater Discharge Permit may contain any of the following conditions or limits:

- A. Limits on discharge of FOG and other priority pollutants.
- B. Requirements for proper operation and maintenance of grease interceptors and other grease control devices.
- C. Grease interceptor maintenance frequency and schedule.
- D. Requirements for implementation of Best Management Practices and installation of adequate grease interceptor and/or grease control device.
- E. Requirements for maintaining and reporting status of Best Management Practices
- F. Requirements for maintaining and submitting logs and records, including wastehauling records and waste manifests.
- G. Requirements to self-monitor.
- H. Requirements for the Food Service Establishment to construct, operate and maintain, at its own expense, FOG control device and sampling facilities.
- I. Additional requirements as otherwise determined to be reasonably appropriate by the FOG Control Program Manager to protect the District's system or as specified by other Regulatory Agencies.
- J. Other terms and conditions, which may be reasonably applicable to ensure compliance with this Ordinance.

### **3.4 FOG WASTEWATER DISCHARGE PERMIT APPLICATION FEE**

The FOG Wastewater Discharge Permit Application fee shall be paid by the applicant in an amount adopted by ordinance or resolution of the Board of Directors of the District. Payment of permit application fee must be received by the District upon submission of the permit application. A permittee shall also pay any delinquent invoices in full prior to permit renewal.

### **3.5 FOG WASTEWATER DISCHARGE PERMIT MODIFICATION OF TERMS AND CONDITIONS**

- A. The terms and conditions of an issued permit may be subject to modification and change by the sole determination of the FOG Control Program Manager during the life of the permit based on:

1. The discharger's current or anticipated operating data;
  2. The District's current or anticipated operating data;
  3. Changes in the requirements of Regulatory Agencies which affect the District; or
  4. A determination by the FOG Control Program Manager that such modification is appropriate to further the objectives of this Ordinance.
- B. The Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested change, and the reasons for the change. The FOG Control Program Manager shall review the request, make a determination on the request, and respond in writing.
- C. The Permittee shall be informed of any change in the permit limits, conditions, or requirements at least forty-five (45) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

### **3.6 FOG WASTEWATER DISCHARGE PERMIT DURATION AND RENEWAL**

FOG Wastewater Discharge Permits shall be issued for a period not to exceed four (4) years. At least 60 days prior to the expiration of the permit, the user shall apply for renewal of the permit in accordance with the provisions of this Article 3.

### **3.7 EXEMPTION FROM FOG WASTEWATER DISCHARGE PERMIT**

A limited food preparation establishment is not considered a Food Service Establishment and is exempt from obtaining a FOG Wastewater Discharge Permit. Exempted establishments shall be engaged only in reheating, hot holding or assembly of ready to eat food products and as a result, there is no wastewater discharge containing significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.

### **3.8 NON-TRANSFERABILITY OF PERMITS**

FOG Wastewater Discharge Permits issued under this Ordinance are for a specific Food Service Establishment, for a specific operation and create no vested rights.

- A. No permit holder shall assign, transfer, sell any FOG Wastewater Discharge Permit issued under this Ordinance nor use any such permit for or on any premises or for facilities or operations or discharges not expressly encompassed within the underlying permit.
- B. Any permit which is transferred to a new owner or operator or to a new facility is void.



**3.9 FOG WASTEWATER DISCHARGE PERMIT CHARGE FOR USE**

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A charge to cover all costs of the District for providing the sewer service and monitoring shall be established by Ordinance or Resolution of the Board of Directors of the District.

## **ARTICLE 4 - FACILITIES REQUIREMENTS**

### **4.1 DRAWING SUBMITTAL REQUIREMENTS**

Upon request by the District:

- A. Food Service Establishments may be required to submit two copies of facility site plans, mechanical and plumbing plans, and details to show all sewer locations and connections. The submittal shall be in a form and content acceptable to the District for review of existing or proposed grease control device, grease interceptor, monitoring facilities, metering facilities, and operating procedures. The review of the plans and procedures shall in no way relieve the Food Service Establishments of the responsibility of modifying the facilities or procedures in the future, as necessary to produce an acceptable discharge, and to meet the requirements of this Ordinance or any requirements of other Regulatory Agencies.
- B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, FOG control device, grease interceptor or other pretreatment equipment and appurtenances by size, location, and elevation for evaluation.
- C. Food Service Establishments may be required to submit a schematic drawing of the FOG control device, grease interceptor or other pretreatment equipment, piping and instrumentation diagram, and wastewater characterization report.
- D. The District may require the drawings be prepared by a California Registered Civil, Chemical, Mechanical, or Electrical Engineer.

### **4.2 GREASE INTERCEPTOR REQUIREMENTS**

- A. All Food Service Establishments shall provide wastewater acceptable to the District, under the requirements and standards established herein before discharging to any public sewer. Any Food Service Establishment required to provide FOG pretreatment shall install, operate, and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of this Ordinance.
- B. Grease interceptor sizing and installation shall conform to the current edition of the Uniform Plumbing Code. Grease interceptors shall be constructed in accordance with the design approved by the FOG Control Program Manager and shall have a minimum of two compartments with fittings designed for grease retention.
- C. The grease interceptor shall be installed at a location where it shall be at all times easily accessible for inspection, cleaning, and removal of accumulated grease.

- D. Access manholes, with a minimum diameter of 24 inches, shall be provided over each grease interceptor chamber and sanitary tee. The access manholes shall extend at least to finished grade and be designed and maintained to prevent water inflow or infiltration. The manholes shall also have readily removable covers to facilitate inspection, grease removal, and wastewater sampling activities.

#### 4.3 GREASE TRAP REQUIREMENTS

- A. Food Service Establishments may be required to install grease traps in the waste line leading from drains, sink, and other fixtures or equipment where grease may be introduced into the sewer system in quantities that can cause blockage.
- B. Sizing and installation of grease traps shall conform to the current edition of the California Plumbing Code.
- C. Grease traps shall be maintained in efficient operating conditions by removing accumulated grease on a daily basis.
- D. Grease traps shall be maintained free of all food residues and any FOG waste removed during the cleaning and scraping process.
- E. Grease traps shall be inspected periodically to check for leaking seams and pipes, and for effective operation of the baffles and flow regulating device. Grease traps and their baffles shall be maintained free of all caked-on FOG and waste. Removable baffles shall be removed and cleaned during the maintenance process.
- F. Dishwashers and food waste disposal units shall not be connected to or discharged into any grease trap.

#### 4.4 MONITORING FACILITIES REQUIREMENTS

- A. The District may require the Food Service Establishments to construct and maintain in proper operating condition at the Food Service Establishment's sole expense, flow monitoring, constituent monitoring and/or sampling facilities.
- B. The location of the monitoring or metering facilities shall be subject to approval by the FOG Control Program Manager.
- C. Food Service Establishments may be required to provide immediate, clear, safe and uninterrupted access to the FOG Control Program Manager or inspectors to the Food Service Establishment's monitoring and metering facilities.
- D. Food Service Establishments may also be required by the FOG Control Program Manager to submit waste analysis plans, contingency plans, and meet other necessary requirements to ensure proper operation and

maintenance of the grease control device or grease interceptor and compliance with this Ordinance.

- E. No Food Service Establishment shall increase the use of water or in any other manner attempt to dilute a discharge as a partial or complete substitute for treatment to achieve compliance with this Ordinance and the FOG Wastewater Discharge Permit.

#### 4.5 **REQUIREMENTS FOR BEST MANAGEMENT PRACTICES**

- A. All Food Service Establishments shall implement best management practices in accordance with the requirements and guidelines established by the District under its FOG Control Program in an effort to minimize the discharge of FOG to the sewer system.
- B. All Food Service Establishments shall be required, at a minimum, to comply with the following Best Management Practices, when applicable:
  - 1. Installation of drain screens. Drain screens shall be installed on all drainage pipes in food preparation areas.
  - 2. Segregation and collection of waste cooking oil. All waste cooking oil shall be collected and stored properly in recycling receptacles such as barrels or drums. Such recycling receptacles shall be maintained properly to ensure that they do not leak. Licensed wastehaulers or an approved recycling facility must be used to dispose of waste cooking oil.
  - 3. Disposal of food waste. All food waste shall be disposed of directly into the trash or garbage, and not in sinks. Double-bagging food wastes that have the potential to leak in trash bins is highly recommended.
  - 4. Employee training. Employees of the food service establishment shall be trained by ownership/management periodically as specified in the permit, on the following subjects:
    - a) How to "dry wipe" pots, pans, dishware and work areas before washing to remove grease.
    - b) How to properly dispose of food waste and solids in enclosed plastic bags prior to disposal in trash bins or containers to prevent leaking and odors.
    - c) The location and use of absorption products to clean under fryer baskets and other locations where grease may be spilled or dripped.

- d) How to properly dispose of grease or oils from cooking equipment into a grease receptacle such as a barrel or drum without spilling.

Training shall be documented and employee signatures retained indicating each employee's attendance and understanding of the practices reviewed. Training records shall be available for review at any reasonable time by the FOG Control Program Manager or an inspector.

5. Maintenance of kitchen exhaust filters. Filters shall be cleaned as frequently as necessary to be maintained in good operating condition. The wastewater generated from cleaning the exhaust filter shall be disposed properly.
6. Kitchen sianaae. Best management and waste minimization practices shall be posted conspicuously in the food preparation and dishwashing areas at all times.

#### 4.6 **GREASE INTERCEPTOR MAINTENANCE REQUIREMENTS**

- A. Grease Interceptors shall be maintained in efficient operating condition by periodic removal of the full content of the interceptor which includes wastewater, accumulated FOG, floating materials, sludge and solids.
- B. All existing and newly installed grease interceptors shall be maintained in a manner consistent with a maintenance frequency approved by the FOG Control Program Manager pursuant to this section.
- C. No FOG that has accumulated in a grease interceptor shall be allowed to pass into any sewer lateral, sewer system, storm drain, or public right of way during maintenance activities.
- D. Food Service Establishments with grease interceptors may be required to submit data and information necessary to establish the maintenance frequency grease interceptors.
- E. The maintenance frequency for all Food Service Establishments with a grease interceptor shall be determined in one of the following methods:
  1. Grease interceptors shall be fully pumped out and cleaned at a frequency such that the combined FOG and solids accumulation does not exceed 25% of the total design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system.

2. All Food Service Establishments with a Grease Interceptor shall maintain their grease interceptor not less than every 6 months.
  3. Grease interceptors shall be fully pumped out and cleaned quarterly when the frequency described in (1) has not been established. The maintenance frequency shall be adjusted when sufficient data have been obtained to establish an average frequency based on the requirements described in (1) and guidelines adopted pursuant to the FOG Control Program. The District may change the maintenance frequency at any time to reflect changes in actual operating conditions in accordance with the FOG Control Program. Based on the actual generation of FOG from the Food Service Establishment, the maintenance frequency may increase or decrease.
  4. The owner/operator of a Food Service Establishment may submit a request to the FOG Control Program Manager requesting a change in the maintenance frequency at any time. The Food Service Establishment has the burden of responsibility to demonstrate that the requested change in frequency reflects actual operating conditions based on the average FOG accumulation over time and meets the requirements described in (1), and that it is in full compliance with the conditions of its permit and this Ordinance. Upon determination by the FOG Control Program Manager that requested revision is justified, the permit shall be revised accordingly to reflect the change in maintenance frequency.
  5. If the grease interceptor, at any time, contains FOG and solids accumulation that does not meet the requirements described in (1), the Food Service Establishment shall be required to have the grease interceptor serviced immediately such that all fats, oils, grease, sludge, and other materials are completely removed from the grease interceptor. If deemed necessary, the FOG Control Program Manager may also increase the maintenance frequency of the grease interceptor from the current frequency.
- F. Wastewater, accumulated FOG, floating materials, sludge/solids, and other materials removed from the grease interceptor shall be disposed off site properly by waste haulers in accordance with federal, state and/or local laws.

## ARTICLE 5 - MONITORING, REPORTING, NOTIFICATION, AND INSPECTION REQUIREMENTS

### 5.1 MONITORING AND REPORTING CONDITIONS

#### A. Monitoring for Compliance with Permit Conditions and Reporting Requirements

1. The FOG Control Program Manager may require periodic reporting of the status of implementation of Best Management Practices, in accordance with the FOG Control Program.
2. The FOG Control Program Manager may require visual monitoring at the sole expense of the Permittee to observe the actual conditions of the Food Service Establishment's sewer lateral and sewer lines downstream.
3. The FOG Control Program Manager may require reports for self-monitoring of wastewater constituents and FOG characteristics of the Permittee needed for determining compliance with any conditions or requirements as specified in the FOG Wastewater Discharge Permit or this Ordinance. Monitoring reports of the analyses of wastewater constituents and FOG characteristics shall be in a manner and form approved by the FOG Control Program Manager and shall be submitted upon request of the FOG Control Program Manager. Failure by the Permittee to perform any required monitoring, or to submit monitoring reports required by the FOG Control Program Manager constitutes a violation of this Ordinance and be cause for the District to initiate all necessary tasks and analyses to determine the wastewater constituents and FOG characteristics for compliance with any conditions and requirements specified in the FOG Wastewater Discharge Permit or in this Ordinance. The Permittee shall be responsible for any and all expenses of the District in undertaking such monitoring analyses and preparation of reports.
4. Other reports may be required such as compliance schedule progress reports, FOG control monitoring reports, and any other reports deemed reasonably appropriate by the FOG Control Program Manager to ensure compliance with this Ordinance.

#### B. Record Keeping Requirements

The Permittee shall be required to keep all manifests, receipts and invoices of all cleaning, maintenance, grease removal of/from the grease control device, disposal carrier and disposal site location for no less than two years. The Permittee shall, upon request, make the manifests,



receipts and invoices available to any District representative, or inspector. These records may include:

1. A logbook of grease interceptor, grease trap or grease control device cleaning and maintenance practices.
2. A record of Best Management Practices being implemented including employee training.
3. Copies of records and manifests of wastehauling interceptor contents.
4. Records of sampling data and sludge height monitoring for FOG and solids accumulation in the grease interceptors.
5. Records of any spills and/or cleaning of the lateral or sewer system.
6. Any other information deemed appropriate by the FOG Control Program Manager to ensure compliance with this Ordinance.

C. Falsifying Information or Tampering with Process

It shall be unlawful to make any false statement, representation, record, report, plan or other document that is filed with the District, or to tamper with or knowingly render inoperable any grease control device, monitoring device or method or access point required under this Ordinance.

**5.2 INSPECTION AND SAMPLING CONDITIONS**

- A. The FOG Control Program Manager may inspect or order the inspection and sample the wastewater discharges of any Food Service Establishment to ascertain whether the intent of this Ordinance is being met and the Permittee is complying with all requirements. The Permittee shall allow the District access to the Food Service Establishment premises, during normal business hours, for purposes of inspecting the Food Service Establishment's grease control devices or interceptor, reviewing the manifests, receipts and invoices relating to the cleaning, maintenance and inspection of the grease control devices or interceptor.
- B. The FOG Control Program Manager shall have the right to place or order the placement on the Food Service Establishment's property or other locations as determined by the FOG Control Program Manager, such devices as are necessary to conduct sampling or metering operations. Where a Food Service Establishment has security measures in force, the Permittee shall make necessary arrangements so that representatives of the District shall be permitted to enter without delay for the purpose of performing their specific responsibilities.

- C. In order for the FOG Control Program Manager to determine the wastewater characteristics of the discharger for purposes of determining the annual use charge and for compliance with permit requirements, the Permittee shall make available for inspection and copying by the District all notices, monitoring reports, waste manifests, and records including, but not limited to, those related to wastewater generation, and wastewater disposal without restriction but subject to the confidentiality provision set forth in this Ordinance. All such records shall be kept by the Permittee a minimum of two (2) years.

### **5.3 RIGHT OF ENTRY**

Persons or occupants of premises where wastewater is created or discharged shall allow the FOG Control Program Manager, or District representatives, reasonable access to all parts of the wastewater generating and disposal facilities for the purposes of inspection and sampling during all times the discharger's facility is open, operating, or any other reasonable time. No person shall interfere with, delay, resist or refuse entrance to District representatives attempting to inspect any facility involved directly or indirectly with a discharge of wastewater to the District's sewer system. In the event of an emergency involving actual or imminent sanitary sewer overflow, District's representatives may access adjoining businesses or properties which share a sewer system with a Food Service Establishment in order to prevent or remediate an actual or imminent sanitary overflow.

### **5.4 NOTIFICATION OF SPILL**

- A. In the event a permittee is unable to comply with any permit condition due to a breakdown of equipment, accidents, or human error or the Permittee has reasonable opportunity to know that his/her/its discharge will exceed the discharge provisions of the FOG Wastewater Discharge Permit or this Ordinance, the discharger shall immediately notify the District by telephone at the number specified in the Permit. If the material discharged to the sewer has the potential to cause or result in sewer blockages or SSOs, the discharger shall immediately notify the local Health Department, City or County, and the District.
- B. Confirmation of this notification shall be made in writing to the FOG Control Program Manager at the address specified in the Permit no later than five (5) working days from the date of the incident. The written notification shall state the date of the incident, the reasons for the discharge or spill, what steps were taken to immediately correct the problem, and what steps are being taken to prevent the problem from recurring.
- C. Such notification shall not relieve the Permittee of any expense, loss, damage or other liability which may be incurred as a result of damage or loss to the District or any other damage or loss to person or property; nor shall such notification relieve the Permittee of any fees or other liability which may be imposed by this Ordinance or other applicable law.

## **5.5 NOTIFICATION OF PLANNED CHANGES**

Permittee shall notify the District at least 60 days in advance prior to any facility expansion/remodeling, or process modifications that may result in new or substantially increased FOG discharges or a change in the nature of the discharge. Permittee shall notify the District in writing of the proposed expansion or remodeling and shall submit any information requested by the District for evaluation of the effect of such expansion on Permittee's FOG discharge to the sewer system.

## ARTICLE 6 - ENFORCEMENT

### 6.1 PURPOSES AND SCOPE

- A. The Board of Directors finds that in order for the District to comply with the laws, regulations, and rules imposed upon it by Regulatory Agencies and to ensure that the District's sewer facilities are protected and are able to operate with the highest degree of efficiency, and to protect the public health and environment, specific enforcement provisions must be adopted to govern the discharges to the District's system by Food Service Establishments.
- B. To ensure that all interested parties are afforded due process of law and that violations are resolved as soon as possible, the general policy of the District is that:
  - 1. Any determination relating to a notice of violation and Compliance Schedule Agreement (CSA) will be made by the FOG Control Program Manager, with a right of appeal by the permittee to the General Manager pursuant to the procedures set forth in Section 6.12.
  - 2. A permittee, or applicant for a permit may request the Board of Directors of the District to hear an appeal of the General Manager's decision pursuant to Section 6.13. Such request may be granted or denied by the Board of Directors.
  - 3. Any permit suspension or revocation recommended by the FOG Control Program Manager will be heard and a recommendation made to the General Manager or other person designated by the General Manager with a right of appeal of the General Manager's order by the permittee to the Board of Directors pursuant to the provisions of Section 6.13.
- C. The District, at its discretion, may utilize any one, combination, or all enforcement remedies provided in Article 6 in response to any permit or Ordinance violations.

### 6.2 DETERMINATION OF NONCOMPLIANCE WITH FOG WASTEWATER DISCHARGE PERMIT CONDITIONS

- A. Inspection Procedures
  - 1. Inspection of Food Service Establishments shall be conducted in the time, place, manner, and frequency determined at the sole discretion of the FOG Control Program Manager.
  - 2. Noncompliance with Best Management Practices, 25% Rule for grease interceptors, maintenance frequency requirements for

grease interceptors, permit discharge conditions, or any discharge provisions of this Ordinance may be determined by an inspection of the Food Service Establishment.

**B. Sampling Procedures**

1. Sampling of Food Service Establishments shall be conducted in the time, place, manner, and frequency determined at the sole discretion of the District.
2. Non-compliance with mass emission rate limits, concentration limits, permit discharge conditions, or any discharge provision of this Ordinance may be determined by an analysis of a grab or composite sample of the effluent of a user. Non-compliance with mass emission rate limits shall be determined by an analysis of a composite sample of the user's effluent, except that a grab sample may be used to determine compliance with mass emission rate limits when the discharge is from a closed (batch) treatment system in which there is no wastewater flow into the system when the discharge is occurring, the volume of wastewater contained in the batch system is known, the time interval of discharge is known, and the grab sample is homogeneous and representative of the discharge.
3. Any sample taken from a sample point is considered to be representative of the discharge to the public sewer.

**C. Noncompliance Fees**

Any permittee determined to be in noncompliance with the terms and conditions specified in its permit or with any provision of this Ordinance shall pay a noncompliance fee. The purpose of the noncompliance fee is to compensate the District for costs of additional inspection and follow-up, sampling, monitoring, laboratory analysis, treatment, disposal, and administrative processing incurred as a result of the noncompliance, and shall be in addition to and not in lieu of any penalties as may be assessed pursuant to Sections 6.10 and 6.11. Noncompliance fees shall be in the amount adopted by ordinance or resolution by the District's Board of Directors.

**6.3 COMPLIANCE SCHEDULE AGREEMENT (CSA)**

- A. Upon determination that a permittee is in noncompliance with the terms and conditions specified in its permit or any provision of this Ordinance, or needs to construct and/or acquire and install a grease control device or grease interceptor, the FOG Control Program Manager may require the permittee to enter into a CSA.
- B. The issuance of a CSA may contain terms and conditions including but not limited to requirements for installation of a grease control device,

grease interceptor and facilities, submittal of drawings or reports, audit of waste hauling records, best management and waste minimization practices, payment of fees, or other provisions to ensure compliance with this Ordinance.

- C. The FOG Control Program Manager shall not enter into a CSA until such time as all amounts owed to the District, including user fees, noncompliance sampling fees, or other amounts due are paid in full, or an agreement for deferred payment secured by collateral or a third party, is approved by the FOG Control Program Manager.
- D. If compliance is not achieved in accordance with the terms and conditions of a CSA during its term, the FOG Control Program Manager may issue an order suspending or revoking the discharge permit pursuant to Section 6.4 or 6.5 of this Ordinance.

#### 6.4 **PERMIT SUSPENSION**

- A. The General Manager may suspend any permit when it is determined that a permittee:
  - 1. Fails to comply with the terms and conditions of a CSA order.
  - 2. Knowingly provides a false statement, representation, record, report, or other document to the District.
  - 3. Refuses to provide records, reports, plans, or other documents required by the District to determine permit terms or conditions, discharge compliance, or compliance with this Ordinance.
  - 4. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.
  - 5. Refuses reasonable access to the permittee's premises for the purpose of inspection and monitoring.
  - 6. Does not make timely payment of all amounts owed to the District for user charges, permit fees, or any other fees imposed pursuant to this Ordinance.
  - 7. Causes interference, sewer blockages, or SSOs with the District's collection, treatment, or disposal system.
  - 8. Violates grease interceptor maintenance requirements, any condition or limit of its discharge permit or any provision of the District's Ordinance.
- B. When the FOG Control Program Manager has reason to believe that grounds exist for permit suspension, he/she shall give written notice thereof by certified mail to the permittee setting forth a statement of the facts and grounds deemed to exist, together with the time and place

where the charges shall be heard by the General Manager or his/her designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty-five (45) calendar days after the mailing of such notice.

1. At the suspension hearing, the permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel.
2. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.
3. Upon receipt of the written report of a hearing officer or conclusion of the hearing, if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for suspension of the permit, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing. The written decision and order of the General Manager shall be sent by certified mail to the permittee or its legal counsel/representative at the permittee's business address.

C. Effect

1. Upon an order of suspension by the General Manager becoming final, the permittee shall immediately cease and desist its discharge and shall have no right to discharge any wastewater containing FOG directly or indirectly to the District's system for the duration of the suspension. All costs for physically terminating and reinstating service shall be paid by the permittee.
2. Any owner or responsible management employee of the permittee shall be bound by the order of suspension.
3. An order of permit suspension issued by the General Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the permittee unless a request for hearing is filed with the Board of Directors of the District pursuant to Section 6.13. no later than 5:00 p.m. on the fifteenth (15th) day following such mailing.

## **6.5 PERMIT REVOCATION**

- A. The General Manager may revoke any permit when it is determined that a permittee:



1. Knowingly provides a false statement, representation, record, report, or other document to the District.
2. Refuses to provide records, reports, plans, or other documents required by the District to determine permit terms, conditions, discharge compliance, or compliance with this Ordinance.
3. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.
4. Fails to comply with the terms and conditions of permit suspension or CSA.
5. Discharges effluent to the District's sewer system while its permit is suspended.
6. Refuses reasonable access to the permittee's premises for the purpose of inspection and monitoring.
7. Does not make timely payment of all amounts owed to the District for user charges, permit fees, or any other fees imposed pursuant to this Ordinance.
8. Causes interference, sewer blockages, or SSOs with the District collection, treatment, or disposal system.
9. Violates grease interceptor maintenance requirements, any condition or limit of its discharge permit or any provision of the District's Ordinance.

B. Aooroval. When the FOG Control Program Manager has reason to believe that grounds exist for the revocation of a permit, he/she shall give written notice by certified mail thereof to the permittee setting forth a statement of the facts and grounds deemed to exist together with the time and place where the charges shall be heard by the General Manager or his/her designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty-five (45) calendar days after the mailing of such notice.

1. At the hearing, the permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The revocation hearing shall be conducted in accordance with the procedures established by the General Manager and approved by the District's General Counsel.
2. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

3. Upon receipt of the written report by the hearing officer, or conclusion of the hearing, if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for permanent revocation of the permit, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing. The written decision and order of the General Manager shall be sent by certified mail to the permittee or its legal counsel/representative at the permittee's business address.

In the event the General Manager determines to not revoke the permit, he/she may order other enforcement actions, including, but not limited to, a temporary suspension of the permit, under terms and conditions that he/she deems appropriate.

C. Effect

1. Upon an order of revocation by the General Manager becoming final, the permittee shall permanently lose all rights to discharge any wastewater containing FOG directly or indirectly to the District's system. All costs for physical termination shall be paid by the permittee.
2. Any owner or responsible management employee of the permittee shall be bound by the order of revocation.
3. Any future application for a permit at any location within the District by any person associated with an order of revocation will be considered by the District after fully reviewing the records of the revoked permit, which records may be the basis for denial of a new permit.
4. An order of permit revocation issued by the General Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the permittee unless a request for hearing is filed with the Board of Directors pursuant to Section 6.13 no later than 5:00 p.m. on the fifteenth (15th) day following such mailing.

**6.6 DAMAGE TO FACILITIES OR INTERRUPTION OF NORMAL OPERATIONS**

- A. Any person who discharges any waste which causes or contributes to any sewer blockage, SSOs, obstruction, interference, damage, or any other impairment to the District's sewer facilities or to the operation of those facilities shall be liable for all costs required to clean or repair the facilities together with expenses incurred by the District to resume normal operations. A service charge of twenty-five percent (25%) of District's costs shall be added to the costs and charges to reimburse the District for miscellaneous overhead, including administrative personnel and record keeping. The total amount shall be payable within forty five (45) days of invoicing by the District.

- B. Any person who discharges a waste which causes or contributes to the District violating its discharge requirements established by any Regulatory Agency incurring additional expenses or suffering losses or damage to the facilities, shall be liable for any costs or expenses incurred by the District, including regulatory fines, penalties, and assessments made by other agencies or a court.

#### **6.7 PUBLIC NUISANCE**

Discharge of wastewater in any manner in violation of this Ordinance or of any order issued by the FOG Control Program Manager or General Manager, as authorized by this Ordinance, is hereby declared a public nuisance and shall be corrected or abated as directed by the FOG Control Program Manager or General Manager. Any person creating a public nuisance is guilty of a misdemeanor.

#### **6.8 TERMINATION OF SERVICE**

- A. The District, by order of the General Manager, may physically terminate sewer service to any property as follows:
  - 1. On a term of any order of suspension or revocation of a permit; or
  - 2. Upon the failure of a person not holding a valid FOG Wastewater Discharge Permit to immediately cease the discharge, whether direct or indirect, to the District's sewer facilities after the notice and process in Section 6.5 herein.
- B. All costs for physical termination shall be paid by the owner or operator of the Food Service Establishment or permittee as well as all costs for reinstating service.

#### **6.9 EMERGENCY SUSPENSION ORDER**

- A. The District may, by order of the General Manager, suspend sewer service when the General Manager determines that such suspension is necessary in order to stop an actual or impending discharge which presents or may present an imminent or substantial endangerment to the health and welfare of persons, or to the environment, or may cause SSOs, sewer blockages, interference to the District's sewer facilities, or may cause the District to violate any State or Federal Law or Regulation. Any discharger notified of and subject to an Emergency Suspension Order shall immediately cease and desist the discharge of all wastewater containing FOG to the sewer system.
- B. As soon as reasonably practicable following the issuance of an Emergency Suspension Order, but in no event more than five (5) business days following the issuance of such order, the General Manager shall hold a hearing to provide the Food Service Establishment or Permittee the opportunity to present information in opposition to the issuance of the Emergency Suspension Order. Such a hearing shall not

stay the effect of the Emergency Suspension Order. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel. The General Manager shall issue a written decision and order within two (2) business days following the hearing, which decision shall be sent by certified mail to the Food Service Establishment or its legal counsel/representative at that Food Service Establishment's business address. The decision of the General Manager following the hearing shall be final and not appealable to the Board, but may be subject to judicial review pursuant to Section 6.16.

#### **6.10 CIVIL PENALTIES**

- A. All users of the District's system and facilities are subject to enforcement actions administratively or judicially by the District, U.S. EPA, State of California Regional Water Quality Control Board, the County of Orange or District Attorney. Said actions may be taken pursuant to the authority and provisions of several laws, including but not limited to: (1) Federal Water Pollution Control Act, commonly known as the Clean Water Act (33 U.S.C.A. Section 1251 et seq.); (2) California Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.); (3) California Hazardous Waste Control Law (California Health & Safety Code Sections 25100 to 25250); (4) Resource Conservation and Recovery Act of 1976 (42 U.S.C.A Section 6901 et seq.); and (5) California Government Code, Sections 54739-54740.
- B. In the event the District is subject to the payment of fines or penalties pursuant to the legal authority and actions of other regulatory or enforcement agencies based on a violation of law or regulation or its permits, and said violation can be established by the District, as caused by the discharge of any user of the District's system which is in violation of any provision of the District's Ordinance or the user's permit, the District shall be entitled to recover from the user all costs and expenses, including, but not limited to, the full amount of said fines or penalties to which it has been subjected.
- C. Pursuant to the authority of California Government Code Sections 54739 - 54740, any person who violates any provision of this Ordinance; any permit condition, prohibition or effluent limit; or any suspension or revocation order shall be liable civilly for a sum not to exceed \$25,000.00 per violation for each day in which such violation occurs. Pursuant to the authority of the Clean Water Act, 33 U.S.C. Section 1251 et seq., any person who violates any provision of this Ordinance, or any permit condition, prohibition, or effluent limit shall be liable civilly for a sum not to exceed \$25,000.00 per violation for each day in which such violation occurs. The General Counsel of the District, upon request of the General Manager, shall petition the Superior Court to impose, assess, and recover such penalties, or such other penalties as the District may impose, assess, and recover pursuant to Federal and/or State legislative authorization.

D. Administrative Civil Penalties

1. Pursuant to the authority of California Government Code Sections 54740.5 and 54740.6, the District may issue an administrative complaint to any person who violates:
  - a) any provision of this Ordinance;
  - b) any permit condition, prohibition, or effluent limit; or
  - c) any suspension or revocation order.
2. The administrative complaint shall be served by personal delivery or certified mail on the person and shall inform the person that a hearing will be conducted, and shall specify a hearing date within sixty (60) days following service. The administrative complaint will allege the act or failure to act that constitutes the violation of the District's regulations, the provisions of law authorizing civil liability to be imposed, and the proposed civil penalty. The matter shall be heard by the General Manager or his/her designee. The person to whom an administrative complaint has been issued may waive the right to a hearing, in which case a hearing will not be conducted.
3. At the hearing, the person shall have an opportunity to respond to the allegations set forth in the administrative complaint by presenting written or oral evidence. The hearing shall be conducted in accordance with the procedures established by the General Manager and approved by the District's General Counsel.
4. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of the facts found to be true, a determination of the issues presented, conclusions, and a recommendation.
5. Upon receipt of the written report by the hearing officer, or conclusion of the hearing if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for assessment of a civil penalty against the person, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing .
6. If, after the hearing or appeal, if any, it is found that the person has violated reporting or discharge requirements, the General Manager or Board of Directors may assess a civil penalty against that person. In determining the amount of the civil penalty, the General Manager or Board of Directors may take into consideration all relevant circumstances, including but not limited to the extent of harm caused by the violation, the economic benefit

derived through any non-compliance, the nature and persistence of the violation, the length of time over which the violation occurs, and corrective action, if any, attempted or taken by the person involved.

7. Civil penalties may be assessed as follows:
  - a) In an amount which shall not exceed two thousand dollars (\$2,000.00) for each day for failing or refusing to furnish required reports;
  - b) In an amount which shall not exceed three thousand dollars (\$3,000.00) for each day for failing or refusing to timely comply with any compliance schedules established by the District;
  - c) In an amount which shall not exceed five thousand dollars (\$5,000.00) per violation for each day of discharge in violation of any waste discharge limit, permit condition, or requirement issued, reissued, or adopted by the District;
  - d) In any amount which does not exceed ten dollars (\$10.00) per gallon for discharges in violation of any suspension, revocation, cease and desist order or other orders, or prohibition issued, reissued, or adopted by the District;
8. An order assessing administrative civil penalties issued by the General Manager shall be final in all respects on the thirty-first (31st) day after it is served on the person unless an appeal and request for hearing is filed with the Board of Directors pursuant to Section 6.13 no later than the thirtieth (30th) day following such mailing. An order assessing administrative civil penalties issued by the Board of Directors shall be final upon issuance.
9. Copies of the administrative order shall be served on the party served with the administrative complaint, either by personal service or by registered mail to the person at his/her/its business or residence address, and upon other persons who appeared at the hearing and requested a copy of the order.
10. Any person aggrieved by a final order issued by the Board of Directors, after granting review of the order of the General Manager, may obtain review of the order of the Board of Directors in the superior court, pursuant to Government Code Section 54740.6, by filing in the court a petition for writ of mandate within thirty (30) days following the service of a copy of the decision or order issued by the Board of Directors.
11. Payment of any order setting administrative civil penalties shall be made within thirty (30) days of the date the order becomes final.

The amount of any administrative civil penalties imposed shall constitute a debt to the District.

12. No administrative civil penalties shall be recoverable for any violation for which the District has recovered civil penalties through a judicial proceeding filed pursuant to Government Code Section 54740.

#### **6.11 CRIMINAL PENALTIES**

Any person who violates any provision of this Ordinance is guilty of a misdemeanor, which upon conviction is punishable by a fine not to exceed \$1,000.00, or imprisonment for not more than 6 months, or both. Each violation and each day in which a violation occurs may constitute a new and separate violation of this Ordinance and shall be subject to the penalties contained herein.

#### **6.12 APPEALS TO GENERAL MANAGER**

- A. Any Food Service Establishment, permit applicant or permittee affected by any decision, action or determination made by the FOG Control Program Manager or notice of violation issued by any District inspector may file with the General Manager a written request for an appeal hearing. The request must be received by the District within fifteen (15) days of mailing of notice of the decision, action, or determination of the FOG Control Program Manager to the appellant. The request for hearing shall set forth in detail all facts supporting the appellant's request.
- B. The General Manager shall, within fifteen (15) days of receiving the request for appeal, designate a Department Head or other person to hear the appeal and provide written notice to the appellant of the hearing date, time and place. The hearing date shall not be more than thirty (30) days from the mailing of such notice by certified mail to the appellant unless a later date is agreed to by the appellant. If the hearing is not held within said time due to actions or inactions of the appellant, then the staff decision shall be deemed final.
- C. At the hearing, the appellant shall have the opportunity to present information supporting its position concerning the FOG Control Program Manager's decision, action or determination. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel.
- D. After the conclusion of the hearing, the Department Head (or other designee) shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation whether to uphold, modify or reverse the FOG Control Program Manager's original decision, action or determination. Upon receipt of the written report, the General Manager shall make his/her determination and shall issue his/her decision and order within thirty (30) calendar days of the hearing by his/her designee. The written decision and order of the General Manager

shall be sent by certified mail to the appellant or its legal counsel/representative at the appellant's business address.

The order of the General/City Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the appellant unless a request for hearing is filed with the Board of Directors pursuant to Section 6.13, no later than 5:00 p.m. on the fifteenth day following such mailing.

### **6.13 APPEALS TO THE BOARD OF DIRECTORS**

- A. Any Food Service Establishment, permit applicant, or permittee adversely affected by a decision, action, or determination made by the General Manager may, prior to the date that the General Manager's order becomes final, file a written request for hearing before the Board of Directors accompanied by an appeal fee in the amount established by a separate resolution of the District's Board of Directors. The request for hearing shall set forth in detail all the issues in dispute for which the appellant seeks determination and all facts supporting appellant's request.

No later than sixty (60) days after receipt of the request for hearing, the Board of Directors shall either set the matter for a hearing, or deny the request for a hearing.

A hearing shall be held by the Board of Directors within sixty-five (65) days from the date of determination granting a hearing, unless a later date is agreed to by the appellant and the Board of Directors. If the matter is not heard within the required time, due to actions or inactions of the appellant, the General Manager's order shall be deemed final.

- B. The Board of Directors shall grant all requests for a hearing on appeals concerning permit suspension, revocation, or denial. Whether to grant or deny the request for a hearing on appeals of other decisions of the General Manager shall be within the sole discretion of the Board of Directors.
- C. The appeal fee shall be refunded if the Board of Directors denies a hearing or reverses or modifies, in favor of the appellant, the order of the General Manager. The fee shall not be refunded if the Board of Directors denies the appeal.
- D. After the hearing, the Board of Directors shall make a determination whether to uphold, modify, or reverse the decision, action, or determination made by the General Manager.

The decision of the Board of Directors shall be set forth in writing within sixty-five (65) days after the close of the hearing and shall contain a finding of the facts found to be true, the determination of issues presented, and the conclusions. The written decision and order of the Board of Directors shall be sent by certified mail to the appellant or its legal counsel/representative at the appellant's business address.



The order of the Board of Directors shall be final upon its adoption. In the event the Board of Directors fails to reverse or modify the General Manager's order, it shall be deemed affirmed.

**6.14 PAYMENT OF CHARGES**

- A. Except as otherwise provided, all fees, charges and penalties established by this Ordinance are due and payable upon receipt of notice thereof. All such amounts are delinquent if unpaid forty-five (45) days after date of invoice.
- B. Any charge that becomes delinquent shall have added to it a penalty in accordance with the following:
  - 1. Forty-six (46) days after date of invoice, a basic penalty of ten percent (10%) of the base invoice amount, not to exceed a maximum of \$1,000.00; and
  - 2. A penalty of one and one-half percent (1.5%) per month of the base invoice amount and basic penalty shall accrue from and after the forty-sixth (46th) day after date of invoice.
- C. Any invoice outstanding and unpaid after ninety (90) days shall be cause for immediate initiation of permit revocation proceedings or immediate suspension of the permit.
- D. Penalties charged under this Section shall not accrue to those invoices successfully appealed, provided the District receives written notification of said appeal prior to the payment due date.
- E. Payment of disputed charges is still required by the due date during District review of any appeal submitted by permittees.

**Collection of Delinquent Accounts**

Collection of delinquent accounts shall be in accordance with the District's policy resolution establishing procedures for collection of delinquent obligations owed to the District, as amended from time to time by the Board of Directors. Any such action for collection may include an application for an injunction to prevent repeated and recurring violations of this Ordinance.

**6.15 FINANCIAL SECURITY/AMENDMENTS TO PERMIT**

A. Delinquent Accounts

The District may require an amendment to the permit of any Permittee who fails to make payment in full of all fees and charges assessed by the District, including reconciliation amounts, delinquency penalties, and other costs or fees incurred by the Permittee.

B. Bankruptcy

Every Permittee filing any legal action in any court of competent jurisdiction, including the United States Bankruptcy Court, for purposes of discharging its financial debts or obligations or seeking court-ordered, protection from its creditors, shall, within ten (10) days of filing such action, apply for and obtain the issuance of an amendment to its permit.

C. Security

An amendment to a waste discharge permit issued, may be conditioned upon the Permittee depositing financial security in an amount equal to the average total fees and charges for two (2) calendar quarters during the preceding year. Said deposit shall be used to guarantee payment of all fees and charges incurred for future services and facilities furnished by District and shall not be used by the District to recover outstanding fees and charges incurred prior to the Permittee filing and receiving protection from creditors in the United States Bankruptcy Court.

D. Return of Security

In the event the Permittee makes payment in full within the time prescribed by this Ordinance of all fees and charges incurred over a period of two (2) years following the issuance of an amendment to the permit, the District shall either return the security deposit posted by the Permittee or credit their account.

**6.16 JUDICIAL REVIEW**

A. Pursuant to Section 1094.6 of the California Code of Civil Procedure, the District hereby enacts this part to limit to ninety (90) days following final decisions in adjudicatory administrative hearings the time within which an action can be brought to review such decisions by means of administrative mandamus.

B. Definitions

As used in this Section, the following terms and words shall have the following meanings:

1. Decision shall mean and include adjudicatory administrative decisions that are made after hearing, or after revoking, suspending, or denying an application for a permit.
2. Complete Record shall mean and include the transcript, if any exists, of the proceedings, all pleadings, all notices and orders, any proposed decision by the District's officers, agents, or employees, the final decision, all admitted exhibits, all rejected exhibits in the possession of the District or its officers, agents or employees, all written evidence, and any other papers in the case.

- C. Time Limit for Judicial Review. Judicial review of any decision of the District or its officer or agent may be made pursuant to Section 1094.5 of the Code of Civil Procedure only if the petition for writ of mandate is filed not later than the ninetieth (90th) day following the date on which the decision becomes final. If there is no provision for reconsideration in the procedures governing the proceedings or if the date is not otherwise specified, the decision is final on the date it is made. If there is provision for reconsideration, the decision is final upon the expiration of the period during which such reconsideration can be sought; provided that if reconsideration is sought pursuant to such provision the decision is final for the purposes of this Section on the date that reconsideration is rejected.
- D. The complete record of the proceedings shall be prepared by the District officer or agent who made the decision and shall be delivered to the petitioner within ninety (90) days after he/she has filed written request therefor. The District may recover from the petitioner its actual costs for transcribing or otherwise preparing the record.
- E. If the petitioner files a request for the record within ten (10) days after the date the decision becomes final, the time within which a petition, pursuant to Section 1094.5 of the Code of Civil Procedure, may be filed shall be extended to not later than the thirtieth (30th) day following the date on which the record is either personally delivered or mailed to the petitioner or the petitioner's attorney of record, if appropriate.
- F. In making a final decision, the District shall provide notice to the party that Section 1094.6 of the Code of Civil Procedure governs the time within which judicial review must be sought.
- G. Notwithstanding the foregoing in this Section 6.16, and pursuant to Government Code Section 54740.6, judicial review of an order of the Board of Directors imposing administrative civil penalties pursuant to Section 6.10.D may be made only if the petition for writ of mandate is filed not later than the thirtieth (30th) day following the day on which the order of the Board of Directors becomes final.

## **ARTICLE 7 - SEVERABILITY**

If any section, subsection, subdivision, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or otherwise invalid, such invalidity shall not affect the validity of this entire Ordinance or any of the remaining portions hereof. The Board of Directors hereby declares that it would have passed this Ordinance, and each section, subsection, subdivision, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, subdivisions, sees, clauses or phrases be declared unconstitutional or otherwise invalid.

**ARTICLE 8 - EFFECTIVE DATE**

This Ordinance shall take effect October 1, 2016 and a summary shall be published in a newspaper of general circulation as provided by law.

PASSED AND ADOPTED by the Board of Directors of East Orange County Water District this 15<sup>th</sup> day of September, 2016



---

President, Board of Directors  
East Orange County Water District

STATE OF CALIFORNIA    )  
                                  ). COUNTY OF ORANGE    )

I, JOAN ARNESON, Secretary of the Board of Directors of East Orange County Water District, do hereby certify that the above and foregoing Ordinance No. 2016-2 was passed and adopted at a regular meeting of said Board on the 15th day of September, 2016, by the following vote, to wit:

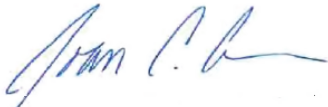
AYES:        BELL, DAVERT, DULEBOHN, EVERETT, SEARS

NOES:        NONE

ABSENT:     NONE

ABSTAIN:    NONE

IN WITNESS WHEREOF, I have hereunto set my hand this 15th day of September, 2016.



Secretary to the Board of Directors  
East Orange County Water District



ORDINANCE NO. 2016-01

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE  
EAST ORANGE COUNTY WATER DISTRICT ESTABLISHING  
WASTEWATER DISCHARGE REGULATIONS



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The Board of Directors of the East Orange County Water District (EOCWD) does hereby FIND:

- A. That EOCWD is required by federal and state law, including the Clean Water Act (33 U.S.C. 1251, et seq.), the General Pretreatment Regulations (40 CFR 403), and the Porter-Cologne Water Quality Control Act (Water Code Sections 13000, et seq.), to implement and enforce a program for the regulation of Wastewater discharges to EOCWD's sewers; and
- B. That EOCWD is required by federal, state, and local law to meet applicable standards of treatment plant effluent quality; and
- C. That the adoption of this Ordinance is statutorily exempt under the California Environmental Quality Act pursuant to the provisions of Public Resources Code Section 21080(b)(8) and California Code of Regulations Section 15273(a) and categorically exempt pursuant to California Code of Regulations Sections 15307 and 15308; and
- D. That pending the actions of the Local Agency Formation Commission to form Improvement District No. 1 ("ID 1") of EOCWD, activate EOCWD sewer powers and transfer the sewer collection system of Orange County Sanitation District ("OCSD") "San 7" to EOCWD, this Board of Directors, on July 21, 2016, declared its intention to retain in full force and effect in ID 1 of EOCWD, OCSD's Ordinance Establishing Wastewater Discharge Regulations, as amended from time to time; and
- E. This Board of Directors wishes at this time to adopt EOCWD wastewater discharge regulations for ID 1, which, upon becoming effective, shall be implemented in coordination with OCSD's implementation of its Ordinance Establishing Wastewater Discharge Regulations within ID 1.

NOW, THEREFORE, the Board of Directors of the East Orange County Water District does ORDAIN:

Section 1: Wastewater Discharge Regulations governing the use of EOCWD's sewerage Facilities are hereby adopted to provide as follows:

## ARTICLE 1. GENERAL PROVISIONS

### 101. PURPOSE AND POLICY

This ordinance sets uniform requirements for Users of EOCWD's Sewerage Facilities and enables EOCWD to comply with all applicable state and federal laws, including the Clean Water Act (33 United States Code [U.S.C.] section 1251, et seq.) and the General Pretreatment Regulations (Title 40 of the Code of Federal Regulations [CFR] Part 403). This Ordinance shall be interpreted in accordance with the definitions set forth in Section

102. The provisions of the Ordinance shall apply to the direct or indirect discharge of all liquid wastes carried to facilities of EOCWD.

- A. The purpose of this Ordinance is to provide for the maximum public benefit from the use of EOCWD's Sewerage Facilities. This shall be accomplished by regulating sewer use and Wastewater discharges; by providing equitable distribution of costs, in compliance with applicable federal, state, and local regulations; and by supporting the proper disposal of Prescription Drugs as noted in the guidelines published by the Office of National Drug Control Policy. The revenues to be derived from the application of this Ordinance shall be used to defray all costs of providing sewerage service by EOCWD, including, but not limited to, administration, operation, monitoring, maintenance, financing, capital construction, replacement and recovery,

and provisions for necessary reserves;

- B. This ordinance is meant to protect both EOCWD personnel who may be affected by Wastewater in the course of their employment and the general public.
- C. To comply with federal, state, and local policies and to allow EOCWD and OCSD to meet applicable standards of treatment plant effluent quality, biosolids quality, and air quality, provisions are made in this Ordinance for the regulation of Wastewater discharges to the public sewer. This Ordinance establishes quantity and quality limits on all Wastewater discharges which may adversely affect EOCWD's Sewerage System, as well as OCSD treatment processes, effluent quality, biosolids quality, air emission characteristics, or inhibit EOCWD's and/or OCSD's ability to beneficially reuse or dispose of treated Wastewater, biosolids or meet biosolids discharge criteria.
- D. It is the intent of these limits to improve the quality of Wastewater being received for treatment and to encourage water conservation and Wastewater minimization by all Users connected to a public sewer. This Ordinance also provides for regulation of the degree of Wastewater Pretreatment required, the issuance of permits for Wastewater discharge and connections and other miscellaneous permits, and establishes penalties for violation of the Ordinance.
- E. EOCWD is committed to: 1) a policy of support for Wastewater reuse through groundwater recharge; and 2) a policy for the protection of groundwater. EOCWD is also committed to help protect groundwater goals as established by various water quality and water purveyor agencies. To fulfill these commitments, EOCWD may implement more stringent quality requirements on Wastewater discharges through regulation, including revisions to this Ordinance.
- F. EOCWD is committed to a policy for the beneficial use of biosolids, the implementation of programs to land-apply or provide for the marketing and distribution of biosolids, which may necessitate more stringent quality requirements on Wastewater discharges.
- G. EOCWD is also committed to meet applicable air quality goals established by the South Coast Air Quality Management District, which may further necessitate more stringent quality requirements on Wastewater discharges.

## 102. DEFINITIONS

- A. Unless otherwise defined herein, terms related to water quality shall be as adopted in the latest edition of *Standard Methods for the Examination of*

*Water and Wastewater*, published by the American Public Health Association, the American Water Works Association, and the Water Environment Federation.

The testing procedures for Wastewater constituents and characteristics shall be as provided in 40 CFR 136 (Code of Federal Regulations; Title 40; Protection of Environment; Chapter I, Environmental Protection Agency; Part 136, Guidelines Establishing Test Procedures for the Analyses of Pollutants), or as specified.

Other terms not herein defined shall have the same meaning as defined in the latest California Building and Construction Codes, Title 24, California Code of Regulations.

1. Act or “the Act” shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. section 1251, et seq.
2. Approved POTW Pretreatment Program or Program or POTW Pretreatment Program shall mean a program administered by a POTW that meets the criteria established in 40 CFR 403.8 and 403.9 and which has been approved by a Regional Administrator or State Director in accordance with 40 CFR 403.11.
3. Authorized Representative or Designated Signatory shall mean:
  - a) If the applicant or User is a corporation:
    - (1) The president, secretary, treasurer, or a vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or
    - (2) The manager of one or more manufacturing, production, or operation facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for individual Wastewater discharge permit requirements;

and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- b) If the applicant or User is a partnership or sole proprietorship: a general partner or proprietor, respectively.
  - c) If the applicant or User is a federal, state, or local governmental facility: a director or highest official appointed or designated to oversee the operation and performance of the activities of the government facility, or the designee.
  - d) The individuals described in paragraphs (a) through (c) above, as Responsible Officers, may designate an Authorized Representative if the authorization is in writing, the authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company or organization, and the written authorization is submitted to EOCWD.
  - e) An applicant or User not falling within one of the above categories must designate as the Responsible Officer an individual responsible for the overall operation of the facility. The Responsible Officer may designate an Authorized Representative.
4. Best Management Practices (BMPs) shall mean schedules of activities, prohibitions of practices, maintenance procedures, operating procedures, and practices to control spillage or leaks, treatment requirements, and other management practices to prevent or reduce pollution or to meet Article 2 standards. Such BMPs shall be considered local limits and Pretreatment Standards as stated in 40 CFR 403.5(c)(4).
5. Biochemical Oxygen Demand (BOD) shall mean a measurement of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a Wastewater sample. It is used as a measurement of the readily decomposable organic content of Wastewater.
6. Board shall mean the Board of Directors of the East Orange County Water District.
7. Bypass shall mean the intentional diversion of wastestreams from any portion of a User's treatment facility.



8. Capital Facilities Capacity Charge shall mean the payment of a fee, imposed by the governing Board of OCSD, to pay for the future costs of constructing new sewerage collection, treatment, and disposal facilities; and as a contributive share of the cost of the existing facilities. This charge shall be paid by all property owners at the time they develop the property and connect directly or indirectly to EOCWD's and OCSD's Sewerage Facilities as a new system User. This charge, which rates are set forth in a separate Ordinance, is expressly authorized by the provisions of California Health & Safety Code Sections 5471 and 5474.
9. Charge For Use shall mean EOCWD's sanitary sewer service charge, a charge established and levied by EOCWD upon residential, commercial, and industrial Users of EOCWD's Sewerage System, pursuant to Sections 302.6(F), or 303.6(E) of this Ordinance, in proportion to the use of the treatment works by their respective class, that provides for the recovery of the costs of operation and maintenance expenses, capital facilities rehabilitation or replacement, and adequate reserves for the POTW. The minimum charge for use is the Annual Sewer Service Fee Residential Users.
10. Chemical Oxygen Demand (COD) shall mean a measure of the oxygen required to oxidize all compounds, both organic and inorganic, in Wastewater.
11. Class I User shall mean any User who discharges Wastewater that:
  - a) is a Significant Industrial User; or
  - b) Is determined to have a reasonable potential for adversely affecting EOCWD's operation or for violating any Pretreatment Standard, Local Limit, or discharge requirement, or may cause Pass Through affecting EOCWD's ability to comply with its NPDES Permit or other regulations and standards; or
  - c) may cause pass through or Interference with EOCWD's and/or OCSD's Sewerage Facilities.
12. Class II User shall mean any User whose charge for use is greater than the special assessment "EOCWD Sewer User Fee" included on the County of Orange secured property tax bill exclusive of debt service, that discharges wastes other than sanitary, and that is not otherwise required to obtain a Class I permit.
13. Code of Federal Regulations (CFR) shall mean the codification of the

general and permanent regulations published in the Federal Register by the executive departments and agencies of the federal government.

14. Compatible Pollutant shall mean a combination of biochemical oxygen demand, suspended solids, pH, fecal coliform bacteria, plus other Pollutants that OCSD's treatment facilities are designed to accept and/or remove. Compatible Pollutants are non-compatible when discharged in quantities that have an adverse effect on EOCWD's and/or OCSD's Sewerage System or NPDES permit, or when discharged in qualities or quantities violating any Federal Categorical Pretreatment Standards, local limit, or other discharge requirement.
15. Composite Sample shall mean a collection of individual samples obtained at selected intervals based on an increment of either flow or time. The resulting mixture (composite sample) forms a representative sample of the Wastestream discharged during the sample period.
16. Connection Permit shall mean a permit issued by EOCWD/OCWD, upon payment of a capital facilities capacity charge, authorizing the Permittee to connect directly to an EOCWD's and OCWD's Sewerage Facilities or to a sewer which ultimately discharges into an EOCWD's Sewerage Facilities.
17. Department Head shall mean that person duly designated by the General Manager to perform those delegated duties as specified in this Ordinance.
18. Discharger shall mean any Person who discharges or causes a discharge of Wastewater directly or indirectly to a public sewer. Discharger shall mean the same as User.
19. District shall mean the East Orange County Water District or EOCWD.
20. Division Head shall mean that person duly designated by the General Manager to implement the Pretreatment Program and perform the duties as specified in this Ordinance.
21. Domestic Septage shall mean the liquid and solid material removed from food service establishments, or a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic Wastewater.
22. Domestic Wastewater shall mean the liquid and solid waterborne wastes derived from the ordinary living processes of humans of such Character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private disposal system.

23. Downstream Sampling or Monitoring shall mean sampling or monitoring usually conducted in a city or agency owned sewer for the purpose of determining the compliance status of an industrial or commercial Discharger.
24. Dry Weather Urban Runoff shall mean surface runoff flow that is generated from any drainage area within EOCWD's service area during a period that does not fall within the definition of Wet Weather. It is surface runoff that contains Pollutants that interfere with or prohibit the recreational use and enjoyment of public beaches or cause an environmental risk or health hazard.
25. Enforcement Compliance Schedule Agreement (ECSA) shall mean a mutual agreement between EOCWD/OCSD and Permittee requiring implementation of necessary Pretreatment practices and/or installation of equipment to ensure permit compliance.
26. Enforcement Response Plan shall mean a plan containing detailed procedures indicating how EOCWD/OCSD will investigate and respond to instances of Industrial User non-compliance in accordance with 40 CFR 403.8(f)(1) or other Users in accordance with EOCWD non-compliance procedures.
27. EOCWD shall mean East Orange County Water District.
28. EOCWD/OCSD shall mean either or both of EOCWD and OCSD acting in coordination with one another, as they shall determine.
29. EOCWD's Sewerage Facilities or System shall mean any property belonging to EOCWD used in the collection and transportation of Wastewater.
30. Federal Categorical Pretreatment Standards shall mean any regulation containing Pollutant discharge limits promulgated by the U.S. EPA in accordance with Sections 307(b) and (c) of the Clean Water Act (33 U.S.C. 1317) which apply to a specific category of Industrial Users and which appear in 40 CFR Chapter I, Subchapter N, Parts 405-471.
31. Federal Regulations shall mean any applicable provision of the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, Title 33, United States Code, Section 1251 and following, and any regulation promulgated by the United States Environmental Protection Agency under Title 40 CFR implementing that act.

32. Flow Monitoring Facilities shall mean equipment and structures provided at a User's expense to measure, totalize, and/or record, the incoming water to the facility or the Wastewater discharged to the sewer.
33. General Manager shall mean the individual duly designated by the Board of Directors of EOCWD or the individual duly designated by Board of Directors of EOCWD to administer a provision of this Ordinance (see also Section 107).
34. Grab Sample shall mean a sample taken from a wastestream on a one-time basis without regard to the flow in the wastestream and without consideration of time.
35. Indirect Discharge or Discharge shall mean the introduction of Pollutants into a POTW from any non-domestic source regulated under section 307(b), (c) or (d) of the Act.
36. Industrial User shall mean any User that discharges Industrial Wastewater.
37. Industrial Wastewater shall mean all liquid carried wastes and Wastewater of the community, excluding domestic Wastewater and domestic septage, and shall include all Wastewater from any producing, manufacturing, processing, agricultural, or other operation.
38. Inspector shall mean a person authorized by the General Manager to inspect any existing or proposed Wastewater generation, conveyance, processing, and disposal facilities.
39. Instantaneous Limit (see the Maximum Allowable Discharge Limit)
40. Interference shall mean any discharge which, alone or in conjunction with a discharge or discharges from other sources, either:
  - a) inhibits or disrupts EOCWD or OCSD, either of their respective treatment processes or operations, or either of their respective biosolids processes, use, or disposal; or
  - b) is a cause of a violation of any requirement of EOCWD's WDR and/or OCSD's NPDES permit or prevents lawful biosolids or treated effluent use or disposal.
41. LEL (Lower Explosive Limit) shall mean the minimum concentration of a combustible gas or vapor in air (usually expressed in percent by volume at sea level) which will ignite if an ignition source (sufficient ignition energy) is present.

42. Letter to Discharge shall mean a letter authorizing a User to discharge to the sewer without having to obtain a Special Purpose Discharge Permit. The discharge volume is generally limited to less than 1 million gallons.
43. Local Limit shall mean specific discharge limits developed and enforced by EOCWD and/or OCSD upon industrial or commercial facilities to implement the general and specific discharge prohibitions listed in 40 CFR 403.5(a)(1) and (b).
44. Local Sewering Agency shall mean any public agency or private corporation responsible for the collection and disposal of Wastewater to OCSD's Sewerage Facilities duly authorized under the laws of the State of California to construct and/or maintain public sewers. EOCWD is a Local Sewering Agency.
45. Major Violation shall mean a discharge over the permitted discharge limit, as determined by the result of a sample analysis, as follows:
  - a) a discharge exceeding a Mass Emission Rate limit by 20% or more, or
  - b) a discharge exceeding a concentration limit by 20% or more, or
  - c) a pH discharge less than 5.0.
46. Mass Emission Rate shall mean the weight of material discharged to the sewer system during a given time interval. Unless otherwise specified, the mass emission rate shall mean pounds per day of a particular constituent or combination of constituents.
47. Maximum Allowable Discharge Limit shall mean the maximum quantity or concentration of a Pollutant allowed to be discharged at any period of time, determined from the analysis of any discrete or composited sample collected, independent of the industrial flow rate and the duration of the sampling event.
48. Medical Waste shall mean the discharge of isolation wastes, infectious agents human blood and blood byproducts, pathological wastes, sharps, body parts, fomites, etiologic agents, contaminated bedding, surgical wastes, potentially contaminated laboratory wastes, and dialysis wastes.
49. Milligrams Per Liter (mg/L or mg/l) shall mean a unit of the concentration of a constituent or compound that is found in water or

Wastewater. It is 1 milligram of the constituent or compound in 1 liter of water or Wastewater.

50. Minor Violation shall mean a discharge over the permitted discharge limit as determined by the result of a sample analysis, as follows:
  - a) a discharge exceeding a Mass Emission Rate limit by less than 20%, or
  - b) a discharge exceeding a concentration limit by less than 20%, or.
  - c) a pH discharge equal to or greater than 5.0, but less than 6.0, or
  - d) a pH discharge greater than 12.0.
51. National Pretreatment Standard, Pretreatment Standard, or Standard shall mean any regulation containing Pollutant discharge limits promulgated by the EPA in accordance with section 307 (b) and (c) of the Act, which applies to Industrial Users. This term includes prohibitive discharges and categorical standards established pursuant to 40 CFR 403.5 and 40 CFR 403.6.
52. North American Industry Classification System (NAICS) shall mean an industry classification system that groups establishments into industries based on the activities in which they are primarily engaged.
53. National Pollutant Discharge Elimination System Permit (NPDES Permit) shall mean the permit issued to control the discharge to surface waters of the United States as detailed in Public Law 92 500, Section 402.
54. New Source shall mean those sources that are new as defined by 40 CFR 403.3(m) as revised.
55. Non-compatible Pollutant shall mean any Pollutant which is not a Compatible Pollutant as defined herein.
56. OCSD shall mean Orange County Sanitation District.
57. OCSD's Sewerage Facilities or System shall mean any property belonging to OCSD used in the collection, transportation, treatment and disposal of Wastewater.
58. Ordinance shall mean that document entitled "Wastewater Discharge Regulations" containing EOCWD requirements, conditions, and limits

for connecting and discharging to the sewer system, as may be amended and modified.

59. pH shall mean both acidity and alkalinity on a scale ranging from 0 to 14 where 7 represents neutrality, numbers less than 7 increasing acidity, and more than 7 increasing alkalinity, and is the logarithm of the reciprocal of the quantity of hydrogen ions in moles per liter of solution.
60. Pass Through shall mean discharge through OCSD's Sewerage Facilities to Waters of the U.S. which, alone or in conjunction with discharges from other sources, is a cause of a violation of OCSD's NPDES permit.
61. Permittee shall mean a Person who has received a permit to discharge Wastewater into EOCWD's Sewerage Facilities subject to the requirements and conditions established by EOCWD.
62. Person shall mean any individual, partnership, co-partnership, company, firm, association, corporation or public agency, joint stock company, trust, estate, or any other legal entity; or their legal representatives, agents, assigns, including all federal, state, and local governmental entities.
63. Pesticides shall mean those compounds classified as such under federal or state law or regulations including, but not limited to DDT (dichlorodiphenyltrichloro-ethane, both isomers); DDE (dichlorodiphenyl-ethylene); DDD (dichlorodiphenyldichloroethane); aldrin, benzene hexachloride (alpha [ $\alpha$ ], beta [ $\beta$ ], and gamma [ $\gamma$ ] isomers); chlordane; endrin; endrin aldehyde; 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD); toxaphene;  $\alpha$ -endosulfan;  $\beta$ -endosulfan; endosulfan sulfate; heptachlor; heptachlor epoxide; dieldrin; demeton; guthion; malathion; methoxychlor; mirex; and parathion.
64. Pollutant shall mean any constituent, compound, or characteristic of Wastewaters on which a discharge limit or requirement may be imposed either by EOCWD or the regulatory bodies empowered to regulate EOCWD.
65. Polychlorinated Biphenyls (PCB) shall mean those compounds classified as such under federal or state law including, but not limited to Aroclors 1016, 1221, 1228, 1232, 1242, 1248, 1254, 1260, and 1262.
66. Pretreatment shall mean the reduction of the amount of Pollutants, the elimination of Pollutants, or the alteration of the nature of Pollutant

properties in Wastewater to a level authorized by EOCWD prior to, or in lieu of, discharge of the Wastewater into EOCWD's Sewerage System. The reduction or alteration can be obtained by physical, chemical or biological processes, by process changes, or by other means.

67. Pretreatment Facility shall mean any works or devices that the General Manager determines are appropriate to treat, restrict, or prevent the flow of Industrial Wastewater prior to discharge into a public sewer.
68. Pretreatment Requirements shall mean any substantive or procedural requirement related to Pretreatment, other than a National Pretreatment Standard, imposed on an Industrial User.
69. Priority Pollutants shall mean the most recently adopted list of toxic Pollutants identified and listed by EPA as having the greatest environmental impact. They are classified as Non-compatible Pollutants and may require Pretreatment prior to discharge to prevent:
  - a) Interference with EOCWD's and/or OCSD's operation; or
  - b) biosolids contamination; or
  - c) Pass Through into receiving waters or into the atmosphere.
70. Public Agency shall mean the State of California and any city, county, district, other local authority or public body of or within this state.
71. Public Sewer shall mean a sewer owned and operated by EOCWD.
72. Publicly Owned Treatment Works or POTW shall mean a treatment works as defined by section 212 of the Act, which is owned by a state or municipality (as defined by section 502(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal Sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey Wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.
73. RCRA shall mean Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901, et seq.) and as amended.



74. Regulatory Agencies shall mean those agencies having jurisdiction over the operation of EOCWD including, but not limited to, the following:
- a) United States Environmental Protection Agency, Region IX, San Francisco and Washington, DC (EPA).
  - b) California State Water Resources Control Board (SWRCB).
  - c) California Regional Water Quality Control Board, Santa Ana Region (RWQCB).
  - d) South Coast Air Quality Management District (SCAQMD).
  - e) California Environmental Protection Agency (Cal-EPA).
75. Regulatory Compliance Schedule Agreement (RCSA) shall mean an agreement between EOCWD/OCSD and Permittee requiring the Permittee to implement Pretreatment practices and/or install equipment to ensure compliance with future revised categorical Pretreatment Standards or revised discharge limits.
76. Responsible Officer shall mean:
- a) If the applicant or User is a corporation:
    - (1) The president, secretary, treasurer, or a vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or
    - (2) The manager of one or more manufacturing, production, or operation facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for individual Wastewater discharge permit requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- b) If the applicant or User is a partnership or sole proprietorship: a general partner or proprietor, respectively.
  - c) If the applicant or User is a federal, state, or local governmental facility: a director or highest official appointed or designated to oversee the operation and performance of the activities of the government facility, or the designee.
  - d) An applicant or User not falling within one of the above categories must designate as the Responsible Officer an individual responsible for the overall operation of the facility.
77. Sample Point shall mean a location accepted by EOCWD/OCSD, from which Wastewater can be collected that is representative in content and consistency of the entire flow of Wastewater being sampled.
78. Sampling Facilities shall mean structure(s) provided at a User's expense for EOCWD/OCSD or User to measure and record Wastewater constituent mass, concentrations, collect a representative sample, or provide access to plug or terminate the discharge.
79. Sanitary Waste shall mean domestic Wastewater, human excrement, and gray water (e.g., water from household showers, dishwashing operations, etc.).
80. Septic Waste shall mean any Sewage from holding tanks such as vessels, chemical toilets, campers, trailers, and septic tanks.
81. Service Area shall mean an area for which EOCWD has agreed to provide sewer service.
82. Sewage shall mean Wastewater.
83. Sewerage Facilities or System shall mean any and all facilities owned by EOCWD and used for the collection and conveyance of Wastewater.
84. Significant Industrial User, except as provided in 40 CFR 403.3 (v)(2) and (v)(3), shall mean: (i) All Industrial Users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR chapter I, subchapter N; and (ii) Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process Wastewater to the POTW (excluding sanitary, noncontact cooling and boiler blowdown Wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW Treatment plant; or is designated as such by EOCWD/OCSD on the basis that the Industrial User has a reasonable

potential for adversely affecting the POTW's operation or for violating any Pretreatment Standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

85. Significant Non-Compliance (SNC) shall mean the compliance status of an Industrial User who is in violation of one or more of the criteria as described in 40 CFR 403.8(f)(2)(viii).
86. Slug Load or Slug Discharge shall mean any discharge at a flow rate or concentration, which could cause a violation of the prohibited discharge standards in Section 201 of this Ordinance. A Slug Discharge is any Discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch Discharge, which has a reasonable potential to cause Interference or Pass Through, or in any other way violate the POTW's regulations, Local Limits, or Permit conditions.
87. Sludge shall mean any solid, semi-solid or liquid decant, subnate or supernate from a manufacturing process, utility service, or Pretreatment Facility.
88. Special Assessment Credit shall mean the portion of the secured property tax bill that represents the regional special assessment sewer User fee as defined by OCSD or EOCWD.
89. Special Purpose User shall mean any Discharger who is granted a Special Purpose Discharge Permit by EOCWD to discharge unpolluted water, storm runoff, or groundwater to EOCWD's Sewerage Facilities.
90. Spent Solutions shall mean any concentrated Industrial Wastewater or Wastewater that is not authorized to be discharged to a Sewage facility until appropriately treated.
91. Spill Containment shall mean a protection system installed by the Permittee to prohibit the discharge to the sewer of non-compatible Pollutants.
92. Standard Methods shall mean procedures described in the current edition of *Standard Methods for the Examination of Water and Wastewater*, as published by the American Public Health Association, the American Water Works Association and Water Pollution Control Federation.
93. Suspended Solids shall mean any insoluble material contained as a component of Wastewater and capable of separation from the liquid portion of said Wastewater by laboratory filtration as determined by the

appropriate testing procedure and expressed in terms of milligrams per liter.

94. Total Organic Carbon (TOC) shall mean the measure of total organic carbon in mg/L using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures. As such, Total Toxic Organics is a subset of TOC.
95. Total Toxic Organics (TTO) shall mean the summation of all quantifiable values greater than 0.01 milligrams per liter for the organics regulated by the EPA or EOCWD/OCWD for a specific industrial category.
96. Unpolluted Water shall mean water to which no Pollutant has been added either intentionally or accidentally.
97. User shall mean any Person who discharges or causes a discharge of Wastewater directly or indirectly to a public sewer. User shall mean the same as Discharger. User includes Industrial Users as a type of User.
98. Waste-Tracking Form shall mean that receipt which is retained by the generator of hazardous wastes as required by the State of California or the United States Government pursuant to RCRA, or the California Hazardous Materials Act, or that receipt which is retained by the generator for recyclable wastes or liquid non- hazardous wastes as required by EOCWD/OCSD. The Waste-Tracking Form is typically known as a "waste manifest."
99. Wastehauler shall mean any Person carrying on or engaging in vehicular transport of brine, domestic septage (except the SAWPA Sewer Service Area in compliance with the 1996 OCSD/SAWPA Agreement), or Wastewater as part of, or incidental to, any business for the purpose of discharging directly or indirectly said Wastewater into OCSD's Sewerage System.
100. Wastewater shall mean the liquid and water-carried wastes of the community and all constituents thereof, whether treated or untreated, discharged into or permitted to enter a public sewer.
101. Wastewater Constituents and Characteristics shall mean the individual chemical, physical, bacteriological, and radiological parameters, including volume and flow rate and such other parameters that serve to define, classify or measure the quality and quantity of Wastewater.

102. Wet Weather shall mean any period of time during which measurable rainfall occurs within EOCWD's service area. This period shall include the time following the cessation of rainfall until EOCWD/OCSD determines that the wet weather event is no longer impacting EOCWD or OCSD's Sewerage System.
103. Working Day shall mean the period of time during which production or operation is taking place or any period during which discharge to the sewer is occurring.
104. Zero Discharge Certification shall mean a control mechanism that is issued by EOCWD and/or OCSD to insure that specific facilities are not discharging a Pollutant(s) that may otherwise qualify the facility for a discharge permit.

B. Words used in this Ordinance in the singular may include the plural and the plural the singular. Terms used in the masculine form shall include feminine, and terms used in the feminine form shall include masculine.

#### 103. CONFIDENTIAL INFORMATION

All user information and data on file with EOCWD shall be available to the public and governmental agencies without restriction unless the User specifically requests and is able to demonstrate to the satisfaction of EOCWD that the release of such information would divulge information, processes or methods which would be detrimental to the User's competitive position. The demonstration of the need for confidentiality made by the Permittee must meet the burden necessary for withholding such information from the general public under applicable state and federal law. Any such claim must be made at the time of submittal of the information by marking the submittal "Confidential Business Information" on each page containing such information.

Information which is demonstrated to be confidential shall not be transmitted to anyone other than a governmental agency without prior notification to the User. Wastewater constituents and characteristics and other effluent data, as defined in 40 CFR 2.302 shall not be recognized as confidential information and shall be available to the public.

#### 104. SALE OR CHANGE OF OWNERSHIP

A. Permits issued under this Ordinance are for a specific User, for a specific operation at a specific location or for a specific Wastehauler, and create no vested rights. Notwithstanding 104.C, the existing permit will be terminated

upon sale or change of ownership.

B. No permit may be transferred to allow a discharge to a public sewer from a point other than the location for which the permit was originally issued.

C. When the permittee is a legal entity (such as a corporation, partnership, limited liability company, or other legal entity), the permittee is deemed to have undergone a change of ownership when any other legal entity or person acquires direct or indirect ownership or control of more than fifty percent (50%) of the total ownership interest in the permittee.

D. At least thirty (30) days prior to the sale or change of ownership of any business operating under a permit issued by EOCWD or OCSD, the Permittee shall notify EOCWD in writing of the proposed sale or change of ownership. The successor owner shall apply to EOCWD for a new permit at least fifteen (15) days prior to the sale or change of ownership in accordance with the provisions of this Ordinance. A successor owner shall not discharge any Wastewater for which a permit is required by this Ordinance until a new permit is issued by EOCWD to the successor owner.

E.

The written notification of intended sale or change of ownership shall be in a form approved by EOCWD/OCSD and shall include a written certification by the new owner or Authorized Representative, which shall include as a minimum:

1. the specific date on which the sale or change of ownership is to occur; and
2. an acknowledgement to comply fully with all the terms, conditions, limits, and provisions of this Ordinance and the new permit.

105. RESERVED

106. AUTHORITY

A. EOCWD is regulated by several agencies of the United States Government and the State of California, pursuant to the provisions of federal and state Law. Federal and state laws grant to EOCWD the authority to regulate and/or prohibit, by the adoption of ordinances or resolutions, and by issuance of discharge certifications, or discharge permits, the discharge of any Wastewater, directly or indirectly, to EOCWD's Sewerage Facilities. Said authority includes the right to establish limits, conditions, and prohibitions; to establish flow rates or prohibit flows discharged to EOCWD's Sewerage Facilities; to require the development of compliance schedules for the installation of equipment systems and materials by all Users; and to take all actions necessary to enforce its authority including implementation of the

Enforcement Response Plan, whether within or outside EOCWD's boundaries, including those Users that are tributary to EOCWD or within areas for which EOCWD has contracted to provide sewerage services.

- B. EOCWD has the authority pursuant to California Health and Safety Codes 5471 and 5474 to prescribe, revise, and collect all fees and charges for services and facilities furnished by EOCWD either within or without its territorial limits.

#### 107. DELEGATION OF AUTHORITY

Whenever any power is granted to or a duty is imposed upon the General Manager, the power may be exercised or the duty may be performed by any person so authorized by the General Manager.

#### 108. SIGNATORY REQUIREMENTS

Reports and permit applications required by this Ordinance shall contain the following certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

The statement shall be signed by an authorized representative of the Industrial User as defined in 40 CFR 403.12(l) or as defined and designated by EOCWD.

#### 109. RECORD KEEPING REQUIREMENTS

Any User subject to EOCWD's reporting requirements shall maintain and make available for inspection and copying records of all information obtained pursuant to, or resulting from, any monitoring activities required by EOCWD, including documentation associated with Best Management Practices, and any additional records or information obtained pursuant to monitoring activities undertaken by the User independent of such requirements. Such records shall include information as shown in 40 CFR 403.12(o)(1) and (2). These records shall remain available for a period of at least three (3) years. This period shall be automatically extended for the duration of any litigation concerning the User or EOCWD, or where the User has been specifically notified of a longer retention period by the General Manager.

## ARTICLE 2. GENERAL PROHIBITIONS, LIMITS AND REQUIREMENTS FOR DISCHARGE

### 201. PROHIBITED DISCHARGES

These prohibitions apply to all Users of EOCWD's Sewerage Facilities whether or not they are subject to Federal Categorical Pretreatment Standards or any other national, state, or local Pretreatment Standards or requirements.

#### A. General Prohibitions.

1. No User shall introduce or cause to be introduced into EOCWD's Sewerage Facilities any Pollutant, Wastewater, or flow which causes Pass Through or Interference or would cause EOCWD to violate any federal, state, or local regulatory requirement.
2. No User shall increase the contribution of flow, Pollutants, or change the nature of Pollutants where such contribution or change does not meet applicable standards and requirements or where such contribution would cause EOCWD to violate any federal, state, or local regulatory permit.
3. No Person shall transport Wastewater from one location or facility to another for the purpose of treating or discharging it directly or indirectly to EOCWD's Sewerage Facilities without written permission from EOCWD.
4. No Person shall deliver by vehicular transport, rail car, or dedicated pipeline, directly or indirectly to EOCWD's Sewerage Facilities, Wastewater which contains any substance that is defined as a hazardous waste by the Regulatory Agencies.

#### B. Specific Prohibitions. No User shall introduce or cause to be introduced into the Sewerage Facilities, any Pollutant, substance, or Wastewater which:

1. Creates a fire or explosive hazard in the Sewerage Facilities including, but not limited to, wastestreams with a closed-cup flashpoint of less than 140 degrees Fahrenheit (60 degrees Centigrade) using the test methods specified in 40 CFR 261.21; or produces a gaseous mixture that is 10% or greater of the lower explosive limit (LEL).
2. Causes obstruction to the flow in the Sewerage Facilities resulting in interference or damage to the Sewerage Facilities.



3. Produces noxious or malodorous liquids, gases, solids, or other Wastewater which, either singly or by interaction with other Wastes, is sufficient to create a public nuisance or a hazard to life, or to prevent entry into the Sewerage Facilities for maintenance or repair.
4. Results in toxic gases, vapors, or fumes within the Sewerage Facilities in a quantity that may cause acute worker health and safety problems.
5. Contains any radioactive Wastes or isotopes except in compliance with applicable regulations from other governmental agencies empowered to regulate the use of radioactive materials.
6. Causes, alone or in conjunction with other sources, EOCWD's treatment plant effluent to fail a toxicity test.
7. Causes EOCWD's effluent or any other product of the treatment process, residues, biosolids, or scums, to be unsuitable for reclamation, reuse or disposal. Examples of items which may cause these conditions include, but are not limited, to food packaging, product containers, and non-dispersible products.
8. Causes discoloration or any other condition which affects the quality of EOCWD's influent or effluent in such a manner that inhibits EOCWD's ability to meet receiving water quality, biosolids quality, or air quality requirements established by Regulatory Agencies.
9. Creates excessive foaming in the Sewerage Facilities.
10. Violates any applicable Federal Categorical Pretreatment Standards, statute, regulation, or ordinance of any public agency or Regulatory Agency having jurisdiction over the operation of or discharge of Wastewater through the Sewerage Facilities.
11. Has a temperature higher than 140 degrees Fahrenheit, (60 degrees Centigrade), or which causes the temperature at the treatment plant to exceed 104 degrees Fahrenheit (40 degrees Centigrade).
12. Has a pH less than 6.0 or greater than 12.0.
13. Causes corrosion, fouling, occlusion, or damage to the POTW beyond normal wear and tear.

14. Is released in a discharge at a flow rate and/or Pollutant concentration (including oxygen-demanding Pollutant (BOD, etc.)) which will cause interference with EOCWD's Sewerage Facilities.
15. Is in excess of the permitted OCSD Mass Emission Rates established in accordance with Section 213, or the concentration limits set forth in Table 1, or the discharge permit.
16. Contains material which will readily settle or cause an obstruction to flow in the Sewerage Facilities resulting in interference, such as, but not limited to, sand, mud, glass, metal filings, diatomaceous earth, cat litter, asphalt, wood, bones, hair, fleshings, food packaging, product containers, and non-dispersible products.
17. Includes petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or Pass Through.
18. Causes the Orange County Water District Groundwater Replenishment System product water to exceed its TOC limit of 0.5 mg/L.

## 202. PROHIBITION ON DILUTION

No User shall increase the use of water or in any other manner attempt to dilute a discharge as a partial or complete substitute for treatment to achieve compliance with this Ordinance and the User's permit or to establish an artificially high flow rate for permit Mass Emission Rates.

## 203. PROHIBITION ON SURFACE RUNOFF AND GROUNDWATER

- A. No Person shall discharge groundwater, surface runoff, or subsurface drainage directly or indirectly to EOCWD's Sewerage Facilities except as provided herein. Pursuant to Section 304 or 305, et seq., EOCWD may approve the discharge of such water only when no alternate method of disposal is reasonably available or to mitigate an environmental risk or health hazard.
- B. The discharge of such waters shall require a Dry Weather Urban Runoff Discharge Permit or a Special Purpose Discharge Permit from EOCWD and OCSD.
- C. If a permit is granted for the discharge of such water into a Public Sewer, the User shall pay all applicable charges and shall meet such other conditions as required by EOCWD and OCSD.

204. PROHIBITION ON UNPOLLUTED WATER

- A. No Person shall discharge unpolluted water such as single pass cooling water directly or indirectly to EOCWD's Sewerage Facilities except as provided herein. Pursuant to Section 305, et seq., EOCWD may approve the discharge of such water only when no alternate method of disposal or reuse is reasonably available or to mitigate an environmental risk or health hazard.
- B. The discharge of such waters shall require a Special Purpose Discharge Permit from EOCWD/OCSD.
- C. If a permit is granted for the discharge of such water into a public sewer, the User shall pay all applicable charges and shall meet such other conditions as required by EOCWD/OCSD.

205. PROHIBITION ON SLUG DISCHARGES AND NOTIFICATION REQUIREMENT

EOCWD has the right to control slug discharges, if it is determined to be necessary. All Significant Industrial Users are required to notify EOCWD immediately of any changes at their facilities that could affect the potential for a slug discharge.

206. PROHIBITION ON THE USE OF GRINDERS

- A. Waste from industrial or commercial grinders shall not be discharged into a Public Sewer, except wastes generated in packing or preparing food or food products. Such grinders must shred the waste to a degree that all particles will be carried freely under normal flow conditions prevailing in the Public Sewer.
- B. Waste from Food Service Establishments operating a grinder is prohibited and shall not be discharged into a Public Sewer unless written authorization from the General Manager is obtained.

207. PROHIBITION ON POINT OF DISCHARGE

No Person, except Local Sewering Agencies involved in maintenance functions of sanitary sewer facilities, shall discharge any Wastewater directly into a manhole or other opening in a sewer other than through an approved building sewer, unless approved by EOCWD upon written application by the User and payment of the applicable fees and charges established therefor.

208. HAZARDOUS WASTE DISCHARGE NOTIFICATION REQUIREMENT

Any User that discharges any hazardous waste into the Sewerage System shall notify EOCWD immediately as required by 40 CFR 403.12(p).

209. PROHIBITION ON MEDICAL WASTE

- A. No solid Wastes consisting of, but not limited to, hypodermic needles, syringes, instruments, utensils or other paper and plastic items from hospitals, clinics, offices of medical doctors, convalescent homes, medical laboratories or other medical facilities shall be discharged to the Sewerage System, unless prior written approval for such discharges has been granted by the General Manager.
- B. EOCWD shall have the authority to require that any discharge of etiologic agents or infectious agents or substances to the Sewerage System be rendered inactive and noninfectious prior to discharge if the infectious Waste is deemed to pose a threat to the public health and safety, or can become an etiologic agent subsequent to discharge to the Sewerage System, or will result in any violation of applicable Wastewater discharge requirements.
- C. No unused, unwanted, or expired pharmaceuticals (both over the counter and prescription-only medications) shall be disposed of in the Sewerage System, except in accordance with federal and state regulations, or in the absence of such regulations, using Best Management Practices.

210. PROHIBITION ON DISPOSAL OF SPENT SOLUTIONS AND SLUDGES

Spent solutions, sludges, and materials of quantity or quality in violation of, or prohibited by this Ordinance, or any permit issued under this Ordinance must be disposed of in compliance with all regulatory requirements at a permitted point of disposal as defined by EOCWD/OCSD or Regulatory Agency with jurisdiction thereof.

If the point of disposal is at an OCSD-permitted treatment facility, all Waste-Tracking Forms shall be retained for a minimum of three years by the facility and Wastehauler of said Wastewater, and made available for copying for review upon request.

211. RESERVED

212. MASS EMISSION RATE DETERMINATION

- A. Mass Emission Rates for non-compatible or Compatible Pollutants that are present or anticipated in the User's Wastewater discharge may be set for each User and made an applicable part of each User's permit. These rates shall be based on Table 1, Maximum Allowable Local Discharge Limits, or Federal Categorical Pretreatment Standards, and the User's average daily Wastewater discharge for the past three years, the most recent representative data, or other data acceptable to the General Manager.

- B. To verify the User's operating data, EOCWD may require the User to submit an inventory of all Wastewater streams and/or records indicating production rates.
- C. EOCWD may revise limits or Mass Emission Rates previously established in the discharger's permit at any time, based on: current or anticipated operating data of the discharger or EOCWD; EOCWD's ability to meet NPDES limits; or changes in the requirements of Regulatory Agencies.
- D. The excess use of water to establish an artificially high flow rate for Mass Emission Rate determination is prohibited.

213. MAXIMUM ALLOWABLE LOCAL DISCHARGE LIMITS

EOCWD's and OCSD's Maximum Allowable Local Discharge Limits are shown in Table 1 below.

TABLE 1

| MAXIMUM ALLOWABLE LOCAL NON-DOMESTIC DISCHARGE LIMITS <sup>(1)</sup>  |                         |
|---|-------------------------|
| <u>CONSTITUENT</u>  | <u>MILLIGRAMS/LITER</u> |
| 1,4-dioxane <sup>(2)</sup>  | 1.0                     |
| Ammonia   | Mass <sup>(3)</sup>     |
| Arsenic   | 2.0                     |
| Biochemical Oxygen Demand (BOD)   | Mass <sup>(3)</sup>     |
| Cadmium   | 1.0                     |
| Chromium (Total)  | 20.0                    |
| Copper  | 3.0                     |
| Cyanide (Total)   | 5.0                     |
| Lead  | 2.0                     |
| Mercury   | 0.03                    |
| Molybdenum  | 2.3                     |
| Nickel  | 10.0                    |
| Pesticides  | 0.01                    |
| Oil and Grease of Mineral or Petroleum Origin <sup>(4)</sup>  | 100.0                   |
| Polychlorinated Biphenyls (PCB)   | 0.01                    |
| Selenium  | 3.9                     |
| Silver  | 15.0                    |
| Sulfide (Dissolved)   | 0.5                     |
| Sulfide (Total)   | 5.0                     |
| Zinc  | 10.0                    |
| MAXIMUM ALLOWABLE DISCHARGE LIMITS FOR WASTEHAULERS<br>DISCHARGING DOMESTIC SEPTAGE TO THE<br>EOCWD WASTEHAULER STATION |                         |
| <u>CONSTITUENT</u>  | <u>MILLIGRAMS/LITER</u> |
| Cadmium   | 1.0                     |
| Chromium  | 35.0                    |
| Copper  | 25.0                    |
| Lead  | 10.0                    |

|        |      |
|--------|------|
| Nickel | 10.0 |
| Zinc   | 50.0 |

- (1) Users subject to Federal Categorical Pretreatment Standards may be required to meet more stringent limits.
- (2) 1,4-dioxane is also known as "p-dioxane."
- (3) BOD and ammonia mass discharged will be tracked by OCSD and Users. It is the Permittee's responsibility to report the intended technically-based mass use to OCSD.
- (4) "Oil and Grease of Mineral or Petroleum Origin" is also known as "Petroleum Oil and Grease as Silica Gel Treated n-Hexane Extractable Material" or "SGT-HEM Non-Polar Material."

## ARTICLE 3. DISCHARGE PERMITS, CERTIFICATIONS, CHARGES, AND FEES

### 301. INTRODUCTION

- A. To provide the maximum public benefit from the use of EOCWD's and OCSD's Sewerage Facilities, written authorization to use said facilities is required. This written authorization shall be in the form of a discharge permit or certification. No vested right shall be given by issuance of permits or certifications provided for in this Ordinance. EOCWD/OCSD reserves the right to establish, by Ordinance regulation, or in Wastewater Discharge Permits or certifications, more stringent standards or requirements on discharges to EOCWD Sewerage Facilities if deemed by the General Manager appropriate to comply with this Ordinance and the requirements of Regulatory Agencies.
- B. The discharge permit shall be in one of five forms and is dependent upon the type of discharger, volume, and characteristics of discharge. The five discharge permits are:
1. Class I Wastewater Discharge Permit.
  2. Class II Wastewater Discharge Permit.
  3. Dry Weather Urban Runoff Discharge Permit.
  4. Special Purpose Discharge Permit.
- C. The Discharge Certification is issued to those Users that are discharging regulated Wastewater but are not otherwise required to obtain a discharge permit.
- D. The Zero Discharge Certification is issued to certify that a particular Pollutant or process is not used or discharged to EOCWD and/or OCSD, even though regulated process Wastewater may still be generated on-site and eventually wastehailed or otherwise eliminated. Such a facility does not require a discharge permit, but may require a Zero Discharge Certification.
- E. A permit issued under OCSD's Wastewater Discharge Ordinance shall be valid under this Ordinance.

### 302. CLASS I WASTEWATER DISCHARGE PERMITS

- A. No User requiring a Class I permit shall discharge Wastewater without obtaining a Class I Wastewater Discharge Permit.
- B. Class I Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other regulations, charges for use, and fees established by OCSD. The conditions of Wastewater Discharge Permits shall be enforced by OCSD in accordance with this Ordinance and applicable state and federal regulations.
- C. All Class I Users proposing to discharge directly or indirectly into the EOCWD and OCSD Sewerage Facilities shall obtain a Wastewater Discharge Permit by filing an application pursuant to Section ARTICLE 2 and paying the applicable fees pursuant to Section 302.3. For purposes of this Ordinance, a Class I User is any User:
  - 1. Subject to Federal Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR chapter I, subchapter N; or
  - 2. That discharges an average of 25,000 gallons per day or more of process Wastewater to the EOCWD System and the OCSD POTW (excluding sanitary, noncontact cooling and boiler blowdown Wastewater); or
  - 3. Contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the EOCWD system and/or the OCSD POTW; or
  - 4. That is designated as such by EOCWD/OCSD on the basis that the Industrial User has a reasonable potential for adversely affecting the EOCWD System and/or OCSD's POTW operation or for violating any Pretreatment Standard, local limit or requirement (in accordance with 40 CFR 403.8(f)(6)); or
  - 5. That may cause Pass Through affecting OCSD's ability to comply with its NPDES Permit or other regulations and standards; or
  - 6. That may cause Interference with OCSD's Sewerage Facilities.

### 302.1 Class I Wastewater Discharge Permit Application

- A. Any User required to obtain a Class I Wastewater Discharge Permit shall complete and file with OCSD, prior to commencing discharge, an application on the form prescribed by OCSD. The applicant shall submit, in units and terms appropriate for evaluation, the following information:
  - 1. Name, address, assessor's parcel number(s), NAICS number(s), description of the manufacturing process or service activity.



2. (Whichever is applicable) name, address of any and all principals/owners/major shareholders of company; Articles of Incorporation; most recent Report of the Secretary of State; Business License.
3. Volume of Wastewater to be discharged.
4. Name of individual who can be served with notices other than officers of corporation.
5. Name and address of property owner, landlord and/or manager of the property.
6. Water supplier and water account numbers.
7. Wastewater constituents and characteristics as required by OCSD, including, but not limited to, those mentioned in Section 213, Mass Emission Rate Determination, and Table 1, Local Discharge Limits, of this Ordinance. These constituents and characteristics shall be determined by a laboratory selected by the discharger and acceptable to OCSD.
8. Time and duration of discharge.
9. Number of employees per shift and hours of work per employee per day for each shift.
10. Waste minimization, best management practices, and water conservation practices.
11. Production records, if applicable.
12. Waste-Tracking Forms, if applicable.
13. Landscaped area in square feet, if applicable.
14. Tons of cooling tower capacity, if applicable.
15. EPA Hazardous Waste Generator Number, if applicable.
16. Any other information as specified.

- B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, spill containment, clarifiers, Pretreatment equipment, and appurtenances by size, location, and elevation for evaluation.

- C. Applicants may also be required to submit information related to the applicant's business operations, processes, and potential discharge as may be requested by OCSD to properly evaluate the permit application.
- D. After evaluation of the data, OCSD may issue a Wastewater Discharge Permit, subject to terms and conditions set forth in this Ordinance and as otherwise determined by the OCSD General Manager to be appropriate to protect EOCWD's and OCSD's Sewerage Facilities.
- E. The permit application may be denied if the applicant fails to establish to OCSD's satisfaction that adequate Pretreatment equipment is included within the applicant's plans to ensure that the discharge limits will be met or if the applicant has, in the past, demonstrated an inability to comply with applicable discharge limits.
- F. The permit application may be denied if the applicant has in the past demonstrated an inability to keep current with OCSD invoices for items such as Permit Fees, Non-Compliance Resampling Fees, Civil Penalties, Administrative Civil Penalties, Charges for Use, and Supplemental Capital Facilities Capacity Charges.

#### 302.2 Class I Permit Conditions, and Limits

- A. A Class I permit shall contain all of the following conditions or limits:
  1. Mass Emission Rates and concentration limits regulating non-compatible Pollutants.
  2. Requirements to notify OCSD in writing prior to modification to processes or operations through which Industrial Wastewater may be produced.
  3. Location of the User's on-site sampling point.
  4. Requirements for submission of self-monitoring reports, technical reports, production data, discharge reports, compliance with Pretreatment Standards, BMP-based Categorical Pretreatment Standards and/or local limits, and/or Waste-Tracking Forms.
  5. Requirements for maintaining, for a minimum of three (3) years, plant records relating to Wastewater discharge, and Waste-Tracking Forms as specified by OCSD.
  6. Requirements to submit copies of tax and water bills.
- B. A Class I permit may contain any of the following conditions and/or limits:

1. Requirements for the User to construct and maintain, at his own expense, appropriate Pretreatment equipment, pH control, Flow Monitoring Facilities, and sampling facilities.
2. Limits on rate and time of discharge or requirements for flow regulation and equalization.
3. Requirements to self-monitor.
4. Assumed values for BOD and suspended solids characteristics that typify the Discharger's effluent for determination of the charge for use.
5. Other terms and conditions which may be appropriate to ensure compliance with this Ordinance or determined by the General Manager to be appropriate to protect OCSD's Sewerage System.

### 302.3 Class I Permit Fee

- A. The Class I permit fee shall be in an amount adopted by Ordinance of the Board of Directors. The permit fee shall be payable at the time a permit application is submitted for the issuance of a new permit or a renewed permit. Payment of permit fees must be received by OCSD prior to issuance of either a new permit or a renewed permit. Permittee shall also pay any delinquent invoices in full prior to permit renewal.
- B. Any permit issued for a location wherein the Permittee is not the property owner may be conditioned upon depositing financial security to guarantee payment of all annual fees and charges to be incurred, in accordance with the provisions of Section 623.(E) of this Ordinance.

### 302.4 Class I Permit Modification of Terms and Conditions

- A. The terms and conditions of an issued permit may be subject to modification and change in the sole determination by the General Manager during the life of the permit based on:
  1. The Discharger's current or anticipated operating data;
  2. OCSD's current or anticipated operating data;
  3. Changes in the requirements of Regulatory Agencies which affect EOCWD and/or OCSD; or
  4. A determination by the General Manager that such modification is appropriate to further the objectives of this Ordinance.

- B. New source indirect Dischargers shall be required to install and start up any necessary pollution control equipment before beginning discharge, and comply with applicable Federal Categorical Pretreatment Standards not to exceed thirty (30) days after the commencement of discharge.
- C. Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested change, and the reasons for the change. OCSD shall review the request, make a determination on the request, and respond in writing.
- D. Permittee shall be informed of any change in the permit limitations, conditions, or requirements at least forty-five (45) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

### 302.5 Class I Permit Duration and Renewal

Class I permits shall normally be issued for a period not to exceed four (4) years. At least forty-five (45) days prior to the expiration of the permit, the User shall apply for renewal of the permit in accordance with the provisions of this Article 3.

### 302.6 Class I Permit Charge for Use

- A. The purpose of a charge for use is to ensure that each recipient of sewerage service from OCSD pays its reasonably proportionate share of all the costs of providing that sewerage service. Charges for use to recover the cost of conveying, treating, and disposing of Sewage in OCSD's Sewerage Facilities are exclusive of any fees levied by EOCWD. The charge for use shall be based on the total maintenance, operation, capital expenditures, and reserve requirements for providing Wastewater collection, treatment, and disposal.
- B. A Discharger who is issued a Class I Wastewater Discharge Permit under the provisions of this Ordinance shall pay a charge for use in accordance with the formula contained herein and the unit charge rates adopted by Ordinance of the Board of Directors. These fees shall be invoiced on a quarterly basis. The quarterly invoice shall be based upon an estimate of the annual use as determined by OCSD. OCSD shall compute the charge for use based upon actual use for the preceding fiscal year on an annual reconciliation statement.
- C. The charge for use is payable within forty-five (45) days of invoicing by OCSD. A special assessment credit will be allowed for any regional sanitary sewer service charge adopted by the OCSD Board of Directors by separate Ordinance and levied against the permitted property.
- D. In order for OCSD to determine actual annual water use, the User shall provide to OCSD copies of its water bills. If these water bill copies are not

received by August 15th of each year for the 12 month period ended closest to June 30, OCSD will endeavor to obtain the water use data. Data obtained by OCSD will be considered correct and will not be adjusted before the next annual reconciliation statement. There shall be a fee levied for OCSD administrative costs when OCSD obtains water use data. OCSD's Board of Directors shall adopt the amount of the fee.

E. The charge for use shall be computed by the following formula: Charge for Use

$$= VoV + BoB + SoS - \text{Special Assessment Credit}$$

E. Where V = total annual volume of flow, in millions of gallons

B = total annual discharge of biochemical oxygen demand, in thousands of pounds

S = total annual discharge of suspended solids, in thousands of pounds

Vo, Bo, So = Unit Charge rates established and adopted by Ordinance of OCSD's Board of Directors, based upon the funding requirements of providing sewerage service, in dollars per unit as described in Paragraph F below:

F. The Unit Charge rates in the charge-for-use formula shall be determined by the following method:

1. An Operations and Maintenance component of the Unit Charge for the total annual operation and maintenance funding requirements of the Sewerage System shall be levied at a rate to be determined from time to time by the OCSD Board of Directors. This Charge shall be allocated among the three Wastewater charge parameters of flow, biochemical oxygen demand and suspended solids in accordance with the General Manager's determination as to the costs associated with each parameter and pursuant to applicable requirements of state and federal Regulatory Agencies.

The operation and maintenance costs as distributed to flow, biochemical oxygen demand and suspended solids shall be divided by the projected annual total flow volume and weights of biochemical oxygen demand and suspended solids to be treated by the Sewerage System in the budgeted year.

2. A Capital Facilities Replacement Service component of the Unit Charge for capital replacement and capital improvement shall be levied at a rate to be determined from time to time by the Board of Directors. This charge shall be allocated among Wastewater charge parameters of flow, biochemical oxygen demand, and suspended solids

in accordance with the OCSD General Manager's determination of which portion of the charge predominantly relates to each parameter.

The capital facilities charge distributed to biochemical oxygen demand, and suspended solids shall be divided by the projected annual weights of biochemical oxygen demand and suspended solids to be treated by the Sewerage System in the budgeted year.

3. The Unit Charge rates for each respective Wastewater component in (1) and (2) above shall be summed. The Unit Charge rates so determined will be expressed in dollars per million gallons for Vo, and in dollars per thousand pounds for Bo and So.
- G. Other measurements of the organic content of the Wastewater of a Discharger, such as COD or TOC, may be used instead of BOD. However, the Discharger must establish to the General Manager's satisfaction a relationship between the BOD of the Wastewater and the parameter of measure. This relationship shall be used by OCSD in determining the charge for use.

When Wastewater from sanitary facilities is discharged separately from the other Wastewater of a Discharger, the charge for use for discharging the Wastewater may be determined by using the following:

1. 25 gallons per employee per eight-hour working day.
2. BOD and suspended solids to be calculated at domestic Wastewater strength per employee per year.

The number of employees will be considered as the average number of people employed full time on a daily basis. This may be determined by averaging the number of people employed at the beginning and end of each quarter, or other period that reflects normal employment fluctuations.

### 303. CLASS II WASTEWATER DISCHARGE PERMITS

- A. No User requiring a Class II permit shall discharge Wastewater without obtaining a Wastewater Discharge Permit.
- B. Class II Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other regulations, charges for use and fees established by OCSD. The conditions of Wastewater Discharge Permits shall be enforced by OCSD in accordance with this Ordinance and applicable state and federal regulations.
- C. All Class II Users proposing to discharge directly or indirectly into

EOCWD's and OCSD's Sewerage Facilities shall obtain a Wastewater discharge Permit by filing an application pursuant to Section ARTICLE 1 and paying the applicable fees pursuant to Section 303.3. For purposes of this Ordinance, a Class II User is any User:

1. Whose charge for use is greater than the special assessment OCSD Sewer User Fee" included on the County of Orange secured property tax bill exclusive of debt service; and
2. Discharging Wastewater other than sanitary; and
3. Not otherwise required to obtain a Class I permit.

### 303.1 Class II Wastewater Discharge Permit Application

- A. Any User required to obtain a Class II Wastewater Discharge Permit shall complete and file with OCSD, prior to commencing discharge, an application on the form prescribed by OCSD. The applicant shall submit, in units and terms appropriate for evaluation, the following information:
1. Name, address, assessor's parcel number(s) and NAICS number(s); description of the manufacturing process or service activity.
  2. (Whichever is applicable) Name, address of any and all principals/owners/major shareholders of company; Articles of Incorporation; most recent Report of the Secretary of State; Business License.
  3. Volume of Wastewater to be discharged.
  4. Name of individual who can be served with notices other than officers of corporation.
  5. Name and address of property owner, landlord and/or manager of the property.
  6. Water supplier and water account numbers.
  7. Wastewater constituents and characteristics as required by OCSD, including, but not limited to, those mentioned in Section 213, Mass Emission Rate Determination, and Table 1, Local Discharge Limits of this Ordinance. These constituents and characteristics shall be determined by a laboratory selected by the Discharger and acceptable to OCSD.
  8. Time and duration of discharge.

9. Number of employees and average hours of work per employee per day.
  10. Production records, if applicable.
  11. Waste-Tracking Forms, if applicable.
  12. Landscaped area in square feet, if applicable.
  13. Tons of cooling tower capacity, if applicable.
  14. EPA Hazardous Waste Generator Number, if applicable.
  15. Any other information as specified.
- B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, spill containment, clarifiers, Pretreatment systems, and appurtenances by size, location, and elevation for evaluation.
- C. Applicants may also be required to submit other information related to the applicant's business operations, processes, and potential discharge as may be requested to properly evaluate the permit application.
- D. After evaluation of the data furnished, OCSD may issue a Wastewater Discharge Permit, subject to terms and conditions set forth in this Ordinance and as otherwise determined by the General Manager to be appropriate to protect the OCSD system.
- E. The permit application may be denied if the applicant fails to establish to OCSD's satisfaction that adequate Pretreatment equipment is included within the applicant's plans to ensure that the discharge limits will be met or if the applicant has, in the past, demonstrated an inability to comply with applicable discharge limits.

### 303.2 Class II Permit Conditions and Limits

- A. A Class II permit shall contain all of the following conditions and/or limits:
1. Applicable Mass Emission Rates and concentration limits regulating non-compatible Pollutants.
  2. Requirements to notify OCSD in writing prior to modification to processes or operations through which Industrial Wastewater may be produced.



3. Location of the User's on-site sample point.
  4. Requirements for submission of technical reports, production data, discharge reports, and/or Waste-Tracking Forms.
  5. Requirements to submit copies of tax and water bills.
- B. A Class II permit may contain any of the following conditions and/or limits:
1. Requirements for the User to construct and maintain, at his own expense, appropriate Pretreatment equipment, pH control, flow monitoring and/or sampling facilities.
  2. Limits on rate and time of discharge or requirements for flow regulation and equalization.
  3. Assumed values for BOD and suspended solids characteristics that typify the Discharger's effluent for determination of the charge for use.
  4. Requirements to self-monitor.
  5. Requirements for maintaining, for a minimum of three years, plant records relating to Wastewater discharge, and Waste-Tracking Forms as specified by OCSD.
  6. Other provisions which may be appropriate to ensure compliance with this Ordinance.
  7. Other terms and conditions determined by the General Manager to be appropriate to protect EOCWD's and OCSD's Sewerage Systems.

### 303.3 Class II Permit Fee

- A. The Class II permit fee shall be in an amount adopted by Ordinance of the Board of Directors. The permit fee shall be payable at the time a permit application is submitted for the issuance of a new permit or a renewed permit. Payment of the permit fee must be received by OCSD prior to issuance of either a new permit or a renewed permit. Permittee shall also pay any delinquent invoices in full prior to permit renewal.
- B. Any permit issued for a location wherein the Permittee is not the property owner may be conditioned upon depositing financial security to guarantee payment of all annual fees and charges to be incurred, in accordance with the provisions of Section 623.(E) of this Ordinance.

### 303.4 Class II Permit Modification of Terms and Conditions

- A. The terms and conditions of an issued permit may be subject to modification and change in the sole determination by the General Manager during the life of the permit based on:
  - 1. The Discharger's current or anticipated operating data;
  - 2. OCSD's current or anticipated operating data;
  - 3. Changes in the requirements of Regulatory Agencies which affect EOCWD and/or OCSD; or
  - 4. A determination by the General Manager that such modification is appropriate to further the objectives of this Ordinance.
- B. The Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested change, and the reasons for the change. OCSD shall review the request, make a determination on the request, and respond in writing.
- C. Permittee shall be informed of any change in the permit limitations, conditions, or requirements at least forty-five (45) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

### 303.5 Class II Permit Duration and Renewal

Class II permits shall normally be issued for a period not to exceed five (5) years. At least forty-five (45) days prior to the expiration of the permit, the User shall apply for renewal of the permit in accordance with the provisions of this Article 3.

### 303.6 Class II Permit Charge for Use

- A. The purpose of a charge for use is to ensure that each recipient of sewerage service from EOCWD and OCSD pays its reasonably proportionate share of all the costs of providing that sewerage service. Charges for use to recover the cost of conveying, treating, and disposing of Sewage in OCSD's Sewerage Facilities are exclusive of any fees levied by EOCWD. The charge for use shall be based on the total maintenance, operation, capital expenditures, and reserve requirements for providing Wastewater collection, treatment, and disposal.
- B. A Discharger who is issued a Class II Wastewater Discharge Permit under the provisions of this Ordinance shall pay a charge for use in accordance with the formula contained herein and the Unit Charge rates adopted

annually by Ordinance of the Board of Directors. These fees shall be invoiced on a quarterly basis. The quarterly invoice shall be based upon an estimate of the annual use as determined by OCSD.

Annually, OCSD shall compute the charge for use based upon actual use for the preceding fiscal year on an annual reconciliation statement. The charge for use is payable within forty-five (45) days of invoicing by OCSD. A special assessment credit will be allowed for any regional sanitary sewer service charge adopted by the Board of Directors by separate Ordinance and levied against the permitted property.

- C. In order for OCSD to determine actual annual water use, the User shall provide to OCSD copies of its water bills. If these water bill copies are not received by August 15th of each year for the 12 month period ended closest to June 30, OCSD will endeavor to obtain the water use data. Data obtained by OCSD will be considered correct and will not be adjusted before the next annual reconciliation statement.

There shall be a fee levied for OCSD administrative costs when water use data is obtained by OCSD. The amount of the fee shall be adopted by the Board of Directors.

- D. The charge for use shall be computed by the following formula: Charge

for Use =  $VoV + BoB + SoS - \text{Special Assessment Credit}$  Where V =

total annual volume of flow, in millions of gallons

B = total annual discharge of biochemical oxygen demand, in thousands of pounds

S = total annual discharge of suspended solids, in thousands of pounds

Vo, Bo, So = Unit Charge rates adopted annually by Ordinance of OCSD's Board of Directors, based upon the funding requirements of providing sewerage service, in dollars per unit as described in Paragraph E below.

- E. The unit charge rates in the charge for use formula shall be established annually and shall be determined by the following method:

1. An Operations and Maintenance component of the Unit Charge for the total annual operation and maintenance funding requirements of the Sewerage System shall be levied at a rate to be determined from time to time by the OCSD Board of Directors. This charge shall be allocated among the three Wastewater charge parameters of flow, biochemical oxygen demand and suspended solids in accordance with the General Manager's determination as to the

costs associated with each parameter and pursuant to applicable requirements of state and federal Regulatory Agencies.

The operation and maintenance costs as distributed to flow, biochemical oxygen demand and suspended solids shall be divided by the projected annual total flow volume and weights of biochemical oxygen demand and suspended solids to be treated by the Sewerage System in the budgeted year.

2. A Capital Facilities Replacement component of the Unit Charge for capital replacement and capital improvement shall be levied at a rate to be determined from time to time by the Board of Directors. This charge shall be allocated among the three Wastewater charge parameters of flow, biochemical oxygen demand and suspended solids in accordance with the General Manager's determination of which portion of the charge predominantly relates to each parameter.

The capital facilities charge distributed to biochemical oxygen demand and suspended solids shall be divided by the projected annual weights of biochemical oxygen demand and suspended solids to be treated by the OCSD Sewerage System in the budgeted year.

3. The unit charge rates for each respective Wastewater component in (1) and (2) above shall be summed. The Unit Charge rates so determined will be expressed in dollars per million gallons for  $V_o$ , and in dollars per thousand pounds for  $B_o$  and  $S_o$ .

- F. Other measurements of the organic content of the Wastewater of a Discharger, such as COD or TOC, may be used instead of BOD. However, the Discharger must establish to the OCSD General Manager's satisfaction a relationship between the BOD of the Wastewater and the other parameter of measure. This relationship shall be used by OCSD in determining the charge for use. When Wastewater from sanitary facilities is discharged separately from the other Wastewater of a Discharger, the charge for use for discharging the sanitary Wastewater may be determined by using the following:

1. 25 gallons per employee per eight-hour working day.
2. BOD and suspended solids to be calculated at domestic Wastewater strength per employee per year.

The number of employees will be considered as the average number of people employed full time on a daily basis. This may be determined by averaging the number of people employed at the

beginning and end of each quarter, or other period that reflects normal employment fluctuations.

### 304. DRY WEATHER URBAN RUNOFF DISCHARGE PERMITS

- A. No User shall discharge urban runoff directly to EOCWD's/ OCSD's Sewerage System without obtaining a Dry Weather Urban Runoff Discharge Permit.
- B. EOCWD/OCSD shall determine whether the dry weather urban runoff proposed to be discharged into EOCWD's/OCSD's Sewerage System may cause a potential environmental risk and/or health hazard that cannot be economically or practically controlled by alternative disposal methods.
- C. Dry Weather Urban Runoff Discharge Permits shall be subject to all provisions of this Ordinance and all other regulations, charges for use, and fees established by EOCWD/ OCSD.
- D. All Users required to obtain a Dry Weather Urban Runoff Discharge Permit proposing to discharge directly or indirectly into EOCWD's/OCSD's Sewerage Facilities shall file an application pursuant to Section 304 and pay the applicable fees pursuant to Sections 304.3 and 304.6.

#### 304.1 Dry Weather Urban Runoff Discharge Permit Application

- A. An applicant shall contact EOCWD/OCSD prior to any construction of facilities and discharge of dry weather urban runoff into the Sewerage System to determine if the discharge of dry weather urban runoff to EOCWD's/OCSD's Sewerage Facilities is feasible.
- B. Applicants shall complete and file with EOCWD/OCSD, prior to commencing discharge, an application in the form prescribed by EOCWD/OCSD. This application shall be accompanied by applicable fees, design plans, a detailed analysis of other disposal alternatives, or other data as needed by both agencies for review. The applicant shall provide justification that disposal alternatives for the dry weather urban runoff are not economically or practically feasible in lieu of sewer discharge.
- C. In addition to the discharge permit, EOCWD/OCSD may require that the permit applicant enter into an agreement setting forth the terms under which the dry weather urban runoff discharge is authorized.
- D. Applicants shall provide adequate Pretreatment and/or Best Management Practices included within the applicants' plans to ensure that the applicable discharge limits shall be met.

### 304.2 Dry Weather Urban Runoff Discharge Permit Condition and Limits

The issuance of a Dry Weather Urban Runoff Discharge Permit may contain any the following conditions or limits:

- A. Mass Emission Rates and concentration limits regulating non-compatible Pollutants.
- B. Requirements for the User to construct and maintain, at the User's expense, appropriate Pretreatment equipment, Flow Monitoring Facilities, and devices to prevent storm water discharge into EOCWD's/OCSD's Sewerage System during a wet weather event (rain event).
- C. Requirements for the User to provide EOCWD/OCSD with its operations and maintenance plan, best management practices, and pollution prevention strategies designed to minimize or eliminate dry weather urban runoff Pollutants.
- D. Limits on rate and time of discharge or requirements for flow regulation and equalization prior to discharge to EOCWD's/OCSD's Sewerage Systems.
- E. Requirements to self-monitor the discharge to EOCWD's/OCSD's Sewerage Systems.
- F. The General Manager may impose additional requirements as may be appropriate to reduce the burden on EOCWD's/OCSD's Sewerage Facilities.
- G. Prohibitions on the discharge, which may cause OCSD's effluent, biosolids, or any other product of its treatment process, to be unsuitable for reclamation, reuse, or disposal.

### 304.3 Dry Weather Urban Runoff Discharge Permit Fee

The Dry Weather Urban Runoff Discharge Permit fee shall be paid by the applicant in an amount established in the applicable Ordinance adopted by the Board of Directors. Payment of permit fees must be received by EOCWD/ OCSD prior to issuance of either a new permit or a renewed permit. Each Permittee shall also pay delinquent invoices in full prior to permit renewal.

### 304.4 Dry Weather Urban Runoff Discharge Permit Modification of Terms and Conditions

- A. The terms and conditions of an issued permit may be subject to modification and change in the sole determination by EOCWD/OCSD during the life of the permit based on:
  - 1. The discharger's current or anticipated operating data;

2. EOCWD's/OCSD's current or anticipated operating data;
  3. Changes in the requirements of Regulatory Agencies, which affect EOCWD/OCSD; or
  4. A determination by the General Manager that such modification is appropriate to further the objectives of this Ordinance.
- B. A Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested changes and the reasons for the change. EOCWD/OCSD shall review the request, make a determination on the request, and respond accordingly.
- C. A Permittee shall be informed of any changes in the permit at least forty-five (45) days prior to the effective date change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

#### 304.5 Dry Weather Urban Runoff Discharge Permit Duration and Renewal

Dry Weather Urban Runoff Discharge Permit shall normally be issued for a period not to exceed five (5) years. At least forty-five (45) days prior to the expiration of the permit, the User shall apply for renewal of the permit in accordance with the provisions of this Article 3.

#### 304.6 Dry Weather Urban Runoff Discharge Permit Charge for Use

A Discharger who is issued a Dry Weather Urban Runoff Discharge Permit under the provision of this Ordinance shall pay a charge for use in accordance with rates established by Ordinance adopted by the Board of Directors.

#### 305. SPECIAL PURPOSE DISCHARGE PERMITS

- A. No User requiring a Special Purpose Discharge Permit shall discharge Wastewater without obtaining a Special Purpose Discharge Permit. Alternatively, at the discretion of the General Manager and/or Division Head or Department Head, EOCWD/OCSD may issue a Letter to Discharge in lieu of a Special Purpose Discharge Permit.
- B. Special Purpose Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other regulations, charges for use, and fees established by EOCWD/OCSD. The conditions of Special Purpose Discharge Permits shall be enforced by EOCWD/OCSD in accordance with this Ordinance and applicable state and federal regulations.
- C. All Special Purpose Discharge Permit Users proposing to discharge directly

or indirectly into EOCWD's/OCSD's Sewerage Facilities shall obtain a Special Purpose Discharge Permit by filing an application pursuant to Section 305 and paying the applicable fees pursuant to Sections 305.3 and 305.6. This discharge permit may be granted when no alternative method of disposal is reasonably available, or to mitigate an environmental risk or health hazard.

### 305.1 Special Purpose Discharge Permit Application

- A. Applicants seeking a Special Purpose Discharge Permit shall complete and file with EOCWD/OCSD, prior to commencing discharge, an application in the form prescribed by EOCWD/OCSD. This application shall be accompanied by the applicable fees, plumbing plans, a detailed analysis of the alternatives for water disposal, or other data as needed by EOCWD/OCSD for review.
- B. The permit application may be denied when the applicant has failed to establish to EOCWD's/OCSD's satisfaction that adequate Pretreatment equipment is included within the applicants' plans to ensure that the discharge limits will be met or that the applicant has, in the past, demonstrated an inability to comply with applicable discharge limits.

### 305.2 Special Purpose Discharge Permit Conditions and Limits

- A. Discharge conditions and limits shall be no less stringent than Section 201(A), General Prohibitions; 201(B), Specific Prohibitions; Section 213, Mass Emission Rate Determination; and Table 1, Local Discharge Limits.
- B. Monitoring requirements for the discharge shall be for those non-compatible Pollutants known to exist in the discharge. At least one set of baseline analysis prior to or upon sewer discharge may be required for all constituents contained in the most current Environmental Protection Agency (EPA) "Priority Pollutant" list, excluding asbestos, as listed in Appendix A of 40 CFR 423, or as subsequently amended.
- C. EOCWD/OCSD may specify and make part of each Special Purpose Discharge Permit specific Pretreatment Requirements or other terms and conditions determined by the General Manager to be appropriate to protect EOCWD's/OCSD's Sewerage Facilities, to comply with Regulatory Agencies' requirements, to ensure compliance with this Ordinance, and to assess a charge for use.

### 305.3 Special Purpose Discharge Permit Fee



The special purpose discharge permit fee shall be paid by the applicant in an amount adopted by Ordinance of the Board of Directors. Payment of permit fees must be received by EOCWD/OCSD prior to issuance of either a new permit or a renewed permit. Each Permittee shall also pay delinquent invoices in full prior to permit renewal.

#### 305.4 Special Purpose Discharge Permit Modification of Terms and Conditions

- A. The terms and conditions of an issued permit may be subject to modification and change in the determination by EOCWD/OCSD during the life of the permit based on:
  - 1. The Discharger's current or anticipated operating data;
  - 2. EOCWD's/OCSD's current or anticipated operating data;
  - 3. Changes in the requirements of Regulatory Agencies which affect EOCWD/OCSD; or
  - 4. A determination by the General Manager that such modification is appropriate to further the objectives of this Ordinance.
- B. A Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested change, and the reasons for the change. EOCWD/OCSD shall review the request, make a determination on the request, and respond in writing.
- C. A Permittee shall be informed of any changes in the permit at least forty five (45) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

#### 305.5 Special Purpose Discharge Permit Duration and Renewal

Special purpose discharge permits shall normally be issued for a period not to exceed five (5) years, but may be renewed as determined by the General Manager. Users seeking permit renewal shall comply with all provisions of this Article 3.

#### 305.6 Special Purpose Discharge Permit Charge for Use

The General Manager shall establish a charge for use to cover all costs of EOCWD/OCSD for providing sewerage service and monitoring. A deposit determined by the General Manager to be sufficient to pay the estimated charges for use shall accompany the Special Purpose Discharge Permit application, and said deposit shall be applied to the charges for use.

- G. A Zero Discharge Certification shall contain as a minimum:

1. A statement that no discharge of regulated Wastewater is permitted;
2. Requirements to notify EOCWD/OCSD of any changes in operation resulting in a potential for discharge;
3. Requirements to periodically certify that no discharge of regulated Wastewater has occurred;
4. Notice that EOCWD/OCSD may inspect the facility as necessary to assess and assure compliance with the "no discharge" requirement; and
5. Requirements to comply with Resource Conservation and Recovery Act (RCRA) and state hazardous waste regulations regarding the proper disposal of hazardous waste.

306. OUT OF DISTRICT PERMITS/DISCHARGERS

- A. Industrial Wastewater Discharge Permits for Dischargers located outside EOCWD's boundaries but within the OCSD service area and tributary to EOCWD's Sewerage Facilities, may be issued by OCSD after approval by EOCWD. EOCWD/OCSD shall have the right of inspection and sampling of the User's discharge to determine compliance with Industrial Wastewater discharge regulations. Such inspection and sampling will be performed under a coordinated plan developed with EOCWD. The more stringent of the industrial wastewater discharge regulations and effluent limits of OCSD shall apply to the Discharger.
- B. Pursuant to Article 6 herein, OCSD shall have the right to enforce the Federal Regulations, the provisions of this Ordinance, and permit conditions and limits applicable to any User located outside of EOCWD's service area, but whose discharge is tributary to EOCWD's Sewerage Facilities.
- C. The fees for use shall be determined by EOCWD/OCSD and set forth in a use agreement with EOCWD.

## ARTICLE 4. FACILITIES REQUIREMENTS

### 401. DRAWING SUBMITTAL REQUIREMENTS

Upon request by EOCWD:

- A. Applicants or Users may be required to submit three copies of detailed facility plans. The submittal shall be in a form and content acceptable to EOCWD/OCSD for review of existing or proposed Pretreatment facilities, spill containment facilities, monitoring facilities, metering facilities, and operating procedures. The review of the plans and procedures shall in no way relieve the User of the responsibility of modifying the facilities or procedures in the future, as necessary to produce a discharge acceptable to EOCWD/OCSD, and to meet the requirements of this Ordinance or any requirements of other Regulatory Agencies.
- B. The drawing shall depict as a minimum the manufacturing process (Wastewater generating sources), spill containment, monitoring or metering facilities, and Pretreatment facilities.
- C. The applicant or User shall submit a schematic drawing of the Pretreatment facilities, piping and instrumentation diagram, and Wastewater characterization report.
- D. Users and applicants may also be required to submit for review site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, spill containment, clarifiers, and appurtenances by size, location, and elevation for evaluation.
- E. EOCWD/OCSD may require the drawings be prepared by a California Registered Chemical, Mechanical, or Civil Engineer.
- F. Permittees shall be required to submit updated detailed facility plans.

### 402. PRETREATMENT FACILITIES

- A. All Users shall provide Wastewater treatment as necessary to comply with this ordinance and shall achieve compliance with all Categorical Pretreatment Standards, Table 1, Local Discharge Limits, and the prohibitions set out in Sections 201 (A) & (B) of this Ordinance within the time limitations specified by EPA, the state, or EOCWD/OCSD, whichever is more stringent. Any facilities necessary for compliance shall be provided, operated by a qualified operator, and maintained in proper operating condition at the User's expense.

- B. All Users may also be required by EOCWD/OCSD to submit Wastewater analysis plans, contingency plans, and meet other necessary requirements to ensure proper operation of the Pretreatment facilities and compliance with permit limits and this Ordinance.
- C. No User shall increase the use of water or in any other manner attempt to dilute a discharge as a partial or complete substitute for treatment to achieve compliance with this Ordinance and the User's Permit.

403. SPILL CONTAINMENT FACILITIES/ACCIDENTAL SLUG CONTROL PLANS

- A. All Users shall provide spill containment for protection against discharge of prohibited Pollutants, materials or other Wastewaters regulated by this Ordinance. Such protection shall be designed to secure the discharges and to prevent them from entering into the EOCWD/OCSD Sewerage System in accordance with reasonable engineering standards. Such facilities shall be provided and maintained at the User's expense.
- B. The General Manager shall require any Significant Industrial User to develop and implement an accidental discharge/slug control plan. EOCWD/OCSD may evaluate whether each Industrial User needs such a plan. Any User required to develop and implement an accidental discharge/control slug plan shall submit a plan which addresses, at a minimum, the following:
  - 1. Description of discharge practices, including non-routine batch discharges.
  - 2. Description of stored chemicals.
  - 3. Procedures for immediately notifying EOCWD/OCSD of any accidental of slug discharge. Such notification must also be given for any discharge which would violate any of the prohibited discharges in Article 2 of this Ordinance.
  - 4. Procedures to prevent adverse impact from any accidental or slug discharge. Such procedures include, but are not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic Pollutants (including solvents), and measures and equipment for emergency response.

#### 404. MONITORING/METERING FACILITIES

All Wastewater samples must be representative of the User's discharge. Wastewater monitoring and flow measurement facilities shall be properly operated, kept clean, and maintained in good working order at all times. The failure of a User to keep its monitoring facility in good working order shall not be grounds for the User to claim that sample results are unrepresentative of its discharge.

- A. EOCWD/OCSD may require the User to construct and maintain in proper operating condition at the User's sole expense, flow monitoring, constituent monitoring and/or sampling facilities.
- B. Permittees may be required to install and maintain an appropriate effluent flow monitoring device. Calibration of such flow monitoring device shall be done annually or as specified in the Wastewater discharge permit.
- C. The monitoring or metering facilities may be required to include a security closure that can be locked with an EOCWD/OCSD provided hasp lock during sampling or upon termination of service.
- D. The location of the monitoring or metering facilities shall be subject to approval by EOCWD/OCSD.
- E. The User shall provide immediate, clear, safe and uninterrupted access to EOCWD/OCSD to the User's monitoring and metering facilities.
- F. For all industries permitted by OCSD, domestic Wastewaters shall be kept segregated from all Industrial Wastewaters until the Industrial Wastewaters have passed through any required Pretreatment system or device and the Permittee's sample point.

#### 405. WASTE MINIMIZATION REQUIREMENTS

- A. As required by a User's permit, the User shall provide waste minimization plans to reduce or eliminate Pollutant discharge to the EOCWD/OCSD Sewerage System and conserve water. The User shall investigate product substitution, housekeeping practices, provide inventory control, implement employee education, and other steps as necessary to minimize Wastewater produced.
- B. Upon approval by OCSD, a User may certify that their facility does not discharge any type of Wastewater containing Pollutants that may directly or indirectly discharge into EOCWD's/OCSD's Sewerage System as a form of Best Management Practice (BMP).

ARTICLE 5. MONITORING, REPORTING, NOTIFICATION, AND INSPECTION  
REQUIREMENTS

501. MONITORING AND REPORTING CONDITIONS

A. Monitoring for Annual Charge for Use

The Wastewater constituents and characteristics of a Discharger needed for determining the annual charge for use shall be submitted in the form of self-monitoring reports by the User to OCSD, if requested. The frequency of analyses and reporting shall be set forth in the User's permit. The analyses of these constituents and characteristics shall be by a laboratory acceptable to OCSD, and at the sole expense of the Permittee. Analyses performed by OCSD's personnel may be used in the determination of the annual charge for use.

B. Monitoring for Compliance with Permit Conditions or Reporting Requirements

OCSD may require reports for self-monitoring of Wastewater constituents and characteristics of the Discharger needed for determining compliance with any limit or requirements as specified in the User's permit, federal or state regulations, or this Ordinance. The federal Pretreatment regulations at 40 CFR 403.12(g)(3) and (4) contain requirements for collecting samples such as requiring that sampling must be representative of conditions occurring during the reporting period and that grab samples must be collected for certain parameters. These reports include:

1. Baseline Monitoring Reports.

- a) Within either one hundred eighty (180) days after the effective date of a categorical Pretreatment Standard, or the final administrative decision on a category determination under 40 CFR 403.6(a)(4), whichever is later, existing Significant Industrial Users subject to categorical Pretreatment Standard(s) currently discharging to or scheduled to discharge to OCSD shall submit to the General Manager a report which contains the information listed in paragraph b), below. At least ninety (90) days prior to commencement of their discharge, New Sources, and sources that become Significant Industrial Users subsequent to the promulgation of an applicable categorical Standard, shall submit to the General Manager a report which contains the information listed in paragraph c), below. A New Source shall report the method of Pretreatment it intends to use to meet applicable categorical Pretreatment Standards. A New Source also shall

give estimates of its anticipated flow and quantity of Pollutants to be discharged.

- b) Users described above shall submit the information set forth below.
  - (1) All information required in Section ARTICLE 23 including requirements in 40 CFR 403.12(b)(1)-(7).
  - (2) Measurement of Pollutants.
    - a) The User shall provide the following information.
      - 1) The categorical Pretreatment Standards applicable to each regulated process and any new categorically regulated processes for Existing Sources.
      - 2) The results of sampling and analysis identifying the nature and concentration, and/or mass, where required by the Standard or by the General Manager, of regulated Pollutants in the discharge from each regulated process.
      - 3) Instantaneous, Daily Maximum, and long-term average concentrations or mass, where required, shall be reported.
      - 4) The sample shall be representative of daily operations and shall be analyzed in accordance with procedures set out in Section 501.2 of this Ordinance. Where the Standard requires compliance with a BMP or pollution prevention alternative, the User shall submit documentation as required by the General Manager or the applicable Standards to determine compliance with the Standard.
      - 5) Sampling must be performed in accordance with procedures set out in Section 602 of this Ordinance.
    - b) The User shall take a minimum of one representative sample to compile that data

necessary to comply with the requirements of this paragraph.

- c) Samples should be taken immediately downstream from Pretreatment facilities if such exist or immediately downstream from the regulated process if no Pretreatment exists. If other Wastewaters are mixed with the regulated Wastewater prior to Pretreatment the User should measure the flows and concentrations necessary to allow use of the Combined Wastestream Formula in 40 CFR 403.6(e) to evaluate compliance with the Pretreatment Standards. Where an alternate concentration or mass limit has been calculated in accordance with 40 CFR 403.6(e) this adjusted limit along with supporting data shall be submitted to OCSD;
  - d) Sampling and analysis shall be performed in accordance with this Ordinance;
  - e) The General Manager may allow the submission of a baseline report which utilizes only historical data so long as the data provides information sufficient to determine the need for industrial Pretreatment measures;
  - f) The baseline report shall indicate the time, date and place of sampling and methods of analysis, and shall certify that such sampling and analysis is representative of normal work cycles and expected Pollutant discharges to OCSD.
- (3) Compliance Certification. A statement, reviewed by the User's Authorized Representative as defined in this Ordinance and certified by a qualified professional, indicating whether Pretreatment Standards are being met on a consistent basis, and, if not, whether additional operation and maintenance (O&M) and/or additional Pretreatment is required to meet the Pretreatment Standards and Requirements.
- (4) Compliance Schedule. If additional Pretreatment and/or O&M will be required to meet the Pretreatment Standards, the shortest schedule by which the User will



provide such additional Pretreatment and/or O&M must be provided.

The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard. A compliance schedule pursuant to this Section must meet the requirements set forth in this Ordinance.

- (5) Signature and Report Certification. All baseline monitoring reports must be certified in accordance with this Ordinance and signed by an Authorized Representative.

## 2. Compliance Schedule Progress Reports.

The following conditions shall apply to the compliance schedule required by this Ordinance:

- a) The schedule shall contain progress increments in the form of dates for the commencement and completion of major events leading to the construction and operation of additional Pretreatment required for the User to meet the applicable Pretreatment Standards (such events include, but are not limited to, hiring an engineer, completing preliminary and final plans, executing contracts for major components, commencing and completing construction, and beginning and conducting routine operation);
- b) No increment referred to above shall exceed nine (9) months;
- c) The User shall submit a progress report to the General Manager no later than fourteen (14) days following each date in the schedule and the final date of compliance including, as a minimum, whether or not it complied with the increment of progress, the reason for any delay, and, if appropriate, the steps being taken by the User to return to the established schedule; and
- d) In no event shall more than nine (9) months elapse between such progress reports to the General Manager.

## 3. 90-Day Compliance Reports.

Within ninety (90) days following the date for final compliance with applicable categorical Pretreatment Standards, or in the case of a

New Source following commencement of the introduction of Wastewater into EOCWD/OCSD, any User subject to such Pretreatment Standards and Pretreatment Requirements shall submit to the General Manager a report containing the information described in this Ordinance. For Users subject to equivalent mass or concentration limits, this report shall contain a reasonable measure of the User's long-term production rate. For all other Users subject to categorical Pretreatment Standards expressed in terms of allowable Pollutant discharge per unit of production (or other measure of operation), this report shall include the User's actual production during the appropriate sampling period. All compliance reports must be signed and certified in accordance with this Ordinance. All sampling will be done in conformance with Section 602.

4. Periodic Compliance Reports.

- a) Except as otherwise specified in this Ordinance, all Significant Industrial Users must, at a frequency determined by the General Manager, submit no less than twice per year on dates specified by EOCWD/OCSD reports indicating the nature, concentration of Pollutants in the discharge which are limited by Pretreatment Standards and the measured or estimated average and maximum daily flows for the reporting period. In cases where the Pretreatment Standard requires compliance with a Best Management Practice (BMP) or pollution prevention alternative, the User must submit documentation required by the General Manager or the Pretreatment Standard necessary to determine the compliance status of the User including documentation associated with Best Management Practices.
- b) OCSD will meet reporting requirements as specified by 40 CFR Part 3 (Cross-Media Electronic Reporting). Therefore, Users that send electronic (digital) documents to OCSD to satisfy the requirements of this Section must register for the system online and submit a signed Subscriber Agreement to OCSD for review and approval.

5. Notification of the Discharge of Hazardous Waste.

- a) Any User who commences the discharge of hazardous waste shall notify EOCWD/OCSD, the EPA Regional Waste Management Division Director, and state hazardous waste authorities, in writing, of any discharge into EOCWD/OCSD of a substance which, if otherwise disposed of, would be a hazardous waste under 40

CFR Part 261. The User shall receive written approval from the EOCWD/OCSD to discharge hazardous waste. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the User discharges more than one hundred (100) kilograms of such waste per calendar month to EOCWD/OCSD, the notification also shall contain the following information to the extent such information is known and readily available to the User: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve (12) months. All notifications must take place no later than one hundred and eighty (180) days after the discharge commences. Any notification under this paragraph need be submitted only once for each hazardous waste discharged. However, notifications of changed conditions must be submitted under subdivision 6 below. The notification requirement in this Section does not apply to Pollutants already reported by Users subject to categorical Pretreatment Standards under the self-monitoring requirements of this Ordinance.

- b) Dischargers are exempt from the requirements of paragraph (a), above, during a calendar month in which they discharge no more than fifteen (15) kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e). Discharge of more than fifteen (15) kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e), requires a one-time notification. Subsequent months during which the User discharges more than such quantities of any hazardous waste do not require additional notification.
- c) In the case of any new regulations under section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the User must notify the General Manager, the EPA Regional Waste Management Waste Division Director, and state hazardous waste authorities of the discharge of such substance within ninety (90) days of the effective date of such regulations.

- d) In the case of any notification made under this Section, the User shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.
- e) This provision does not create a right to discharge any substance not otherwise permitted to be discharged by this Ordinance, a permit issued thereunder, or any applicable federal or state law.

#### 6. Reports of Changed Conditions

Each User must notify the General Manager of any significant changes to the User's operations or system which might alter the nature, quality, or volume of its Wastewater in advance of the change. The notification must be made promptly, but normally within 30 days. In certain cases, this period may be longer.

- a) The General Manager may require the User to submit such information as may be deemed necessary to evaluate the changed condition, including the submission of a Wastewater discharge permit application under this Ordinance.
- b) The General Manager may issue a Wastewater discharge permit under this Ordinance or modify an existing Wastewater discharge permit under this ordinance in response to changed conditions or anticipated changed conditions.

#### 7. Reports of Potential Problems

- a) In the case of any discharge, including, but not limited to, accidental discharges, discharges of a non-routine, episodic nature, a non-customary batch discharge, a Slug Discharge or Slug Load, that might cause potential problems for EOCWD/OCSD, the User shall follow the notification procedures under Notification of Spill or Slug Loading in Article 5. This notification shall also include the location of the discharge, type of Wastewater, concentration and volume, if known, and corrective actions taken by the User.
- b) Within five (5) days following such discharge, the User shall, unless waived by the General Manager, submit a detailed written report. This written notification shall include, but not be limited to, the date of the incident, the reasons for the discharge or spill, what steps were taken to immediately correct the problem, and what steps are being taken to

prevent the problem from recurring.

- c) Such notification shall not relieve the User of any expense, loss, damage, or other liability which might be incurred as a result of damage or loss to EOCWD/OCSD, natural resources, or any other damage to person or property; nor shall such notification relieve the User of any fees, fines, penalties, or other liability which may be imposed pursuant to this Ordinance or other applicable law.
- d) A notice shall be permanently posted on the User's bulletin board or other prominent place advising employees who to call in the event of a discharge described in paragraph a, above. Employers shall ensure that all employees, who could cause such a discharge to occur, are advised of the emergency notification procedure.
- e) Significant Industrial Users are required to notify the General Manager immediately of any changes at its facility affecting the potential for a Slug Discharge.

8. Reports from Unpermitted Users

All Users not required to obtain a Wastewater discharge permit shall provide appropriate reports to the General Manager as the General Manager may require.

9. Notice of Violation/Repeat Sampling and Reporting

If sampling performed by a User indicates a violation, the User must notify the General Manager within twenty-four (24) hours of becoming aware of the violation. The User shall also repeat the sampling and analysis and submit the results of the repeat analysis to the General Manager within thirty (30) days after becoming aware of the violation. Resampling by the User is not required if EOCWD/OCSD performs sampling at the User's facility at least once a month, or if EOCWD/OCSD performs sampling at the User's facility between the time when the initial sampling was conducted and the time when the User or EOCWD/OCSD receives the results of this sampling, or if EOCWD/OCSD as performed the sampling and analysis in lieu of the User.

10. Other reports as required by EOCWD/OCSD.

- a) Monitoring reports of the analyses of Wastewater constituents and characteristics shall be in a manner and form approved by EOCWD/OCSD and shall be submitted upon request of EOCWD/OCSD. When applicable, the self-monitoring

requirement and frequency of reporting may be set forth in the User's permit as directed by EOCWD/OCSD. The analyses of Wastewater constituents and characteristics and the preparation of the monitoring report shall be done at the sole expense of the User.

- b) Failure by the User to perform any required monitoring, or to submit monitoring reports required by EOCWD/OCSD constitutes a violation of this Ordinance, may result in determining whether the Permittee is in significant non-compliance, and be cause for EOCWD/OCSD to initiate all necessary tasks and analyses to determine the Wastewater constituents and characteristics for compliance with any limits and requirements specified in the User's permit or in this Ordinance. The User shall be responsible for any and all expenses of EOCWD/OCSD in undertaking such monitoring analyses and preparation of reports.

#### 501.1 Inspection and Sampling Conditions

- A. EOCWD/OCSD may inspect and sample the Wastewater generating and disposal facilities of any User to ascertain whether the intent of this Ordinance is being met and the User is complying with all requirements.
- B. EOCWD/OCSD shall have the right to place on the User's property or other locations as determined by EOCWD/OCSD, such devices as are necessary to conduct sampling or metering operations. Other sampling locations may include downstream manholes, usually in the EOCWD/OCSD Sewerage System, for the purpose of determining the compliance status of an industrial or commercial Discharger.
- C. EOCWD/OCSD may require the User to install and maintain sample points in areas acceptable to EOCWD/OCSD outside the User's facility, within the reasonable control of the User or EOCWD/OCSD. EOCWD/OCSD may also require lockable sample boxes fully containing the sample points. The User shall grant EOCWD/OCSD access to the sample points and sample boxes in accordance with this Ordinance.
- D. In order for EOCWD/OCSD to determine the Wastewater characteristics of the Discharger for purposes of determining the annual use charge and for compliance with permit requirements, the User shall make available for inspection and copying by EOCWD/OCSD all notices, self-monitoring reports, Waste-Tracking Forms, and records including, but not limited to, those related to production, Wastewater generation, Wastewater disposal, and those required in the Pretreatment Requirements without restriction but subject to the confidentiality provision set forth in Section 103 herein. All such records shall be kept by the User a minimum of three (3) years.

- E. If a Discharger falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method, the Discharger may be subject to imposition of penalties, permit suspension or permit revocation.

#### 501.2 Analytical Requirements

All Pollutant analyses, including sampling techniques, to be submitted as part of a Wastewater discharge permit application or report shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto, unless otherwise specified in an applicable categorical Pretreatment Standard. If 40 CFR Part 136 does not contain sampling or analytical techniques for the Pollutant in question, or where the EPA determines that the Part 136 sampling and analytical techniques are inappropriate for the Pollutant in question, sampling and analyses shall be performed by using validated analytical methods or any other applicable sampling and analytical procedures, including EPA-approved procedures or procedures approved by the General Manager.

#### 501.3 Right of Entry

- A. Persons or occupants of premises where Wastewater is created or discharged shall allow EOCWD/OCSD, or its representatives, reasonable access to all parts of the Wastewater generating and disposal facilities for the purposes of inspection and sampling during all times the Discharger's facility is open, operating, or any other reasonable time. No Person shall interfere with, delay, resist or refuse entrance to authorized EOCWD/OCSD personnel attempting to inspect any facility involved directly or indirectly with a discharge of Wastewater to EOCWD's/OCSD's Sewerage System.
- B. Where a User has security measures in place, the User shall make necessary arrangements so that personnel from EOCWD/OCSD shall be permitted to enter without delay for the purpose of performing their specific responsibilities.

#### 501.4 Notification of Spill or Slug Loading

- A. In the event the Discharger is unable to comply with any permit condition due to a breakdown of equipment, accidents, or human error, or the Discharger has reasonable opportunity to know that a discharge will exceed the discharge provisions of the User's permit, Sections 201(A) & (B) or Table 1, Local Discharge Limits, the Discharger shall immediately notify EOCWD/OCSD by telephone. If the Wastewater or material discharged to the sewer has the potential to cause or result in a fire or explosion hazard, the Discharger shall immediately notify the local fire department, EOCWD/OCSD. Also see *Reports of Potential Problems* in this Article.

## 501.5 Bypass Prohibition; Notification of Bypass

- A. Bypass of Industrial Wastewater to the Sewerage System is prohibited. EOCWD/OCSD may take enforcement action against the User, unless:
  - 1. Bypass was unavoidable because it was done to prevent loss of life, personal injury, or severe property damage;
  - 2. There were no feasible alternatives to the Bypass, such as the use of auxiliary treatment facilities, retention of untreated Wastes, elective slow-down or shut-down of production units or maintenance during periods of production downtime. This condition is not satisfied if adequate backup equipment could have been feasibly installed in the exercise of reasonable engineering judgment to prevent a Bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
  - 3. The Permittee submitted notices as required under Section 501.4(A).
- B. If a Permittee knows in advance of the need for a Bypass, it shall submit a written request to allow the Bypass to EOCWD/OCSD, if possible, at least ten (10) days before the date of the Bypass.
- C. EOCWD/OCSD may approve an anticipated Bypass at its sole discretion after considering its adverse effects, and EOCWD/OCSD determines that the conditions listed in Section 501.5(A)(1-3) are met.
- D. A Permittee shall provide telephone notification to EOCWD/OCSD of an unanticipated Bypass that exceeds its permitted discharge limits within four hours from the time the Permittee becomes aware of the Bypass. A written report shall also be provided within five (5) days of the time the Permittee becomes aware or could reasonably have been aware of the Bypass. The report shall contain a description of the Bypass and its cause; the duration of the Bypass, including exact dates and times, and, if the Bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the Bypass. Failure to comply with the oral notice or written report may be grounds for permit revocation.



## ARTICLE 6. ENFORCEMENT

### 601. PURPOSE AND SCOPE

- A. The Board finds that in order for EOCWD/OCSD to comply with the laws, regulations, and rules imposed upon it by Regulatory Agencies and to ensure that EOCWD's/OCSD's Sewerage Facilities and treatment processes are protected and are able to operate with the highest degree of efficiency, and to protect the public health and environment, specific enforcement provisions must be adopted to govern the discharges to EOCWD's/OCSD's Sewerage System by Permittees or by facilities required to obtain Zero Discharge Certifications. Certain violations may result in civil or criminal penalties for violation of Pretreatment Standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond applicable federal deadlines.
- B. To ensure that all interested parties are afforded due process of law and that non-compliance and violations are resolved as soon as possible, the general policy of EOCWD/OCSD is that:
1. Any determination relating to a Zero Discharge Certification, Probation Order, Enforcement Compliance Schedule Agreement (ECSA), or Regulatory Compliance Schedule Agreement (RCSA) will be made by the Division Head of the OCSD Pretreatment Program, with a right of appeal by the Permittee to the General Manager pursuant to the procedures set forth in Section 618.
  2. Any permit suspension or revocation recommended by the Division Head responsible for the OCSD Pretreatment Program will be heard and a recommendation made to the General Manager by a Department Head or other person designated by the General Manager.
  3. Actions and decisions by the Division Head or Department Head are made pursuant to a delegation of authority by the General Manager as authorized by Section 107 of this Ordinance.
  4. The Board of Directors may adopt rules of procedure to establish the conduct of certain administrative proceedings.
- C. EOCWD/OCSD, at its discretion, may utilize any one, combination, or all enforcement remedies provided in this Article 6 in response to any permit or Ordinance violation.

602. DETERMINATION OF NON COMPLIANCE WITH DISCHARGE LIMITS

A. Sampling Procedures

1. Sampling of all Permittees' facilities, Wastewater and discharges shall be conducted in the time, place, manner, and frequency determined at the sole discretion of OCSD.
2. Non-compliance with Mass Emission Rate limits, concentration limits, permit discharge conditions, or any discharge provision of this Ordinance may be determined by an analysis of a grab or composite sample of the effluent of a User. Non-compliance with Mass Emission Rate limits shall be determined by an analysis of a composite sample of the User's effluent, except that a grab sample may be used to determine compliance with Mass Emission Rate limits when the discharge is from a closed (batch) treatment system in which there is no Wastewater flow into the system when the discharge is occurring, the volume of Wastewater contained in the batch system is known, the time interval of discharge is known, and the grab sample is homogeneous and representative of the discharge.
3. All Wastewater samples must be representative of the User's discharge. Any sample taken from a sample point is considered to be representative of the discharge to the public sewer.
4. Wastewater monitoring and flow measurement facilities shall be properly operated, kept clean, and maintained in good working order at all times. The failure of a User to keep its monitoring facility in good working order shall not be grounds for the User to claim that sample results are unrepresentative of its discharge.
5. If a User subject to the reporting requirement in this section monitors any regulated Pollutant at the appropriate sampling location more frequently than required by the General Manager, using the procedures prescribed in this Ordinance, the results of this monitoring shall be included in the report.

603. ENFORCEMENT PROCEDURES AND APPLICABLE FEES

A. Self-Monitoring Requirements as a Result of Non-Compliance

1. If analysis of any sample obtained by EOCWD/OCSD shows non-compliance with the applicable Wastewater discharge limits set forth in this Ordinance or in the Permittee's discharge permit, EOCWD/OCSD may impose self-monitoring requirements on the Permittee.

2. A Permittee shall perform required self-monitoring of constituents in a frequency, at the specific location, and in a manner directed by OCSD.
3. All analyses of self-monitoring samples shall be performed by an independent laboratory acceptable to OCSD and submitted to OCSD in the form and frequency determined by OCSD.
4. All self-monitoring costs shall be borne by the Permittee.
5. Nothing in this section shall be deemed to limit the authority of EOCWD/OCSD to impose self-monitoring as a permit condition.

B. Purpose of Non-Compliance Resampling Fees

The purpose of the non-compliance resampling fee is to compensate EOCWD/OCSD for costs of additional sampling, monitoring, laboratory analysis, treatment, disposal, and administrative processing incurred as a result of the non-compliance, and shall be in addition to and not in lieu of any penalties as may be assessed pursuant to Sections 616 and 617.

C. Non Compliance Resampling Fees for Composite Samples

1. Each violation of a Permittee's permit limit or condition is a violation of this Ordinance.
  - a) If analysis of any composite sample of a Permittee's discharge obtained by EOCWD/OCSD shows a major violation by the Permittee of the Mass Emission Rates or concentration limits specified in the Permittee's discharge permit or in this Ordinance, then the Permittee shall pay non-compliance resampling fees to EOCWD/OCSD pursuant to fee schedules adopted by the Board of Directors.
  - b) If analysis of any composite sample of a Permittee's discharge obtained by EOCWD/OCSD shows a minor violation by the Permittee of the Mass Emission Rates or concentration limits specified in the Permittee's discharge permit or in this Ordinance, then EOCWD/OCSD shall impose non-compliance resampling fees pursuant to fee schedules adopted by the Board of Directors.
2. The fees specified in subsection 603.C.1.a), C.1.b) and D herein shall be imposed for each date on which EOCWD/OCSD conducts sampling as a result of a violation by a Permittee.

D. Non-Compliance Resampling Fees for Grab Samples and Self-Monitoring Results

1. If analysis of any grab sample of a Permittee's discharge shows non-compliance with any concentration limits as set forth in the User's permit or in this Ordinance, EOCWD/OCSD may impose non-compliance resampling fees, pursuant to fee schedules adopted by the Board of Directors, for resampling conducted by EOCWD/OCSD as a result of a violation by the Permittee.
2. If any self-monitoring analysis of a Permittee's discharge shows non-compliance with any concentration limits or Mass Emission Rates as set forth in the User's permit or in this Ordinance, EOCWD/OCSD may impose non-compliance resampling fees, pursuant to fee schedules adopted by the Board of Directors, for sampling conducted by EOCWD/OCSD as a result of a violation by the Permittee.

### 603.1 Probation Order

#### A. Grounds

In the event the Division Head determines that a Permittee has violated any provision of this Ordinance, or the terms, conditions and limits of its discharge permit, or has not made payment of all amounts owed to OCSD for User charges, non-compliance resampling fees or any other fees, the General Manager may issue a Probation Order, whereby the Permittee must comply with all directives, conditions and requirements therein within the time prescribed.

#### B. Provisions

The issuance of a Probation Order may contain terms and conditions including, but not limited to, installation of Pretreatment equipment and facilities, requirements for self-monitoring, submittal of drawings or technical reports, operator certification, audit of Waste minimization practices, payment of fees, limits on rate and time of discharge, or other provisions to ensure compliance with this Ordinance.

#### C. Probation Order - Expiration

A Probation Order issued by the General Manager shall be in effect for a period not to exceed ninety (90) days.

## 603.2 Enforcement Compliance Schedule Agreement (ECSA)

### A. Grounds

Upon determination that a Permittee is in non-compliance with the terms, conditions or limits specified in its permit or any provision of this Ordinance, and needs to construct and/or acquire and install equipment related to Pretreatment, the General Manager may require the Permittee to enter into an ECSA which will, upon the effective date of the ECSA, amend the Permittee's permit. The ECSA shall contain terms and conditions by which a Permittee must operate during its term and shall provide specific dates for achieving compliance with each term and condition for construction and/or acquisition and installation of required equipment related to Pretreatment.

### B. Provisions

The issuance of an ECSA may contain terms and conditions including but not limited to requirements for self-monitoring, installation of Pretreatment equipment and facilities, submittal of drawings or reports, operator certification, audit of Waste minimization practices, payment of fees, limits on rate and time of discharge, deposit of performance guarantee, interim limits, or other provisions to ensure compliance with this Ordinance.

### C. ECSA - Payment of Amounts Owed

OCSD shall not enter into an ECSA until such time as all amounts owed to OCSD, including User fees, non-compliance resampling fees, deposits, or other amounts due are paid in full, or an agreement for deferred payment secured by collateral or a third party, is approved by the General Manager. Failure to pay all amounts owed to OCSD shall be grounds for permit suspension or permit revocation as set forth in Section 605 and 606.

### D. ECSA - Permit Suspension/Revocation

If compliance is not achieved in accordance with the terms and conditions of an ECSA during its term, the General Manager may issue an order suspending or revoking the discharge permit pursuant to Section 605 or 606 of this Ordinance.

## 604. REGULATORY COMPLIANCE SCHEDULE AGREEMENT (RCSA)

### A. Grounds

If at any time subsequent to the issuance of a Wastewater Discharge Permit to an Industrial User, Federal Categorical Pretreatment Standards are adopted or revised by the United States Environmental Protection Agency,

or in the event EOCWD/OCSD enacts revised or new discharge limits, the General Manager, upon determination that an Industrial User would not be in compliance with the adopted revised or new limits, may require the industrial User to enter into a RCSA with EOCWD/OCSD under terms and conditions that would provide for achieving compliance with all new standards by the industrial User on a specific date. The RCSA shall have a maximum term of two hundred-seventy (270) days. The General Manager may approve a longer term, upon a showing of good cause.

B. Provisions

The issuance of a RCSA may contain terms and conditions including but not limited to requirements for installation of Pretreatment equipment and facilities, submittal of drawings or reports, waste minimization practices or other provisions to ensure compliance with this Ordinance.

C. RCSA - Non-Compliance Resampling Fee

During the period a RCSA is in effect, any discharge by Permittee in violation of the RCSA will require payment of non-compliance resampling fees in accordance with this Article 6.

605. PERMIT SUSPENSION

A. Grounds

The General Manager may suspend any permit when it is determined that a Permittee:

1. Fails to comply with the terms and conditions of either an ECSA or RCSA.
2. Knowingly provides a false statement, representation, record, report, or other document to EOCWD/OCSD.
3. Refuses to provide records, reports, plans, or other documents required by EOCWD/OCSD to determine permit terms, conditions, or limits, discharge compliance, or compliance with this Ordinance.
4. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.
5. Fails to report significant changes in operations or Wastewater constituents and characteristics.
6. Violates a Probation Order.

7. Refuses reasonable access to the Permittee's premises for the purpose of inspection and monitoring.
8. Does not make timely payment of all amounts owed to OCSD for User charges, non-compliance sampling fees, permit fees, or any other fees imposed pursuant to this Ordinance.
9. Violates any condition or limit of its discharge permit or any provision of EOCWD's/OCSD's Ordinances or regulations.

B. Notice/Hearing

When the General Manager has reason to believe that grounds exist for permit suspension, he shall give written notice thereof via personal delivery, mail with proof of delivery, or a similar method to the permittee setting forth a statement of the facts and grounds deemed to exist, together with the time and place where the charges shall be heard by the General Manager's designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty-five (45) calendar days after the mailing of such notice.

1. At the suspension hearing, the Permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by General Counsel.
2. After the conclusion of the hearing, the General Manager's designee shall submit a written report to the General Manager within thirty (30) calendar days after the conclusion of the hearing setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

Upon receipt of the written report, the General Manager shall make his determination and should he/she find that grounds exist for suspension of the permit, he/she shall issue his/her decision and order in writing within twenty (20) calendar days. The written decision and order of the General Manager shall be sent via personal delivery, mail with proof of delivery, or a similar method to the Permittee or its legal counsel/representative at the Permittee's business address.

C. Effect

1. Upon issuance, an order of permit suspension issued by the General Manager shall be final in all respects.

2. The permittee shall immediately cease and desist its discharge of any Wastewater, directly or indirectly to EOCWD's/OCSD's Sewerage System for the duration of the suspension. All costs for physically terminating and reinstating service shall be paid by the Permittee.
3. Any owner and responsible management employee of the Permittee shall be bound by the order of suspension.

606. PERMIT REVOCATION

A. Grounds

The General Manager may revoke any permit when it is determined that a Permittee:

1. Knowingly provides a false statement, representation, record, report, or other document to EOCWD/OCSD.
2. Refuses to provide records, reports, plans, or other documents required by EOCWD/OCSD to determine permit terms, conditions, or limits, discharge compliance, or compliance with this Ordinance.
3. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.
4. Fails to report significant changes in operations or Wastewater constituents and characteristics.
5. Fails to comply with the terms and conditions of an ECSA, permit suspension, or probation order.
6. Discharges effluent to EOCWD's/OCSD's Sewerage Systems while its permit is suspended.
7. Refuses reasonable access to the Permittee's premises for the purpose of inspection and monitoring.
8. Does not make timely payment of all amounts owed to OCSD for User charges, non-compliance resampling fees, permit fees, or any other fees imposed pursuant to this Ordinance.
9. Causes interference with EOCWD's/OCSD's collection, treatment, or disposal system.
10. Fails to submit oral notice or written report of a Bypass occurrence.



11. Violates any condition or limit of its discharge permit or any provision of EOCWD's/OCSD's Ordinances or regulations.

B. Notice/Hearing

When the General Manager has reason to believe that grounds exist for the revocation of a permit, he/she shall give written notice via personal delivery, mail with proof of delivery, or a similar method thereof to the Permittee setting forth a statement of the facts and grounds deemed to exist together with the time and place where the charges shall be heard by the General Manager's designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty five (45) calendar days after the mailing of such notice.

1. At the hearing, the Permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The revocation hearing shall be conducted in accordance with the procedures established by the General Manager and approved by General Counsel.
2. After the conclusion of the hearing, the General Manager's designee shall submit a written report to the General Manager within thirty (30) calendar days setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.
3. Upon receipt of the written report, the General Manager shall make his/her determination and should he/she find that grounds exist for permanent revocation of the permit, he/she shall issue his/her decision and order in writing within twenty (20) calendar days. The written decision and order of the General Manager shall be sent via personal delivery, mail with proof of delivery, or a similar method to the Permittee or its legal counsel/representative at the Permittee's business address.
4. In the event the General Manager determines to not revoke the permit, he/she may order other enforcement actions, including, but not limited to, a temporary suspension of the permit, under terms and conditions that he/she deems appropriate.

C. Effect

1. Upon issuance, an order of permit revocation issued by the General Manager shall be final in all respects.
2. The Permittee shall immediately cease and desist its discharge of

any Wastewater directly or indirectly to EOCWD's/OCSD's Sewerage System. All costs for physical termination shall be paid by the Permittee.

3. Any owner or Authorized Representative of the Permittee shall be bound by the order of revocation.
4. Any future application for a permit at any location within EOCWD's service area by any Person subject to an order of revocation will be considered by EOCWD/OCSD after fully reviewing the records of the revoked permit, which records may be the basis for denial of a new permit.

#### 607. DAMAGE TO FACILITIES OR INTERRUPTION OF NORMAL OPERATIONS

- A. Any User who discharges any Wastewater which causes or contributes to any obstruction, interference, damage, or any other impairment to EOCWD's/OCSD's Sewerage Facilities or to the operation of those facilities shall be liable for all costs required to clean or repair the facilities together with expenses incurred by EOCWD/OCSD to resume normal operations. Such discharge shall be grounds for permit revocation. A service charge of twenty five percent (25%) of EOCWD's/OCSD's costs shall be added to the costs and charges to reimburse EOCWD/OCSD for miscellaneous overhead, including administrative personnel and record keeping. The total amount shall be payable within forty five (45) days of invoicing by EOCWD/OCSD.
- B. Any User who discharges a Wastewater which causes or contributes to EOCWD/OCSD violating its discharge requirements established by any Regulatory Agency incurring additional expenses or suffering losses or damage to the facilities, shall be liable for any costs or expenses incurred by EOCWD/OCSD, including regulatory fines, penalties, and assessments made by other agencies or a court.

#### 608. INDUSTRIAL WASTEWATER PASS THROUGH

Any User whose discharge results in a Pass Through event affecting EOCWD's/OCSD's Sewerage Facilities shall be liable for all costs associated with the event, including treatment costs, regulatory fines, penalties, assessments, and other indirect costs. The Discharger shall submit to EOCWD/OCSD plans to prevent future recurrences to the satisfaction of EOCWD/OCSD.

#### 609. PUBLICATION OF VIOLATION

Upon a determination in a permit suspension, permit revocation, or civil penalty proceedings that a User has discharged in violation of its permit or any provision under this Ordinance, EOCWD/OCSD may require that the User notify the public and/or other

Users of EOCWD's/OCSD's Sewerage Facilities of such violation, of actions taken to correct such violation, and of any administrative or judicial orders or penalties imposed as a result of such violation.

#### 610. PUBLISHED NOTICES FOR SIGNIFICANT NON-COMPLIANCE

In accordance with Federal Regulations, OCSD shall annually cause to be published the names of all Industrial Users in significant non-compliance. Upon a minimum of a thirty (30) day notification to the User, said publication shall be made in a newspaper(s) of general circulation that provides meaningful public notice within the jurisdiction(s) served by EOCWD/OCSD.

#### 611. PUBLIC NUISANCE

Discharge of Wastewater in any manner in violation of this Ordinance or of any order issued by the General Manager, as authorized by this Ordinance, is hereby declared a public nuisance and shall be corrected or abated as directed by the General Manager. Any Person creating a public nuisance is guilty of a misdemeanor.

#### 612. TERMINATION OF SERVICE

- A. EOCWD/OCSD, by order of the General Manager, may physically terminate sewerage service to any property as follows:
  - 1. On a term of any order of emergency suspension or revocation of a permit; or
  - 2. Upon the failure of a Person not holding a valid discharge permit to immediately cease discharge, whether direct or indirect, to EOCWD's/OCSD's Sewerage Facilities; or
  - 3. Upon the failure of a facility not holding a valid discharge permit or certification.
- B. All costs for physical termination shall be paid by the User as well as all costs for reinstating service.

#### 613. EMERGENCY SUSPENSION ORDER

- A. EOCWD/OCSD may, by order of the General Manager, suspend sewerage service or Wastehauler discharge service when the General Manager determines that such suspension is necessary in order to stop an actual or impending discharge which presents or may present an imminent or substantial endangerment to the health and welfare of persons, or to the environment, or may cause interference to the EOCWD's/OCSD's Sewerage Facilities, or may cause EOCWD/OCSD to violate any state or federal law or regulation. Any Discharger notified of and subject to an Emergency Suspension Order shall immediately cease and desist the discharge of all Industrial Wastewater to the Sewerage System.

- B. As soon as reasonably practicable following the issuance of an Emergency Suspension Order, but in no event more than five (5) days following the issuance of such order, the General Manager shall hold a hearing to provide the User the opportunity to present information in opposition to the issuance of the Emergency Suspension Order. Such a hearing shall not stay the effect of the Emergency Suspension Order. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by General Counsel. The General Manager shall issue a written decision and order within two (2) business days following the hearing, which decision shall be sent via personal delivery, mail with proof of delivery, or a similar method to the User or its legal counsel/representative at that User's business address. The decision of the General Manager following the hearing shall be final in all respects.

#### 614. INJUNCTION

Whenever a Discharger of Wastewater is in violation of or has the reasonable potential to violate any provision of this Ordinance, permit condition, or any Federal Categorical Pretreatment Standards or Pretreatment Requirements as set forth in 40 CFR Section 403.8, et seq., fails to submit required reports, or refuses to allow EOCWD/OCSD entry to inspect or monitor the User's discharge, EOCWD/OCSD may petition the Superior Court for the issuance of a preliminary or permanent injunction, or both, as may be appropriate to restrain the continued violation or to prevent threatened violations by the Discharger.

#### 615. CIVIL PENALTIES

##### A. Authority

All Users of EOCWD's/OCSD's Sewerage System and facilities are subject to enforcement actions administratively or judicially by EOCWD, OCSD, U.S. EPA, State of California Regional Water Quality Control Board, or the County of Orange District Attorney. Said actions may be taken pursuant to the authority and provisions of several laws, including but not limited to: (1) Federal Water Pollution Control Act, commonly known as the Clean Water Act (33 U.S.C.A. Section 1251, et seq.); (2) California Porter-Cologne Water Quality Control Act (California Water Code Section 13000, et seq.); (3) California Hazardous Waste Control Law (California Health & Safety Code Sections 25100 to 25250); (4) Resource Conservation and Recovery Act of 1976 (42 U.S.C.A. Section 6901, et seq.); and (5) California Government Code, Sections 54739-54740.

##### B. Recovery of Fines or Penalties

In the event EOCWD/OCSD is subject to the payment of fines or penalties pursuant to the legal authority and actions of other Regulatory Agencies or enforcement agencies based on a violation of law or regulation or its permits, and said violation can be established by EOCWD/OCSD, as caused by the discharge of any User of EOCWD's/OCSD's Sewerage

System which is in violation of any provision of this Ordinance or the User's permit, EOCWD/OCSD shall be entitled to recover from the User all costs and expenses, including, but not limited to, the full amount of said fines or penalties to which EOCWD/OCSD has been subjected.

C. Ordinance

Pursuant to the authority of California Government Code Sections 54739 - 54740, any Person who violates any provision of this Ordinance; any permit condition, prohibition or effluent limit; or any suspension or revocation order shall be liable civilly for a sum not to exceed \$25,000.00 per violation for each day in which such violation occurs. Pursuant to the authority of the Clean Water Act, 33 U.S.C. Section 1251, et seq., any Person who violates any provision of this Ordinance, or any permit condition, prohibition, or effluent limit shall be liable civilly for a sum not to exceed \$25,000.00 per violation for each day in which such violation occurs. The General Counsel, upon order of the General Manager, shall petition the Superior Court to impose, assess, and recover such penalties, or such other penalties as EOCWD/OCSD may impose, assess, and recover pursuant to federal and/or state legislative authorization.

D. Administrative Civil Penalties

1. Pursuant to the authority of California Government Code Sections 54740.5 and 54740.6, EOCWD/OCSD may issue an administrative complaint to any Person who violates:
  - a) any provision of this Ordinance;
  - b) any permit condition, prohibition, or effluent limit, or certification requirement; or
  - c) any suspension or revocation order.
2. The administrative complaint shall be served via personal delivery, mail with proof of delivery, or a similar method on the Person and shall inform the Person that a hearing will be conducted, and shall specify a hearing date within sixty (60) days. The administrative complaint will allege the act or failure to act that constitutes the violation of EOCWD/OCSD requirements, the provisions of law authorizing civil liability to be imposed, and the proposed civil penalty. The matter shall be heard by the General Manager's designee. The Person to whom an administrative complaint has been issued may waive the right to a hearing, in which case a hearing will not be conducted.
3. At the hearing, the Person shall have an opportunity to respond to the allegations set forth in the administrative complaint by presenting written or oral evidence. The hearing shall be conducted in accordance with

the procedures established by the General Manager and approved by General Counsel.

4. After the conclusion of the hearing, the General Manager's designee shall submit a written report to the General Manager within thirty (30) calendar days setting forth a brief statement of the facts found to be true, a determination of the issues presented, conclusions, and a recommendation.
5. Upon receipt of the written report, the General Manager shall make his/her determination and should he/she find that grounds exist for assessment of a civil penalty against the Person, he/she shall issue his/her decision and order in writing within twenty (20) calendar days.
6. If, after the hearing or appeal, if any, it is found that the Person has violated reporting or discharge requirements, the General Manager may assess a civil penalty against that Person. In determining the amount of the civil penalty, the General Manager may take into consideration all relevant circumstances, including but not limited to the extent of harm caused by the violation, the economic benefit derived through any non-compliance, the nature and persistence of the violation, the length of time over which the violation occurs, and corrective action, if any, attempted or taken by the Person involved.
7. Civil penalties may be assessed as follows:
  - a) In an amount which shall not exceed two thousand dollars (\$2,000.00) for each day for failing or refusing to furnish technical, monitoring reports, or any other required documents;
  - b) In an amount which shall not exceed three thousand dollars (\$3,000.00) for each day for failing or refusing to timely comply with any compliance schedules established by EOCWD/ OCSD;
  - c) In an amount which shall not exceed five thousand dollars (\$5,000.00) per violation for each day of discharge in violation of any Wastewater discharge limit, permit condition, or requirement issued, reissued, or adopted by EOCWD/OCSD;
  - d) In any amount which does not exceed ten dollars (\$10.00) per gallon for discharges in violation of any suspension, revocation, cease and desist order or other orders, or prohibition issued, reissued, or adopted by EOCWD/OCSD;
8. Any Person aggrieved by an order issued by the General Manager assessing administrative civil penalties may, within fifteen (15) days after the General Manager issues the order, file an appeal with the Governing Board. The evidence on appeal shall consist solely of the General Manager's order and the administrative record

before the hearing officer. The Governing Board shall determine whether to uphold, modify, or reverse the General Manager's order. The decision of the Governing Board shall be set forth in writing and be sent by certified mail to the appellant. The decision of the Governing Board shall be final in all respects. If no appeal of the General Manager's decision is filed within fifteen (15) days of its issuance, the General Manager's order becomes final in all respects.

9. Copies of the administrative order shall be served on the party served with the administrative complaint, either by personal service or by registered mail to the Person at his business or residence address, and upon other persons who appeared at the hearing and requested a copy of the order.
10. Any Person aggrieved by a final decision issued by the Governing Board, may obtain review in the superior court, pursuant to Government Code Section 54740.6, by filing in the court a petition for writ of mandate within thirty (30) days following the service of a copy of the Governing Board decision.
11. Payment of any order setting administrative civil penalties shall be made within thirty (30) days of the date the order becomes final. The amount of any administrative civil penalties imposed which have remained delinquent for a period of sixty (60) days shall constitute a lien against the real property of the Discharger from which the discharge resulting in the imposition of the civil penalty originated. The lien shall have no effect until recorded with the county recorder. EOCWD/OCSD may record the lien for any unpaid administrative civil penalties on the ninety-first (91st) day following the date the order becomes final.
12. No administrative civil penalties shall be recoverable under Section 616.D for any violation for which EOCWD/OCSD has recovered civil penalties through a judicial proceeding filed pursuant to Government Code Section 54740.

#### 616. CRIMINAL PENALTIES

Any Person who violates any provision of this Ordinance is guilty of a misdemeanor, which upon conviction is punishable by a fine not to exceed \$1,000.00, or imprisonment for not more than thirty (30) days, or both. Each violation and each day in which a violation occurs may constitute a new and separate violation of this Ordinance and shall be subject to the penalties contained herein.

#### 617. APPEALS TO GENERAL MANAGER

A. General

Any User, permit applicant, or Permittee affected by any decision, action or determination made by the General Manager a written request for an appeal hearing. The request must be received by EOCWD/OCSD within fifteen (15) days of mailing of notice of the decision, action, or determination of EOCWD/OCSD to the appellant. The request for hearing shall set forth in detail all facts supporting the appellant's request. Filing of an appeal shall stay the proceedings and furtherance of the action being appealed

B. Notice

The General Manager shall, within fifteen (15) days of receiving the request for appeal, and pursuant to Section 107, designate a Department Head or other person to hear the appeal and provide written notice to the appellant of the hearing date, time and place via personal delivery, mail with proof of delivery, or a similar method. The hearing date shall not be more than thirty (30) days from the delivery date of such notice to the appellant unless a later date is agreed to by the appellant. If the hearing is not held within said time due to actions or inactions of the appellant, then the staff decision shall be deemed final.

C. Hearing

At the hearing, the appellant shall have the opportunity to present information supporting its position concerning the Division Head's decision, action or determination. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by General Counsel.

D. Written Determination

After the conclusion of the hearing, the Department Head (or other designee) shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation whether to uphold, modify or reverse the Division Head's original decision, action or determination. Upon receipt of the written report, the General Manager shall make his/her determination and shall issue his/her decision and order within thirty (30) calendar days of the hearing by his/her designee. Upon issuance, the order of the General Manager shall be final in all respects. The written decision and order of the General Manager shall be sent via personal delivery, mail with proof of delivery, or a similar method to the appellant or its legal counsel/representative at the appellant's business address.

618. PAYMENT OF CHARGES



- A. Except as otherwise provided, all fees, charges and penalties established by this Ordinance are due and payable upon receipt of notice thereof. All such amounts are delinquent if unpaid forty five (45) days after date of invoice.
- B. Any charge that becomes delinquent shall have added to it a penalty in accordance with the following:
  - 1. Forty six (46) days after date of invoice, a basic penalty of ten percent (10%) of the base invoice amount, not to exceed a maximum of \$1,000.00; and
  - 2. A penalty of one and one-half percent (1.5%) per month of the base invoice amount and basic penalty shall accrue from and after the forty-sixth (46th) day after date of invoice.
- C. Any invoice outstanding and unpaid after ninety (90) days shall be cause for immediate suspension of the permit.
- D. Penalties charged under this Section shall not accrue to those invoices successfully appealed.
- E. Payment of disputed charges is still required by the due date during EOCWD's/OCSD's review of any appeal submitted by Permittees.

#### 619. COLLECTION OF DELINQUENT ACCOUNTS

Collection of delinquent accounts shall be in accordance with EOCWD's/OCSD's policy resolution establishing procedures for collection of delinquent obligations owed to EOCWD/OCSD, as amended from time to time by the Board of Directors. Any such action for collection may include an application for an injunction to prevent repeated and recurring violations of this Ordinance.

#### 620. APPEAL OF CHARGES AND FEES

Except for non-compliance charges and penalties, any User, permit applicant, or Permittee affected by any decision, action, or determination by EOCWD/OCSD, relating to fiscal issues of EOCWD/OCSD in which the User, applicant, or Permittee is located, including but not limited to the imposition and collection of fees, such as capital facility capacity charges, sewer use charges, special purpose discharge use charges and Wastehauler fees, may request that EOCWD/OCSD reconsider imposition of such fees or charges. Following review of such a request, EOCWD/OCSD shall notify the User, permit applicant, or Permittee via personal delivery mail with proof of delivery, or a similar method of EOCWD's/OCSD's decision on the reconsideration request. Any User, permit applicant, or Permittee adversely affected by EOCWD's/OCSD's decision on the reconsideration request may file an appeal which shall be heard by the Board of Directors. The notice of appeal must be received by EOCWD/OCSD within thirty (30) days of the mailing of OCSD's decision on the reconsideration request.

621. RECOVERY OF COSTS INCURRED BY EOCWD/OCSD

In the event any User, permit applicant, or permittee fails to comply with any of the terms and conditions of this Ordinance, a probationary order, an order of permit suspension or revocation, an ECSA, a RCSA, a certification, or a permit issued hereunder, EOCWD/OCSD shall be entitled to reasonable attorney's fees and costs which may be incurred in order to enforce any of said terms and conditions, with or without filing proceedings in court.

622. FINANCIAL SECURITY/AMENDMENTS TO PERMIT

A. Compliance Deposit

Permittees that have been subject to enforcement and/or collection proceedings may be required to deposit with EOCWD/OCSD an amount determined by the General Manager as necessary to guarantee payment to EOCWD/OCSD of all charges, fees, penalties, costs and expenses that may be incurred in the future, before permission is granted for further discharge to the sewer.

B. Delinquent Accounts

EOCWD/OCSD may require an amendment to the permit of any Permittee who fails to make payment in full of all fees and charges assessed by EOCWD/OCSD, including reconciliation amounts, delinquency penalties, and other costs or fees incurred by Permittee.

C. Bankruptcy

Every Permittee filing any legal action in any court of competent jurisdiction, including the United States Bankruptcy Court, for purposes of discharging its financial debts or obligations or seeking court ordered, protection from its creditors, shall, within ten (10) days of filing such action, apply for and obtain the issuance of an amendment to its permit.

D. Permit Amendments

EOCWD/OCSD shall review and examine Permittee's account to determine whether previously incurred fees and charges have been paid in accordance with time requirements prescribed by this Ordinance. EOCWD/OCSD may thereafter issue an amendment to the User's permit in accordance with the provisions of Article 3 and subsection E below.

E. Security

An amendment to a Wastewater discharge permit issued pursuant to subdivisions (B), (C) and (D) above, may be conditioned upon the Permittee depositing financial security in an amount equal to the average total fees and charges for two (2) calendar quarters during the preceding year. Said deposit shall be used to guarantee payment of all fees and charges incurred for future services and facilities furnished by EOCWD/OCSD and shall not be used by EOCWD/OCSD to recover outstanding fees and charges incurred prior to the Permittee filing and receiving protection from creditors in the United States Bankruptcy Court.

F. Return of Security

In the event the Permittee makes payment in full within the time prescribed by this Ordinance of all fees and charges incurred over a period of two (2) years following the issuance of an amendment to the permit pursuant to subdivisions (B), (C) and (D), EOCWD/OCSD shall either return the security deposit posted by the Permittee or credit their account.

623. JUDICIAL REVIEW

A. Purpose and Effect

Pursuant to Section 1094.6 of the California Code of Civil Procedure, EOCWD/OCSD hereby enacts this part to limit to ninety (90) days following final decisions in adjudicatory administrative hearings the time within which an action can be brought to review such decisions by means of administrative mandamus.

B. Definitions

As used in this Section, the following terms and words shall have the following meanings:

1. Decision shall mean and include adjudicatory administrative decisions that are made after hearing, or after revoking, suspending, or denying an application for a permit.
2. Complete Record shall mean and include the transcript, if any exists, of the proceedings, all pleadings, all notices and orders, any proposed decision by the General Manager, the final decision, all admitted exhibits, all rejected exhibits in the possession of EOCWD/OCSD or its offices or agents, all written evidence, and any other papers in the case.

3. Party shall mean a Person whose permit has been denied, suspended, or revoked.

C. Time Limit for Judicial Review

Judicial review of any decision of OCSD or its officer or agent may be made pursuant to Section 1094.5 of the Code of Civil Procedure only if the petition for writ of mandate is filed not later than the ninetieth (90th) day following the date on which the decision becomes final. If there is no provision for reconsideration in the procedures governing the proceedings or if the date is not otherwise specified, the decision is final on the date it is made. If there is provision for reconsideration, the decision is final upon the expiration of the period during which such reconsideration can be sought; provided that if reconsideration is sought pursuant to such provision the decision is final for the purposes of this Section on the date that reconsideration is rejected.

D. Preparation of the Record

The complete record of the proceedings shall be prepared by the EOCWD/OCSD officer or agent who made the decision and shall be delivered to the petitioner within ninety (90) days after he/she has filed written request therefor. EOCWD/OCSD may recover from the petitioner its actual costs for transcribing or otherwise preparing the record.

E. Extension

If the petitioner files a request for the record within ten (10) days after the date the decision becomes final, the time within which a petition, pursuant to Section 1094.5 of the Code of Civil Procedure, may be filed shall be extended to not later than the thirtieth (30th) day following the date on which the record is either personally delivered or mailed to the petitioner or the petitioner's attorney of record.

F. Notice

In making a final decision, EOCWD/OCSD shall provide notice to the party that the time within which judicial review must be sought is governed by Section 1094.6 of the Code of Civil Procedure.

G. Administrative Civil Penalties

Notwithstanding the provisions in this Section, and pursuant to Government Code Section 54740.6, judicial review of an order of the General Manager imposing administrative civil penalties pursuant to Section 616.D may be made only if the petition for writ of mandate is filed not later than the thirtieth (30th) day following the day on which the order of the General Manager becomes final.

ARTICLE 7. SEWER SERVICE CHARGES – CAPITAL FACILITY CAPACITY CHARGES

701. SANITARY SEWER SERVICE CHARGE

Every parcel of real property located within EOCWD which is improved with structures designed for residential, commercial, or industrial use, and connected to the EOCWD's Sewerage System, shall pay a sanitary sewer service charge in an amount adopted by the Board of Directors by separate Ordinance.

702. CAPITAL FACILITIES CAPACITY CHARGE

Every parcel of real property located within EOCWD which is improved with structures designed for residential, commercial, or industrial use, and connected to the EOCWD's Sewerage System, shall pay a capital facilities capacity charge in an amount adopted by the Board of Directors by separate Ordinance.

## ARTICLE 8 SEVERABILITY

### 801. SEVERABILITY

If any provision of these Regulations or the application to any circumstances is held invalid, the remainder of the regulations or the application of such provision to other persons or other circumstances shall not be affected.

### 802. GENERAL APPLICATION

The provisions of this Ordinance shall apply to all properties within EOCWD including those properties otherwise deemed exempt from payment of taxes or assessments by provisions of the state Constitution or statute, including properties owned by other public agencies or tax-exempt organizations.

Section 1: This Ordinance is enacted in order to preserve the public health and safety, and in order to continue the provision of sewer services by EOCWD/OCSD. The facts requiring the public health and safety to be preserved are that the regulation of the discharge of industrial and sanitary Sewage is regulated by federal and state law, and protection of individuals' health and the environment require that no discharges of untreated Sewage/Wastewater are allowed to occur that are not in accord with technical specifications and requirements.

Section II: Effective Date. This Ordinance shall take effect October 1, 2016.

Section III: The Clerk of the Board shall certify to the adoption of this Ordinance and shall cause a summary to be published in a newspaper of general circulation as required by law.

PASSED AND ADOPTED by the Board of Directors of the East Orange County Water District at a Regular Meeting held the 15<sup>th</sup> day of September, 2016.



President, Board of Directors  
East Orange County Water District

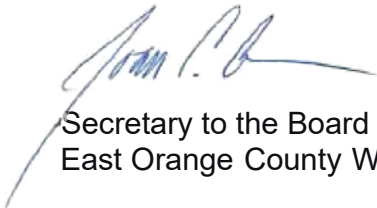
ATTEST:

STATE OF CALIFORNIA    )  
                                  )SS.  
COUNTY OF ORANGE    )

I, Joan Arneson, Secretary to the Board of Directors of the East Orange County Water District, do hereby certify that the above and foregoing Ordinance No. 16-1 was introduced for first reading at a regular meeting of said Board on the 18<sup>th</sup> day of August, 2016, and passed and adopted at a regular meeting of said Board on the 15<sup>th</sup> day of September, 2016, by the following vote, to wit:

**AYES:**                    BELL, DAVERT, DULEBOHN, EVERETT, SEARS  
**NOES:**                    NONE  
**ABSTENTIONS:**        NONE  
**ABSENT:**                 NONE

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of East Orange County Water District this 15<sup>th</sup> day of September, 2016.



Secretary to the Board of Directors  
East Orange County Water District





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# Fats, Oil, and Grease (FOG) Management Program

Prepared for

East Orange County Water District  
Collection Systems Division

January 17, 2019



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# 1 Introduction

A leading cause of sewer blockages across the U.S. is the Fats, Oil, and Grease (FOG) build-up in the sanitary sewers. Usually in conjunction with the tree roots growth and the accumulation of other sediment and debris, grease deposits (Figure 1, Figure 2) are responsible for creating bottlenecks in the sewer collection system in the form of partial or complete pipe blockages. The blockages may cause or contribute to sanitary sewer overflows (SSOs) into local waterways and backups into homes and businesses (Figure 3), and thus can cause significant damage to properties and be a risk to public health and the environment. Municipalities experience a direct cost burden for responding to blockages, relieving the blockage, cleaning damage done, or paying regulatory fines and penalties for violating their NPDES Permits because of FOG related problems.



Figure 1: FOG deposit clogging the sewer pipe.



Figure 2: FOG accumulated on the wall of sewer pipe.



Figure 3: A FOG related SSO in a parking lot.

The maintenance costs associated with the blockages are ultimately passed along to sewer rate payers. SSOs and basement backups also present various levels of public health hazards and pollution of the environment. In addition, there are potentially advert impacts from FOG on the performance of the wastewater treatment plants (WWTPs).

State and local regulating agencies include FOG management programs as a key activity in their regulatory toolbox. The East Orange County Water District, and its predecessor, the Orange County Sanitation District, has been implementing grease pollution prevention measures for over ten years by requiring large commercial or public kitchens to install and properly maintain grease removal devices (GRDs) in the drain line but a comprehensive FOG program has not been formulated and initiated until 2012.

This report presents the FOG Management Program that has been developed to avoid potential conveyance and treatment performance problems. The program development involved the following steps:

- Understanding the regulatory requirements – This step involved identifying regulatory requirements that establish the legal framework for program development and implementation.
- Characterizing FOG sources – This step involved identifying the sources of FOG to be inventoried and evaluating where FOG may be affecting the conveyance or treatment system.
- Establishing program administration – This step involved identifying staff requirements and funding sources for supporting the FOG management program.
- Selecting a FOG management program implementation approach – This step entailed selection of an approach for regulating the FSEs and establishing FOG handling and disposal practices.

## Regulatory Requirements

There are federal and state regulations that pertain to FOG management (see Table 1), however, this document is focused on local regulations adopted by the District. On September 15, 2016, the District adopted Ordinance 2016-02 as the framework for the FOG Management Program. The Ordinance provides the legal authority to require installation and maintenance of grease control devices at commercial establishments, and to inspect the FOG handling practices used by FSEs and to enforce their compliance with the FOG management program.

In summary, regulations that affect development of a FOG Management Program are listed in Table 1.

Table 1: Regulatory Requirements Pertaining to FOG Management Program Development.

| Regulation:                          | Enforcement agency: | Document:                     |
|--------------------------------------|---------------------|-------------------------------|
| General pretreatment regulations     | U.S. EPA            | CFR 40, Parts 122 & 123 & 403 |
| General Waste Discharge Requirements | State of California | Order 2006-0003-DWQ           |
| FOG Ordinance                        | EOCWD               | Ordinance 2016-02             |
| FOG Fee                              | EOCWD               | Ordinance 799                 |

## 2 FOG Management Program

The Fats, Oil, and Grease (FOG) Management Program is a formal program by EOCWD that incorporates applicable guidance, policies, and regulations governing FOG generators and haulers in order to manage grease waste generated by customers that discharge to the District's sanitary sewer system.

The primary goal and purpose of the EOCWD FOG Management Program is to prevent grease related pipe blockages and subsequent overflows from happening and thus avoid property damages, environmental problems in nearby surface waters, and public health hazards. By controlling the discharge of FOG to the wastewater collection system, FOG buildup in sewer lines will be lessened, thereby increasing the wastewater collection system's operating efficiency and minimizing system maintenance expenditures. In addition, an effective FOG Management Program will minimize potential revenue losses associated with FOG related enforcement actions.

Goals of the FOG Management Program to reduce FOG related expenditures and protect the environment and the public health will be achieved by:

- Minimizing FOG entering the District's sanitary sewer infrastructure and keeping it in concentrations or rates allowed, and
- Public Education and Outreach

### Program Components and Approach

Overall, the FOG Management Program consists of the following components:

- Review of Current Collection System FOG Hot Spots
- Identification of Additional Collection System FOG Hot Spots via SEDARU analysis
- FOG program resources requirements
- FOG related permitting requirements
- FOG recommended practices for FSEs including:
  - Kitchen best management practices (BMPs)
  - Grease removal device (GRD) maintenance
- FOG collecting and disposal proper practices including:
  - GRD cleaning
  - FOG disposal at WWTP
- FOG program implementation including:
  - Public FOG education and outreach
  - Achieving compliance with the FOG program from FSEs, including education and inspection of FSEs and enforcement measures if needed
  - Internal training within the District about FOG program
- FOG program effectiveness measures

While achieving goals of the FOG Management Program is important, it is in the District's best interest to keep residents and businesses affected by the program encouraged and willing to participate. Educating the public about FOG and the consequences of releasing it into the sewers usually makes people change their mindset and helps adopting new kitchen management practices. The program approach emphasizing education and public relations while minimizing enforcement through fines and penalties is thus set to motivate rather than enforce the compliance with program requirements. Every

effort has been made to make compliance as easy as possible by providing clear guidelines for implementing kitchen best management practices and by creating easy to follow routine procedures for permitting and maintenance of grease removal devices.

## 3 Review of Current Program

### Purpose of Review

An effective and efficient FOG Management Program must be based on a good understanding and knowledge of FOG sources and the extent of FOG related problems. It is an annual process. The purpose of the FOG review is to examine identified problem maintenance areas in the sanitary sewer system and the root causes of the problems; and verify that current the asset management and operations and maintenance efforts are successful.

### High Frequency Maintenance Locations

Each year the District cleans all of its 175-mile long sewer collection system at least one time. Specific lines in the system are cleaned more frequently than others.

Approximately 230 sewer segments<sup>3</sup> are cleaned at a higher frequency than others. A specialized cleaning schedule has been created for sewer segments which experienced overflow conditions in the past, or where high concentrations of grease and/or roots have been found during cleaning.

The District utilizes hydraulic jet cleaning, which utilizes high pressure water jets to scour the walls of sewer pipes. The District uses a vacuum truck to remove debris and other material resulting from the cleaning operation from the manhole, which is afterwards disposed at the Orange County Sanitation District's Wastewater Treatment Plant. Mechanical cleaning methods utilizing root cutters or rodding machines are used when roots or other blockages are encountered that cannot be cleaned with hydraulic methods.

The District crews and contract cleaning crews record cleaning data into SEDARU using the upstream and downstream manhole number for each line cleaned. A standardized cleaning template is used which documents the type and estimated amount of material removed during cleaning has been developed.

### Pipe Blockages and SSOs

Historical records of collection system maintenance activities are reviewed to ascertain any useful information on the causes of pipe blockages and SSOs, in order to determine locations of additional FOG related hotspots. The District has been tracking locations and causes of blockages and SSOs and keeping the record of these occurrences in its database.

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<sup>3</sup> The numbers shown refer to pipeline segments identified in SEDARU as Hot Spots.

## FOG Sources

Major contributors to FOG in the EOCWD sewer collection system are commercial establishments involved in food processing. Residential areas, especially locations of high density housing and apartments, can also be significant FOG sources.

There are approximately over 200 active food service establishments (FSEs) in EOCWD,

Another type of commercial establishments that generates wastewater with significant FOG content are carwash establishments. Wash water from commercial car wash facilities contains grease and oil other substances such as engine cleaner chemicals, sludge, heavy metals, salt and sand mixed with soaps, waxes, and detergents. These facilities require sand and oil interceptors which are similar in construction and purpose to grease removal devices used in FSEs (in these devices oil and dirt are removed from the carwash wastewater before it is released into the sanitary sewer system). The District has not cataloged car washes and examined their impact; this will be completed during FY 2018/19. All facilities without sand and oil interceptors will have to comply with car wash pretreatment standards upon any modification to the facility that requires a building permit.

## Evaluate FOG Locations Potentially Contributing to SSOs

As part of the District's Sewer Overflow Response Plan (SSORP), the District has a formal process to assess sanitary sewer backups and overflows in order to identify FOG locations potentially contributing to backups and overflows. This process includes the identification of pipeline segments with increased cleaning frequencies, and looking into the historical records of pipe blockages and SSOs to make it possible to identify potential grease problem areas.

All FSEs located upstream of the identified problem areas that discharge their wastewater into the "problem" lines are potential contributors to the grease build-up. A work order will be issued to conduct inspections of FSE upstream of problem areas. Inspections of these FSEs evaluate the following:

- GRD maintenance (FSE inspection records, FOG hauler manifests).
- GRD location, design and size.
- Kitchen equipment (deep fryer, wok, grill, etc.)
- Kitchen drains (sinks, food grinder, dishwasher, etc.)
- FOG disposal practices
- Evidence of kitchen best management practices (BMPs) (employee training, drain screens, yellow grease collection, spill prevention/clean-up practices, signage, etc.)
- The menu and quantity of FOG production (oil, grease, shortening, fat, beef, poultry, seafood, etc.)

FSE inspections also look for evidence of any grease congealing and build up in a mainline downstream of the GRD. A pole camera can be used to inspect manholes and pipe sections close to the manholes for the possible congealing of grease. Grease could congeal up to about 1,500 ft from the FOG producer.



## 4 Grease Removal Devices (GRDs) and Disposal Options

### Grease Removal Devices (GRDs)

While an aggressive program of Best Management Practices (BMPs) for kitchens by the food service establishment (FSE) community, as described in Section 7, will improve FOG control efforts to lower operation and maintenance (O&M) costs and reduce sewer systems overflows (SSOs), BMPs alone are unlikely to be sufficient. Grease abatement involves installing grease removal devices (GRDs). EOCWD requires that all FSEs install GRDs.

Grease interceptors are large grease removal devices installed outdoors in-ground. They are “volume” based, with typically 1,000 gallons minimum capacity, and a rated flow greater than 50 gpm or generally no flow restriction requirements. Grease traps are small devices installed indoors, typically under a sink in the kitchen. They are “flow rated”, with a rated flow of 50 gpm or less, and capacity up to 100 pounds.

GRDs operate by slowing down the flow passing through the device and retaining it long enough to allow solids and particulates with specific gravities different than water to separate out by gravity flotation and settling. Grease interceptors (Figure 9) installed in EOCWD after 2012 shall have two compartments separated by a midwall baffle, the first compartment usually having 2/3 of the total volume and the second 1/3 of the total volume. The kitchen wastewater enters the GRD through the inlet pipe, passes through the opening on the baffle into the second compartment and flows out of the GRD into the sanitary sewer lateral through the outlet pipe. An inlet tee is installed to prevent clogging of inlet pipe with the floating grease that accumulates in the device. To prevent floating FOG to be carried away with a flow out of the interceptor, an outlet tee is installed at the outlet pipe. The depth between the invert of the outlet pipe and the bottom of the tank is called an operating depth of interceptor. The inlet and outlet Tees are usually installed to the half of interceptor’s operating depth because of solids that accumulate at the bottom of the tank. A tee like the one in Figure 4 or similar may be installed at the opening in the baffle to prevent floating FOG to pass from the first into the second compartment. When the combined depth of floating grease and solids is about ¼ of the operating depth, the interceptor must be cleaned (pumped out dry) as described in Section 7. Each compartment must have an access point (a manhole) for checking the thickness of accumulated floating FOG and solids in the interceptor, and cleaning of compartments.

Grease traps (Figure 5) may have one or more baffle plates which separate the trap into two or more compartments. The FOG content in the wastewater decreases as it flows between compartments and in the last compartment it should be practically eliminated. If a grease trap is not properly maintained, the last compartment may contain increasingly grease laden wastewater and grease may start to flow into the wastewater drain, which may result in a blocked drain and that can be expensive to clear.

When the water flowing into the GRD has high temperature, turbulence or presence of soaps, surfactants or detergents, the free floating fat in the kitchen generated wastewater breaks up into tiny particles and mixes with water (emulsifies), which makes the device less effective or ineffective. The high pH in influent indicates cleaning products and these chemicals are generally powerful degreasers. The low pH within the grease interceptor suggests the occurrence of anaerobic microbial activity, and the acidic nature of the interceptor may lead to increased deterioration of the concrete walls.

The effective grease separation from wastewater in GRDs requires:

- Sufficient retention time, based on water flow.
- Water temperature, must be less than 140°F
- pH, must be between 5 and 9.
- Controlled turbulence.

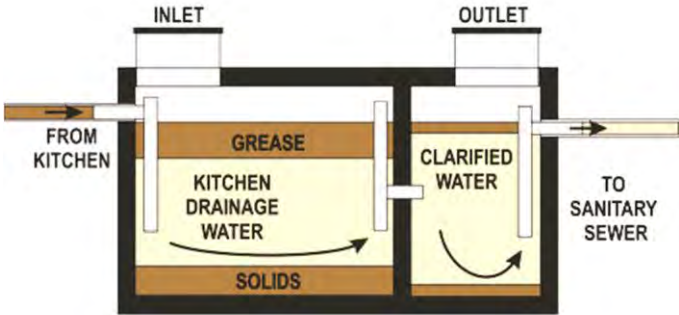


Figure 4: Grease interceptor

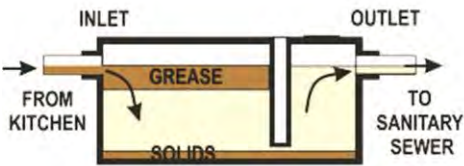


Figure 5: Grease trap

Plumbing fixtures in FSEs that potentially discharge FOG should be connected to GRDs, including sink drains and floor drains. Sanitary fixtures that produce black water other than kitchen waste, such as toilets and urinals should not be connected to GRDs.

### Disposal Options

Grease collected at FSEs can be recycled. There are two types of grease, yellow and brown. Yellow grease is removed from fryers and similar cooking equipment and stored in special yellow grease containers at the FSEs (see Section 7). The FOG haulers sell the yellow grease to rendering companies to turn into cosmetics, soaps, fertilizers and animal feed. Brown grease is the material removed from GRDs and is typically disposed at wastewater treatment plants (WWTPs) although it can be used to make paints and polymers or used as a co-fuel in incinerators.

One advantage for an FSE to collect yellow grease is that the FOG haulers either collect yellow grease for free or pay the FSEs for pumping out and hauling of yellow grease, whereas FSEs pay the haulers for collecting the brown grease.

Disposal and recycle options for FSEs are shown in Figure 6.

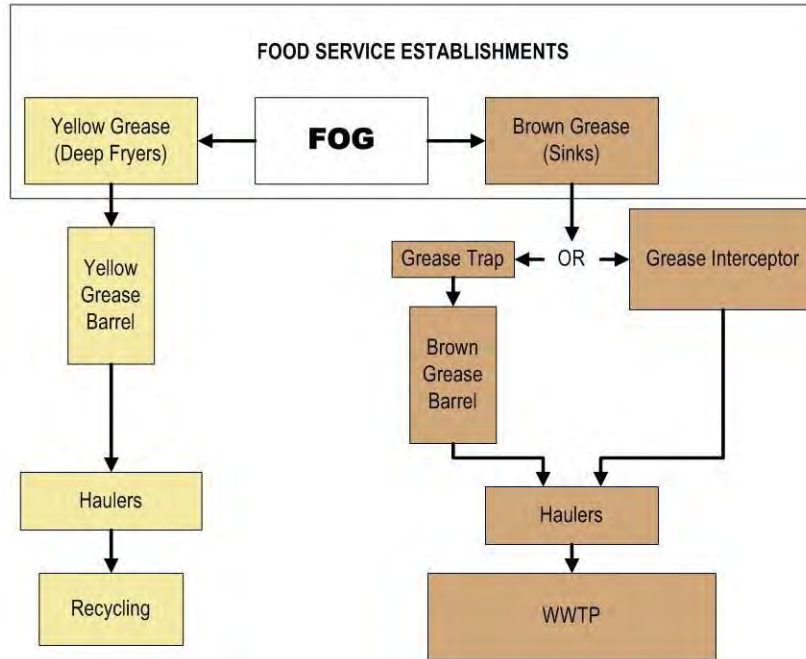


Figure 6. Disposal and recycle options for FOG collected from FSEs.

# 5 Program Resource Requirements

## Introduction

The implementation, administration, monitoring, and enforcement of the FOG Management Program requires adequate funding support each year for staff, tools and equipment, and software/hardware resources. This section discusses how the District is or needs to address each of these resources.

## Staff

FOG related staffing requirements based on the District’s updated FOG Management Program activities are shown in Table 3. The following are general job descriptions of the staff positions:

- General Manager: Manages the overall District Operations.
- Operations Manager: Responsible for day-to-day oversight of the District’s water and wastewater systems.
- FOG Investigator(s): Contract staff that perform inspection of FOG facilities for compliance with District’s regulations. Documents deficiencies and coordinates appropriate enforcement action. Also participates in investigations of grease related SSOs to document source and ensure that documentation is accurately collected.
- Sewer Collection System Supervisor: Manages Sewer Equipment Operators, Assessment Crew, and Repair/Construction Crew.
- Sewer Collection System Operator: Performs preventative maintenance on wastewater system, clean/inspect wastewater system in response to SSO and Backups.
- Repair/Construction Crew: Assists Collection System Operators in making repairs on damaged sewer systems as necessary to restore flow.
- Office of District Engineer – Contract Engineering firm: Oversees plan submittal and review process for facilities requiring wastewater system needs including FOG management facilities.

Table 2: Staffing organizational assignments for FOG related activities.

| Staff                                 | Abbr.    | Assignments* and % Time Allocated to FOG |     |     |     |     |     |       |
|---------------------------------------|----------|--|-----|-----|-----|-----|-----|-------|
|                                       |          | (1)                                      | (2) | (3) | (4) | (5) | (6) | %     |
| General Manager                       | GM       |  |     |     | .5  | 2   | 1   | 3.5   |
| Operations Manager                    | Ops Mgr  | 1  | 5   | 1   | 1   | 5   | 4   | 17.0  |
| FOG Program Coordinator               | FOG Coor | 25                                       | 25  | 25  | 5   | 10  | 10  | 100.0 |
| Sewer Collection System Supervisor    | CS Supr  | 2  | 10  | 2   | 1   | 1   | 10  | 26.0  |
| Sewer Collection System Operators (2) | CS Opr   |  | 10  | 2   | 1   | 1   | 12  | 26.0  |
| Repair/Construction Crew              | RC Crew  |  |     |     |     | .5  | 2   | 2.5   |
| District Engineer                     | DE       | 5  |     |     | 1   | 1   | 1   | 8.0   |

|               |   |                                |
|---------------|---|--------------------------------|
| *Assignments: | (1) FOG Facility Plan Review and Permitting     | (4) Enforcement                |
|               | (2) FSE Inspection and Documentation Management | (5) Public Outreach            |
|               | (3) Manifest Tracking and Documentation         | (6) Maintenance and Assessment |

A more detailed description of staff assignments related to this program is given in herein.

#### FG Plan Reviews and Permitting of FSEs

FOG facility plan reviews are performed as a first step in permitting new FSEs with kitchen facilities or when existing facilities apply for a business license. The facility plan of the new FSE is created by an engineer or architect that has been contracted by the applicant FSE owner/manager and it includes the site plan showing location of grease removal devices (GRDs) and their calculated required size.

The FOG Program Coordinator and District Engineer review the plan to ensure that the GRD has been properly designed. The FOG Program Coordinator and/or District Engineer recommends adjustments to the location if not appropriate and using the standard GRD calculation method checks the size of the GRD on the plan. The FOG Program Coordinator and District Engineer may request changes to the FOG facility plan which requires re-submittal. The Operations Manager and Collection Systems Supervisor may also be consulted in this review.

The District Engineer is the presiding department over the plan submittal and review process. It confirms that the applicant has appropriate approvals to accommodate the request for the building construction or development. The District Engineer issues the building permit for the FOG facility once the FOG Facility Plan is approved.

The FOG Program Coordinator performs an inspection of the GRD once it has been installed, to confirm that the installation is in accordance with the approved plan. If the inspection passes, the inspector informs District Engineer, who will then sign off for the appropriate building department regarding the plan compliance.

The FOG Program Coordinator will then enter the FSE into the database and prepare the FOG permit.

#### FSE Inspection and Documentation Management

For the purpose of scheduling and conducting inspections of FSEs, all FOG permittees have been entered into SEDARU, which generates a semi-annual inspection. The Orange County Health Department also inspects these facilities on a semi-annual basis.

The FOG Program Coordinator, and on occasion, the Collection System Supervisor and Collection System Operator perform inspections of GRDs and enters inspection data into SEDARU when each inspection has been completed.

In the case of FSE non-compliance with the GRD maintenance requirements, the Operations Manager and District Engineer, as well as the Collections System Supervisor and Collection Systems Operator may be involved with getting the FSE back into compliance, as described in Section 10. Occasionally, the General Manager may also be involved.

## FOG Collection and Disposal Tracking and Documentation

The FOG Hauler Manifest forms will be reviewed by the FOG Program Coordinator for all FSEs. Failure to properly document FOG removal will be grounds for enforcement action.

### Public Outreach

Public outreach to EOCWD residents will help reduce the amount of FOG entering the sanitary sewer system by educating them of the proper home kitchen grease disposal techniques and practices. The District can conduct public outreach through participation in local exhibitions, meetings and public events, distribution and mailing of posters, door hangers and fliers, dissemination of information through electronic media, and free presentations and trainings to apartment residents, school children, FSEs and FOG haulers. Staff working on these activities includes the all of the categories listed.

### Maintenance and Assessment

The FOG Program Coordinator coordinates with the Collection System Supervisor to identify what parts of the program are working and what areas may require more frequent cleaning and inspection. Both staff members provide input to the General Manager and Operations Manager regarding the effectiveness of the FOG inspection program and the Hot Spots cleaning program.

## Tools and Equipment

### FSE Inspections

Table 3 shows tools/equipment and documentation needed by the SSO/FOG Investigator for performing FSE inspections.

Table 3: Tools/equipment and documentation needed for FSE inspections.

| Tools per vehicle   |                               | Documentation  |
|---|-------------------------------|--|
| 12-in. adjustable wrench  | 5-gallon bucket               | District Identification (ID)   |
| Two 12-in. standard head screwdrivers                                     | Shovel                        | Business cards   |
| Two 8-in. standard head screwdrivers                                      | Thermometer                   | Waterproof pens and clipboard  |
| One 12-in. Phillips head screwdriver                                      | District truck/vehicle safety | Inspection forms   |
| One 8-in. Phillips head screwdriver                                       | Steel-toed shoes              | Assigned FSE list from SEDARU  |
| One Allen wrench  | Safety glasses                | FOG Binder   |
| One 8-in. pliers  | Safety vests                  | BMPs brochures   |
| One ratchet and socket set, metric & standard                             | Construction hardhat          | GRD Manufacturer Drawings  |
| One power drill set, with attachments                                     | Back-braces                   | Sewer Use Ordinance (for reference)  |
| One sledgehammer  | Work gloves                   | FOG Management Program   |
| Manhole cover lift/hook   | Latex gloves                  | Printed List of permitted FOG Haulers (contact names & phone numbers) in case internet is down |
| Pole/digital camera   | Disinfectant/hand sanitizer   | CCTV Truck, Camera, Software   |
| Cell phone/radio  | Rags/paper towels             |  |
| Sludge judge and/or depth probe   | Rain gear                     |  |
| Mirror on a pole and flashlight (to see inside manholes and interceptors) | Ruler<br>Camera               |  |

## Conveyance System Inspections

The District's Asset Management and Operations and Maintenance Program (AMOM) provides the specific tools and equipment required for cleaning and inspecting the sanitary sewer system for FOG related items. In general, the tools and equipment needed for FOG related inspections include CCTV camera and transporter, VAC truck, Jet Washer with hydraulic driven root cutter, and rodding equipment.

## Information Management System

The District has been using SEDARU data management software for asset management and operations and maintenance. The software integrates maintenance management, asset inventory and inspection, and GIS data and can generate work orders and create standard or custom reports for work and performance analysis.

The SEDARU FOG "tile" is used for tracking FOG Management Program implementation. The module enables performing activities such as:

- Scheduling and tracking of facility inspections.
- Scheduling and tracking of facility pumpouts.
- Tracking of maintenance log submittals.
- Tracking of conversations to/from facility and/or hauler.
- Tracking of notices, warning and violations as well as corrective activities.

## Funding

### Estimating Program Budget

The overall required budget for the FOG Management Program is estimated based on staff time, materials and equipment costs, and the cost of FSE inspections and other services provided as part of the program. The costs for implementing the FOG Program also include the additional associated labor of data management and software upgrades. The FY 2016/17 FOG budget is estimated at more than \$100,000.

Required budget for the outreach program can be calculated based on estimated staff time to conduct workshops and distribute the advertisement materials, and design/production costs of the materials themselves.

### Funding Sources

The FOG Management Program is funded through several mechanisms as shown in Table 5.

Table 4: Funding Sources for the FOG Program.

| Mechanism                                 | Fund Type          | Source of Income                                  |
|---|--------------------|---|
| Water/Wastewater General Operating Budget | Wastewater Revenue | Sewer use fees paid by all users                  |
| FSE Building Application Fee              | General Funds      | FSE Applicant for individual establishment        |
| Permit Fees                               | Wastewater Revenue | FSE's Pay an annual FOG Permit Fee                |
| Penalties                                 | General Funds      | Penalties for violations to District Codes by FSE |

## 6 Permitting Requirements

### Commercial Food Service Establishments (FSEs)

#### Permitting Authority and Purpose

All commercial food service establishments (FSEs) doing business in EOCWD require a FOG Permit issued by the District. A FOG Permit is initially issued after the business begins operating and then renewed on a bi-annual basis.

#### Permitting Process for New FSEs

Before construction of a new FSE begins, the permit applicant for new FSE submits an application for a Building Permit with a FOG Facility Plan enclosed.

As part of review and approval process, the District Engineer and FOG Program Coordinator reviews the FOG Facility Plan. If the plan is not made to the District requirements, the permit applicant needs to revise and resubmit the plan. Upon approval of the plan from the District Engineer, and payment of associated fees, the District issues a Sewer Permit.

The construction of new FSE follows including the installation of GRD. Once the GRD is installed, the FSE gives a notice to the District and the FOG Program Coordinator and/or Collection Systems Supervisor performs inspection. If the installed GRD is not approved (for example, it has not been installed in accordance with the approved facility plan), the FSE need to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected.

If the GRD inspection passed, the appropriate building department paperwork is signed off and SEDARU is updated with the new FSE and GRD records.

#### Permitting Process for Remodeled FSEs

Before work on remodeling of an existing FSE begins, the FSE owner submits an application for a Sewer Permit. A new FOG Facility Plan is not required but the permit applicant has to schedule inspection of existing GRD with the District.

The FOG Program Coordinator performs the inspection. If the existing GRD is approved, a Sewer Permit will be issued when the planed remodeling work is completed and passed inspection.

If the existing GRD is not approved, the FSE needs to make a new FOG Facility Plan and submit to the District for review. The District Engineer and FOG Program Coordinator review the plan and if it is not made to the District standards, the permit applicant needs to revise and re-submit the plan. Upon approval of the plan by the District Engineer, the District will issue the sewer permit.

The remodeling of new FSE follows including the installation of new GRD. Once the new GRD is installed, the FSE gives a notice to the District and the FOG Program Coordinator performs the inspection. If the



installed GRD is not approved (for example, it has not been installed in accordance with the approved FOG Facility Plan), the FSE need to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected.

If the GRD inspection passed, the District will issue the sewer permit. The FSE and GRD records in the SEDARU are updated.

## Permitting Process for FSEs with Changed Ownership

A change of FSE ownership affects an existing FSE Business License because it is non-transferable and therefore the new FSE owner is required to obtain a new one.

The new FSE owner applies for a new business license. The District's Wastewater Division is notified to determine if the existing GRD needs inspection at this time.

The FOG Program Coordinator performs the inspection. If the existing GRD is approved, the business license paperwork will be signed off.

If the existing GRD is not approved, the FSE needs to make a new FOG Facility Plan and submit to the District for review. The District Engineer and FOG Program Coordinator review the plan and if it is not made to the District standards, the permit applicant needs to revise and re-submit the plan. Upon approval of the plan by the District Engineer, the District will issue sign off on the business license documents.

The installation of new GRD follows and when completed, the FSE gives a notice to the District and the SSO/FOG Investigator performs inspection. If the installed GRD is not approved (for example, it has not been installed in accordance with the approved FOG Facility Plan), the FSE needs to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected. If the GRD inspection passed, the business license documentation is signed off.

The FSE and GRD records in SEDARU are updated.

## FOG Facility Plan (GRD Design)

EOCWD's Standard Specifications will be modified to incorporate GRD design guidelines. Until this revision is completed, the review of FOG Facility Plans in the FSE permitting process is based on design methodology (design approach and GRD sizing formulas).

# 7 FOG Best Management Practices (BMPs) for FSEs

## Introduction

Proper FOG handling at FSEs will reduce the amount of FOG that enters the sewer system. Kitchen Best Management Practices (BMPs) include kitchen's daily activities and measures to keep FOG from being discharged to the sanitary sewer. Proper GRDs maintenance practices relate to their cleaning frequencies, effective cleaning methods, and retaining pump-out records for a specified amount of time.

## Equipment and Plumbing

Most kitchen-generated FOG is introduced to the sewer system via the sink. BMPs recommend installing a three-sink dishwashing system which has the first sink used to wash plates; the second sink rinse plates and the third sink to sanitize with a 50-100 ppm bleach solution (Figure 7). Such systems saves energy and cost.

Drain screens should be installed on all sink drains and floor drains. Sink drains screens (Figure 8) are an absolute necessity. They should have openings between 1/8-in. and 3/16-in., be removable for ease of cleaning, and be frequently cleaned (the screened solids disposed of to the trash). They should also be large enough to capture food scraps, solids, and other materials from entering the sewer system, and when a lot of food solids are being dumped into the sinks drain baskets are recommended. Double screens can also be installed to prevent solids from entering the drain while the first screen is being cleaned. Floor drain screens (Figure 9) prevent solids on the floor from entering the sewer system. They must be effectively secured to the floor and cleaned frequently by placing the collected material in the garbage.



Figure 7: Three-sink dishwashing system.



Figure 8: Sink drain screen.



Figure 9: Floor drain screen.

All FOG bearing drains in a FSE should discharge to the GRD. These include mop sinks, wash sinks, prep sinks, utility sinks, pulpers, pre-rinse sinks, can washes, and floor drains in food preparation areas such as those near a fryer or tilt/steam kettle.

Sanitary fixtures that produce black water other than kitchen waste, such as toilets and urinals, are not to be connected to GRDs.

## Proper Dishwashing Practices

Proper dishwashing can reduce significantly entry of FOG and other waste material to the sewer system. The BMPs include recommendations for proper food waste disposal and rinse/wash water temperature monitoring. Prior to washing, solid food waste and solidified FOG should be scraped and dry wiped from pots, pans, fryers, utensils, screens, and mats directly into a trash container (Figure 10). Rubber scrapers, squeegees, or towels to remove food should be used. Used oil should never be poured down a drain or a toilet and should instead be collected in small grease containers (Figure 11) which are emptied to outdoor grease bins for recycle (Figure 12).



Figure 10: Dry wipe pots and utensils prior to washing.



Figure 11: Pouring oil into a small grease container.



Figure 12: Emptying small grease container into an outdoor grease bin.

Before the wash sink is drained, the free floating FOG or food solids should be removed. Additionally any utensils, including knives, forks, spoons, cups, straws, etc. must be prevented from entering the sewer system.

It is essential not to discharge wastewater with temperatures above 140°F therefore if a dishwasher is connected to a GRD it must have a chiller in place to reduce water temperatures.

## Kitchen Cleaning Practices

BMPs require that counter tops and food preparation areas are properly cleaned. Food solids must be wiped thoroughly and placed into the trash container or food recycling bin and not dumped down the sink or floor drain. Food grade paper should be used to soak up oil and grease under fryer baskets and paper towels to wipe down work areas (if towels are used, they accumulate grease that eventually ends up in the drain from towel washing/rinsing).

Kitchen exhaust system filters and floor mats should be cleaned in utility sinks or designated areas connected to a GRD and not in an area where wastewater can flow to the gutter, storm drain, or street and thus enter storm sewer system.

## Spills Prevention and Cleanup

Every effort should be made to prevent spills in kitchens but when they occur, the risk of FOG entering a drain can be minimized by proper spill clean-up procedures.

Spill prevention BMPs include emptying containers before they are full to avoid accidental spills, using a cover to transport grease materials to a recycling barrel, and providing proper conveyance devices to

transport grease containing equipment without spilling (e.g., portable fryer grease transfer container). Employees should be provided with the proper tools (ladles, ample containers, etc.) to transport materials without spilling. Spill cleanup kits should be available including, for example, a container (a 5 gallon pail with a standard tear tab lid or screw-on/off lid), universal pads (e.g., 15 in. × 19 in.), absorbent socks (3 in. × 4 ft) to block spreading of contaminated liquid, a temporary disposal bag, a plastic zip tie (12 in.), and a pair of gloves.

Spill clean-up BMPs include blocking off sink and floor drains near the spill, clean spills with towels and absorbent material, and using wet cleanup methods only to remove trace residues. Spills of dry ingredients should be swept up or vacuumed to prevent them from being washed into floor drains.

When changing oil in fryers, the oil should be drained into a bucket (Figure 13) and discarded into a container kept behind the facility (an oil rendering tank for disposal) before it is hauled away. It should never be discharged into a grease interceptor or waste drain. Grill top scrap baskets should be emptied or scrapped into the rendering barrel as well.

Proper storage practices include use of outdoor grease bins (Figure 14) and barrels (Figure 15) where grease is stored until picked up FOG grease haulers for discharging at the WWTP but preferably by grease recycling companies in the area.

Grease containers stored outdoors must be covered to prevent rainwater from entering (Figure 15). This prevents FOG which floats from flowing with rainwater overflowing from the bin or barrel onto the ground where it can reach the stormwater system. FOG containers should be located away from storm drains to give more time to clean up any spills if they happen. Any FOG dripping out of containers must be cleaned up quickly.



Figure 13: Draining used grease from a fryer into a bucket.



Figure 14: Grease bin.



Figure 15: Grease barrels.

## Prohibitions Related to FOG Discharges

Certain FOG discharges would interfere with the proper operation of GRDs. The following prohibitions apply:

- DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
- DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.
- DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
- DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant.
- DO NOT connect a garbage disposal to the GRD unless a solid separator is installed to remove solids prior to entering the GRD.
- ANY outside dumpster bin drain shall be plumbed to go through the GRD. The bin area shall be enclosed as to not allow rain water to enter the drain. The site should also be graded as to not allow any storm water to drain into the dumpster bin area.

### Kitchen Signage

Kitchen signage serves as reminder for employees to follow proper kitchen BMPs and procedures. “No Grease” signs should be posted in food preparation and dishwashing areas (above sinks and on the front of dishwashers). They emphasize the importance of keeping FOG out of sinks and drains. The signs should be produced in several languages, so that non-English speaking employees are aware of the BMPs.

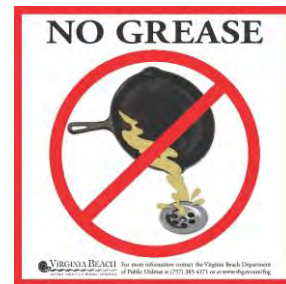


Figure 10: “No Grease” sign.

## Grease Removal Devices (GRD) Maintenance

### Interior GRDs Monitoring and Cleaning

Interior GRDs (grease traps) can be installed above ground (Figure 16) or flush with the floor (Figure 17). They operate by retaining wastewater long enough to allow contaminants with specific gravities different than water to separate out by gravity flotation and settling. However, these small devices are flow based (have flow restrictions) and FSE owners/managers need to learn, from the plumber or the FOG Investigator, the maximum flow rate allowable through the unit and not exceed it.



Grease traps they are typically maintained by selected FSE employees. The traps come with instruction manuals which provide directions about their care and maintenance. All safety precaution and manufacturer labels must be kept in good care and shown on the equipment as provided (Figure 18) and a copy of the exact information should be kept in a separate maintenance book.



Figure 16: Grease trap installed above ground.



Figure 17: Grease trap installed flush with the floor (an in-floor trap).



Figure 18: Labels displayed on the trap.

The necessary cleaning frequency of grease traps depends on the following:

- The capacity of the device.
- The amount of grease the FSE generates.
- BMPs the facility is implementing to reduce the amount of FOG discharged.

A grease trap should be cleaned out when about a quarter of its volume is filled with FOG and solids (see description of “25% Rule” in next section) however the trap should be checked regularly (initially on a daily basis to establish the required maintenance frequency and then proceed at that frequency). For example, if it is determined that a 35 gpm trap accumulates about 5 gallons of grease every 4 days it can be assumed that the interceptor should be cleaned no less than once a week. In FSEs where food specialty is high in FOG, and especially if food grinder is discharging into the grease trap, cleaning may be needed on a daily basis.

Regardless of the required cleaning cycle, field experience shows that one of the biggest obstacles to regular maintenance is odors usually associated with grease traps. The easiest way to eliminate that problem is frequent cleaning. If cleaning the grease trap becomes a part of the daily routine, it usually requires only about 15 minutes and there will be limited or no objectionable odors.

Grease traps should be placed so that it is easy to open them and clean. The baffle should be removed, the baffle and inside walls of the tank scraped removing the FOG buildup, and the grease removed (Figure 19). The device should be dry wiped rather than washed with water and cleaning chemicals. The grease removed from the device should be placed into a container and disposed of in the trash (Figure 20). Frequent skimming of the device makes it easier to clean later.



Figure 19: Removing grease from the grease trap.



Figure 20: Disposing removed grease into the trash.



Figure 21: Automatic GRD.

In addition to manual grease traps described so far in this chapter, automatic GRDs are also available (Figure 21) – these are generally more expensive and designed for the interception of large quantities of FOG. Automatic GRD have mechanical components including an external collection container for removal of grease, and timers and sensors that should be maintained at intervals recommended by the manufacturer.

FSEs should document monitoring and cleaning of grease traps. The date and approximate volume of FOG waste removed should be entered into the FSE’s maintenance log each time the trap is cleaned. Maintenance documents must be kept on site at the FSE for at least three (3) years.

## Exterior GRDs Monitoring and Cleanup

Exterior GRDs (grease interceptors) are installed outside of the facility. These devices are volume based and have no flow restrictions.

They must be cleaned out by permitted grease disposal contractors but is the responsibility of FSEs to monitor their condition and schedule their cleaning as needed.

The necessary cleaning frequency of grease interceptors depends, like with the grease traps, on the following:

- Capacity of the device,
- Volume of wastewater being placed into the GRD daily,
- Amount of FOG in wastewater coming to the GRD.

A “25% Rule” is used as a criterion to determine when the time for GRD cleaning has come, which is based on periodic checking of:

- Scum layer thickness (the floating scum layer in the GRD tank), and
- Solids layer thickness (solids accumulated on the bottom of the GRD tank).

It is the FSE’s responsibility to verify that the accumulation of solids, grease and oils does not exceed 25% of the liquid retention capacity of the device. In other words, the thickness of both layers combined must not exceed 25% of the operating depth of the device, which is the internal depth from invert of outlet pipe to the bottom of tank. For example, a 4-ft deep interceptor (4-ft operating depth) must not have more than 1 ft of combined floating FOG and settled FOG/solids.

Grease interceptors should be checked regularly (initially it is recommended to check them on a weekly or bi-weekly basis to establish the required maintenance frequency and then proceed at that frequency). Field experience indicates that the cleaning frequency for large interceptors is usually in the range of 2 to 4 weeks.

An example of a GRD severe condition where the device was left to fill up to the top with grease is shown in Figure 22, which is completely unacceptable. This condition is referred to as “severe GRD non-compliance” in Section 10 and is subject to immediate penalty.

There should be an adequate number of access manholes, namely one manhole cover directly above each inlet and outlet on the interceptor tank, to provide access for inspection and cleaning all areas of an interceptor. The FSE personnel should learn to visually inspect the interceptor:

- The influent (or entry) side usually has the heavier amounts of grease (Figure 23). A baffle or elbow should be showing.
- The effluent side has less amounts of grease and the person doing the inspection should be able to see the outlet tee discharge (Figure 24).



Figure 22: Interceptor filled with grease to the top.



Figure 23: View into a manhole on the interceptor inlet.



Figure 24: View into a manhole on the interceptor outlet.

The FSE operator should use a measurement tool which offers accurate readings and requires very minimal training for correct use (Figure 25).

The Standard Operating Procedure (SOP) for interceptor inspection in Appendix G should be followed every time a grease interceptor is inspected. Appendix B is an inspection checklist documents all the information that a facility operator will receive and needs to keep on file. FSE owners/operators can usually find out by experience how often grease interceptors at their facilities need to be cleaned.

As FSEs are responsible for the condition of grease interceptors, it is recommended that an FSE representative witness and monitors how the grease haulers perform the interceptor cleaning. The FSE is responsible for the proper procedures to be followed (see Section 9) and

that the hauler does not take any shortcuts. The FSE representative can use “Checklist for Monitoring of FOG Hauler” form included in Appendix C.



Figure 25: Inspecting the interceptor.

FSEs should document maintenance of grease interceptors. Each time the grease interceptor is inspected, the date and results of inspection should be entered in the inspection log (Appendix G). The date and approximate volume of removed FOG waste should be recorded in the FOG Hauler Manifest form (Appendix D) each time the interceptor is cleaned. A copy of this form should be put into the maintenance log and kept on site; maintenance documents must be kept on site at the FSE for at least three (3) years.

## Getting in Compliance with FOG Management Program

In order to get in compliance with the FOG Management Program, FSEs may use the following checklist for implementing BMPS:

1. Make sure drain screens are installed in all FOG bearing sink and floor drains.
2. Make sure employees scrape solid food from pots, pans, fryers, utensils, and dishes into a trash container and that there is no waste food in the sink. Make sure employees dry wipe pots and utensils prior to washing.
3. Make sure employees sweep the floor before mopping and there they don't attempt to remove floor drains to sweep in debris from the sweeping floors.



4. Make sure temperature of faucet water is not over 140°F and set water heaters temperature accordingly.
5. Make sure employees promptly clean any grease spills on the floor using towels and absorbent material and using wet mops only to remove trace residues. Make sure proper spill cleanup kits are available in the facility.
6. Make sure small grease waste containers are available and used for collecting used oil and grease, and that these containers have lids.
7. Place proper signage about grease control and listing of BMPs on the wall.

In facility outside areas, FSEs should apply the following measures:

8. Make sure outside grease containers are covered and closed.
9. Make sure there are no grease spills on the pavement or other surfaces from transporting grease to outside containers.
10. Make sure that outside grease containers are not leaking and replace any damaged one promptly.
11. Make sure that employees do not dump oil and grease into storm sewer.
12. Make sure that employees do not cleaning equipment (degrease) outside. The equipment should be scraped and dry wiped indoors and any washing done in utility sinks connected to a GRD.
13. Make sure that employees do not wash mats outdoors. The mats should be vacuumed and washed in utility sinks connected to a GRD.

The FOG Management Program also includes requirements to keep proper documentation about employee training and GRD maintenance. The FSE's checklist continues as follows:

14. Make sure that the employee training log is complete, i.e. that employees get training about proper FOG handling and learn requirements of the FOG Management Program (see 8.4). Keep training log current and provide training to new employees, as well as periodically do refreshment training to already trained employees.
15. Make sure that the GRD inspection/cleaning log is complete. Employees in charge of inspection and cleaning of grease traps and grease interceptors need to do these assignments regularly and keep the GRDs in good operating condition. Learn the required frequency of inspection and cleaning of a GRD in the facility and adopt the routine to inspect and clean accordingly.
16. Make sure that the FOG Hauler manifests are complete.

FSEs may use the following checklist for requirements of the FOG Management Program related to condition and performance of GRDs:

17. Make sure that a GRD functions. The device should contain wastewater with grease layer floating on the top and be filled below the invert of the outlet pipe.
18. Make sure that the 25% rule is met, i.e., that the thickness of the layer of floating grease and solids combined does not exceed 25% of the operating depth of the device (depth between the invert of the outlet pipe and the bottom of the device).
19. Make sure that the inlet pipe of the GRD is visible during inspection.
20. Make sure that the outlet pipe of the GRD is visible during inspection.
21. Make sure that there are no roots growing in the interceptor and have them cleaned if necessary.
22. Make sure that there is no corrosion damage to the GRD. If metal traps are corroded replace with new ones and consider grease traps made of plastic. Make sure to repair corrosion damage to the interceptor promptly and do not wait for severe damage to develop (for example, rebar to get exposed in a concrete grease interceptor).

Make sure to correct any broken parts or replace missing parts, especially missing outlet T. If a GRD is not cleaned on time, the device keeps filling with grease and the level of grease may reach surface. Heavy cast iron manhole covers can be moved under pressure from grease built-up and grease can overflow from the GRD. This represents the “GRD severe condition” and is subject to immediate penalty (see Section 10). FSEs should make sure that such condition does never develop.

## Employee Training

Employee education is the key to the implementation of kitchen BMPs and proper maintenance of GRDs. Employees who know and understand the problem, procedures, and benefits will be more willing to support and be able to implement the FOG Management Program requirements. Employee education should emphasize:

- Problems created by FOG discharge to the sewer system.
- Kitchen BMP procedures.
- Benefits to following the kitchen BMP procedures.

Employee education includes new employee training program, frequent refresher training program, employee award program for following BMPs and employee idea/suggestion program

The FOG Program Coordinator and the Collection systems Staff are the principal means for delivering the necessary education to the FSEs and they instruct the FSE owners/managers how to develop and carry on training of their staff (see Section 10).

# 8 FOG Collecting and Disposal Proper Practices

## Introduction

Grease interceptor cleaning is performed by permitted grease haulers. The cleaning entails pumping the interceptors completely dry and having all liquids, solids and grease removed from the interceptor. FOG haulers also collect the grease stored in grease bins and barrels. All collected FOG is transported to the WWTP where it is disposed of, with the exception of yellow grease which is used for recycling.

## Grease Interceptor Cleaning

The interceptor cleaning begins with cleaning of the top grease layer. Using the truck suction hose, the top layer of FOG is vacuumed up first. The bottom layer consisting of the heavier sludge and FOG is vacuumed up next. In the last step, the remaining “water” or liquid is pumped out to leave the interceptor completely empty (Figure 26). This may be followed by high-pressure water scrubbing (Figure 27). “Definition of clean” means the tank is entirely pumped out (Figure 28).

Decanting is a practice of returning wastewater from a grease hauler truck back into the grease interceptor after it is vacuumed out. Decanting is not allowed. This wastewater has high grease and solids content and low pH, may be contaminated from the hauler’s previous load and cause odors.



Figure 26: Vacuuming out the contents of the interceptor.



Figure 27: Use of high pressure water and suction hose.



Figure 28: Cleaned interceptor.

FOG haulers are required to keep a complete record of facilities cleaned and submit such records (manifests) to the EOCWD when requested, as per the FOG Ordinance. The form used for this purpose is a FOG Hauler Manifest included in Appendix D. It is a standard form that enables FSEs recording the times and volumes of FOG pumped and removed from their facility, and gives FOG haulers proof that they have properly discharged the collected FOG loads. It serves the District tracking the grease after it has been collected until it has been disposed and enables the District to assess the FOG haulers for the FOG quantities disposed at the plant.

## 9 FOG Program Implementation

Educating public about FOG issues and problems and the importance of FOG program implementation is essential. The District's program is considering education and outreach activities and materials such as:

- Distribution and mailing of water/sewer bill inserts, posters, door hangers and fliers, especially to residential areas impacted by FOG related blockages and SSOs – these materials were created with specific tips on keeping pipes and sewers clear at home.
- Dissemination of information through electronic media. A portion of the District's website will be dedicated to information about the FOG Management Program and related issues.
- Participation in local exhibitions, meetings and public events.
- Presentations to apartment residents, school children, restaurants and FOG haulers.
- District truck stickers placed on District vehicles promoting the Fight FOG message allowing the clarity and simplicity of the message to speak to residents while front line workers are out dealing with the FOG. The stickers allow both residential and commercial customers to connect the trucks and work crews to the materials they see/receive at home and work, therefore maximizing the opportunity for outreach.
- Collaboration with local organizations including restaurant associations and chambers of commerce.

Public outreach to EOCWD residents will help reduce the amount of FOG entering the sanitary sewer system by educating them of the proper home kitchen grease disposal techniques and practices. Private residents are often contributors to FOG related blockages in wastewater collection systems.

### Achieving Compliance from FSEs

In order to achieve compliance with the FOG Management Program from all FSEs while maintaining good public relations, the following compliance enforcement consequences are designed to directly vary with the degree of the FSE compliance cooperation and resolutions:

- Educate FSEs about the program and requirements through training provided at the program onset).
- Perform FSE inspections periodically for checking compliance with the program.
- Give compliance recognition.
- Encourage compliance through notices of non-compliance and warnings of potential fines and stringent enforcement measures that would follow for persistent non-compliance.
- Issue non-compliance citations following determination that the FSE is in a violation, as established by the FOG Program Coordinator or the Collections System Supervisor.
- Terminate sewer service to the FSE if all other measures have been tried and proved unsuccessful.

### Training to FSEs

- Educating FSE owners and managers about the FOG Maintenance Program, specifically in implementing BMPs and performing proper GRDs maintenance, is essential for achieving their compliance with the program. The Program Coordinator and SSO/FOG Investigators are the principal means for delivering the FOG Management Program requirements and necessary education to the FSE

community.

At the onset of the FOG program, FSE's knowledge and awareness of the program may vary greatly. A letter introducing the program and FSE inspection process, and signed by the General Manager, along with educational outreach will be sent to the FSE owners/managers. (The same should thereafter be done whenever any new or remodeled FSE, or FSE under new ownership, has a Business License issued.) The FOG Program Coordinator will visit the facility and provide training to instruct the FSE owner/manager (who will instruct all other employees) of how the FOG program should be implemented and how it affects their business.

During the visit, the SSO/FOG Investigator gives the following forms to the FSE owner/manager:

- Initial Training Checklist (Appendix B) – This form is listing other forms that the FOG inspector will show and explain to the FSE owner/manager during this initial visit. The form must be kept in the FSE as a record of completed initial training.
- Training Development Form (Appendix F) – This form is instructing the FSE owner/manager how to develop a FOG training program for the employees of the FSE.

The FSE owner/manager is also instructed about other forms that the FSE is required to use, which all will remain in the FSE and be shown to the SSO/FOG Investigator during future FSE inspections upon request:

- Tracking of Employee Training (Appendix E) – This form will list employees working at the FSE and show the dates when they received the training in kitchen BMPs.
- Inspection/Cleaning Form for Grease Traps and Interceptors (Appendix G) – This form will be used to keep record of how often grease traps are inspected and cleaned by the FSE personnel.
- Standard Operating Procedure (SOP) for “25% Rule” Form (Appendix H) – This form explains the procedure for checking grease and solids accumulation in GRDs (both grease traps and grease interceptors). Each employee of the FSE who will be trained to inspect the GRDs will be shown this SOP and will be given all necessary explanations.
- Checklist for Hauler Monitoring (Appendix C) – This form will be used by FSE personnel to monitor grease interceptor pump outs to ensure proper cleaning and maintenance procedures are followed and that the FOG hauler does not take any shortcuts

## FSE Inspections

### Scheduling Inspections

Routine inspections of all permitted FSEs are performed as random and unannounced inspections to observe their daily business operations and routines and check their compliance with the FOG Management Program. All FSEs will be inspected approximately twice per year but eventually will be prioritized and inspected based on criteria such as:

- Type and method of food preparation.
- Size and grade of sewer mainline pipe to which the FSE discharges.
- History of grease related pipe blockages and SSOs downstream of the FSE.
- Compliance history.

In addition to routine inspections, some FSEs will be inspected following complaints such as sewer backups or SSOs. These triggered inspections will be performed to identify facilities possibly responsible for the blockage. Triggered inspections will occur regardless of any prior and perhaps recent routine inspection of these facilities.

### Performing FSE Inspections

A typical routine FSE inspection includes checking the implementation of BMPs, including FSE maintained logs, and the condition and performance of GRDs. In some cases it may also include sampling and laboratory testing of effluent wastewater from GRDs.

District staff have a right of entry (District Ordinance 2016-02, Section 5.3) to inspect food preparation and other areas of the facility where FOG is generated or stored, logs maintained by the facility, all grease traps/interceptors and wastewater lines from the establishment to the sanitary sewer system. Failure to permit the investigator entry in accordance with the specified conditions constitutes a misdemeanor punishable by fine up to \$1,000, or confinement in the District jail for a period not exceeding six (6) months, or both (Ord. No. 2016-02, Section 6.11).

If District staff are refused access to inspect the facilities, they will notify the Operations Manager and both will approach the FSE explaining the purpose of the compliance inspection and fines associated with violations with District Code requirements. If the access to the facility is still refused, the Operations Manager will contact the Orange County Health Department for a joint inspection of the facility and issue a Violation Notice.

### Routine Inspection

When checking the BMPs implementation, the inspection includes:

- Inspect sink and floor drain screens.
- Look for evidence of proper dishwashing (there is a scraper for dishes) or improper dishwashing (evidence of food in the sink, as shown in Figure 29).
- Check for evidence of illicit dumping such as debris or loose screws in floor drains (Figure 30).
- Look for evidence of proper spill prevention/cleanup practices (there is a spill kit).
- Check that the BMP signage is posted on the wall.
- Check for evidence of equipment cleaning (degreasing) or mats washing in outside area.
- Inspect employee training log.
- Inspect FSE's inspection/cleaning log to confirm that GRDs are maintained properly. Check for missing or altered log entries.
- Inspect copies of FOG Hauler Manifest forms to see FOG pickup dates and volumes collected and verify FOG discharge at the WWTP.

For assessing the condition and performance of GRDs, the inspection includes:

- Check that GRDs function (Figure 33).
- Check grease/sediment depths (the 25% rule, as described in Appendix H).
- Check if inlet pipe and outlet pipe are visible (Figure 34).
- Check for root intrusion (Figure 35)
- Check for evidence of extensive corrosion in metal grease traps (Figure 36) and concrete interceptors (Figure 37).
- Check for any broken or missing parts (Figure 38, Figure 39) or damages such as cracks or big chips in the lids



Figure 29: Food in the sink (dishes were not wiped before washing).



Figure 30: Debris in the floor drain (floor was not swept before mopping).



Figure 31: Spills on and around grease recycle bin.



Figure 32: Waste leaks in the garbage and grease recycle storage area.



Figure 33: Grease interceptor not working.



Figure 34: Too short outlet tee allows short-circuiting.



Figure 35: Roots removed from the grease interceptor (root intrusion can completely clog the interceptor).



Figure 36: Severely corroded metal grease trap (these traps are highly prone to corrosion).



Figure 37: Exposed re-bar in a corroded concrete interceptor.



Figure 38: Missing inlet tee allows FOG buildup in front of discharge pipe.



Figure 39: Missing outlet tee allows floating FOG to escape into the sewer system.



GRDs usually smell offensive when the top is disturbed. When the lid is down the smell should not be overly offensive. If the smell is offensive or strong with the lid down, the device has probably not been cleaned on time, or there may be a break in the integrity of the GRD structure, or a plumbing fitting may be cracked or broken.

#### Additional Activities in Triggered FSE inspections

Triggered FSE inspections are performed in the same manner as routine inspections but they also may include CCTV or zoom camera inspection of the pipes and inspection of manholes up to 1,500 feet downstream of the facility and several manholes upstream of the facility.

#### Documenting Findings

For documenting findings of the FSE inspection, the inspector uses SEDARU

Any change in the FSE business status (e.g., closed establishment), business name, facility ownership, or size of GRDs is entered into SEDARU. The SEDARU template contains a checklist of possible deficiencies in BMP implementation and in GRD maintenance (if these devices are not found properly functioning or in good condition).

If no deficiencies are found, the FSE is given the Certificate of Compliance (Figure 40). If deficiencies are found, the FSE is in violation and steps described in the Non-Compliance section are followed until compliance with the program is achieved.

#### Compliance Recognition Certificates

Compliance recognition certificates are issued to the FSEs that implement proper FOG control measures and meet program requirements. An examples is shown in Figure 40. FSEs can display these certificates so that customers can see and recognize their efforts to support the community.



Figure 40: Certificate of Compliance.

#### Steps to Change Non-Compliance into Compliance

##### Introduction

Achieving compliance after unsatisfactory FSE inspection includes repeated FSE inspections and gradually increased enforcement on FSEs. Non-compliant FSEs may be required to enter into a Compliance Schedule Agreement (CSA) (Ordinance 2016-02, Section 6.3).

Detailed explanation of criteria for enforcement measures in each enforcement tier is provided in this section.



## Definitions

Definition of selected terms used in this chapter is given herein.

- First FSE inspection – a routine or triggered FSE inspection performed for the “first time” after a period of several weeks or months as opposed to a FSE re-inspection which is usually scheduled within several days of an unsatisfactory first inspection. Re-inspections can be scheduled with longer time periods between the two inspections if necessary.
- FSE previous inspection – the last routine or triggered FSE inspection performed prior to the current “first FSE inspection”, typically six to 12 months before the current one.
- FSE re-inspection – a repeated FSE inspection which is scheduled if a FSE inspection identifies a GRD deficiency or severe GRD non-compliance. Re-inspection is scheduled within five days from the unsatisfactory inspection, typically five working days, with the purpose to check and verify that the deficiencies are corrected between the two inspections.
- Deficiency – a requirement of the FOG Management Program related to either BMPs implementation or GRD maintenance which is not met by a FSE. (See program requirements for FSEs in Section 7.)
- Violation – a failure to meet requirements of the FOG Management Program. A “BMP violation” refers to one or more deficiencies in BMPs implementation or a “GRD violation” of one or more deficiencies in GRD maintenance.
- Non-compliance – same as violation.
- Severe GRD non-compliance – a deficiency in form of grease overflowing from a GRD onto the street, parking lot, or ground surface, or a GRD filled with grease to within a few inches of the upper rim of the manhole frame.
- Verbal warning – the first disciplinary measure for BMPs where a FSE is told by the inspector that the BMPs implementation by the FSE does not comply with the District’s standards and must be improved. Verbal warning may or may not stipulate a follow up inspection.
- Courtesy letter – a standard letter issued by the District which specifies BMP or/and GRD deficiencies identified during the FSE inspection. The courtesy letter stipulates that a follow up inspection will be performed typically within five working days for GRD deficiencies and within two weeks for BMP deficiencies.
- Certified letter – a standard letter which specifies BMP and/or GRD deficiencies identified during the inspection. The certified letter is the final warning to the FSE to correct deficiencies within a specified time frame and is followed by the FSE re-inspection. Failure to comply with FOG facility standards shall result in the issuance of a summons.

## Non-Compliance at First FSE Inspection

### BMPs Implementation Deficiencies

If the FSE inspection determines that there are violations related to the implementation of site BMPs, the SSO/FOG Investigator issues a verbal warning. If the facility has numerous BMP deficiencies (more than 50% of BMPs fail to comply) or has failed to address deficiencies documented during a previous inspection, the District may elect to issue a certified letter requiring immediate compliance with the BMPs. With a verbal warning, the Investigator explains to the FSE representative that the results of this inspection will be

documented and that all deficiencies must be corrected before the next inspection in approximately six months or sooner if the Inspector determines that a re-inspection should be performed.

If, after the next inspection, the requirements discussed in the verbal warning are not satisfied, the FSE will be issued a courtesy letter and the FSE is re-inspected typically within five working days.

#### GRD Maintenance Deficiencies

Any GRD deficiencies discovered during the inspection need to be promptly corrected. A FSE is given a notice of violation in the form of a courtesy letter (a standard letter completed at the time of inspection with details of found deficiencies and left with the FSE owner/operator, and a warning to correct all existing problems within five (5) working days when the follow-up inspection is scheduled. Courtesy letters issued to FSEs are tracked in SEDARU for future reference.

However, in cases when severe GRD non-compliance is found during the first inspection, i.e., grease interceptors and traps overflow (see Figure 41 through Figure 43), more strict disciplinary measure is required. The FSE may be issued a certified letter by the inspector immediately after the completed inspection requiring immediate corrective measures.



Figure 41: Grease interceptor completely full. Heavy lids can be lifted up under pressure and grease start overflowing.



Figure 42: Grease interceptor overflow.



Figure 43: Grease trap overflow is a hazard to kitchen employees.

#### Non-Compliance at Second FSE Inspection

A follow-up FSE inspection is typically scheduled within five working days after the first inspection. The SSO/FOG Investigator checks if the problems cited by the first inspection have been properly addressed. If they have not been corrected, the FOG Program Coordinator issues a certified letter with written notice of violation and requesting that all deficiencies be corrected promptly and within five working days of the receipt of the letter. If correction doesn't occur, the FSE will be placed on a Compliance Schedule Agreement (CSA).

#### Non-Compliance at CSA Inspection

At the next (third) FSE inspection, the FOG I checks again if the deficiencies have been corrected. If the deficiencies are still present, the FSE is issued a Notice of Violation and \$1,000 fine. The FSE can appeal the violation to the General Manager after the deficiencies have been corrected. After a hearing, the General Manager makes a decision about any applicable penalties.

## Non-Compliance after Notice of Violation

If after the Notice of Violation and penalties is issued and the problems still persists, the District may decide to terminate sewer service to the FSE upon determining that all other measures have been tried and proved unsuccessful.

In accordance with the District Ord. No. 2225, the District may revoke the permit and terminate sewer service when in the opinion of the District the discharge from the facility “presents or may present an imminent or substantial endangerment to the health or welfare of persons or the environment; causes stoppages, sanitary sewer overflows, or excessive maintenance to be performed to prevent stoppages in the sanitary sewer collection system; causes interference to the POTW, or causes the District to violate any condition of its WDR Permit”.

If the service termination is deemed necessary, the General Manager shall send a written notice of the coming termination of services to the FSE giving the reasons for termination of service and explaining administrative procedure how to contest this decision in timely manner. The General Manager shall also notify the Orange County Health Department about the service termination.

## Internal Training within the District about FOG Program

Comprehensive training of FOG inspectors will be undertaken to provide a consistent approach during inspections. The investigators need to be familiar with both inspection and enforcement procedures (they need to know how to calculate fines, penalties, and fees, and when they apply). It is important to understand how to deliver educational material to FSE owners/managers during initial visits at the onset of the program and train them about their role in developing FOG education programs in the FSEs.

The subject of interpersonal communication will also be addressed as part of training program. The inspectors should be prepared for difficult exchanges with the FSE employees and how to behave in situations when their authority may be challenged.

## 10 FOG Program Performance Monitoring

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable EOCWD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

The following key performance measures are included in the FOG Management Program for the District to evaluate and determine which one or more provide the best performance indicators for making needed program adjustments or determining FOG Program effectiveness:

Number of FSEs inspections – The number of inspections and follow-ups re-inspection per day and month conducted by the SSO/FOG Investigator is calculated to determine appropriate resources and training. The desired number is 4 to 6 inspections per work day and 30 per month, which allows for inspections during periods other than prime FSE busy periods.

Time per inspection – Average time per inspection is calculated to ensure appropriate staffing and training (sum of actual inspection times divided by number of inspections). The desired duration is between 30 min and 60 min.

Number of FSEs in the database – This number determines required staffing for communication and inspection of FSEs.

Notices of Non-Compliance – The number of courtesy and certified letters is expected to decrease with proper education and outreach, and effective enforcement measures. The staff must have adequate training and resources for follow-up activities after FSE inspections.

Percentage SSOs due to FOG – The percentage of all SSOs correctly attributed to FOG is expected to decrease as a result of FOG Management Program.

The performance and effectiveness of the FOG Management Program using these or other key performance measures is tracked and documented quarterly.

## Appendix A - Grease Traps/Interceptor Design

### Introduction

Sizing method described herein is intended as guidance in determining grease trap/interceptor sizes that will protect the District's sanitary sewer system against grease and other obstructing materials. It is the responsibility of FSE owners to control that the wastewater discharged from their facility is in compliance with the District's discharge limitations.

### Sizing Requirements

#### Exterior Grease Interceptors

The minimum required grease interceptor trap size can be calculated using the formulas listed below. If the calculated required interceptor capacity exceeds 1,500 gallons, multiple units in series should be installed. If the calculated required interceptor capacity is less than 250 gallons, interior flow-through grease traps MAY be used. For capacity between 250 and 500 gallons, the use of grease traps is approved on case-by-case basis.

##### (a) Dine-in restaurants

$$\text{SIZE} = [(\text{Length} \times \text{Width}) / A] \times \text{Turnover\_Rate} \times N \times \text{Grease\_Per\_Meal} \times \text{Loading\_Factor}$$

Where:

SIZE..... Minimum grease trap size, in gallons

Length ..... Dining area length, in feet

Width ..... Dining area width, in feet

A ..... Factor related to restaurant seating style, in square feet:  
15 square feet for fixed seating or 7 square feet for non-fixed seating

Turnover\_Rate constant: 2.5

N..... Number of feedings offered by the food establishment (breakfast, lunch, dinner): 1, 2, or 3

Grease\_Per\_Meal ..... Standard grease production per meal, in gallons. Typically 3 gallons.

Loading\_Factor..... Factor related to restaurant volume and grease production:  
1 for normal (high to moderate volume restaurants, standard grease producers),  
0.8 for moderate (low volume upscale restaurants, standard grease producers),  
or 0.5 for other (light grease producers, e.g., sandwich shops).

##### (b) Fast food takeout restaurants, convenience stores

$$\text{SIZE} = \text{CustomersPerDay} \times 1 \text{ GALLON PER CUSTOMER}$$

CustomersPerDay ..... Number of customers per day

##### (c) Schools (excluding public schools), day cares, fraternities, sororities, group home, dining halls

$$\text{SIZE} = \text{MealsPerDay} \times 5 \text{ GALLONS PER MEAL}$$

MealsPerDay..... Number of meals served per day

##### (d) Other FSEs

$$\text{SIZE} = \text{Water Use Ave} \times 25\%$$

WaterUseAve... ..... Average daily water usage, in gallons per day

## Interior Grease Traps

The required minimum flow-through capacity of the interior grease trap can be determined using the following formula:

$$\text{FlowRate} = \text{SIZE} / \text{SRTTime}$$

FlowRate ..... Minimum grease trap flow rate, in gallons per minute

SIZE ..... Required grease trap holding capacity, in gallons

SRTTime ..... Standard retention time, typically 12 minutes

## Compliance, Site Accessibility and Layout

Each grease interceptor should be installed and connected so that it is easily accessible for inspection, and cleaning at any time. Location of grease interceptor should be approved by EOCWD.

## Exterior Grease Traps

The best location for exterior interceptors is in an area outside of an outside wall, but upstream from the black water drain line(s). Access should be provided by two (2) manholes terminating 1-in. above finished grade with 24-in. cast iron frame and cover.

Grease interceptor should have a minimum of two compartments with fittings designed for grease retention. Wastewater discharging to the grease interceptor should enter only through the inlet pipe. Each grease interceptor should have only one inlet and one outlet pipe. A by-pass path is prohibited. Inlet and Outlet sanitary tees must be visible from manholes.

## Interior Grease Traps

Interior grease traps should be installed in strict accordance with manufacturer's instructions. Grease traps should be equipped with a cover that can be opened for inspection and sampling. A mechanism for a secure closing is also required.

Grease traps should be equipped with a device to control the rate of flow through the unit. The rate of flow in gallons per minute should not exceed the manufacturer's rated capacity recommended for the unit. The flow-control device and the grease trap should be vented in accordance with the Alabama State Plumbing Code's current edition. The flow-control device should terminate not less than 6-in. above the flood rim level and be installed in accordance with the manufacturer's instructions.

## Sand and Oil Interceptors (Car Wash Facilities)

### Introduction

Sand and oil interceptors for carwash facilities are large devices located in-ground and outside of the facilities. They are similar in construction to grease interceptors, i.e., have two compartments which are designed in such way to allow oils to migrate to the second compartment while forcing sand and sludge to stay in the first compartment.

### Sizing Requirements

The minimum required sand and oil interceptor size for car wash facilities can be calculated using the formula developed and used in the District of Austin, TX:

$$GIS = [\text{FlowCapaDistrict}_1 + (N - 1) \times \text{FlowCapaDistrict}_2] \times \text{SRT}$$

Where:

GIS ..... minimum trap size, in gallons (acceptable variance  $\pm$  15%)

N ..... number of wash bays

FlowCapaDistrict\_1 ..... flow capaDistrict for the first wash bay, in gallons per minute, as follows:

20 gpm for hand held spray or brush wand type vehicle washes facility,

40 gpm for automated drive through car-wash facility

FlowCapaDistrict\_2 .....flow capaDistrict for each additional wash bay, in gallons per minute, as follows:

12 gpm for hand held spray or brush wand type vehicle washes facility,

40 gpm for automated drive through car-wash facility

SRT ..... standard retention time, in minutes: 12 min

Typical approved sizes of sand/oil interceptors are 360 or 480 gallons.

Other Cities specify different sizes, for example Colorado Spring Utilities approves 500, 1000, 1500, 2500 gallon capaDistrict (Traffic rated) or 500, 1000, 1500, 2250 (Non-traffic rated). The maximum individual interceptor size should be 2500 gallons, and a series of interceptor's may be necessary if larger sand/oil interceptor capacities are necessary based on cleaning and maintenance requirements.

#### G.1.1. Site Accessibility and Layout

Each sand/oil trap should be installed and connected so that it is easily accessible for inspection, cleaning, and removal of the intercepted sand and oil at any time.

Standard/basic car-wash facilities, either single bay or auto bay configuration, should have an internal catch basin/drain connected to a sand/oil interceptor and then to District's sanitary sewer main line. Sand/oil interceptor should be located on the outside of buildings unless otherwise specifically approved in writing by the District. Location of all sand/oil interceptors and its outfall location should be shown on the approved construction or utility service plans approved by Springs Utilities. (Plumbing plans may be requested by the District to be attached to the approved construction plans for inspection and record purposes). Inlet and Outlet sanitary tees must be visible from manholes.

Appendix B – Checklist for FSE Owner Training (2 Pages)



FOG Management Program:  
Initial Training of FSE Owner/Manager

You, the owner/manager of the Food Service Establishment (FSE), have to develop a FOG training program for your employees!

This form certifies the material and information the EOCWD Inspector has reviewed with me.

Give one copy of this form to the EOCWD Inspector and keep one copy on file in the FSE as confirmation of completed initial training.

TO BE COMPLETED BY FSE OWNER OR MANAGER

Your Name/Title: \_\_\_\_\_  
Facility Name: \_\_\_\_\_  
Facility Address: \_\_\_\_\_

Training Performed by the EOCWD Inspector: \_\_\_\_\_

Date/Time of Training: \_\_\_\_\_

Fact Sheets:

- 1 1. What Is FOG and Why Is It a Problem?
- 1 2. Grease Traps Fact Sheet
- 1 3. Grease Interceptors Fact Sheet

Forms Checklist:

- 1 1. Training Development Form
- 1 2. Tracking of Employee Training Form
- 1 3. Tracking of GRD Maintenance Training Form
- 1 4. Inspection Form for Grease Interceptors
- 1 5. Inspection/Cleaning Form for Grease Traps
- 1 6. Standard Operating Procedure (SOP) for "25% Rule" Form
- 1 7. FOG Hauler Manifest Form
- 1 8. Checklist for Monitoring of FOG Hauler

I certify that the SSO/FOG Investigator has instructed me about the FOG Management Program and how to organize FOG training program for employees of this FSE. I certify that we have together reviewed all Fact Sheets and Forms that are listed above and checked.

FSE Owner/Manager's Signature \_\_\_\_\_ Date: \_\_\_\_\_



You, the owner/manager of the Food Service Establishment (FSE), have to develop a FOG training program for your employees!

Your employees need to understand how the equipment and operational procedures in your FSE affect the sanitary sewer lines. When they learn which practices allow excessive FOG discharges to the sanitary sewer system and the consequences, they will understand why it is important to use kitchen Best Management Practices (BMPs) and help avoid sanitary sewer overflows.

Keep on file in the FSE as confirmation of being instructed about training development in your FSE!

#### Initial BMPs Training

1. Provide initial BMPs training to current employees in your FSE, at the beginning of the program and later to every new employee at the FSE, explaining:
  - Problems created by FOG discharge to the sewer system.
  - Kitchen BMPs procedures.
  - Importance of following the kitchen BMPs procedures.
2. Make sure all employees see the FOG training presentation.
3. Go with your employees over the questions in quiz on the back of this form.
4. Enter record of each completed employee training in the Training Tracking Form.
5. Place signs in the kitchen to remind employees of the grease problem.

#### Initial Grease Trap/Interceptor Inspection/Cleaning Training

1. Train selected employees, at the beginning of the program and later as needed, how to:
  - a) Check if the grease trap/interceptor needs cleaning.
  - b) Complete the grease trap inspection form.
  - c) Clean the grease trap OR schedule grease haulers to perform the cleaning.
  - d) Complete the grease manifest form.

#### Follow-ups and Refresher Training

1. Observe employees and award employees who follow kitchen BMPs.
2. Ask employees for any ideas/suggestions.
3. Review the Training Tracking Form and provide refresher training to the employees (quarterly).

I certify that I have read and understood the contents of this form.

FSE Owner/Manager's Signature \_\_\_\_\_ Date: \_\_\_\_\_

Appendix C - Checklist for Monitoring of FOG Hauler Form



FOG Management Program:  
8. Checklist For Monitoring Of FOG Hauler Form



You, the owner/manager of the Food Service Establishment (FSE) are responsible for the condition of the grease trap/interceptor.

A representative from FSE should witness and monitor grease interceptor pump outs to ensure proper cleaning and maintenance procedures are followed and that the grease hauler does not take any shortcuts.

Grease interceptor cleaning procedures

- Remove the manhole covers. Remove bolts as required.
- Skim the entire grease cap and debris from the top of the interceptor.
- Place vacuum tube all the way into the interceptor to suck remaining solids from the bottom.
- Vacuum water out of the interceptor.
- Clean the sides of the interceptor.
- Remove any remaining solids from the bottom of the interceptor.
- Vacuum any remaining water out of the interceptor.
- Make sure the interceptor is completely clean and the entire contents removed.
- Make sure that the baffle is secure and in place.
- Inspect the interceptor for any cracks or defects.
- Check that the sanitary "T's" on the inlet and outlet sides of the interceptor compartments are not clogged, loose, or damaged. Notify the facility manager if damages or missing parts are observed.
- If interceptor is equipped with a sample box, open it and clean the box.
- Check that manhole covers are securely and properly seated after completion of cleaning. Re-install bolts to secure manhole covers.
- Clean any grease spills on the ground from the cleaning. Use dry method (grease/oil absorbent pads) if possible. Notify the FSE manager of any spill or damages observed.

IMPORTANT: Decanting is not permitted. DECANTING means the practice of returning wastewater from a grease hauler truck back into the grease interceptor after it is vacuumed out. The grease and solids content in such water is very high and may cause odors.



**FOG Management Program:  
FOG Hauler Manifest Form**

p.1

See instructions for completing this form on the back page.

**TO BE COMPLETED BY FSE REPRESENTATIVE:**

Facility Name: \_\_\_\_\_

Facility Address: \_\_\_\_\_

Date/Time of GRD Cleaning: \_\_\_\_\_

GRD Number Serviced: \_\_\_\_\_ Estimated Removed: \_\_\_\_\_ gallons.

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_

**TO BE COMPLETED BY GREASE HAULER:**

Business Name: \_\_\_\_\_

Street or P.O. Box: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Access Pass Card #: \_\_\_\_\_

Driver's Name: \_\_\_\_\_ Driver's License #: \_\_\_\_\_

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_

At Disposal Site (Hilliard Fletcher Wastewater Treatment Plant):

Date/Time of Disposal: \_\_\_\_\_

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_

**TO BE COMPLETED BY EOCWD:**

Date Form Processed: \_\_\_\_\_

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_

## INSTRUCTIONS FOR COMPLETING FOG MANIFEST FORM

### Instructions to FSE representative

- An authorized representative of the FSE shall fill out all of the requested information in the first (top) box of the form. The address shall be the physical address of the FSE. The FSE representative shall sign and date the form when the FOG is removed, specify the number of GRDs cleaned and estimate the quantity of FOG removed in gallons.

### Important Notes

- The FSE shall retain the PINK copy of the FOG manifest form (after the FOG Hauler filled the middle box except for the part relating to the disposal at the WWTP) and keep it at the FSE.
- It is the responsibility of the FSE to retain the PINK copy of the manifest at the FSE. The manifests will be examined by the SSO/FOG Investigator as part of future FSE inspections.

### Instructions to FOG Hauler

- The driver of the FOG hauler truck is considered an authorized representative of the FOG hauling company. The driver shall fill in all of the information requested in the second (middle) box of the manifest. The address shall be the mailing address of the business.
- The driver shall leave the PINK copy of the FOG manifest form with the FSE representative.
- The driver shall transport the waste collected from 1 or more FSEs (depending on the hauler's truck capacity) to the WWTP for discharge, bringing one FOG Manifest form for each FSE serviced.
- The driver shall date and sign again each form and leave the original WHITE copy in the drop box at the WWTP plant and retains the CANARY copy for company records.
- It is the FOG Hauler's responsibility to keep the CANARY copy of the manifest at the Hauler's place of business and make it available upon request.

### Instructions to EOCWD

- The EOCWD Inspector shall collect the forms and use them to update SEDARU
- EOCWD staff shall enter details of FOG pickup and discharge into the database and finish paperwork related to each Manifest to assess the FOG haulers based on FOG quantities disposed (once a month or as needed).

**Quiz:**

1. What are the sources of Fat, Oil, and Grease (FOG) in your facility?

Examples: frying oil, butter, milk, and other dairy products, dish soap.

2. What devices discharge to the public sanitary sewer system?

Examples: pre-rinse station, sink, dishwashing machine, toilet, floor drain.

3. How can your employees prevent FOG from getting into the sewer system?

Examples of BMPs are: (1) scrape food and residue into a trash can before washing dishes and cookware; (2) use paper towels to absorb spilled oils and dispose in trash can instead of washing down the drain, etc.



Employees Trained in Kitchen BMPs (cont)

| Employee name: | Date training completed: | Employee signature: | Employee signature: |
|----------------|--------------------------|---------------------|---------------------|
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |
|                |                          |                     |                     |



FOG Management Program:  
3. Tracking of GRD Maintenance Training Form



You, the owner/manager of the Food Service Establishment (FSE), must keep track of your employees training.

Keep on file in the FSE as confirmation of completed employee training in grease trap/interceptor inspection/cleaning!

**TO BE COMPLETED BY FSE OWNER OR MANAGER**

Keep on file in the FSE as confirmation of completed employee training in the FSE!

Your Name/Title: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Facility Address: \_\_\_\_\_

**Employees Trained to Perform Grease Trap/Interceptor Inspection/Cleaning**

| Employee name: | Date trained to:               |                                   | Employee signature: |
|----------------|--------------------------------|-----------------------------------|---------------------|
|                | Inspect GRD*.<br>Maintain log. | Clean GRD**.<br>Fill in manifest. |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |

\* GRD means grease trap and/or grease interceptor.

\*\* Clean the grease trap or monitor cleaning of grease interceptor.



FOG Management Program: p.2  
 3. Tracking of GRD Maintenance Training Form

Employees Trained to Perform Grease Trap/Interceptor Inspection/Cleaning (cont)

| Employee name: | Date trained to:               |                                   | Employee signature: |
|----------------|--------------------------------|-----------------------------------|---------------------|
|                | Inspect GRD*.<br>Maintain log. | Clean GRD**.<br>Fill in manifest. |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |
|                |                                |                                   |                     |

Appendix G Inspection Form for Grease Interceptors



FOG Management Program:  
4. Inspection Form for Grease Interceptors



Complete this form for each interceptor inspected.  
Keep on file in the FSE as confirmation of completed inspection!

TO BE COMPLETED BY TRAINED FSE EMPLOYEES

Facility Name: \_\_\_\_\_

Facility Address: \_\_\_\_\_

Employee name: \_\_\_\_\_

Facility Number \_\_\_\_\_ Operating depth  
of interceptor: H0 = \_\_\_\_\_ inch

Location: \_\_\_\_\_

**1 1. GRD functions**

2. 25% Rule ( $H1 + H2 > 0.25 \times H0$ , See Standard Operating Procedure (SOP) for details)

Inches of floating grease on top      H1 = \_\_\_\_\_ inches      H1+H2= \_\_\_\_\_ inches

Inches of settled material on bottom      H2 = \_\_\_\_\_ inches

0.25 × H0      \_\_\_\_\_ inches

Difference between (H1+H2) and (0.25 × H0)      \_\_\_\_\_ inches

1 Cleaning needs to be scheduled?

1 3. Inlet pipe visible      1 4. Outlet pipe visible

1 5. No roots intrusion      1 6. No corrosion damage      1 7. No broken/missing parts

If cleaning or repairs are needed, fill in the back page!

I certify that I have inspected the interceptor as shown in this form.

Employee Signature \_\_\_\_\_ Date: \_\_\_\_\_

FOG Discharge Prohibitions:

- DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
- DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.
- DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
- DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant.

Scheduled cleaning of grease interceptor:

FOG hauler name: \_\_\_\_\_

Phone: \_\_\_\_\_

FOG pickup date: \_\_\_\_\_

Scheduled repairs of grease interceptor:

Repair needed:

\_\_\_\_\_

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_



Complete this form for each grease trap inspected/cleaned.  
Keep on file in the FSE as confirmation of completed inspection!

TO BE COMPLETED BY TRAINED FSE EMPLOYEES

Facility Name: \_\_\_\_\_

Facility Address: \_\_\_\_\_

The 25% Rule: H1 = Inches of floating grease blanket at top of liquid surface  
See  $H1 + H2 > 0.25 \times H0$  H2 = Inches of settled material on bottom of tank  
Standa H0 = Depth from invert of outlet pipe to the bottom of tank.

rd Operating Procedure (SOP) for "25% Rule" Form for details.

Identify Grease Trap:

FOG discharge prohibitions:

DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.

- DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.
- DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
- DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant.

FOG Management Program: p.2  
5. Inspection/Cleaning Form for Grease Traps

Checks 1-5:

1. GRD functions

2. Inlet pipe visible

3. Outlet pipe visible

4. No corrosion

5. No broken/missing parts

| Trap ID # | Date/Time of Inspection: | .25×H0 (in.) | H1 (in.) | H2 (in.) | H1+H2 (in.) | Trap Cleaned? | Checks 1-5 OK? | Employee initial: |
|-----------|--------------------------|--------------|----------|----------|-------------|---------------|----------------|-------------------|
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |
|           |                          |              |          |          |             | <b>1</b>      | <b>1</b>       |                   |

Identify Employees Inspecting/Cleaning Trap(s):

| Employee Name: | Employee initial: |
|----------------|-------------------|
|                |                   |
|                |                   |
|                |                   |
|                |                   |



FOG Management Program:  
6. SOP for "25% Rule" Form



The purpose of this Standard Operating Procedure (SOP) is to ensure that inspections of grease traps/interceptors are completed and documented uniformly. The 25% Rule is a general rule to assess the proper maintenance and cleaning of grease removal facilities and not the sole determining factor of compliance.

This procedure shall be followed every time a grease trap is inspected.

**Method:**

To inspect a grease trap using a clear plastic tube and to document the results.

**Tools and Equipment:**

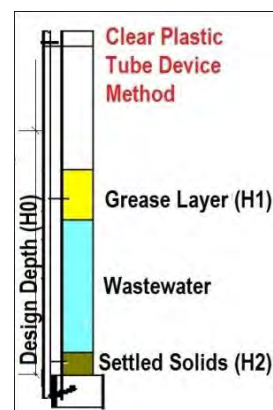
1. Facility specific equipment necessary to open a grease trap or a grease interceptor.
2. Safety equipment if necessary to redirect vehicles (cones, etc.)
3. Measuring device (such as DipStick-Pro® available through Environmental BioTec, 800-314-6263).
4. Cleaning materials (Earth Clean Technologies).

**Preparation:**

1. Locate and gain access to grease trap or grease interceptor.
2. Place safety equipment around the grease trap or interceptor as needed to prevent pedestrian or vehicular accidents during inspection.
3. Use appropriate tool to remove the grease trap lids or grease interceptor manhole covers.
4. Complete visual inspection of the condition of the device and record information on appropriate inspection form.

**Procedures for Checking Grease & Solids Accumulation in a Grease Trap**

1. Push the metal rod down so that the valve opens at the bottom of the plastic tube.
2. Slowly insert the plastic tube into the grease trap until it touches the bottom of the tank.
3. Pull up on the metal rod to close the valve and pull the tube out.
4. Measure the height of the grease layer (H1) and the settled solids (H2).
5. Record measurements on the Grease Trap Inspection Form.
6. Release contents back into grease trap by pushing down on metal rod.
7. Check the 25% rule:  $H1 + H2 > 0.25 \times H0$   
 $H0$  is the design hydraulic depth (the depth from invert of outlet pipe to the bottom of tank).



I certify that I have read this SOP and understand the procedure for checking the grease trap/interceptor. I also understand that the 25% rule is only a best management practice and not the determining rule for GRD maintenance needs.

Employee Signature \_\_\_\_\_ Date: \_\_\_\_\_

Appendix I – BMP Inspection Checklist

**Part III A. BMPs Implementation**

|   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. 1 No sink/floor drain screens?</li> <li>2. 1 Waste food in the sink?</li> <li>3. 1 Debris or loose screws in floor drains?</li> <li>4. 1 Spilled grease on the floor?</li> <li>5. 1 Spill cleanup kits readily available?</li> <li>6. 1 No grease waste containers?</li> <li>7. 1 No signage on the wall?</li> <li>8. 1 Employee training log incomplete?</li> <li>9. 1 GRD inspection/cleaning logs incomplete?</li> <li>10. 1 FOG Hauler manifests incomplete?</li> </ol> | <p><b>Number of checks:</b></p> <p style="text-align: right;">This inspection = _____</p> <p style="text-align: right;">Previous inspection = _____</p> |
|---|---|

How BMP disciplinary measure is determined if BMPs implementation is in violation:

If total number of checks is  $\geq 7$ :      Courtesy Letter  
 If no checks at previous inspection:      Verbal Warning      If this is the first inspection ever:      Verbal Warning

|   |                                   |
|---|-----------------------------------|
| <b>BMPs Implementation Inspection Outcome</b> |                                   |
| <b>1 Compliance</b>                           | 1 Non-Compliance, Courtesy Letter |
|   | 1 Non-Compliance, Verbal Warning  |
|   | -                                 |

III B. GRD Performance/Condition

| GRD #:                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Total |
|------------------------------------|---|---|---|---|---|---|---|---|-------|
| 1 Grease overflow? *               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 2 GRD does not function?           | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 3 The 25% rule not met?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 4 Inlet pipe not visible?*** 1 NA  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 5 Outlet pipe not visible?*** 1 NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 6 Roots intrusion?                 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 7 Corrosion damage?                | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 8 Broken/missing parts?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| Total**:                           |   |   |   |   |   |   |   |   |       |

\* If Severe GRD non-compliance: Certified Letter

\*\* If total number of checks > 0: Courtesy Letter

\*\*\* Pipe not visible because it is covered with grease.

GRDs Performance/Condition Inspection Outcome

1 Compliance

1 Non-Compliance, Courtesy Letter

1 Non-Compliance, Certified Letter

1 Re-inspection scheduled on: \_\_\_\_\_



Part IV A. Re-Inspection. INSPECTION #2

Inspection Date/Time: \_\_\_\_\_ By: \_\_\_\_\_

| GRD #:                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Total |
|------------------------------------|---|---|---|---|---|---|---|---|-------|
| 1 Grease overflow? *               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 2 GRD does not function?           | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 3 The 25% rule not met?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 4 Inlet pipe not visible?*** 1 NA  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 5 Outlet pipe not visible?*** 1 NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 6 Roots intrusion?                 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 7 Corrosion damage?                | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 8 Broken/missing parts?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| Total**:                           |   |   |   |   |   |   |   |   |       |

\* If Severe GRD non-compliance not corrected: Citation is issued and next re-inspection will decide about service termination (skip to Part V).

\*\* If total number of checks > 0: Certified Letter

\*\*\* Pipe not visible because it is covered with grease.

|                     |  |
|---------------------|--|
| <b>1 Compliance</b> | <b>1 Non-Compliance, Certified Letter</b>    |
|                     | <b>1 Severe GRD Non-Compliance, Citation</b> |
|                     | <b>1 Re-inspection scheduled on: _____</b>   |

Part IV B. Re-Inspection. INSPECTION #3

Inspection Date/Time: \_\_\_\_\_ By: \_\_\_\_\_

| GRD #:                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Total |
|------------------------------------|---|---|---|---|---|---|---|---|-------|
| 1 GRD does not function?           | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 2 The 25% rule not met?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 3 Inlet pipe not visible?*** 1 NA  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 4 Outlet pipe not visible?*** 1 NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 5 Roots intrusion?                 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 6 Corrosion damage?                | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 7 Broken/missing parts?            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| Total*:                            |   |   |   |   |   |   |   |   |       |

\* If total number of checks > 0: Citation

\*\* Pipe not visible because it is covered with grease.

|                     |  |
|---------------------|--|
| <b>1 Compliance</b> | <b>1 Non-Compliance, Certified Letter</b>  |
|                     | <b>1 Re-inspection scheduled on: _____</b> |

Part V. Final Re-Inspection. INSPECTION #4

Inspection Date/Time: \_\_\_\_\_ By: \_\_\_\_\_

| GRD #:                      | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Total |
|-----------------------------|------|---|---|---|---|---|---|---|-------|
| 1 Grease overflow?          | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 2 GRD does not function?    | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 3 The 25% rule not met?     | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 3 Inlet pipe not visible?*  | 1 NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 4 Outlet pipe not visible?* | 1 NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 5 Roots intrusion?          | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 6 Corrosion damage?         | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |
| 7 Broken/missing parts?     | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 |       |

\* Pipe not visible because it is covered with grease.

Comments:

|                |  |
|----------------|--|
| <b>OUTCOME</b> |  |
| 1 Compliance   | 1 Non-Compliance, Termination of water and sewer service |

Part VI. GRD Modifications.

Specify location of the device and modifications (change in dimensions, new or removed connections to the device, etc.)

If GRD is a grease interceptor:

Location: \_\_\_\_\_

Size of tank: • \_\_\_\_\_gallons

• Dimensions: • \_\_\_\_\_ft deep, \_\_\_\_\_ft wide, \_\_\_\_\_ft long, \_\_\_\_\_ft diameter (if round)

• Baffle? • 1 No 1 Yes  
If yes, are all compartments accessible for cleaning? 1 No 1Yes

Comments:

If GRD is a grease trap:

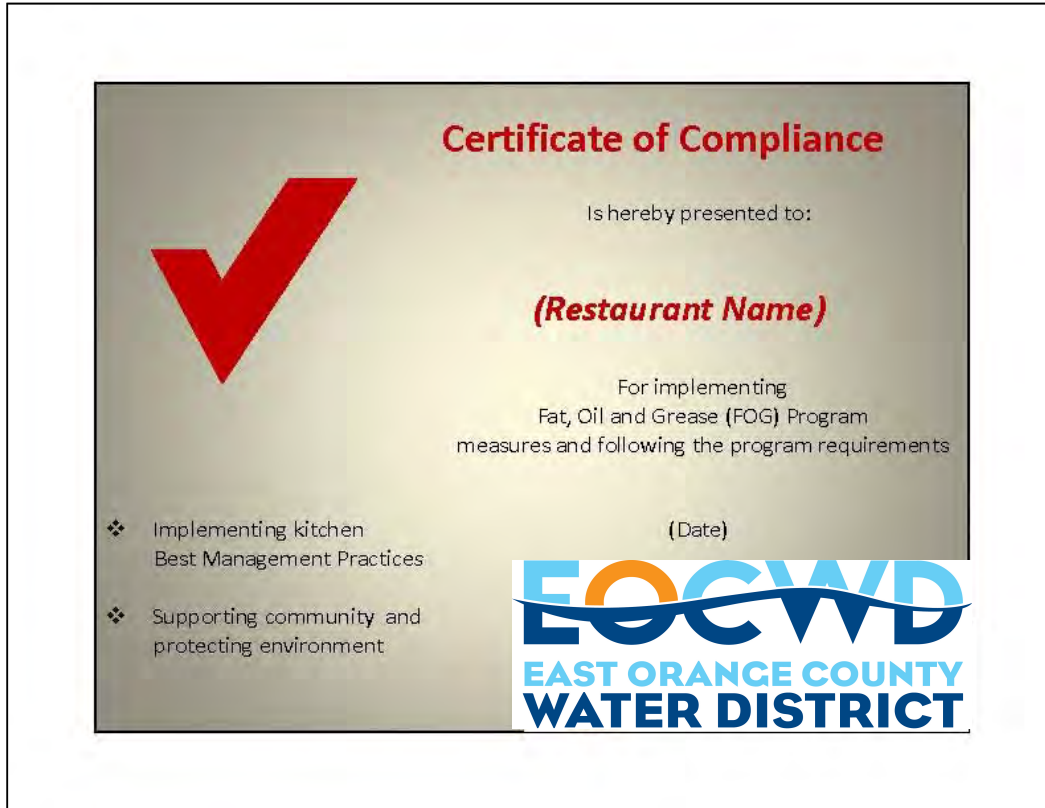
Location: \_\_\_\_\_

Size of tank: \_\_\_\_\_gpm

Dimensions: \_\_\_\_\_ft long, \_\_\_\_\_ft wide, \_\_\_\_\_ft high

Comments:

Appendix J - FSE Compliance Recognition Certificates



**DEFINITIONS**

|  |   |
|--|---|
| Black Water.....                       | Wastewater from sanitary fixtures such as toilets and urinals.  |
| Brown Grease.....                      | Waste grease from grease traps or grease interceptors that cannot be rendered.  |
| Compliance .....                       | Conforming to requirements of the FOG Management Program  |
| Customer.....                          | A user of the sanitary sewer system who produces wastes from their process operations. The customer is responsible for assuring that the produced wastewater is disposed of in accordance with all Federal, State and local disposal regulations.   |
| Deficiency.....                        | A requirement of the FOG Management Program related to either BMPs implementation or GRD maintenance which is not met by a FSE.   |
| Violation.....                         | A failure to meet requirements of the FOG Management Program.   |
| FOG Hauler .....                       | One who transfers waste from the site of a customer to an approved site for disposal or treatment. The hauler is responsible for assuring that all Federal, State and local regulations are followed regarding waste transport.   |
| Food Grinder.....                      | A device, which shreds or grinds up solid or semisolid waste materials into smaller portions for discharge into the sanitary sewer collection system.   |
| Food Service Establishment (FSE) ..... | A facility which cuts, cooks, bakes, prepares, serves food, or disposes of food related wastes.   |
| Gray Water.....                        | All wastewater other than “Black Water” as defined in this section  |
| GRD Effluent.....                      | A wastewater discharged from a grease removal device into the sanitary sewer lateral.   |
| Grease .....                           | A material composed primarily of fats, oil, and grease (FOG) from animal or vegetable sources. Grease does not include petroleum-based products.  |
| Grease interceptor.....                | A large tank or device so constructed as to separate and trap or hold FOG substances from the sewage discharged from a facility in order to keep FOG substances from entering the sanitary sewer collection system. Grease interceptors are typically located outside of food service facilities. |
| Grease trap .....                      | A device placed under or in close proximity to sinks or other facilities likely to discharge grease in an attempt to separate, trap or hold, FOG substances to prevent their entry into the sanitary sewer collection system.   |
| Grease removal device (GRD).....       | A device which slows the discharge time so that grease and water separate upon which grease remains in the device while water continues to the District’s wastewater collection system.   |

|                     |  |
|---------------------|--|
| POTW .....          | Stands for Publicly-Owned Treatment Works or “Treatment Works” as defined by Section 212 of the Clean Water Act (33 U.S.C. § 1292), which is owned or operated in this instance by OCSD.   |
| Sewage .....        | The liquid and water-carried domestic or industrial wastes from dwellings, commercial establishments, industrial facilities, and institutions, whether treated or untreated.   |
| Sewer Lateral ..... | A sewer line typically maintained and controlled by private persons for the purpose of conveying sewage from the wastewater producing location to the public sanitary sewer collection system.   |
| User .....          | EOCWD’s customer operating a food service establishment inside the District’s wastewater service area.   |
| Wastewater .....    | The liquid and water-carried domestic or industrial wastes from dwellings, commercial establishments, industrial facilities, and institutions, whether treated or untreated. Wastewater may include but not be limited to, discharges from sinks, dishwashing machines, soup kettles, and floor drains located in areas where grease-containing materials may exist. |
| Yellow Grease ..... | Waste cooking oil and grease that can be recycled, such as fryer grease.   |
| 25% Rule .....      | A rule determining when the grease trap or interceptor needs cleaning. If 25% of interceptor capacity is taken up by FOG and Solids, then the interceptor needs pumping. Example: If interceptor operating depth is 48-in. and has 6-in. of FOG and 6-in. of settled solids, then 25% of capacity is met.  |



# FOG Program

## Fats, Oils & Grease

Proper disposal of fats, oils and grease protects your business, public health and the environment. It's the law, and it's the right thing to do.





# It's cheaper and easier to prevent than clean up



Grease from first dishwasher cycle.

FOG buildup can clog sewer and drainage pipes, resulting in messy, costly overflows. It's bad for business, the environment and public health. Costs of a raw sewage backup may include:

- **Loss of business** while you're closed to clean up and get the kitchen back into service
- **Cleanup** of the premises by staff and a cleaning or restoration service
- **Hiring** a service to clean the sewer lines
- **Repairs or replacement** of the building, fixtures and equipment
- **Reimbursement** for damages to neighbors and the public sewer system
- **Higher** insurance premiums
- **Fines and penalties**

## Common sources of FOG

- **Fried foods**
- **Cooking meats**
- **Butter, ice cream, other dairy products**
- **Gravy and sauces**
- **Mayonnaise and salad dressings**

## FOG myths

**Myth:** Restaurant workers know how to prevent FOG problems.

**Fact:** Few employees have been properly trained to handle and dispose of cooking fats, oils and grease. The owner and management are responsible to train staff in best management practices (BMPs) and oversee the work of contractors hired to clean, remove and recycle FOG.

**Myth:** Pour hot water and detergent or degreasers into the drain to dissolve oil or grease.

**Fact:** That just pushes oil or grease deep into the building sewer pipe where it cools and coats the inside of the pipe. Eventually, the pipe will clog and cause raw sewage to back up into the building.

**Myth:** Storm drains and catch basins are for disposal of dirty water, debris, etc.

**Fact:** Outside drains are built to direct stormwater runoff to the nearest creek or wetland. Using them for any other purpose is a violation of the federal Clean Water Act.

**Myth:** If the sewers back up, the sewer utility will fix it.

**Fact:** Owners are responsible for the sewers on their property. If they damage or back up the public sanitary sewer or drainage systems, they must pay for cleanup and repair and may be subject to fines and penalties.

## Grease interceptors

All food/beverage establishments that are connected to the public sewer system must have an approved grease interceptor. It must be effectively sized, installed and maintained to keep FOG and food debris out of the public sewer system. If your business does not have an adequate grease interceptor, you will be required to install one.



Kitchens generate a lot of FOG.

A grease interceptor is designed to capture FOG before it discharges to the public sewer. All fixtures and drains in food/beverage service areas must connect to a grease interceptor. Grease interceptors need effective inspection and pumpout service. They are inspected by the local authority that enforces the federal Clean Water Act and related state and local laws, in partnership with the public works department.

## Types of grease interceptors

**Hydromechanical grease interceptors (HGIs)** manage FOG using flow control. They can be installed indoors and have relatively small FOG storage capacity.

**Gravity grease interceptors (GGIs)** manage FOG using gravity separation. They are installed outdoors and have larger FOG storage capacity than HGIs.

## General care for grease interceptors

Grease interceptors lose efficiency as they fill with FOG. The recommended cleaning frequency varies by the type of grease interceptor, types of food served and kitchen cleaning practices.

- Effectively size, install, and maintain a pumpout interval.
- Set an effective pumpout interval just prior to unacceptable levels of FOG leaving the grease interceptor.
- Train staff to inspect the work of contractors to ensure they used proper cleaning procedures before allowing contractors to leave the site.
- Reminder: Kitchen clean-up practices impact the grease interceptor (pumpout interval).
- A Preferred Pumper knows industry approved standards for grease interceptor cleaning and maintenance (see page 5 for more on Preferred Pumpers).
- Keep documentation of maintenance service done and where the waste was deposited.

# Food service establishment inspection

An inspector from the public utility will visit a food service establishment to ensure that it is effectively managing FOG in order to keep it out of the public sewer system. The inspector will assess the condition of the facility's grease interceptor(s). He or she will also assess FOG management practices and help teach kitchen staff about best practices for controlling FOG at the source.



Train staff to prepare for the inspection.

Following inspection, the inspector will issue a report that indicates any required corrective actions. Establishments that need to be inspected again will pay a minimum fee of \$84. Failure to comply with the local sewer use ordinance could result in monetary penalties, or the business could be ordered to cease all discharges to the public sewer system.

The chart below indicates the rankings and required response.

| Inspection Rank  | Establishment Response  |
|--|---|
| Excellent or Good  | Continue effective cleaning and maintenance.  |
| Fair   | Increase the frequency of cleaning and maintenance. The inspector may reinspect.  |
| Poor<br>Inspector issues Notice of Non-Compliance<br>Reinspection required | The establishment is issued a notice of Non-Compliance that lists required corrective actions, the due date to complete the corrective actions and to notify the inspector for reinspection.<br><b>Failure to comply could lead to monetary penalties (up to \$25,000 per day/per violation) or ordered to cease discharge.</b> |

## Preparing for the inspection

When the inspector comes to inspect your grease interceptor and food service establishment's FOG management practices, please be prepared. Your preparation and assistance with the inspection will help the process run smoothly.

- Train staff to assist with opening and closing the grease interceptor (HGI).
- Keep a screwdriver or Allen wrench handy to open and close the grease interceptor.
- Keep maintenance records, training logs and FOG reports nearby.\*

\* Preferred Pumpers submit FOG reports for their clients.

**Inspectors prefer to coach and counsel rather than issue penalties. Ask for their advice.**

## Preferred Pumper Program

The Preferred Pumper Program is a registry of grease interceptor pump-out companies that have agreed to train staff on approved cleaning procedures and submit reports to the local public utility. For a list of companies, please go to [preferredpumper.org](http://preferredpumper.org).\*

A well maintained grease interceptor will reduce or eliminate building sewer issues and expenses related to food service operation. An effective pumpout interval is specific to an individual kitchen's menu and clean-up practices. For advice on an effective pumpout interval or more training materials, contact your local sewer agency or visit [cleanwaterservices.org/fog](http://cleanwaterservices.org/fog).

*\* You must ensure that your contractor(s) properly handle your establishment's FOG.*



Oversee contractors for complete, correct service.

## Exhaust hoods, vents and filters

This booklet does not fully address grease removal from exhaust hood systems (vents, filters) or fire prevention systems because these are regulated by other agencies. These systems must be cleaned and maintained to prevent fires and greasy buildup on roofs. Build up will cause degradation of roofing materials, which will wash into storm drains when it rains. Discharge of any contaminated rainwater to the public stormwater system is an illicit discharge by federal, state and local codes.

- Clean vent hoods and filters as needed.
- Inspect the exhaust system often enough to prevent grease buildup.
- Maintain the grease collection unit on the roof to protect your business and avoid penalties.
- Hire a service to clean and maintain the exhaust hoods, vents and filters frequently.
- Ensure proper disposal of waste and retain documentation of the disposal.



Exhaust systems must be FOG free.

## About inside and outside drains

It's important to keep FOG out of inside and outside drains to prevent sanitary sewer overflows, drainage backups and pollution of local waterways. Many people don't know that inside drains take wastewater *to the sanitary sewer system and a wastewater treatment facility*. Outside drains take stormwater runoff to pipes or ditches that lead *to the nearest wetland or creek*.



Inside drain → sanitary sewer → wastewater treatment facility



Outside storm drain/catch basin → pipe/ditch → creek or wetland

## Storm drains, catch basins and sumps

The public drainage system is designed to carry stormwater runoff and protect local creeks and wetlands from water pollution. It is the food service establishment and property owner's responsibility to maintain the storm drains and catch basins on or near the business premises. The catch basin under the storm drain or grate has a compartment or sump that is designed to capture debris, not chemicals.





## Storm drains are for rainwater. What goes in the storm drain goes straight to the nearest creek or wetland.



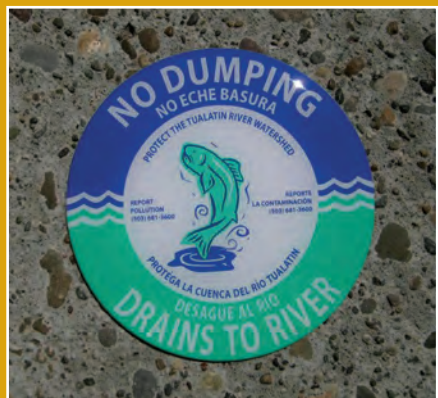
- Inspect and clean storm drains, catch basins and sumps that serve the establishment.
  - Increase the frequency of inspections and cleanings if necessary to prevent problems.
  - Properly dispose of material from the catch basin and sump.
  - Keep FOG and cleaners from polluting the public drainage system, creeks and wetlands.
- Never wash or sweep liquids, suds, FOG or debris into storm drains.

Disposing of cleaning solutions or soapy water into gutters and storm drains can harm or kill wildlife, even if it's labeled nontoxic or biodegradable. Even when soap is not used, pollutants such as metals, grease and dirt are washed into drains and are harmful to aquatic organisms and wildlife.

Failure to properly clean and maintain the storm drain system can result in costly overflows, cleanup, business interruptions or closure. If the public drainage system is clogged or damaged, or pollutants reach waterways due to poor maintenance, the owner may be fined and required to pay cleanup costs.

It is the owner's responsibility to know if the debris cleaned from the catch basin qualifies as a hazardous material that must be handled separately from regular waste. Contact the local sewer utility or municipality for advice.

Place ***"No Dumping – Drains to River"*** markers near storm drains in parking lots and streets as a reminder that all the rain running off impervious surfaces flows directly to our local creeks, streams and wetlands without treatment. Contact the local Public Utility for markers.



# Is your staff trained in Best Management Practices?

It's easy to keep FOG out of the sewer and drainage systems if employees are trained.

## Proper disposal of Fats, Oils, and Grease (FOG)

Kitchen FOG belongs in the trash, a grease interceptor or a recycling container. Keep FOG in its place and out of the building and public sewer drainage systems.



Interceptor too full of FOG and not maintained properly; will cause building sewer problems.

- Recycle cooking grease, oil and food wastes.
- Contact your waste hauler or a rendering company to get a waste oil container.
- If containers or bins leak or spill, ask the vendor for new ones.
- Cover the rendering container (i.e., garbage corral) with a roof if possible.
- Clean up any spills or leaks immediately using dry methods.
- Prevent odor, rats and other pests with clean, closed rendering containers and dumpsters.
- Never dump used cooking oil down the drain.
- Never use hot water, detergent or degreasers to flush FOG down the drain; this pushes grease into the pipe where it will cool, congeal and clog the sewer.
- Never dump FOG (or anything!) on the street, parking lot or into storm drains.
- Schedule frequent FOG pickup or service.
- Keep records of training, cleaning, service, preventative maintenance and inspections.



*Proper disposal of FOG is easier and cheaper—and that's good for your bottom line.*

## ices (BMPs)?

trained in best management practices (BMPs).

### Dry clean up

Before washing with water, use dry clean up methods to control FOG and food waste.

- ❑ Scrape or wipe instead of washing food waste from utensils, fixtures and equipment.
- ❑ Use rubber scrapers to remove FOG from cookware and serving surfaces.
- ❑ Scrape food waste into trash bins with plastic liners.
- ❑ Soak up oil and grease under fryer baskets with paper.
- ❑ Sweep floors before mopping.
- ❑ Wipe down work areas with paper towels.
- ❑ Place disposal and recycling containers within easy reach for kitchen employees.
- ❑ Sweep instead of hosing down parking lots, sidewalks and outside areas.

Dry clean up methods have many benefits. Dry floors are safer than slick floors that may cause employees to slip and fall.



Dry wipe before washing.



Sweep floors before mopping.

**\$ TIP**

*Dry clean up saves water and energy costs.*



## Dishwashing, work areas, floors and spills

After dry scraping, wiping and sweeping, use these BMPs to keep FOG and food waste out of drains and sewers.



Keep FOG and food waste out of drains.

- Keep work areas clean.
- Install properly sized screens, baskets or strainers in sink and floor drains to catch food debris.
- Only fill FOG transfer containers halfway so that they are easier to lift. PREVENT SPILLS!
- Wash floor mats and greasy equipment in an area that drains to a grease interceptor—not outside.
- Never pour grease or oil into sinks, floor drains or onto a parking lot or street.
- When mopping, don't force food debris down the drain.
- Keep liquid waste out of trash or dumpster bins.
- Train workers to put FOG into recycling/rendering containers without spilling.
- Prevent spills through proper storage, handling and transfer of supplies.
- Provide proper equipment to handle FOG.
- Be careful not to drop or splash fats, oils and grease.
- Keep a spill kit with absorbent materials nearby.
- Clean up spills immediately.



***Disconnect the garbage disposal; this may qualify for a reduced sewer bill and will save water and energy.***

s in this booklet to keep drains and pipes flowing.

## Storage, trash and recycling areas

Property owners and the owners of food service establishments are responsible for keeping trash enclosure areas from contaminating stormwater.

- Store waste oil and cleaners in closed containers indoors or under cover outside.
- Provide dumpsters and bins that are large enough not to overflow.
- Repair or replace leaky dumpsters, compactors and trash/oil waste bins.
- Protect stormwater. Keep lids closed.
- Transfer containers should only be filled 1/2 to 3/4 when transferring oil waste to outside bin.
- Keep dumpster and storage areas clean and swept.
- Hire a contractor to clean-up contaminated trash enclosures. Keep documentation of work done and disposal site.



Trash and recycling areas reflect your kitchen practices.



Standing water due to clogged drains can damage pavement.



*Proper maintenance reduces costly repairs.*

## It's the law, and it's good business

Sewer overflows are harmful to public health and the environment. Federal, state and local laws require FOG control to protect people and water sources. It is the business and property owner's responsibility to comply with the law and ensure that employees and contractors are using BMPs that protect the public sanitary sewer, stormwater drainage systems and water quality. Property and business owners may be held liable for water quality violations, misuse of the public sanitary sewer and stormwater drainage systems, and resulting water pollution.



Grease clog inside a pipe.

### Did you know?

- Storm drains are for clean rainwater only.
- Food service establishments must install and maintain an approved grease interceptor.
- Obstruction of public sewers may result in penalties, fines and other costs.

For more information on these laws, please visit [cleanwaterservices.org/fog](http://cleanwaterservices.org/fog)

Inspector contact: \_\_\_\_\_



RESOLUTION NO. 799

RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
EAST ORANGE COUNTY WATER DISTRICT AMENDING  
AND ADOPTING FATS, OILS, AND GREASE PERMIT FEE  
IN ACCORDANCE WITH DISTRICT ORDINANCE NO. 2016-  
02

WHEREAS, the East Orange County Water District (“EOCWD” or “District”) is a county water district formed and operating pursuant to Water Code Section 30000, *et seq.*, with the authority to adopt and amend capacity charges and the authority to amend its Rules and Regulations; and

WHEREAS, on or about September 16, 2016, EOCWD adopted Ordinance No. 2016-02 relative to fats, oils, and grease (“FOG”) control regulations applicable to food service establishments, effective October 1, 2016 (“FOG Program”); and

WHEREAS, Section 3.4 of Article 3 to Ordinance No. 2016-02 provides that the Board of Directors (“Board”) shall adopt, by ordinance or resolution, the applicable fee to be paid by applicants for permits under the FOG Program (“FOG Permit Fee”); and

WHEREAS, the District and the Board have been provided with a 2017 Sewer Capacity Fees and Fats, Oils & Grease (FOG) Fees Study Report from Raftelis (hereinafter the “Report”) regarding, in relevant part, the estimated reasonable direct costs of for implementing and monitoring the FOG Program;

WHEREAS, based on the Report, it was calculated that the annual FOG Permit Fee for Fiscal Year 2018, to cover the direct costs for implementing and monitoring the FOG Program, should be \$106, as compared to the prior fee of \$100; and

WHEREAS, the Report is available for public inspection and review at the EOCWD District Offices, and on EOCWD’s website at eocwd.com, and is hereby incorporated herein by this reference; and

WHEREAS, on June 15, 2017, the Board held a public meeting to receive and consider public comments with regard to the proposed amendment of the FOG Permit Fee, and this public meeting was held at the EOCWD administrative offices located at 185 N. McPherson Road, Orange, California 92869; and

WHEREAS, EOCWD has determined that the amendment of the FOG Permit Fee is necessary to cover the reasonable direct costs for implementing and monitoring the FOG Program; and

WHEREAS, Paragraph (b) of Section 21080 of the Public Resources Code provides that the establishment, modification, structuring, restructuring or approval of rates, tolls, fares, or other charges by public agencies are exempt from the requirement of the California Environmental Quality Act of 1970 (CEQA), provided that findings are made specifying the basis for the claim of exemption; and

WHEREAS, the proposed revisions to the FOG Permit Fee does not modify or establish any property-related fees or charges subject to the notice and hearing procedures of Article XIID of the Constitution of the State of California.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE EAST ORANGE COUNTY WATER DISTRICT DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1. The foregoing recitals are true and correct and are incorporated herein by this reference.

Section 2. Consistent with Section 3.4 of Article 3 of Ordinance No. 2016-02, the Board hereby adopts a FOG Permit Fee of \$106 for Fiscal Year 2018.

Section 3. It is hereby found and determined that the data indicating the estimated cost and revenue sources to provide the FOG Program service been made publicly available at least 10 days prior to the meeting at which this resolution is adopted, and that the FOG Permit Fee established or increased hereby does not exceed the estimated reasonable cost of providing the service for which it is imposed.

Section 4. It is hereby found and determined that the FOG Permit Fee adopted hereby is within the purposes set forth in Section 21080(b)(8) of the Public Resources Code, including, but not by way of limitation, the purposes of meeting operating expenses, purchasing or leasing supplies, equipment or materials, meeting financial reserve needs and requirements, and obtaining funds for capital facilities necessary to maintain service within existing service areas and therefore are exempt from CEQA pursuant to said Section 21080(b)(8).

Section 5. This Resolution shall be effective upon adoption.

ADOPTED, SIGNED AND APPROVED this 15th day of June, 2017.

  
\_\_\_\_\_  
President  
EAST ORANGE COUNTY WATER DISTRICT  
and of the Board of Directors thereof

  
\_\_\_\_\_  
Secretary  
EAST ORANGE COUNTY WATER DISTRICT  
and of the Board of Directors thereof

STATE OF CALIFORNIA )  
                                  ) ss.  
COUNTY OF ORANGE )

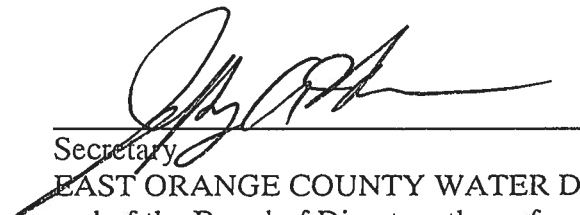
I, JEFFREY A. HOSKINSON, Secretary of the Board of Directors of the EAST ORANGE COUNTY WATER DISTRICT, do hereby certify that the foregoing Resolution No. \_\_\_\_\_ was duly adopted by the Board of Directors of said District at a Regular Meeting of said District held on June 15, 2017, and that it was so adopted by the following vote:

AYES:           Bell, Davert, Dulebohn, Everett, Sears

NOES:

ABSENT:

ABSTAIN:

  
\_\_\_\_\_  
Secretary  
EAST ORANGE COUNTY WATER DISTRICT  
and of the Board of Directors thereof





1                                    AGREEMENT FOR PROVISION OF  
2                                    ENVIRONMENTAL HEALTH SERVICES  
3                                    BETWEEN  
4                                    COUNTY OF ORANGE  
5                                    AND  
6                                    EAST ORANGE COUNTY WATER DISTRICT  
7

8           THIS AGREEMENT entered into this \_\_\_ day of \_\_\_\_\_ 2017, which date is enumerated for  
9 purposes of reference only, is by and between the COUNTY OF ORANGE , a political subdivision of  
10 the State of California (COUNTY) and EAST ORANGE COUNTY WATER DISTRICT, a special  
11 district of the State of California (DISTRICT)  
12

13                                    **W I T N E S S E T H :**  
14

15           WHEREAS, the California Regional Water Quality Control Board-Santa Ana Region, Region 8  
16 (“RB8”) has adopted Order No. R8-2002-0014, General Waste Discharge Requirements (the “Order”),  
17 requiring cities and local wastewater agencies within its jurisdiction in northern and central Orange  
18 County to develop site-specific sewer system management plans to reduce sewer system overflows  
19 (“SSOs”);  
20

21           WHEREAS, the EOCWD is a successor in interest to OCSD, a Co-Permittee of the Order for local  
22 sewer service in the area formerly known as Service Area 7; and  
23

24           WHEREAS OCSD, was one of 31 Co-Permittees and acted as a facilitator agency to assist in  
25 obtaining regional compliance with the Order by Co-Permittees. The Co-Permittees include 16 cities  
26 and 13 local wastewater agencies, including 2 existing military bases, that provide sewer service in  
27 northern and central Orange County (although the City of Los Alamitos is named in the Order, the RB8  
28 is expected to remove it from the Order because it does not provide sewer service in its jurisdiction;  
29 sewer service in Los Alamitos is provided by the Rossmoor-Los Alamitos Area Sewer District, a Co-  
30 Permittee);  
31

32           WHEREAS, the Co-Permittees are individually required by the Order to develop a Sewer System  
33 Management Plan to provide the framework as well as specific management guidance to prevent,  
34 control, mitigate, track, and report sewer spills including, but not limited to, funding, staffing, training  
35 plans, and enforcement of site-specific Fats, Oils, and Grease (FOG) Control Programs when indicated;  
36  
37

1 WHEREAS, DISTRICT and Co-Permittees have established their own FOG Control Programs  
2 applicable to food service establishments to comply with the Order;

3 //

4 WHEREAS, the FOG Control Programs of most Co-Permittees closely follow the FOG Control  
5 Program adopted by DISTRICT pursuant to DISTRICT's model FOG Control Ordinance;

6  
7 WHEREAS, COUNTY serves as the Health Officer of the Cities within COUNTY, and contracts to  
8 provide Environmental Health Services to the Cities, including inspections of food service  
9 establishments;

10  
11 WHEREAS, DISTRICT is the local sewer agency for County of Orange Unincorporated local  
12 sewers north of the City of Tustin and the DISTRICT owned and operated parts of City of Tustin, and  
13 other areas where parcels may be directly connected to the DISTRICT's regional collection system, and  
14 wishes to contract with COUNTY for the provision of food service establishment inspection services  
15 described herein;

16  
17 WHEREAS, DISTRICT is coordinating the extension of such Kitchen Best Management Practices  
18 (BMPs) screening inspection services to food service establishments within the jurisdiction of Co-  
19 Permittees who wish to participate in a jointly coordinated effort to implement the RB8 Order and  
20 monitor and control SSOs; and

21  
22 WHEREAS, COUNTY is agreeable to the rendering of such services on the terms and conditions  
23 hereinafter set forth with DISTRICT acting as the lead contracting agency for the participating Co-  
24 Permittees:

25  
26 NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

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**I. ALTERATION OF TERMS**

This Agreement, together with Exhibit A attached hereto and incorporated herein by reference fully expresses all understanding of COUNTY and DISTRICT with respect to the subject matter of this Agreement, and shall constitute the total Agreement between the parties for these purposes. No addition to, or alteration of, the terms of this Agreement, whether written or verbal, shall be valid unless made in writing and formally approved and executed by the parties.

**II. INDEMNIFICATION**

**A. MUTUAL INDEMNIFICATION**

1. Each party agrees to indemnify and hold harmless the other party, its officers, agents, and employees from all liability, claims, losses, and demands, including defense costs, whether resulting from court action or otherwise, arising out of the acts or omissions of the indemnifying party, its officers, agents, or employees, or the condition of property used in the performance of this Agreement.

2. Each party agrees to provide the indemnifying party with written notification of any claim within thirty (30) days of notice thereof, to allow the indemnifying party control over the defense and settlement of the claim, and to cooperate with the indemnifying party in its defense.

**B. THIRD-PARTY INDEMNIFICATION**

1. Prior to COUNTY extending the services hereunder within the jurisdiction of any Co-Permittee, DISTRICT in its coordination function shall first secure an indemnification agreement identical in the scope and form provided for herein from each such Co-Permittee indemnifying COUNTY from all liability, claims, losses, and demands, including defense costs, arising out of each such Co-Permittee's acts or omissions in the performance of services provided for in this Agreement.

**III. NOTICES**

A. Unless otherwise specified, all notices, claims, correspondence, and/or reports authorized or required by this Agreement shall be effective when:

1. Written and deposited in the United States mail, first class postage prepaid and addressed as follows:

DISTRICT: General Manager  
East Orange County Water District  
185 N. McPherson Rd  
Orange, CA 92869

COUNTY: Director Health Care Agency  
County of Orange Health Care Agency  
405 W. 5<sup>th</sup> Street, 7<sup>th</sup> Floor  
Santa Ana, CA 92701

2. Accepted by U.S. Postal Service Express Mail, Federal Express, United Parcel Service, or other expedited delivery service; or

3. Faxed, transmission confirmed.

B. Termination Notices shall be effective when written and deposited in the United States mail, certified, return receipt requested; when faxed, transmission confirmed; or when accepted by U.S. Postal Service Express Mail, Federal Express, United Parcel Service, or other expedited delivery service and addressed as specified in subparagraph A. above.

C. For the purposes of this Agreement, any notice to be provided by COUNTY may be given by Health Care Agency Director or his/her authorized representative.

#### **IV. PAYMENTS**

A. In consideration of the services provided hereunder, including services which may be extended to participating Co-Permittees, DISTRICT agrees to pay COUNTY the fees or rates adopted by the Orange County Board of Supervisors in effect at the time that such services were rendered. It is understood by the parties that such fees and rates are only for the purpose of meeting COUNTY'S cost associated with providing the services.

1. COUNTY shall invoice DISTRICT for such services quarterly and payment to COUNTY should be released by DISTRICT no later than thirty (30) days after receipt of the invoice, unless DISTRICT requests clarification or correction of the invoice within the same period. Failure of DISTRICT to reimburse COUNTY may be considered a breach of the terms of this Agreement and may result in termination of this Agreement.

2. COUNTY shall give DISTRICT a minimum of thirty (30) days notice of any change in fees or rates adopted by the Orange County Board of Supervisors.

B. All fees or rates collected by COUNTY from DISTRICT shall be paid to and deposited in the County Treasury and become property of COUNTY.

#### **V. SERVICES**

A. DISTRICT shall designate the Health Care Agency Director or his/her designee as an Inspector under DISTRICT's FOG Control Program applicable to food service establishments. DISTRICT agrees that the Health Care Agency Director or his/her designee, shall have all the powers and authority associated with the position of Inspector within DISTRICT and shall, at no cost to COUNTY, have access to any and all information and records as well as assistance from officers and employees of

1 DISTRICT necessary to perform services to be provided pursuant to this Agreement. Where the  
2 services hereunder are to be extended to any participating Co-Permittee, DISTRICT shall in its  
3 coordination function secure a similar designation and delegation of authority to the Health Care Agency  
4 Director or his/her designee, by the participating Co-Permittee.

5 //

6 Furthermore, DISTRICT shall ensure that the participating Co-Permittees' FOG Control Programs are  
7 substantially similar to DISTRICT's FOG Control Program to ensure uniformity among participating  
8 agencies.

9 B. The Health Care Agency Director or his/her designee shall perform all environmental health  
10 services as described in Exhibit A related to the implementation of DISTRICT's and participating Co-  
11 Permittees' FOG Control Programs applicable to food service establishments. DISTRICT and  
12 COUNTY may amend this Agreement, in writing, to reflect any additions or deletions of DISTRICT  
13 ordinances to be implemented by the Health Care Agency Director or his/her designee. In the event of  
14 such additions or deletions, DISTRICT shall in its coordination function ensure that each participating  
15 Co-Permittee adopt similar additions or deletions to ensure uniformity among participating agencies.

16 1. It is agreed that nothing in this Agreement shall be construed as binding DISTRICT to  
17 demand of COUNTY, or as requiring COUNTY to perform any particular number of inspections or  
18 visits except for the annual inspection identified in Exhibit A. Services under this Agreement may be  
19 denied to DISTRICT if the Health Care Agency Director or his/her designee determines that appropriate  
20 personnel or other resources are unavailable or the Health Care Agency Director or his/her designee  
21 does not have legal capacity to act or perform a particular function or functions.

22 2. COUNTY shall furnish all necessary labor, supervision, equipment, communication services,  
23 facilities, and supplies necessary to perform the scope of work and level of services to be provided.

24 3. The Health Care Agency Director or his/her designee shall not perform any code enforcement  
25 functions and shall not enforce any building code, electrical code, or plumbing code and shall not  
26 enforce any vector control functions assumed by the Orange County Vector Control District for which  
27 these functions are provided pursuant to an agreement with COUNTY dated December 17, 1974.

## 28 **VI. SEVERABILITY**

29  
30 If a court of competent jurisdiction declares any provision of this Agreement or application thereof  
31 to any person or circumstances to be invalid or if any provision of this Agreement contravenes any  
32 Federal, State, or County statute, ordinance, or regulation, the remaining provisions of this Agreement or  
33 the application thereof shall remain valid, in full force and effect, and to that extent the provisions of this  
34 Agreement are severable.

1 **VII. STATUS OF COUNTY**

2 COUNTY shall be wholly responsible for the manner in which it performs the services required of it  
3 by the terms of this Agreement. COUNTY is entirely responsible for compensating staff and consultants  
4 employed by COUNTY. This Agreement shall not be construed as creating the relationship of employer  
5 and employee, or principal and agent, between COUNTY and DISTRICT or any of COUNTY's  
6 employees, agents, or subcontractors. COUNTY assumes exclusively the responsibility for the acts of  
7 its employees, agents, or subcontractors as they relate to the services to be provided during the course  
8 and scope of their employment. COUNTY, its employees, agents, or subcontractors shall not be entitled  
9 to any rights or privileges of DISTRICT employees and shall not be considered in any manner to be  
10 DISTRICT employees. Where the services hereunder are to be extended to any participating Co-  
11 Permittee, DISTRICT shall in its coordination function secure a similar stipulation by the participating  
12 Co-Permittee.

13  
14 **VIII. TERM**

15 A. The term of this Agreement shall commence on January 19, 2017, and shall remain in effect until  
16 such time as it is terminated in accordance with the Termination Paragraph of this Agreement; provided,  
17 however, the parties shall be obligated to perform such duties as would normally extend beyond this  
18 term including, but not limited to, obligations with respect to confidentiality, indemnification, audits,  
19 reporting, and accounting.

20 B. In the event of termination of this Agreement, the Health Care Agency Director or his/her  
21 designee shall have no obligation to implement environmental health services as described in Exhibit A  
22 of DISTRICT or of any participating Co-Permittee. Where the services hereunder are to be extended to  
23 any participating Co-Permittee, DISTRICT shall in its coordination function secure a similar stipulation  
24 by the participating Co-Permittee.

25  
26 **IX. TERMINATION**

27 **A. TERMINATION WITHOUT CAUSE**

28 1. Either party may terminate this Agreement, without cause, upon no less than one hundred  
29 eighty (180) days written notice given the other party.

30 **B. TERMINATION FOR CAUSE**

31 1. Either party may terminate this Agreement upon five (5) days written notice given the other,  
32 if either party fails to perform any of the terms of this Agreement, provided the allegedly breaching party  
33 has been given written notice of the alleged breach and has failed to cure the alleged breach within thirty  
34 (30) days.

35 **C. CONTINGENT FUNDING**

36 1. Any obligation of COUNTY under this Agreement is contingent upon the following:

37 a) The continued availability of Federal, State, or COUNTY funds for reimbursement of

1 COUNTY's expenditures, and

2 b) Inclusion of sufficient funding for the services hereunder in the applicable budget  
3 approved by the Board of Supervisors.

4 2. In the event such funding is subsequently reduced or terminated, COUNTY may terminate  
5 this Agreement, or reduce or eliminate services, upon thirty (30) days written notice given DISTRICT.

6 //

7 //

8 D. NON-EXCLUSIVE RIGHTS The rights and remedies of either party provided in this  
9 Termination paragraph shall not be exclusive and are in addition to any other rights and remedies  
10 provided by law or under this Agreement.

11  
12 **X. WAIVER OF DEFAULT OR BREACH**

13 Waiver of any default by either party shall not be considered a waiver of any subsequent default.  
14 Waiver of any breach by either party of any provision of this Agreement shall not be considered a waiver  
15 of any subsequent breach. Waiver of any default or any breach by either party shall not be considered a  
16 modification of the terms of this Agreement.

17 //

18 // IN WITNESS WHEREOF, the parties have executed this Agreement, in the County of Orange,  
19 State of California.

20  
21 EAST ORANGE COUNTY WATER DISTRICT

22  
23  
24 BY: \_\_\_\_\_

DATED: \_\_\_\_\_

25  
26 TITLE: President \_\_\_\_\_

27  
28  
29 COUNTY OF ORANGE

30  
31  
32 BY: \_\_\_\_\_

DATED: \_\_\_\_\_

33 CHAIRMAN OF THE BOARD OF SUPERVISORS  
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SIGNED AND CERTIFIED THAT A COPY  
OF THIS DOCUMENT HAS BEEN DELIVERED  
TO THE CHAIRMAN OF THE BOARD.

\_\_\_\_\_

DATED: \_\_\_\_\_

**ROBIN STIELER**  
Clerk of the Board of Supervisors  
of Orange County, California

APPROVED AS TO FORM  
OFFICE OF THE COUNTY COUNSEL  
ORANGE COUNTY, CALIFORNIA

BY: \_\_\_\_\_

DATED: \_\_\_\_\_

DEPUTY  
//

1 EXHIBIT A  
2 SERVICES TO BE PROVIDED BY  
3 COUNTY OF ORANGE, HEALTH CARE AGENCY  
4 FOOD PROTECTION PROGRAM  
5

6 **I. FIELD FUNCTIONS**

7 Conduct one food service establishment FOG Control Program Kitchen BMP screening inspection  
8 annually. Inspections will be conducted at those facilities identified in the COUNTY Food Protection  
9 Program inventory as unpackaged food facilities. Environmental Health Specialists will report  
10 observations of noncompliance to DISTRICT; no FOG separation/containment/interceptor equipment  
11 inspections, follow up inspections, enforcement actions, additional inspection information, or joint  
12 inspections will be made or required. COUNTY will provide DISTRICT with the inventory (names and  
13 addresses) of unpackaged food facilities. DISTRICT will provide COUNTY the jurisdictional  
14 boundaries of the participating agencies and provide a listing of the inventoried unpackaged food  
15 facilities within the boundaries of each participating agency. Kitchen Best Management Practices  
16 (BMPs) screening inspections shall:

- 17 1. Verify the removal of garbage disposals
- 18 2. Verify the use of drain screens (sinks, floor sinks, floor drains)
- 19 3. Review fats, oils, and grease maintenance logs or manifests
- 20 4. Verify the presence of kitchen signage outlining proper grease disposal and dry scraping of  
21 dishes
- 22 5. Verify the presence of Kitchen BMP Training records
- 23 6. Verify use of FOG recycling containers (yellow grease and proof of recycling records)
- 24 7. Provide education and outreach that will consist of disseminating literature provided by the  
25 DISTRICT
- 26 8. Observe evidence of improper FOG disposal within the food service establishments

27  
28 **II. ADMINISTRATIVE FUNCTIONS**

29 COUNTY will report Kitchen BMPs observations to one centralized location agreed to between  
30 COUNTY and DISTRICT. COUNTY will revise the Food Facility Inspection Report by adding fields  
31 pertaining to Kitchen BMPs observations. COUNTY will create a database query that identifies all the  
32 unpackaged food facilities that received Kitchen BMPs screening inspection and transfer to the  
33 DISTRICT annually. COUNTY will perform quality assurance on Kitchen BMP data prior to transfer to  
34 DISTRICT. However, DISTRICT may periodically audit COUNTY's records to ensure that all the  
35 appropriate data is being procured, processed, and transferred. Kitchen BMP screening inspection  
36 observation data will be provided no later than the 15<sup>th</sup> of the month following an inspection. COUNTY  
37 will transfer screening inspection data electronically to DISTRICT or other mutually agreed upon

1 mechanism. COUNTY will perform program evaluations periodically to ensure that each facility  
2 requiring an inspection has received one within the specified time period and to review time values.

3  
4 **III. TRAINING**

5 COUNTY will create a training presentation for COUNTY Food Protection Program staff.  
6 COUNTY will provide training to the COUNTY Food Protection Program staff on Kitchen BMP  
7 screening inspections and allow DISTRICT and their program-related designees and contracted Co-  
8 Permittees to observe. Refresher training will be left to the discretion of COUNTY. COUNTY will  
9 incorporate Kitchen BMP screening components into the new Specialist-training program.

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# **Collections System Asset Management and Operations and Maintenance Program**

The District's Asset Management / Computerized Maintenance Management System / GIS / Land Records and Records Management System is contained within the SEDARU™ Program. The desktop and tablet versions of SEDARU complement the Preventive Maintenance and Operations & Maintenance Program run by the Division and acts as a comprehensive data and records tool. All asset inventories (pipelines and manholes) have been entered into SEDARU and a sewer Geographic Information System (GIS) map provides spatial location that can be accessed both by management and by the field crews. Other records, including cleaning data, CCTV video and reports, record drawings, land records and FOG permit data are also resident in the system.

There are no district-owned pump stations within the collection system, therefore pump station asset management or O&M are not required for this program.

## ***Map of Collection System***

The District maintains a regularly updated collection system map through SEDARU. Using the GIS capability to locate collection system features and assets increases the maps accuracy. Multiple data sets are displayed on the GIS map to visually present information for any number of needs. This includes planning, maintenance activities, scheduling, cleaning, repair and tracking of these activities.

## ***Routine Operation and Maintenance Practices***

The District has 2 field personnel and several contract firms dedicated to our sewer asset management and operations and maintenance program. Our primary preventative / corrective maintenance objectives include:

- Minimize the number of overflows per mile of collection system.
- Minimize the number of odor complaints.
- Maximize response time to sewer overflows

Work tasks and responsibilities for both Division staff and contractors is presented in Attachment 1.

## ***Preventative / Corrective Maintenance***

The District has an extensive preventative / corrective maintenance program that includes the following:

- Hydro clean all 6-inch to 30-inch sewers at least once annually.
- Inspect all manholes every five (5) years.
- Hydraulic cleaning of hot spots pursuant to an effective frequency

- Root control program
- Mainline / Service line repair and replacement program per the CIP
- Manhole repair / replacement program per the CIP
- Emergency response / investigations program.
- CCTV the entire system at least once every 7 years

The preventative / corrective maintenance activities are prioritized through the District's SEDARU program. Monthly analysis of data collected from SEDARU is used to evaluate the effectiveness of the program. Semi-annual review of the SSMP also is used to direct O&M priorities.

### ***Problem Identification & Sewer Cleaning***

The District uses historical information and SEDARU to collect information on SSOs caused by grease. The District uses this information to educate the Food Service Establishments (FSEs) on grease disposal as well as to determine cleaning frequencies in impacted areas. The District has identified the Tustin downtown core area as having the greatest potential FOG problems based on institutional knowledge. The District cleans the downtown core area, as well as other areas in the district that have root issues as part of the hot spots program - an integral part of the preventative maintenance program. The remaining sewer system is currently cleaned on an annual basis.

### ***Collection System Inspection Program***

The District uses Closed Circuit Television (CCTV) on sewers in the problem areas when required. The District's goal is to perform a complete CCTV of the entire system every seven (7) years. The District begins the CCTV cycle on the oldest collections lines and the reinforced concrete pipe sewer trunk lines. Manhole inspections and updates of invert measurements are done routinely (every 12 to 18 months) when hydro cleaning is being performed on the collection system, including CCTV via a nozzle mounted HDTV camera operated by District staff. A CCTV crew generates a PACP Report at least 1-2 days/week.

### ***Collection System Capacity***

The District has developed a dynamic sewer hydraulic model as part of its Master Plan / Condition Assessment Study that was completed in 2018. Sewer capacity was assessed by the use of land planning and land use records and supplemented with direct measurements of wastewater flow and/or water demand. Growth within the sewer service area is significantly below regional figures as the area is largely built out, however, the lack of / of housing may lead to densification in some areas. The District receives planning amendment data (EIRs) from the three local jurisdictions that oversee development (Cities of Tustin and Orange, and in the unincorporated area, the County of Orange). The 2018 Master Plan and Condition Assessment identified six areas with future capacity limitations; the District is assembling an engineering and construction team to address these issues early.

## ***Contingency Planning***

The District has adequate equipment for its operations and maintenance and keeps adequate parts for critical assets (manhole frames and covers).

## ***Staff Training***

Staff training is conducted on the following elements:

- Federal and State wastewater laws
- California General Collection System Permit
- Standard Specifications and Design Standards for EOCWD sewers
- Safety training included confined space entry and rescue, personal protective equipment, traffic control, chemical storage and handling, fall protection
- Laboratory/Sampling procedures
- Collection systems management (asset management, O&M)
- Collection systems operations
- Collection systems math

The District has developed standard operations and maintenance procedures for hydro cleaning, combination cleaning truck and manhole inspections.

Staff routinely attends conferences, seminars and classes that provide training on SSMP, SSOs, FOG, sewer cleaning, pretreatment issues or related subjects.

## ***SEDARU (CMMS)***

The District uses SEDARU as its Computerized Maintenance Management System (CMMS) to manage its maintenance program. All of the collection system assets (sewers, and manholes) are identified in SEDARU. The size and length of sewers, slope, invert elevations, date of installation, detailed cleaning history and notes as well as other pertinent records are recorded in the SEDARU. SEDARU also schedules and generate work orders.

The District also uses SEDARU as a repository for asset history. Through SEDARU, staff have access to a variety of information and reports (including CCTV data and historical drawings) pertaining to asset condition. SEDARU data is used on a daily basis to operate and maintain the system, as well as on other periodic bases as a tool to assist management in long-range planning for the system.

# Collection Systems Rehabilitation & Replacement Plan

## Duties & Responsibilities

| Annual Hydrocleaning Responsibilities   | Hot Spots Hydrocleaning Responsibilities   | CCTV Inspection   | Manhole Repair                                | Root Control  | Insect/Vermin Control   | Cured-In-Place Pipe Repairs   |
|---|--|---|---|---|---|---|
| Performance Pipeline Technologies   | EOCWD Sewer Division Staff<br>Vehicles: Hydro Jet, Vactor  | EOCWD Sewer Division  | Ayala Brothers                                | Duke's  | Golden Bell   | Sancon Engineering  |
| Vehicles: Hydro Jet, Vactor   | Investigate SSOs and Provide Emergency Response to public and private spills   | CCTV Van/Equipment  | Various equipment                             | Various Equipment   | Various Equipment   | Various Equipment   |
| Assist with Emergency Response (if needed)  | Hydro-clean hot spots on 4 week-26 week frequency as assigned by SEDARU<br>Enter cleaning data into SEDARU   | Provide NASSCO-trained inspectors and conduct CCTV inspection on 14% of system annually               | Provides routine and emergency manhole repair | Provides scheduled and on-demand chemical root foaming for root control | Provides scheduled and on-demand insect/vermin control for system | Provides routine and emergency maintenance and rehabilitation of system pipelines |
| Hydro-clean all mains and manholes annually as assigned by SEDARU<br>Enter cleaning data into SEDARU<br>Enter root/grease/insect/vermin data into SEDARU<br>Inspect manholes & report condition | Respond to RFIs from engineers and contractors<br>Assist with engineering field studies (flow monitoring, flow diversion)<br>Assist with septic system questions and septic conversion analysis<br>Provide sewer potholing services                  | Provide emergency/rapid CCTV inspection for field staff encountering excessive roots/obstructions/FOG |   |   |   |   |
| Advise on mapping anomalies   | Advise on mapping anomalies<br>Inspect FSEs as assigned by SEDARU<br>Enter FOG inspection data into SEDARU<br>Flow monitor as needed<br>CCTV as needed to assist maintenance program<br>Respond to odor complaints<br>Run USA tickets<br>HS' testing |   |   |   |   |   |





# East Orange County Water District

## *Sewer Division Vehicles List*

| <i>Year</i> | <i>Make</i> | <i>Model</i> | <i>VIN</i>         | <i>Description of Vehicle</i> |
|-------------|-------------|--------------|--------------------|-------------------------------|
| 2017        | Ford        | F-250        | 1FT7X2A65HEB70233  | Operations Service Truck      |
| 2001        | Sterling    | Vactor       | 2FZ6BJBB81AH61833  | Maintenance Truck-Vactor      |
| 1995        | Volvo       | TB           | 4V52AFHD0SR474402  | Maintenance Truck-Jetter      |
| 2003        | Ford        | F-250        | 3FTNF20L93MB16390  | Operations Service Truck      |
| 2006        | Ford        | F550         | 3FTCN26ABRZB779033 | CCTV Truck                    |

# APPENDIX L

## SEDARU DATA & Reports Example

| Revision History |          |          |  |
|------------------|----------|----------|--|
| Revision         | Date     | Approval | Reason   |
| 0                | 01/19/17 | SWRCB    | Original   |
| 1                | 01/17/19 | LO       | Update Manholes: Liner Type; Material; Diameter; Rim Elevation; New Invert identified in Master Plan/Condition Assessment July 2018        |
| 2                | 01/17/19 | LO       | Update Pipelines: Diameter; Material; From Invert; To Invert; Length; New Slope identified in Master Plan/Condition Assessment – July 2018 |
| 3                | 01/17/19 | LO       | CCTV locations added to pipe layer   |
| 4                | 01/17/19 | LO       | Added Smart Covers to GIS: Performance criteria; install date; URL link to data  |
|                  |          |          | •  |
|                  |          |          | •  |
|                  |          |          | •  |
|                  |          |          | •  |

Screenshot showing status of pipe cleaning: orange pipes indicate cleaned pipes; green are awaiting cleaning

147 pipes

manholes

valves

customers

pumps

parcels

type to search...

| pipes                       | active     |
|-----------------------------|------------|
| line cleaning               | 12/21/2016 |
| RED0115-0155:RED0115-0160   |            |
| line cleaning               | 12/21/2016 |
| RED0190-0000:RED0190-0005   |            |
| line cleaning               | 12/21/2016 |
| RED0120-0677:RED0120-0680   |            |
| line cleaning               | 12/21/2016 |
| RED0120-0670:RED0120-0675   |            |
| line cleaning               | 12/21/2016 |
| RED0120-0690:RED0120-0695   |            |
| line cleaning               | 12/21/2016 |
| RED0120-0770:RED0120-0775:B |            |
| line cleaning               | 12/21/2016 |
| RED0120-0770:RED0120-0775:A |            |
| line cleaning               | 12/21/2016 |
| RED0120-0680:RED0120-0683   |            |

tasks: 147

Area 7

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Screenshot showing pipeline asset history, cleaning frequency & history, material, size & length

The screenshot displays a GIS application interface with a top navigation bar, a central map, and a right-hand details panel.

**Navigation Bar:**

- 147 pipes
- manholes
- valves
- customers
- pumps
- parcels

**Map:** Shows an aerial view of a residential area with a highlighted orange pipeline segment. A search bar at the top of the map contains the text "type to search...". A tooltip for the selected segment displays the ID "RED0115-0150:RED0115-0170". The map also shows "Medallion Ave" and addresses "17213" and "17209".

**Details Panel:**

- tasks: 158474 (New)
- LONG NOTES
- ACCESS NOTES
- DIAMETER: 8
- MATERIAL: VCP
- LENGTH: 327
- CLEANING FREQUENCY: 52
- DRAWING: TR-4250-00004.TIF
- DATE LAST CLEANED: 12/16/2016
- asset history
- line cleaning area7: 12/16/2016
- line cleaning OCSD: 11/25/2015

**Footer:** © 2016 IDModeling, Inc. Area 7

Screenshot showing pipelines/asset history and location of FSE's (purple diamonds) tributary to pipelines

The screenshot displays a GIS application interface. At the top, there is a navigation bar with icons and labels for various asset types: pipes (147), manholes, valves, customers, pumps, and parcels. Below this is a map showing a street grid with orange and green pipeline lines and purple diamond markers representing FSE's. The map includes a search bar and a compass. On the right side, there is a data panel with the following information:

|                        |                           |     |
|------------------------|---------------------------|-----|
| tasks                  | 158474                    | New |
| LONG NOTES             |                           |     |
| ACCESS NOTES           |                           |     |
| <b>DIAMETER</b>        | <b>MATERIAL</b>           |     |
| 8                      | VCP                       |     |
| <b>LENGTH</b>          | <b>CLEANING FREQUENCY</b> |     |
| 327                    | 52                        |     |
| <b>DRAWING</b>         | <b>DATE LAST CLEANED</b>  |     |
| TR-4250-00004.TIF      | 12/16/2016                |     |
| asset history          |                           |     |
| line cleaning<br>area7 | 12/16/2016                |     |
| line cleaning<br>OCSD  | 11/25/2015                |     |
| Area 7                 |                           |     |



Screenshot of field workorder documenting maintenance and any additional action needed (dropdown box is shown)

The screenshot displays a mobile application interface for field workorder documentation. At the top, there is a navigation bar with several icons and labels: 'pipes' (147), 'manholes', 'valves', 'customers', 'pumps', and 'parcels'. Below this is a map view showing a residential area with a highlighted orange line representing a pipe. A search bar above the map contains the text 'type to search...'. A dropdown menu is open over the map, listing several actions: 'Add to Hot Spots', 'TV Inspection', 'Add to Special Notes', and 'Cleaning Abandoned'. To the right of the map is a data entry form with the following fields:

| line cleaning              |                              |
|----------------------------|------------------------------|
| *operator initials         | maint. frequency             |
| Mike                       |                              |
| flow                       | grease                       |
| Light (1/4 full)           | None                         |
| roots                      | grit/gravel                  |
| None (very few hair roots) | None (very little in basket) |
| action needed              | special notes                |
| easement accessi...        | easement obstru...           |

At the bottom of the form, there are 'Back' and 'save' buttons, and the text 'by: area7'. The bottom of the screen shows the SEDARU logo and copyright information: '© 2016 IDModeling, Inc.'

# Screenshot showing spill report form and dropdown selections

147 pipes

manholes valves customers pumps parcels

type to search...

RED0115-0150

17213 Medallion Ave

17196 ...dden Ave

Cancel Done

|            |    |    |    |
|------------|----|----|----|
| Wed Dec 28 | 8  | 10 |    |
| Thu Dec 29 | 9  | 11 |    |
| Today      | 10 | 12 |    |
| Sat Dec 31 | 11 | 13 | AM |
| Sun Jan 1  | 12 | 14 | PM |
| Mon Jan 2  | 1  | 15 |    |
| Tue Jan 3  | 2  | 16 |    |

Visible spill evidence:  
No Visible Evidence

Did eyewitness indicate start time?  
Yes

Eyewitness est. SSO start time

Est. spill vol. to storm drain

Est. spill vol. recov. from storm drain

Cancel Area 7 Done



Screenshot of command center at-a-glance performance metrics (orange are pipelines cleaned within the past year).

command center | Jerry M.

396 line cleaning this month

0 manholes with frame issues

customers

map selection

- 396 line cleaning this month
- RED0360-0030:RED0360-0035
- RED0360-0040:RED0360-0045
- RED0560-0185:RED0560-0190
- SUN0415-0030:SUN0415-0265
- SUN0415-0265:SUN0415-0270
- SUN0480-1615:SUN0480-1618
- SUN0480-1618:SUN0480-1620
- HAT0205-0190:HAT0205-0200
- HAT0205-0200:HAT0205-0205
- RED0120-0770:RED0120-0775:A
- RED0120-0770:RED0120-0775:B
- RED0395-0025:RED0395-0030
- RED0395-0030:RED0395-0035
- RED0380-0060:RED0380-0065
- RED0380-0045:RED0380-0060
- RED0380-0025:RED0380-0030

396 features

customer service | engineering | management | maintenance | operations

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The screenshot displays a GIS command center interface. At the top, there are navigation and user controls. Below this is a dashboard with five main panels: 'pipes' (396 line cleaning this month), 'pipes' (manholes with frame issues: 0), 'pipes' (customers), and a 'map selection' panel. The central map shows a city grid with orange lines representing cleaned pipelines and blue circles indicating manhole issues. A list of selected features is shown on the right, including various pipe IDs and their counts. At the bottom, there is a navigation bar with icons for customer service, engineering, management, maintenance, and operations.



# Sample Export of Main Cleaning Report

| workdate            | worktype      | workby    | comments                                   | operator_initials | flow              | grease                | grit_gravel                  | roots                      |
|---------------------|---------------|-----------|--|-------------------|-------------------|-----------------------|------------------------------|----------------------------|
| 11/30/2016 09:47:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Medium (small chunks) | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 09:48:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Medium (small chunks) | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 12:07:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Medium (small chunks) | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 13:58:00 | Line Cleaning | mcardenas |  | MC/JA             | None              | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 13:59:00 | Line Cleaning | mcardenas |  | MC/JA             | None              | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 14:33:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 14:33:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 15:16:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 15:16:00 | Line Cleaning | mcardenas |  | MC/JA             | None              | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 11/30/2016 15:22:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Light (soupy)         |                              | None (very few hair roots) |
| 11/30/2016 15:22:00 | Line Cleaning | mcardenas |  | MC/JA             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 12/01/2016 09:12:00 | Line Cleaning | jabeyta   | none                                       | Ja                | Light (1/4 full)  | Light (soupy)         | Light (basket <= 1/4 full)   | None (very few hair roots) |
| 12/01/2016 09:13:00 | Line Cleaning | jabeyta   | WO #145785                                 | Ja                | Light (1/4 full)  | Light (soupy)         | Light (basket <= 1/4 full)   | None (very few hair roots) |
| 12/01/2016 12:37:00 | Line Cleaning | jabeyta   | wo 145301, do not clean during lunch hours | Ja/mc             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 12/01/2016 12:37:00 | Line Cleaning | jabeyta   | wo 145301, do not clean during lunch hours | Ja/mc             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 12/01/2016 15:07:00 | Line Cleaning | mcardenas |  | MC/JA             | None              | None                  | None (very little in basket) | None (very few hair roots) |
| 12/02/2016 09:44:00 | Line Cleaning | mcardenas |  | MC JA             | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/02/2016 10:06:00 | Line Cleaning | mcardenas |  | MC JA             | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 12/02/2016 10:08:00 | Line Cleaning | mcardenas |  | MC JA             | None              | None                  | None (very little in basket) | None (very few hair roots) |
| 12/02/2016 11:17:00 | Line Cleaning | mcardenas |  | MC JA             | Medium (1/2 full) | None                  | None (very little in basket) | None (very few hair roots) |
| 12/06/2016 11:09:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/06/2016 12:17:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | Light (soupy)         | None (very little in basket) | None (very few hair roots) |
| 12/06/2016 12:37:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:40:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:41:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:43:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:44:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:44:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:45:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:45:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:46:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:46:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:47:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |
| 12/07/2016 12:47:00 | Line Cleaning | area7     |  | Mike              | Light (1/4 full)  | None                  | None (very little in basket) | None (very few hair roots) |

# Screenshot of # of line segments cleaned from 11/30/16-12/30/16 with daily high, low and average metric

command center

Jerry M.

pipes

line cleaning this month

# 396

pipes

pipes

# 0

manholes with frame issues

customers

map trend line cleaning this month create report map selection

line cleaning this month

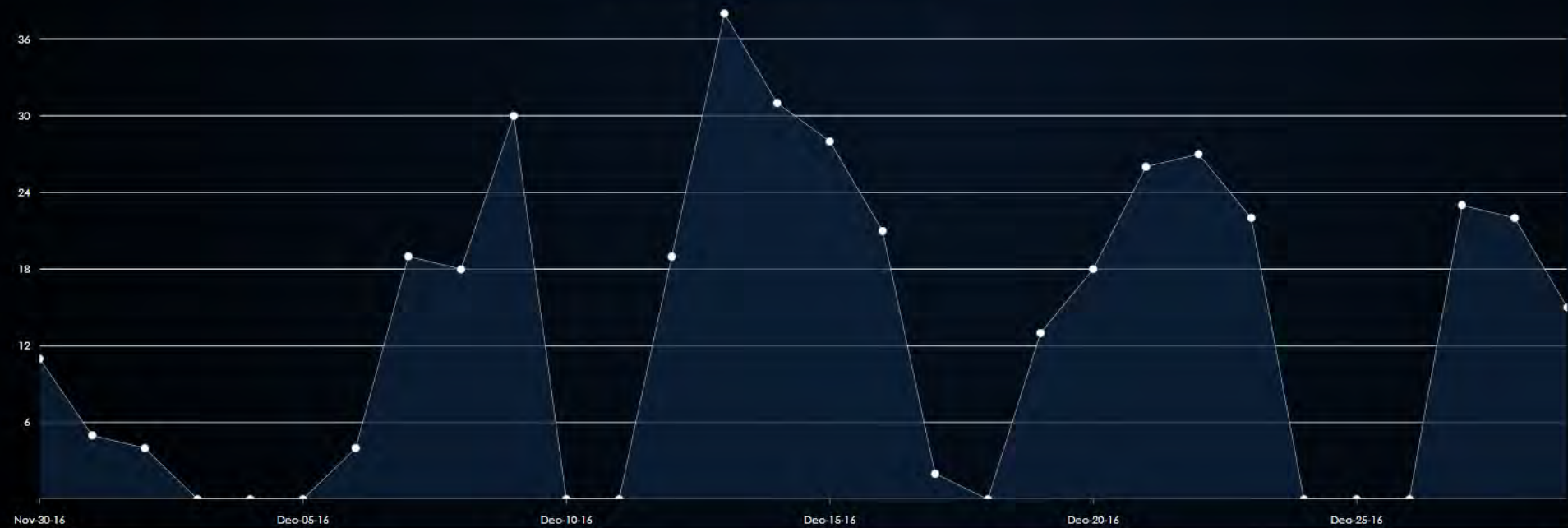
**396** (count) +207 (+52.27%)

11/30/2016 to 12/30/2016

|              |       |
|--------------|-------|
| high (daily) | 38    |
| low (daily)  | 2     |
| avg (daily)  | 18.86 |

RANGE 1D 1W 1M 3M 6M 1Y Custom

line cleaning this month for last one month [count]



- 396 line cleaning this month
- RED0360-0030:RED0360-0035
  - RED0360-0040:RED0360-0045
  - RED0560-0185:RED0560-0190
  - SUN0415-0030:SUN0415-0265
  - SUN0415-0265:SUN0415-0270
  - SUN0480-1615:SUN0480-1618
  - SUN0480-1618:SUN0480-1620
  - HAT0205-0190:HAT0205-0200
  - HAT0205-0200:HAT0205-0205
  - RED0120-0770:RED0120-0775:A
  - RED0120-0770:RED0120-0775:B
  - RED0395-0025:RED0395-0030
  - RED0395-0030:RED0395-0035
  - RED0380-0060:RED0380-0065
  - RED0380-0045:RED0380-0060
  - RED0380-0025:RED0380-0030
- 396 features



DESIGN, CONSTRUCTION and  
REPAIR STANDARDS  
for  
SANITARY SEWERS



January 2019

# **12 DESIGN, CONSTRUCTION AND REPAIR STANDARDS FOR SANITARY SEWERS**

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## **12.1 DEFINITIONS**

**District** – East Orange County Water District (EOCWD).

**Engineer** – The District Engineer of the East Orange County Water District or duly authorized agent of the District Engineer.

**Design Engineer** - A private Professional Engineer hired by the Owner or Developer for the design of the proposed Work.

**Inspector** – Inspector, in these requirements, shall only mean a duly authorized representative of the East Orange County Water District.

**Owner or Developer** – The applicant requesting the installation or construction of sanitary sewers for the integration with the collecting sewer system of the District.

**Contractor** – The persons, firm or corporation entering into contract with the Owner or Developer for the performance of Work required under said contract, the District ordinances and these requirements.

**Work** – All the work specified in the standard requirements, plans and standard drawings necessary to complete the construction of sanitary sewers.

**Approved Plans** – Construction plans as specified herein approved by the East Orange County Water District attested to by the Engineer's signature.

**Approved Equal** – A material or product that exceed or is equivalent to, in the opinion of the Engineer, in all respects, that which is specified herein.

**Plans** – That part of the Approved Plans and specifications which consist of the plans, profiles, typical cross-sections and working drawings or exact reproductions thereof which show the location, character, dimensions and details of the Work to be done.

**Standard Drawings** - That part of these requirements titled, "Standard Drawings".

**State Specification** - The Standard Specifications, State of California, Department of Transportation (Caltrans), latest edition.

**Master Specifications** - The Master Specifications, East Orange County Water District, latest edition.

**ASTM** - The American Society for Testing Materials. All references to the specifications of the ASTM are understood to refer to the current editions as revised and/or amended at the date of construction.

**Drafting Manual** - The Drafting Manual for Environmental Management Agency, Design Division and Traffic Engineering of the County of Orange, December, 1984.



**OSHA** - Code of Federal Regulations, Title 29, Part 1910, U.S. OSHA, and State of California, Code of Regulations, Title 8, Construction Safety Orders.

**Clean Sand** - Wherever the term “clean sand” is used in these requirements, it shall be defined as a soil having sand equivalent of 70 as determined in accordance with California Department of Transportation, Test No. “California 217”.

**Final Acceptance** – The formal action by the District accepting the Work as fully completed, in accordance with these requirements.

## **12.2 INSTRUCTIONS TO DEVELOPERS, ENGINEERS, AND HOMEOWNERS**

### **12.2.1 AUTHORITY**

The authority for the Work is the District’s Engineering Design Guidelines, Design, Construction and Repair Standards for Sanitary Sewers, latest edition. This booklet excerpts from those documents and does not supersede same.

Prior to the preparation of any plans, specifications or descriptions, the Developer (or the Developer’s engineer) shall meet with the staff to determine the extent of the District’s requirements for providing service to the development by the District.

### **12.2.2 ANNEXATIONS**

The Developer (or the engineer for the Developer) shall pick up instructions for Annexation to East Orange County Water District. Contact the Engineering Department, Planning Division, to verify if your property is in the District.

### **12.2.3 PERMITS**

No work shall be started until the Contractor has obtained all necessary permits. The Contractor shall obtain all permits and give all notices necessary and incidental to the due and lawful prosecution of the work, and to the preservation of the public health and safety. The District will issue a permit for the Work to be done in conjunction with District facilities. The Contractor shall obtain and pay for all permits required by other agencies having jurisdiction over the Work.

### **12.2.4 PLAN CHECKING, APPROVALS AND FEES**

Prior to the construction of any facilities for the District (or facilities to become the property of the District), construction drawings for the subject Work shall be subject to approval by the Engineer, and shall be stamped and signed by the Design Engineer preparing the Plans.

Approval by the Engineer on drawings for facilities to become the property of the District shall apply only to general design concepts with respect to the District's master planned capacity, maintenance procedures, and quality of materials. This will signify approval for a permit for construction, but will not guarantee the absence of errors and omissions.

When plan checking by the District is necessary, a plan check deposit fee of \$100 per sheet of plans with a minimum cost of \$250 shall be deposited with the District.

After approval of the plans and prior to the beginning of construction, a deposit equal to six (6) percent of the construction costs (less the cost of the plan checking fee on deposit) of the sewer facilities as estimated by the District shall be made to the District. At the completion of the Work, actual costs incurred by the Districts in plan checking and inspection shall be computed, at which time the Developer may be required to pay additional monies if necessary.

### **12.2.5 INDEMNITY BOND**

If sewer facilities are to be constructed in a right-of-way under the jurisdiction of an agency requiring the District to sign the application for the encroachment permit, the applicant shall furnish the District with an indemnity bond satisfactory to the District prior to execution of the application.

### **12.2.6 EASEMENTS AND RIGHT-OF-WAY**

Permanent easements, where absolutely necessary, shall be a minimum of 30 feet in width and shall be shown on the plans. Temporary easements for construction only shall be shown on the plans including date of termination.

Where applicable, permanent easements shall be recorded on the tract map, and granted to the East Orange County Water District. When applicable, separate easement documents for both permanent and temporary easements shall be prepared (on standard EOCWD title sheets and Standard Plan and Profile sheets) and presented to the District for acceptance and recording.

If a flush truck cannot drive the entire length of a sewer and is able to turn around, the District will not accept the sewer easement.

## **12.3 INSTRUCTION TO DESIGNERS**

### **12.3.1 GENERAL**

All Work shall be delineated in accordance with the standards, exhibits and requirements of the Drafting Manual.

## **12.3.2 PLANS**

### **1 COVER SHEET**

The cover sheet shall be the East Orange County Water District standard sheet. A standard blank cover sheet will be provided upon request by the District, and include at a minimum the following:

- As a minimum, the cover sheet will delineate:
  - Vicinity Map (General Orange County/L.A. area)
  - Location Map and Sheet Index Map (Specific location)
  - Name of project including contract number, title and district number
  - Approval blocks for signature of all agencies required, in addition to the signature block of the Design Engineer preparing the plans and the Engineer's approval block.
- General notes which describe Work to be done in summary terms.
- In lieu of that shown (and when applicable), a separate survey control sheet shall be prepared delineating horizontal and vertical survey control, bench marks, abbreviations, legend delineations and other applicable data which may be included thereon.

### **2 PLAN AND PROFILE**

- All Work shall be shown and delineated in accordance with the applicable portions District's CAD Manual.
  - Scale shall be 1" = 40' (horizontal), and 1" = 4' (vertical). Any other scale shall receive pre-approval from the Engineer.
  - Construction notes and numbers shall not be used and all applicable notes of construction shall be called out.
  - Typical section, hydraulic data, and benchmark data shall be shown.
- Soil boring information shall be shown on each sheet (if applicable) and shall include the date taken and the firm presenting the soil information.
- Utility locations shall be shown as accurately as possible in both plan and profile in accordance with standard practice for underground utility plans delineations.

### 3 DETAILS

Applicable detail sheets shall be prepared and shall show all necessary details for construction survey controls.

### 4 SIZE OF PLANS

All plans shall be 24 x 36 inches in size.

### 5 FINAL APPROVAL

The plans shall be signed by a Civil Engineer Registered in the State of California, under whose jurisdiction the plans were prepared. When final approval for a permit is issued by the District, the Engineer's signature will be shown.

## 12.3.3 DESIGN

### 1 CRITERIA FOR AVERAGE DAILY FLOW CALCULATIONS

| <u>Land Use</u>            | <u>Coefficient GPD<br/>Per Acre</u> |
|----------------------------|-------------------------------------|
| Low Density Residential    | 1488                                |
| Medium Density Residential | 3451                                |
| High Density Residential   | 7516                                |
| Commercial Area            | 2262                                |
| Industrial Area            | 3167                                |
| Open Space                 | 129                                 |

### 2 PEAK FLOW

Average daily flow times two (2) equals peak flow. For a 8-inch pipe use multiplication factor of 2.5. Do not use pipe less than 8 inches in diameter.

### 3 VELOCITY

Velocity shall not be less than 2 ft /sec. Unless otherwise approved by the Engineer. Maximum slope shall not exceed 10 percent.

**4 REQUIREMENTS FOR DEPTH OF FLOW (D) VERSUS DIAMETER OF PIPE (D) IN SEWER PIPE.**

| <u>Diameter of Pipe (d)</u> | <u>Max D/d</u> |
|-----------------------------|----------------|
| 8 inches – 18 inches        | 0.50           |
| 21 inches – 60 inches       | 0.75           |
| Over 60 inches              | 0.75           |

**5 DEPTH OF COVER**

Minimum depth of cover over mainline sewers shall be 7 feet. Unless otherwise approved, depth of laterals at property line shall be a minimum of 5 feet.

**6 MANHOLE CRITERIA**

Manhole locations:

- At changes of slope
- At changes of direction
- At junction of laterals
- At changes of pipe size
- At termination of sewers
- At special locations as designated by the Engineer
- At changes in type of pipe material, i.e., V.C.P. to D.I.

Maximum distance between manholes:

| <u>Pipe Size</u>      |  |
|-----------------------|--|
| 8 inches – 12 inches  | 400 feet   |
| 15 inches – 18 inches | 500 feet   |
| 18 inches and over    | 600 feet unless otherwise approved by the Engineer |

**7 SIPHON CRITERIA**

- Siphons shall be avoided where possible.
- Where practical, dual siphons are preferred to allow isolation of one for maintenance and inspection.
- Siphons shall be designed for a minimum velocity of 3 feet per second at design average flows, except that for cleaning purposes siphons shall have a minimum internal diameter of 8-inches.
- Siphons shall be designed so that the daily dry weather half hour peak flow shall provide a minimum velocity of 4 feet per second. That is, under

average conditions at least once per day the flow shall be at or above 4 feet per second for at least 30 minutes.

- Siphons shall be designed so that peak wet weather flow produces no more than 2-feet of surcharge (above the soffit of the pipe) in the upstream siphon structure (or any other manhole).
- For corrosion reasons, plastic pipe (pressure rated HDPE or PVC) is preferred for siphons and air lines. If VCP is used it shall be concrete encased.
- Siphons shall not have sharp horizontal angles or changes of grade.
- The invert of the downstream manhole shall be at least 0.1-foot lower than the invert of the upstream manhole.
- The maximum angle of the downstream (rising) leg approaching the outlet junction structure shall be no more than 15 degrees from horizontal. The maximum angle of the upstream leg shall be no more than 30 degrees from horizontal.
- Siphons shall have a junction structure at each end. Rectangular junction structures are preferred over circular structures where there are more than one siphon pipe connected to the structure.
- Where used, multiple, reduced sized siphons shall be based upon a detailed engineering flow analysis. Flow analysis shall consider present and future low, average, and high flows. Particular attention shall be paid to average diurnal flow conditions.
- Dual (or multiple) siphons shall be designed so that normal flow can be diverted to either barrel so that the other barrel can be cleaned. To reduce maintenance requirements, isolation of siphon pipes shall be done using stop plates (or logs), not gates. Junction structures and stop plates shall be designed so that plates can be moved to isolate or open siphons without a confined space entry.
- Where multiple siphons are used the inverts shall be at the same elevation, and the isolation stop plates shall be provided that can be used as overflow weirs between the siphon pipes
- Siphons shall have an adequately sized air jumper line between junction structures, which shall be a minimum of 6-inch diameter for cleaning and maintenance. Dual air lines are not required. Provide the design basis including calculations in the design report.
- Air jumper systems shall have a mechanism for removing condensate. Condensate removal shall be sized based on an engineered calculation of condensate production, and EOCWD experience, and shall be designed to provide long service in corrosive conditions. Design shall specify minimum slope for drainage. Where practical, overhead air jumpers that are self draining to the manholes are preferred.
- Siphons and air balance lines shall be designed to accommodate EOCWD's cleaning methods, including rodding, jetting, and tire cleaning. Locate manholes so that they are accessible, and to minimize traffic control setup. Adequate space shall be provided for equipment setup and vehicle parking, including a buffer for safety. Provide utility truck parking area on the downstream side of the upstream manhole.
- Air jumpers shall have a headloss of less than 0.10-inches of water column (0.0036 psi) across the system at maximum airflow. The following

method for estimating the maximum airflow ( $Q_{air}$ ) is suggested (from Project 2-68 PDR TM-1, Dudek & Associates, 2006):

- Assume  $d/D = 0.3$  (because maximum airflow occurs at  $d/D = 0.3$ ).
- Assume a Reduction Factor (RF) = 0.5 to relate air velocity ( $V_{air}$ ) to sewage velocity ( $V_{ww}$ ).
- If replacing an existing air jumper, RF may be modified based on field measurements of  $Q_{air}$ ,  $d/D$  and  $Q_{ww}$ , but never to be below 0.25 or above 0.8 (except where mechanical ventilation affects airflow).
- $Q_{air} = (RF)(\text{HeadspaceArea})(V_{ww})$ .
- Identify all siphon pipe inverts on the plans. Accurately specify actual internal diameters (ID) for all designed pipelines in the construction drawings. If more than one pipe material is allowed in the design, show both actual IDs. The nominal size of the pipe is not sufficient.
- Specify procedures for pressure testing of siphons and air jumpers.
- Specify CCTV of siphons and jumpers for acceptance.

Note: EOCWD typically cleans jumpers and smaller (<21-inch) siphons with a jetter, and larger siphons with tires. EOCWD's largest tire is 48 inches, which EOCWD uses to clean the largest (96-inch) siphons. (EOCWD cleans with a tire by parking a large utility truck with a winch and pulley system at the upstream manhole and allows the flow to push the tire downstream against the resistance of the cable.) Cleaning lengths are limited to about 1100 feet for tire cleaning, and a little less than 900 feet for jet cleaning. Cleaning lengths include upstream manhole depth as well as sewer length. (Information current as of 2012 equipment; consult with Collections Maintenance for updated requirements.)

## 8 RADIUS OF CURVATURE

Normally, the District insists upon straight sections between manholes; however, when specifically approved by the Engineer, minimum radius of curvature for V.C.P. sewers shall be:

| <u>Pipe Size</u> |          |
|------------------|----------|
| 8 – 12 inch      | 250 feet |
| 15 – 18 inch     | 350 feet |
| 21 – 27 inch     | 400 feet |
| 30 – 39 inch     | 450 feet |
| Over 39 inch     | 500 feet |

Lesser radius of curvature may be permitted by the Engineer in special cases. Vertical curves shall not be allowed.

## 9 SHOP DRAWINGS

Shop drawings for all fabricated materials or equipment incorporated in the Work shall be submitted for approval by the Engineer. The Contractor shall obtain and check the shop drawings and other pertinent data for conformance with all

requirements of the drawings and specifications. After completion of such checking and verification, the Contractor shall submit four copies of the shop drawings and pertinent data to the District. It shall be in such detail as the Engineer may require for information as to the design, installation and operation of such items and their compliance with the Plans and Specifications.

## **10 CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS**

### ***Basic Separation Requirements***

Water mains and sewers shall be separated as far as is reasonable in both the horizontal and vertical directions with sewers always lower than water mains.

Parallel Construction: The horizontal distance between pressure water mains and sewers shall be at least 10 feet.

Perpendicular Construction (crossing): Pressure water mains shall be at least three feet above sanitary sewers where these lines must cross.

### ***Exceptions to Basic Requirements***

Certain local conditions of topography, available space, etc. may create a situation where there is no alternative but to install water mains or sewer lines at less than the required separation. In such cases, more rigid construction requirements shall be met as specified in section entitled "Construction" herein, subject to the special provisions and restrictions given in the following paragraphs under "Special Construction Requirements".

The basic requirements apply to sewers of 24 inches in diameter or less. Larger sewers may create special hazards because of flow volumes and type of joints used. Each installation of sewer larger than 24 inches in diameter shall be reviewed in advance to determine if the separation and protection provided to nearby water mains is adequate.

### ***Special Construction Requirements***

The special construction requirements necessary for sewers or water mains where the minimum required separation cannot be maintained are given in Exhibit No. 1 below. There are three situations encountered in the field:

Case 1 – New Sewer – Existing water main

Case 2 – New water main – Existing sewer

Case 3 – New water main and new sewer

For Case 1 and 3 the special construction requirements apply to the sewer. For Case 2 the special requirements may apply to either or both the water main and sewer.



The special construction requirements shall apply to house laterals that cross above a pressure water main but not to those house laterals that cross below a pressure water main.

The special construction requirements given are for the normal conditions found with sewage collection lines and water distribution mains. More stringent requirements may be necessary for special circumstances such as water mains buried deeper than normal, unstable soil conditions, high ground water, etc. These situations shall be reviewed with the Health Department in advance.

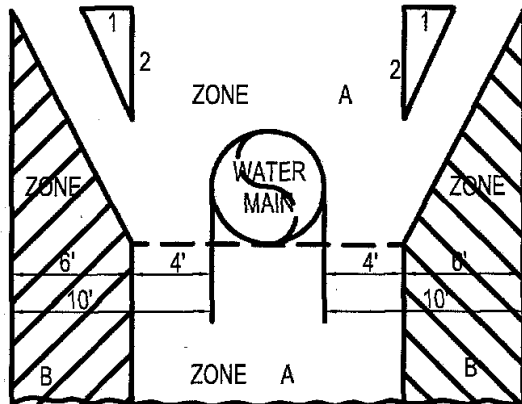
The special provisions and restrictions given in the following paragraphs under "Special Provisions and Restrictions" shall be followed.

### ***Special Provisions and Restrictions***

- Construction of any sanitary sewers within 25-foot horizontal distance of low head water mains shall be reviewed and approved by the Engineer in advance. (Low-head water mains are defined in the California State Health Department Policy as any water main which has less than 5 psi at any time at any point in the main).
- Where a sewer must cross over a water main, it shall cross at a 90-degree angle if possible and the length of sewer pipe shall be centered on the water main so the sewer joints are the maximum distance from the water main.
- In pressure testing new water mains and/or sewers, special attention shall be given to those areas where the lines are in close proximity.

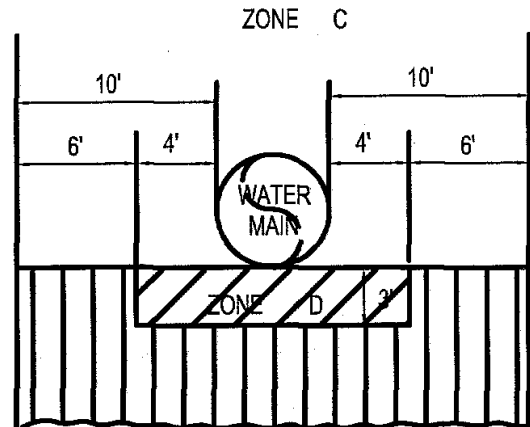
**EXHIBIT NO. 1 TO  
REQUIRED SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS**

**SPECIAL CONSTRUCTION REQUIREMENTS  
Where Required Separation Cannot Be Maintained**



**PARALLEL CONSTRUCTION**

not to scale



**PERPENDICULAR CONSTRUCTION**

not to scale

Notes: Dimensions are from outside of water main to outside of sewer. Compression and mechanical joints and reinforced concrete encasement are as defined at the end of this section.

**CASE 1 AND 3: NEW SEWER BEING INSTALLED**

**ZONE**

- A. Sewer lines will not be permitted in this zone without special permission from the Department of Health.
- B. Extra-strength vitrified clay pipe with compression joints; or concrete collars around the joints, which collars shall have a minimum distance along the pipe of six inches on either side of the joint; or rubber gasket reinforced concrete pipe meeting EOCWD Standards; or rubber gasketed SDR 26 ASTM D3034 rubber gasketed PVC sewer pipe;.
- C. or D. AWWA C110 Pressure Class 100 or thicker ductile iron pipe, with a lining and coating of high build epoxy meeting EOCWD Standards, and approved mechanical joints; jointed or fusion welded AWWA C900 or C905 Pressure Class 100 or thicker PVC pipe; or any sewer pipe within a continuous steel casing, which casing shall have a thickness of not less than one-fourth inch and with all voids between sewer pipe and casing pressure grouted with one sack slurry.

## CASE 2: NEW WATER MAIN BEING INSTALLED – EXISTING SEWER

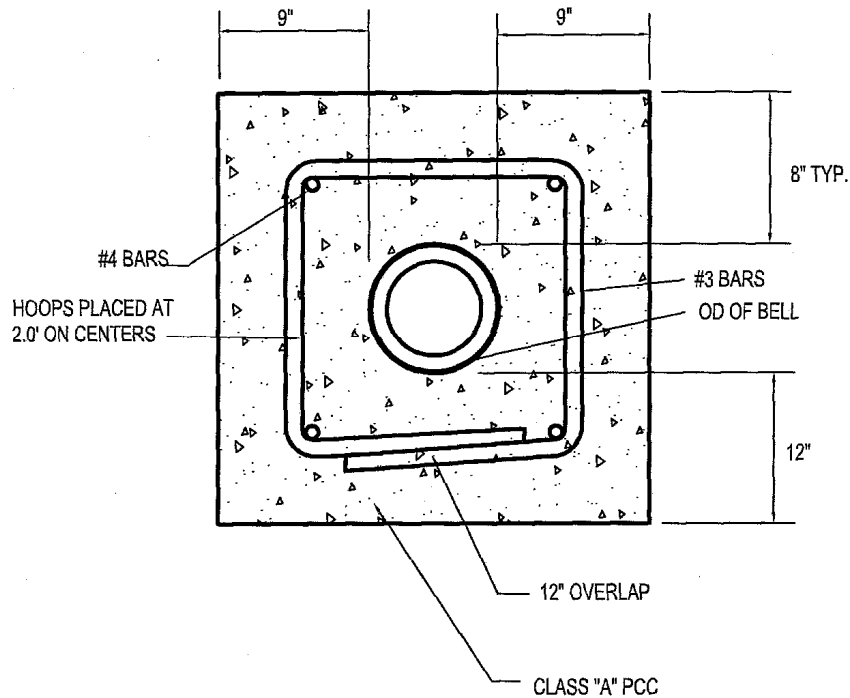
If an existing sewer is located within Zone A, B, C or D of a proposed water main, the following special requirements shall apply:

### ZONE

- A. No water mains shall be constructed without special permission from the Department of Health.
- B. If the sewer does not meet the Zone B requirements given above the water main shall be of AWWA C110 Pressure Class 150 or thicker ductile iron pipe, AWWA C900 Pressure Class 150 or thicker PVC pipe, or equivalent.
- C. No water mains shall be constructed without special permission from the Department of Health. If permission is granted, the sewer shall be encased with reinforced concrete and the water main shall meet the requirements of Zone B above.
- D. The water main shall meet the requirements of Zone B above and the existing sewer shall be encased with reinforced concrete.

## DEFINITIONS:

1. Compression joints are rubber ring or gasket joints.
2. Mechanical joints are bolted joints.
3. Acceptable reinforced concrete encasement is as follows (not to scale):



## **12.4 CONSTRUCTION**

### **12.4.1 SURVEYS**

All surveys shall be done by a licensed land surveyor or civil engineer as required by the State of California and shall be completed and shown on the plans in accordance with the Manual of Practice for Surveys latest edition.

Surveyors Cut Sheets: No work shall commence prior to the preparation of the sewer cut sheets and duplicate copies supplied to the Inspector. The cut sheets shall be prepared only by a Land Surveyor Licensed or Civil Engineer Registered in the State of California. The cut sheets shall include the location of wyes, house laterals at the property line and manhole rim elevations by sewer stationing. House lateral stakes shall be marked to indicate cut, sewer stationing and lot number.

### **12.4.2 WORK INCLUDED**

Principal items of Work for the construction of sewer mains and laterals shall include, but not be limited to, the following:

- Traffic Control
- Clearing and grubbing or pavement removal
- Odor control and temporary handling of sewage
- Trenching and shoring
- Pipe bedding
- Pipe laying
- Construction of structures
- Placing and compacting of backfill
- Balling and cleaning of sewer
- Air testing of sewer
- Paving or grading over trench
- Raising manhole covers to grade
- Final inspection.

### **12.4.3 SCHEDULE**

The Contractor shall submit a schedule to the Engineer outlining his proposed construction operation. Whenever the Contractor varies the period during which work is carried on each day, the Contractor shall give due notice to the Engineer so that proper inspection may be provided. At such time as the Contractor's work on the sewer becomes less than a full day's activity, it shall be the Contractor's responsibility to notify the Inspector, on a daily basis, of the Work requiring inspection. Any Work done in the absence of the Inspector shall be subject to rejection. Inspections shall not be scheduled on Fridays without prior permission by the District.

### **12.4.4 NOTICE**

Notice shall be given to the Engineer at least two working days in advance of commencement of work.

### **12.4.5 PERMITS**

The Owner (s), Developer, or their Contractor shall secure all excavation permits and all licenses required for the Work. Copies shall be recorded with the District prior to commencement of work. No permits will be issued without payment of permit fees; if funds are paid by other than certified check, the permit will be issued when the check clears the bank.

Special attention is called to the District's connection charges and it shall be the Owner's responsibility to ascertain these charges and pay for such prior to any connections to the District sewerage facilities, including lateral connections at property lines.

#### **12.4.6 STOP ORDERS**

If the Contractor (for the Owners or Developer) fails to prosecute the work, or any separate part thereof in accordance with the notes, details, plans, or the applicable portions of these specifications, or the permit requirements therefore, the District may, without prejudice to any other right or remedy, serve written notice upon the Contractor and the sureties of the intention to terminate all work by the Contractor. The said notice will contain the reasons for such intention to terminate all work by the Contractor and, unless, within 10 days after the service of such notice, such violations cease, and satisfactory arrangements for the corrections thereof are complete, the final termination notice shall be issued.

In the event of any such termination, the District shall immediately serve written notice thereof upon the surety and Contractor. The surety shall then have the right to take over and perform the Contract provided, however, that, if the surety within 15 days after the serving of a notice of termination does not give the District written notice of its intention to take over and perform the work, or does not commence performance thereof within 30 days from the date of serving said notice, the District may take over the work and prosecute the same to completion by Contract or by any other method it may deem advisable for the account and at the expense of the Contractor and the sureties, who shall then be liable to the District for any excess cost or other damage occasioned the District thereby. In such event, the District may, without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plants, and other property belonging to the Contractor that may be on the work site and be necessary therefore. For any portion of such work that the District elects to complete by furnishing its own employees, materials, tools, and equipment, the District shall be compensated for such in accordance with the schedule of compensation for force account work.

#### **12.4.7 CHANNEL OF COMMUNICATION**

Any notice required or given under the contract shall be in writing, be dated, and signed by the party giving such notice or his duly authorized representative, and be served as follows:

- If to the District: by personal delivery or by deposit in the United States mail.
- If to the Contractor: by personal delivery to the Contractor or to his authorized representative at the site of the project or by deposit in the United States Mail.
- If to the Surety or any other person: by personal delivery to said Surety or other person or by deposit in the United States mail.

All mailed notices shall be in sealed envelopes, shall be sent by certified mail with postage prepaid, and shall be addressed to the addresses indicated in the Contract Documents, or such substitute addresses which a party designates in writing and serves as set forth herein.

#### **12.4.8 CONTRACTORS LICENSE**

All work shall be performed by a contractor licensed in the State of California with the designation of Class A or C-42.

#### **12.4.9 INSURANCE**

Prior to commencement of subject work, the Contractor, in addition to other requirements with respect to insurance, shall provide the District with a Certificate of Insurance in the amount of \$1,000,000 General Liability policy. A Certificate of Insurance shall be presented to the District before inspection is scheduled and performed. If the permit connection is for an agency or a City, the District shall be added to their policy as an additional insured endorsement. Higher insurance requirements may be required depending on the scope of work and will be determined by the District when the permit is issued.

#### **12.4.10 LEGAL RELATIONS AND RESPONSIBILITY**

The Contractor shall keep himself fully informed of all laws, ordinances and regulations which in any manner affect those engaged or employed in the Work, or the materials used in the Work, or which in any way effect the conduct of the Work and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the plans, drawings, specifications or other documents in relation to any such law, ordinance, regulation, order of decree, the Contractor shall forthwith report the same to the District in writing. The Contractor shall at the time observe and comply with and shall cause all of his agents and employees to observe and comply with all such existing and future laws, ordinances, resolutions, regulations, orders and decrees and shall protect and indemnify the District and the Board of Directors, and all of its and their officers and agents, against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

#### **12.4.11 FOUNDATIONS OR UNSUITABLE MATERIAL**

If excessively wet, soft, spongy, unstable or similarly unsuitable material is encountered at the surface upon which the bedding material is to be placed, the unsuitable material shall be removed to a depth as determined in the field by the Engineer and replaced with 3/4-inch maximum crushed base rock.

#### **12.4.12 OVEREXCAVATION**

All overexcavation as determined by the Engineer shall be rectified by the placement of 3/4-inch maximum crushed rock base to the springline of the pipe.

## **12.4.13 ODOR CONTROL**

### **1 GENERAL**

#### ***Work Description***

When the Work of the project includes opening live sewer lines, the Contractor shall adhere to the following odor control requirements.

The Contractor shall furnish all labor, materials, and equipment required, and shall carry out effective measures wherever and as often as necessary to prevent the discharge of a nuisance odor in keeping with the District's goal of no odor complaints. During construction, the Contractor shall notify the Engineer and the Inspector at least forty-eight (48) hours in advance when potential odor-causing activities are scheduled for construction.

#### ***Contractor Submittals***

The Contractor shall develop and submit to the Engineer, for review, an Odor Control / Monitoring Plan (OCMP). The OCMP shall be developed and submitted to the Engineer a minimum of twenty one (21) days prior to any construction activity that may potentially release nuisance odors. The OCMP shall contain the following:

- Site locations of all potential odor-causing activities within the Work area
- Scheduled construction date(s)
- Expected construction duration(s)
- List of potential receptors and distances to those receptors
- Proposed locations of odor monitors
- Plan for odor monitoring using the gas monitors
- Catalog cuts for gas monitors
- Operation and maintenance procedures to prevent odors
- Mitigation measures
- Emergency contact numbers
- Emergency equipment.

### **2 PRODUCTS**

The Contractor shall obtain fully functioning and calibrated hydrogen sulfide gas analyzers to measure hydrogen sulfide emission concentrations from potential odor areas during construction.



### ***Hydrogen Sulfide Gas Monitors***

The Contractor shall provide a minimum of two (2) low range hydrogen sulfide monitors to measure and record concentrations from 0.01 to 2.0 ppmv and include the ability to print out results in graphic formats. The preferred equipment shall be Low Range OdaLog Loggers as manufactured by App-Tek International Pty. Ltd., Jerome Meter as manufactured by Arizona instruments, or equal.

### ***Field Olfactometer***

The Contractor shall provide one field olfactometer to determine the overall odor of all emissions. The Nasal Ranger by St. Croix Sensory shall be the preferred instrument with the standard dial which provides dilutions of 2, 4, 7, 15, 30, and 60 D/T, or equal.

### ***Gravel Bags***

The Contractor shall provide gravel bags to hold the rubber sheeting in place.

## **3 EXECUTION**

Odor control measures shall be implemented during all activities that include, but are not limited to: opening of the collection system facilities (i.e., pipes, structures), demolition, tie-ins, sewage bypassing, and dewatering.

The Contractor shall seal all structures properly to eliminate the potential for release of nuisance odors.

The Contractor shall stop all work that creates a complaint, and mitigate the cause to the satisfaction of EOCWD prior to resuming work.

## **12.4.14 TEMPORARY HANDLING OF SEWAGE FLOW**

### **1 GENERAL**

#### ***Work Description***

The Contractor shall be responsible for the temporary handling of sewage throughout the construction of this project. This includes field verification of flows; design, installation and operation of a temporary pumped bypass system; and a Spill Prevention, Control and Countermeasure Plan (SPCCP), including a Contingency Plan detailing actions to be taken in the event of a sewage spill. All spills shall be contained and returned to the sewer system.

The Contractor may use flow through piping (in-line bypass) installed in the manhole as a bypass solution. In-line bypasses shall be as large as possible and verified continuously to be free flowing.

Aboveground by-pass sewage pumping is permitted upon approval by the Engineer and in accordance with the requirements of this specification section. If aboveground bypass is required, a single aboveground HDPE bypass pipeline and system shall be provided with pumps, piping and vehicle crossing ramps as specified herein. All aboveground sewage bypassing systems shall be sealed to eliminate the potential for release of nuisance odors.

The Contractor shall be responsible for all aspects of the mobilization, set-up, operation, testing, management, 24-hour trained personnel for monitoring and operation, pressure testing, spill containment at all points of suction, discharge, and ramp crossing connections, spill management including clean up, replacement of damaged property and fines.

### ***Contractor Liability***

The Contractor shall be responsible for the continuity of sanitary sewer service to each facility connected to the sewers during the execution of the Work to be performed. In the event that sewage backup occurs and enters dwellings or other structures due in any part to a failure of the bypass piping system, the Contractor shall be responsible for cleanup, repair, property damage costs, fines imposed by jurisdictional authorities, and all claims arising therefrom. All spills shall be contained and returned to the sewer system.

In the event the Regional Water Quality Control Board levies a fine on the District because of a sewage spill caused by the Contractor (directly or indirectly) due to lack of attention to procedures or other negligence, the Contractor shall be held responsible and liable for reimbursing EOCWD for the entire amount of each fine imposed.

### ***Contractor Submittals***

Unless otherwise indicated, the following shall be submitted to the Engineer, for each in-line bypass or aboveground bypass installation, fifteen (15) days after receiving the Notice to Proceed, as specified herein:

- Plans showing proposed temporary handling of sewage flow procedures, routing and protection of bypass lines, containment areas, equipment location, schematic of pump set-up and discharge, and proposed sequencing.
- Shop drawings for the sewage bypass pipe material and fittings pipe repair kits and procedures, spill recovery mats, and video camera.

- Complete bypass pump system details, field verified and certified characteristic curves, documentation on electrical systems, controls, and instrumentation.
- Flow calculations for sizing pumps and piping, signed and stamped by an engineer Registered in the State of California.
- Spill Prevention, Control, and Countermeasure Plan as described herein, including a Contingency Plan containing actions to be taken in the event of a sewage spill.
- For all aboveground bypasses, the Contractor shall provide a map of the construction site indicating locations of the following:
  - 1) All storm drains in the area
  - 2) Sewer manholes in the area
  - 3) Bypass equipment
  - 4) Staging area / construction area.

## 2 PRODUCTS

### ***Pumping Equipment***

Pumps shall be engine-driven, variable-speed, self-priming non-clog sewage pumps. The Contractor shall use pumps of sufficient capacity to meet maximum flow within the pipe to prevent spills. All pumps shall be capable of cycling from 0 gpm to the required pump capacity.

The Contractor shall perform flow monitoring to verify sewage flows for pump sizing. All pumps considered for this bypass Work shall be capable of passing 3-inch sized solids.

Standby pumping equipment shall be at the site and connected to the system continuously during pumping to provide 100 percent standby pumping capacity. The Contractor shall provide sufficient manpower to continuously monitor and service the pumping equipment on a 24-hour basis while in operation, to activate standby equipment, and clean pumps due to ragging, if necessary. The Contractor-provided bypass system manpower shall be trained in pump operation and maintenance and be fully capable of operating all aspects of the bypass system.

Pumps shall be capable of running twenty four (24) hours per day as required to complete the Work.

All pumps and standby pumps shall be engine-driven and shall be critically-silenced for sound control in accordance with the applicable city's noise provisions.

The Contractor shall be responsible for traffic barricades and temporary chain-link fencing around bypass pumps. Sound attenuating acoustic blankets shall be installed on temporary chain-link fencing to provide an additional level of sound dampening over the critically-silenced pump enclosures.

### ***Bypass Piping***

Aboveground bypass piping shall consist of one temporary aboveground HDPE pipeline, DR17 minimum. Pipe shall be sized to handle maximum flow within the pipe.

The HDPE pipe shall be laid above ground and shall be provided with manufactured road crossings at each road or driveway. A ramp bypass shall be prefabricated for each size of ramp provided to allow removal and cleaning of the bypass ramp in the event of blockage. One spare road crossing of each size shall be stored on the project site for quick replacement of duty crossing if needed.

### ***Manhole Level Sensors with Alarm***

Each bypass suction wetwell or manhole shall be fitted with a liquid level sensor connected to an audible alarm and light. Level shall be set to indicate a pumping failure as early as possible.

### ***Rubber Matting for Blocking of Storm Drain Inlets***

Rubber matting shall be premium grade neoprene sheet, 1/8-inch thick minimum, 48 inches wide; 60 to 70 durometer.

## **3 EXECUTION**

### ***Spill Prevention, Control and Countermeasure Plan (SPCCP)***

The Contractor shall prepare a Spill Prevention, Control, and Countermeasure Plan (SPCCP). The Plan shall include preventative measures to be taken to prevent a wastewater spill, and also actions to be taken in the event of an accidental wastewater spill. Maximum importance shall be placed on protecting spilled wastewater from reaching storm drains. The SPCCP shall contain any calculations required for sizing equipment. The Contractor shall submit for the Engineer's acceptance all duty and emergency equipment for containment, cleanup, and repair of any spill. Specifics for each bypass installation shall include, but not be limited to, the following, as applicable:

- Pipe repair kits

- Spare inflatable pipe plugs
- Spare pipe sections, and other relevant equipment
- Spare valves
- Spare vehicle ramps
- Standby pumping truck(s)
- Secondary containment around duty and standby pump installations.

The SPCCP shall also contain the names and telephone numbers of at least three (3) Contractor's staff members on who can be contacted 24 hours per day by phone and brought on-site at any time to address on-site emergencies.

### ***Vacuum Tanker Trucks***

The Contractor shall provide reservation of two vacuum-capable tanker trucks and personnel. Such equipment shall be available to the project for on-site response within 30 minutes upon receiving a notice over 24 hours per day for the duration of the field work.

### ***Protection of Storm Drains***

The Contractor shall protect storm drains during construction. In the event of a spill, no sewage shall be allowed to flow into any storm drain. The storm drain inlets shall be blocked with rubber matting and sand bags. Rubber matting shall overlap storm drain inlets by a minimum of 24 inches on all sides. For inlets located in traffic areas, the grating may be removed, wrapped with rubber sheeting, and reinstalled to provide a barrier to the inlet.

### ***Spill Report***

In the event of a sewage spill(s), the Contractor shall obtain from the Engineer the up-to-date EOCWD Collection System Problem Report form, fill it out and submit it with the associated photos to the Engineer for each spill.

### ***Contact***

In the event of a sewage spill(s), the Contractor shall immediately notify District's Plant 1 Control Center and provide the following preliminary information:

- Date and time of the spill
- Location of the spill
- Volume of the spill
- Did the spill enter the storm drain.

**12.4.15      DEWATERING**

The Contractor shall provide and maintain at all times during construction ample means and devices with which to promptly remove and properly dispose of all water from any source entering excavations or others parts of the Work.

No concrete footings or floors shall be laid in water nor shall water be allowed to rise over them until the concrete or mortar has set at least 8 hours. Water shall not be allowed to rise against unshored walls. There shall be dewatering operations continuously to protect the jobsite.

**12.4.16      TRENCH WIDTH**

Sewer trenches shall be excavated in such a manner as to produce a trench no less than 12 inches and not more than 16 inches in width over the largest outside diameter of pipe. Trench width shall be measured at a point 6 inches above top of pipe.

Where trench width exceeds the maximum specified above, overwidth bedding details shall be required.

All trenches shall be in compliance with the minimum requirements of OSHA at all times.

**12.4.17      TRENCH BACKFILL**

**1      GENERAL**

All trenches shall be backfilled after pipes, fittings and appurtenances have been installed. Native backfill material shall be free from all pavements, wood trash, rocks larger than 6 inches in any dimension, or other deleterious material. Imported backfill shall be free from organic or peat soils in addition to the above requirements. Trench shall be compacted to a minimum relative density of 90 percent as determined by Cal Trans Test No. "California 216 F" or Cal Trans 231. Note that the top 18 inches of trench compaction shall be compacted to 95-percent relative density. If approved by the local jurisdiction, 2-Sack Slurry can be used in lieu of backfill and compaction. Requirements of the local agency having jurisdiction in public rights-of-way shall take precedence in all cases.

**2      PUBLIC STREETS**

Backfill and compaction in public streets, above the pipe zone, shall be in accordance with the requirements of the local agency having jurisdiction.

**3      NON-PAVED AREAS**

Material shall be as specified above. Backfill from the pipe zone to the natural ground surface shall be compacted in lifts not to exceed 18 inches and to a

minimum relative density of 90 percent. The Contractor shall dispose of excess material, off-site, in a legal manner.

## **12.4.18 HOUSE LATERALS**

### **1 GENERAL**

The Contractor shall install house laterals and wye or tee branch fittings of the size and location as indicated on the Plans. The Contractor shall not proceed with placement of the house laterals until such time as the surveyor has staked the laterals at sewer center and property lines.

No bends greater than one-eighth shall be used in the construction of house laterals within public right-of-way. Laterals shall be joined to wye branch fittings at the sewer main by the use of eighth bends positioned to obtain the desired lateral slope. All fittings or laterals that are to be left unconnected shall be plugged with a vitrified clay or neoprene stopper as specified herein.

### **2 DEPTH AND SLOPE OF LATERALS**

Minimum cover over house laterals at the property line shall be 5 feet. Slope of house laterals shall be 1/4 inch per foot (0.02 ft/ft) minimum. In cases where property grades relative to the sewer are critical, the Engineer may approve a lesser slope.

### **3 LOCATION MARKING**

The ends of all house laterals shall be marked as follows:

- In cases where laterals are to be connected to the dwelling unit during the same phase of construction, and where curb improvements are included, the Contractor shall mark each house lateral by chiseling the letter "S" 1-1/2 inches high on the top of the curb.
- In cases where laterals are not to be connected to the dwelling unit, the Contractor shall place a 2 x 4 treated redwood stake extending vertically from the end of the lateral to within 3 feet of finish grade. In addition, where curbs are to be constructed, the Contractor shall chisel the letter "S" on the top of the curb.

## **12.4.19 MANHOLES**

### **1 GENERAL**

Sewer manholes shall be constructed in accordance with the Standard Drawings and at the locations shown on the Plans. The manholes shall be constructed of

precast concrete manhole units in accordance with the section entitled "Precast Manholes" herein and the related Standard Drawings. Manholes shall be built without steps. Manholes on piping over 12-inch nominal size shall be lined with PVC.

## **2 ON NEW SEWERS**

The manhole base shall be poured in place against wood or sandbag forms with 650-WC-4000 Portland cement concrete. All wood forms shall be removed prior to slurry placement. The manhole stubs and sewer main shall be set before the concrete is placed and shall be rechecked for alignment and grade before the concrete has set. The various inlets and outlets to the manhole shall be located as indicated on the plans and as detailed in the Standard Drawings. All transitions shall be smooth and of the proper radius to give an uninterrupted transition of flow. The radius shall be not less than the inlet pipe radius. The concrete shall have a slump not greater than 3 inches. The concrete base may be shaped with a wood float and shall receive a hard steel trowel finish prior to the concrete setting. In the event additional mortar is required after initial set has taken place, the surface to receive the mortar shall be primed, and the mortar mixed with an approved adhesive in the amounts and proportions as recommended by the manufacturer and as directed by the Inspector in order to secure as chip-proof a result as possible. The bases shall be set a minimum of 12 hours before the manhole construction is continued. In certain critical situations, the time of setting may be reduced upon approval of the Engineer.

Manhole shafts shall be joined with a 1-1/2-inch square bead of plastic sealing compound in the joint groove toward the outside of the manhole and on the shoulder immediately above the first bead. The joint to the base shall have a third bead placed at the inward corner of the groove. Grade rings shall be joined with a minimum thickness of 1/2 inch of cement mortar to form a watertight and smooth joint. Any infiltration of ground water shall be stopped by a repair approved by the Engineer.

Whenever new manholes are constructed in unpaved areas, the manhole cover shall be set 18 inches above finish grade, or as directed by the Inspector.

In all cases during construction, the Contractor shall place 1/2-inch plywood inserts on the manhole shelf to prevent debris from entering the sewer in the event the manhole protection cover is disturbed.

## **3 ON EXISTING SEWERS**

While excavating in the vicinity of the existing sewer, Contractor shall use extreme care to prevent damage to the sewer pipe. No mechanical equipment shall be used in the vicinity of the existing sewer. Hand digging and/or the use of a vacuum excavator is required to ensure no damage to the existing sewer pipe. The base shall be poured in place against wood or sandbag forms with Class "A" 650-WC-4000 Portland cement concrete. Manhole stubs shall be provided on both sides of the main and shall be rechecked for alignment and grade before



concrete has set. All wood shall be removed prior to placement of slurry. Manhole stubs shall be plugged with factory plugs, or brick and mortar for pipe over 21 inches, prior to connecting the incoming sewer. This plug shall not be removed until the offsite Work has been completed and the sewer cleaned, and with the approval of the Inspector.

Pipe saw cutting shall take place only under inspection by the District and only after the manhole and onsite sewer have been completed and cleaned. Sewer main sizes 12 inches and larger shall be sawcut to remove the top portion of the pipe. Care shall be taken to prevent cuttings from entering the existing sewer. The Contractor shall be required to have the sewer trunk balled and cleaned by an experienced sewer maintenance contractor if, in the opinion of the Inspector, excessive amount of cutting or debris has entered the sewer. Upon refusal of the Contractor to clean the District line immediately, the District staff will clean the line and the Contractor shall pay all expenses incurred by the District. All equipment and materials shall be securely fastened by a rope at all times while in a manhole.

After cut out, all rough edges shall be worked to produce a true and neat opening. The edges of the pipe shall then be filled and smoothed with mortar. The surface to receive mortar shall be primed and the mortar mixed with an approved adhesive in the amounts as recommended by the manufacturer and as directed by the Inspector. For PVC-lined manholes, weld the manhole liner to the PVC pipe liner.

The bases shall be set a minimum of 12 hours before the manhole shafting is set. In certain critical situations where traffic is a problem in the opinion of the Inspector, the time of setting may be reduced to 6 hours provided a 2-percent mix of calcium chloride is added to the concrete.

Manhole shafting shall be as specified under the section entitled "On New Sewers" herein.

Whenever new manholes are constructed in unpaved areas, the manhole cover shall be set 18 inches above finish grade or as directed by the Inspector.

Whenever grading or paving operations follow pipe removal, the Contractor shall place 1/2-inch plywood inserts on the manhole shelf to prevent debris from entering the sewer in the event the manhole protective cover is disturbed.

## **12.4.20 CURED-IN-PLACE PIPE**

### **1. GENERAL**

The work involves the repair or rehabilitation of existing sanitary sewers using steam-cured or hot-water cured CIPP per Greenbook 500-1.4. The Contractor shall furnish all labor, materials, equipment, traffic control, infiltration control, flow bypassing, and appurtenant incidentals for the lining of various lengths of pipelines.

Information relative to structures numbers, pipe sizes, pipe materials, and pipe lengths have been shown on the on the attached documents (record drawing, map book page, CCTV inspection report and CCTV inspection video).

If applicable, removal and replacement of fences, repair to yards, lawns, sidewalks, driveways, and other public or private property, due to actions or processes related to the work being performed shall be included in the cost of the Work.

The CIPP shall consist of a resin-impregnated flexible tube that is inverted into the existing force main pipeline and expanded to fit tightly against the host pipe via steam or water cure (project to specify whether both curing methods are acceptable or just one). The resin system shall be cured by elevating the temperature of the steam or water used for the inflation to a sufficient enough level for the initiators in the resin to effect a full polymerization (hardening). The finished new pipe shall, after curing, be a monolithic fiber and resin composite matrix that will be chemically resistant to withstand exposure to domestic sewage.

EOCWD reserves the right to negotiate with the Contractor in situations where a pipe repair or pipe rehabilitation need may be better served at less cost by the use of a technology other than hot-water-cured CIPP, and EOCWD may use this Contract for said repair so long as EOCWD and the Contractor reach an agreement on the scope of work and price. This work shall be in accordance with the requirements of the Greenbook where applicable.

CIPP installation work includes:

- a. Notification of affected addresses 72 hours in advance of work.
- b. Traffic Control.
- c. Plugging and/or By-Passing Existing Sewage Flows
- d. Cleaning the pipe.
- e. Pre-inspection via closed-circuit television (CCTV) to confirm and document the cleanliness of the pipe and to identify existing defects, roots, and infiltration.

- f. When necessary, re-cleaning to: cut and remove all roots, cut or grind all protruding laterals, and/or remove all tuberculation, grease, debris and other deposits.
- g. When necessary, performance of infiltration repairs via chemical grouting or other method approved by EOCWD.
- h. Performance of a final, pre-installation CCTV inspection that documents that the pipe is ready for CIPP installation.
- i. Installing CIPP.
- j. Curing the liner by steam or hot water.
- k. When present, reestablishing existing sewer service lateral connections using a remote-controlled unit and sealing the lateral connection using a PVC "top hat" acceptable to EOCWD.
- l. Inspecting the final CIPP installation via CCTV (post-inspection) in the presence of the EOCWD inspector.
- m. Repairing any defects in the installed CIPP at no additional cost to EOCWD. This work, if required, shall be followed by a second post-inspection by CCTV at no additional cost to EOCWD, confirming the acceptability of the repair.

The rehabilitation of sewers shall be accomplished by the installation of a resin-impregnated flexible tube which, when cured-in-place, shall be continuous and tight-fitting over the entire length of an insertion run between two or more manholes or access points and shall be free from visual defects such as foreign inclusion, dry spots, pinholes, and delamination. Overlapping or other means of jointing the CIPP between existing manholes is unacceptable and shall result in the section of sewer and CIPP between existing manholes to be removed and repaired by the CONTRACTOR at the CONTRACTOR's expense.

The CIPP shall extend the full length of the sewer and provide a structurally sound, jointless and water tight new pipe within the existing sewer to withstand all imposed hydrostatic loads. The CONTRACTOR shall be responsible for proper, accurate and complete installation of the CIPP using the system selected by the CONTRACTOR.

The CIPP shall fit sufficiently tight within the existing sewer so as to not leak at the manholes, at service connections, or through the wall of the installed CIPP liner. If leakage occurs the CONTRACTOR shall seal these areas to stop all leakage using a material compatible with the CIPP as directed by the ENGINEER at no additional cost to EOCWD. If leakage occurs, the liner shall be repaired or removed as recommended by the CIPP manufacturer.

The CIPP shall be designed for fully deteriorated pipe conditions as defined in ASTM F1216. The installed CIPP shall meet or exceed all Contract specified physical properties listed in Subsection 4.3, Table 1.

The installed CIPP system shall have previously passed the Green Book Chemical Resistance Test Section 211-2 and ASTM D5813 and accepted for inclusion in the Green Book as an acceptable rehabilitation material per Green Book Part 5 System Rehabilitation Section 500 – Pipeline.

The CONTRACTOR shall be responsible for confirming locations of all lateral service connections prior to installing the CIPP. All existing and active lateral service connections shall be reinstated per Green Book Section 500-1.1.7 Miscellaneous Service Connections. Service connection sealing shall be performed in accordance with Green Book Section 500-4 Service Lateral Sealing Connection. The lateral sealing connection shall be compatible with the CIPP material and ensure a positive connection to the lateral section. It shall be the responsibility of the CONTRACTOR to clear the sewer of obstructions, including protruding laterals, that will interfere with the installation and long-term performance of the liner.

The CONTRACTOR shall furnish all samples for product testing at the request of the EOCWD.

Neither the CIPP system, nor its installation, shall cause adverse effects to any of the EOCWD's processes or facilities. The use of the product shall not result in the formation or production of any detrimental compounds or by-products at any EOCWD facility. The CONTRACTOR shall notify the ENGINEER and identify any by-products produced as a result of the installation operations, test and monitor the levels, and comply with any and all local waste discharge requirements. The CONTRACTOR shall cleanup, restore existing surface conditions and structures, and repair any CIPP segments determined to be defective. The CONTRACTOR shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses, and property owners or tenants.

The Bid prices submitted by the CONTRACTOR, shall include labor, equipment and materials for the various Bid items necessary for furnishing and installing, complete in place, CIPP in accordance with this Specification section. All items of the Work not specifically mentioned herein which are required to make the product perform as intended and deliver the final product as specified herein shall be included in the respective lump sum and unit prices Bid.

The CONTRACTOR shall perform all Work in a safe manner as specified elsewhere in the Contract Documents.

The CONTRACTOR shall be responsible to measure the inside diameter of the pipeline (or pipelines) which are to receive CIPP.

## 1.1 QUALIFICATIONS

Contractor shall meet all of the following qualifications:

- a. Contractor must have a minimum of 5 years of experience installing CIPP.
- b. All staff on a project site shall be trained in confined space rescue and have all necessary rescue equipment on site during the duration of the project.
- c. Technicians performing the pre-installation CCTV inspection and post-installation CCTV inspection shall be Pipeline Assessment Certification Program (PACP) certified by the National Association of Sewer Service Companies (NASSCO).
- d. Contractor's project site foreman or project manager shall be certified as a CIPP inspector by the NASSCO Inspector Training and Certification Program (ITCP).

All required certificates shall be provided to EOCWD as part of the Contractor's bid, for review by EOCWD.

## 1.2 REFERENCE DOCUMENTS

Contractor shall adhere to the latest editions of the reference documents listed below. If there is a conflict between the requirements of this Scope of Work (SOW) and those of the reference documents, the requirements of this SOW shall prevail.

| <u>Reference</u> | <u>Title</u>  |
|------------------|---|
| ASTM D638        | Standard Test Method for Tensile Properties of Plastics   |
| ASTM D790        | Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials |
| ASTM D2990       | Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics.                         |
| ASTM D5813       | Standard Specification for Cured-in-place Thermosetting Resin Sewer Piping Systems  |

- ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-impregnated Tube
- ASTM F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
- ASTM F 2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP).
- ASTM F2304 Standard Practice for Sealing of Sewers Using Chemical Grouting
- ASTM F2454 Standard Practice for Sealing Lateral Connections and Lines from the Mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting

Standard Specifications for Public Works Construction (Greenbook)

Greenbook Section 500-1 - Pipeline Rehabilitation

Greenbook Section 500-1.1 - Requirements

Greenbook Section 500-1.4 - Cured-in-Place Pipe Liner

Contractor shall immediately notify EOCWD if conflicts arise between this SOW and a manufacturer's requirements prior to proceeding with the work.

### 1.3 REQUIRED SUBMITTALS

The following submittals shall be provided to EOCWD for each repair:

- a. Contractor's detailed work plan covering mobilizing, cleaning operations, pre-CCTV inspection, bypass pumping, traffic control, debris removal procedure, mineral deposit grinding procedure, chemical grout sealing procedure, installation procedure, method of curing, service reconnection, quality control, testing to be performed, final CCTV inspection, and all else necessary and appropriate for a CIPP liner installation.

Submit a general work plan for all work anticipated, followed by specific work plans for each installation. Specific plans shall contain additional site-specific general plan modifications or additions and any exceptions. Specific plans

shall include a detailed installation schedule conforming to the requirements of this Contract. Plans shall include complete manufacturer's information on the specific CIPP product to be used. No work shall be performed by the Contractor until EOCWD has approved the submittal in writing.

- b. Certification demonstrating
  - Contractor is currently licensed by the State of California to perform CIPP installation.
  - NAASCO PACP certifications for personnel performing CCTV work.
  - NAASCO ITCP CIPP Inspection certification for foremen or project manager.
- c. The lead personnel including the superintendent, the foreman and the lead crew personnel for the CCTV inspection, resin wet-out, the CIPP installation, CIPP curing and the robotic service reconnections must have a minimum of three (3) years of total experience with the CIPP technology proposed for this Contract and must have demonstrated competency and experience to perform the Work contained in this Contract. The name and experience of each lead individual performing Work on this Contract shall be submitted.
- d. All CIPP installation leads shall be NAASCO ITCP certified for CIPP. The CONTRACTOR shall provide a copy of the lead's certificate. The lead shall be present on site at all times during the installation of the CIPP.
- e. All CCTV inspection shall be performed by a CCTV inspection operator who is NAASCO PACP certified. The CONTRACTOR shall submit a copy of the operator's certificate.
- f. Confined Space Entry and Rescue Plan as specified elsewhere in this Scope of Work to demonstrate proper training and certification of all individuals entering the manhole and all individuals providing support during manned entry.
- g. Engineering design calculations, in accordance with ASTM F1216, for each length of CIPP to be installed including the thickness of the CIPP. It shall be acceptable for the CONTRACTOR to submit a design for the most severe sewer condition and apply that design to all of the sewer sections. These calculations shall be performed and certified by a qualified Professional Engineer registered in the State of California. All calculations shall include data that conforms to the requirements of this Specification section.
- h. Short and long term physical properties of component materials and construction, showing conformance with Greenbook and pertinent ASTM material requirements.
- i. Manufacturer requirements and recommendations for material storage and temperature control; CIPP handling; installation; resin heating and curing;

trimming and finishing; and QA/QC procedures.

- j. CIPP end and connection sealing materials and methods to be used to seal ends of sectional repairs and connect to manholes. Include method, procedure, and information to provide either an adhesive, water-tight seal to the sewer; or a water-tight mechanical seal between the cured liner and sewer pipe wall which will not prohibit the installation of future structural liners, or interfere with sewer cleaning equipment or CCTV inspection equipment.
- k. For service lateral connections, PVC “top hats” shall be installed to provide a water-tight seal between the cured liner and sewer pipe wall; or between the service line adapter and the sewer and the service lateral wall.
- l. Third party 10,000-hour, 50-year Flexural Creep Modulus test data demonstrating compliance with ASTM D2990.
- m. Safety Data Sheets (SDS) for all hazardous chemicals used or expected to be on-site including resin, catalyst, cleaners, and repair agents.
- n. Repair and replacement procedures recommended by the CIPP manufacturer.
- o. Traffic control plans approved by the authority(s) having jurisdiction over a particular project site(s).
- p. Pre-installation CCTV inspection report and video showing the pipe has been properly cleaned and all debris, roots, calcium deposits, and other foreign objects have been removed.
- q. Post-installation CCTV inspection report and video showing the CIPP has been installed properly and without defects.
- r. CIPP installation quality control reports including both:
  - A complete description of the proposed wet-out procedure for the proposed technology
  - The Manufacturer’s recommended cure schedule - for each diameter and thickness of CIPP to be installed.
  - Outline of testing procedures for resin and products according to ASTM standards prior to beginning the Work, and certified test results after completion of the testing
  - Wet-out logs that indicate calculated volume of resin required, volume of resin used, wet out date, and other pertinent information
  - Curing logs that indicate installation times, pressures, and temperatures during warm up, exothermic, and cool down.
- s. A field-cured liner sample from each CIPP installation, if requested by



EOCWD. Restrained samples should be provided where feasible.

- t. Two-year warranty provided by the Contractor. The Contractor shall warrant the installation of the liner/repair system for a period of two (2) years after final acceptance of the work.
- u. Procedures, methods, and reporting of sewage monitoring, spills, and handling.
- v. Notifications to the public regarding the Work, construction schedule, impacts to public right of way access, and parking, and contact information shall be provided to EOCWD first prior to notifying the impacted homeowners and businesses

#### **1.4 PERMITS AND ACCESS**

Contractor shall prepare, submit, and acquire all required encroachment and traffic control permits required by the authority(s) having jurisdiction over a particular project site(s) when pipeline rehabilitation is necessary within their jurisdiction(s) or right-of-ways.

EOCWD will reimburse the Contractor for permit fees, upon written request, after demonstrating proof of payment and acceptance by the authority(s) having jurisdiction that the permit application and fees are acceptable.

#### **1.5 TRAFFIC CONTROL**

All traffic control shall be in accordance with the latest City, County, or California Department of Transportation regulations and based on the speed limits posted in the work zones. Contractor shall apply for all traffic control permits and pay all fees for said permits. Permits will be reimbursed as indicated in Section 3.6 of this SOW.

Contractor will provide all the necessary traffic control equipment and staff to adhere to the regulations set forth by the authority(s) having jurisdiction and in accordance with the traffic control plans that may have been reviewed and approved by said authority(s).

## **1.6 SEWAGE MONITORING**

Contractor shall be responsible for monitoring upstream sewage flow at all times during the work and immediately notify EOCWD's representative(s) of any manhole surcharging or overflow. Contractor shall contain and control all sewage flows in the pipe. Contractor shall provide means to contain and control any potential overflows to protect property and storm drainage from contamination or physical damage where any potential spills may end up. The Contractor shall be responsible for paying the full amount of any fines levied by others toward EOCWDEOCWD as a result of the Contractor's work where negligence, shoddy work, improper preparation or procedures result in sewage spills.

Contractor shall be responsible for any fines levied by others; reimbursement to EOCWD or others of any incurred costs, damage, cleanup, restoration of flow, and any disruption of service costs to customers as of a result of Contractor's work. This is in addition to any and all costs incurred by the customer.

Contractor shall also notify EOCWD's Control Center immediately of any apparent non- Contractor related spills and/or any abnormal conditions.

## **1.7 CONFINED SPACE ISSUES AND SAFETY ISSUES**

All manholes in this work are defined as Title 8 Permit Required Confined Spaces. The Contractor's attention is directed to the General Industry Safety Orders of the State of California, Article 108, Confined Spaces, Section 5157 (Title 8 of California Code of Regulations, Sections 5167, 5157, and 5158). Contractor shall attend a safety meeting at EOCWD prior to the start of work for the purpose of reviewing the Contractor's safety manuals, its knowledge of Title 8, and to discuss all safety aspects of the work. Manhole entry, if required, shall be conducted in strict accordance with permit required confined space entry regulations. These regulations include, at a minimum: entry permit, trained authorized entrant(s), attendant(s), entry supervisor(s), full body harness (with life line), mechanical retrieval device, continued force air ventilation, continuous air monitoring, communication system (minimum two types), and all other protective equipment that may be required. Work shall be conducted in accordance with all Federal, State, and local laws and regulations. The local fire department may be able to offer services for Confined Space rescue. Contractor shall make any and all arrangements necessary at no additional cost to EOCWD.

## **1.8 EOCWD'S EQUIPMENT AND LABOR**

EOCWD's equipment and labor, including EOCWD's representative(s) assigned to monitor the work, shall not be utilized by the Contractor at any time in the performance of the work. EOCWD representatives' presence shall

be accommodated by the Contractor and safe access shall be provided to all areas of the work for which observation or inspection may be required.

#### **1.9 GENERAL WORK HOURS**

Normal working hours are Monday through Thursday between 7:00 a.m. and 5:00 p.m. The only exceptions are if the sewage flow or diversion cannot be accommodated during those hours, the authority(s) having jurisdiction or the encroachment permit prohibits work during those hours, or if liner installation and preliminary lateral cuts cannot be completed in the normal working hours. For exceptions, the following shall apply:

All live laterals must be opened with a preliminary cut to relieve the flow the same day as the installation. The preliminary cuts shall be a smooth round cut with a minimum diameter of 3-inches. Final lateral cuts using a wire brush may be completed during normal working hours on a later day.

#### **1.10 NOISE CONTROL**

All equipment used during service shall be muffled and maintained in good operating condition. All internal combustion engine driven equipment shall be fitted with intake and exhaust mufflers that are in good condition. No air compressors or diesel engines will be permitted to operate between the hours of 5:00 PM and 7:00 AM, unless prior approval from EOCWD and any authority(s) having jurisdiction has been obtained.

#### **1.11 HOUSE KEEPING AND RUBBISH CONTROL**

Contractor shall keep the project site in a neat and clean condition, free from any accumulation of rubbish and debris. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the work site and shall establish regular intervals of collection and disposal of such materials and waste. Disposal of all rubbish and surplus materials shall be off the site of construction, at the Contractor's expense, in accordance with Federal, State and local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws and the requirements of the OSHA Safety and Health Standards for Construction

The Contractor shall cleanup and restore surface conditions and structures to their original condition, or better, upon completion of the work, at no additional cost to EOCWD.

## **1.12 ODOR CONTROL**

Contractor shall furnish all labor, materials, and equipment required and shall carry out effective measures wherever and as often as necessary to prevent the discharge of a nuisance odor from its operation into the atmosphere in such quantity as will violate the regulations of any legally constituted authority such as but not limited to those of the South Coast Air Quality Management District.

## **2. MATERIALS**

CIPP shall utilize vinyl ester resin as per Green Book Section 500-1.4.1 and shall be tested in accordance with the chemical resistance and other requirements of Green Book Section 211-2 Chemical Resistance Test (Pickle Jar). Proof of meeting these requirements shall be provided with the shop drawings for review and acceptance.

### **2.1 FABRIC AND PRELINER TUBE**

- A. Fabric Tube and Preliner Tube - Upon delivery, the outside layer of fabric tube shall be plastic coated with a material that is compatible with the resin system. Make allowance for circumferential stretching during inversion. Use a preliner tube sized to fit host pipe. Preliner tube shall be composed of 3-ply laminate sheet combining two layers of polyethylene film and high strength nylon cord grid formed into a tube sized to fit host pipe and shall be continuous for the entire length of host pipe.
- B. The fabric tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, ASTM F1743, and ASTM D5813. The fabric tube shall be capable of absorbing and carrying resins, constructed to withstand installation pressures and curing temperatures and have sufficient strength to bridge missing pipe segments, and stretch to fit irregular pipe sections. The CONTRACTOR shall submit certified information from the felt manufacturer on the nominal void volume in the felt fabric that will be filled with resin.
- C. The wet-out fabric tube shall have a uniform thickness and excess resin distribution that when compressed at installation pressures will meet or exceed the design thickness after cure.
- D. The fabric tube shall be manufactured to a size and length that when installed will tightly fit the internal circumference, meeting applicable ASTM standards or better, of the original pipe. Allowance shall be made for circumferential stretching

during installation. The tube shall be properly sized to the diameter of the existing sewer and the length to be rehabilitated and be able to stretch to fit irregular sewer sections and negotiate bends and fittings as shown on the Plans. The CONTRACTOR shall determine the minimum tube length necessary to effectively span the designated run between manholes. The CONTRACTOR shall perform pre-installation measuring of each pipe reach between MHs. The CONTRACTOR shall perform two measurements, the 12-6 o'clock measurement and 3-9 o'clock measurement before the liner is ordered to ensure liner fits the pipe without wrinkling. The CONTRACTOR shall verify the lengths in the field prior to impregnation of the tube with resin, to ensure that the tube will have sufficient length to extend the entire length of the run. The CONTRACTOR shall also measure the inside diameter of the existing sewers in the field prior to ordering the CIPP liner so that the CIPP can be installed in a tight-fitted condition.

- E. The outside and/or inside layer of the fabric tube (before inversion/pull-in, as applicable) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate, if applicable, vacuum impregnation and monitoring of the resin saturation during the resin impregnation (wet-out) procedure.
- F. No material shall be included in the fabric tube that may cause de-lamination in the cured CIPP. No dry or unsaturated layers shall be acceptable upon visual inspection as evident by color contrast between the felt fabric and the activated resin containing a colorant.
- G. The wall color of the interior surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with CCTV inspection equipment may be made. The hue of the color shall be dark enough to distinguish a contrast between the fully resin saturated felt fabric and dry or resin lean areas.
- H. Seams in the fabric tube, if applicable, shall meet the requirements of ASTM D5813.
- I. The outside of the fabric tube shall be marked every 5-feet with the name of the manufacturer or CIPP system, manufacturing lot and production footage.
- J. The minimum length of the fabric tube shall be that deemed necessary by the Installer to effectively span the distance from the starting manhole to the terminating manhole or access point, plus that amount required to run-in and run-out for the installation process.
- K. The nominal fabric tube wall thickness shall be constructed, as a minimum, to the nearest 0.5 mm increment, rounded up from the design thickness for that section of installed CIPP. Wall thickness transitions, in 0.5 mm increments or greater as appropriate, may be fabricated into the fabric tube between installation entrance and exit access points. The quantity of resin used in the impregnation shall be

sufficient to fill all of the felt voids for the nominal felt thickness.

## **2.2 RESIN**

- A. The resin shall be a corrosion resistant vinyl ester resin and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F1216 in locations as required on the Plans, the physical properties herein, and those, which are to be utilized in the design of the CIPP for this Project. The resin shall produce CIPP which will comply with or exceed the structural and chemical resistance requirements of this Specification.
- B. The resin shall be a corrosion resistant vinyl ester resin and catalyst system that has previously passed the chemical and corrosion resistance requirements of the Green Book. Evidence of having met the Green Book chemical resistance testing for the proposed system shall be provided as part of the shop drawings.

## **2.3 STRUCTURAL REQUIREMENTS**

- A. The CIPP shall be designed per ASTM F1216, Appendix X1, for a fully deteriorated gravity sewer condition. The CIPP design shall assume no bonding to the original sewer wall.
- B. The CONTRACTOR shall have performed long-term testing for flexural creep of the installed CIPP material. CONTRACTOR shall use such testing results to determine the long-term, time dependent flexural modulus to be used in the product design. This is a performance test of the materials (tube and resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value (as measured by ASTM D-790 testing) shall be used in design calculations for external buckling. The percentage, or the long-term creep retention value used, shall be verified by this testing. Retention values in excess of 50% of the short-term test results will not be applied unless substantiated by qualified third party test data. The materials shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in the Design.
- C. The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occurs during testing of field samples, new samples shall be cut from the Work. Any reoccurrence may cause rejection of the Work.
- D. The CIPP material shall conform to the structural properties listed in Table 1 of this Scope of Work.

**TABLE 1**

**MINIMUM PHYSICAL PROPERTIES**

| <u>Property</u>       | <u>Test Method</u>     | <u>Cured Composite<br/>Per ASTM F1216</u> |
|-----------------------|------------------------|---|
| Modulus of Elasticity | ASTM D790 (short term) | 250,000 psi                               |
| Flexural Stress       | ASTM D790              | 4,500 psi                                 |

E. THE REQUIRED STRUCTURAL CIPP WALL THICKNESS SHALL BE BASED AS A MINIMUM, ON THE PHYSICAL PROPERTIES IN PART 2 OF THIS SPECIFICATION, IN ACCORDANCE WITH THE DESIGN EQUATIONS IN THE APPENDIX OF ASTM F 1216, AND THE FOLLOWING DESIGN PARAMETERS:

|  |   |                    |
|--|---|--------------------|
| Design Safety Factor   | = | 2.0                |
| Retention Factor for Long-Term Flexural Modulus to be used in Design ( <i>as determined by Long-Term tests</i> ) | = | 1% - 50%           |
| Ovality  | = | 2%                 |
| Enhancement Factor, k  | = | 7                  |
| Depth to Groundwater   | = | Gr                 |
|  |   | ound surface       |
| Soil Depth (above invert)  | = | 4 feet to 12 feet  |
| Soil Modulus   | = | 700 psi            |
| Soil Density   | = | 120 pcf            |
| Live Load  | = | H20                |
| Design Condition   | = | Fully deteriorated |

F. Any layers of the tube that are not saturated with resin prior to insertion into the

existing sewer shall not be included in the structural CIPP wall thickness computation.

- G. The CONTRACTOR shall submit a design thickness based on the load parameters listed herein, calculated per ASTM F1216. The use of a flexural modulus value higher than the minimum shall be supported by third-party independent testing that has been performed for a period of 1 year. High strength resins and/or reinforced tube materials may be used provided they meet all requirements listed in this Specification section. The thickness design calculations and third-party test results shall be submitted to the ENGINEER to support the submitted design thickness. The CONTRACTOR shall allow sufficient additional thickness to compensate for resin migration, shrinkage, or other installation anomalies so that the installed CIPP meets the approved design thickness.

## **2.4 END SEALS**

The beginning and end of the new pipe liner shall be sealed to the host pipe with a hydrophilic epoxy or other material end seal. Hydrophilic end seals for use at non-pressure manholes shall be epoxy or other material. The end seals shall be compatible with the lining material and host pipe and shall provide a watertight seal. End seal shall be in accordance with Green Book 500-1.1.7 and submitted with the CIPP shop drawings for review and acceptance.

## **3. EXECUTION**

### **3.1 CONSTRUCTION REQUIREMENTS**

Construction requirements include preparation, cleaning, inspection, sewage bypassing, and inspection.

#### **A. Preparation**

The CONTRACTOR shall field measure and verify all sewer segment lengths prior to pre wet-out CIPP tube preparation and shall provide sufficient CIPP tube length to rehabilitate each required sewer segment including field installation and materials sampling as specified.

The CONTRACTOR shall procure Encroachment Permit(s) and implement traffic control as specified in Section 01551, Maintenance and Protection of Traffic.

The CONTRACTOR shall apply to the water purveyor or authority(s) for use of water from a City-approved fire hydrant in the Project vicinity. CONTRACTOR shall provide a double check backflow assembly and meter approved by EOCWD and the City of Newport Beach for the temporary water connection. CONTRACTOR shall pay the local jurisdiction directly for any water used at the rate and cost imposed by the it.



The CONTRACTOR shall send out advance notifications to homeowners and businesses regarding the Work, construction schedule, impacts to public right of way access and parking, and contact information.

The CONTRACTOR shall provide for the flow of existing mainline and service connection effluent around the section(s) of pipe designated for CIPP installation. Service connection effluent may be plugged only after proper notification to the affected residence and businesses and may not remain plugged overnight. If pump and bypass lines are used, they shall be of adequate capacity and size to handle peak flows.

#### B. Sewer Cleaning

CONTRACTOR shall clean the interior of the existing sewer prior to installation of the CIPP. All debris and obstructions, that will affect the installation and the final CIPP installation to EOCWD, shall be removed and disposed of.

CONTRACTOR shall conduct heavy cleaning in the project sewer prior to operation of the bypass. The CONTRACTOR shall be responsible for disposal of any debris removed from the sewer during the cleaning operation in accordance with applicable laws and ordinances. CONTRACTOR shall catch and remove cleaning operation debris in a basket at the downstream manhole of each reach.

Precaution shall be taken by the CONTRACTOR in the use of cleaning equipment to avoid damage to the existing pipe. The repair of any damage, caused by the cleaning equipment, shall be the responsibility of the CONTRACTOR.

Any remaining standing water in existing sewer sags, manhole inverts, or other locations in the sewer shall be removed by pulling a foam pig through the sewer, or by other means acceptable to the ENGINEER, immediately prior to inversion of the CIPP.

Line Obstructions - It shall be the responsibility of the CONTRACTOR to clear the sewer of obstructions, including protruding laterals, that will interfere with the installation and long-term performance of the liner.

#### C. Sewer Inspection

### 3.2 INSTALLATION

CONTRACTOR shall perform post-cleaning video inspections of the sewers and CIPP. Only NASSCO Pipeline Assessment Certification Program (PACP) certified personnel trained in locating breaks, obstacles and service connections by CCTV shall perform the inspection. The CONTRACTOR shall perform the video inspection with no water in the bottom of the pipe so the pipe invert can be seen to ensure that all debris has been removed. The CONTRACTOR shall provide the ENGINEER with a copy of the post-cleaning, pre-installation videos and suitable logs, in digital format for review prior to installation of the CIPP and for later reference by EOCWD.

## A. Preparation

1. Prior to installation, the CONTRACTOR shall prepare and submit a Confined Space Entry and Rescue Plan to the ENGINEER as specified elsewhere in the Contract Documents. In addition, all personnel performing Confined Space Entry shall attend a Job Hazard Analysis (JHA) conducted by EOCWD.

The CONTRACTOR may, under the direction of the ENGINEER, utilize any of the existing manholes in the Project area as installation access points.

CIPP installation shall be in accordance with the manufacturer's Specifications as described and submitted in the PWS.

## B. Installation of the CIPP

2. Resin Impregnation: The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin during installation through irregularities in the original pipe wall. A vacuum impregnation process shall be used. The point of vacuum shall be no further than 25-feet from the point of initial resin introduction. After vacuum in the tube is established, a vacuum point shall be no further than 75-feet from the leading edge of the resin. The leading edge of the resin slug shall be as near to perpendicular to the longitudinal axis of the tube as possible. A roller system shall be used to uniformly distribute the resin throughout the tube.

CIPP fabricator shall deliver chilled wet specimens of the resin compound to the ENGINEER during wet outs.

The wet-out tube shall be positioned in the sewer using the method specified by the manufacturer. Care should be exercised not to damage the tube as a result of installation. The tube should be pulled in or inverted through an existing manhole or accepted access point and fully extend to the next designated manhole or termination point.

Prior to installation and as recommended by the manufacturer remote temperature gauges or sensors shall be placed inside the sewer at the invert to monitor the temperatures during the cure cycle. CIPP and/or sewer interface temperature shall be monitored and logged during curing of the CIPP.

Curing shall be accomplished by utilizing steam or hot water curing in accordance with the manufacturer's recommended cure schedule and ASTM F1743. The boiler and hydraulic pumps used shall be enclosed to reduce noise. The boiler used shall be of a sufficient BTU capacity to ensure a faster cure time to meet the work hour restrictions. The curing source, or in and output temperatures, shall be monitored by thermo couple gauges installed prior to CIPP installation and logged during the cure cycles. The manufacturer's recommended cure schedule shall be used for each CIPP segment installed, and the CIPP wall thickness and the existing ground conditions with regard to temperature, moisture level, and thermal conductivity of soil, per ASTM as applicable, shall be taken into account by the CONTRACTOR.

### **3.3 COOL DOWN**

- A. The CONTRACTOR shall cool the CIPP in accordance with the approved CIPP manufacturer's recommendations as described and outlined in the PWS.
- B. Temperatures and curing data shall be monitored and recorded, by the CONTRACTOR, throughout the installation process to ensure that each phase of the process is achieved as accepted in accordance with the CIPP System manufacturer's recommendations.

### **3.4 FINISH**

- A. The installed CIPP shall be continuous over the entire length of a sewer section and be free from visual defects such as foreign inclusions, dry spots, pinholes, major wrinkles and de-lamination. The CIPP shall be impervious and free of any leakage from the sewer to the surrounding ground or from the ground to inside the CIPP.
- B. Any defect, which will or could affect the structural integrity or strength of the CIPP, shall be repaired at the CONTRACTOR's expense.
- C. The beginning and end of the CIPP shall be sealed to the manhole at every termination. Hydrophilic sealing material for non-pressure locations shall be compatible with the sewer end and shall provide a watertight seal.
- D. For lateral service connections, the connection sewer interface shall be sealed with a PVC "top hat" to provide a water tight connection.
- E. If the wall of the CIPP leaks, it shall be repaired or removed and replaced with a watertight CIPP as recommended by the manufacturer of the CIPP system.

### **3.5 CIPP REPAIR/REPLACEMENT**

In the event that the installed CIPP needs repair or replacement of defective CIPP, the following requirements shall apply.

- A. The CONTRACTOR shall outline specific repair or replacement procedures for potential defects that may occur in the installed CIPP.
- B. Defects in the installed CIPP that will not affect the operation and long term life of the product shall be identified and defined.
- C. Repairable defects that may occur in the installed CIPP shall be specifically defined by the CONTRACTOR based on manufacturer's recommendations, including a detailed step-by-step repair procedure, resulting in a finished product meeting the requirements of these Contract Specifications.
- D. Un-repairable defects that may occur to the CIPP shall be clearly defined by the CONTRACTOR based on the manufacturer's recommendations, including a

recommended procedure for the removal and replacement of the CIPP at no additional cost to EOCWD.

### **3.6 FINISH MANHOLE CONNECTION AND RECONNECTIONS OF EXISTING LATERAL SERVICES**

- A. A seal, consisting of a resin mixture or hydrophilic seal compatible with the installed CIPP shall be applied at all non-pressure manhole connections and lateral reinstatements in accordance with the CIPP System manufacturer's recommendations.
- B. Existing lateral services shall be internally reconnected as indicated in the Contract Documents.
- C. Reconnections of existing lateral services shall be made after the CIPP is installed, fully cured, cooled down, and pressure tested. It is the CONTRACTOR'S responsibility to make sure that all active lateral service connections are reconnected after pressure testing.
- D. A CCTV camera and remote cutting tool shall be used for internal reconnections. The machined opening shall be at least 95 percent of the lateral service connection opening and the bottom of both openings shall match. The opening shall not be more than 100 percent of the lateral service connection opening. The edges of the opening shall not have sewer or CIPP fragments, which may obstruct flow or snag debris.
- E. The CONTRACTOR is responsible for reinstating all lateral connections and ensure a positive connection to the laterals.
- F. In the event that service reinstatements result in openings that are greater than 100 percent of the lateral service connection opening, the CONTRACTOR shall install a CIPP type repair, sufficient in size to completely cover the over-cut lateral service connection at no additional cost to the EOCWD.
- G. Coupons of pipe material resulting from lateral service tap cutting shall be collected at the next manhole downstream of the sewer rehabilitation operation prior to leaving the site. Coupons may not be allowed to pass through the system.

### **3.7 TESTING OF INSTALLED CIPP**

- A. Testing and inspection shall include CCTV inspection in steam cured and water cured reaches, and other items as required. Low pressure air test shall also be used in steam cured reaches.
- B. Chemical resistance – Components of the CIPP system installed shall meet the chemical resistance requirements of Green Book and the ASTM standards. Evidence of passing these chemical resistance tests shall be provided together with the shop drawings for review and acceptance prior to installation of these materials.

- C. The physical properties for each segment of the installed CIPP shall be verified through field sampling and laboratory testing. All labor, materials, and third party testing laboratory necessary for all testing shall be furnished by the CONTRACTOR, as part of the Work at no additional cost to EOCWD. All materials testing shall be performed by an independent third party laboratory that: can demonstrate experience and approved by the CIPP manufacturer; and that is submitted by the CONTRACTOR with shop drawings to the ENGINEER for review and acceptance.
- D. The installed CIPP thickness shall be measured for each CIPP section installed. If the CIPP thickness does not meet the accepted design tolerance defined below, the CIPP shall be repaired or removed. The CIPP thickness shall have tolerance of minus 5% and plus 10% of the accepted design thickness. The CONTRACTOR shall remove a minimum of one sample from every CIPP section of installed CIPP to be used to check the CIPP thickness. The samples shall be taken by core drilling 2-inch diameter test plugs at accessible locations near manholes. As an alternative, the CONTRACTOR may submit for EOCWD review and acceptance, industry proven non-destructive methods for confirming the thickness of the installed CIPP.
- E. All tests shall be in accordance with applicable ASTM test methods to confirm compliance with the requirements specified in these Contract Documents: flexural modulus of elasticity and flexural strength per ASTM D-790; and tensile strength and tensile modulus per ASTM D-638.
- F. The CONTRACTOR shall provide samples for testing under field inspection by EOCWD from the actual installed CIPP. One restrained sample and one plate sample shall be provided for each inversion. Restrained samples shall be cut from a section of cured CIPP that has been inverted or pulled through a like diameter sewer which has been held in place to cure for the same time and under the same heat and pressure conditions as the CIPP. Plate samples shall be contained in a sample box and made from the same carrier tube material (same nominal thickness) and resin as used for the CIPP. Plate samples shall be cured in the same heat environment and for the same time as the CIPP.
1. Each sample shall be large enough to provide a minimum of six specimens for flexural testing and six specimens for tensile testing. All curing, cutting and identification of all samples shall be performed by the CONTRACTOR and be witnessed by the ENGINEER. Three pairs of specimens shall be shipped to the approved testing laboratory for testing and three pairs of specimens shall be delivered to the ENGINEER for record purposes.
  2. Specimen sizes shall be of the minimum size required by the laboratory accepted by shop drawing review and shall not be less than: 1) 5-inches wide by 20 times the specimen thickness long for flexural testing; and 2) 10-inches long and 7-inches wide for tensile testing.
  3. The ENGINEER may, at its discretion, require that the CONTRACTOR remove two samples from the installed CIPP at locations designated by the ENGINEER. The opening produced from the sample shall be repaired in

accordance with the manufacture's recommended procedures at no additional cost to EOCWD.

4. The laboratory results shall identify the test sample location as referenced to the nearest manhole and station. The approved laboratory shall return formal test results to the CONTRACTOR, with an original copy to the ENGINEER, within 24 hours. The CONTRACTOR shall maintain the traffic control for the portion of sewer being tested during the laboratory analysis. If properties tested do not meet minimum requirements, the CIPP shall be repaired or replaced by the CONTRACTOR, at no additional cost to the EOCWD.

### **3.8 POST INSTALLATION INSPECTION**

- A. All CIPP sample testing and repairs to the installed CIPP, as applicable, shall be completed, before Final Completion, meeting the requirements of this Specification Section and documented in written form.
- B. The CONTRACTOR shall perform a detailed CCTV inspection in accordance with ASTM standards, in the presence of the ENGINEER after installation of the CIPP and reconnection of the lateral service connections. The post-installation CCTV inspection shall be performed in a dry pipe. A radial view (pan and tilt) TV camera shall be used. The maximum camera speed shall be 30 feet per minute. The camera shall be panned 360 degrees around the circumference of the pipe and along the wall of the finished CIPP at 10 foot intervals. The finished CIPP shall be continuous over the entire length of the installation and shall be free of significant visual defects, damage, deflection, holes, leaks and other defects. Unedited digital documentation of the inspection shall be provided to the ENGINEER within ten (10) working days of the CIPP inspection.
- C. The data shall note the inspection date, location of all reconnected lateral sewers, debris, as well as any other defects in the CIPP, including, but not limited to, gouges, cracks, bumps, or bulges. Immediately prior to conducting the CCTV inspection, the CONTRACTOR shall thoroughly clean the newly installed CIPP removing all debris and buildup that may have accumulated.
- D. Bypass pumping or plugging from the upstream manhole shall be maintained to minimize sewage from entering the line during the inspection. In the case of bellies in the CIPP, the sewer shall be cleared of any standing water to provide continuous visibility during the inspection.
- E. Where leakage is observed through the wall of the CIPP, the CONTRACTOR shall repair or replace CIPP as required in Section 3.5 of this Specification.
- F. Wrinkles in the finished CIPP that cause a backwater of 1-inch or more or reduce the hydraulic capacity of the CIPP are unacceptable and shall be removed and repaired by the CONTRACTOR at the CONTRACTOR's expense.

### **3.9 CLEAN UP**

A. Prior to Final Completion of the Work, the CONTRACTOR shall restore the Project site affected by the operations to a condition at least equal to that existing prior to the Work at no additional expense to the EOCWD.

## **12.5 MATERIALS**

### **12.5.1 GENERAL**

All materials not conforming to the requirements specified herein shall be considered defective and all such materials, whether in place or not, shall be rejected and shall be removed immediately from the site of the work unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used until approved in writing by the Engineer.

### **12.5.2 VITRIFIED CLAY PIPE**

#### **1 GENERAL**

All vitrified clay pipe and fittings shall be of one class designated extra strength, of the best quality, vitrified, homogenous in structure, thoroughly burned throughout their entire thickness, impervious to moisture, sound and free from cracks, checks, blisters, broken extremities or other imperfections, and shall give a metallic ring when struck with a hammer. Pipe shall be bell and spigot pipe or other approved joining method unless otherwise specified. All pipe and special fittings manufacture shall comply with the applicable sections of the EOCWD Master Specifications.

#### **2 IN-PLANT TESTING**

Testing shall be in accordance with the applicable section of the EOCWD Master Specifications. In lieu of the tests being witnessed by a certified testing laboratory approved by the Engineer for pipe sizes 15 inches and smaller, the Contractor may furnish the Districts a letter from the manufacturer stating that all prescribed tests have been made and the pipe meets all requirements of the Master Specification.

In pipe sizes greater than 15-inch diameter, a certified testing laboratory approved by the Engineer shall be employed by the Contractor for specified testing.

### **3 CAUSE FOR REJECTION**

The following imperfections in a pipe or special fitting shall be considered injurious and cause for rejection without consideration of the test results submitted as specified above:

#### ***Cracked Pipe***

A single crack in the barrel of the pipe, extending through the entire thickness, regardless of the length of such crack; a single crack which extends through one-fifth of the barrel thickness and is over 3-inch long; any surface fire crack which is more than 1/32-inch wide at its widest point.

#### ***Surface Imperfections***

Surface imperfections such as lumps, blisters, pits or flakes on the interior surface of a pipe or fitting.

#### ***Socket Out-of-Round***

Bore or socket of the pipe that varies from a true circle more than 3 percent of its nominal diameter.

#### ***Straight Pipe Fitting***

The pipe fitting designated to be straight, but deviates from a straight line more than 1/8-inch per lineal foot. The deviation shall be measured from a straight edge at a point midway between the ends of the pipe.

#### ***Broken Pipe***

A joint of pipe with a piece broken from either the socket or spigot end.

#### ***Foreign Matter Fused to the Pipe***

Pipe joints that have tramp clays, grog or other foreign matter fused permanently to the exterior or interior surface of the pipe or fittings.

#### ***General Soundness of Pipe and Joints***

The pipe that does not give a metallic ring when struck with a hammer where joint of pipe is placed in a vertical position.

### **4 JOINTS**

All vitrified clay pipe and fittings shall be furnished with bell and spigot Type G compression joint or where plain end pipe is to be used Type C joint. For pipe sizes of 12 inches and smaller, Type D joint may be used.



**Type “C” Joints (Mortar Sealed Rubber Sleeve Couplings for Plain End Clay Pipe)**

Each coupling shall consist of a circular rubber sleeve, two stainless steel compressing bands, and optional pre-fabricated housing to form the required mortar seal of the coupling.

Each coupling shall bear the manufacturer’s brand name or trademark.

The housing to form the mortar seal shall be shaped to provide the minimum thickness of mortar cover over the coupling and specified in the following table.

| Pipe Diameter |       | Thickness |      |
|---------------|-------|-----------|------|
| (inch)        | (mm)  | (inch)    | (mm) |
| 4             | (102) | 3 / 4     | (19) |
| 6             | (152) | 3 / 4     | (19) |
| 8             | (203) | 1         | (25) |
| 10            | (254) | 1         | (25) |
| 12            | (305) | 1-1 / 2   | (38) |

(larger sizes as specified on the Plans)

The circular rubber sleeve shall have a projecting rib to act as a cushion between the abutting ends of the pipes or fittings. The sleeve shall be made of virgin rubber compounded with suitable antioxidants formulated so as to resist acids, alkalies, solvents, and greases encountered in domestic or industrial waste sewage.

When tested in accordance with ASTM D 412, the material shall have a tensile strength of not less than 1200 tested psi and in elongation of not less than 400 percent. When tested in accordance with ASTM D 395, Method B, the material shall have a compression set at constant deflection of not more than 35 percent of the original deflection. The tensile strength and percentage of elongation shall be reduced not more than 25 percent and the compression set increased not more than 5 percent when subject to the accelerated aging test in ASTM D 572 for 24 hours.

The stainless steel compressing bands and tightening devices shall be fabricated from ASTM Type 300 stainless steel and shall be capable of producing 35 percent compression in the sleeve when tightened in place on the joint. Mortar consisting of one part Portland Cement and three parts sand shall be used for sealing in the rubber sleeve coupling. Water shall be added to the mortar mixture to produce a workable grout mortar.

The assembled pipe joints, without mortar cover shall be tested in the laboratory and shall not leak when subject to an internal hydrostatic pressure of 10 psi for a period of 5 minutes or when the joint is deflected 2 degrees during the test.

**Type “D” Joints (Rubber Sleeve Coupling) with Shear Ring for Plain End Clay Pipe)**

The coupling shall consist of a circular rubber sleeve of natural or synthetic rubber or rubber-like material, two stainless steel bands with suitable tightening devices and corrosion resistant shear ring. The sleeve shall be resistant to chemicals and bacteria, and the joint shall meet all the requirements of ASTM C 425, except that the bands shall be made of stainless steel only.

**Type “G” Joints (Polyurethane)**

General:

The type “G” Joint shall consist of polyurethane elastomer sealing components, one bonded to the outside of the spigot and the other bonded to the inside of the socket. The sealing components shall be shaped, sized, bonded, and cured to uniform hardness so as to form a tight seal of the joint when assembled. The sealing components shall resist attack by bacteria and chemicals or combinations of chemicals normally present in domestic or industrial sewage.

The configuration of the jointing system determines the necessary physical properties of the polyurethane joint material. The columns of values in the table below represent properties of polyurethanes which, in conjunction with specific joint configurations, will provide acceptable jointing systems.

Polyurethane Sealing Components:

The polyurethane sealing components material shall comply with the requirements described in this subsection. The number of samples to be tested shall be designated by the Engineer.

Prior to testing, polyurethane test specimens shall be conditioned in a mechanical convection oven for 7 days at 110 + 5 degrees F (43 + 3 degrees C and cooled in a desiccator for 3 hours at 75 + 5 degrees F (24 + 3 degrees C).

Polyurethane material is acceptable for a jointing system when properties are in conformance with either column of values listed in the following table:

| <b>Property</b>                  | <b>Values</b>        | <b>Test Method and Conditions</b>     |
|----------------------------------|----------------------|---------------------------------------|
| Tensile strength, psi (kPa) min. | 350 (240) 600 (4140) | ASTM D 412 DIE C, 75 ± 5 F (24 ± 3 C) |
| Elongation, % min.               | 70 70                | (Same as above)                       |

| Property  | Values  |            | Test Method<br>and Conditions  |
|---|---|------------|--|
| Compression set,<br>percent Max.                  | 3   | 3          | ASTM D 395, Method B,<br>24 hours, 75 ± 5 F (24 ±<br>3 C)  |
| Shore durometer                                   | Not less than value<br>designated for the joint<br>design by the manufacturer |            | ASTM D 2240, Type A,<br>5-second reading, 32 to<br>80 F (0 to 27 C)                                      |
| Water Absorption,<br>percent max. (Wt gain)       | 3.5   | 3.5        | ASTM D 570, after<br>immersion for 28 days at<br>75 ± 5 F (24 ± 3 C)                                     |
| Volatile loss,<br>percent max. (Weight<br>loss)   | 1   | 1          | After 28 days in<br>mechanical convection<br>oven at 150 ± 3 F (66 ±<br>2 C)                             |
| Adhesive strength,<br>psi (kPa) min.              |   |            |  |
| Original  | 350 (240)   | 350 (2410) | Before immersion in<br>accordance with Note 1  |
| Final   | 250 (1720)  | 250 (1720) | After immersion in water<br>at 75 ± 5 F (24 ± 3 C) in<br>accordance with Note 1                          |
| Chemical resistance<br>(see Notes 2 & 4)          |   |            |  |
| Weight changes,<br>percent max.                   | 1.5   | 1.5        | After exposure to each<br>of the chemical<br>environments for 112<br>days as described in<br>Notes 2 & 4 |
| Tensile strength,<br>Psi (kPa) min.               | 260 (1790)  | 450 (3100) |  |
| Shore durometer,<br>Change max.                   | ± 15  | ± 15       |  |
| Compression set,<br>percent max.                  | 5   | 5          |  |
| Bacteriological resistance<br>(see Notes 3 and 4) |   |            |  |

| Property                            | Values     |            | Test Method and Conditions   |
|-------------------------------------|------------|------------|--|
| Weight change                       | 2          | 2          | After exposure to bacteriological environment for 112 days as described in Notes 3 & 4 |
| Tensile strength, psi (kPa) min.    | 290 (2000) | 500 (3450) |  |
| Shore durometer                     |            |            |  |
| Before reconditioning, Loss max.    | 15         | 15         |  |
| After reconditioning, Change max.   | 5          | 5          |  |
| Compression set                     |            |            |  |
| Before reconditioning, percent max. | 3          | 3          |  |
| After reconditioning, percent max.  | 3          | 3          |  |

**NOTES:**

1. Adhesion test specimens shall be clay blocks 1/2-inch (13-mm) thick and 1-inch (25-mm) square of the same composition of materials and fired at same vitrifying temperatures as sewer pipe.

The clay block shall be placed flat in the center of a mold 7-inch (178-mm) long, 1-inch (25-mm) wide, and 1/2-inch (13-mm) deep. The edges of the clay block at right angles to the longitudinal axis of the form shall be coated with the adhesive and the form on each side of the block shall be filled to a depth of approximately 1/4-inch (6-mm) with the sealing component compound. Curing of this test specimen shall simulate the curing process at the pipe manufacturing plant.

At the end of the immersion period, samples shall be removed, surface dried, and immediately pulled in tension at the rate of 20 inches (508 mm) per minute to determine the final tensile strength of the bonded interfaces. The specimens retained for controls shall be pulled at the same time to determine the original tensile strength of the bonded interface.

2. Exposure environments for chemical resistance tests are as follows:

| <u>Chemical</u>    | <u>% Concentration</u>                         |
|--------------------|--|
| Sulfuric Acid      | 20*  |
| Ammonium Hydroxide | 5*   |
| Sodium Hydroxide   | 5* (Buffered to pH 10 with Sodium bicarbonate) |
| Ferric Chloride    | 1*   |
| Nitric Acid        | 1  |

\*Volumetric % of concentrated C.P. grade reagents

At the end of the exposure period, specimens shall be reconditioned before testing by the same method described above for conditioning.

3. The bacteriological resistance immersion test solution shall be prepared with a 5-day BOD of not less than 700 ppm maintained under anaerobic conditions at 75 + 5 degrees F (24 + 3 degrees C) for the duration of the test. At the end of the exposure period, test specimens shall be washed and then reconditioned before testing by the same method described above for reconditioning.

4. During the 112-day exposure period interim tests shall be performed at 28-day intervals and if failure occurs, testing shall be terminated and the sample shall be considered as failing the entire test.

### **12.5.3 DUCTILE IRON PIPE**

#### **1 GENERAL**

All ductile iron pipe shall conform to the requirements of AWWA C151/and shall be fusion bonded epoxy lined. Buried pipe shall be provided with anodic protection, joint bonding, and test stations. Exposed pipe shall be coated with a two-part amine cured epoxy, minimum 10 mils dry film thickness, topped with a polyurethane color coat, gray in color. Buried pipe shall be minimum Class 150 pressure class. Exposed pipe shall be minimum Class 53 thickness class.

#### **2 JOINTS**

Joint types shall be as follows:

##### ***Buried Pipe***

- Use restrained joints where thrust restraint is needed rather than thrust blocks.
- Rubber gasket slip-on shall conform to AWWA C111/A21.11.

- Mechanical joint fittings shall be in accordance with AWWA C111/A21.11.
- Flexible couplings, where called for on the plans, shall be cast or ductile iron sleeve type as manufactured by Smith-Blair or approved equal.

### ***Above Grade Pipe***

Flange fittings shall conform to ANSI B16.1. Bolts shall conform to ANSI B16.1, except that flanges shall have Type 316 stainless steel bolts and nuts except in air-conditioned spaces.

## **12.5.4 PRECAST MANHOLES**

### **1 GENERAL**

All precast manhole shafting, cones and flat tops shall be free from cracks, chips, surface imperfections and shall be capable of producing a watertight unit. Manhole shafting shall not be installed with steps.

### **2 UNLINED MANHOLES**

Precast manholes shall conform to size, shape, form, and details shown on the Standard Drawings. Concrete for precast units shall be Class "D" concrete. The precast shafting and cones shall meet the strength requirements for ASTM C478 "Standard Specification for Precast Reinforced Concrete Manhole Sections". Design and manufacturing shall be based on H-20 loading.

### **3 LINED MANHOLES**

Manholes designated as "lined" shall be lined with P.V.C. cast in place liner. All materials and installation shall be in accordance with the notes and details shown on Standard Drawing S-050.

## **12.5.5 GRADE RINGS**

Grade rings shall be the size and quantity as indicated in the Standard Drawings. Grade rings shall be free from cracks, chips or excessive roughness as determined by the Inspector.

Individual concrete grade rings for extensions shall be a maximum of 6 inches high and shall be approved by the Engineer before installation. Total height of stacked grade rings shall be limited to a maximum of 12 inches.

**12.5.6 MANHOLE FRAME AND COVER**

Manhole frame and cover sets shall be of the types and size indicated in the Standard Drawings unless otherwise indicated on the Plans. Standard manhole frame and cover shall be Model No. A-1254-4 for 24-inch diameter or A-1251-6 for 36-inch diameter as manufactured by Alhambra Foundry Co., or approved equal.

Manhole frame and cover sets installed in an intersection shall be bolted, Model No. A-1251B-6 as manufactured by Alhambra Foundry Co., Ltd., or approved equal.

All manhole frame and cover sets shall have the facility identification on the underside of lid and on frame. All castings shall comply with ASTM A48 "Standard Specification for Gray Iron Castings", Class 35 B cast iron.

Castings for frame and cover sets shall be designed for H-20 loadings. Before leaving the foundry, all castings shall be thoroughly cleaned and subjected to a hammer inspection, after which they shall be painted with a 60-mil minimum thickness of coal-tar epoxy. Covers shall have reinforced gussets on the underside.

Each cover shall be ground or otherwise finished so that it will fit in its frame without rocking. Frames and covers shall be match-marked in sets before shipping to site.

New manholes shall be built with covers set at 12 to 16 inches from the top of the cone.

**12.5.7 EPOXY RESIN**

All saddle connections and approved repair work to District sewer mains shall be accomplished with one of the following epoxy resins:

EPIBOND 157 as manufactured by Furane Plastics Incorporated, 5121 San Fernando Road West, Los Angeles, Ca;

WR633 A & B as manufactured by Wyndham Chemicals Incorporated, 10640 South Painter Avenue, Santa Fe Springs, Ca;

EPON 828 as manufactured by the Shell Chemical Corporation.

The epoxy resin shall be used in strict accordance with the manufacturer's specifications.

**12.5.8 PORTLAND CEMENT CONCRETE**

1 GENERAL

All Portland cement concrete shall conform to the requirements of ASTM C150 and shall be Type II, III or V.

## 2 TYPES

- Type II Standard ASTM Designation 15.
- Type III High Early Strength Type.
- Type V Sulfate Resistant Cement Type.

## 3 CLASS OF CONCRETE

|   | A    | B    | C    | D    |
|---|------|------|------|------|
| Compressive strength at 28 days (psi)   | 3500 | 3250 | 2500 | 4500 |
| Cement Factor-Minimum (Sacks/cu. Yd.)   | 6.0  | 5.5  | 4.5  | 7.0  |
| Water Cement Ratio-Max. (gallons/sacks) | 6.0  | 6.5  | 7.0  | 5.6  |

## 4 ADMIXTURES

No admixtures shall be used without written consent of the Engineer. Calcium Chloride, if approved, shall be used to a maximum dosage of 2 pounds per 100 lbs.

## **12.6 TESTING**

### **12.6.1 GRAVITY SEWERS**

#### **1 AIR TESTING**

All sewers shall be air-tested. Testing shall take place only after certification that the compaction requirements and sewer cleaning requirements have been met. Any recompaction over the sewer or repair of the sewer shall invalidate previous testing in the section of pipe involved.

Each section of pipe between two successive manholes shall be tested by plugging all pipe outlets with suitable test plugs. Air shall be slowly added until the internal pressure is raised to 4.0 psig. The compressor used to add air shall have a pressure relief valve set at 5 psig to assure that at no time the pressure becomes greater than 5 psig. The internal pressure of 4 psig shall be maintained for at least three minutes to allow air temperature to stabilize. After the three minute stabilization period, the air supply shall be disconnected and the pressure allowed to decrease to 3.5 psig. The time required for the air pressure to drop from 3.5 psig to 2.5 psig shall be measured and compared to the times shown below:



| Pipe Size<br>(Inch) | Time In<br>(Minute)      |
|---------------------|--------------------------|
| 8                   | 4                        |
| 10                  | 5                        |
| 12                  | 6                        |
| 15                  | 7                        |
| 18                  | 9                        |
| 21                  | 10                       |
| 24                  | 11                       |
| Over 24             | See State Specifications |

If the pressure drop from 3.5 psig to 2.5 psig occurs in less time than the above values, the test shall be deemed failed and the pipe shall be repaired and, if necessary, replaced or relaid until the joints and the pipe hold air under this test.

## **2 CLOSED CIRCUIT TELEVISION (CCTV) VIDEO INSPECTION**

The Design Engineer working for the District or consulting engineer under contract with the District for performing the design of a new or refurbished District gravity sewer is responsible for scheduling a closed circuit television (CCTV) video inspection of the appropriate existing District gravity sewer serving the sewer shed for which a new or refurbished gravity sewer will serve during the preliminary design phase or early in the final design phase of the work. The Design Engineer or consulting engineer will thoroughly research and identify all local and District trunk sewers to properly establish the sewer shed boundaries for any given job or portion of the District sewerage system.

All District local, sub-trunk and trunk sewers involved with existing sewage flow to be conveyed by the new sewer or refurbished sewer under the design job will be CCTV video inspected as part of the design. The Design Engineer or consulting engineer will collect or identify all appropriate pages or plans of the actual District "record drawing" or "as-built" plans representing all sections of existing sewer pipelines to be CCTV video inspected.

The Design Engineer or consulting engineer shall give the District staff person responsible for coordinating the design work a minimum of fourteen (14) calendar days advance notification for the DISTRICT to properly schedule the desired CCTV video inspection. The DISTRICT O&M Department will physically arrange for and oversee one of the DISTRICT contracted CCTV video inspection crews to do the work of performing the CCTV video inspection inside of the appropriately identified DISTRICT gravity sewers. The DISTRICT will complete the CCTV video inspection in accordance with the latest DISTRICT and NASSCO Pipeline Assessment and Certification Program (PACP) standards. The DISTRICT will share the results of the CCTV video inspection with the Design Engineer or

consulting engineer by means of either electronic data or physical submission which may include a DVD disk, a Compact (CD) disk, or a VHS video tape and an accompanying written report.

The Design Engineer or the consulting engineer will verify that the CCTV video inspection performed by the DISTRICT adequately identifies the appropriate NASSCO PCAP requirements for pipeline deficiencies in the existing DISTRICT sewer pipeline which has been identified by the Design Engineer or the consulting engineer. In addition, the Design Engineer or the consulting engineer shall properly identify by reviewing the CCTV video inspection media and accompanying report all incoming connections, house or business laterals, or other local or DISTRICT sewer connections, all manholes, and any junction or diversion structures in any section of the existing DISTRICT pipeline shown in the CCTV video inspection media. The Design Engineer or consulting engineer shall be responsible for documenting the condition assessment and location of all pipeline sections, connections and structures associated with the identified existing DISTRICT sewers and properly use that information in the design of any new or refurbished DISTRICT sewer.

The Contractor is responsible for scheduling a closed circuit television (CCTV) video inspection with the DISTRICT for all sections of sanitary sewer pipe installed by the Contractor on the job after the pipe has been installed, backfilled and compacted to grade, tested for leakage, manholes raised to grade, and cleaned, but prior to the final resurfacing of the street or surface directly over the pipe.

The pipe shall be CCTV video inspected involving a CCTV video process by a DISTRICT contracted CCTV video inspection crew (not by the Contractor), subject to a seven (7) calendar day minimum advance notification to the DISTRICT by the Contractor such that the pipe is or will be ready for CCTV video inspection on the scheduled advance date. The Contractor must have properly installed, prepared, tested and cleaned the pipe in accordance with DISTRICT standards. The Contractor must allow the DISTRICT contracted CCTV video inspection crew and equipment proper access to each manhole on the job to do the video inspection. The DISTRICT will complete the CCTV video inspection in accordance with the latest DISTRICT and NASSCO Pipeline Assessment and Certification Program (PACP) standards. The DISTRICT will share the results of the CCTV video inspection with the Contractor by means of either electronic data or physical submission which may include a DVD disk, a Compact (CD) disk, or a VHS video tape and an accompanying written report.

The Contractor and/or the DISTRICT will verify that the pipe installation by the Contractor meets NASSCO PCAP requirements and is acceptable to the DISTRICT. Should the CCTV video inspection indicate any faulty or unacceptable (to the DISTRICT) pipe installation, the Contractor shall make the necessary repairs or replacements satisfactory to the DISTRICT at the Contractor's expense by a method acceptable to the DISTRICT/Engineer. Repaired or replaced pipe and/or pipe segments shall be retested and cleaned by the Contractor, and be re-inspected by the DISTRICT provided CCTV video inspection crew, to the same standards that are required from before, but only

after the Contractor has satisfied the DISTRICT that the pipe is ready for inspection and the date for re-inspection has been scheduled by the Contractor by a seven (7) day minimum advance notification to the DISTRICT.

All costs for scheduling, preparing for inspection, testing, retesting, installing, reinstalling, repairing, cleaning, re-cleaning or other administrative costs, delays or activities by the Contractor relating to the pipe shall be provided for and paid by the Contractor at no additional cost to the DISTRICT, until final acceptance of the pipe by the DISTRICT is achieved.

## **12.6.2 MANHOLES**

All manholes on new sewers shall be vacuum-tested per ASTM C1244 "Standard Test Method for Concrete Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill". Manholes shall be watertight. All leaks shall be repaired as determined by the Engineer.

The manhole, if pressure tested, shall be filled with water to an elevation one foot below the start of the cone section, but to a maximum depth of 20 feet. The water shall stand in the manhole for a minimum of one hour to allow the concrete to reach maximum absorption. After one hour, the Contractor shall refill the manhole to the original depth and the drop in water surface shall be recorded after a period of two minutes for each foot of water depth. The maximum allowable drop in water surface for the period of testing shall be 1/2-inch for each 15 minutes of testing. Repairs shall be made as directed by the Engineer whenever leakage exceeds the limits indicated above. All infiltration shall be stopped prior to vacuum or pressure testing. All joints shall be exposed prior to testing. PVC joints shall be welded post testing, probed with a putty knife, and spark tested by the Contractor in the presence of the Engineer.

## **12.7 SAFETY**

### **12.7.1 EXCAVATIONS**

The Contractor shall comply with all safety ordinances and orders and shall be solely responsible for the safety conditions of the Work.

The Contractors shall submit a detail showing the design or shoring; bracing sloping or other provisions to be made for worker protection from the hazards of caving ground during the excavation of any trench 5 feet or more in depth.

The plan submitted shall be stamped and signed by a Civil or Structural Engineer Registered in the State of California to certify that the plan complies with all OSHA.

The Inspector will not inspect trenches which do not conform to OSHA trench safety standards.

### **12.7.2 CONFINED SPACE OPERATION**

No entry into District's facilities shall take place without first checking for unsafe atmosphere conditions and, if found safe, entry shall be made only with the use of adequate air blowers and safety harnesses attended by a minimum of two men outside the facility. Proper air monitoring shall be in use at all time to monitor for L.E.L., H2S and oxygen deficiency before and during performance of work.

### **12.7.3 TRAFFIC CONTROL**

Prior to undertaking the work, traffic control plans shall be submitted to the Agency having jurisdiction of the street for approval. A copy of the plans, the approved permit, and requirement therefore shall be provided to the Engineer.

In no case shall the traffic control be less than that required by the latest WATCH Manual.

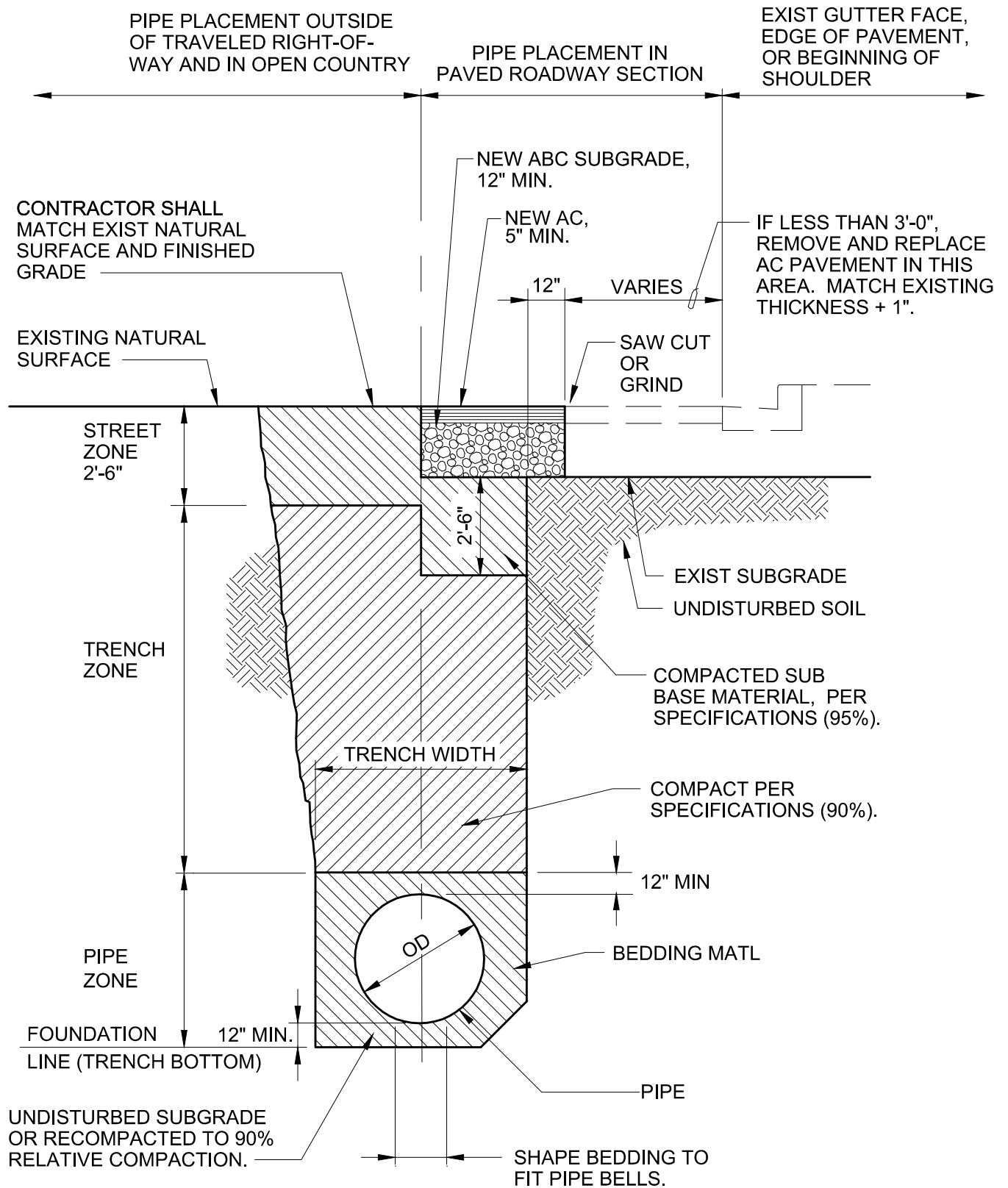
## 12.8 REFERENCES - STANDARD DRAWINGS

Comply with the EOCWD Standard Drawings referenced below:

| <u>Number</u> | <u>Description</u>  |
|---------------|---|
| S-1           | Pipe Installation and Pavement Replacement                              |
| S-2           | Pipe Zone Detail for VCP Sewers in Overwidth Trench                     |
| S-3           | Installation – Water Valve, Survey Monument or Sewer Cleanout Frame     |
| S-4           | Pipe Support Beam Across Trenches                                       |
| S-5           | Pipe Support Wall Across Trenches                                       |
| S-6           | Sewer House Lateral at Utility Intersections                            |
| S-7           | Anchor Block Detail   |
| S-8           | VCP Installation in Casing Pipe   |
| S-9           | Field Closure for VCP   |
| S-10          | Bell Ring Insert  |
| S-11          | Bell Ring Insert with PVC Plate Liner                                   |
| S-12          | Un-Lined Manhole for Sewers   |
| S-13          | New PVC-Lined Manhole Over Existing Sewer, Sheets 1, 2, 3               |
| S-14          | New PVC-Lined Manhole for New Sewers, Sheets 1, 2, 3                    |
| S-15          | Drop Manhole Connection to Standard Manhole                             |
| S-16          | 48-in Manhole Frame and Cover with Concentric 24-in Cover               |
| S-17          | Standard Manhole Frame and Cover  |
| S-18          | Bolted Manhole Frame and Cover  |
| S-19          | Manhole Adjustment to Grade   |
| S-20          | Gas Flap Installation for PVC-Lined or Unlined Manholes, Sheets 1, 2, 3 |
| S-21          | Core Drilled Stub at Existing Manhole, Detail, Sheets 1 and 2           |
| S-22          | Diversion Structure with Stop Gate, Sheets 1, 2                         |
| S-23          | Liner – PVC   |
| S-24          | Cut-in-Wye Connection, Unincorporated Area Only                         |
| S-25          | House Lateral Connection, Typical                                       |
| S-26          | Clean Out In Roadway Detail   |
| S-27          | Concrete Encasement of Pipe   |

Check with the EOCWD District Engineer regarding any Standards Drawing updates and/or additional Standards Drawings that may have been developed since the publication of this Guidelines Chapter and may be required for the project.

\*\*\*\*\*



**NOTE:**

TRENCH WIDTH, BEDDING AND BACKFILL MATERIALS, COMPACTION AND

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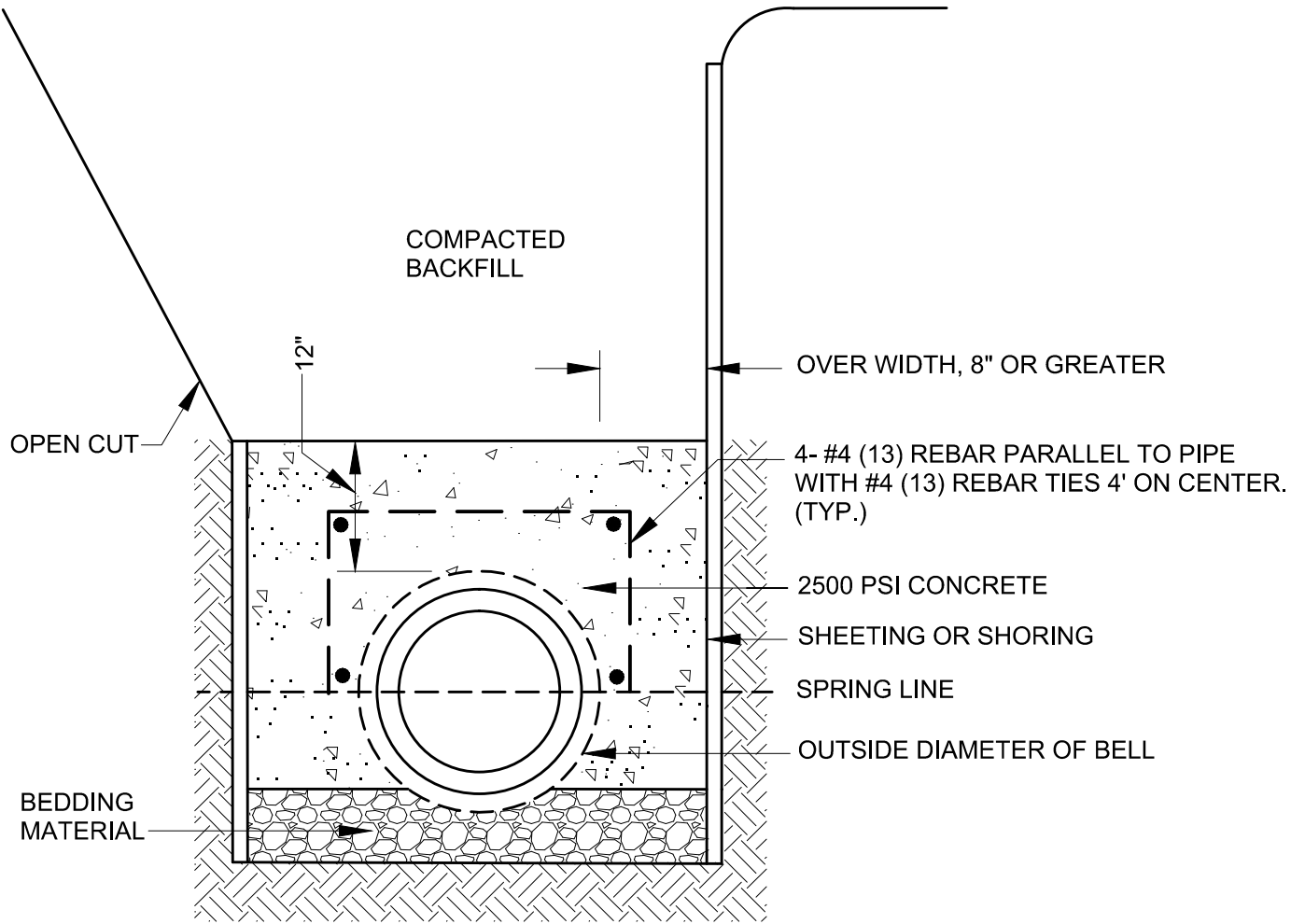
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

PIPE INSTALLATION  
AND  
PAVEMENT REPLACEMENT

NO SCALE  
STANDARD DWG.  
**S-1**



NOTES:

1. ( ) DENOTES METRIC SYSTEM
2. THIS DETAIL APPLIES WHEN NOT OTHERWISE SPECIFIED OR SHOWN ON THE PLANS.
3. SOIL VOIDS CREATED BY SHORING SHALL BE BACKFILLED AND COMPACTED PER SPECIFICATION SECTION 02200.

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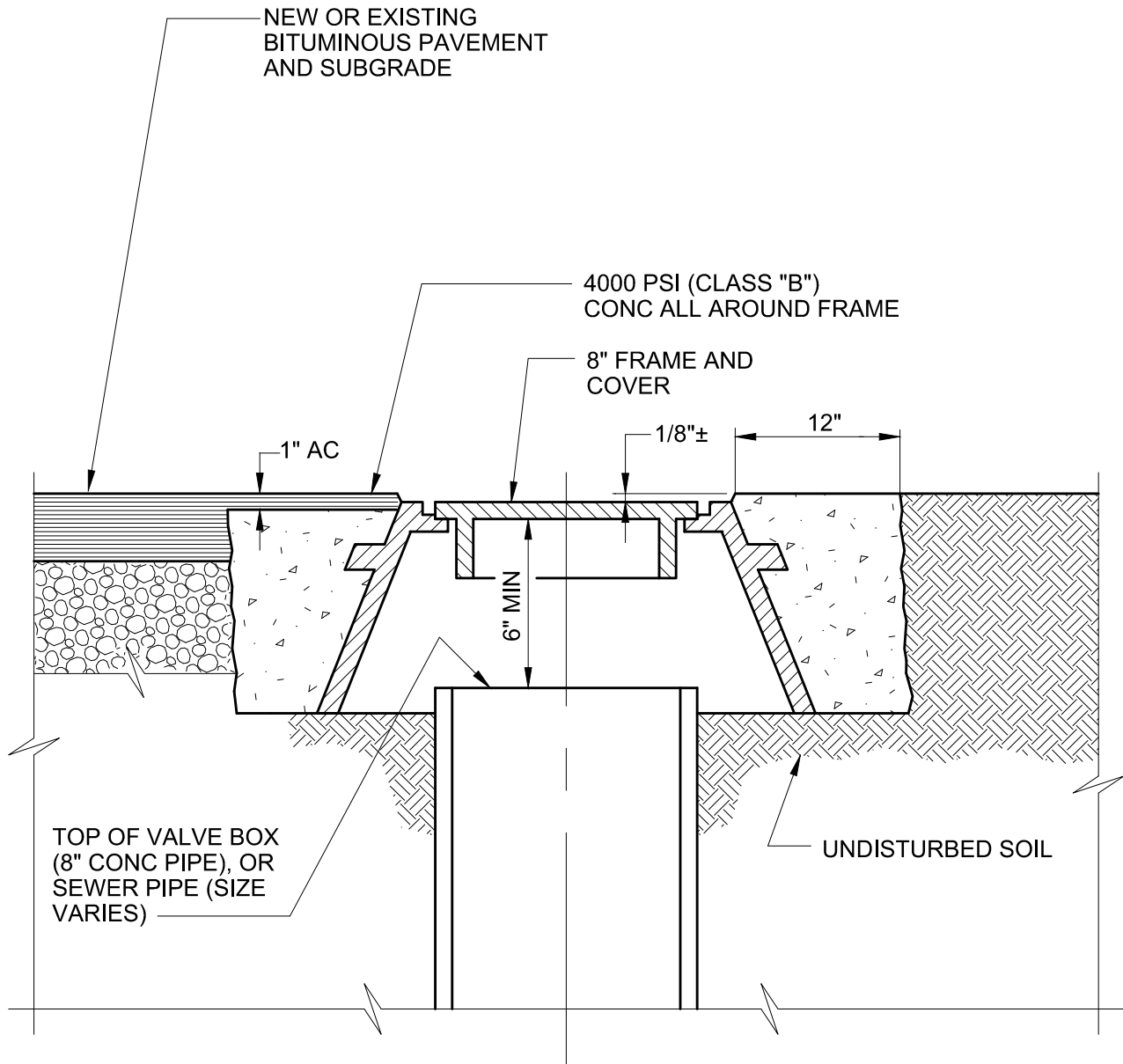
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE  
*Lee Orlund* 12/21/16  
GENERAL MANAGER DATE

PIPE ZONE DETAIL  
FOR VCP SEWERS  
IN OVERWIDTH TRENCH

NO SCALE  
STANDARD DWG.

S-2



EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY

*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER

DATE

*Lee Oklund*

12/21/16

GENERAL MANAGER

DATE

VALV BOX. SURVEY MONUMENT,  
OR SEWER CLEAN OUT COVER  
AND FRAME INSTALLATION

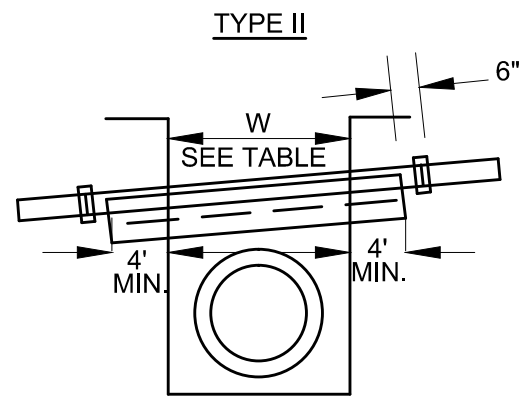
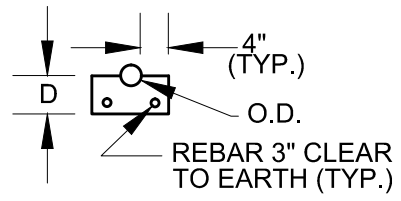
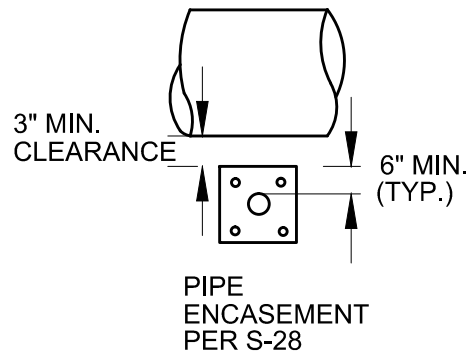
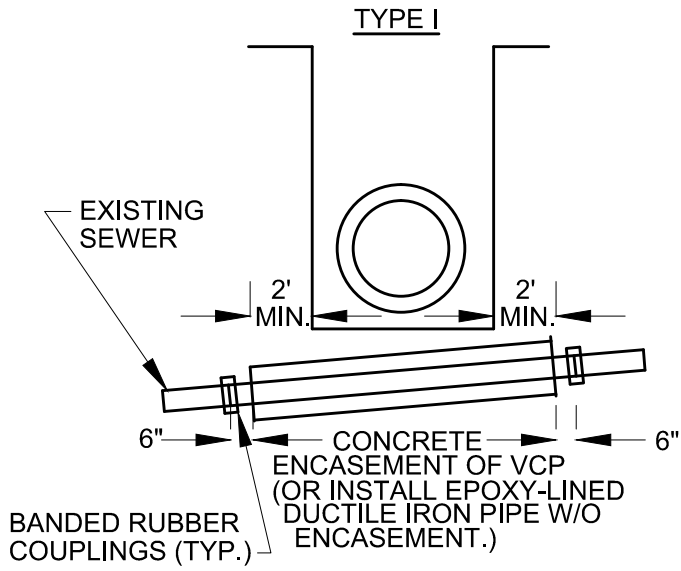
NO SCALE

STANDARD DWG.

S-3

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| NO. | APPROVED | DATE |





| W   | DEPTH OF COVER |       |           |       |
|-----|----------------|-------|-----------|-------|
|     | 0' TO 8'       |       | 8' TO 16' |       |
|     | D              | BAR # | D         | BAR # |
| 3'  | 12"            | 4(13) | 12"       | 4(13) |
| 4'  | 12"            | 4(13) | 12"       | 5(16) |
| 5'  | 12"            | 4(13) | 16"       | 5(16) |
| 6'  | 12"            | 5(16) | 16"       | 5(16) |
| 7'  | 12"            | 5(16) | 16"       | 6(19) |
| 8'  | 12"            | 5(16) | 16"       | 6(19) |
| 9'  | 12"            | 6(19) | 16"       | 8(25) |
| 10' | 12"            | 6(19) | 16"       | 8(25) |

BEAM THICKNESS FOR TYPE II  
BAR SIZE FOR TYPE I AND TYPE II

**NOTE:**  
( ) DENOTES METRIC SYSTEM.

|     |          |      |
|-----|----------|------|
| NO. | APPROVED | DATE |
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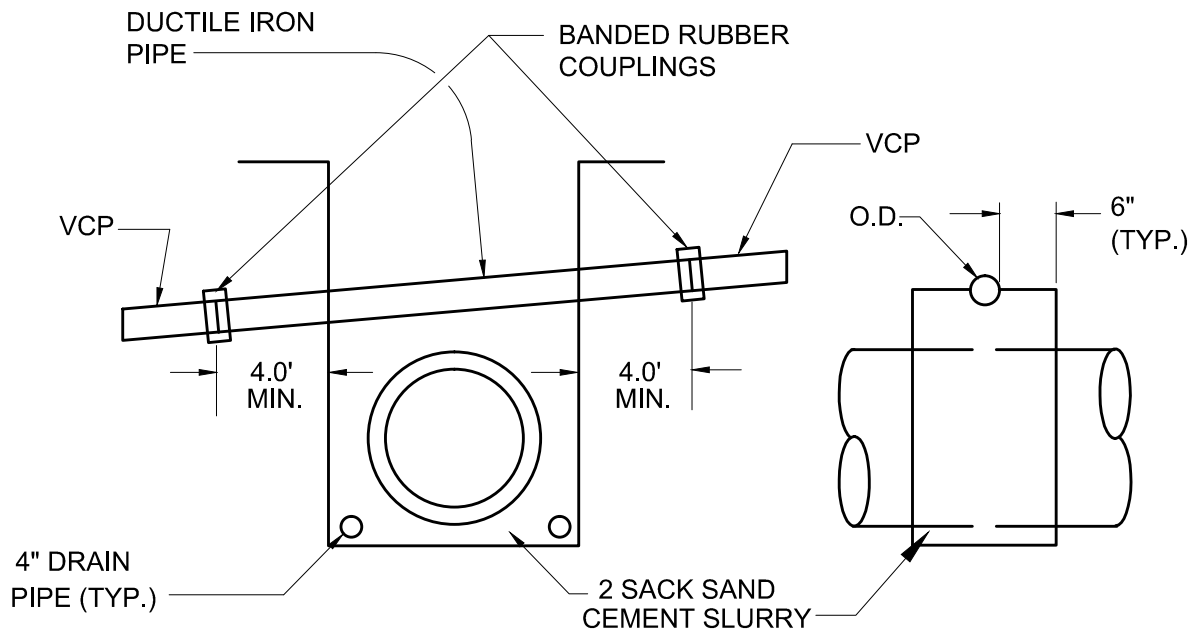
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

**PIPE SUPPORT  
BEAM  
ACROSS TRENCHES**

NO SCALE  
STANDARD DWG.  
**S-4**



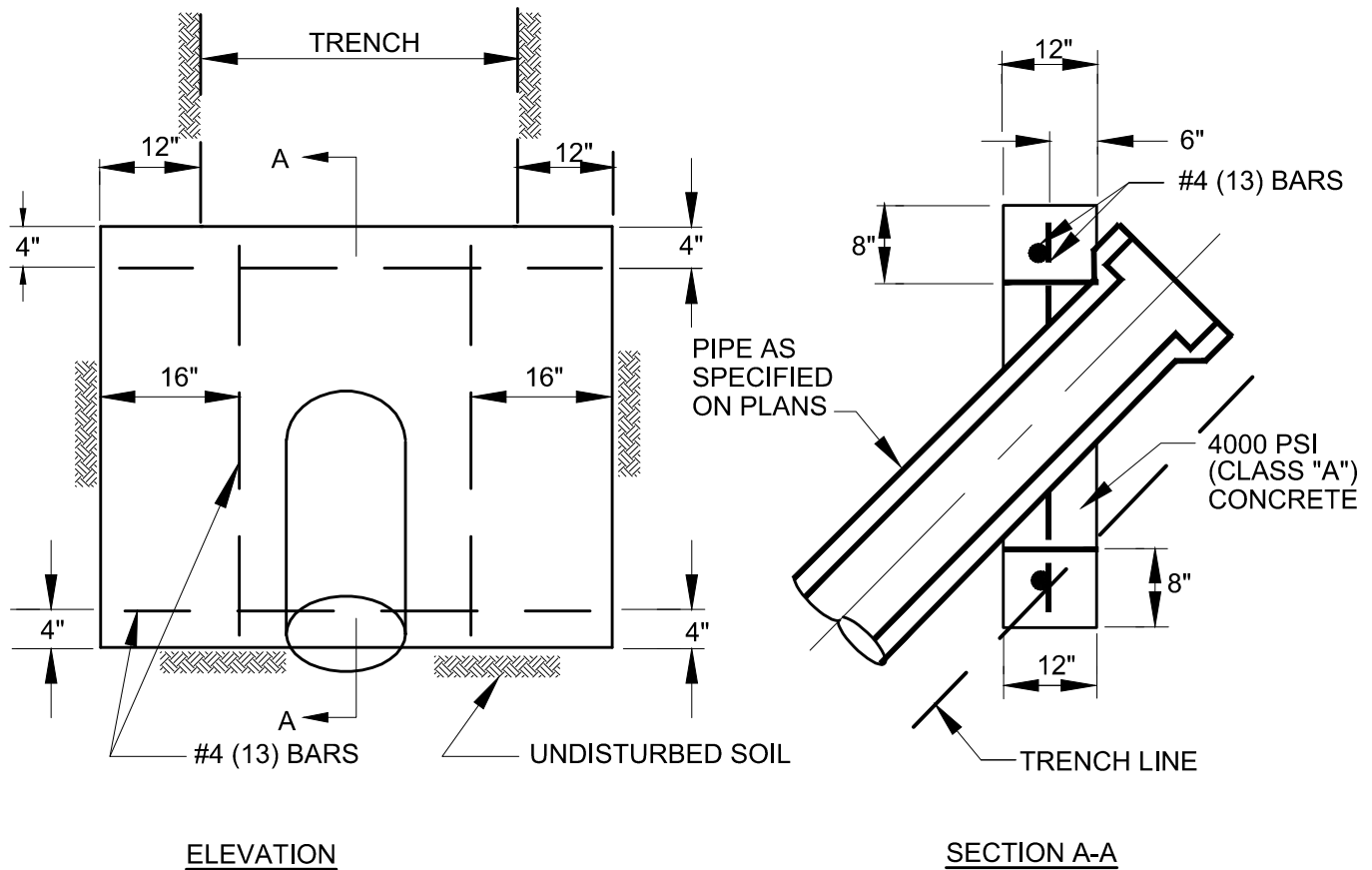
**NOTE:**

THIS DETAIL MAY BE USED ONLY WITH PRIOR APPROVAL OF THE DISTRICT ENGINEER.

5

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|     |          |      | EAST ORANGE COUNTY WATER DISTRICT<br>ORANGE, CALIFORNIA                    | PIPE SUPPORT<br>WALL<br>ACROSS TRENCHES | NO SCALE      |
|     |          |      | APPROVED BY<br><i>Patrick J. Cahill</i> 12/21/16<br>DISTRICT ENGINEER DATE |   | STANDARD DWG. |
|     |          |      | <i>Lee Oklund</i> 12/21/16<br>GENERAL MANAGER DATE                         |   | S-5           |
| NO. | APPROVED | DATE |  |   |               |





**NOTES:**

1. PIPE ANCHOR BLOCKS SHALL BE INSTALLED ON ALL SEWERS WHERE THE SLOPE EXCEEDS 30%.
2. SPACING SHALL BE 100' ON CENTER WHERE SLOPES ARE 30% TO 50%, 75' ON CENTER WHERE SLOPES ARE 51% TO 70% AND 50' ON CENTER WHERE SLOPES ARE 71% AND GREATER.

( ) DENOTES METRIC SYSTEM.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

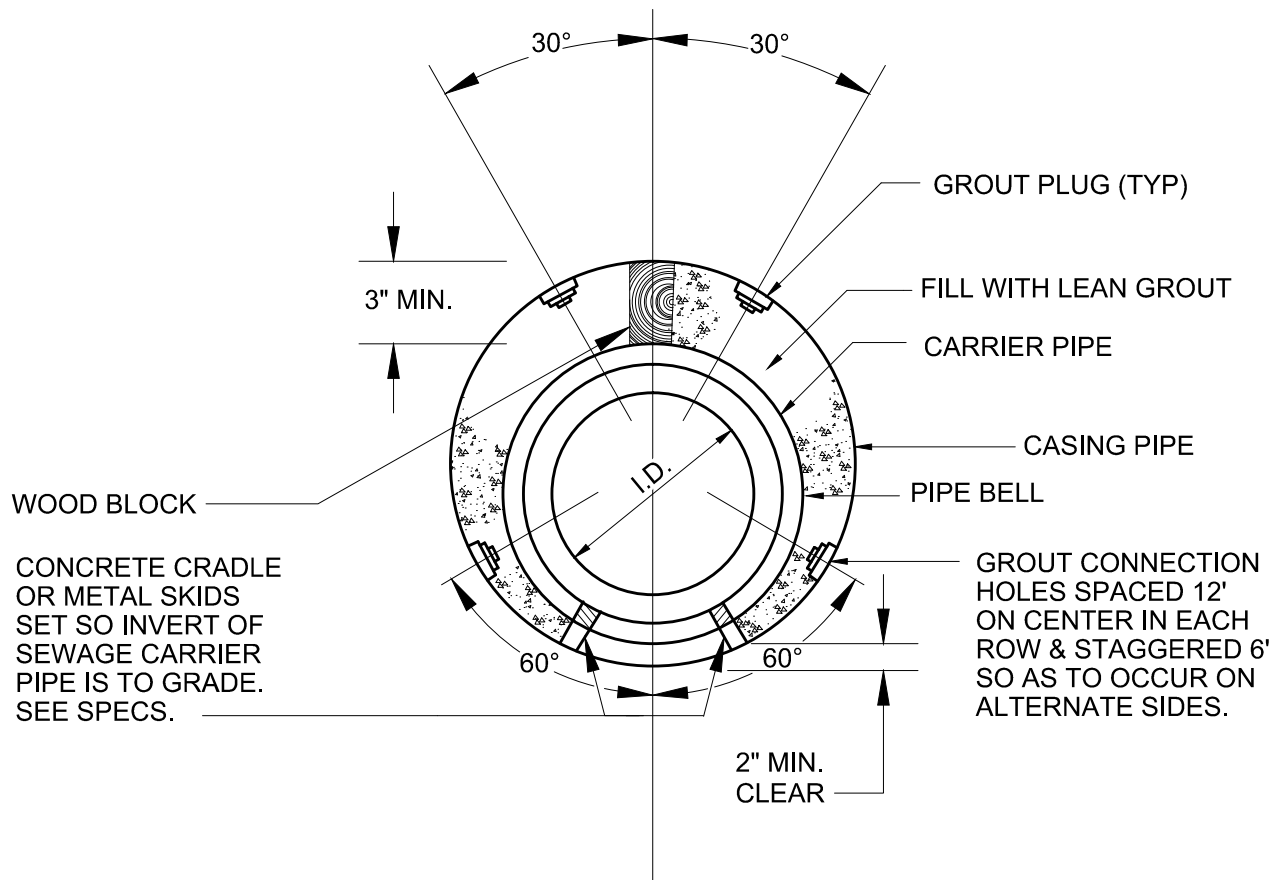
APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Lee Orlando* 12/21/16  
GENERAL MANAGER DATE

ANCHOR  
BLOCK  
DETAIL

NO SCALE  
STANDARD DWG.  
**S-7**

GROUT CONNECTION HOLES SPACED 8' ON CENTER IN EACH ROW & STAGGERED 4' SO AS TO OCCUR ON ALTERNATE SIDES OF CROWN.



**NOTES:**

1. ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIPHERY OF CASING TO BE PRESSURE GROUTED.
3. CARRIER PIPE SHALL BE AIR TESTED PRIOR TO FILLING CASING WITH GROUT.
4. THE ELEVATIONS AND SLOPE OF THE CARRIER PIPE SHALL BE SURVEYED AND APPROVED BY THE ENGINEER PRIOR TO FILLING CASING.

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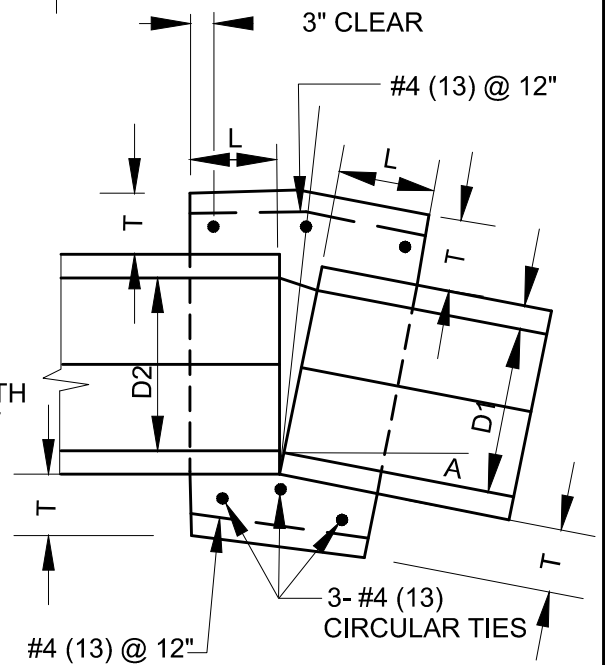
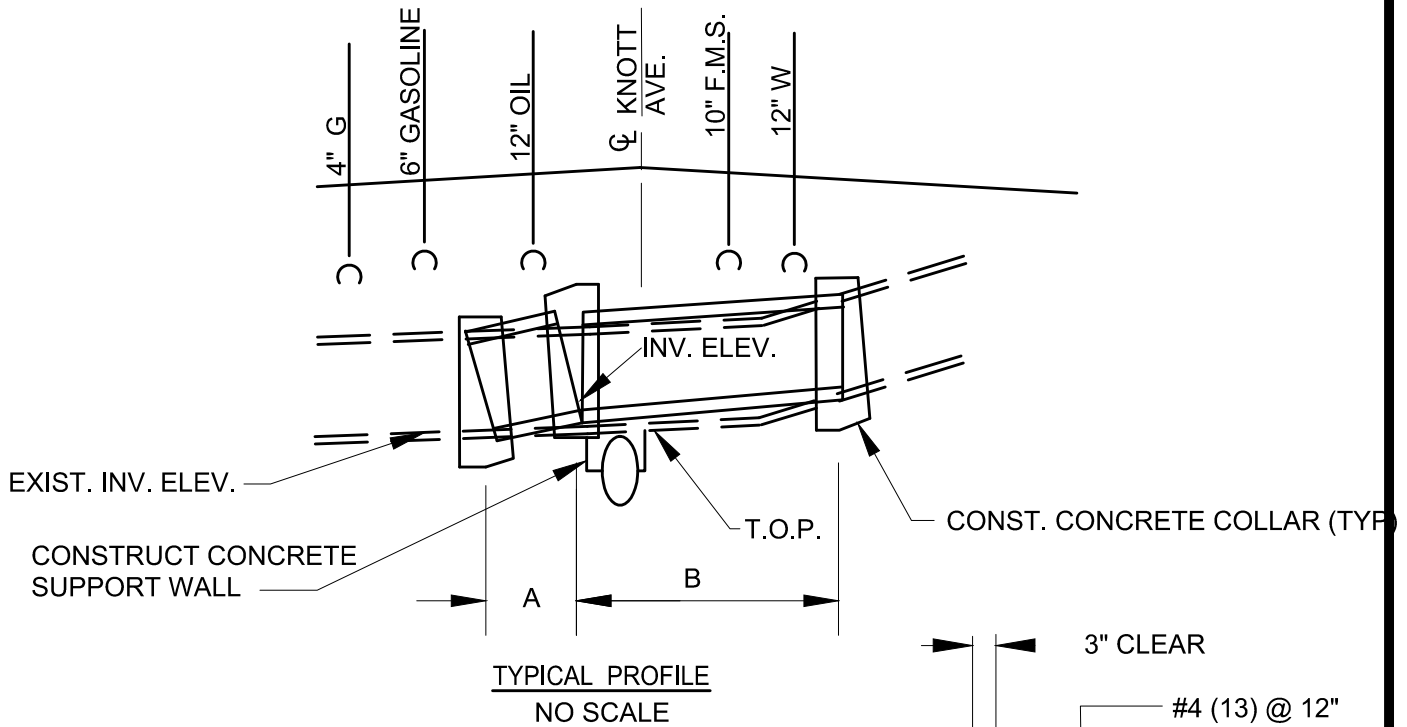
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

VCP INSTALLATION  
IN  
CASING PIPE

NO SCALE  
STANDARD DWG.  
**S-8**



**NOTES:**

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 0.10 FEET PER FOOT.
2. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH WITH A CONCRETE COLLAR. L AND T SHALL BE THOSE OF THE LARGER PIPE  $D=D_1$  OR  $D_2$ , WHICHEVER IS GREATER.
3. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.
4. OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE CHANGE IS LESS THAN 0.10 FEET PER FOOT.
5. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCLE TIES SHALL BE  $D + (2 \times \text{WALL THICKNESS}) + 8$ .
6. WHEN  $D_1$  IS EQUAL TO OR LESS THAN  $D_2$ , JOIN INVERTS AND WHEN  $D_1$  IS GREATER THAN  $D_2$ , JOIN SOFFITS.
7. NOT TO BE USED FOR A SIZE CHANGE ON THE MAINLINE.
8. USE 4000 PSI (CLASS "A") CONCRETE.
9. DIMENSIONS A,B. ELEVATIONS AND SLOPES ( $S=0....$ ) SHALL BE SHOWN ON THE PLANS.
10. THE INSIDE OF THE FIELD CLOSURE SHALL BE BARREL FORMED UTILIZING T-LOCK PVC AND ANGLE TURNBACKS AT EDGES, CAULK EDGES OF PVC.

( ) DENOTES METRIC SYSTEM

**TYPICAL CONCRETE COLLAR**  
NO SCALE

| D   | L   | T  |
|-----|-----|----|
| 12" | 12" | 4" |
| 18" | 12" | 5" |
| 24" | 12" | 6" |
| 36" | 18" | 8" |
| 42" | 18" | 9" |

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER DATE  
*Lee Orlando* 12/21/16

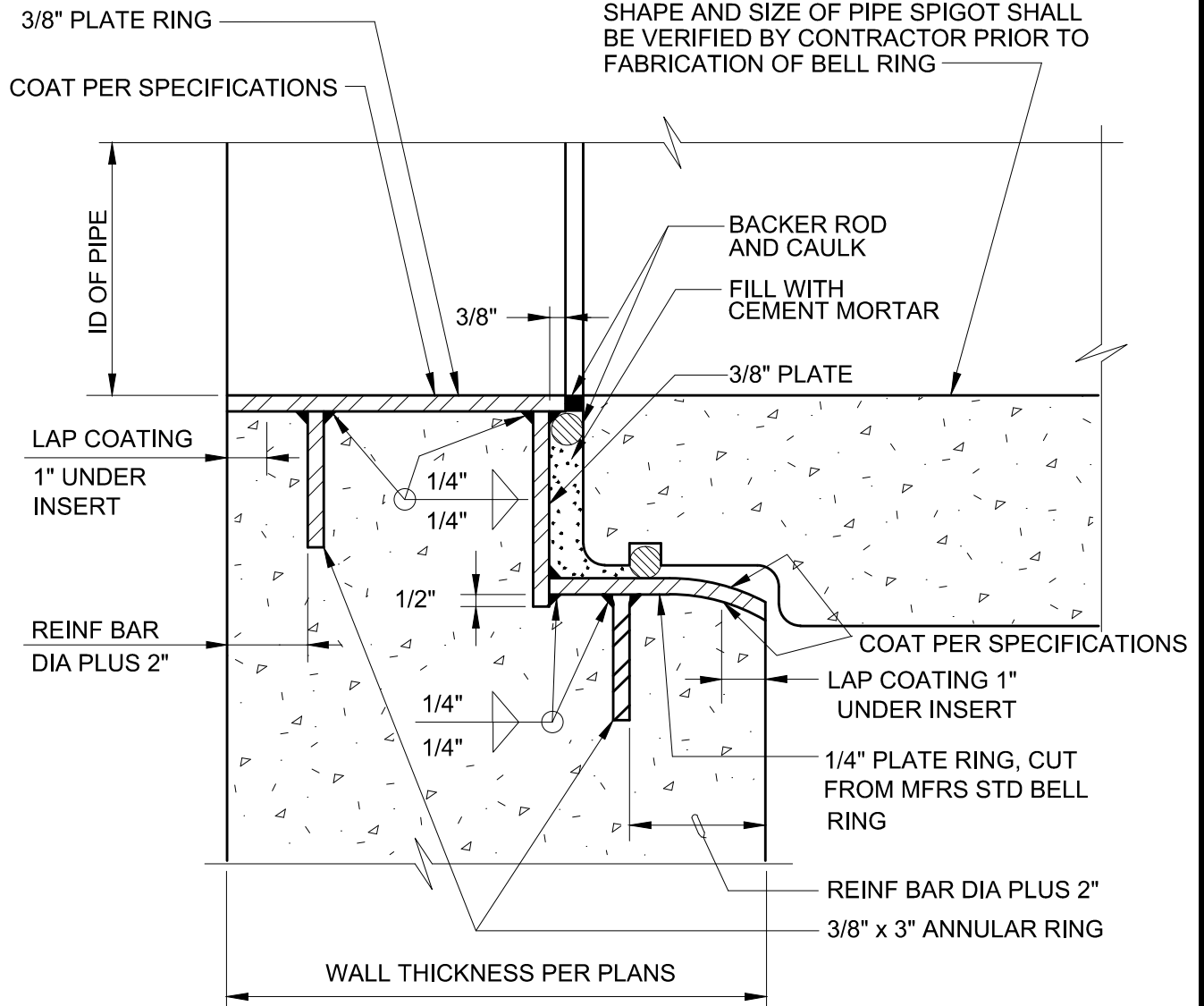
GENERAL MANAGER DATE

FIELD CLOSURE  
FOR VCP

NO SCALE

STANDARD DWG.

S-9



**NOTES:**

1. WELD ALL CUT REINFORCING BARS TO ANNULAR RING FOR PIPES GREATER THAN 48" DIAMETER. USE LOW HYDROGEN WELDING ER 70XX.
2. GRIND SMOOTH ALL METAL EDGES IN AREAS TO BE COATED AND ALL SURFACES IN PIPE SEATING AREA.
3. RING SHALL HAVE SPIDER BRACING INSTALLED AT POINT OF MANUFACTURE TO MAINTAIN ROUNDNESS.
4. ALL WELDS SHALL BE DYE TESTED PRIOR TO SHIPMENT.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE  
*Lee Orleans* 12/21/16  
GENERAL MANAGER DATE

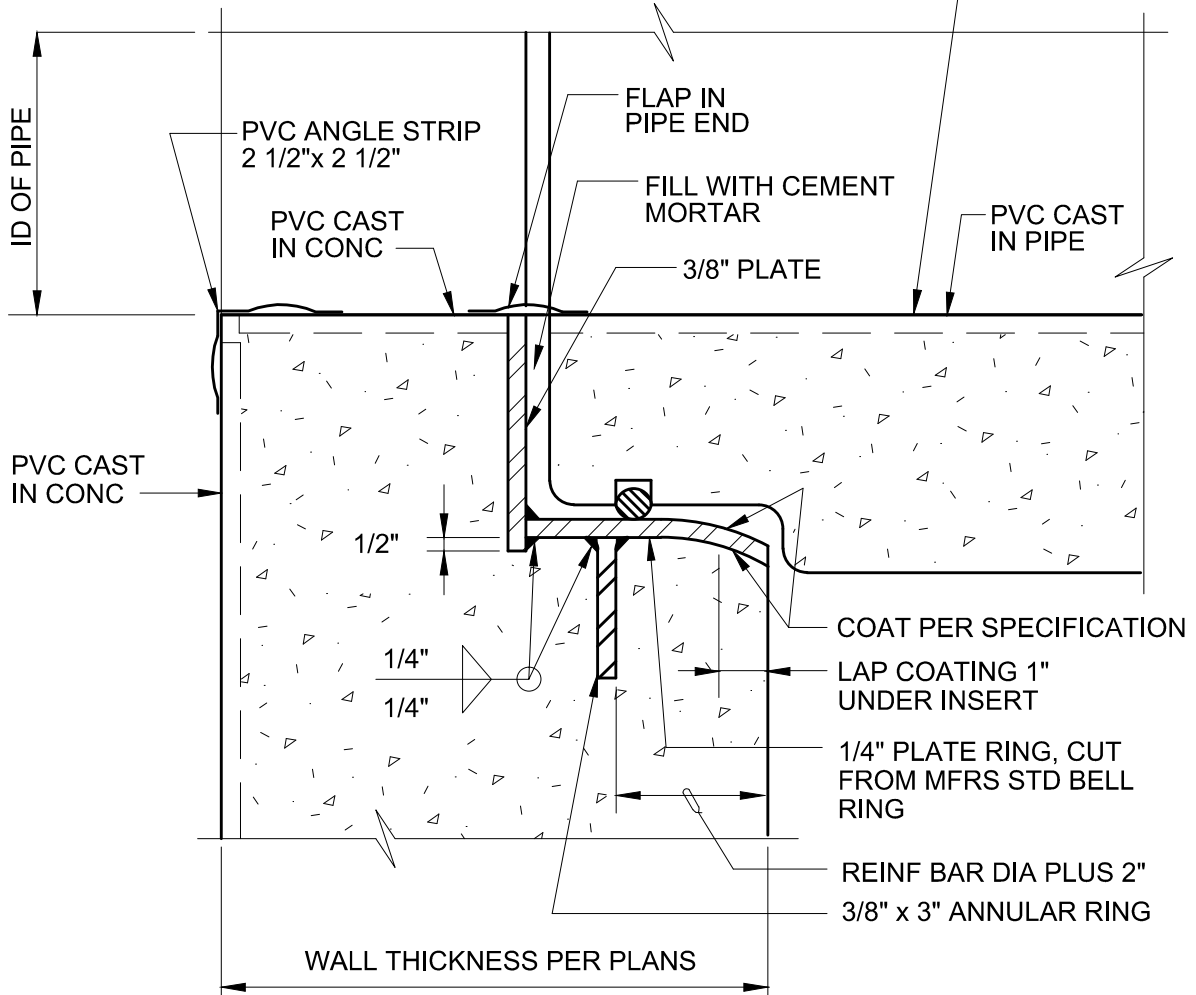
BELL - RING  
INSERT

NO SCALE

STANDARD DWG.

S-10

SHAPE AND SIZE OF PIPE SPIGOT SHALL BE VERIFIED BY CONTRACTOR PRIOR TO FABRICATION OF BELL RING



**NOTES:**

1. WELD ALL CUT REINFORCING BARS TO ANNULAR RING FOR PIPES GREATER THAN 48" DIAMETER. USE LOW HYDROGEN WELDING ER 70XX.
2. GRIND SMOOTH ALL METAL EDGES IN AREAS TO BE COATED AND ALL SURFACES IN PIPE SEATING AREA.
3. RING SHALL HAVE SPIDER BRACING INSTALLED AT POINT OF MANUFACTURE TO MAINTAIN ROUNDNESS.
4. ALL WELDS SHALL BE DYE TESTED PRIOR TO SHIPMENT.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY

*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER

DATE

*Lee Orlando*

12/21/16

GENERAL MANAGER

DATE

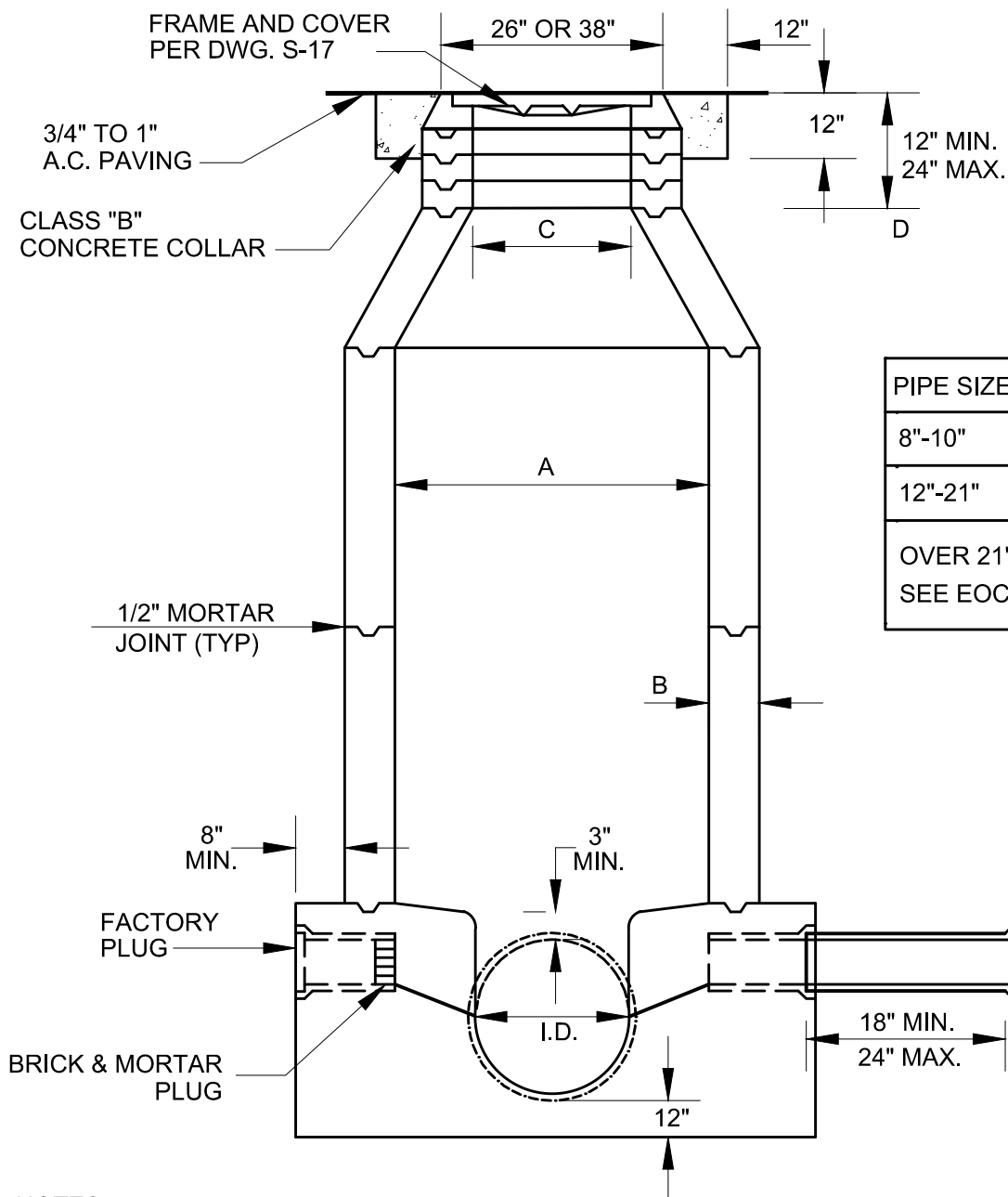
BELL - RING INSERT  
WITH PVC  
PLATE LINER

NO SCALE

STANDARD DWG.

S-11





| PIPE SIZE                            | A   | B  | C   | D   |
|--------------------------------------|-----|----|-----|-----|
| 8"-10"                               | 48" | 6" | 24" | 24" |
| 12"-21"                              | 60" | 8" | 36" | 24" |
| OVER 21" PIPE<br>SEE EOCWD STD. S-14 |     |    |     |     |

**NOTES:**

1. NO STEPS ARE ALLOWED IN ANY MANHOLE. ALL SHAFTS AND CONES SHALL BE PRECAST. ECCENTRIC CONE SHALL BE SET WITH STRAIGHT SIDE ON THE DOWNSTREAM SIDE OF THE MANHOLE. SHAFT AND CONE MAY BE REINFORCED OR NON-REINFORCED.
2. MANHOLE BASE SHALL BE POURED WITH CLASS "A" CONCRETE.
3. SIDES OF BASE SHALL BE EITHER FORMED OR POURED AGAINST VERTICAL SMOOTH EARTH
4. CROWN OF LATERAL SHALL MATCH CROWN OF MAIN.
5. MANHOLE PLACED IN UNPAVED AREAS SHALL HAVE THEIR FRAMES AND COVERS SET 18" ABOVE FINISHED GRADE.
6. WHEN THE DEPTH OF MANHOLE EXCEEDS 15' FROM THE TOP OF PIPE TO FINISHED GRADE . THE MANHOLE SHAFT SHALL BE INCREASED TO A DIAMETER OF 60".

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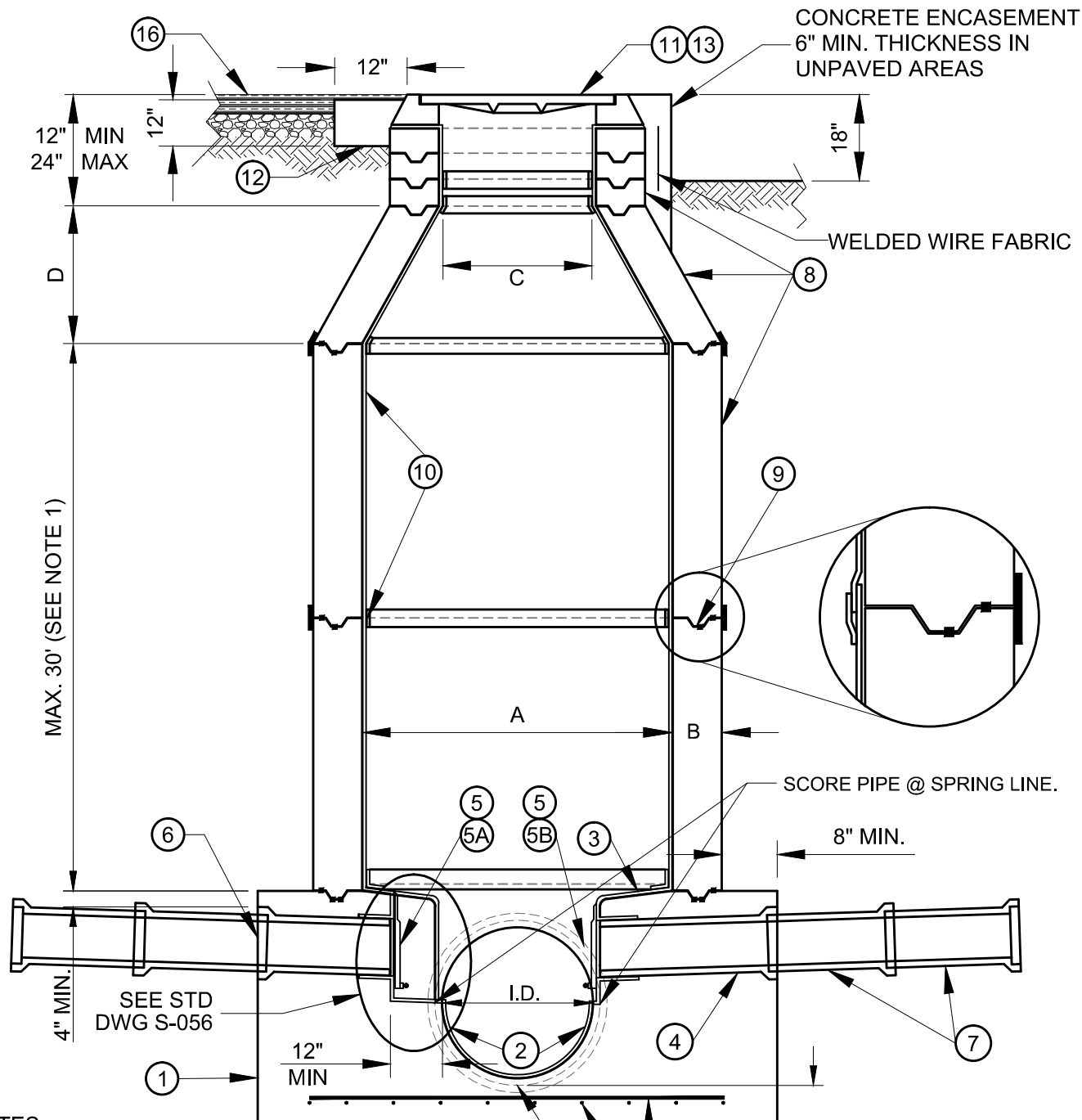
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

UN - LINED  
MANHOLE  
FOR SEWERS

NO SCALE  
STANDARD DWG.  
**S-12**



**NOTES:**

1. MANHOLE DEPTH GREATER THAN 30', DIMENSION 'A' PER PLANS. SEE PLANS FOR PIPE SIZES OVER 54".
2. MANHOLE BEDDING SHALL BE MIN. 12" ROCK BEDDING OR APPROVED EQUAL.

| PIPE SIZE (I.D.) | A   | B  | C   | D   |
|------------------|-----|----|-----|-----|
| 8"-24"           | 60" | 6" | 36" | 24" |
| 27"-36"          | 72" | 7" | 36" | 32" |
| 39"-54"          | 84" | 8" | 36" | 48" |

**ELEVATION VIEW A-A**  
NTS

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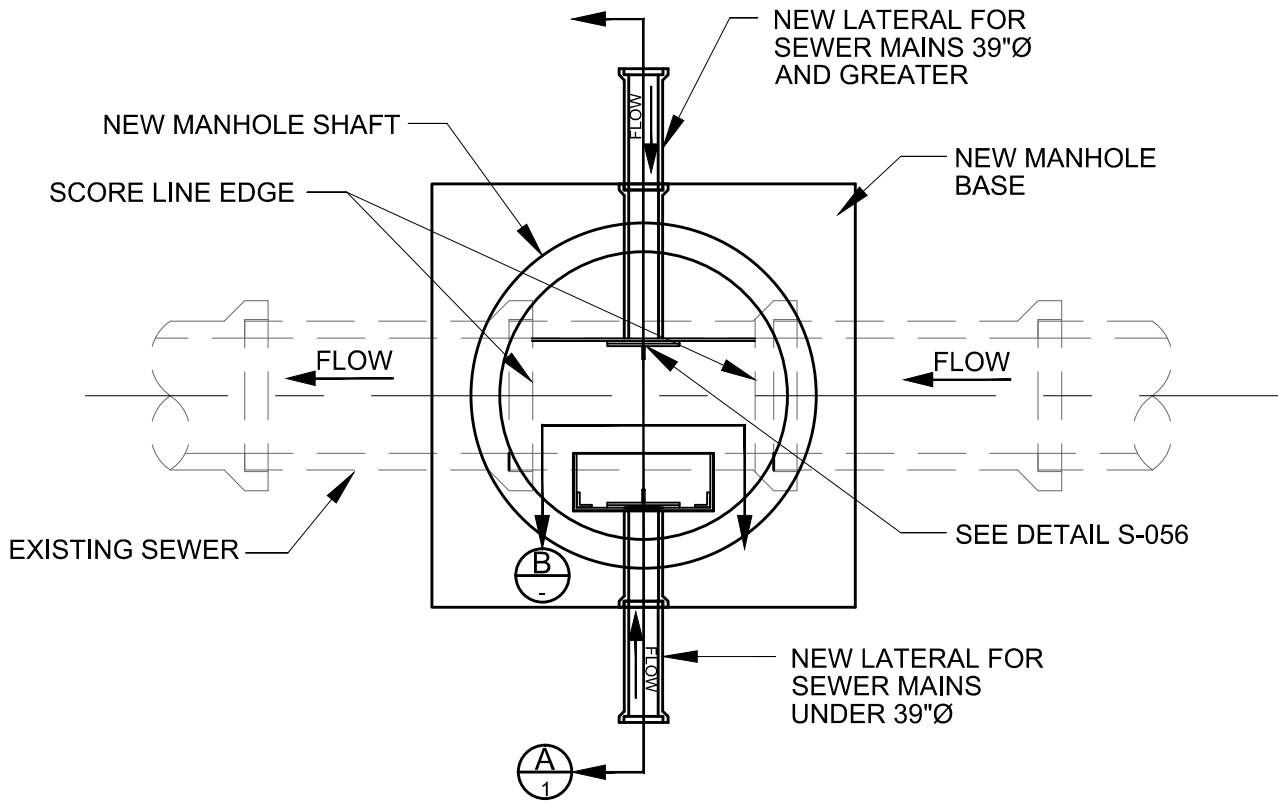
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

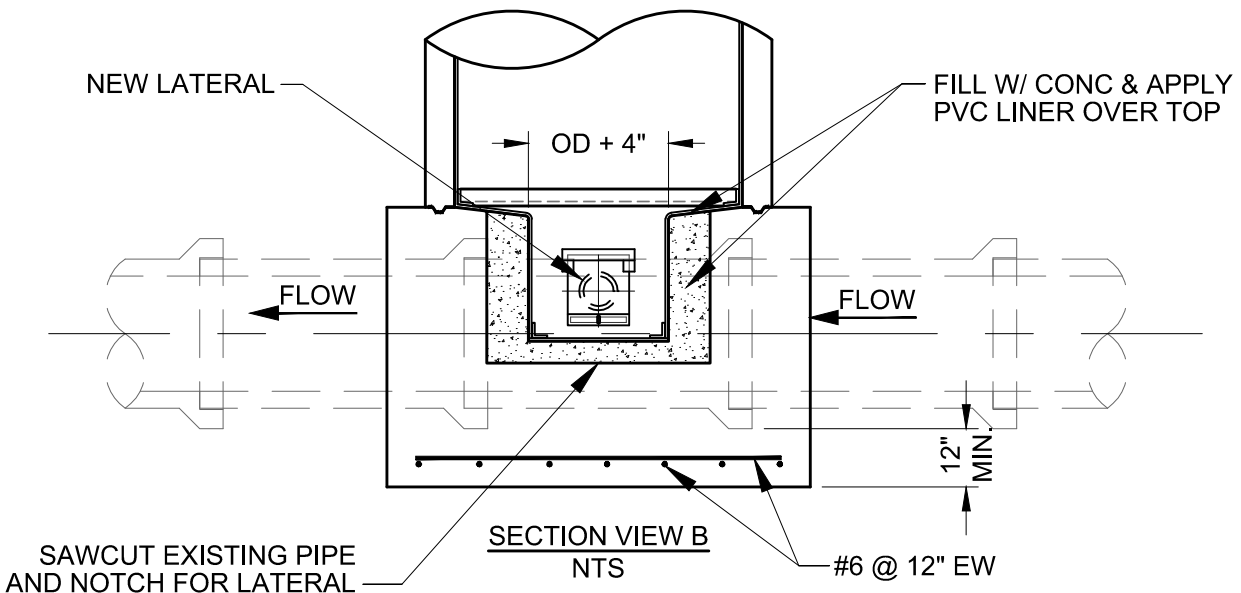
*Lee Orlando* 12/21/16  
GENERAL MANAGER DATE

NEW PVC LINED  
MANHOLE  
EXISTING SEWER

1 OF 3  
STANDARD DWG.  
**S-13**



PLAN VIEW  
NTS



SECTION VIEW B  
NTS

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

NEW PVC LINED  
MANHOLE  
EXISTING SEWER

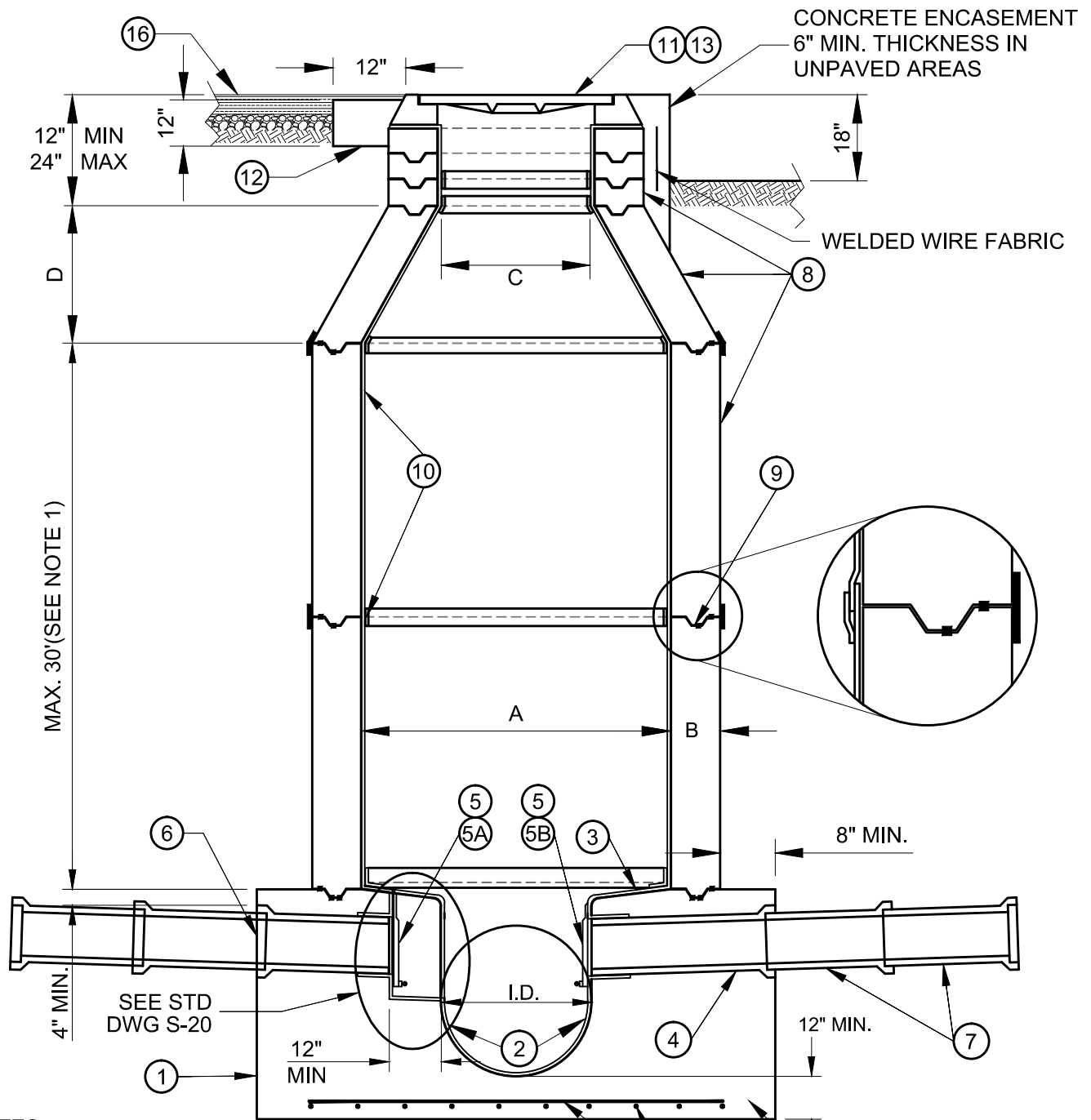
2 OF 3  
STANDARD DWG.  
**S-13**

13

NOTES:

- 1 MANHOLES SHALL HAVE 4000 # (CLASS "A"), CONCRETE BASES WITH #6 (19 MM) BARS @ 12" E.W. SIDES OF BASE SHALL BE FORMED BY EITHER WOOD FORMS OR SANDBAGS. BASE MAY BE EITHER CIRCULAR OR RECTANGULAR. IF CIRCULAR, THE AREA SHALL BE EQUAL TO THE AREA OF THE SQUARE BASE. ALL CONCRETE AND MORTAR SHALL USE CLASS II/V CEMENT.
- 2 CONTRACTOR TO SCORE EXISTING MAIN LINE SEWER AT SPRING LINE BEFORE POURING BASE. REMOVAL OF UPPER PART OF EXISTING SEWER SHALL BE DONE AFTER CONCRETE BASE HAS CURED FOR A MINIMUM OF 48 HOURS.
- 3 MANHOLE SHELVES SHALL BE SLOPED 1/4" PER FOOT TO CHANNEL AND COVERED WITH PVC LINER WITH LOCKING EXTENSIONS. THE PVC LINER SHALL BE APPLIED BY MEANS OF AN EPOXY-TYPE MASTIC. INSTALL NON-SKID SURFACE ON PVC LINER OVER THE COMPLETE MANHOLE SHELF ON BOTH SIDES OF MAIN CHANNEL PER THE SPECIFICATION OR APPROVED LINER MANUFACTURER RECOMMENDATIONS. A PVC ANGLE STRIP SHALL BE USED FOR THE TRANSITION BETWEEN HORIZONTAL SHELF AND VERTICAL CHANNEL.
- 4 INSTALL AT LEAST TWO LATERAL INLET PIPES IN THE MANHOLE BASE AS SHOWN. IF NOT SHOWN, LATERAL PIPING SHALL BE 8" VCP AT 90° TO THE MAIN CHANNEL AND SLOPED AT 1/4" PER FOOT FROM THE OUTSIDE OF THE MANHOLE BASE TO THE CHANNEL. WHERE THE CHANNEL ANGLES MORE THAN 45° TOWARD A SIDE, THAT SIDE LATERAL IS NOT REQUIRED.
- 5 THE SOFFIT OF ALL LATERAL PIPES SHALL BE AT THE SAME ELEVATION AS THE MAIN PIPE SOFFIT. ALL LATERAL INLETS 12" DIAMETER AND SMALLER SHALL HAVE PVC WELDED GAS FLAPS INSTALLED SIMILAR TO DRAWING S-056, UNLESS OTHERWISE NOTED BY THE ENGINEER. PVC LINER SHALL BE PLACED THROUGHOUT THE CHANNEL AND PVC TURN BACK ON VCP OR OTHER PIPE SHALL BE A MINIMUM OF 6".
- 5A FOR MANHOLE BASES WHERE MAIN SEWER PIPE IS LESS THAN 39" IN DIAMETER, THE LATERALS SHALL BE RECESSED 12 INCHES MINIMUM FROM MAIN LINE CHANNEL WITH A TROUGH IN THE BENCH SLOPING TO THE MAIN CHANNEL.
- 5B FOR MANHOLE BASES WHERE MAIN SEWER PIPE IS 39" AND GREATER IN DIAMETER, THE END OF THE LATERAL IS FLUSH WITH THE CHANNEL.
- 6 ALL UNUSED CONNECTIONS SHALL HAVE A FACTORY MADE VCP PLUG INSTALLED IN THE BELL END OF THE PIPE WITH RESTRAINT SUFFICIENT TO WITHSTAND LEAKAGE TESTING. PIPE OVER 21" SHALL USE A BRICK AND MORTAR PLUG.
- 7 EACH MAIN LINE OR LATERAL CONNECTION TO THE MANHOLE BASE SHALL HAVE TWO EACH, TWO FOOT JOINTS.
- 8 MANHOLE SECTIONS AND GRADE RINGS SHALL BE REINFORCED, MADE FROM CLASS II/V CEMENT AND CAST WITH PVC LINER PLATE ON INSIDE. ECCENTRIC CONE SHALL BE SET WITH STRAIGHT SIDE ON DOWNSTREAM SIDE OF MANHOLE. ECCENTRIC REINFORCED CONCRETE FLAT TOPS MAY BE USED WHEN APPROVED BY THE ENGINEER.
- 9 THE KEYLOCK JOINT BETWEEN MANHOLE SECTIONS SHALL BE SEALED WITH TWO 1¼-INCH SQUARE BEADS OF RAM-NEK BY HENRY COMPANY, KENT-SEAL BY HAMILTON KENT, OR APPROVED EQUAL. THE MASTIC BEADS SHALL BE PLACED ON THE OUTSIDE SHOULDER OF AND IN THE GROOVE. APPLY A 6" MINIMUM WIDTH OUTSIDE JOINT WRAP, RUB'R-NEK BY HENRY COMPANY, SEAL WRAP BY SEALING SYSTEMS, INC., OR EQUAL, TO ALL SHAFT JOINTS. GRADE RING JOINTS SHALL BE MORTAR.
- 10 INSTALLATION OF PVC LINER PLATE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 06620 OF THE SPECIFICATIONS. USE WELDING STRIPS AT PVC JOINTS, A PREFORMED CORNER WELDING STRIP AT THE BASE JOINT AND A CONTINUOUS PREFORMED CORNER AT THE TOP GRADE RING AND FRAME JOINT TO THE SECOND GRADE RING.
- 11 INSTALL FRAME AND COVER PER STANDARD DRAWING S-055. ADJUSTMENT SHALL OCCUR USING MORTAR BETWEEN FIRST AND SECOND GRADE RINGS. THE FRAME SHALL COMPLETELY BEAR ON PVC. CAULK THE JOINT BETWEEN THE FRAME AND THE PREFORMED PVC CORNER AT THE TOP GRADE RING WITH SIKAFLEX 1A OR EQUAL.
- 12 PLACE CONCRETE COLLAR IN PAVED AREAS AS SHOWN AFTER PLACEMENT OF ASPHALT. SEE DRAWING S-055. MANHOLES PLACED IN UNPAVED AREAS SHALL HAVE THE COVERS PLACED 18" ABOVE FINISHED GRADE.
- 13 MANHOLES IN INTERSECTIONS SHALL HAVE BOLTED COVERS.
- 14 VACUUM TESTING SHALL BE PERFORMED PER ASTM C-1244 UNLESS NOTED OTHERWISE.
- 15 MANHOLES SHALL BE BACKFILLED WITH 1 1/2 SACK SAND/CEMENT SLURRY TO STREET ZONE OR AS REQUIRED BY LOCAL AGENCY.
- 16 IN PAVED AREAS, PAVEMENT AND BASE COURSE SHALL BE REPLACED IN KIND.

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|     | EAST ORANGE COUNTY WATER DISTRICT<br>ORANGE, CALIFORNIA<br>APPROVED BY<br><i>Patrick J. Cahill</i> 12/21/16<br>DISTRICT ENGINEER DATE<br><i>Gene Orlando</i> 12/21/16<br>GENERAL MANAGER DATE | NEW PVC LINED<br>MANHOLE<br>EXISTING SEWER | 3 OF 3<br>STANDARD DWG.<br><b>S-13</b> |
| NO. | APPROVED  | DATE                                       |  |



**NOTES:**

1. MANHOLE DEPTH GREATER THAN 30', DIMENSION 'A' PER PLANS. SEE PLANS FOR PIPE SIZES OVER 54".
2. MANHOLE BEDDING SHALL BE THE SAME THICKNESS AND CLASS AS THE PIPE BEDDING.

| PIPE SIZE (I.D.) | A   | B  | C   | D   |
|------------------|-----|----|-----|-----|
| 8"-24"           | 60" | 6" | 36" | 24" |
| 27"-36"          | 72" | 7" | 36" | 32" |
| 39"-54"          | 84" | 8" | 36" | 48" |

**ELEVATION VIEW A-A**  
NTS

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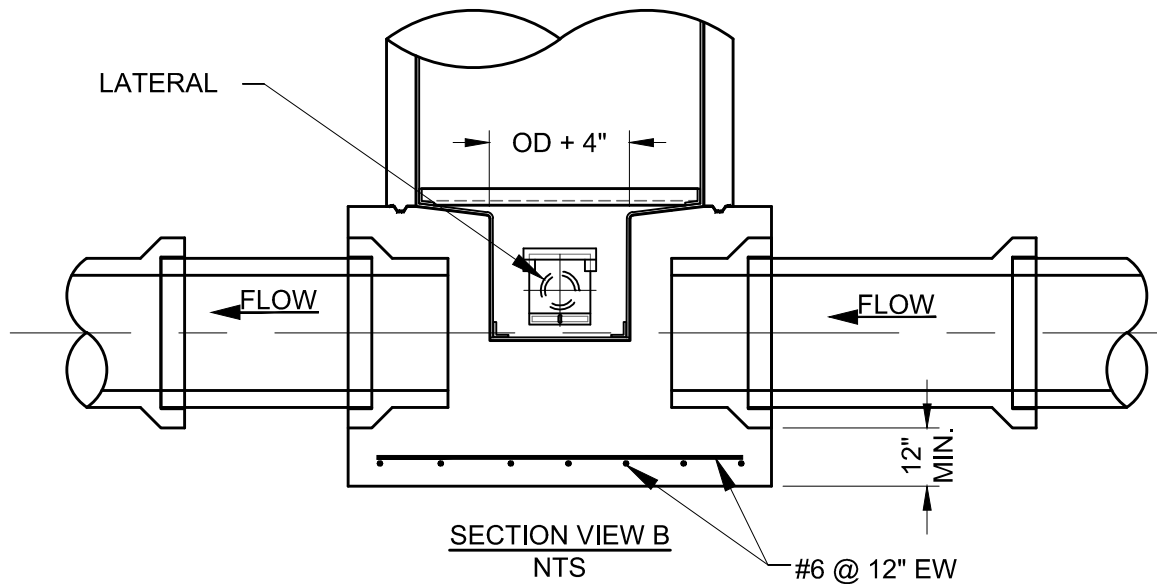
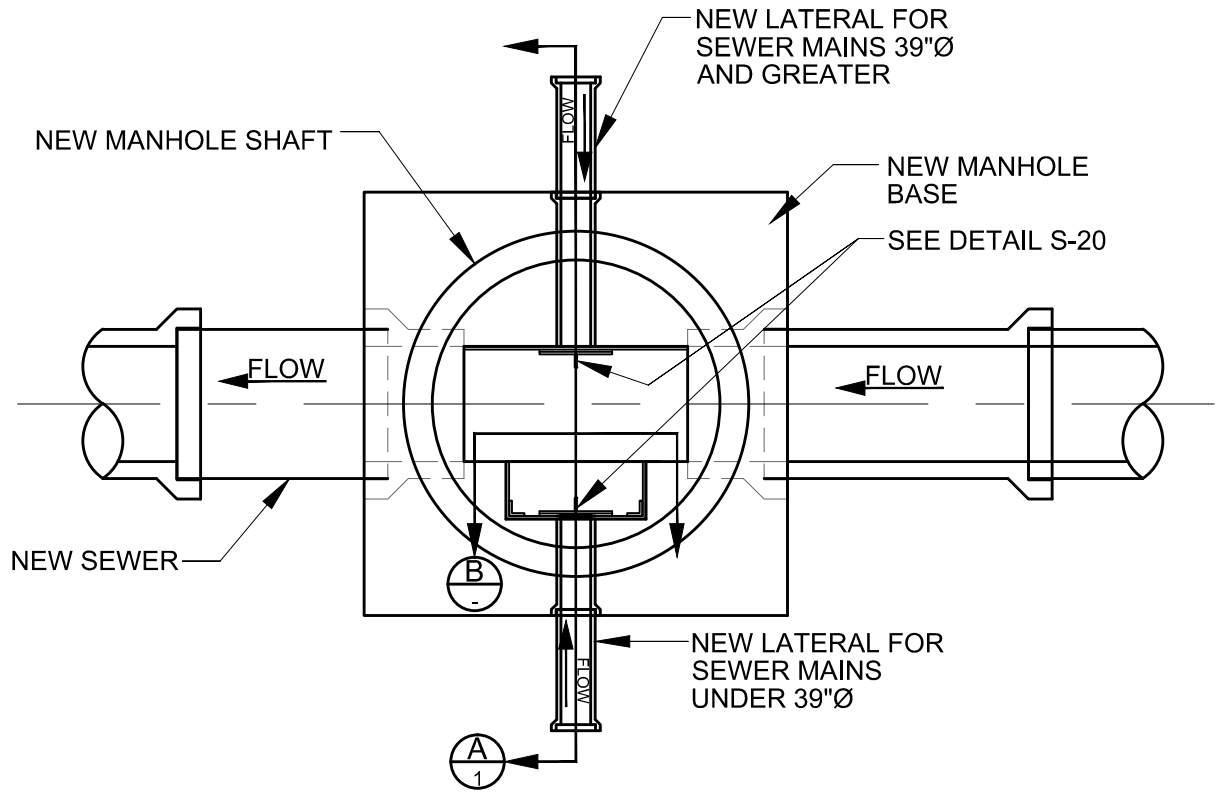
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

NEW PVC LINED  
MANHOLE  
NEW SEWER

1 OF 3  
STANDARD DWG.  
**S-14**



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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY

*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER

DATE

*Lee Orlando*

12/21/16

GENERAL MANAGER

DATE

NEW PVC LINED  
MANHOLE  
NEW SEWER

2 OF 3


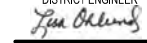
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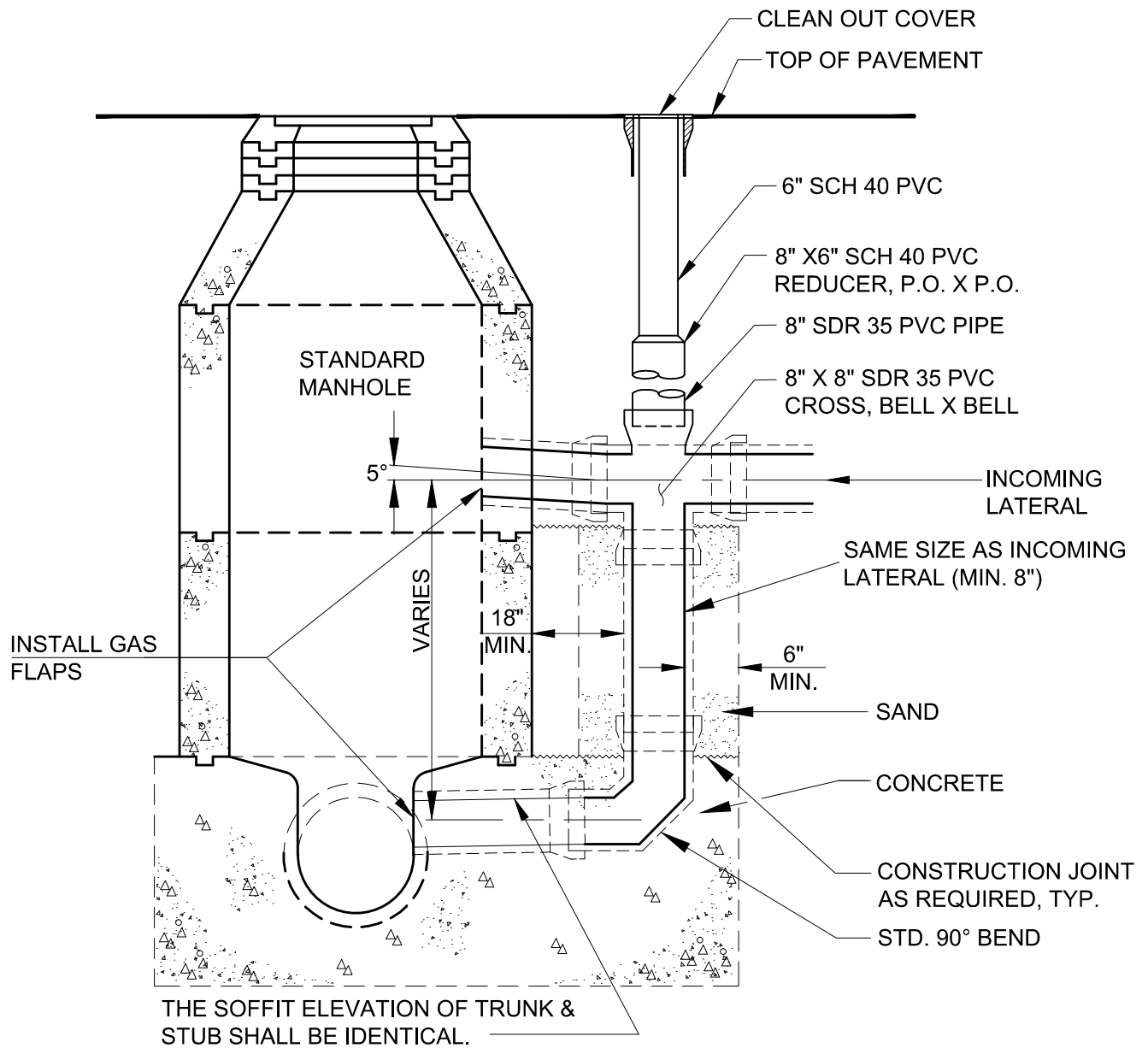
S-14

NOTES:

- 1 MANHOLES SHALL HAVE 4000 # (CLASS "A"), CONCRETE BASES WITH #6 (19 MM) BARS @ 12" E.W. SIDES OF BASE SHALL BE FORMED BY EITHER WOOD FORMS OR SANDBAGS. BASE MAY BE EITHER CIRCULAR OR RECTANGULAR. IF CIRCULAR, THE AREA SHALL BE EQUAL TO THE AREA OF THE SQUARE BASE. ALL CONCRETE AND MORTAR SHALL USE CLASS II/V CEMENT.
- 2 THE COMPLETE CONCRETE CHANNEL SHALL BE CONSTRUCTED WITH FORMS AND PVC LINED. WHERE PVC LINED RCP IS USED, THE CHANNEL LINING IS TO BE INSTALLED TO THE SAME DEPTH AS THE RCP LINING. WHEN APPROVED BY THE ENGINEER, THE NEW OR EXISTING MAIN LINE MAY BE USED FOR THE CHANNEL. PIPE ABOVE SPRING LINE SHALL BE REMOVED BY SAW CUTTING. THE REMOVED SECTION LENGTH SHALL BE EQUAL TO THE MANHOLE SHAFT INSIDE DIAMETER.
- 3 MANHOLE SHELVES SHALL BE SLOPED 1/4" PER FOOT TO CHANNEL AND COVERED WITH PVC LINER WITH LOCKING EXTENSIONS. THE PVC LINER SHALL BE APPLIED BY MEANS OF AN EPOXY-TYPE MASTIC. INSTALL NON-SKID SURFACE ON PVC LINER OVER THE COMPLETE MANHOLE SHELF ON BOTH SIDES OF MAIN CHANNEL PER THE SPECIFICATION OR APPROVED LINER MANUFACTURER RECOMMENDATIONS. A PVC ANGLE STRIP SHALL BE USED FOR THE TRANSITION BETWEEN HORIZONTAL SHELF AND VERTICAL CHANNEL.
- 4 INSTALL AT LEAST TWO LATERAL INLET PIPES IN THE MANHOLE BASE AS SHOWN. IF NOT SHOWN, LATERAL PIPING SHALL BE 8" VCP AT 90° TO THE MAIN CHANNEL AND SLOPED AT 1/4" PER FOOT FROM THE OUTSIDE OF THE MANHOLE BASE TO THE CHANNEL. WHERE THE CHANNEL ANGLES MORE THAN 45° TOWARD A SIDE, THAT SIDE LATERAL IS NOT REQUIRED.
- 5 THE SOFFIT OF ALL LATERAL PIPES SHALL BE AT THE SAME ELEVATION AS THE MAIN PIPE SOFFIT. ALL LATERAL INLETS 12" DIAMETER AND SMALLER SHALL HAVE PVC WELDED GAS FLAPS INSTALLED SIMILAR TO DRAWING S-20, UNLESS OTHERWISE NOTED BY THE ENGINEER. PVC LINER SHALL BE PLACED THROUGHOUT THE CHANNEL AND PVC TURN BACK ON VCP OR OTHER PIPE SHALL BE A MINIMUM OF 6".
- 5A FOR MANHOLE BASES WHERE MAIN SEWER PIPE IS LESS THAN 39" IN DIAMETER, THE LATERALS SHALL BE RECESSED 12 INCHES MINIMUM FROM MAIN LINE CHANNEL WITH A TROUGH IN THE BENCH SLOPING TO THE MAIN CHANNEL.
- 5B FOR MANHOLE BASES WHERE MAIN SEWER PIPE IS 39" AND GREATER IN DIAMETER, THE END OF THE LATERAL IS FLUSH WITH THE CHANNEL.
- 6 ALL UNUSED CONNECTIONS SHALL HAVE A FACTORY MADE VCP PLUG INSTALLED IN THE BELL END OF THE PIPE WITH RESTRAINT SUFFICIENT TO WITHSTAND LEAKAGE TESTING. PIPE OVER 21" SHALL USE A BRICK AND MORTAR PLUG.
- 7 EACH MAIN LINE OR LATERAL CONNECTION TO THE MANHOLE BASE SHALL HAVE TWO EACH, TWO FOOT JOINTS.
- 8 MANHOLE SECTIONS AND GRADE RINGS SHALL BE REINFORCED, MADE FROM CLASS II/V CEMENT AND CAST WITH PVC LINER PLATE ON INSIDE. ECCENTRIC CONE SHALL BE SET WITH STRAIGHT SIDE ON DOWNSTREAM SIDE OF MANHOLE. ECCENTRIC REINFORCED CONCRETE FLAT TOPS MAY BE USED WHEN APPROVED BY THE ENGINEER.
- 9 THE KEYLOCK JOINT BETWEEN MANHOLE SECTIONS SHALL BE SEALED WITH TWO 1¼-INCH SQUARE BEADS OF RAM-NEK BY HENRY COMPANY, KENT-SEAL BY HAMILTON KENT, OR APPROVED EQUAL. THE MASTIC BEADS SHALL BE PLACED ON THE OUTSIDE SHOULDER OF AND IN THE GROOVE. APPLY A 6" MINIMUM WIDTH OUTSIDE JOINT WRAP, RUB'R-NEK BY HENRY COMPANY, SEAL WRAP BY SEALING SYSTEMS, INC., OR EQUAL, TO ALL SHAFT JOINTS. GRADE RING JOINTS SHALL BE MORTAR.
- 10 INSTALLATION OF PVC LINER PLATE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 06620 OF THE SPECIFICATIONS. USE WELDING STRIPS AT PVC JOINTS, A PREFORMED CORNER WELDING STRIP AT THE BASE JOINT AND A CONTINUOUS PREFORMED CORNER AT THE TOP GRADE RING AND FRAME JOINT TO THE SECOND GRADE RING.
- 11 INSTALL FRAME AND COVER PER STANDARD DRAWING S-055. ADJUSTMENT SHALL OCCUR USING MORTAR BETWEEN FIRST AND SECOND GRADE RINGS. THE FRAME SHALL COMPLETELY BEAR ON PVC. CAULK THE JOINT BETWEEN THE FRAME AND THE PREFORMED PVC CORNER AT THE TOP GRADE RING WITH SIKAFLEX 1A OR EQUAL.
- 12 PLACE CONCRETE COLLAR IN PAVED AREAS AS SHOWN AFTER PLACEMENT OF ASPHALT. SEE DRAWING S-19. MANHOLES PLACED IN UNPAVED AREAS SHALL HAVE THE COVERS PLACED 18" ABOVE FINISHED GRADE.
- 13 MANHOLES IN INTERSECTIONS SHALL HAVE BOLTED COVERS.
- 14 VACUUM TESTING SHALL BE PERFORMED PER ASTM C-1244 UNLESS NOTED OTHERWISE.
- 15 MANHOLES SHALL BE BACKFILLED WITH 1 1/2 SACK SAND/CEMENT SLURRY TO STREET ZONE OR AS REQUIRED BY LOCAL AGENCY.
- 16 IN PAVED AREAS, PAVEMENT AND BASE COURSE SHALL BE REPLACED IN KIND.

14

|     |  |                                       |                                 |
|-----|--|---------------------------------------|---------------------------------|
|     | EAST ORANGE COUNTY WATER DISTRICT<br>ORANGE, CALIFORNIA<br>APPROVED BY<br> 12/21/16<br>DISTRICT ENGINEER DATE<br> 12/21/16<br>GENERAL MANAGER DATE | NEW PVC LINED<br>MANHOLE<br>NEW SEWER | 3 OF 3<br>STANDARD DWG.<br>S-14 |
| NO. | APPROVED   | DATE                                  |                                 |



**NOTES:**

1. SEE DETAIL S-050 FOR STANDARD MANHOLE.
2. CONCRETE FOR DROP SECTIONS SHALL BE FORMED.
3. ALL MANHOLE PENETRATIONS SHALL BE MADE BY CORE DRILLING. INTERIOR COATING SHALL BE REPAIRED. PVC LINER SHALL BE REPAIRED WITH 6" TURN BACK AT ALL PENETRATIONS. GAS FLAPS SHALL BE INSTALLED AT ALL PENETRATIONS 12" OR SMALLER (SEE STD. DRAWING S-056).
4. DROP MANHOLE CONNECTION SHALL BE USED ONLY WHERE SLOPE OF LATERAL INCOMING TO MAIN SEWER WOULD EXCEED 10% AND ONLY WITH APPROVAL OF THE ENGINEER.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

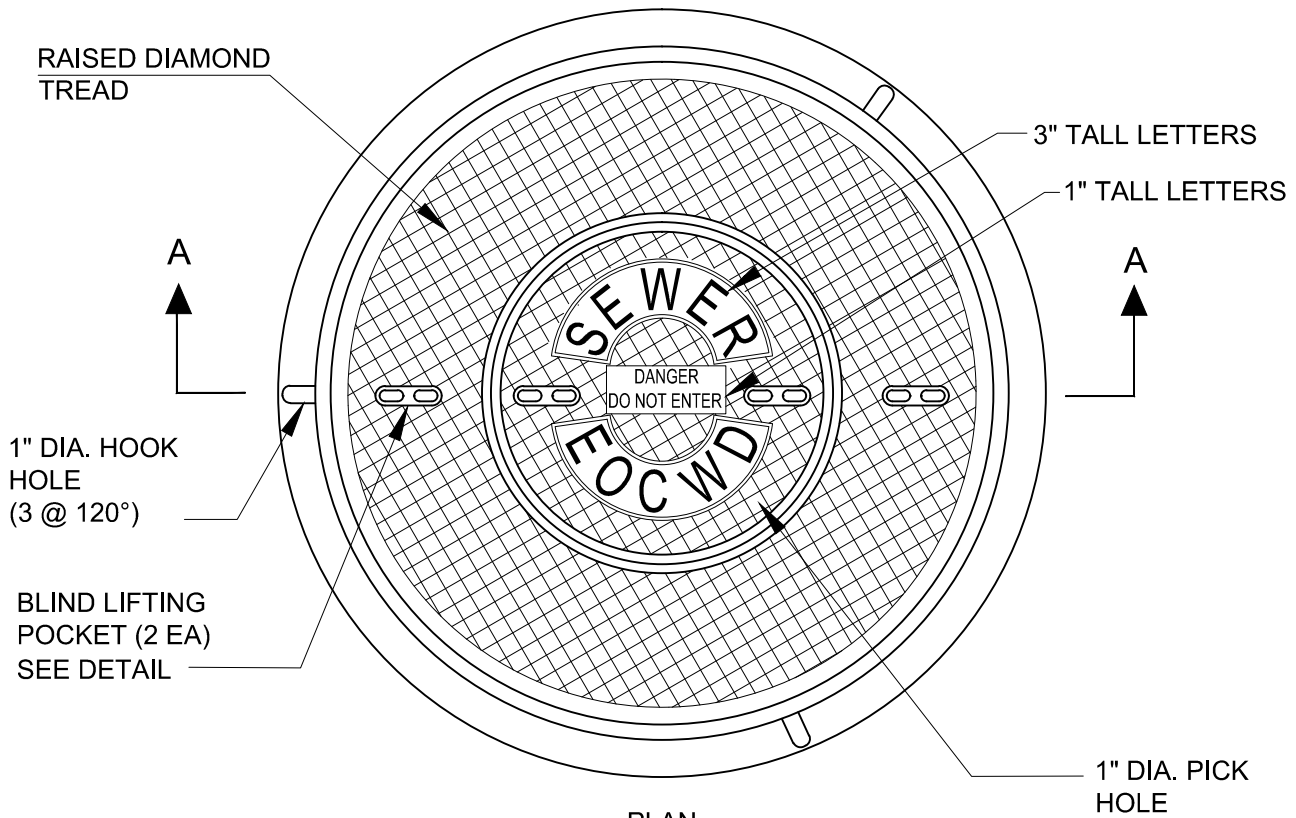
APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

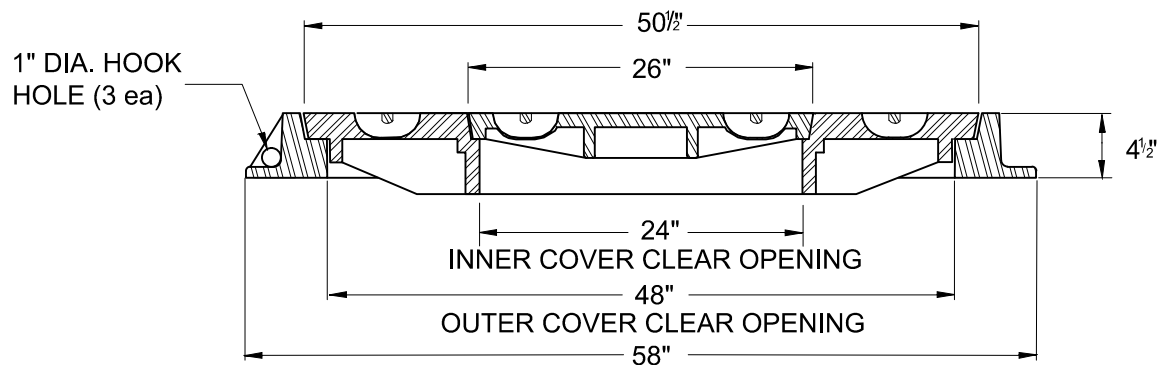
DROP MANHOLE  
CONNECTION TO  
STANDARD MANHOLE

NO SCALE  
STANDARD DWG.  
**S-15**

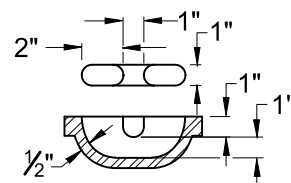




PLAN



SECTION A-A



BLIND LIFTING POCKET DETAIL

NOTES:

1. COVERS SHALL BE TRAFFIC GRADE.
2. ALL CASTINGS SHALL BE COMPLETELY PAINTED WITH 6 MILS. BITUMINOUS PAINT AND LETTERED "MADE IN COUNTRY OF ORIGIN", MARKED WITH MANUFACTURER'S IDENTIFICATION "HEAT NO. \_\_\_\_\_", "ASTM A-48", AND "CLASS 35B IRON" ON UNDERSIDE OF COVER. WEIGHT OF INNER 24" COVER SHALL BE 190 LBS. MIN., WEIGHT OF OUTER 48" COVER SHALL BE 600 LBS. MIN. AND WEIGHT OF FRAME SHALL BE 600 LBS. MIN. ACTUAL WEIGHTS SHALL BE +/- 5 PERCENT OF THE MINIMUM.
3. THIS DRAWING FOR UNBOLTED 48" MANHOLE COVERS WITH CONCENTRIC 24" COVER ONLY.
4. PROVIDE 6" RIM IF REQUIRED FOR ADJUSTMENT TO GRADE.
5. THE GAP BETWEEN THE COVER AND THE RING SHALL BE APPROXIMATELY 1/8" AROUND THE ENTIRE CIRCUMFERENCE AND SHALL NOT BE GREATER THAN 1/4" WHEN THE COVER IS SLID TO ONE SIDE.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Lee Okland* 12/21/16  
GENERAL MANAGER DATE

48" MANHOLE  
FRAME AND COVER  
WITH CONCENTRIC 24" COVER

NO SCALE  
STANDARD DWG.

S-16



ALIGNMENT MARKS  
(BOLTED COVERS ONLY)

RAISED DIAMOND TREAD

3" TALL LETTERS

1" TALL LETTERS

A

A

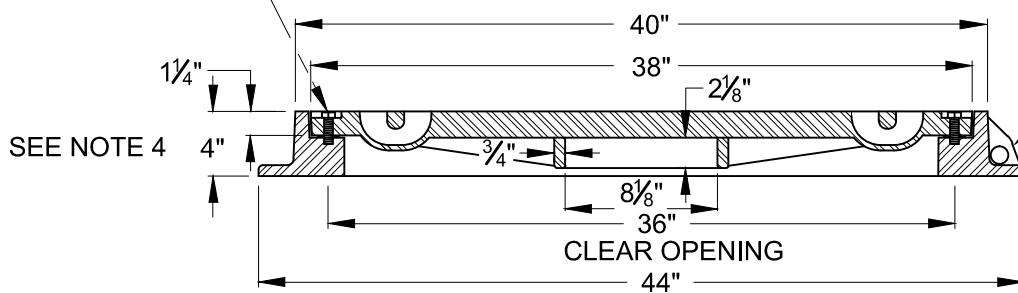
BLIND LIFTING  
POCKET (2 EA)  
SEE DETAIL

BOLTED COVER  
8 PLACES (TYP.)

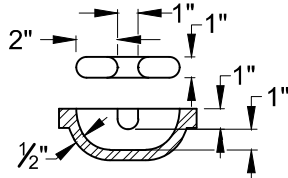
1" DIA. LIFTING  
HOOK (3 @ 120 DEG.  
OR 4 @ 90 DEG.)

1/2" X 1 1/2" TYPE 316 S.S.  
HEX HEAD MB. USE WITH  
1/8" X 1" RUBBER GASKET  
GLUED TO FRAME

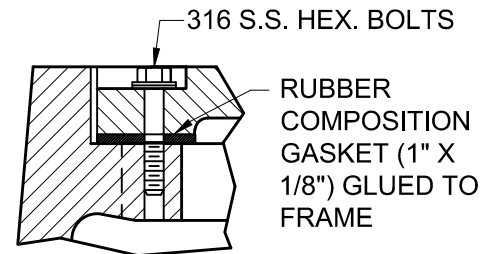
PLAN



SECTION A-A



BLIND LIFTING POCKET DETAIL



BOLTING/Self-SEAL DETAIL

NOTES:

1. COVERS SHALL BE TRAFFIC GRADE.
2. ALL CASTINGS SHALL BE COMPLETELY PAINTED WITH 6 MILS. BITUMINOUS PAINT AND LETTERED "MADE IN COUNTRY OF ORIGIN", MARKED WITH MANUFACTURER'S IDENTIFICATION "HEAT NO. \_\_\_\_\_", "ASTM A-48", AND "CLASS 35B IRON" ON UNDERSIDE OF COVER. WEIGHT OF COVER SHALL BE 325 LBS. MIN., WEIGHT OF FRAME SHALL BE 270 LBS. MIN. ACTUAL WEIGHTS SHALL BE +/- 5 PERCENT OF THE MINIMUM.
3. BOLTED COVERS SHALL BE INSTALLED AT ALL INTERSECTIONS.
4. PROVIDE 6" RIM IF REQUIRED FOR ADJUSTMENT TO GRADE.
5. THE GAP BETWEEN THE COVER AND THE RING SHALL BE APPROXIMATELY 1/8" AROUND THE ENTIRE CIRCUMFERENCE AND SHALL NOT BE GREATER THAN 1/4" WHEN THE COVER IS SLID TO ONE SIDE.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY

*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER

DATE

*Gene Orlando*

12/21/16

GENERAL MANAGER

DATE

BOLTED MANHOLE  
FRAME AND COVER

NO SCALE

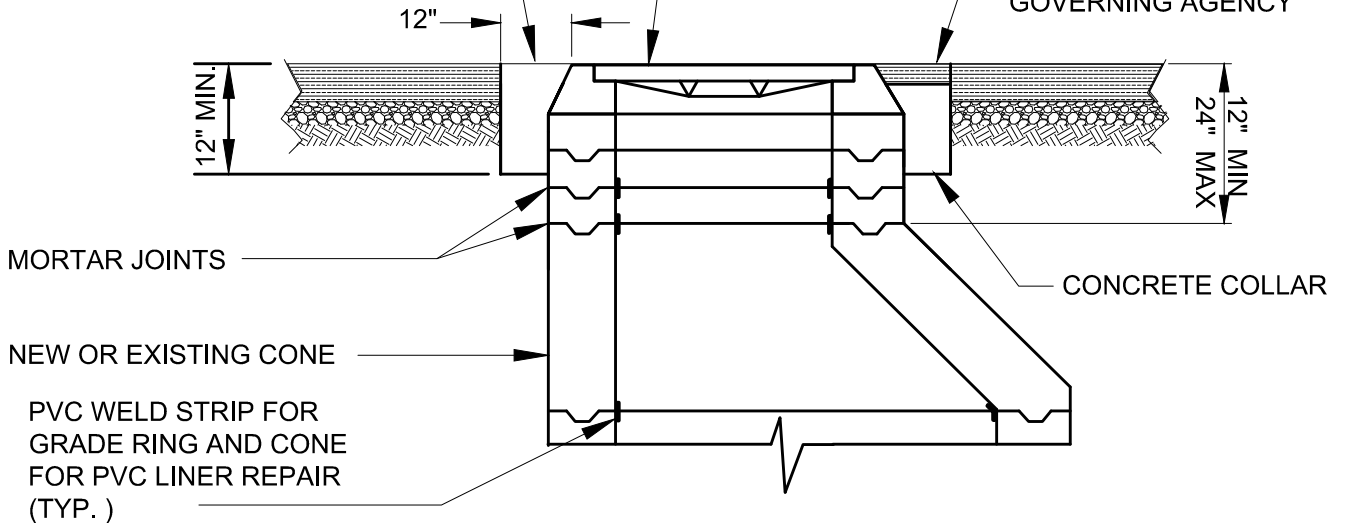
STANDARD DWG.

S-18

ALTERNATE:  
CONCRETE COLLAR,  
TO GRADE (BLACK MIX)

MANHOLE FRAME AND  
COVER PER S-17 OR  
S-18.

AC PER PLANS. VERIFY  
REQUIREMENTS OF  
GOVERNING AGENCY



CROSS SECTION

NOTES:

1. NEATLY REMOVE PAVEMENT AND AGGREGATE BASE AS NECESSARY TO MAKE ADJUSTMENT.
2. MAKE FINAL ADJUSTMENTS AT THE MORTAR JOINT BETWEEN THE FIRST AND SECOND GRADE RINGS. SET FLUSH WITH PAVEMENT TO ONE-EIGHTH INCH HIGH.
3. AT EXISTING MANHOLES, ADD OR REMOVE GRADE RINGS, REPAIR PVC OR SPRAYED LINER, AND TEST LINER FOR PINHOLES AS APPROVED BY THE ENGINEER. ADJUST HEIGHT AT MANHOLE RISER SECTIONS IF THE TOTAL HEIGHT OF GRADE RINGS WOULD EXCEED 24 INCHES.
4. BACKFILL FLUSH WITH SURFACE OR BELOW PAVEMENT SURFACE AS REQUIRED BY GOVERNING AGENCY WITH 3250 PSI (CLASS B) QUICK-SETTING CONCRETE TO FORM COLLAR. EXPOSED CONCRETE SHALL BE BLACK IN COLOR.
5. FILL AREA ABOVE BELOW-GRADE COLLAR WITH AC WEARING SURFACE TO MATCH ADJACENT AC.
6. WHERE ODOR CONDITIONS EXIST OR WHERE DESIGNATED, SEAL MANHOLE RIM AND HOLES WITH DUCT-SEAL MASTIC. RE-SEAL IF EXISTING MANHOLE COVER WAS SEALED.

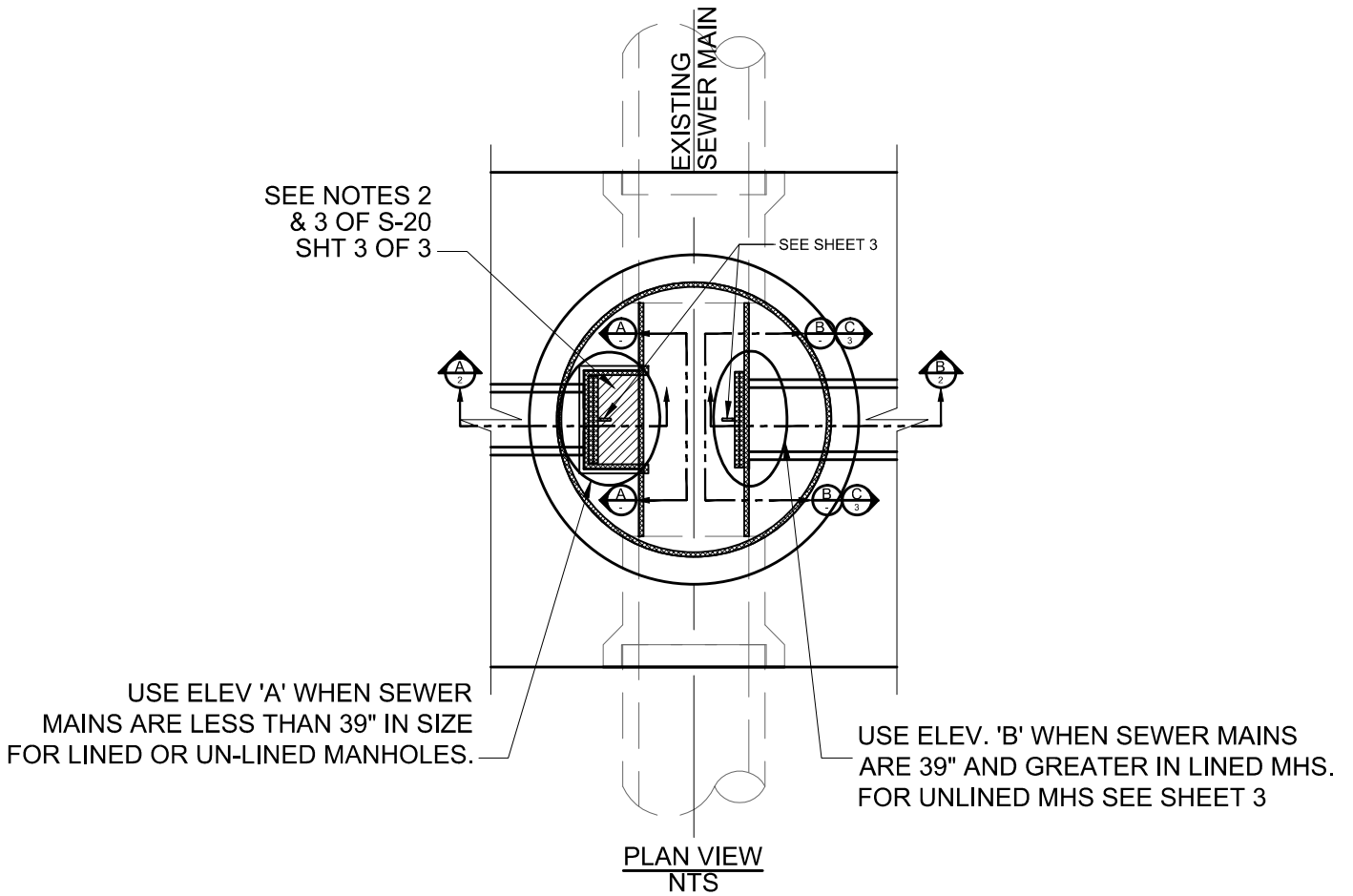
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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE  
*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

MANHOLE ADJUSTMENT  
TO  
GRADE

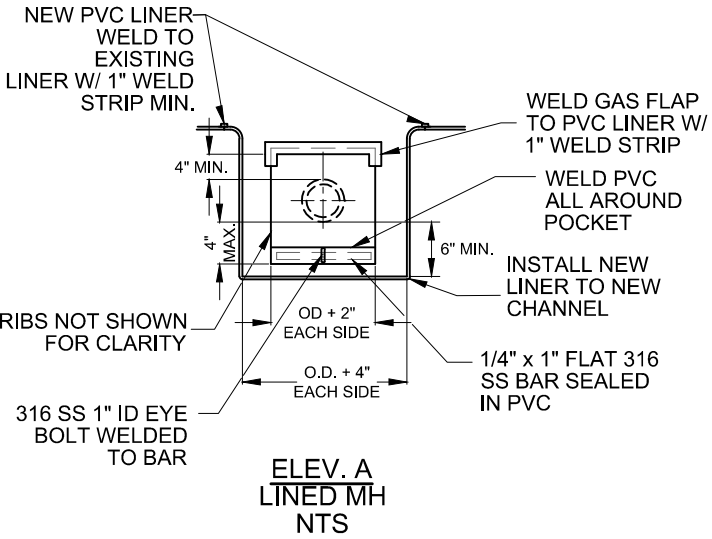
NO SCALE  
STANDARD DWG.  
S-19



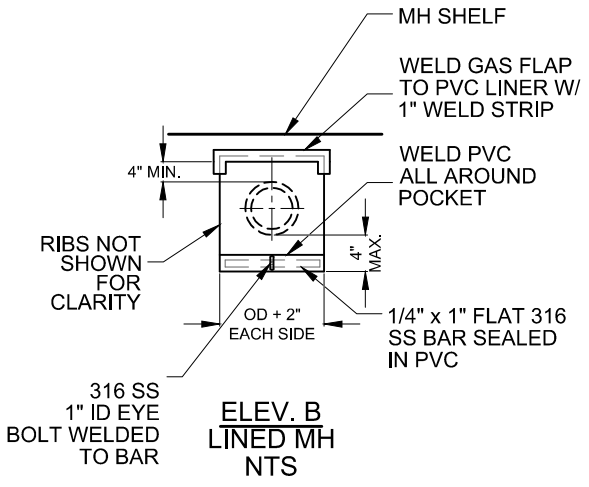
USE ELEV. 'A' WHEN SEWER MAINS ARE LESS THAN 39" IN SIZE FOR LINED OR UN-LINED MANHOLES.

USE ELEV. 'B' WHEN SEWER MAINS ARE 39" AND GREATER IN LINED MHS. FOR UNLINED MHS SEE SHEET 3

PLAN VIEW  
NTS



ELEV. A  
LINED MH  
NTS



ELEV. B  
LINED MH  
NTS

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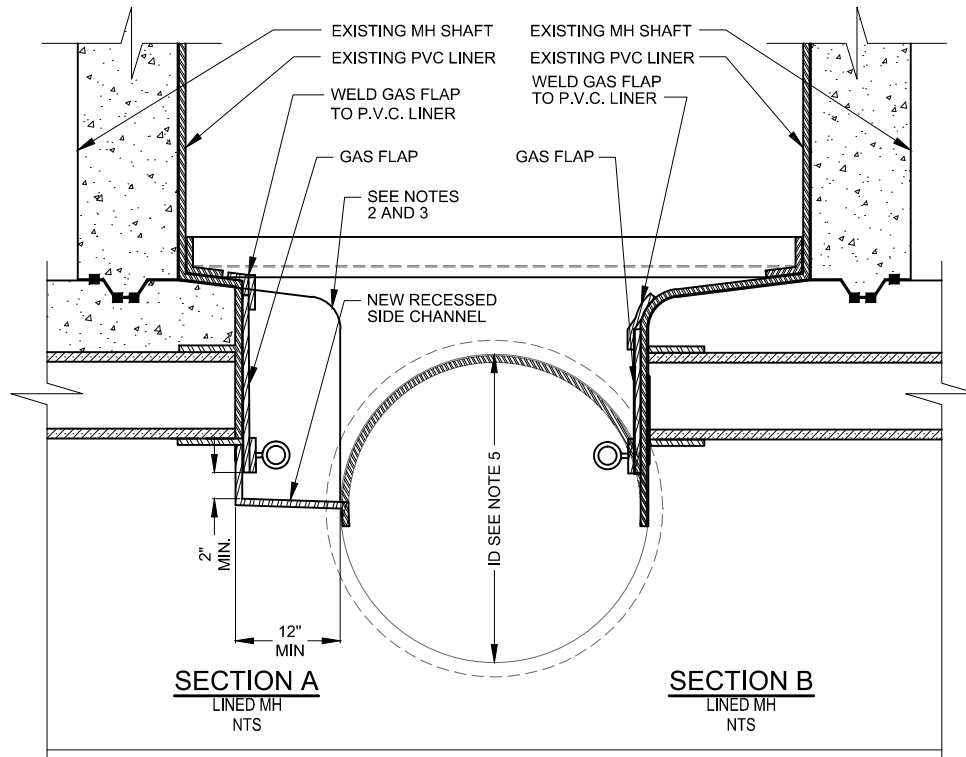
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Oklund* 12/21/16  
GENERAL MANAGER DATE

GAS FLAP INSTALLATION  
FOR PVC LINED OR UNLINED  
MANHOLES

1 OF 3  
STANDARD DWG.  
**S-20**



**NOTE:**

1. CORE DRILL EXISTING MH BASE A MIN. OF 2 INCHES LARGER THAN OUTSIDE DIAMETER (OD) OF NEW VCP STUB AND DRY PACK W/ CONCRETE GROUT AROUND OUTSIDE OF NEW VCP STUB AS SHOWN.
2. REMOVE EXISTING PVC LINER OVER EXISTING MH SHELF. JACK HAMMER OR REMOVE PORTIONS OF EXISTING CONCRETE BASE TO FORM NEW RECESSED CHANNEL A MIN. OF 2 INCHES IN WIDTH (ON EACH SIDE) BEYOND EDGE OF NEW GAS FLAP; OR FOR NEW VCP STUBS 15 INCHES OR GREATER IN DIAMETER, REMOVE A MIN. 4 INCHES IN WIDTH (ON EACH SIDE) GREATER THAN OD OF NEW VCP STUB. PATCH BOTTOM AND SIDES OF RECESSED CHANNEL W/ CONCRETE OR GROUT TO MAKE A SMOOTH TRANSITION ON SIDES AND BOTTOM OF CHANNEL.
3. INSTALL NEW MASTIC APPLIED AND MECHANICALLY ANCHORED PVC LINER IN RECESSED CHANNEL AREA OVER FRESHLY CURED CONCRETE AND IN ALL OTHER AREAS WHERE EXISTING PVC LINER WAS REMOVED. PVC WELD STRIPS SHALL BE USED TO PATCH ALL PVC JOINTS.
4. PROVIDE PVC GAS FLAP ON ALL LATERAL PIPES 12 INCHES IN DIA. AND LESS UNLESS OTHERWISE SPECIFIED.
5. WHEN TRUNK LINE PIPE IS EQUAL TO OR GREATER THAN 39 INCHES IN DIAMETER, LATERAL PIPE SHALL EXTEND TO VERTICAL FACE OF MAIN CHANNEL WITHOUT HAVING A RECESSED SIDE CHANNEL.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

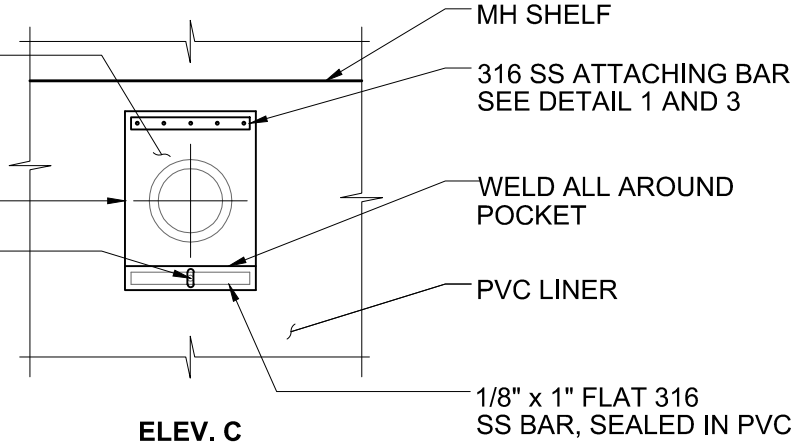
**GAS FLAP INSTALLATION  
FOR PVC LINED OR UNLINED  
MANHOLES**

2 OF 3  
STANDARD DWG.  
**S-20**

PLACE RIBBED PVC SHEET  
GAS FLAP ON OUTSIDE OF  
LATERAL OPENING

PVC RIBS NOT SHOWN  
FOR CLARITY

316 SS 1" ID EYE BOLTS  
WELDED TO SS BAR  
SEE DETAIL 2



**ELEV. C**  
UNLINED MH  
NTS

MH SHELF

316 SS ATTACHING BAR  
SEE DETAIL 1 AND 3

WELD ALL AROUND  
POCKET

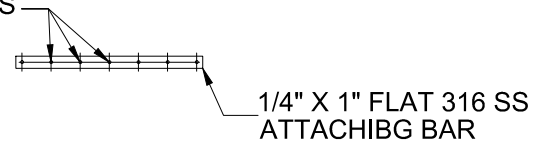
PVC LINER

1/8" x 1" FLAT 316  
SS BAR, SEALED IN PVC

**NOTES:**

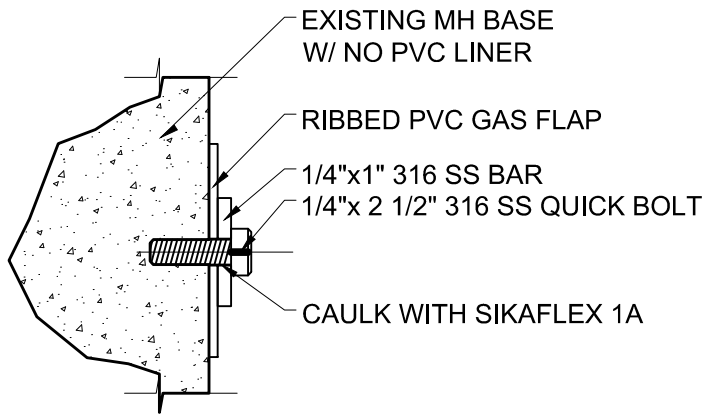
1. FOR INSTALLATION AT EXISTING MH., SEE STD DWG. S-21
2. FOR MANHOLES WITHOUT PVC LINER, ATTACH GAS FLAP W/ 1/4" x 1" 316 SS FLAT BAR. DRILL HOLES 1/2" FROM EACH END AND ONE IN THE CENTER. (A = 3" OR LESS) SPACE OTHER HOLES 3" OR LESS
3. PROVIDE GAS FLAP FOR ALL LATERALS 12" AND LESS, UNLESS OTHERWISE SPECIFIED.

5/16" Ø HOLES

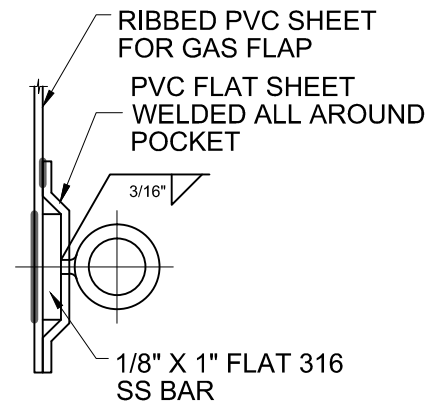


**DETAIL 3**

ATTACHING BAR SEE NOTE 2



**DETAIL 1**  
NTS



**DETAIL 2**  
NTS

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16

DISTRICT ENGINEER DATE  
*Lee Orlando* 12/21/16

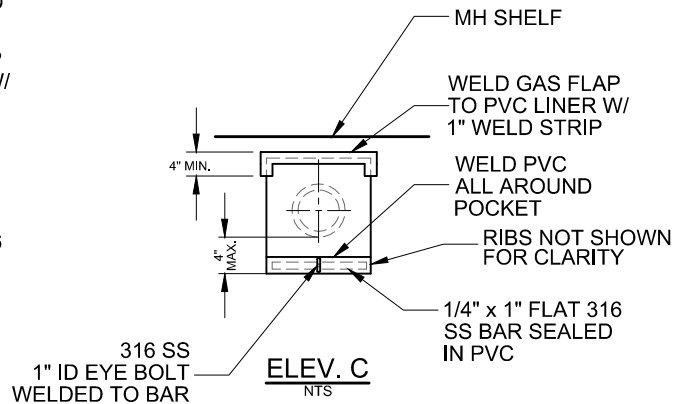
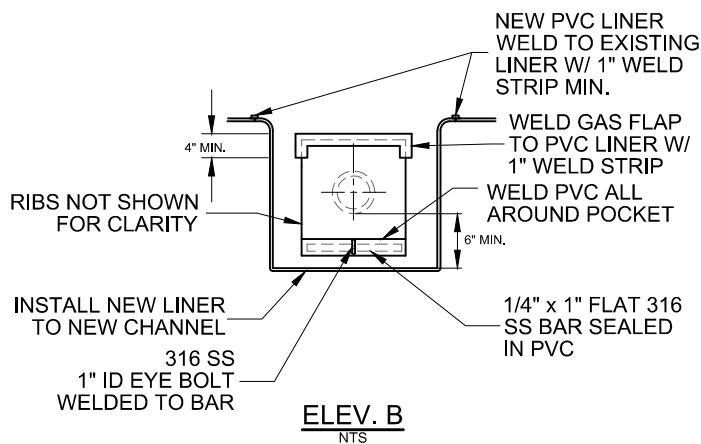
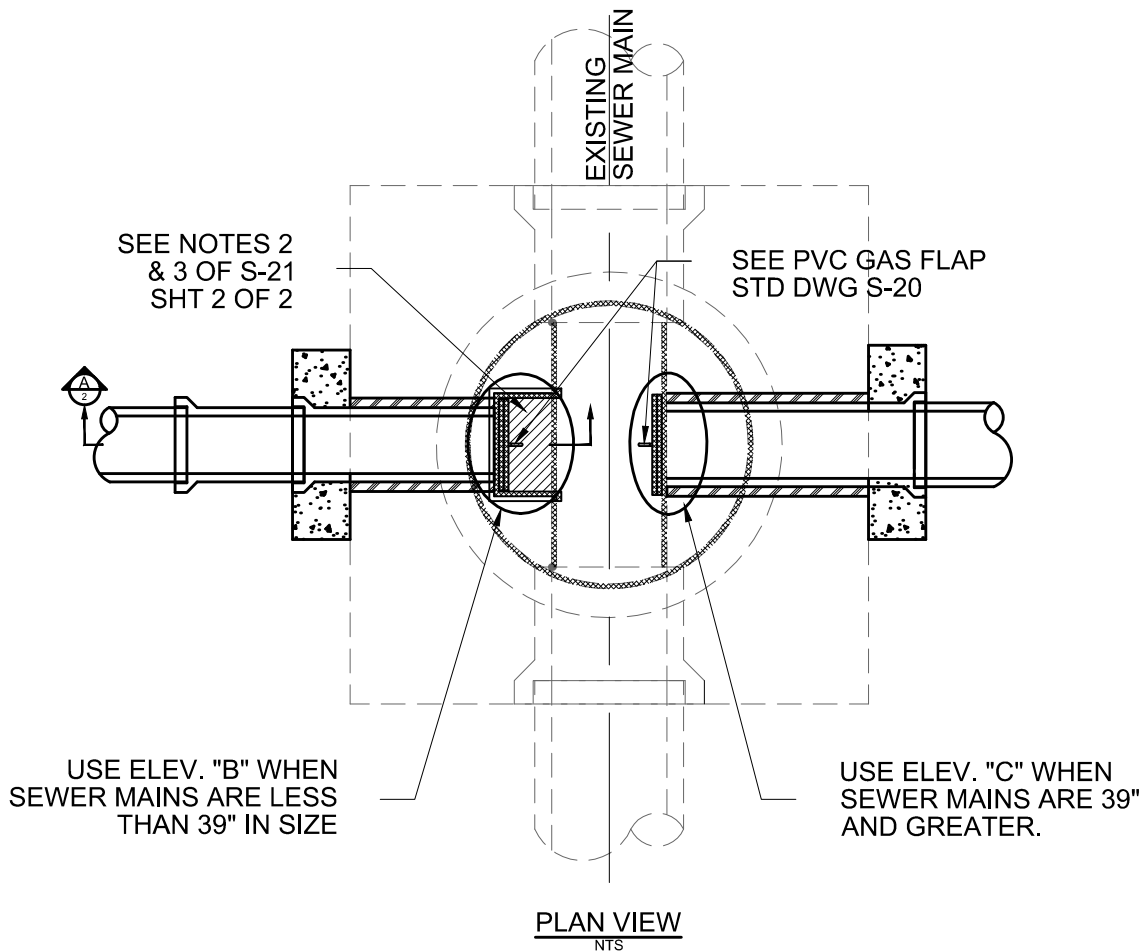
GENERAL MANAGER DATE

GAS FLAP INSTALLATION  
FOR PVC LINED OR UNLINED  
MANHOLES

3 OF 3

STANDARD DWG.

S-20



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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

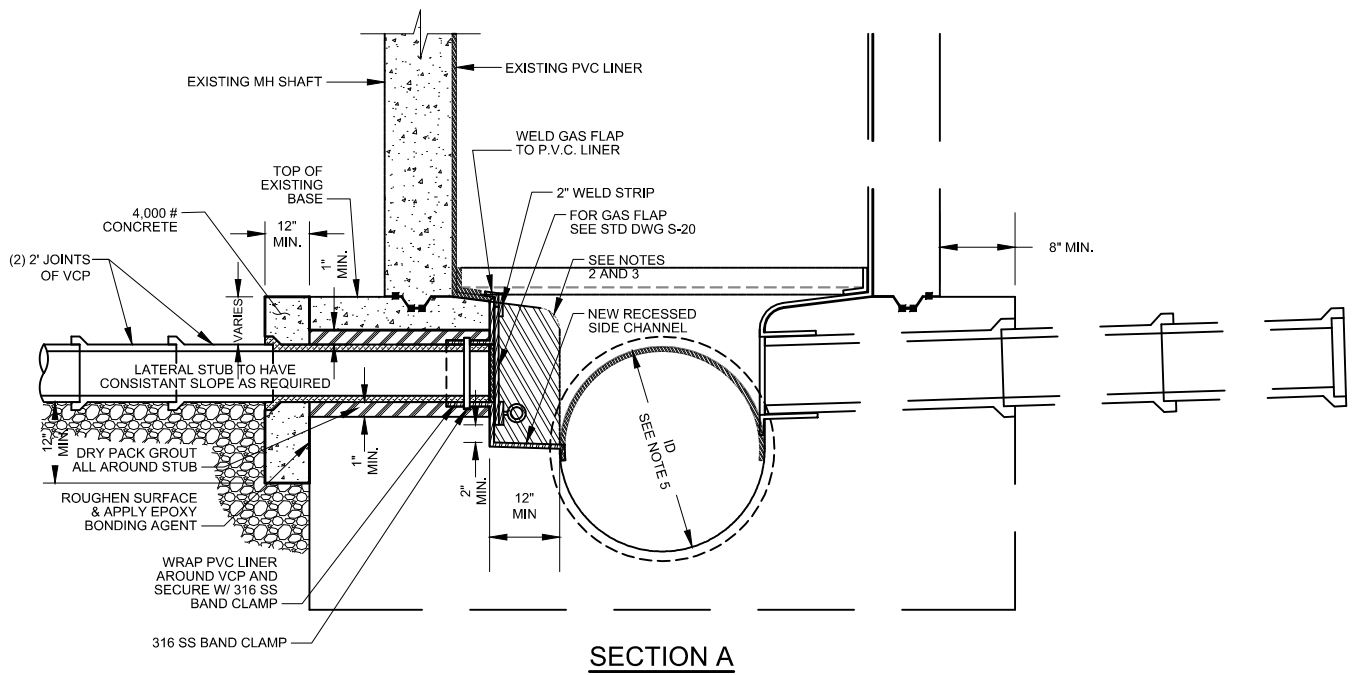
APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

CORE DRILLED STUB AT  
EXISTING MANHOLE  
DETAIL

1 OF 2  
STANDARD DWG.  
**S-21**





**NOTES:**

1. CORE DRILL EXISTING MH BASE A MIN. OF 2 INCHES LARGER THAN OUTSIDE DIAMETER (OD) OF NEW VCP STUB AND DRY PACK W/ CONCRETE GROUT AROUND OUTSIDE OF NEW VCP STUB AS SHOWN.
2. REMOVE EXISTING PVC LINER OVER EXISTING MH SHELF. JACK HAMMER OR REMOVE PORTIONS OF EXISTING CONCRETE BASE TO FORM NEW RECESSED CHANNEL A MIN. OF 2 INCHES IN WIDTH (ON EACH SIDE) BEYOND EDGE OF NEW GAS FLAP; OR FOR NEW VCP STUBS 15 INCHES OR GREATER IN DIAMETER, REMOVE A MIN. 4 INCHES IN WIDTH (ON EACH SIDE) GREATER THAN OD OF NEW VCP STUB. PATCH BOTTOM AND SIDES OF RECESSED CHANNEL W/ CONCRETE OR GROUT TO MAKE A SMOOTH TRANSITION ON SIDES AND BOTTOM OF CHANNEL.
3. INSTALL NEW MASTIC APPLIED AND MECHANICALLY ANCHORED PVC LINER IN RECESSED CHANNEL AREA OVER FRESHLY CURED CONCRETE AND IN ALL OTHER AREAS WHERE EXISTING PVC LINER WAS REMOVED. PVC WELD STRIPS SHALL BE USED TO PATCH ALL PVC JOINTS.
4. PROVIDE FLAT SHEET PVC GAS FLAP ON ALL LATERAL PIPES 12 INCHES IN DIA. AND LESS UNLESS OTHERWISE SPECIFIED. SEE STANDARD DRAWING S-20.
5. WHEN TRUNK LINE PIPE IS EQUAL TO OR GREATER THAN 39 INCHES IN DIAMETER, LATERAL PIPE SHALL EXTEND TO VERTICAL FACE OF MAIN CHANNEL WITHOUT HAVING A RECESSED SIDE CHANNEL.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

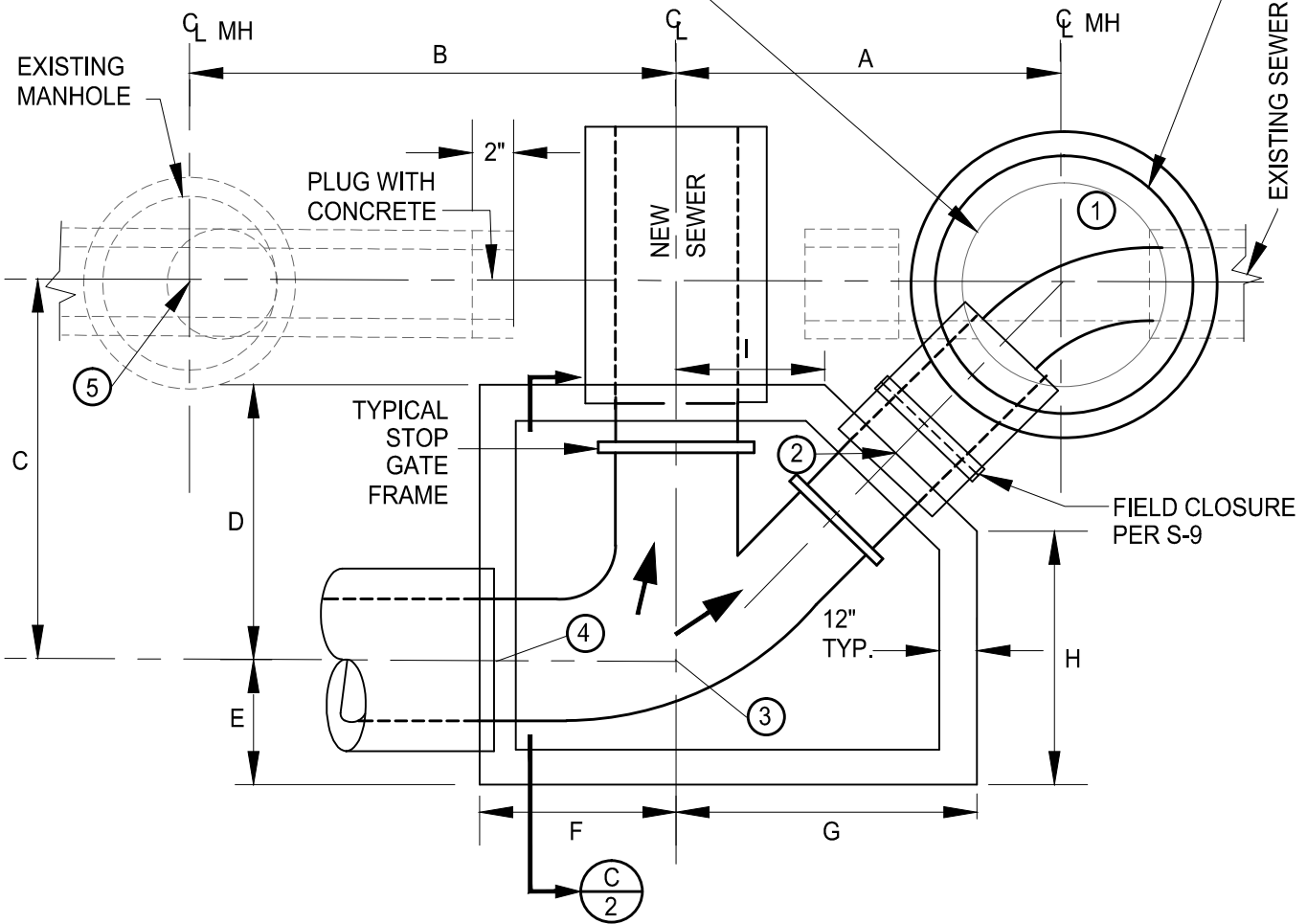
*Lee Orlando* 12/21/16  
GENERAL MANAGER DATE

CORE DRILLED STUB AT  
EXISTING MANHOLE  
DETAIL

2 OF 2  
STANDARD DWG.  
**S-21**

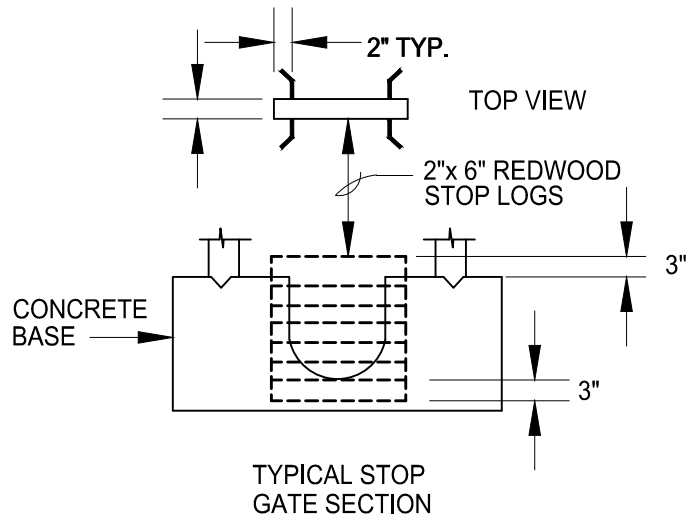
REMOVE INTERFERING PORTIONS OF EXIST. SEWER.

CONSTRUCT STD MH PER S-14. CONSTRUCT TEMPORARY BYPASS TO EXIST. MANHOLE.



NOTES:

1. DIMENSIONS A,B,C,D,E,F,G,H, AND I SHALL BE AS SHOWN ON THE PLANS.
2. ELEVATIONS ① ② ③ ④ AND ⑤ SHALL BE AS SHOWN ON PLANS.
3. TYPICAL STOP GATE SHALL BE INCLUDED IN ALL DIVERSION STRUCTURE INSTALLATIONS.
4. FOR SECTIONS, SEE S-22 SHT. 2/2.



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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Oklund* 12/21/16  
GENERAL MANAGER DATE

DIVERSION STRUCTURE  
WITH STOP GATE  
DETAIL

1 OF 2  
STANDARD DWG.  
**S-22**

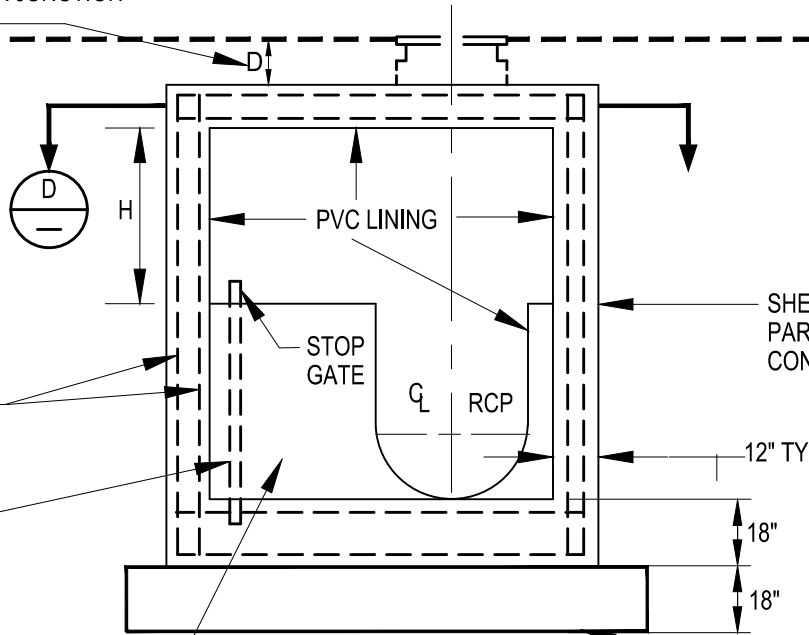
WHEN D IS LESS THAN 12" USE FULL DEPTH AC PAVING OVER JUNCTION STRUCTURE

∅ MH COVER

#6 (19) @ 12" O.C. E.W.- E.F. TYP. ALL WALLS

PAINT WITH EPOXY GROUT ON WALLS

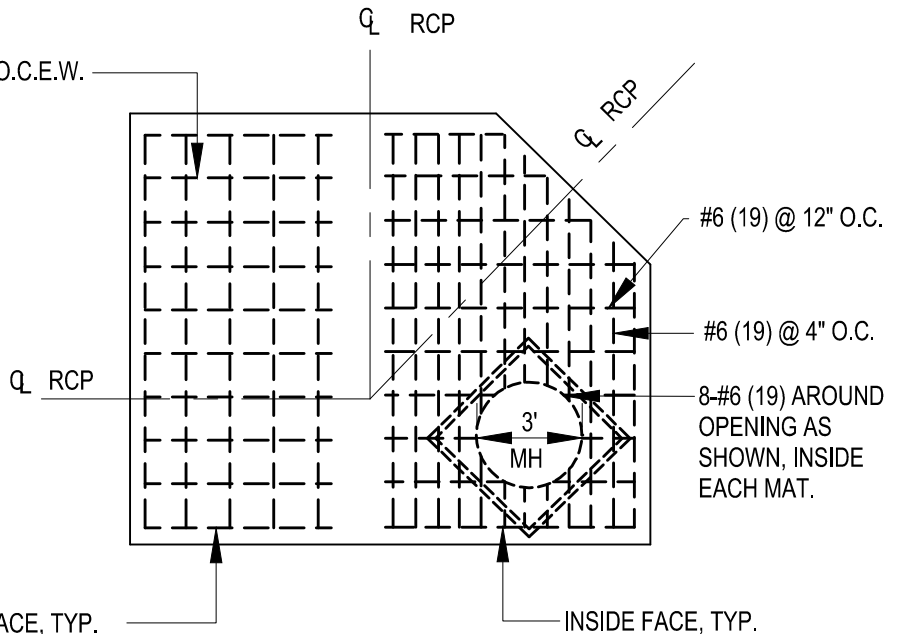
CONSTRUCT CONCRETE CHANNEL INSIDE STRUCTURE



SHELF MAY BE POURED AS PART OF STRUCTURE AT CONTRACTORS OPTION

SECTION C  
NTS

#6 (19) @ 12" O.C.E.W.



NOTES:

1. ALL CONCRETE SHALL BE 4000 PSI (CLASS "A").
2. REINFORCING STEEL SHALL CONFORM TO ALL REQUIREMENTS OF THE STANDARD SPECIFICATIONS.
3. HEIGHT H SHALL NOT BE LESS THAN 7'-0" UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SECTION D  
NTS

TOP SLAB ONLY

( ) DENOTES METRIC SYSTEM

22

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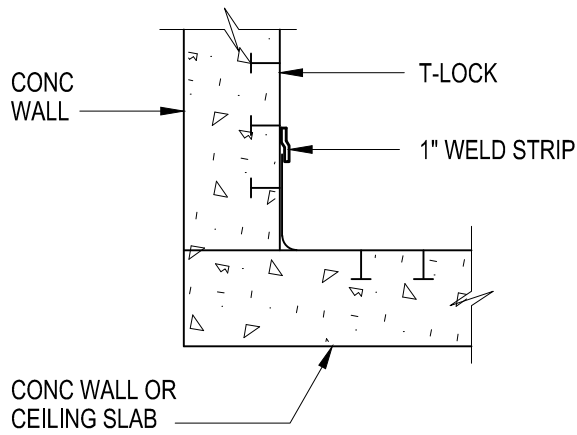
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE  
*Lisa Orlando* 12/21/16  
GENERAL MANAGER DATE

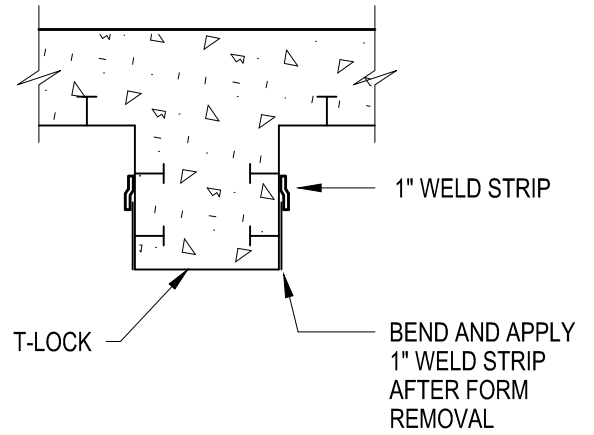
DIVERSION STRUCTURE  
WITH STOP GATE  
DETAIL

2 OF 2  
STANDARD DWG.

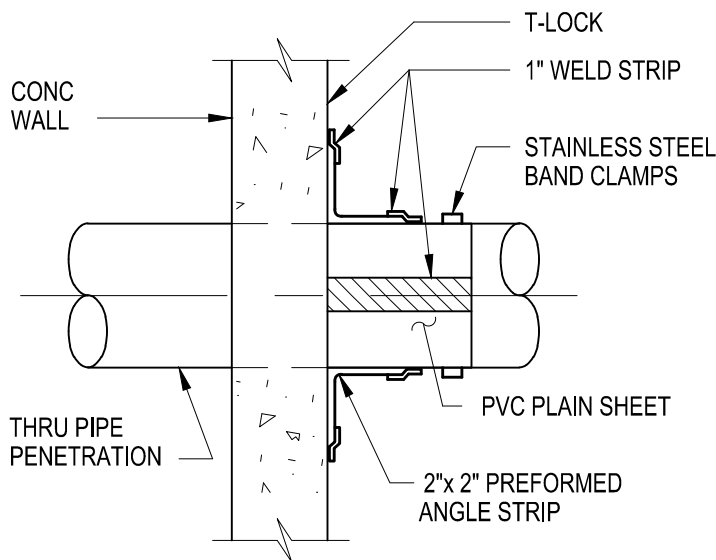
S-22



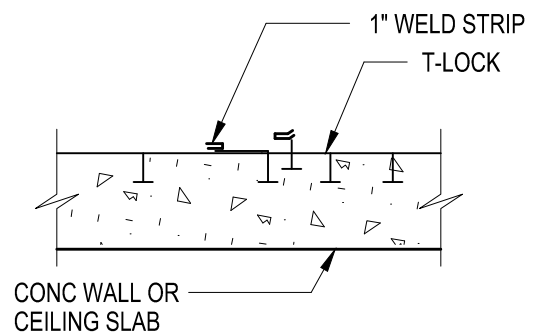
CORNER



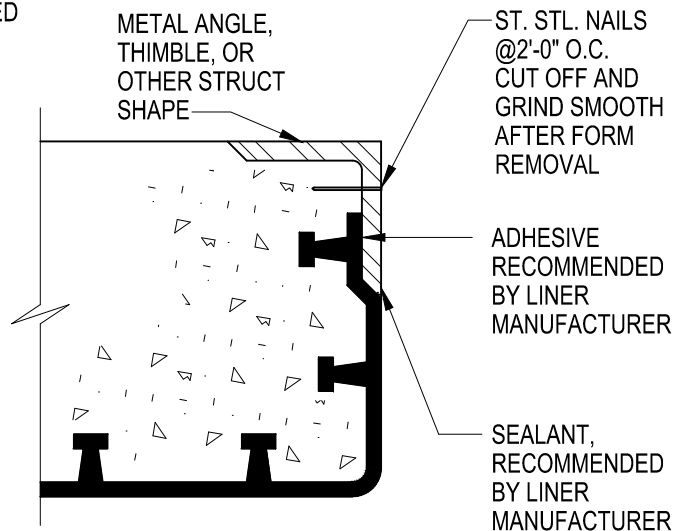
BEAM



PIPE PENETRATION



SPLICE



METAL EMBED

NOTES:

1. AT BUTT JOINTS, INSTALL 1" WELD STRIP ON FRONT AND BACK.
2. LINER RIBS SHALL BE ORIENTED VERTICALLY ON VERTICAL SURFACES.

|     |          |      |
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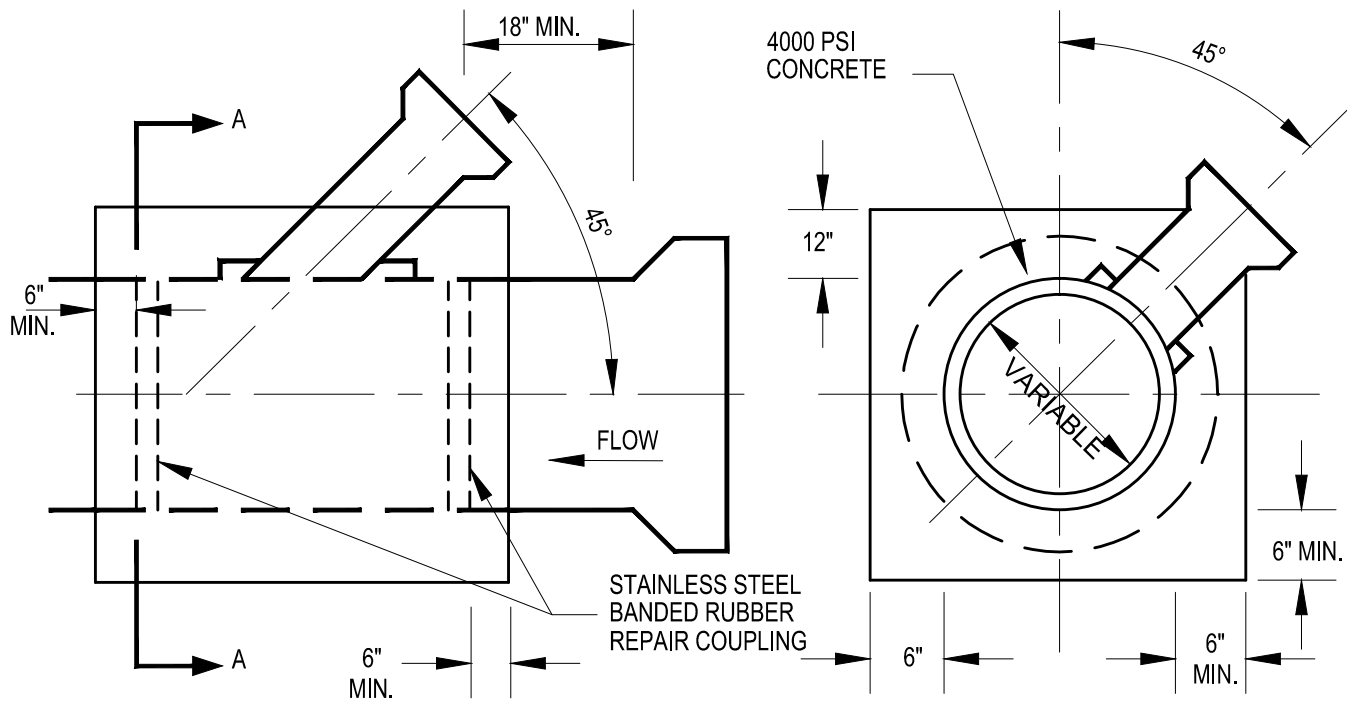
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Lee Orlando* 12/21/16  
GENERAL MANAGER DATE

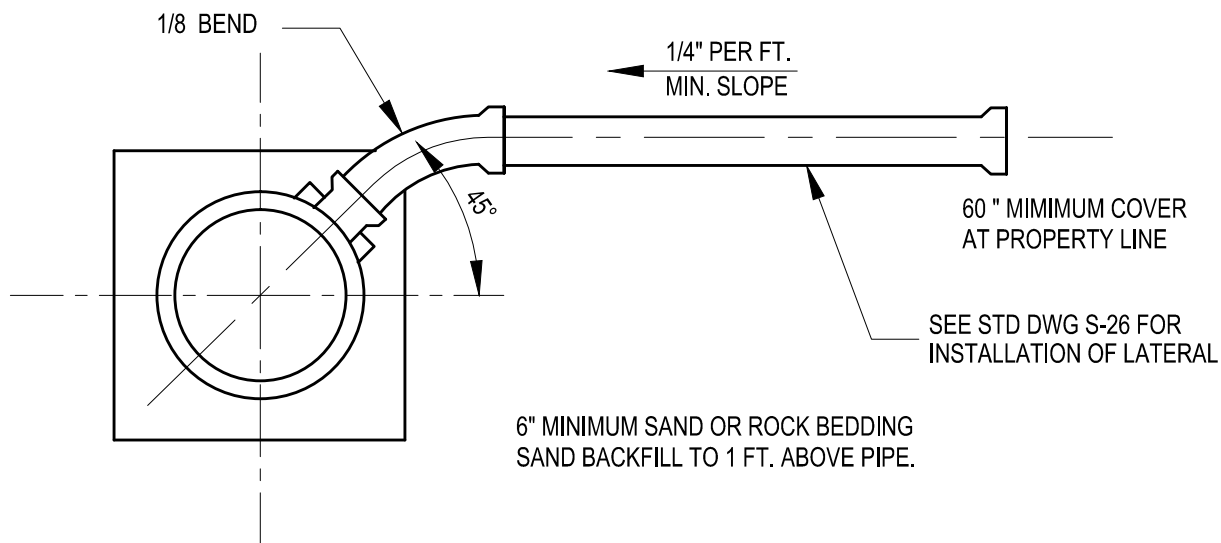
LINER - PVC

NO SCALE  
STANDARD DWG.  
**S-23**



ELEVATION

SECTION A-A



NOTES:

1. CONTRACTOR SHALL ENCASE THE WYE CONNECTION WITH 4000 PSI CONCRETE AFTER THE CONNECTION IS INSPECTED BY THE ENGINEER.
2. CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED PIPE AS DIRECTED BY ENGINEER.

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EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

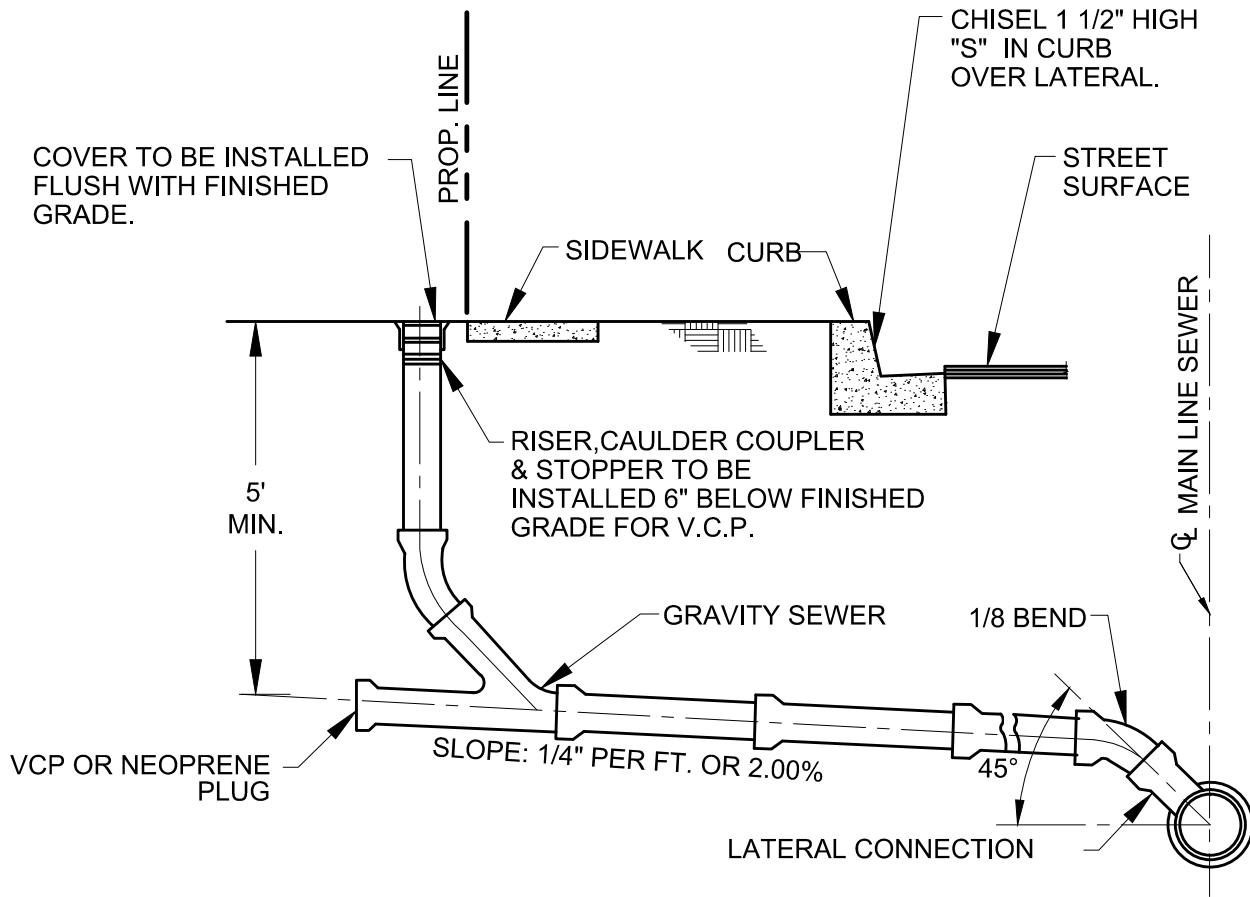
APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE  
*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

CUT IN WYE CONNECTION

NO SCALE

STANDARD DWG.

S-24



NOTES:

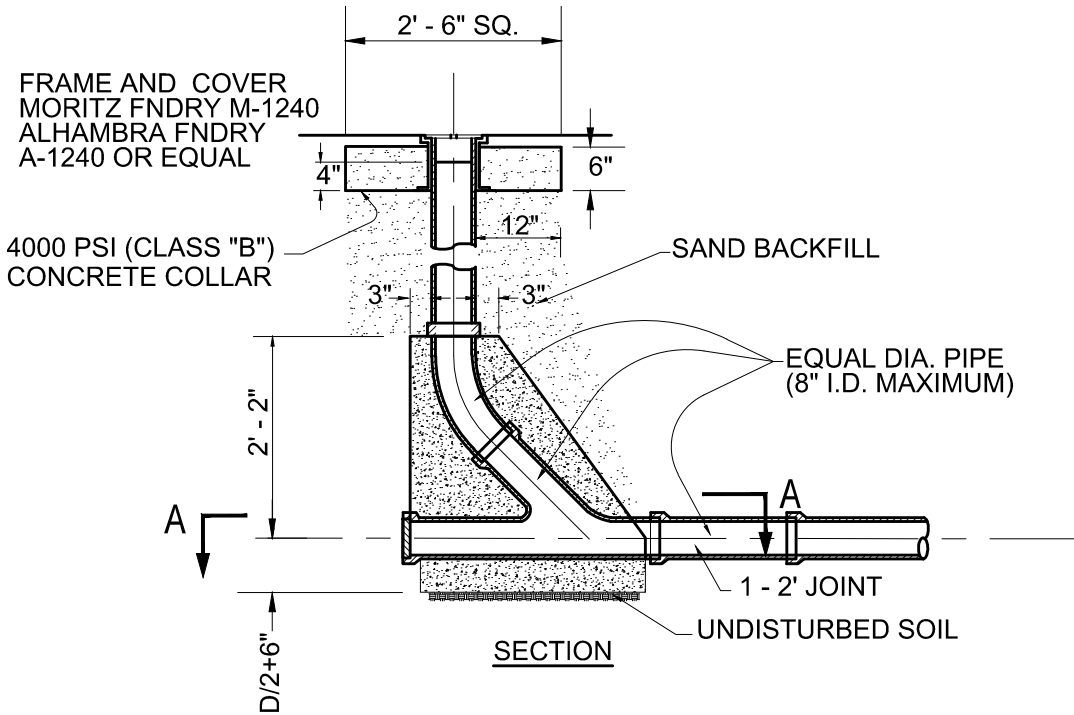
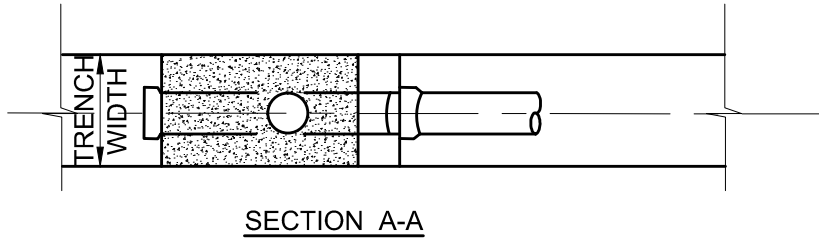
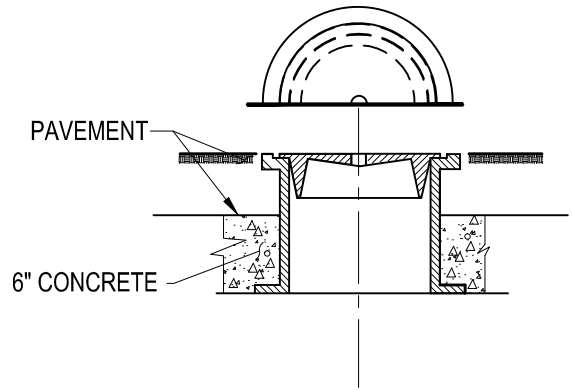
1. FOR SLOPE LESS THAN 1/4" PER FOOT, APPROVAL IS REQUIRED BY ENGINEER.
2. THE LATERAL SHALL BE BEDDED THE SAME AS THE MAINLINE SEWER.
3. FOR SEWER CLEANOUT RISER, USE PIPE OF THE SAME DIAMETER AND MATERIAL USED IN THE ADJOINING SEWER LINE.
4. SINGLE FAMILY RESIDENCES SHALL HAVE 4" DIAMETER VITRIFIED CLAY PIPE (VCP) SEWER LATERALS. ALL OTHERS SHALL BE 6" OR GREATER.
5. WHERE DIRECTED BY THE ENGINEER, THE CLEANOUT SHALL BE INSTALLED ON THE PUBLIC PROPERTY SIDE OF THE PROPERTY LINE WITHIN A 12" X 12" X 6" DEEP CONCRETE BOX.

|     |  |      |   |               |
|-----|--|------|---|---------------|
|     | EAST ORANGE COUNTY WATER DISTRICT<br>ORANGE, CALIFORNIA                    |      | HOUSE LATERAL<br>CONNECTION,<br>TYPICAL | NO SCALE      |
|     | APPROVED BY<br><i>Patrick J. Cahill</i> 12/21/16<br>DISTRICT ENGINEER DATE |      |   | STANDARD DWG. |
|     | <i>Gene Orlando</i> 12/21/16<br>GENERAL MANAGER DATE                       |      | S-25                                    |               |
| NO. | APPROVED   | DATE |   |               |

LAMPHOLE COVER AND FRAME  
FOR SEWER LINE INSPECTION AND EXAMINATION

| PLATE NUMBER | CLEAR OPENING | OVERALL BASE | HEIGHT FRAME | APPROX. WEIGHT |
|--------------|---------------|--------------|--------------|----------------|
| M-1240       | 110 10        | 15           | 12           |                |

PAINTED: BITUMINOUS PAINT



NOTES:

- CLEAN OUTS IN PUBLIC RIGHT OF WAY APPROVED FOR USE IN UNINCORPORATED AREAS ONLY. PERMISSION TO CONSTRUCT CLEAN OUTS MUST BE OBTAINED FROM THE ENGINEER IN EACH CASE.

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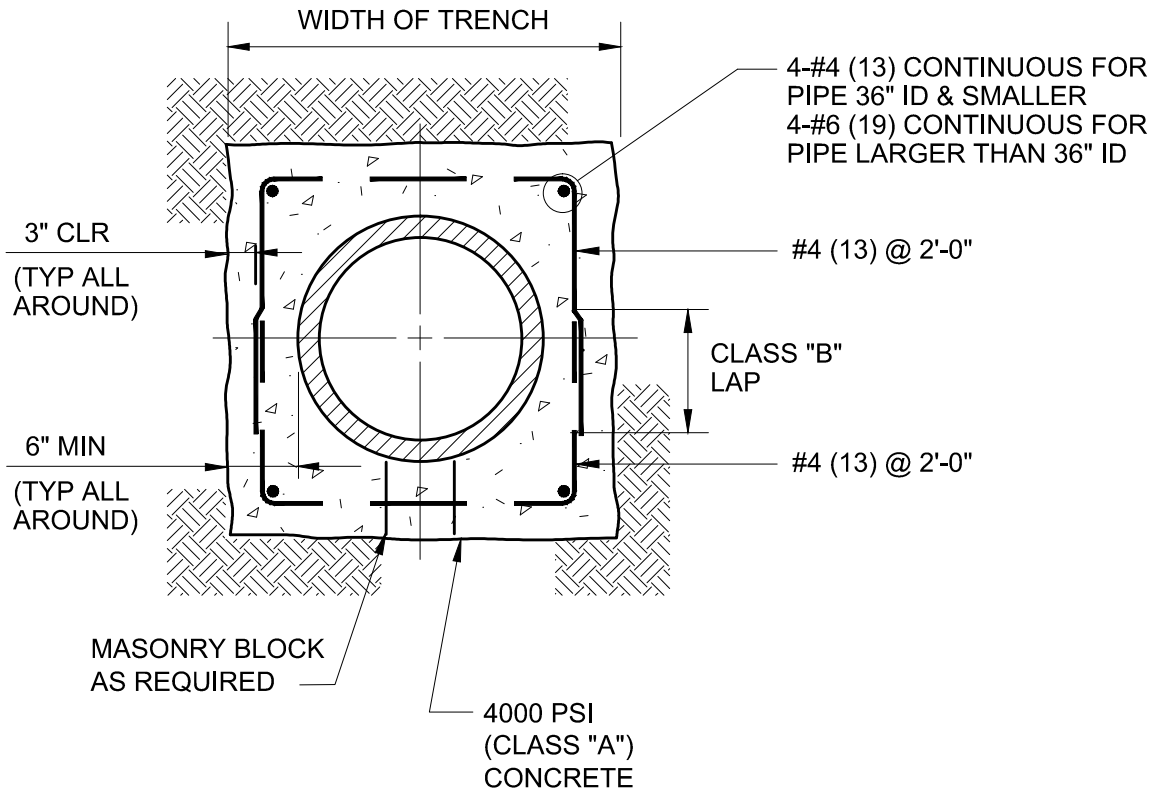
EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Gene Orlando* 12/21/16  
GENERAL MANAGER DATE

CLEAN OUT  
DETAIL  
IN ROADWAY

NO SCALE  
STANDARD DWG.  
S-26



( ) DENOTES METRIC SYSTEM

|     |          |      |
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|     |          |      |
|     |          |      |
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|     |          |      |
|     |          |      |
| NO. | APPROVED | DATE |

EAST ORANGE COUNTY WATER DISTRICT  
ORANGE, CALIFORNIA

APPROVED BY  
*Patrick J. Cahill* 12/21/16  
DISTRICT ENGINEER DATE

*Lee Oklund* 12/21/16  
GENERAL MANAGER DATE

CONCRETE  
ENCASEMENT  
OF PIPE

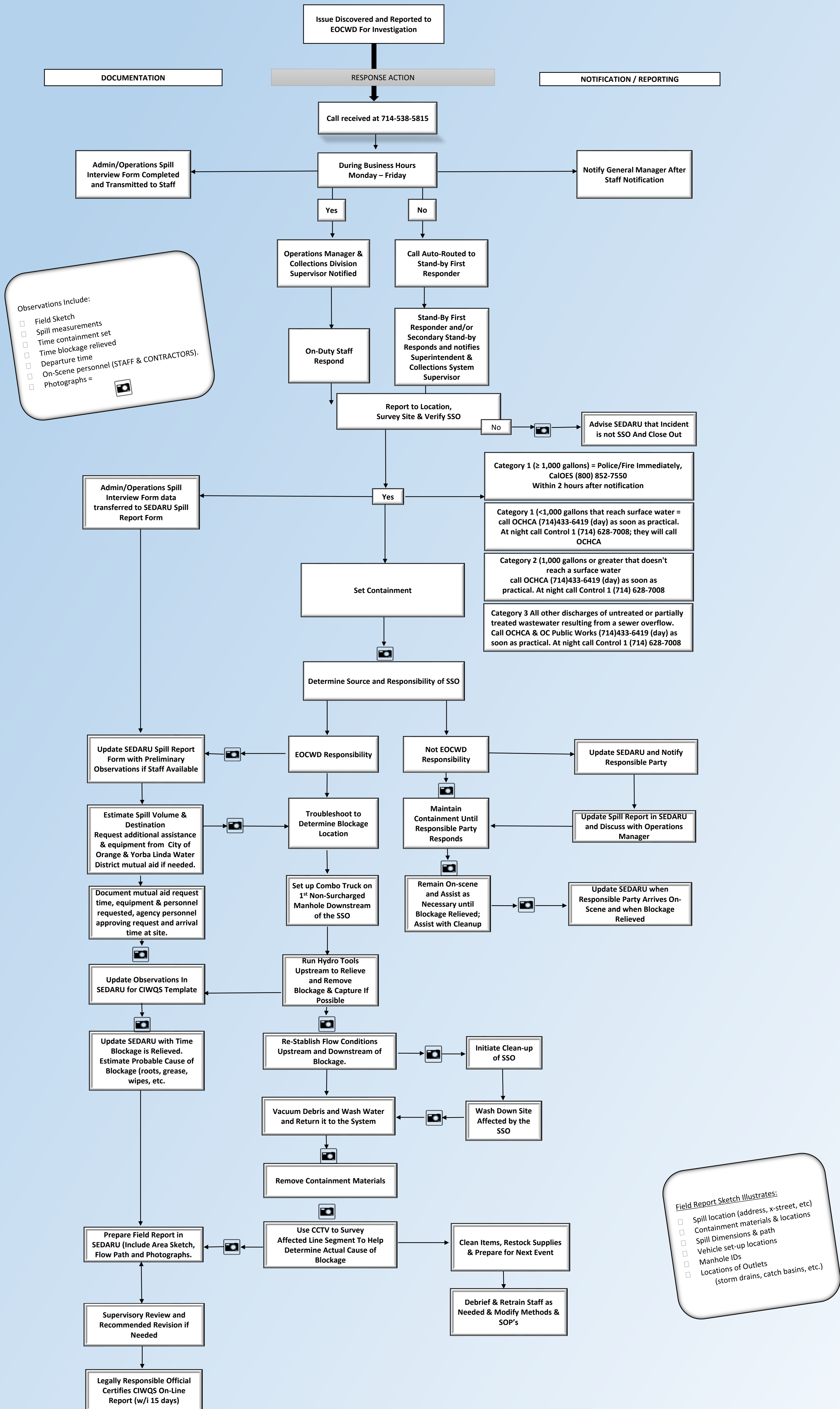
NO SCALE  
STANDARD DWG.

S-27





# EAST ORANGE COUNTY WATER DISTRICT SSO REPOSE FLOW CHART



**East Orange County Water District**  
**COLLECTION SYSTEM PROBLEM REPORT – FIELD SSO REPORT – EOCWD SPILLS**  
*Original to Operations Manager*

Collections Notified By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

CMMS Work Order #: \_\_\_\_\_ -or- SSO Event ID #: \_\_\_\_\_

Estimated spill size:  Small (1-1,000gal)  Medium (1,001-10,000 gal)  Large (> 10,000gal)

Spill Address (location) \_\_\_\_\_

Is spill: Local  Regional  \_\_\_\_\_ (Use **Unincorporated County** if applicable)

Is this an Area 7 spill? (i.e., in, from, or caused by District's facilities?) Yes  No

When you arrived onsite was there a Wet Spot  or Flowing Sewage

Did any eyewitnesses indicate when the SSO could have started? Yes  No  If yes, date / time they first noticed SSO?  
/

**2) ESTIMATE SPILL VOLUMES**

- a) Estimated spill volume that reached a separate storm drain? \_\_\_\_\_ gal
  - b) Estimated spill volume recovered from the separate storm drain? (Do not include water used for clean-up) \_\_\_\_\_ gal
  - c) Estimated spill volume that reached a drainage channel? (i.e. flood control channel) \_\_\_\_\_ gal
  - d) Estimated spill volume recovered from a drainage channel? (i.e. flood control channel) \_\_\_\_\_ gal
  - e) Estimated spill volume discharged directly to a surface water body? (i.e. river, ocean bay) \_\_\_\_\_ gal
  - f) Estimated spill volume recovered from surface water body? (i.e. river, ocean bay) \_\_\_\_\_ gal
  - g) Estimated spill volume discharged to a land? \_\_\_\_\_ gal
  - h) Estimated spill volume recovered from a discharge to land? (Do not include water used for clean-up) \_\_\_\_\_ gal
- 3) Did the spill discharge to a drainage channel and/or other surface? Yes  No
- 4) Did the spill reach a storm drainpipe that is not part of a combined sewer system? Yes  No
- 5) If spill reached a separate storm drainpipe, was all of the wastewater fully captured from the separate storm drain and returned to the sanitary sewer system? Yes  No

**PHYSICAL LOCATION DETAILS**

- 6) Spill location name: \_\_\_\_\_
- 7) GPS Latitude (e.g 33.70218) \_\_\_\_\_ (8) GPS Longitude (e.g 117.85461) \_\_\_\_\_
- 11) Spill location description: \_\_\_\_\_

**SPILL DETAILS**

- 12) Number of appearance points: \_\_\_\_\_
- 13) Spill appearance point: \_\_\_\_\_
- 15) Final spill destination: \_\_\_\_\_
- 17) Estimated spill start date/time: \_\_\_\_\_ / \_\_\_\_\_
- 18) Date and time sanitary sewer system agency was notified of or discovered spill: \_\_\_\_\_ / \_\_\_\_\_
- 19) Estimated Operator arrival date/time: \_\_\_\_\_ / \_\_\_\_\_ Time containment set: \_\_\_\_\_
- 20) Estimated spill end date/time: \_\_\_\_\_ / \_\_\_\_\_ Time clean up completed/left site: \_\_\_\_\_
- 21) Spill cause: Grease  Debris-general  Debris-rags  Debris-Construction  Root intrusion   
Vandalism  Upper lateral (public)  Lower lateral (public)   
Pump Station failure: Controls  Mechanical  Power  Pipe structural problem/ failure

**NOTE: Do not change form unless General Manager**  
approves Page 1 of 2

Revised 01/17/19

**East Orange County Water District**  
**COLLECTION SYSTEM PROBLEM REPORT – FIELD SSO REPORT – EOCWD SPILLS**  
*Original to Operations Manager*

- 22) Spill Cause explanation (if other) \_\_\_\_\_
- 23) Where did failure occur? Gravity Main  Upper lateral (public)  Manhole   
 Force Main  Lower lateral (public)  Siphon   
 Pump Station failure: Controls  Mechanical  Power
- 24) Explanation of failure (if other): \_\_\_\_\_
- 25) Was this spill associated with a storm event? Yes  No
- 26) Diameter of sewer pipe at the point of blockage or failure: \_\_\_\_\_ in.
- 27) Material of sewer pipe at the point of blockage or failure (w/blockage – PVC, CIP, DIP, etc.): \_\_\_\_\_
- 28) Estimated age of sewer asset at the point of blockage or failure: \_\_\_\_\_
- 29) Spill response activities: Cleaned up  Mitigated effects of spill  Contained all or portion of spill  Restored flow   
 Returned all or portion of spill to sanitary sewer  Other
- 44) Explanation of spill response activities (action taken): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Estimated current spill rate (if applicable): \_\_\_\_\_ gallons per minute

Number of holes: \_\_\_\_\_ Size of holes: \_\_\_\_\_ Height of flow: \_\_\_\_\_

Estimate the sewage path: Depth (if flowing): \_\_\_\_\_ Width: \_\_\_\_\_ Length: \_\_\_\_\_

Velocity (ft/sec): \_\_\_\_\_ Other Info: \_\_\_\_\_

Estimated volume of wash down water used? \_\_\_\_\_ gal Was 100% of this wash water and all sewage-contaminated water recovered? Yes  No

Contract #: \_\_\_\_\_ Manhole/Station # I.D.: \_\_\_\_\_

Containment material(s) used: \_\_\_\_\_

Responding Personnel: \_\_\_\_\_

Did any other agencies respond to or assist with the spill? Yes  No

If yes, list the name of the agencies and describe their action.  
 \_\_\_\_\_  
 \_\_\_\_\_

**FOLLOW-UP:**

Is this an existing high frequency location? Yes  No  Should it be added to the list? Yes  No

Has there been another SSO within **1,000 feet** of this location in the last 12-months (by pipe segments or by radius)? Yes  No  If yes, please list dates: \_\_\_\_\_

Describe recommended follow-up work. \_\_\_\_\_  
 \_\_\_\_\_

Collections Staff Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Expanded Form  
**Orange County Santa Ana Region**  
**Sanitary Sewer Overflow Notification & Reporting Guidelines**

*Statewide General Waste Discharge Requirements Order No. 2006-0003 finds that all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length requires notification and reporting of all sanitary sewer overflows (SSOs). SSOs are defined as any overflow, spill, release, discharge or diversion of wastewater from a sanitary sewer system. (See page 5 of the Order No. 2006-0003 for the complete definition of SSOs).*

| Type of Spill   | Initial Notification Timeframe*                       | Agency to Notify by Phone  | Report Timeframe  |
|---|---|--|---|
| <p><b>Category 1</b> - Discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition that:</p> <p><b>A</b> Reach surface water and/or reach a drainage channel tributary to a surface water; or</p> <p><b>B</b> Reach a municipal separate storm sewer system and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. (Any volume of wastewater not recovered from the municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).)</p> <p><b>Greater than or equal to 1,000 gallons, notify the OES and obtain a notification control number.</b></p> | As soon as practical within 2 hours of becoming aware | <ul style="list-style-type: none"> <li>• OES<sup>1</sup></li> <li>• OCHCA<sup>2</sup></li> <li>• OC Public Works<sup>3</sup> and city</li> </ul> | <p>Submit Draft report within 3 business days of becoming aware of the SSO.</p> <p>Certify within 15 calendar <b>days</b> of SSO end date.</p> <p>SSO Technical Report: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters.</p> |
| <p><b>Category 1 - any volume &lt; 1000 gallons</b></p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  |   |
| <p><b>Category 2</b> - Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b>do not</b> reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.</p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  | <p>Submit Draft report within 3 business days of becoming aware of the SSO.</p> <p>Certify within 15 calendar days of SSO end date.</p>   |
| <p><b>Category 3</b> - All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.</p>  | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  | Submit Certified report within 30 calendar days after the end of month in which SSO occurred.   |
| <p><b>Private lateral</b> - Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets.</p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> <li>• OC Public Works and city<sup>3</sup></li> </ul>                            | PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online SSO Database.  |

**Notes:** \*Updates should be provided as necessary; <sup>1</sup> Water Code section 13271; <sup>2</sup> Health and Safety Code; <sup>3</sup> NPDES Stormwater Regulations and local Water Quality Ordinance.

**550 NOTIFICATION CONTACTS:**

| Normal Hours  | After Hours  |
|---|--|
| <p><b>OCHCA</b> <i>(Please call down the list until someone is contacted)</i><br/>                     1<sup>st</sup> (714) 433-6419 (Office Support Staff)<br/>                     2<sup>nd</sup> Larry Brenner (714) 433-6280<br/>                     3<sup>rd</sup> Dan Yokoyama (714) 433-6288<br/>                     4<sup>th</sup> Juan Anzora (714) 433-6287</p> | <p>Control 1: (714) 628-7008 (will contact OCHCA on-call staff).</p>   |
| <p><b>RWQCB - Santa Ana Region</b> (951) 782-4130<br/>                     Najah Amin (951) 320-6362</p>  | <p>RWQCB: (951) 782-4130 (voice mail)<br/>                     OES: (800) 852-7550</p>   |
| <p><b>OES</b> (Office of Emergency Services) (800) 852-7550</p>   | <p>24 hours</p>  |
| <p><b>OC Public Works</b><br/>                     (714) 955-0600 (storm drain/flood channel facility owners)<br/>                     (877) 89-SPILL (897-7455) 24 HR. Hotline</p>   | <p>Control 1: (714) 628-7008 (specify water pollution incident notification)</p>   |
| <p><b>Water Quality Monitoring</b><br/>                     Sierra Analytical Labs, Inc (Rick Forsyth) (714)-348-9389</p>   | <p>(714) 348-9389; <a href="mailto:sierralabs@sierralabs.net">sierralabs@sierralabs.net</a>;<br/> <a href="http://www.sierralabs.net/sierra.html">www.sierralabs.net/sierra.html</a></p> |
| <p><b>Water Quality Monitoring</b><br/>                     Associated Laboratories (714) 771-6900</p>  | <p>(714) 771-6900; <a href="mailto:info@associatedlabs.com">info@associatedlabs.com</a>;<br/> <a href="http://www.associatedlabs.com">www.associatedlabs.com</a></p>                     |

Developed by the Orange County Sanitation District with RWQCB, OCHCA and QC Public Works.





# SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

## I. Purpose and Scope

The purpose of this document is to provide procedures for District staff and contractors to respond to sanitary sewer overflows (SSO).

Goals:

- Protect public health and safety
- Prevent adverse impacts to the environment, waterways of the state and their beneficial uses
- Achieve timely and expeditious response to reports of all potential SSO's
- Ensure 24-hour coverage

Objectives:

- Minimize adverse impacts of SSO's
- Ensure corrective action is taken in a timely manner
- Ensure compliance with current regulatory requirements
- Provide uniform, clear and consistent SSO response
- Identify and implement measures to prevent the occurrence of preventable and chronic SSO's

This is a living document and will be updated with revisions as necessary to ensure compliance with all current and future regulatory requirements.

### A. Term Definitions

Stoppage: Any obstruction in the sewer that impacts the flow of wastewater. Also referred to as blockage.

SSO: A Sanitary Sewer Overflow (SSO) is the discharge of any amount of untreated sewage from a collection system before it reaches a treatment plant. SSO's can occur at many different locations within the wastewater collection system: maintenance holes, broken pipes, clean-outs, siphons, air relief valves and diversion structures. SSO's can discharge to public and/or private property because of a pump stations failure or a blocked or surcharged private or municipal sewer.

Preventable SSO: SSO's that could have been avoided if reasonable preventative or corrective actions were taken.

Unpreventable SSO: SSO's that are beyond the control of the system operator. These



# SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

include, but are not limited to, SSO's caused by vandalism, earthquakes, water main breaks, acts of nature, and contractor error.

Reportable SSO: A Reportable Sanitary Sewer Overflow is defined as any release of raw or inadequately treated sewage from a municipal sewer collection system prior to reaching the treatment plant. There are three (3) categories of reportable SSOs.

Category 1 Spill – Any spill that reaches surface water, a drainage channel, a storm drain and is not fully recovered.

Category 2 Spill – Any spill of 1,000 gallons or greater that doesn't reach surface water, a drainage channel or a storm drain, unless the entire SSO discharge is fully recovered and disposed of properly.

Category 3 Spill – All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

Blockage caused SSO: An SSO that is caused by a blockage mainly due to grease, roots, debris or vandalism.

Capacity caused SSO: An SSO that is caused by a lack of sewer or pump station capacity to convey wastewater during dry or wet weather conditions.

Dry weather SSO: An SSO that is caused by a blockage primarily due to grease, roots or debris, a capacity deficiency, or a pump station failure. A dry weather SSO is not caused by excessive rain entering the sewer system.

Wet weather SSO: An SSO that is caused by excessive wet weather flow, which is mainly due to inflow and/or infiltration (I/I), that surcharges the system's normal design capacity.

Exfiltration: The leakage of sewage from buried collection systems that may not be detectable by Closed Circuit Television inspection.

Infiltration: The water entering a sewer system and service connections from the ground, through means including, but not limited to, defective pipes, pipe joints, connections, or manhole walls.

Inflow: Water (mainly runoff) discharged to a sewer system, including service connections, from sources including but not limited to the following: roof leaders, cellar, yard and area drains, crushed laterals, foundation drains, cooling water discharge, drains from springs and swampy areas, maintenance hole covers, summit maintenance hole plugs, cross connections from storm and combined sewer, tide gate leakage, catch

# SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

basin laterals, storm water, surface runoff, street wash water, or drainage.

## B. Job Titles

General Manager  
Operations Manager  
District Engineer  
Collections System Supervisor System  
Collection Crew  
Water Distribution Operators/Standby Crew  
Collection System Pipeline Cleaning Contractor  
Laboratory (Lab)  
Contractor

## C. SSO Response Procedures

The Operations Department has developed the following procedures for responding to sanitary sewer overflow (SSO's). The purpose of these procedures is to ensure that **all** SSO responses are handled efficiently and effectively and that all regulatory requirements are met. Operations Department staff and all District contractors, are required to know and follow these procedures. These procedures are summarized in the **SSO Flow Chart (Attachment A and Appendix N)** and are also presented in detail below.

### 1. Investigate and Assess Problem (Collections Crew/Collections System Supervisor/Emergency Standby and/or Contractor)

Collections Crew, Collections Supervisor and/or Emergency Standby performs a quick investigation and assessment of the overflow and take pictures of the SSO and surrounding area to determine the extent of the overflow, what additional resources will be needed, and if notification of other agencies is required at that time. If the Contractor is the first responder, they will perform these duties and then relinquish to EOCWD staff immediately upon notification.

- (a) Locate SSO by address, cross street, latitude and longitude and point of overflow (i.e. manhole, clean-out, pump station, pipe, Inside structure)
- (b) Determine the current magnitude of the SSO
  - Flooded structure
  - Storm water inlet or drainage way
  - Potential for public exposure
  - Related problems
    1. Is overflow related to a street collapse?
    2. Is overflow related to construction work?

# SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

3. Is overflow causing a traffic hazard such as displaced maintenance hole cover or street flooding?
4. Other
  - Provide initial estimate of overflow rate using pictures and tables. Refer to **Overflow Estimation Guide (Attachment B)**
- (c) Determine the Category (**Attachment C – Sanitary Sewer Overflow and Reporting Guide**)
- (d) Immediately contact the General Manager and Operations Manager (**Attachment D – Emergency Contact List**)

## 2. Contain SSO (Collections Crew and/or Emergency Standby/ Collections System Supervisor and/or Contractor)

The overflow must be contained. Containment becomes more difficult if the overflow reaches the storm drain system or drainage way since the overflow can rapidly contaminate receiving waters such as creeks, streams, rivers, and other water bodies. During dry weather, the storm drain system shall be used to store the overflow if it can be plugged downstream of the overflow or if the downstream storm drain pump station can be deactivated. Any party present should immediately begin containment upon seeing spill and should not wait for EOCWD staff.

- (a) Options for containing overflow
  - Overflow onto ground
    1. Rubber mats at catch basin or inlet
    2. Sand bags in gutter
    3. Dig trench in earth
  - Overflow in building
    1. Evacuate affected people
    2. Sand bags/plastic sheet
    3. Avoid electrical shock: have power turned off
  - Overflow into storm drain/drainage way
    1. Trace overflow in storm drainage system to downstream end point
    2. Plug all affected storm system outlets or block the creek and channels if necessary to contain spill
    3. Turn off storm water pump station
- (b) If overflow enters a creek, stream, river, or other body of water, sample receiving water to obtain baseline data. Sample should be taken upstream, at entry point and downstream of overflow location as determined by site- specific conditions.

## SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

- Call **Truesdail Laboratory (714) 730-6239** (3337 Michelson Drive, Suite CN750, Irvine, CA 92612) to obtain and handle samples.
- If Truesdail is not able to respond, use trained Collections System personnel to obtain sample.
- Refer to **Attachment E, SSO sampling procedure**, flow chart and chain of custody record.
- Contact Truesdail Laboratory personnel and transport sample (see address above) for analysis along with appropriate paper work.

### 3. Traffic Control (Collections Crew and/or Emergency Standby/ Collections Supervisor and/or Contractor)

Traffic control may be needed immediately to protect the public and/or District/ Contractor staff. Typically, immediate traffic control is needed if there is a street collapse or significant depression in the pavement that is related to the sewer, if the manhole is ajar, or if the overflow causes flooding of the street. Traffic control may also be needed to prevent wastewater from being further disbursed and to protect the crew while containing the overflow and remove the blockage.

- (a) Provide traffic control per current version of WATCHBOOK (Work Area Traffic Control Handbook) Standards and/or the California MUTCD (Manual on Uniform Traffic Control Devices).
- (b) If necessary, use other agencies including police to ensure proper traffic control. Call **California Barricade (800)327-8844** if additional resources needed
- (c) Post warning signs around contaminated area and follow directions from the Orange County Health Department.
- (d) Required equipment for containing overflow
  - Overflow onto ground and in buildings
    1. Rubber mats
    2. Sand bags
    3. Plastic Sheets
    4. Bypass pumps and pipe/hose
  - Overflow into storm drain/drainage way
    1. Plugs
    2. Bypass Pump
  - Warning signs to post around contaminated areas.

### 4. Correct Cause (Collections Crew and/or Contractor)

The cause of the overflow may be located a considerable distance downstream of the actual overflow in areas with flat terrain (Grease blockages can be more than 1500

## SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

feet from the point of the overflow). During large storms, overflows may occur because of infiltration and inflow (I/I) of storm water into the sewer system. I/I can greatly increase the flow in the collection system and cause overflows from pipes that are only partially blocked by roots, grease, or debris. However, during very large storms I/I can cause the flow in the collections system to exceed the hydraulic capacity of the pipes. Under these conditions, it may not be possible to stop the overflow until the flows recede.

(a) Locate cause of overflow

1. Sewer main

1. Check flow in maintenance holes after testing for methane.
2. Blockage should be between maintenance hole with sluggish flow or surcharging and maintenance hole with very little flow or is dry

2. Customer Lateral

1. Check flow in clean-out. If clean-out stoppage is located on private property, notify the property owner
2. If there is no existing clean-out, notify property owner to call plumber

(b) Clear Blockage

• Within Sewer Main

1. Clear line from dry maintenance hole if possible with high pressure cleaning or power rodding equipment
2. Determine cause of blockage (if possible)
3. If additional assistance or resources are needed, call for Orange County CASC (24 hour hotline: 1-877-89SPILL or 1-877-897-7455) or website:  
[http://www.ocwatershed.com/WQHotline/wqh\\_reporting.asp](http://www.ocwatershed.com/WQHotline/wqh_reporting.asp)
4. Call Performance Pipeline: Gene Glassburner cell: 1-714-350-2131
5. Call WEROC: Kelly Hubbard cell: 1-714-715-0283.

• Within Customer Lateral

1. Eliminate stoppage from service line clean-out

(c) If blockage cannot be cleared

- Increase containment or initiate bypass pumping and
- Perform CCTV inspection to determine problem
- Repair broken sewer line or dig up blockage

# SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)

## 5. Final Volume Estimate (Collection System Supervisor/Operations Manager)

The final overflow volume is estimated to determine if additional reporting to regulatory agencies is required and for the District's records.

- (a) Estimate final overflow rate using tables and pictures and **Overflow Estimation Guide (Attachment B)**
- (b) Overflow volume can also be estimated by multiplying the overflow duration by the overflow rate

## 6. Initiate Clean-up (Collections Crew/Contractor)

We will make every effort to restore the environment to the condition that existed before the SSO occurred by using the following procedures:

- (a) Street
  - If the SSO occurred in the street, staff will apply household bleach to the affected area and use the nearest fire hydrant to wash down the area, dechlorination if needed, and recover wash down water, as much as possible.
  - If the SSO occurred in an unpaved/dirt area staff would apply hydrated lime as needed for odor control and apply class 2 base at a minimum of two inches (2") of coverage.
  - Collect and dispose of any standing or pooled sewage that is accessible to the public.
  - Disinfection of contaminated soil or drainage ways is only performed when directed by the appropriate agencies (e.g. Orange County Environmental Health Dept., Dept. of Fish and Game)
  - Recover any sewage within storm drains, channels, curb, gutters, and culverts.
  - Clear surrounding area of paper, solids, and any other signs of a SSO.
  - We will replace vegetation, sidewalks, asphalt, fencing or any other items that were damaged as a result of the SSO or the crews working to restore service.

## 7. Receiving Water Sampling (Lab)

Field collection of receiving water samples will be performed by the Laboratory, if available.

## **SEWER SYSTEM OVERFLOW RESPONSE PLAN (SSORP)**

- (a) Call **Truesdail Laboratory (714) 730-6239** (3337 Michelson Drive, Suite CN750, Irvine, CA 92612) to obtain and handle samples.
- (b) If Truesdail is not able to respond, use trained Collections System personnel to obtain sample.
- (c) Refer to **Attachment E, SSO sampling procedure**, flow chart and chain of custody record.
- (d) Contact Truesdail Laboratory personnel and transport sample (see address above) for analysis along with appropriate paper work.

### **8. Report(s) (Operations Manager)**

Certain overflows are required by law to be promptly reported to regulatory agencies. The Operations Manager or his or her designated representative **only** will make all notifications to regulatory agencies regarding reportable SSO's.

- (a) Promptly notify regulatory agencies pursuant to **Attachment C, Sanitary Sewer Overflow Notification and Reporting Guidelines**
- (b) Review, complete and sign required reports
  - **SSO Report Form (Appendix F)**

### **9. Report(s) and Data Capture (Collections System Supervisor/Collections Crew/Standby Crew)**

All SSO's must be tracked in SEDARU regardless of volume, District/Private, etc.

- (a) Assure that all appropriate documentation has been completed in SEDARU
- (b) For private SSO provide copies of all job-sheets/time-sheets to Operations Manager



Attachment B

# SPILL ESTIMATION

Not Just A Guess Anymore







# SPILL ESTIMATION

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- ✘ Under current regulations accurate spill estimation has become critical to the operation and maintenance of a sanitary collection system
  - + Reporting to State and Regional Boards
  - + Reporting to local health care agency
  - + Factor for determining spill category
  - + Can be used in determining penalties



# SPILL ESTIMATION

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- ✘ There are basically two types of systems where sewage spills occur
  - + The gravity system
    - ✘ Collection pipelines, manholes, wet wells, etc.
  - + The pressure system
    - ✘ Force mains, pump and lift stations, etc.

# SPILL ESTIMATION METHODS

- ✘ WAG Factor
- ✘ Flooding or ponding
- ✘ Flow velocity over time equals spill volume
- ✘ Area times depth for spills that are contained
- ✘ Charts for pick, vent and manholes
- ✘ Picture charts (San Diego and CWEA Southern Section)
- ✘ Take pictures and measurements
- ✘ Who is doing the estimating?



# SPILL ESTIMATION METHODS

## ✘ Eyeball Estimate

- + To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 200 gallons.

# SPILL ESTIMATION METHODS

## × Measured Volume

- + The volume of most spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.



# SPILL ESTIMATION METHODS

## ✘ Measured volume continued

**Step 1** Sketch the shape of the sewage containment area.

**Step 2** Measure or pace off the dimensions (length, width, diameter, etc.)

**Step 3** Measure the depth at several locations and calculate an average (total of the samples by the number of samples).

**Step 4** Convert the dimensions, including depth, to feet.

# SPILL ESTIMATION METHODS

## ✘ Measured volume continued

**Step 5** Calculate the area in square feet using the following formulas:

- ✘ Rectangle:      Area = length (feet) x width (feet)
- ✘ Circle:            Area = diameter (feet) x diameter (feet) x 0.785
- ✘ Triangle:         Area = base (feet) x height (feet) x 0.5

**Step 6** Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.

**Step 7** Multiply the volume in cubic feet by 7.48 (number of gallons in one cubic foot) to convert it to gallons.



# SPILL ESTIMATION METHODS

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- ✘ Many times sewage spills do not pond at the site but tend to flow into the storm water system, creeks or water ways etc. For this type of spill the flow volume or velocity must be determined and the time duration of the spill established.

# SPILL ESTIMATION METHODS

## ✘ Counting connections

- + Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.



# SPILL ESTIMATION METHODS

✘ For example:

22 upstream connections x 9 gallons per hour per connection = 198 gallons per hour / 60 minutes per hour = 3.3 gallons per minute. Multiply the gallons per minute times the number of minutes the spill occurred for the total volume of the spill.

# SPILL ESTIMATION METHODS

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## × Pictorial Reference

- + Use a pictorial reference such as the San Diego or CWEA Southern Section picture charts to determine the flow velocity then multiply the gallons per minute times the time duration of the spill in minutes to obtain the total volume of the spill.





# Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

*All estimates are calculated In gallons per minute (gpm)*



5 gpm



25 gpm



50 gpm



100 gpm



150gpm



200gpm



225 gpm



250gpm



275gpm

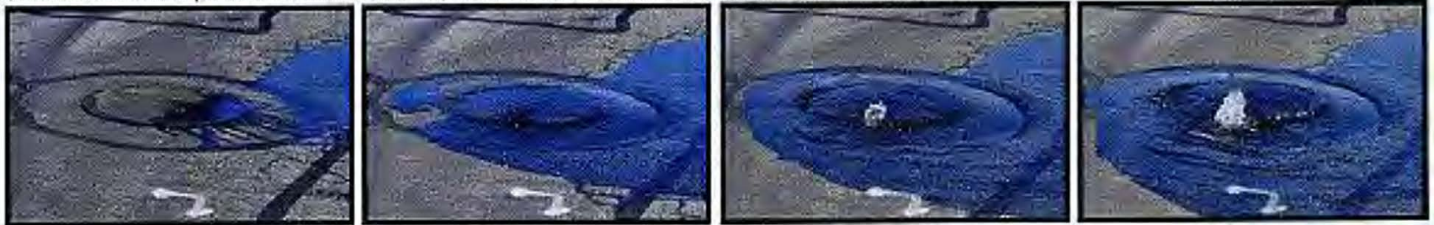


DISCLAIMER: This overflow simulation may appear differently from those in other systems because of the manhole lid pick hole configuration. Manhole lids with single or multiple pick holes may appear differently during overflow conditions. However, the volume of effluent and the footprint of the wet area should appear relatively the same under similar slope conditions.



# SSCSC MANHOLE OVERFLOW GAUGE

Overflow Simulation courtesy of Eastern Municipal Water District

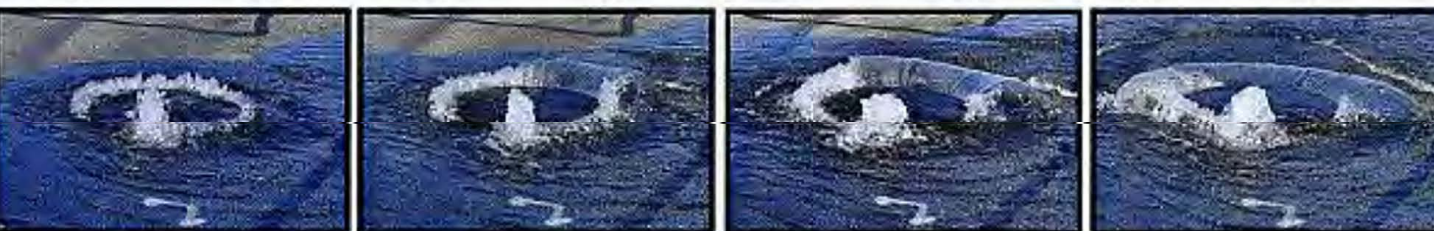
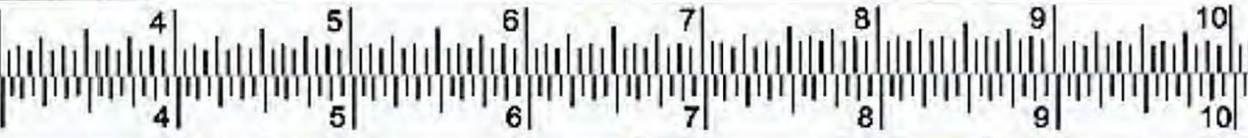


5 gpm

25 gpm

50 gpm

100 gpm



150 gpm

200 gpm

300 gpm

400 gpm



PROVIDING QUALITY TRAINING FOR COLLECTION SYSTEM PERSONNEL SINCE 1991

Mission Statement: To continuously increase the level of professionalism of Collection Systems personnel involved in the operation, maintenance, design and construction of wastewater collection systems, by providing education and training, taking an active role in promoting certification, and encouraging proficiency in our field.

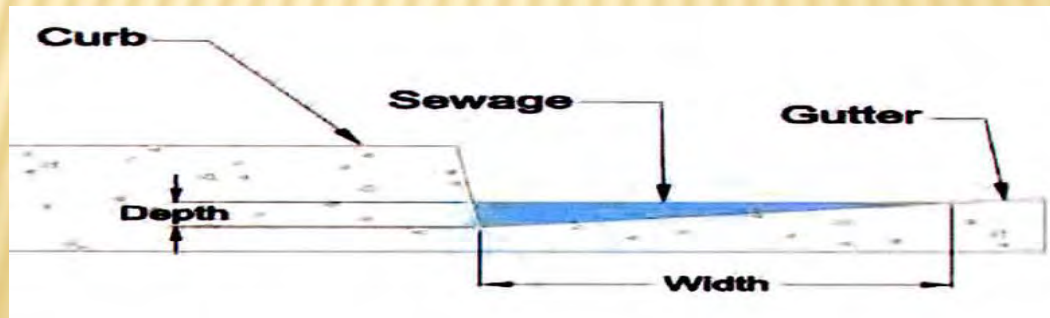
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# SPILL ESTIMATION METHODS

## ✘ Open Channel Spill Estimation

- + For ditches, channels, gutters, etc.
- + Measure the cross sectional dimensions of the channel and determine the velocity of the flow
- + Measure the velocity by dropping a floating object into the flow and time over a measured distance
- + Flow (Q),  $\text{ft}^3/\text{sec} = \text{Velocity (V), ft/sec} \times \text{Area (A),ft}^2$
- + Flow times duration equals amount of spill



# SPILL ESTIMATION METHODS

## ✘ Drop Bucket Method

- + Can be used for small spills where entire flow stream can be captured in a bucket
- + Time how long it takes to fill the bucket
- + Dividing the volume of the bucket (in gallons) by the elapsed time to fill the bucket (in minutes) equals the flow rate in gallons per minute (gpm)
- + Example: If it takes 30 seconds to fill a 5-gallon bucket and the spill has occurred for 20 minutes the total spill volume would be 200 gallons  
( $5\text{gal}/.5\text{min} = 10\text{gpm} \times 20\text{min} = 200\text{gal.}$ )



# SPILL ESTIMATION METHODS

- ✘ Calculating a spill based upon pipe size
  - + Need to know the size of the pipe
  - + Need a flow calculation chart
  - + Measure the depth of the flow down stream of the blockage
  - + Measure the depth of flow again after the blockage has been cleared and flow stabilized

| Flow Depth Inches | 8" PIPE    | 10" PIPE   | 12" PIPE   | 15" PIPE    | 18" PIPE    | 21" PIPE    | 24" PIPE    |
|-------------------|------------|------------|------------|-------------|-------------|-------------|-------------|
| <b>1</b>          | 20 GPM     | 25 GPM     | 30 GPM     | 35 GPM      | 40 GPM      | 45 GPM      | 50 GPM      |
| <b>2</b>          | 60         | 70         | 80         | 85          | <b>95</b>   | 105         | 125         |
| <b>3</b>          | 110        | 125        | 135        | 150         | 175         | <b>185</b>  | 210         |
| <b>4</b>          | 160        | 180        | 200        | 235         | 260         | <b>285</b>  | 320         |
| <b>5</b>          | 190        | 240        | 280        | 315         | 360         | 380         | 445         |
| <b>6</b>          | 260        | 310        | <b>355</b> | <b>415</b>  | 455         | 500         | 555         |
| <b>7</b>          | 290        | 370        | 425        | 495         | 570         | 620         | 695         |
| <b>8</b>          | <b>320</b> | 430        | 500        | 600         | 680         | 760         | 815         |
| <b>9</b>          |            | <b>465</b> | 575        | 690         | <b>800</b>  | 890         | 965         |
| <b>10</b>         |            | 490        | 625        | 775         | 905         | <b>1005</b> | 1120        |
| <b>11</b>         |            |            | 685        | 870         | 1020        | <b>1135</b> | 1275        |
| <b>12</b>         |            |            | 715        | 935         | 1130        | 1260        | 1410        |
| <b>13</b>         |            |            |            | 1020        | 1240        | 1415        | 1580        |
| <b>14</b>         |            |            |            | 1070        | 1345        | 1520        | 1690        |
| <b>15</b>         |            |            |            | <b>1105</b> | <b>1425</b> | <b>1650</b> | 1850        |
| <b>16</b>         |            |            |            |             | 1495        | 1760        | <b>1990</b> |
| <b>17</b>         |            |            |            |             | 1550        | 1880        | 2110        |
| <b>18</b>         |            |            |            |             | <b>1595</b> | <b>1980</b> | 2285        |
| <b>19</b>         |            |            |            |             |             | 2050        | 2410        |
| <b>20</b>         |            |            |            |             |             | 2115        | 2530        |
| <b>21</b>         |            |            |            |             |             | 2160        | 2630        |
| <b>22</b>         |            |            |            |             |             |             | 2700        |
| <b>23</b>         |            |            |            |             |             |             | 2765        |
| <b>24</b>         |            |            |            |             |             |             | 2820        |

Note: the chart assumes  $V = 2.0$  feet per second and  $n = 0.013$

- Record the time that spill was reported.
- Record the flow, in Inches, downstream of the spill or blockage. Record the pipe size in Inches. Determine flow rate in gallons per minute (GPM) using chart above.
- Re-establish flow and allow stabilizing. Record the time that flow stabilizes and the depth of flow, in inches. Determine flow rate using chart above.
- Subtract the flow rate calculated in #2 from the flow rate calculated in #3.
- Multiply the result of 4 by 111 minutes elapsed from notification to stopping overflow.
- Report total amount in gallons on the SSO Report.



# SPILL ESTIMATION METHODS

## × Example:

- + A Spill was reported at 3:50 pm and was corrected at 6:25 pm on the same day. Calculate the volume of the spill for a 10 inch pipeline with 1 inch of downstream flow before correction and 5 inches of flow after correction and stabilization of flow.

# SPILL ESTIMATION METHODS

- × Time reported – 3:50 pm
- × Time Corrected – 6:25 pm
- × Duration of spill – 2:35 or **155 minutes**
- × Depth of flow before – 1 inch
- × Depth of flow after – 5 inches



| Flow Depth Inches | 8" PIPE    | 10" PIPE       | 12" PIPE   | 15" PIPE    | 18" PIPE    | 21" PIPE      | 24" PIPE    |
|-------------------|------------|----------------|------------|-------------|-------------|---------------|-------------|
| 1                 | 20 GPM     | <b>C25 GPM</b> | 30 GPM     | 35 GPM      | 40 GPM      | <b>45 GPM</b> | 50 GPM      |
| 2                 | 60         | <b>u</b>       | 80         | 85          | <b>95</b>   | 105           | 125         |
| 3                 | 110        | 125            | <b>135</b> | 150         | <b>175</b>  | 185           | 210         |
| 4                 | <b>160</b> | <del>160</del> | 200        | 235         | 260         | 285           | 320         |
| 5                 | 190        | <b>C 240</b>   | 280        | 315         | <b>360</b>  | 380           | <b>445</b>  |
| 6                 | 260        | <del>240</del> | 355        | 415         | 455         | 500           | 555         |
| 7                 | 290        | 370            | 425        | 495         | <b>570</b>  | 620           | 695         |
| 8                 | 320        | 430            | 500        | 600         | 680         | 760           | 815         |
| 9                 |            | 465            | 575        | 690         | 800         | 890           | 965         |
| 10                |            | 490            | 625        | 775         | 905         | 1005          | 1120        |
| 11                |            |                | 685        | 870         | 1020        | 1135          | 1275        |
| 12                |            |                | 715        | 935         | 1130        | 1260          | 1410        |
| 13                |            |                |            | 1020        | 1240        | 1415          | 1580        |
| 14                |            |                |            | 1070        | 1345        | 1520          | 1690        |
| 15                |            |                |            | <b>1105</b> | <b>1425</b> | <b>1650</b>   | <b>1850</b> |
| 16                |            |                |            |             | 1495        | 1760          | 1990        |
| 17                |            |                |            |             | 1550        | 1880          | 2110        |
| 18                |            |                |            |             | 1595        | 1980          | 2285        |
| 19                |            |                |            |             |             | 2050          | 2410        |
| 20                |            |                |            |             |             | 2115          | <b>2530</b> |
| 21                |            |                |            |             |             | 2160          | 2630        |
| 22                |            |                |            |             |             |               | 2700        |
| 23                |            |                |            |             |             |               | 2765        |
| 24                |            |                |            |             |             |               | 2820        |

Note: the chart assumes V = 2.0 feet per second and n = 0.013

1. Record the time that spill was reported.
2. Record the flow, in Inches, downstream of the spill or blockage. Record the pipe size h Inches. Determine flow rate in gallons per minute (GPM) using chart above.
3. Re-establish flow and allow stabilizing. Record the time that flow stabilizes and the depth of flow, h inches. Determine flow rate using chart above.
4. Subtract the flow rate calculated in #2 from the flow rate calculated in #3.
5. Multiply the result of 4 by the minutes elapsed from notification to stopping overflow.
6. Report total amount in gallons on the SSO Report.

# SPILL ESTIMATION METHODS

## ✘ From Chart

Flow after stabilization = 240 gpm

Flow downstream before = 25 gpm

Net Flow =  $240 - 25 = 215$  gpm

**SPILL VOLUME = 215 (gpm) X 155 (m) =  
33,325 gallons**



# SPILL ESTIMATION METHODS

- ✘ To determine spill volume from vent or pick holes
  - + Count the number of holes
  - + Measure the height of the water exiting from the holes



- + Refer to pick hole chart to determine the volume from each hole
- + Multiply the number of holes times the flow rate times the duration of the spill to determine spill volume



## Estimated Flows thru Manhole Cover Vent Holes and Pick Holes for SSO estimating

| Hole Dia.<br>inches                | Area<br>.ft. | Coeff. of Vel.<br>Cv | Coeff. Of Cont.<br>Cc | C<br>CvxCc | Water Ht<br>Inches | Water Ht<br>inches | Water Ht<br>feet | Q<br>cfs      | Q<br>gpm    | Q<br>gpl  |
|------------------------------------|--------------|----------------------|-----------------------|------------|--------------------|--------------------|------------------|---------------|-------------|-----------|
| <b>Vent Hole]</b>                  |              |                      |                       |            |                    |                    |                  |               |             |           |
| 0.50                               | 0.00136      | 0.945                | 0.70                  | 0.662      | 1/16 th            | 0.063              | 0.005            | 0.0005        | 0.23        | 14        |
| 0.50                               | 0.00136      | <b>0,945</b>         | 0.70                  | 0.662      | 1/8 th             | 0.125              | 0.010            | 0.0007        | 0.33        | 20        |
| 0.50                               | 0.00136      | 0.945                | 0.70                  | 0.662      | 1/4 th             | 0.250              | 0.021            | 0.0010        | 0.47        | 28        |
| 0.50                               | 0.00136      | 0.945                | 0.70                  | 0.662      | one half           | 0.500              | 0.042            | 0.0015        | 0.66        | <b>40</b> |
| 0.50                               | 0.00136      | 0.945                | 0.70                  | 0.662      | 3/4 ths            | 0.750              | 0.063            | 0.0018        | 0.81        | 49        |
| <b>0.50</b>                        | 0.00136      | 0.945                | 0.70                  | 0.662      | 1 inch             | 1.000              | 0.083            | 0.0021        | 0.94        | 56        |
| <b>Vent Hole]</b>                  |              |                      |                       |            |                    |                    |                  |               |             |           |
| 0.75                               | 0.00307      | 0,955                | 0.67                  | 0.640      | 1/16th             | 0.063              | 0.005            | 0.0011        | 0.51        | 31        |
| 0.75                               | 0.00307      | 0.955                | 0.67                  | 0.640      | 1/8 th             | 0.125              | 0.010            | 0.0016        | 0.72        | 43        |
| 0.75                               | 0.00307      | 0.955                | 0.67                  | 0.640      | 1/4 th             | 0.250              | 0.021            | 0.0023        | 1.02        | 61        |
| 0.75                               | 000307       | 0.955                | 0.67                  | 0.640      | one half           | 0.500              | 0.042            | 0.0032        | 1.44        | 87        |
| 0.75                               | 0.00307      | 0.955                | 0.67                  | 0.640      | 3/4 ths            | 0.750              | 0.063            | 0.0039        | 1.77        | 106       |
| 0.75                               | 0.00307      | 0.955                | 0.67                  | 0.640      | 1 inch             | 1.000              | 0.083            | 0.0045        | 2.04        | 122       |
| <b>Vent Hole]</b>                  |              |                      |                       |            |                    |                    |                  |               |             |           |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | 1/16 th            | 0.063              | 0.005            | 0.0020        | <b>0.88</b> | 53        |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | 1/8th.             | 0.125              | 0.010            | 0.0028        | 1.25        | 75        |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | 1/4 th             | 0.250              | 0.021            | 0.0039        | 1.77        | 106       |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | one half           | 0.500              | 0.042            | 0.0056        | 2.50        | 150       |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | 3/4 ths            | 0.750              | 0.063            | 0.0068        | <b>3.06</b> | 184       |
| 1.00                               | 0.00545      | 0.960                | 0.65                  | 0.624      | 1 inch             | 1.000              | 0.083            | <b>0.0079</b> | <b>3.54</b> | 212       |
| <b>Pick Hole semicircular area</b> |              |                      |                       |            |                    |                    |                  |               |             |           |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 1/16 th            | 0.063              | 0.005            | 0.0010        | <b>0.44</b> | 27        |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 1/8 th             | 0.125              | 0.010            | 0.0014        | 0.63        | 38        |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 1/4 th             | 0.250              | 0.021            | 0.0020        | 0.89        | 53        |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | one half           | 0.500              | 0.042            | 0.0028        | 1.25        | 75        |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 3/4 ths            | 0.750              | 0.063            | 0.0034        | 1.53        | 92        |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 1 inch             | 1.000              | 0.083            | 0.0039        | 1.77        | 106       |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 1-1/2 inch         | 1.500              | 0.125            | 0.0048        | 2.17        | 130       |
| 1.00                               | 0.00273      | 0.960                | 0.65                  | 0.624      | 2 inches           | 2.000              | 0.167            | 0.0056        | 2.51        | 150       |

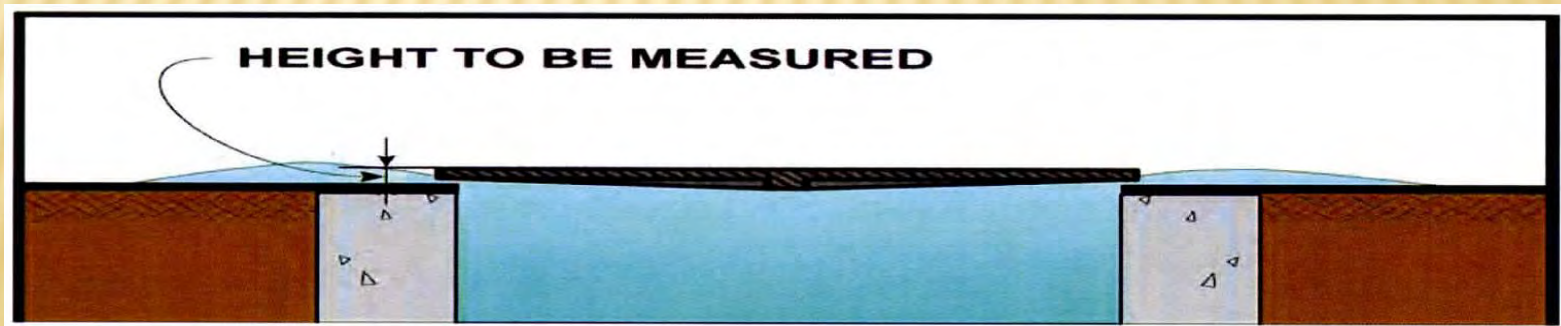


# SPILL ESTIMATION METHODS

- ✘ To determine the spill volume of a spill from around the rim of the manhole cover
  - + Find the area of the gap (diameter of the cover from the diameter of the inside of the ring)
  - + Find the velocity (ft/sec) of the spill by measuring the height of the sewage plume
  - + Area times the velocity (ft/sec) times the duration of the spill times (448.8 for gpm/cfs) equals the total spill volume in gallons

# SPILL ESTIMATION METHODS

- ✘ One inch vertical plume = 2ft/sec
- ✘ Two inch vertical plume = 3.3 ft/sec
- ✘ Three inch vertical plume = 4.0 ft/sec
- ✘ Four inch vertical plume = 4.6 ft/sec
- ✘ Five inch vertical plume = 5.2 ft/sec
- ✘ Six inch vertical plume = 5.7 ft/sec





**TABLE 'A'**

**ESTIMATED SSO FLOW QUIT DE M/H WITH COVER IN PLACE**

**24" COVER**

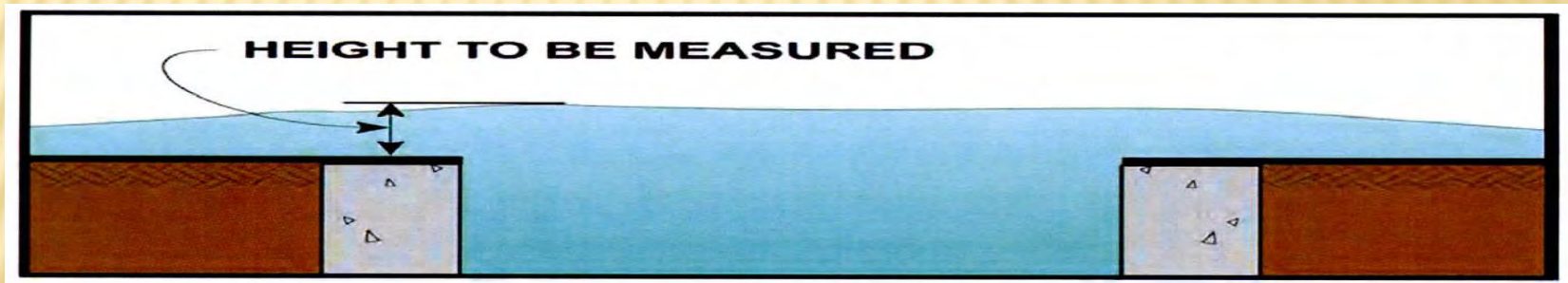
| Height of<br>spout above<br>M/H rim<br>ft. in inches | SSO FLOW<br>gpm |       | Min. Sewer<br>size in which<br>these flows<br>are possible |
|--|-----------------|-------|--|
|  | gpm             | MGD   |  |
| 1/4  | 1               | 0.001 | 6"   |
| 1/2  | 3               | 0.004 |  |
| 3/4  | 6               | 0.008 |  |
| 1  | 9               | 0.013 |  |
| 1 1/4  | 12              | 0.018 |  |
| 1 1/2  | 16              | 0.024 |  |
| 1 3/4  | 21              | 0.030 |  |
| 2  | 25              | 0.037 |  |
| 2 1/4  | 31              | 0.045 |  |
| 2 1/2  | 38              | 0.054 |  |
| 2 3/4  | 45              | 0.065 |  |
| 3  | 54              | 0.077 |  |
| 3 1/4  | 64              | 0.092 |  |
| 3 1/2  | 75              | 0.107 |  |
| 3 3/4  | 87              | 0.125 |  |
| 4  | 100             | 0.145 |  |
| 4 1/4  | 115             | 0.166 |  |
| 4 1/2  | 131             | 0.189 |  |
| 4 3/4  | 148             | 0.214 |  |
| 5  | 166             | 0.240 |  |
| 5 1/4  | 185             | 0.266 |  |
| 5 1/2  | 204             | 0.294 |  |
| 5 3/4  | 224             | 0.322 |  |
| 6  | 244             | 0.352 |  |
| 6 1/4  | 265             | 0.382 |  |
| 6 1/2  | 286             | 0.412 |  |
| 6 3/4  | 308             | 0.444 |  |
| 7  | 331             | 0.476 |  |
| 7 1/4  | 354             | 0.509 |  |
| 7 1/2  | 377             | 0.543 |  |
| 7 3/4  | 401             | 0.578 |  |
| 8  | 426             | 0.613 |  |
| 8 1/4  | 451             | 0.649 |  |
| 8 1/2  | 476             | 0.686 |  |
| 8 3/4  | 502             | 0.723 |  |
| 9  | 529             | 0.761 |  |

**36" COVER**

| Height of<br>spout above<br>MH rim<br>ft. in inches | SSO FLOW<br>gpm |       | Min. Sewer<br>size in which<br>these flows<br>are possible |
|---|-----------------|-------|--|
|   | gpm             | MGD   |  |
| 1/4   | 1               | 0.002 | 6"   |
| 1/2   | 4               | 0.006 |  |
| 3/4   | 8               | 0.012 |  |
| 1   | 13              | 0.019 |  |
| 1 1/4   | 18              | 0.026 |  |
| 1 1/2   | 24              | 0.035 |  |
| 1 3/4   | 31              | 0.044 |  |
| 2   | 37              | 0.054 |  |
| 2 1/4   | 45              | 0.065 |  |
| 2 1/2   | 55              | 0.079 |  |
| 2 3/4   | 66              | 0.095 |  |
| 3   | 78              | 0.113 |  |
| 3 1/4   | 93              | 0.134 |  |
| 3 1/2   | 109             | 0.157 |  |
| 3 3/4   | 127             | 0.183 |  |
| 4   | 147             | 0.211 |  |
| 4 1/4   | 169             | 0.243 |  |
| 4 1/2   | 192             | 0.276 |  |
| 4 3/4   | 217             | 0.312 |  |
| 5   | 243             | 0.350 |  |
| 5 1/4   | 270             | 0.389 |  |
| 5 1/2   | 299             | 0.430 |  |
| 5 3/4   | 327             | 0.471 |  |
| 6   | 357             | 0.514 |  |
| 6 1/4   | 387             | 0.558 |  |
| 6 1/2   | 419             | 0.603 |  |
| 6 3/4   | 451             | 0.649 |  |
| 7   | 483             | 0.696 |  |
| 7 1/4   | 517             | 0.744 |  |
| 7 1/2   | 551             | 0.794 |  |
| 7 3/4   | 587             | 0.845 |  |
| 8   | 622             | 0.896 |  |
| 8 1/4   | 659             | 0.949 |  |
| 8 1/2   | 697             | 1.003 |  |
| 8 3/4   | 734             | 1.057 |  |
| 9   | 773             | 1.113 |  |

# SPILL ESTIMATION METHODS

- ✘ To determine the spill volume of a spill from a manhole without a cover
  - + Find the area of the manhole opening (Area =  $3.14 R^2$ )
  - + Find the velocity (ft/sec) of the spill by measuring the height of the sewage plume



- + Area times the velocity (ft/sec) times the duration of the spill times (448.8 gpm/cfs) equals the total spill volume in gallons.

**TABLE 'B'**

**ESIMATFO SSO FL a w QILLOE M/H WITH COYER REMOYEO**

**24" FRAME**

| Water Height above M/H frame<br>Min. _____ | SSO FLOW<br>C |         | Min. Sewer size in which these flows are Possible |
|--|---------------|---------|---|
|  | inmm          | in. n r |   |
| 1/8  | 28            | 0.04    |   |
| 1/4  | 62            | 0.09    |   |
| 3/8  | 111           | 0.16    |   |
| 1/2  | 160           | 0.23    |   |
| 5/8  | 215           | 0.31    | 6"  |
| 3/4  | 354           | 0.51    | 8"  |
| 7/8  | 569           | 0.82    | 10"   |
| 1  | 799           | 1.15    | 12"   |
| 1 1/8                                      | 1,035         | 1.49    |   |
| 1 1/4                                      | 1,340         | 1.93    | 15"   |
| 1 3/8                                      | 1,660         | 2.39    |   |
| 1 1/2                                      | 1,986         | 2.86    |   |
| 1 5/8                                      | 2,396         | 3.45    | 18"   |
| 1 3/4                                      | 2,799         | 4.03    |   |
| 1 7/8                                      | 3,132         | 4.51    |   |
| 2  | 3,444         | 4.96    | 21"   |
| 2 1/8                                      | 3,750         | 5.4     |   |
| 2 1/4                                      | 3,986         | 5.74    |   |
| 2 3/8                                      | 4,215         | 6.07    |   |
| 2 1/2                                      | 4,437         | 6.39    |   |
| 2 5/8                                      | 4,569         | 6.58    | 24"   |
| 2 3/4                                      | 4,687         | 6.75    |   |
| 2 7/8                                      | 4,799         | 6.91    |   |
| 3  | 4,910         | 7.07    |   |

**36" FRAME**

| Water Height above MH frame<br>Min. _____ | SSO FLOW<br>C |         | Min. Sewer size in which these flows are Possible |
|---|---------------|---------|---|
|   | inmm          | in. n r |   |
| 1/8                                       | 49            | 0.07    |   |
| 1/4                                       | 111           | 0.16    |   |
| 3/8                                       | 187           | 0.27    | 6"  |
| 1/2                                       | 271           | 0.39    |   |
| 5/8                                       | 361           | 0.52    | 8"  |
| 3/4                                       | 458           | 0.66    |   |
| 7/8                                       | 556           | 0.8     | 10"   |
| 1   | 660           | 0.95    | 12"   |
| 1 1/8                                     | 1,035         | 1.49    |   |
| 1 1/4                                     | 1,486         | 2.14    | 15"   |
| 1 3/8                                     | 1,951         | 2.81    |   |
| 1 1/2                                     | 2,424         | 3.49    | 18"   |
| 1 5/8                                     | 2,903         | 4.18    |   |
| 1 3/4                                     | 3,382         | 4.87    |   |
| 1 7/8                                     | 3,917         | 5.64    | 21"   |
| 2   | 4,458         | 6.42    |   |
| 2 1/8                                     | 5,000         | 7.2     | 24"   |
| 2 1/4                                     | 5,556         | 8       |   |
| 2 3/8                                     | 6,118         | 8.81    |   |
| 2 1/2                                     | 6,764         | 9.74    |   |
| 2 5/8                                     | 7,403         | 10.66   |   |
| 2 3/4                                     | 7,972         | 11.48   | 30"   |
| 2 7/8                                     | 8,521         | 12.27   |   |
| 3   | 9,062         | 13.05   |   |
| 3 1/8                                     | 9,604         | 13.83   |   |
| 3 1/4                                     | 10,139        | 14.6    |   |
| 3 3/8                                     | 10,625        | 15.3    | 36"   |
| 3 1/2                                     | 11,097        | 15.98   |   |
| 3 5/8                                     | 11,569        | 16.66   |   |
| 3 3/4                                     | 12,035        | 17.33   |   |
| 3 7/8                                     | 12,486        | 17.98   |   |
| 4   | 12,861        | 18.52   |   |
| 4 1/8                                     | 13,076        | 18.83   |   |
| 4 1/4                                     | 13,285        | 19.13   |   |
| 4 3/8                                     | 13,486        | 19.42   |   |



# SPILL ESTIMATION METHODS

- ✘ To calculate spills in a pressure system (force main)
  - + Flow meter
  - + Pump capacity over time (constant run)
  - + Volume pumped from wet well times number of pump cycles (fill and draw)
  - + Minus flow that reached destination if known

# SPILL ESTIMATION METHODS

- ✘ Start time can be the most difficult to determine
  - + Time of initial notification
  - + Witness statements
    - ✘ Knock on doors
  - + Telemetry alarms
- ✘ Stop time should be accurately recorded by field staff on site



# SPILL ESTIMATION METHODS

## × Conclusion

- + Accurate spill estimation is more important now than ever before (most spills are under estimated)
- + Field personnel gather the data
  - × Measurements
  - × photos
  - × Time
- + Engineer or supervisor makes the estimate



## Orange County Santa Ana Region Sanitary Sewer Overflow Notification & Reporting Guidelines

Statewide General Waste Discharge Requirements Order No. 2006-0003 finds that all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length requires notification and reporting of all sanitary sewer overflows (SSOs). SSOs are defined as any overflow, spill, release, discharge or diversion of wastewater from a sanitary sewer system. (See page 5 of the Order No. 2006-0003 for the complete definition of SSOs).

| Type of Spill   | Initial Notification Timeframe*                       | Agency to Notify by Phone  | Report Timeframe  |
|---|---|--|---|
| <p><b>Category 1</b> - Discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition that:</p> <p><b>A</b> Reach surface water and/or reach a drainage channel tributary to a surface water; or</p> <p><b>B</b> Reach a municipal separate storm sewer system and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. (Any volume of wastewater not recovered from the municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).)</p> <p><b>Greater than or equal to 1,000 gallons, notify the OES and obtain a notification control number.</b></p> | As soon as practical within 2 hours of becoming aware | <ul style="list-style-type: none"> <li>• OES<sup>1</sup></li> <li>• OCHCA<sup>2</sup></li> <li>• OC Public Works<sup>3</sup> and city</li> </ul> | <p>Submit Draft report within 3 business days of becoming aware of the SSO.</p> <p>Certify within 15 calendar <b>days</b> of SSO end date.</p> <p>SSO Technical Report: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters.</p> |
| <p><b>Category 1 - any volume &lt; 1000 gallons</b></p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  |   |
| <p><b>Category 2</b> - Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b>do not</b> reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.</p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  | <p>Submit Draft report within 3 business days of becoming aware of the SSO.</p> <p>Certify within 15 calendar days of SSO end date.</p>   |
| <p><b>Category 3</b> - All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.</p>  | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> </ul>  | Submit Certified report within 30 calendar days after the end of month in which SSO occurred.   |
| <p><b>Private lateral</b> - Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets.</p>   | As soon as practical                                  | <ul style="list-style-type: none"> <li>• OCHCA<sup>2</sup></li> <li>• OC Public Works and city<sup>3</sup></li> </ul>                            | PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online SSO Database.  |

**Notes:** \*Updates should be provided as necessary; <sup>1</sup> Water Code section 13271; <sup>2</sup> Health and Safety Code; <sup>3</sup> NPDES Stormwater Regulations and local Water Quality Ordinance.

**550 NOTIFICATION CONTACTS:**

| Normal Hours  | After Hours  |
|---|--|
| <p><b>OCHCA</b> <i>(Please call down the list until someone is contacted)</i><br/>                     1<sup>st</sup> (714) 433-6419 (Office Support Staff)<br/>                     2<sup>nd</sup> Larry Brenner (714) 433-6280<br/>                     3<sup>rd</sup> Dan Yokoyama (714) 433-6288<br/>                     4<sup>th</sup> Juan Anzora (714) 433-6287</p> | <p>Control 1: (714) 628-7008 (will contact OCHCA on-call staff).</p>   |
| <p><b>RWQCB - Santa Ana Region</b> (951) 782-4130<br/>                     Najah Amin (951) 320-6362</p>  | <p>RWQCB: (951) 782-4130 (voice mail)<br/>                     OES: (800) 852-7550</p>   |
| <p><b>OES</b> (Office of Emergency Services) (800) 852-7550</p>   | <p>24 hours</p>  |
| <p><b>OC Public Works</b><br/>                     (714) 955-0600 (storm drain/flood channel facility owners)<br/>                     (877) 89-SPILL (897-7455) 24 HR. Hotline</p>   | <p>Control 1: (714) 628-7008 (specify water pollution incident notification)</p>   |
| <p><b>Water Quality Monitoring</b><br/>                     Sierra Analytical Labs, Inc (Rick Forsyth) (714)-348-9389</p>   | <p>(714) 348-9389; <a href="mailto:sierralabs@sierralabs.net">sierralabs@sierralabs.net</a>;<br/> <a href="http://www.sierralabs.net/sierra.html">www.sierralabs.net/sierra.html</a></p> |
| <p><b>Water Quality Monitoring</b><br/>                     Associated Laboratories (714) 771-6900</p>  | <p>(714) 771-6900; <a href="mailto:info@associatedlabs.com">info@associatedlabs.com</a>;<br/> <a href="http://www.associatedlabs.com">www.associatedlabs.com</a></p>                     |

Developed by the Orange County Sanitation District with RWQCB, OCHCA and QC Public Works.



Appendix D

**EAST ORANGE COUNTY WATER DISTRICT**

| <b>EMERGENCY SEWER CONTACTS</b>                         |                              |
|---|------------------------------|
| <b>AYALA ENGINEERING (Manhole Repairs)</b>              |                              |
| Ricardo Ayala   | 714-823-7179                 |
| Bob Hollingsworth                                       | 714-916-8332                 |
|   |                              |
| <b>DUKE'S ROOT CONTROL SERVICES (Root Foaming)</b>      |                              |
| Tom Edwards   | 800-447-6687<br>510-610-6148 |
|   |                              |
| <b>EEC ENVIRONMENTAL (FOG Program)</b>                  |                              |
| Jim Kolk, Sr. Project Engineer                          | 714-667-2300<br>714-642-8937 |
|   |                              |
| <b>OCHCA (Environmental Health)</b>                     |                              |
| Larry Brenner   | 714-628-7008<br>714-433-6280 |
| Dan Yokoyama  | 714-433-6288                 |
| Juan Anzora   | 714-433-6287                 |
| Tom Wong  | 714-720-1803                 |
|   |                              |
| <b>OC Public Works</b>                                  |                              |
| Spill Notification                                      | 714-955-0600<br>877-897-7455 |
|   |                              |
| <b>EOCWD</b>  |                              |
| Lisa Ohlund   | 714-538-5815<br>949-842-3351 |
| Jerry Mendzer   | 714-501-5596                 |
| <b>PERFORMANCE PIPELINE (Sewerline Cleaning)</b>        |                              |
| Gene Glassburner  | 714-350-2131                 |
| Jason Gomez   | 714-454-4586                 |
| Mike McCusker   | 714-887-6107                 |
|   |                              |
| <b>PROFESSIONAL PIPE SERVICES (Pro-Pipe)</b>            |                              |
| Jeff Garcia   | 909-598-9746<br>626-893-9543 |
|   |                              |
| <b>Regional Water Quality Control Board - Santa Ana</b> |                              |
| Najah Amin  | 951-782-4130<br>951-320-6362 |
|   |                              |
| <b>SANCON ENGINEERING (Sewerline Repairs)</b>           |                              |
| Chuck Parsons   | 714-891-2323                 |
|   |                              |
| <b>Water Quality Monitoring</b>                         |                              |
| Sierra Analytical Labs, Inc.                            | 714-348-9389                 |
| Associated Laboratories                                 | 714-771-6900                 |

## Attachment E

### Field Sampling Procedures

1. Put on all required personal protective equipment including safety gloves, eye protection and laboratory coat or uniform.
2. Use the SSO sample kit or sample bottles provided by the laboratory and consider the following prior sampling:
  - Three sets of samples are collected from each incident: upstream, entry point and downstream.
  - Each sampling point should include samples collected in and analyzed for: 1-liter plastic bottle for BOD (no preservative); 1-500ml plastic bottle for ammonia (Caution: Bottles contains sulfuric acid as preservative); and 1- 100ml sterile bottle for Coliform (contain sodium thiosulfate salt/tablet).
  - Each bottle must be labeled appropriately to include: sampling point, date and time of collection, analysis, and sample collector name or initials.
  - All samples are grabs and are collected 6 inches below the surface.
  - Samples must be placed in coolers packed with blue or wet ice for storage during transport.
  - Samples must be delivered to the laboratory no later than 4 hours of collection time. It should be noted that samples for total coliform must be set up for analysis within 6 hours from collection time.
3. Sampling poles can be used for hard to reach sampling point.
  - For general sampling (BOD and ammonia), a sample bottle permanently attached at the end of the pole can be used. The sample must be pre-rinsed with DI water, rinsed at least once with the sample to be collected prior to actual sample collection or pouring of sample into the properly preserved bottle.
  - For Coliform sampling, use a sampling pole with a clamp at the end (especially designed for total Coliform sampling). The assigned bottle for Coliform shall be secured at the end of the pole. Once the lid is opened, the inside surface of the bottle or lid should not be touched. Care must be taken to keep the preservative tablet inside the coliform bottle.
4. Avoid sampling debris or scum layer from the surface. To avoid this, the surface may need to be agitated or cleared gently before sampling.
5. Once in position to collect the sample, face upstream of the spill and lower the bottle below the water surface (6"), then sweep the bottle upstream and out of the water. Be careful not to disturb the bottom sediment.

6. For general sampling (BOD and ammonia), dip pre-rinsed sample bottle into the sampling area or pool. Collect sample to rinse the inside of the container, pour out or discard content into a waste container or downstream of the sampling area. Dip and collect sample then pour contents to properly preserved bottles for BOD and ammonia. Care must be taken to keep the preservative inside the sample bottle. Fill sample bottle to the neck, leaving enough space should sample reacts with the preservative.
7. For Coliform sampling, do not remove lid of the Coliform bottle until ready to dip the sample bottle to the sampling area. Once the cap or lid had been removed, the inside surface of the bottle or lid should not be touched. Care must be taken to keep the preservative or tablet inside the bottle. Collect sample up to the line marking of the bottle, do not overfill.
8. Replace lid securely, shake gently to homogenize the sample with the preservative.
9. Complete sample bottle label and fill up chain of custody.
10. Place water samples inside a cooler packed with blue or wet ice, notify the laboratory of incoming samples and deliver to the laboratory as soon as possible (no later than 4 hours from collection).
11. For total and fecal coliform, analysis must be initiated within 6 hours of collection to meet the analytical holding time. After 6 hours, the probability of bacteria dying off or becoming too stressed to be cultured is greatly increased.
12. The laboratory must be notified of the event as soon as it occurred and before samples are delivered to ensure lab personnel are available to receive and set-up the samples for analysis. Use the following table as guide for whom to call depending on day and time of the event of delivery.

**Truesdail Laboratory Personnel Contact List:**

| <b>Business Hours (8:00-5:00, M-F)</b> |              | <b>Weekends, Holidays, Non-Business Hrs (M-F)</b> |              |
|--|--------------|---|--------------|
| Jeff Lee                               | 714-730-6239 | Jeff Lee  | 714-856-7891 |
| Alex Luna                              | 714-730-6239 | Aubrey Livingston                                 | 714-914-1729 |

NOTE: In the event that Truesdail Lab personnel cannot be reached within 30 minutes, the collection crew will collect the samples. Additional attempts must be made beyond the 30 minutes window as follow up to ensure meeting sample receipt and analysis holding time requirements.

I. Sample Receipt @ Truesdail Lab: Today's Date: \_\_\_\_\_ Work Group: \_\_\_\_\_

| Chain of Custody Information            |  |  |   |   |
|---|--|--|---|---|
| <i>Delivered to Lab by:</i>             |  | <i>Total # of bottles:</i> _____   | <i>Accompanied by COC</i>   |   |
| <i>Time Delivered:</i>                  |  | <i>Labelled properly:</i> <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No  |   |
| <i>Received @ Lab by:</i>               |  | <i>Sample condition:</i> _____   |   |   |
| <i>Time Received:</i>                   |  | <i>Sample Type:</i>  | <i>site-comp</i>  | <i>grab</i>                                   |
|   |  |  | <i>24-composite</i>   |   |
| <b><u>Pretreatment Information</u></b>  |  | <i>Matrix</i>  | <i>WW</i>   | <i>Aqueous</i>                                |
| <i>Performed by:</i>                    |  |  | <input type="checkbox"/> <i>Soil</i>  | <input type="checkbox"/> <i>Other</i> : _____ |
| <i>Performed on:</i>                    |  | <i>Preservative:</i>   | <input type="checkbox"/> <i>using contract lab bottles (preserved)</i>                            |   |
| <i>Pretreatment done on the sample:</i> |  |  | <input type="checkbox"/> <i>in-house supplied bottles</i>   |   |
|   |  | <i>Temperature:</i>  | <input type="checkbox"/> <i>cold storage at 0-6° C</i> <input type="checkbox"/> <i>room temp.</i> |   |

II Sample Information and Analysis Needs

| Sampling Point or ID<br>or Location Code | Sampling Date and<br>Time | Preservative | Collected<br>by | Analysis Requested |
|--|---------------------------|--------------|-----------------|--------------------|
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |
|  |                           |              |                 |                    |

(\* ***If samples are to be sent out***, the contract laboratory's chain of custody (COC) must be filled out and the sent out date information must be noted under the section III on this page.

III. Subbed out information - analysis name, contract lab name and sent out date:

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**East Orange County Water District**  
**COLLECTION SYSTEM PROBLEM REPORT – FIELD SSO REPORT – EOCWD SPILLS**  
*Original to Collections Supervisor*

Collections Notified By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

CMMS Work Order #: \_\_\_\_\_ -or- SSO Event ID #: \_\_\_\_\_

Estimated spill size:  Small (1-1,000gal)  Medium (1,001-10,000 gal)  Large (> 10,000gal)

Spill Address (location) \_\_\_\_\_

Is spill: Local  Regional  \_\_\_\_\_ (Use **Unincorporated County** if applicable)

Is this an Area 7 spill? (i.e., in, from, or caused by District's facilities?) Yes  No

When you arrived onsite was there a Wet Spot  or Flowing Sewage

Did any eyewitnesses indicate when the SSO could have started? Yes  No  If yes, date / time they first noticed SSO?  
 \_\_\_\_\_ / \_\_\_\_\_

## 2) ESTIMATE SPILL VOLUMES

a) Estimated spill volume that reached a separate storm drain? \_\_\_\_\_ gal

b) Estimated spill volume recovered from the separate storm drain? (Do not include water used for clean-up) \_\_\_\_\_ gal

c) Estimated spill volume that reached a drainage channel? (i.e. flood control channel) \_\_\_\_\_ gal

d) Estimated spill volume recovered from a drainage channel? (i.e. flood control channel) \_\_\_\_\_ gal

e) Estimated spill volume discharged directly to a surface water body? (i.e. river, ocean bay) \_\_\_\_\_ gal

f) Estimated spill volume recovered from surface water body? (i.e. river, ocean bay) \_\_\_\_\_ gal

g) Estimated spill volume discharged to a land? \_\_\_\_\_ gal

h) Estimated spill volume recovered from a discharge to land? (Do not include water used for clean-up) \_\_\_\_\_ gal

3) Did the spill discharge to a drainage channel and/or other surface? Yes  No

4) Did the spill reach a storm drainpipe that is not part of a combined sewer system? Yes  No

5) If spill reached a separate storm drainpipe, was all of the wastewater fully captured from the separate storm drain and returned to the sanitary sewer system? Yes  No

## PHYSICAL LOCATION DETAILS

6) Spill location name: \_\_\_\_\_

7) GPS Latitude (e.g 33.70218) \_\_\_\_\_ (8) GPS Longitude (e.g 117.85461) \_\_\_\_\_

11) Spill location description: \_\_\_\_\_

## SPILL DETAILS

12) Number of appearance points: \_\_\_\_\_

13) Spill appearance point: \_\_\_\_\_

15) Final spill destination: \_\_\_\_\_

17) Estimated spill start date/time: \_\_\_\_\_ / \_\_\_\_\_

18) Date and time sanitary sewer system agency was notified of or discovered spill: \_\_\_\_\_ / \_\_\_\_\_

19) Estimated Operator arrival date/time: \_\_\_\_\_ / \_\_\_\_\_ Time containment set: \_\_\_\_\_

20) Estimated spill end date/time: \_\_\_\_\_ / \_\_\_\_\_ Time clean up completed/left site: \_\_\_\_\_

21) Spill cause: Grease  Debris-general  Debris-rags  Debris-Construction  Root intrusion   
 Vandalism  Upper lateral (public)  Lower lateral (public)   
 Pump Station failure: Controls  Mechanical  Power  Pipe structural problem/ failure

**East Orange County Water District**  
**COLLECTION SYSTEM PROBLEM REPORT – FIELD SSO REPORT – EOCWD SPILLS**  
*Original to Collections Supervisor*

- 22) Spill Cause explanation (if other) \_\_\_\_\_
- 23) Where did failure occur? Gravity Main  Upper lateral (public)  Manhole   
 Force Main  Lower lateral (public)  Siphon   
 Pump Station failure: Controls  Mechanical  Power
- 24) Explanation of failure (if other): \_\_\_\_\_
- 25) Was this spill associated with a storm event? Yes  No
- 26) Diameter of sewer pipe at the point of blockage or failure: \_\_\_\_\_ in.
- 27) Material of sewer pipe at the point of blockage or failure (w/blockage – PVC, CIP, DIP, etc.): \_\_\_\_\_
- 28) Estimated age of sewer asset at the point of blockage or failure: \_\_\_\_\_
- 29) Spill response activities: Cleaned up  Mitigated effects of spill  Contained all or portion of spill  Restored flow   
 Returned all or portion of spill to sanitary sewer  Other
- 44) Explanation of spill response activities (**action taken**): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Estimated current spill rate (if applicable): \_\_\_\_\_ gallons per minute

Number of holes: \_\_\_\_\_ Size of holes: \_\_\_\_\_ Height of flow: \_\_\_\_\_

Estimate the sewage **path**: Depth (if flowing): \_\_\_\_\_ Width: \_\_\_\_\_ Length: \_\_\_\_\_

Velocity (ft/sec): \_\_\_\_\_ Other Info: \_\_\_\_\_

Estimated volume of wash down water used? \_\_\_\_\_ gal Was 100% of this wash water and all sewage-contaminated water recovered? Yes  No

Contract #: \_\_\_\_\_ Manhole/Station # I.D.: \_\_\_\_\_

Containment material(s) used: \_\_\_\_\_

Responding Personnel: \_\_\_\_\_

Did any other agencies respond to or assist with the spill? Yes  No

If yes, list the name of the agencies and describe their action.  
 \_\_\_\_\_  
 \_\_\_\_\_

**FOLLOW-UP:**

Is this an existing high frequency location? Yes  No  Should it be added to the list? Yes  No

Has there been another SSO within **1,000 feet** of this location in the last 12-months (by pipe segments or by radius)? Yes  No  If yes, please list dates: \_\_\_\_\_

Describe recommended follow-up work. \_\_\_\_\_  
 \_\_\_\_\_

Collections Staff Signature: \_\_\_\_\_ Date: \_\_\_\_\_







EAST  
ORANGE  
COUNTY  
WATER  
DISTRICT

# **Water and Wastewater Emergency Response Plan**

**July 2016**

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# FIRST STEPS - WATER

## A. Act to Protect Life

## B. Notify Employees of Implementation of Emergency Operating Plan:

- Act to ensure safety of employees and families.
- Maintain, to a practical extent, records and logs of actions taken and ask all supervisors to do the same.
- Attempt to coordinate efforts with other regulatory agencies.

## C. Preserve Water in Storage:

- Consider what can be saved, what can be sacrificed.
- If damage is apparent, lower water in dams to prevent structural failure.
- If applicable, assess damage to sewer system which could contaminate water supplies.
- Secure well houses against unauthorized entry and possible contamination.

## D. Isolate Areas That Will Take Longest to Restore Service and Arrange for Emergency Water Distribution in Those Areas:

- Establish collection points and ration water.
- Locate source of water containers (plastic bottles, jerrycans, etc.)
- Spot containers at locations to serve immediate needs.
- Locate trucks with water-carrying capabilities.
- Start reserve pumping facilities.
- If needed, provide information to public on emergency disinfection of drinking water.

## E. Set Priorities on Repair Work:

- Plan to restore service by area.
- Prepare and keep current a plan to restore service
- Get input from appropriate agencies on essential uses.
- Take into account condition of existing facilities.
- Take into account the public's need for protection—determine if other water sources are available.
- When work exceeds capabilities, notify agency.

## Goals For Emergency Response

**Priority**

**Statement of Goal**

Life Safety

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |
|  |  |

Fire Suppression

|  |  |
|--|--|
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Public Health

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |
|  |  |

Commercial and Business

|  |  |
|--|--|
|  |  |
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Service Priorities

|  |  |
|--|--|
|  |  |
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Water Requirements

|  |  |
|--|--|
|  |  |
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|  |  |

## **CLASSIFICATION GUIDELINES TO DETERMINE IMPACT OF AN EMERGENCY**

Date: \_\_\_\_\_

Emergency Hazard: \_\_\_\_\_

Initial assessment classification: \_\_\_\_\_

**Level 1 – NORMAL TROUBLE** - Trouble, which can be handled routinely. This would include normal operator activity.

**Level 2 – ALERT (Minor Emergency)** - Trouble that can be handled by a system with oversight and guidance from the state primacy agency and/or Rural Water Association. This could be the early sign that a system or part of a system could be lost.

**Level 3 – MAJOR EMERGENCY** - Problems that are somewhat beyond the capability of system personnel and association capabilities may require a declaration of emergency to authorize shortcut procedures.

This level would require the mobilization of all Utility personnel who might seek additional help by activation of mutual aid agreements or contracts.

This level of emergency leaves no doubt that outside help is required because of a serious threat to health or facilities of a member system.

**Level 4 – PROBLEMS CLEARLY AND IMMEDIATELY BEYOND THE CAPABILITY OF THE UTILITY**

Recovery time will exceed one week, cost will be great, large amounts of mutual aid will be required and a request for declaration of emergency will be required.

This level would normally affect many different services that may be lifelines to the water and wastewater systems. These natural or man-made disasters will cause disruption over a large area of service and cause a severe health risk.

## Critical Information for Emergency Response Management

System Name: East Orange County Water District Wholesale & Retail Zones

PWS Number:

Population: 100,000 and 4,000

Address: 185 N. McPherson Rd. Orange, CA

Source(s) of water: Imported Water and Groundwater

Amount of Storage available for use: 18.750 MG

Types of treatment: Free Chlorine

### 1<sup>st</sup> Priority contact information - System officials responsible for management of an emergency:

| Name          | Position | Address             | Phone #      | Cell #       | Pager # |
|---------------|----------|---------------------|--------------|--------------|---------|
| Jerry Mendzer | Ops Mgr  | 185 N. McPherson    | 714-538-5815 | 714-501-5596 |         |
| Lisa Ohlund   | Gen Mgr  | 30111 Branding Iron | 949-443-1714 | 949-842-3351 |         |
| Matt Plummer  | Op II    | Handy Creek Rd      | 714-538-5815 | 714-501-5572 |         |
| Mark Cardenas | Op. I    |                     | 714-538-5815 | 714-482-7098 |         |
| Joseph Abeyta | Coll I   |                     | 714-538-5815 | 714-397-4847 |         |
|               |          |                     |              |              |         |
|               |          |                     |              |              |         |

### Local Law Enforcement Numbers

| Name       | Position | Address                 | Phone #                         | Cell # | Pager # |
|------------|----------|-------------------------|---------------------------------|--------|---------|
| OC Sheriff |          | Control One - Sheriff's | Communications - 1-714-628-7000 |        |         |
|            |          |                         |                                 |        |         |
|            |          |                         |                                 |        |         |
|            |          |                         |                                 |        |         |
|            |          |                         |                                 |        |         |
|            |          |                         |                                 |        |         |

### Local Emergency Response Entities

| Name          | Position | Address       | Phone #      | Cell #       | Pager # |
|---------------|----------|---------------|--------------|--------------|---------|
| Kelly Hubbard | Mgr      | 18700 Ward FV | 714-593-5010 | 714-715-0283 |         |
|               |          |               |              |              |         |
|               |          |               |              |              |         |
|               |          |               |              |              |         |
|               |          |               |              |              |         |

### Primary and Secondary Media Spokesperson:

| Name          | Position | Address | Phone #      | Cell #       | Pager # |
|---------------|----------|---------|--------------|--------------|---------|
| Lisa Ohlund   |          |         |              |              |         |
| Brian Lochrie |          |         | 949-294-8269 | 949-215-5539 |         |

**Critical Information for Emergency Response Management Continued**

**Alternate Sources of Water Supply**

| Source | Contact Person | Phone Number | Cell # | Pager # |
|--------|----------------|--------------|--------|---------|
|        |                |              |        |         |
|        |                |              |        |         |
|        |                |              |        |         |
|        |                |              |        |         |
|        |                |              |        |         |
|        |                |              |        |         |

**Mutual Aid Agreement(s)**

| Entity         | Contact Person | Phone Number | Cell #       | Pager # |
|----------------|----------------|--------------|--------------|---------|
| City of Orange | Jose Diaz      | 714-288-2475 |              |         |
| Serrano Water  | Jerry Vilander |              | 714-955-2491 |         |
|                |                |              |              |         |
|                |                |              |              |         |
|                |                |              |              |         |
|                |                |              |              |         |



**Immediate Actions and Procedures to Lessen Impact of Identified Emergency**  
 (Complete one for each identified Emergency Hazard)

Emergency Hazard: Earthquake

Immediate Action and/or procedures to lessen impact of emergency

1. Close valves at reservoirs
2. Isolate system as much as possible
3. Send out social media messages to limit water use and boil all water
4. Get fuel topped off
5. Get food and water topped off

**Immediate Agency Notifications Needed**

| Name | Location | Contact Person  | Phone Number | Pager Number | Cell Phone Number |
|------|----------|-----------------|--------------|--------------|-------------------|
| DWR  |          | Oliver Pacifico | 714-567-4997 | 714-492-6497 |                   |
| DWR  |          | Minliang Shih   | 714-558-4410 |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |
|      |          |                 |              |              |                   |

**Critical Local Business Contacts for Health and Safety to Lessen Impact of Emergency**

| Name | Type of Business | Contact Person | Phone Number | Pager Number | Cell Phone Number |
|------|------------------|----------------|--------------|--------------|-------------------|
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |
|      |                  |                |              |              |                   |

**Critical Equipment Needs to Lessen Impact of Emergency**

| Equipment         | Company            | Phone Number #1 | Phone number #2      |
|-------------------|--------------------|-----------------|----------------------|
| Backup Generators | Generator Services | 909-758-4566    | 909-917-9442 - Chris |
| Fuel - Diesel     | Pinnacle Petroleum | 714-841-8877    | Jewelina Cruz        |
|                   |                    |                 |                      |
|                   |                    |                 |                      |
|                   |                    |                 |                      |
|                   |                    |                 |                      |
|                   |                    |                 |                      |
|                   |                    |                 |                      |











**Media Contact List**

| <b>Local Radio Stations</b>      |                              |                       |               |               |
|----------------------------------|------------------------------|-----------------------|---------------|---------------|
| <b>Call Letters</b>              | <b>Frequency</b>             | <b>Contact Person</b> | <b>Home #</b> | <b>Office</b> |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
| <b>Local Television Stations</b> |                              |                       |               |               |
| <b>Call Letters</b>              | <b>Frequency</b>             | <b>Contact Person</b> | <b>Home #</b> | <b>Office</b> |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
| <b>Local Newspapers</b>          |                              |                       |               |               |
| <b>Name of Paper</b>             | <b>Distribution Schedule</b> | <b>Contact Person</b> | <b>Home #</b> | <b>Office</b> |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |
|                                  |                              |                       |               |               |









## **RECOVERY PERIOD CHECKLIST**

- Perform in-depth damage assessment of system to determine long-term effects of damaged areas.
- Notify appropriate agencies of system status and situation.
- Prepare written documentation of emergency work performed for possible compensation by emergency agencies.
- After completion of emergency repairs, rest the crews and return, if possible, to more normal work schedules.
- Notify appropriate insurance carriers. Provide written and photo documentation of damage.
- Assist in the survey of emergency repairs and scheduling of permanent repairs.
- Assist in the inventory of repair supplies and replacement stock.
- Implement complete record keeping of time and expense
- Recommend when able, servicing of emergency equipment.  
(oil changes, lubrication, etc.)
- Make sure the public is kept informed throughout the extent of the emergency.

## PRELIMINARY DAMAGE ASSESSMENT

### **General Overview**

- Determine need to repair, replace, or abandon facilities
  
- Estimate cost to repair damage
- Evacuate buildings in danger of collapse
- Confirm that field crew does the following:
  - Closes and tags
    - Damaged Facilities; and
    - Equipment

### **Reservoirs:**

- Check for:
  - Seepage
  - Cracks
  - Embankment slump
- Leaks
- Landslides
- Broken inlet/outlet pipes & underdrains

*Notify DNR if problems are found.*

- Lower water levels to reduce possibility of structural damage

### **Wells:**

- Check for physical damage to facilities
- Test for contamination
- Name, address, phone # for private lab
- Check for pump or motor failure
- Check power source

### **Treatment Plants:**

- Check if power available and condition of mechanical and electrical equipment
- Check for quality of outflow
- Check for chemical spills or releases
- Check for need of emergency purification
- Check for structural damage

### **Tanks:**

- Check for evidence of failure of sub base
- Check for:
  - Leaks
  - Cracks
  - Broken inlet/outlet pipes, underdrains
- Check for buckling

### **Distribution System:**

- Check for:
  - Leaks
  - Breaks
  - Pressure loss in lines
  - Cross-connections between water and sewage
  - Overflows in streets
- Check for mechanical couplings





## Emergency Hazard Identification / Ranking Form

| Type of Emergency Hazard             | Probability |          |     | Magnitude |          |       | Ranking |
|--------------------------------------|-------------|----------|-----|-----------|----------|-------|---------|
|                                      | High        | Moderate | Low | Severe    | Moderate | Light |         |
| <b>Construction Accidents</b>        |             |          |     |           |          |       |         |
| <b>Earthquakes</b>                   |             |          |     |           |          |       |         |
| Densification                        |             |          |     |           |          |       |         |
| Fault Rupture                        |             |          |     |           |          |       |         |
| Ground Shaking                       |             |          |     |           |          |       |         |
| Landslide                            |             |          |     |           |          |       |         |
| Liquefaction                         |             |          |     |           |          |       |         |
| Tsunami and Seiche                   |             |          |     |           |          |       |         |
| <b>Floods</b>                        |             |          |     |           |          |       |         |
| <b>Forest or Brush Fires</b>         |             |          |     |           |          |       |         |
| <b>Hazardous Material Release</b>    |             |          |     |           |          |       |         |
| <b>Hurricane</b>                     |             |          |     |           |          |       |         |
| Flooding                             |             |          |     |           |          |       |         |
| Storm Surge                          |             |          |     |           |          |       |         |
| Wind                                 |             |          |     |           |          |       |         |
| <b>Nuclear Bomb Explosions</b>       |             |          |     |           |          |       |         |
| <b>Nuclear Power Plant Accidents</b> |             |          |     |           |          |       |         |
| <b>Other Severe Weather</b>          |             |          |     |           |          |       |         |
| Extreme Heat                         |             |          |     |           |          |       |         |
| Lightning                            |             |          |     |           |          |       |         |
| Snow or Ice                          |             |          |     |           |          |       |         |
| Wind                                 |             |          |     |           |          |       |         |
| Other                                |             |          |     |           |          |       |         |
| <b>Riots</b>                         |             |          |     |           |          |       |         |
| <b>Strikes</b>                       |             |          |     |           |          |       |         |
| <b>Structure Fires</b>               |             |          |     |           |          |       |         |
| <b>Tornados</b>                      |             |          |     |           |          |       |         |
| <b>Transportation Accidents</b>      |             |          |     |           |          |       |         |
| Air                                  |             |          |     |           |          |       |         |
| Rail                                 |             |          |     |           |          |       |         |
| Road                                 |             |          |     |           |          |       |         |
| Water                                |             |          |     |           |          |       |         |
| <b>Vandalism, Terrorism</b>          |             |          |     |           |          |       |         |
| Treatment Facilities                 |             |          |     |           |          |       |         |
| Storage Facilities                   |             |          |     |           |          |       |         |
| Distribution or Collection           |             |          |     |           |          |       |         |
| Contamination                        |             |          |     |           |          |       |         |
| Threats                              |             |          |     |           |          |       |         |
| <b>Volcanic Eruptions</b>            |             |          |     |           |          |       |         |
| <b>Waterborne Diseases</b>           |             |          |     |           |          |       |         |
|                                      |             |          |     |           |          |       |         |
|                                      |             |          |     |           |          |       |         |
|                                      |             |          |     |           |          |       |         |
|                                      |             |          |     |           |          |       |         |

## Critical Components to Utility

**Emergency Hazard:** \_\_\_\_\_ (complete one for each identified hazard on previous page)

| Critical Area                            | Critical Component listing for each area |
|--|--|
| <b>Source Water</b>                      |  |
|  |  |
|  |  |
| <b>Storage &amp; Holding Tanks</b>       |  |
|  |  |
|  |  |
| <b>Distribution System</b>               |  |
|  |  |
|  |  |
| <b>Collection System</b>                 |  |
|  |  |
|  |  |
| <b>Treatment Facilities</b>              |  |
|  |  |
|  |  |
| <b>Equipment &amp; Supplies</b>          |  |
|  |  |
|  |  |
| <b>Internal Communication</b>            |  |
|  |  |
|  |  |
| <b>External Communication</b>            |  |
|  |  |
|  |  |
| <b>Administration Facilities</b>         |  |
|  |  |
|  |  |
| <b>Access to Records and information</b> |  |
| Scada systems                            |  |
| Computers                                |  |
|  |  |
| <b>Power Supply</b>                      |  |
|  |  |
|  |  |
| <b>Other</b>                             |  |
|  |  |



## **PLAN EVALUATION**

Each Utility will have different procedures for plan evaluation depending on the available resources. The testing of the emergency response capability is important particularly in those geographic areas where the risks of major disasters are greatest.

### **Step 1—Training**

Training should focus on increasing the knowledge of the Utility's personnel about disaster hazards and the effect they will have on the system. An opportunity to practice disaster response should also be incorporated in the training.

Training can be in-house or through outside sources. Consideration should be given to the idea to train the trainer. Train those that will be in a position to train others and will make decisions during an actual response.

### **Step 2 -- Conduct Operational Drills**

Many areas conduct Emergency Response drills. These drills are often at local levels, sponsored by city or county governments, fire and police departments, and other affected agencies.

State and federal drills are conducted also, many times addressing a specific hazard. Get involved; find out by asking when and where drills are scheduled. Go and observe other state and community drills, note what goes right or wrong. There is a lot happening in Emergency Response. Find out what's happening in your area or a larger system near you and get involved. You will find most people in emergency assistance have a genuine desire to help. Don't be afraid to conduct your own drills by acting out one of your scenarios used to determine vulnerability.

### **Step 3 – Occurrence Evaluation**

At the conclusion of the event, the Utility should assemble and prepare an after-event evaluation report. The report should address issues, background, recommendations, and conclusions. This report assesses actions, responses, and evaluates the Utility's response. This report can serve as a model for future emergency response and appropriate actions.

## **Mitigation/Prevention Possibilities for Utilities**

### **Personnel Shortages**

- Safety Education
- Cross Training
- Proper Equipment
- Use of Other Agencies

### **Agency Contacts & Agreements**

- Rural Water Association
- State Emergency Management
- Local Government
- Neighboring Utilities
- Equipment Suppliers
- Material Suppliers
- American Red Cross
- Law Enforcement
- Lifeline Utilities
- Alternate Communication Sources
- Emergency Water Production
- Water Haulers
- Salvation Army

### **Educational Areas for Utility Personnel**

- Family Safety Plans
- Source Water
- Watershed Hazards
- Chemical Storage
- Piping
- Equipment
- Process Basin
- Storage Tanks
- Ground Water and Well Hazards
- Treatment Facilities
- Electrical Power & Instrumentation
- Hazardous Materials Spills
- Reservoir Hazards
- Dams
- Intake Structures
- Interconnection Possibilities
- Valves and Appurtenances
- Economics of Mitigation

### **Miscellaneous Information**

*The Miscellaneous Information section of the Emergency Management Manual is a compilation of extremely useful material that can be utilized by the State Association in development of its own plan. It also provides appropriate information to utilities for inclusion in the Utility's Response Plan.*

## Utility Mutual Aid Agreement

### **Purpose**

Emergency situations could arise in a community's water and/or wastewater system that would require assistance from an adjoining community to restore normal operation. The purpose of this Mutual Aid Agreement is to formalize and define the extent of this assistance between the two communities identified herein.

If an emergency situation arises in one of the participating communities, the authorized officials in each community identified below, agree to support each other during the emergency, to the extent possible, upon request as initiated by authorized personnel from the affected community. Each community will provide the name(s) and emergency telephone numbers(s) of personnel authorized to initiate a request for aid.

### **Agreement to Render Aid**

WHEREAS the governmental units of \_\_\_\_\_ and \_\_\_\_\_ in the State of \_\_\_\_\_, have rendered mutual aid to one another in the past, and anticipate a continuing demand for such mutual aid and cooperation in the use of their personnel and equipment in the future, for the safety, health, and welfare of the people of their governmental units during a time of emergency, hereby agree to become part of the \_\_\_\_\_ RURAL WATER ASSOCIATION EMERGENCY RESPONSE SYSTEM, in conjunction with the Department of Emergency Management of the State of \_\_\_\_\_.

THEREFORE, the parties hereby agree that their water/wastewater department and/or department of public works, will render mutual aid to each other under the following conditions:

1. In the event of a serious man-made or natural emergency, the parties of this agreement shall cooperate in any effort to provide service, subject to the terms and conditions prescribed in this agreement, and to the extent possible.
2. The city manager/mayor, or the water/wastewater superintendent, or the director of public works, or other such individual serving as a governing or managing party of the participating governmental unit, shall have the authority, in the event of a serious emergency, to determine whether manpower and/or equipment shall be sent beyond the jurisdictional limits of its governmental unit.
3. It is the intention of this agreement to vest in each party the sole right to determine when its needs will permit it to respond to a request by another governmental unit, and it is further agreed by the parties hereto, that if the water/wastewater department refrains from sending any manpower and/or equipment beyond its jurisdiction, that such unit thus failing to respond, shall not be liable for any damages to the requesting party or any third party.
4. The superintendent of the water/wastewater utility, director of public works, or such person acting in that capacity, SHALL BE IN TOTAL COMMAND of the responding party. All personnel and/or equipment of the respondents shall be under the immediate command of the person(s) attached to the responding community. All commands or orders for the use of such personnel and/or equipment shall be made by the superintendent of the water/wastewater utility, or such person acting in that capacity, of the requesting community, through the person(s) in charge of the responding community's personnel and/or equipment, whenever it is practical. However, the person(s) acting in authority for the responding community shall, at all times, have the authority to recall the responding water/wastewater personnel and/or equipment from an emergency assistance mission upon direct notice to the person(s) in authority for the requesting community or governmental unit.
5. It is understood that personnel and equipment of the responding governmental unit shall be utilized in the capacity for which they are intended, and further, SHALL NOT be held in "stand by" capacity for a period exceeding \_\_\_\_\_ hours. If the requesting party does not need the said personnel and/or equipment in the emergency area, it will be returned to the responding community.

6. Each governmental unit entering into this agreement shall continue to provide the same salaries, compensation for death or disability, and retirement and furlough payments, to their respective employees or volunteers who are assigned to render aid or other assistance to the requesting governmental unit, as that employee or volunteer would receive if on duty within the jurisdictional limits of the governmental unit by which he or she is employed.
7. Cost of repairs and employees or volunteers of the responding governmental unit operate maintenance of equipment used or expended while rendering assistance under this agreement will be borne by the governmental unit owning the equipment, if said equipment is operated by employees or volunteers of the responding governmental unit for a period not exceeding 24 hours. If said equipment is operated by personnel from the requesting community, or is requested for a period longer than 24 hours, then the requesting governmental unit or community will assume the expense of any repairs and/or maintenance required by the said equipment. It is further agreed, that if said equipment is required by the requesting community or governmental unit for a period exceeding 24 hours, that the requesting community or governmental unit will be responsible for returning the requested equipment, in good condition, to the responding governmental unit.
8. It shall be the responsibility of the requesting community or governmental unit to notify the appropriate state or other agencies of governmental authority, in accordance with all applicable laws and/or policies, the nature and extent of the emergency.
9. To prevent haphazard and/or unauthorized response to a request by a community or governmental unit's water/wastewater department to emergencies outside of the jurisdiction of the responding party, NO PERSONNEL OR EQUIPMENT WILL BE DISPATCHED, except by the direct request of authorized person(s), identified in this agreement, from the responding governmental unit or community, an authorized representative from the State Department of Emergency Management, or an authorized representative of the \_\_\_\_\_ Rural Water Association.
10. Cost of meals, lodging and/or fuel, expended or consumed by personnel or equipment of the responding government unit, shall be borne by the requesting party to this agreement, unless otherwise expressly stated in a separate, attached mutual aid agreement between the parties to this agreement.
11. There will be no costs incurred by the requesting community for any meals, lodging, fuels or other needs for any staff person(s) or members of the Board of Directors of any participating Rural Water Association, or the State Department of Emergency Management.
12. No participating Rural Water Association to this agreement shall be held liable for any injury or damages incurred by or caused by personnel working, or equipment operated, under the authority of either governmental unit to this agreement.
13. Any party to this agreement may, upon thirty days written notice to all parties to this agreement, withdraw from further participation.

**Execution of Agreement**

IN WITNESS WHEREOF, the parties do sign and execute this Mutual Aid.

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Appropriate Assignees

## What to Do with Flood Debris

*All debris must be managed to avoid future environmental problems*

### **In General**

All solid wastes which cannot be recycled or reused must be ultimately disposed of in municipal solid waste landfills, construction/demolition landfills or inert landfills. For the location of the disposal site nearest you, contact your local state regulatory agency. The only exception to landfill disposal will be open burning of trees, limbs, stumps, other vegetative debris caused by the flood and clean lumber/plywood.

The EPD encourages the recycling of waste if practical. Trees, limbs, and stumps can be chipped for mulch if equipment is available.

White goods (appliances), batteries, tires and metals should be separated for recycling.

All household garbage, such as food and other putrescible waste, must be disposed of in municipal solid waste landfills. Household items such as furniture, carpet, drapes, clothing, bedding, mattresses, etc. may be disposed of in construction/demolition landfills.

All construction/demolition type wastes (lumber, siding, shingles, sheetrock, etc.) may be disposed of in inert waste landfills.

Inert wastes (mud, dirt, concrete, bricks, cured asphalt, tree stumps, limbs, leaves) may be disposed of in inert waste landfills.

Local governments may establish temporary locations for transfer stations, convenience centers or stockpiling areas which have been established to handle the large volumes of wastes which cannot be directly transported to recycling or disposal sites. These established sites need to be convenient as possible, provide for the separation of wastes for appropriate handling and should be closely supervised to prohibit mixing of waste materials.

### **Burning Flood Waste:**

Only trees, limbs, stumps, other vegetative debris, and clean lumber/plywood can be burned without specific approval. Call your regulatory agency prior to burning any other materials.

Do not burn asbestos containing waste, tires, shingles, painted lumber, insulation, plastics, plastic sheeting, carpeting, draperies, linens, kitchenware, furniture, mattresses or household chemicals. These materials cause serious pollution and health effects if burned.

If debris is to be burned, take the following steps:

Call your local government to determine if a central burning location has been established. If so, use that location. If not, then coordinate the burn with the local fire department and the Forestry Commission.

Conduct the burning when the wind is blowing away from roadways, railroad tracks, airfields, and populated areas.

- Provide supervision on the burn site.
- Avoid exposure to the smoke.
- Please burn between 9 a.m. and 6 p.m. to achieve the best natural dispersion of smoke.

### **For Asbestos-Containing Waste:**

Asbestos-containing waste, such as boiler/pipe insulation, fireproofing, floor tiles, asbestos roofing, transite boards:

Where possible, and especially for large projects, asbestos waste removal and disposal should be performed by licensed asbestos abatement contractors. When this is not possible, follow the following guidelines:

1. Keep all suspected asbestos-containing materials wet.
2. Collect and place wet asbestos in bags or covered, pre-lined (two or more layers of plastic) metal bodied trucks, commercial dumpsters, or containers.
3. Place asbestos warning labels on all bags and containers.
4. Transport waste in enclosed or covered vehicles to landfills.
5. For information on removal, disposal, or the location of approved landfills, contact your local regulatory agency.



## **Household Chemicals and Hazardous Waste**

- Homeowners returning to their homes after floodwaters recede may find products used to care for home and property that are damaged and unusable.
- Products labeled with words such as POISON, DANGER, WARNING or CAUTION contains hazardous chemicals. These wastes, commonly referred to as “household hazardous wastes”, should be separated from other wastes before disposal.
- Use extreme caution when cleaning up household products in leaking or damaged containers. Wear rubber gloves and avoid breathing any fumes or dust. Do not work around these damaged products in confined or poorly ventilated areas.
- The U.S. Environmental Protection Agency is in the process of setting up local household hazardous waste collection sites to receive flood-damaged wastes. Use of these collection programs will ensure that wastes are disposed of in a safe and environmentally sound manner.
- Check with your local officials and use a household hazardous waste collection program if one is available in your area. If a collection program is not available, some of this waste may be disposed in a municipal solid waste landfill with the landfill operator’s permission. For your own safety, do not burn these materials as they may produce toxic smoke.

### Drums -----Tanks -----Barrels

- Most barrels that wash up in the flood are open – burn barrels, trash barrels, or dock barrels.
- There may be danger in sealed barrels, drums, or tanks with unknown contents. These should be handled by trained persons. If you find sealed drums, barrels, or tanks of unknown contents, call your local regulatory agency.
- If a propane tank is in flood debris, a company distributing gas may be able to identify the tank and return it to its proper location. Propane tanks have serial numbers that help to identify owners and locations.
- If propane tanks are found there is reason to believe they may be unsafe, contact the local emergency management coordinator or the state emergency management agency.



## Restoring Drinking Water

*If you are on a Community Water System*

As long as adequate water pressure has been maintained through the flood, and the disinfections treatment system has been intact, you may only need to flush your water pipes.

### Disinfection of Unsafe Drinking Water

The following procedures will destroy the usual bacteria and other microorganisms that may be present in water obtained from a contaminated public water supply system or from alternate emergency sources. IF YOUR WATER SYSTEM IS UNDER A "BOIL WATER NOTICE", YOU SHOULD CONTINUE TO BOIL YOUR WATER UNTIL YOU ARE NOTIFIED BY YOUR WATER UTILITY THAT THE WATER SYSTEM HAS BEEN RESTORED TO FULL OPERATION AND THAT THE MICROBIOLOGICAL QUALITY OF THE WATER IS SAFE FOR HUMAN CONSUMPTION.

#### **HEAT DISINFECTION (boiling)**

Boil the water for at least one minute after reaching a rolling boil.

#### **CHEMICAL DISINFECTION**

If boiling your water is not possible, consider chemically disinfecting your water. Follow the steps outlined below:

1. Strain water through a clean, tightly woven cloth into a clean container to remove any sediment or floating matter.
2. Purify the water with one of the following chemicals (choice of chemical is based on availability).
  - a. Hypochlorite solutions (PUREX, CLOROX or other household bleach).

*Read the label to find the percent of available chlorine in the solution and determine the number of drops needed to disinfect each quart of water from the table below.*

| Available Chlorine  | Drops of Bleach To add to each quart of clear water | Drops of Bleach To add to each quart of cloudy water |
|---|---|--|
| 1%  | 10  | 20   |
| 4 to 6%   | 2   | 4  |
| 7 to 10%  | 1   | 2  |
| If not known  | 10  | 20   |
| Mix thoroughly by stirring or shaking water in container. Let stand for 30 minutes. A slight chlorine odor should be detectable in the water. |   |  |
| If not, repeat the dosage and let stand an additional 15 minutes before using.  |   |  |

- b. Iodine: Use USP tincture of iodine; iodine from the medicine cabinet should be suitable. Add two to three drops to each quart of clear water (or eight to ten drops to each quart of cloudy water). Mix and let water stand for 30 minutes before using.

## **WATER STORAGE**

Water purified by boiling should be stored in clean, non-corrosive, tightly covered containers. Containers suitable for water storage include empty vinegar bottles, soft drink jugs and plastic milk containers that have been thoroughly washed and rinsed with purified water. Freezing does not disinfect water; ice cubes must be made from water that is properly disinfected.

### **FLUSHING HOME WATER LINES**

- A. The best and easiest way to begin flushing your water lines is to use a garden hose and wash off your patio or driveway for half an hour.
- B. Water pipes in homes that have been submerged in water may be extremely dirty. Clean the exterior of pipes and faucets with regular household cleaner. Briefly run hot and cold water at all faucets to remove dirt that may have settled just inside the faucets. Next, squirt a 50 percent water, 50 percent household bleach solution into the faucets. Then flush ALL water pipes as described in Step C below.
- C. Sequentially flush out all water pipes inside the house. Begin at the faucet nearest the point where the water line enters the house. This is usually the sink nearest the water meter. Turn on both hot and cold faucets at full blast for three to five minutes. **IF AFTER THIS AMOUNT OF TIME YOUR WATER DOES NOT BECOME CLEAR, DO NOT USE IT FOR CONSUMPTION.** (You may wish to catch water in buckets if you are concerned about overloading your septic tank.)

### **IF YOU HAVE A PRIVATE WELL**

Wells that are totally filled with mud or have suffered extensive damage will need major repairs. You will need to contact a State licensed water well contractor. A list of licensed water well contractors can be obtained from your State contractor licensing board.

A licensed water well contractor can clean out wells that are only partially damaged or partially filled with mud. A pump installer can also do the job, but only after electric power has been restored to your area. The water well contractor or pump installer can also determine if other repairs are necessary.

Wells that are undamaged should be disinfected following the procedures listed below. If muddy water is present, contact your licensed water well contractor or a pump installer for use and start-up procedures to protect your pump.

### **PRIVATE WELL EMERGENCY DISINFECTION PROCEDURES**

1. Pump well until water is clear. Use this water to clean outdoor facilities. Do not allow it into the house plumbing.
2. When water is clear, wash down the inside of the well casing and pump again until the water is clear.
3. Drop 2 cups of chlorine tablets or pour 2 gallons of liquid bleach into the top of the well. Let well sit for 2 hours. For more specific information, call your health department.
4. Pump chlorinated water through all household water lines until there is a noticeable chlorine odor at taps. If chlorine odor is not detected, add additional chlorine until you smell it.

5. Wash down interior and exterior of well with chlorinated water using a hose.
6. Let chlorinated water stand in the well and in pipes for 24 hours.
7. Run water until chlorine smell is no longer detectable.
8. Have water tested for bacteria. Any water for temporary use should be boiled for 1 minute until you receive a satisfactory bacteria test.

**CAUTION:** *Use caution when working on your well to avoid electrical shock from wiring and pump.*

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## **LABORATORIES FOR TESTING PRIVATE WELLS**

A network of water quality laboratories should be established to perform bacteriological tests for private well owners in flooded areas. Arrangements for the collection of samples should be made through county sanitarians.

Private well owners in the flooded areas should first contact their county health department. The county health department will collect a sample and send it to a cooperating laboratory. The laboratories will notify the county health department on the results.

## **WATER POLLUTION**

### **CONTAMINATED SURFACE WATER**

- Contact with floodwaters should be kept to a minimum. Flooded rivers and streams are contaminated with sewage, animal wastes, and other harmful contaminants.
- Stay out of floodwaters, do not swim, wade, tube, or have other recreational contact.
- Avoid recreational boating on rivers and streams in flood stage. Rapidly flowing floodwaters can contain unpredictable currents and eddies and can conceal submerged or moving objects that can damage a boat.
- If contact with floodwaters is unavoidable, shower or bathe with antibacterial soap afterward.
- If you are injured while working floodwaters, contact your doctor to see if you need a tetanus shot.
- After floodwaters recede, wash flooded buildings with clean water and biodegradable detergent. Thoroughly check and clean all natural gas, electric, drinking water, and sewage disposal systems prior to returning to service. Outdoor areas should be washed with clean water.
- Floodwaters trapped behind levees or pooled in low areas may be released or pumped back to the adjacent river or stream without special permission or permits. Use care to avoid damage or harm to neighbors.
- If you suspect floodwaters may be contaminated with petroleum products or other chemicals, contact your local emergency management agency.

## **Septic Tank Failures**

Many septic tank systems at individual properties have been flooded. Most of these systems will remain inoperable until the floodwaters recede and the ground dries out somewhat. Some of these systems may be so damaged that repairs will be required before they will work.

One big problem with a septic tank that doesn't work is the release of untreated sewage onto the top of the ground or into stagnant pools left behind by the flood. The pooled sewage from these tanks can be a significant health hazard. The other big problem is the backup of sewage into the building; caused by a blockage that results from the damaged tank system or piping, or the fact that the system is full of water

which cannot drain into saturated ground.

### **Underground Storage Tanks (UST)**

A. A UST Contact Center should be established for handling calls concerning UST problems in the flood impacted areas.

B. Because of the potential for releases of gasoline or diesel fuel from damages sustained from flooding, the following steps should be taken to return impacted UST Systems to operation. These steps will help to avoid future liabilities.

1. Visual Observation: Check for obvious indications of released gasoline or diesel or damage to the UST System.

2. Document all findings and maintain records of visual observations and any gasoline or diesel loss indicated through inventory records. For example, if the UST previously contained 6,000 gallons of gasoline and subsequent visual observations indicate the UST is now filled with water, detailed information should be maintained. This information will be critical for submitting request for assistance.

3. Utilize an approved precision tightness test employing overfill or vacuum test methods for evaluating the integrity of the tanks and piping prior to returning them to service. This is recommended because of future liabilities that may occur in the event that problems are not corrected at this point.

Your state may have a program to provide assistance in scheduling and conducting approved UST System tests.

Financial assistance for the required system testing in flood-impacted areas may be available through your state regulatory agency.

## **Assistance for Facilities with EPD Permits**

Local officials are encouraged to rely upon the knowledge and expertise of their own staff. Operations specialists and engineering staff should be available for on-site consultation and advice. Contact the state regional offices if services in your area cannot respond to your needs regarding drying and overhauling motors; repairing electrical components; and repair of treatment plants, water distribution and sewage collection systems.

### **WASTEWATER TREATMENT PLANTS**

State regulatory agency review and approval should not be required of proposed emergency measures to return sewage collection or treatment facilities to service or to replace identical parts or components to sewage collection or treatment facilities.

State regulatory agency review and approval should be required for facilities that are repaired or rebuilt to a design different from the previous facility for new facilities.

State regulatory agency review and approval should not be required for restoring power supply, including raising electrical service and equipment to a higher elevation. The repair of washed-out stream crossings, repairing or replacing existing water mains, and repairing or replacing water distribution systems will be considered maintenance. Repair of flooded water supply wells and water treatment plants using identical parts and components should not require review and approval.

Other improvements such as raising portions of the water treatment plants, water supply wells or backwash discharge lines will require review and approval by your state regulatory agency.

### **TRAPPED OR PONDED FLOOD WATERS**

Flood waters trapped behind levees or ponded in low-lying areas may be pumped or released back to the adjacent river or stream without obtaining a discharge permit from EPD. If there is reason to believe that the trapped flood waters is contaminated with agricultural fertilizers or pesticides, petroleum, products or other chemical contaminants, contact your state regulatory agency.

Contact your state regulatory agency for approvals of new landfills or expansions. Inert landfills and transfer stations do not need site specific approval. An inert landfill can accept mud, concrete, broken asphalt, brick, and sandbags.

**Information for Operators of Public Water Systems**  
**Contact your State Primacy Agency to ensure regulatory compliance**

**BOIL WATER NOTICE**

In order to protect the public from a potential health hazard caused by the flooding of public water utilities, all citizens that have experienced water outages or low water pressures are advised to “boil” all water prior to use for drinking, cooking, or preparing baby food. The water should be boiled for at least one minute after reaching a rolling boil. Citizens should continue to boil their water until they are notified by their water utility that the water system has been restored to full operation, and that the microbiological quality of the water in the distribution system is safe for human consumption.

This public advisory should be issued to all customers connected to those public water systems that experienced water outages or low water pressures. The boil water notice can be issued by using radio and TV, by newspaper and/or by hand delivery, and should remain in effect until acceptable corrective measures are taken and the microbiological quality of the water has been monitored to ensure it is safe to drink.

**PUBLIC WATER SUPPLY WELLS**

1. Wells that are destroyed, totally filled with mud, or suffered extensive damage should be plugged because they may cause further damage to the ground water supply. If you want to have the same well re-drilled, you must contact a licensed well driller. For further technical advice or for a list of licensed well drillers, contact your state regulatory agency.
2. Wells that are partially damaged or partially filled with mud can be cleaned out, repaired and disinfected by a licensed well contractor. For any technical assistance or for a list of licensed water well contractors, contact your state regulatory agency.
3. Wells that are undamaged should be disinfected following the procedure below. If muddy water is present, contact a licensed water well contractor for use and start-up procedures. Should you have any questions or need a list of licensed water well contractors, contact your state regulatory agency.
4. Make sure the water disinfection system (chlorination equipment) is functional and is operating when the well is running.
5. Repair or replace damaged water lines in the distribution system. Flush all the distribution lines until the water is clear. Disinfect the distribution lines with a strong chlorine solution, as needed, so that after a 24 hour holding period in the main there will be a free chlorine residual of not less than 10 parts per million. After 24 hours, discharge the chlorinated water from the pipes to waste, and replace it with fresh water until the free available chlorine residual is not greater than 2 parts per million in the mains.
6. Make sure the water storage tank is structurally safe and functional. Drain it to waste and disinfect it, as deemed necessary.
7. Collect representative water samples from the distribution system and the storage tank for microbiological analysis. Acceptable results must be obtained. If not, water lines and/or the water storage tank must be re-disinfected and re-tested until acceptable results are obtained.

8. Make sure traceable amounts of free available chlorine residuals are present throughout the distribution system. Verify this with field tests.
9. Expedite the rehabilitation of flooded or damaged equipment. However, do not overlook the need to fully attend to the rehabilitation (such as re-packing bearings) to avoid repeated equipment failure.

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## **WATER SUPPLY WELL DISINFECTION**

A. USE CAUTION WHEN WORKING ON THE WELL TO AVOID ELECTRICAL SHOCK FROM THE PUMP.

B. Pump well until water is clear.

C. If well is undamaged, introduce and mix disinfectant, such as chlorine, through the entire water column. In most cases, disinfectants that are poured from the top of the well will not reach the entire water column.

For best results, the pump should be pulled, contaminated water should be removed from the well, proper quantities of disinfectant should be thoroughly mixed and surged within the well; and the mixture pumped to waste. Proper contact time must be allowed between the contamination and the disinfectants.

If contaminated water has flowed into the well and entered the aquifer, a single application of disinfectants may not be enough. In these cases, water may be pumped from the well to waste for one to three days to evacuate the well and in adjacent aquifer sediments before introducing disinfectants.

D. Introduce a prepared chlorine solution into the well in sufficient quantity to produce a minimum of chlorine residual of fifty (50) parts per million in six (6) hours after such an application.

E. Disinfect the well pump and pumping equipment with a strong chlorine solution prior to being placed into service.

F. Let the chlorinated water stand in the well and the pipes for 24 hours.

G. Pump the well to waste until no trace of chlorine (chlorine smell) is detectable.

H. Collect water samples at the wellhead and have them tested for coliform bacteria by a division approved laboratory. If water fails bacteria test, re-disinfect the well. EPD will assist in testing.

I. Before placing the well into service as a drinking water source, acceptable microbiological water quality results must be obtained.

## **OPERATORS OF PUBLIC WATER SYSTEMS**

### **QUICK REFERENCE** (to prepare Chlorine Solution)

A. Use the following number of ounces of chlorine compounds of a given available chlorine content (generally marked on the outside of the can or package) required to provide a concentration of 50 parts per million in 1000 gallons of water:

|                       |          |
|-----------------------|----------|
| 100% liquid chlorine  | 6.7 oz.  |
| 15% chlorine compound | 44.7 oz. |
| 25% chlorine compound | 26.7 oz. |
| 30% chlorine compound | 22.3 oz. |
| 70% chlorine compound | 9.6 oz.  |

B. Use the following amounts of chlorine compounds required to dose 100 foot water-filled well at 50 mg/l

| Well Casing Diameter | Volume per 100 feet of Water Depth 100% | Amount of Chemical Compound |                     |                 |
|----------------------|---|-----------------------------|---------------------|-----------------|
|                      |   | Calcium Hypochlorite 65%    | Sodium Hypochlorite | Liquid Chlorine |
| 4                    | 65.28                                   | 0.7 oz.                     | 3.5 fl. oz.         | 0.03 lb.        |
| 6                    | 146.9                                   | 1.5 oz.                     | 7.8 fl. oz.         | 0.06 lb.        |
| 8                    | 261.1                                   | 2.7 oz.                     | 13.9 fl oz.         | 0.11 lb.        |
| 10                   | 408.0                                   | 4.2 oz.                     | 1.4 pt.             | 0.17 lb.        |

This information material is provided as background knowledge and information. Systems should ensure compliance with proper state regulations by contacting appropriate authorities.



## **Dealing with the Media: Some Tips**

### **PLAN AHEAD**

Media relations start before a disaster occurs. Take steps to familiarize yourself with your local media representative on an ongoing basis. The best way to do this is for your water or wastewater systems to be active in various public relations programs. Regular press releases and articles on routine operations not only keep the public informed on your system, but serve to open a dialogue between you and the various local news organizations. Before a disaster strikes, you should know them and they should know you.

### **WHEN DISASTER STRIKES**

If a disaster occurs, the press will be on the scene relatively quickly. Make preparations before meeting the media. Check your facts and organize the information you plan to release prior to your interview.

### **AVAILABILITY**

Don't hide from the media. The public has a right to know the situation. Take a pro-active approach and establish your association as the spokesperson for your member systems, help keep the pressure off the system where possible. Schedule a meeting with the media at the first reasonable time and at a location you choose. Familiar surroundings can ease the situation for you. After your initial report, schedule regular updates. Adapt these to your schedule, not the reporter's.

### **ACCURACY**

This is extremely important. Be sure of your facts and give only the facts. Don't be drawn into expounding on your present story or speculating on situations where you have no confirmed information. Avoid ad-libbing. Be brief and to the point. If injuries are involved, numbers are okay, but avoid specifically naming the injured parties.

### **RESPONSIBILITY**

If the crisis situation is your responsibility, say so. If not, the same rule applies.

### **MONITOR**

If practical, monitor the finished news report whether electronic or in print. Make sure the facts are presented as reported and immediately take steps to correct the record if inaccuracies are noted. Misinformation can be more damaging than no information.

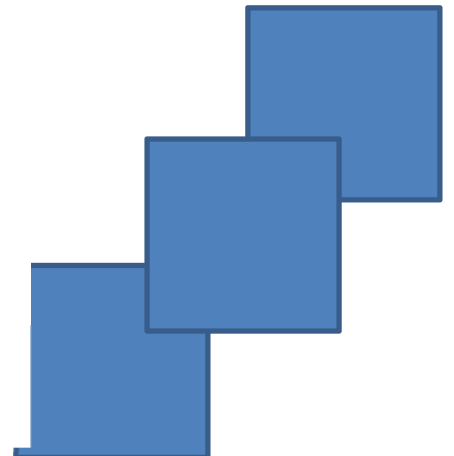






# SEWER SPILL ESTIMATION GUIDE

**Developed by the Orange County  
Area Waste Discharge  
Requirements Steering Committee**



# **Sewer Spill Estimation Guide**

**A Guide to Estimating Sanitary Sewer Overflow (SSO) Volumes**

**Developed by the Orange County Area  
Waste Discharge Requirements Steering Committee  
Orange County, CA**

**February 18, 2014  
Revised May 15, 2014**

## Acknowledgements

This Sewer Spill Estimation Guide has been compiled through the efforts of members of the Orange County Wastewater Discharge Requirements (WDR) Steering Committee. This committee was originally formed to address the requirements of the original WDR imposed by the California Regional Water Quality Board, Region 8 and later the statewide WDR imposed by the California State Water Resources Control Board. Committee members who assisted in the compilation of this Sewer Spill Estimation Guide are:

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| Robert Kreg          | (Former) Director of Support Services   | South Coast Water District (Retired) |

## Disclaimer

This Sewer Spill Estimation Guide is freely offered to agencies to assist the user with the estimation process for a sanitary sewer overflow. Methods used for spill estimation and the estimate itself are solely the responsibility of the agency making the estimate. The authors or contributors to this Sewer Spill Estimation Guide do not accept any responsibility for the spill estimation methods used; their accuracy or any spill estimate determined through the use of this guide. Information found in this guide is commonly available on the internet and is also common practice with many cities and sewerage agencies throughout Southern California.

No statewide or national standards issued by a regulatory agency exist at this time.

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## **SSO Volume Estimation**

Accurate flow estimation is essential to determine the volume of a Sanitary Sewer Overflow (SSO). An accurate estimate of an SSO is required for reporting to the California Integrated Water Quality System (CIQWS) and to the local health care agency. The estimated volume of an SSO is used to determine the category of the SSO and can also be used in the calculation of penalties or fines from the State or Regional Water Quality Control Boards in California. Additionally, accurate flow estimation is important to determine the extent of the cleanup and its effectiveness.

Volume estimation is basically the flow rate (gallons per minute) times the amount of time (in minutes) the flow has occurred. Each SSO tends to be unique requiring different strategies for determining the volume of the SSO. Different methods can also be used for the same SSO acting as a check to ensure the most accurate estimate. The method(s) utilized will be determined by several factors including the type of SSO and the personnel responding. Some SSO volumes, due to terrain, rainfall or other factors, can be very difficult for field staff to determine and may require someone with additional expertise. There is no one method that works for all types of SSOs. The following are methods that may be utilized for SSO volume estimation. These methods are effective means of estimating a sewer spill volume during dry weather but may not be effective during rain events.

During rain events, infiltration and/or inflow into the collection system and runoff in the stormwater system, including the curb and gutter, can affect the SSO estimate. When estimating an SSO during a rain event, the SSO estimate is to include only the wastewater that left the collection system and not any waters that the wastewater comingled with after leaving the system. The same is true for any wash down water; although contaminated, the water is not considered part of the SSO estimate. Any water that infiltrated into the collection system upstream of the SSO and subsequently became part of the SSO is included in the SSO volume estimate.



## Start Time

Determining the start time for an SSO is one of the most critical, yet can be one of the most difficult, factors to determine. Depending upon the location and time of day, an SSO may occur for some time before it is reported to the City or Agency or it may trickle for an extended period of time before being noticed. What is known is that the SSO started some time before the City or Agency was notified. It is common for SSOs to start and stop as flows in the pipeline routinely rise and fall because most blockages do not entirely block the flow in the pipe. Every effort should be utilized to determine the most accurate start time of each SSO.

These efforts may include:

- If possible, contact the person who reported the SSO to determine when they became aware of the SSO.
- Make contact with residences or businesses in the area of the SSO to determine if there were any witnesses that could help establish the start time.
- Conditions change during the SSO. This is particularly true in remote areas out of public view. Initially, there may be an amount of toilet paper and solids around the spill site. This will increase the longer the SSO continues. After a few days to a week, these may form a light brown residue that may turn dark after a few weeks to a month.

Lacking direct evidence supporting a specific start time the operator should rely upon their experience and system flow characteristics based upon observed conditions to establish a reasonable estimated start time for the event. The agency's management staff should review the estimate before being finalized. Methods used to establish the start time should be documented.

## Stop Time

The stop time is the time that wastewater stopped overflowing. For manhole covers in low areas, this is noted by water flowing back into the manhole through the vent holes and should be easy to determine by SSO response personnel. Care should be taken to accurately record the time that the SSO stopped.

## **Photographs**

Take photographs of the spill event. Try to include objects of known size in the photographs to give a perspective of the extent of the spill. Photographs should include the initial spill, remediation efforts, clean up, and the spill area after the spill remediation has been completed. Photographs should be maintained with the spill report information.

## **Flow Rate**

The flow rate is the volume of flow per unit time that is escaping from the collection system. SSOs do not always occur at a constant rate. This is because flows into the collection system are not constant and rise and fall throughout the day. Additionally, most blockages are not full blockages. Pressure buildup as the wastewater surcharges in the pipe can cause the blockage to clear or partially clear, resulting in changes to the flow rate.

To make an SSO volume estimate as accurate as possible, the onsite City or Agency employee should note the time and the amount of change of any significant differences in flow noticed during the event. For example, if the employee determines the flow rate escaping from the manhole is 100 gallons per minute when they arrive on scene but noticed that it has dropped to 50 gallons per minute five minutes later, their report should reflect that fact. The estimated flow rate and the time period for that flow rate should be recorded. During any one SSO event there could be multiple flow rates spread over the duration of the SSO.

## **Volume Estimation Methods**

### **Visual or Eyeball Method**

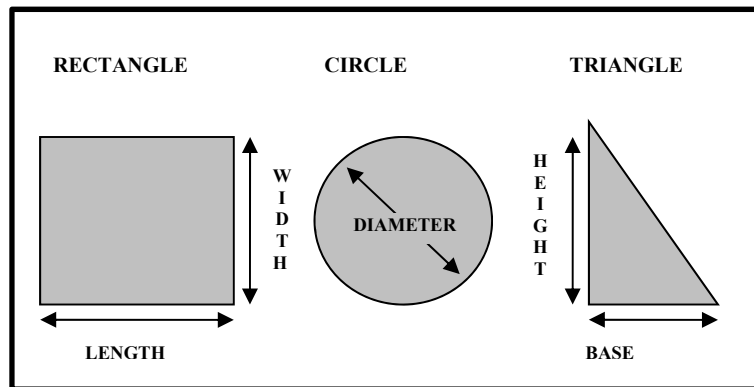
The volume of small spills can be estimated using an “eyeball estimate.” To use this method, imagine the amount of water that would spill from a bucket or a barrel. A full bucket may contain 1, 2 or 5 gallons and a barrel contains 55 gallons when full. If the spill is larger than 55 gallons, try to divide the standing water into barrels and then multiply by 55 gallons. This method is useful for contained spills up to approximately 200 gallons. This method can be useful on spills that occur on hard surfaces such as concrete or asphalt. Crews can be trained

by estimating the volume of a measured amount of potable water spilled upon concrete and asphalt surfaces.

## Measured Volume

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

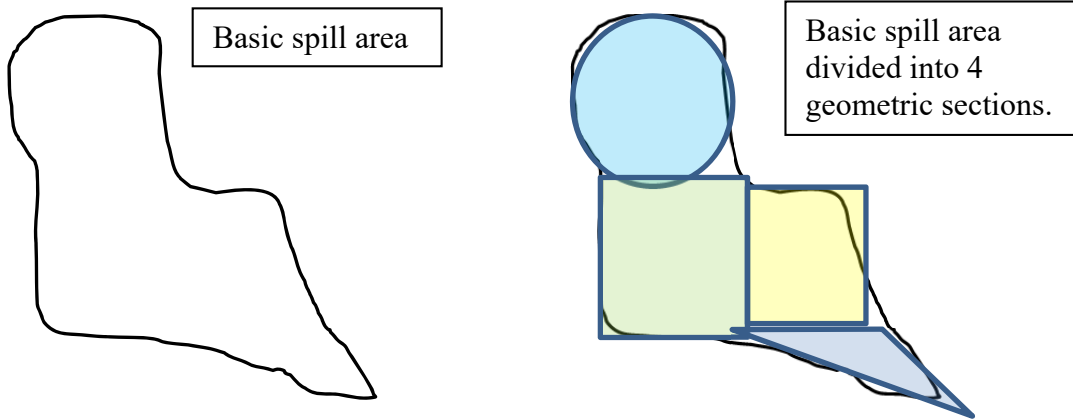
### *Common Shapes and Dimensions*



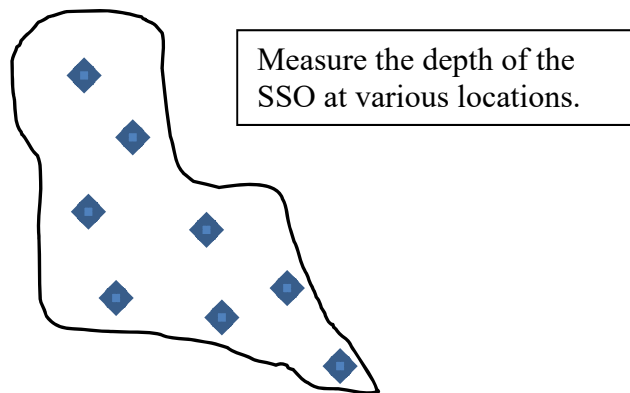
1. Sketch the shape of the contained wastewater.
2. Measure or pace off the dimensions.
3. Measure the depth at several locations and select an average.
4. Convert the dimensions, including depth, to feet.
5. Calculate the area:
  - Rectangle:  $\text{Area} = \text{length (feet)} \times \text{width (feet)}$
  - Circle:  $\text{Area} = \text{diameter (feet)} \times \text{diameter (feet)} \times 3.14 \text{ divided by } 4$
  - Triangle:  $\text{Area} = \text{base (feet)} \times \text{height (feet)} \times 0.5$
6. Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
7. Multiply the volume in cubic feet by 7.48 to convert to gallons

Not all SSOs will conform to a specific shape. When this occurs, break up the area of the SSO into various shapes or segments, then calculate the amount of wastewater spilled in each segment, adding them together to arrive at the total spill volume.

Example:



Determine the area of each of the geometric sections adding them all together to determine the total area of the spill.



Where it is difficult to measure wet spots on asphalt, use a depth of 0.0026' or 1/32". For wet spots on concrete use depths of 0.0013' or 1/64" for reasonable estimates.

| Inch to Feet Conversion: |    |       |
|--------------------------|----|-------|
| Inches                   | to | Feet  |
| 1/8"                     | =  | 0.01' |
| 1/4"                     | =  | 0.02' |
| 3/8"                     | =  | 0.03' |
| 1/2"                     | =  | 0.04' |
| 5/8"                     | =  | 0.05' |
| 3/4"                     | =  | 0.06' |
| 7/8"                     | =  | 0.07' |
| 1"                       | =  | 0.08' |
| 2"                       | =  | 0.17' |
| 3"                       | =  | 0.25' |
| 4"                       | =  | 0.33' |
| 5"                       | =  | 0.42' |
| 6"                       | =  | 0.50' |
| 7"                       | =  | 0.58' |
| 8"                       | =  | 0.67' |
| 9"                       | =  | 0.75' |
| 10"                      | =  | 0.83' |
| 11"                      | =  | 0.92' |
| 12"                      | =  | 1.00' |

Sample Calculation:  
 A 20 ft x 20 ft square wet spot on concrete equals 3.9 gal  
 and for asphalt is 7.8 gal.

## Counting Connections

Once the location of the blockage has been established, the amount of the SSO could be estimated by counting the number of upstream connections. On the sewer atlas maps or GIS system, locate the pipeline where the SSO occurred. Count all of the developed parcels that are connected to the pipeline upstream of the blockage. The typical single family residential parcel may discharge 8 to 10 gallons of wastewater per hour during active times of the day. For a multi-family residential development such as an apartment or condo complex, count each apartment as a single family residential unit. Use the higher flow number (10 gallons per hour) during typical peak flow hours and the lower flow number (8 gallons per hour) during low flow periods. Multiply the number of connections times the average flow (8 to 10 gallons per hour) times the time period (duration) that the SSO occurred.

Example for an SSO occurring on a weekday at 8:00am:

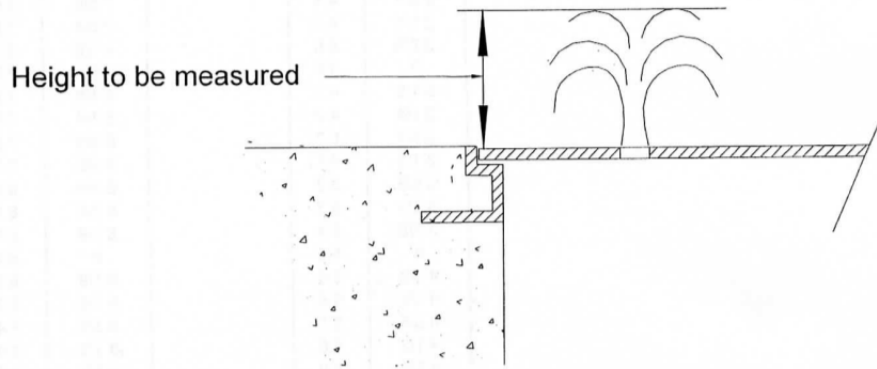
|  |                     |
|--|---------------------|
| Number of upstream connections   | 22                  |
| Estimated flow per parcel  | 10 gallons per hour |
| Duration of SSO event  | 45 minutes          |
| Total spill estimation (22 x 10 x .75)                                       | 165 gallons         |
| (22 connections x 10 gallons per hour x 45 minutes (.75 hour) = 165 gallons) |                     |

Data may be available in your drainage area from your capacity planners at your city or agency. Consult with them on reasonable flow amounts or rates of flow.

## Pick and Vent Holes in Manhole Covers

Small SSOs will occur where the wastewater escaping from the manhole is isolated to the pick or vent holes in the cover. Larger SSOs may involve both the discharge from the pick and/or vent holes and the gap between the manhole cover and manhole frame. To estimate an SSO occurring from the manhole pick and vent holes, measure the height of the wastewater plume exiting the holes. Find that height and hole diameter on the manhole pick or vent hole chart to determine the flow rate escaping the pick/vent hole. Multiply the flow rate times the number of holes that are discharging wastewater. Once the total volume (gpm) has been determined,

multiply the gpm by the duration of the SSO in minutes. This will result in the total estimated gallons of the SSO.



Example: Measured height of plume exiting pick/vent hole is 1 inch from a 1/2-inch vent hole and there are 4 vent holes. The total volume per minute would be .94 gpm per hole (from attached chart) or 3.76 gpm total (.94 gpm x 4 holes) from the manhole cover. If the SSO lasted one hour, the total wastewater lost would be 226 gallons (3.76 x 60 = 225.6).

|                                       |             |
|---------------------------------------|-------------|
| Number of pick holes                  | 4           |
| Flow from each pick hole              | .94 gpm     |
| Duration of SSO                       | 60 minutes  |
| Total SSO volume (.94 x 4 x 60=225.6) | 226 gallons |



## Pick and Vent Hole Estimation Chart

**Estimated Flows thru Manhole Cover Vent Holes and Pick Holes for SSO estimating**

| Hole Dia.<br>inches | Area<br>sq. ft.                  | Coeff. of Vel.<br>Cv | Coeff. Of Cont.<br>Cc | C<br>Cv x Cc        | Water Ht<br>inches | Water Ht<br>inches | Water Ht<br>feet   | Q<br>cfs                                     | Q<br>gpm            | Q<br>gph           |
|---------------------|----------------------------------|----------------------|-----------------------|---------------------|--------------------|--------------------|--------------------|--|---------------------|--------------------|
|                     | Formula:<br>=0.785*Ax*<br>Ax/144 |                      |                       | Formula:<br>=Ix*449 |                    |                    | Formula:<br>=Gx/12 | Formula:<br>=Ex*Bx*(S<br>QRT(2*32.<br>2*Hx)) | Formula:<br>=Ix*449 | Formula:<br>=Jx*60 |
| <b>Vent Hole</b>    |                                  |                      |                       |                     |                    |                    |                    |  |                     |                    |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1/16 th            | 0.063              | 0.005              | 0.0005                                       | 0.23                | 14                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1/8 th             | 0.125              | 0.010              | 0.0007                                       | 0.33                | 20                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1/4 th             | 0.250              | 0.021              | 0.0010                                       | 0.47                | 28                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | one half           | 0.500              | 0.042              | 0.0015                                       | 0.66                | 40                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 3/4 ths            | 0.750              | 0.063              | 0.0018                                       | 0.81                | 49                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 inch             | 1.000              | 0.083              | 0.0021                                       | 0.94                | 56                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 1/4 "            | 1.250              | 0.104              | 0.0023                                       | 1.05                | 63                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 3/8"             | 1.375              | 0.115              | 0.0024                                       | 1.10                | 66                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 1/2"             | 1.500              | 0.125              | 0.0026                                       | 1.15                | 69                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 5/8"             | 1.625              | 0.135              | 0.0027                                       | 1.20                | 72                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 1 3/4"             | 1.750              | 0.146              | 0.0028                                       | 1.24                | 74                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 2 inches           | 2.000              | 0.167              | 0.0030                                       | 1.33                | 80                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 2 1/4"             | 2.250              | 0.188              | 0.0031                                       | 1.41                | 84                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 2 1/2"             | 2.500              | 0.208              | 0.0033                                       | 1.48                | 89                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 2 3/4"             | 2.750              | 0.229              | 0.0035                                       | 1.56                | 93                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 3 inches           | 3.000              | 0.250              | 0.0036                                       | 1.62                | 97                 |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 3 1/4"             | 3.250              | 0.271              | 0.0038                                       | 1.69                | 101                |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 3 1/2"             | 3.500              | 0.292              | 0.0039                                       | 1.75                | 105                |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 3 3/4"             | 3.750              | 0.313              | 0.0040                                       | 1.82                | 109                |
| 0.50                | 0.00136                          | 0.945                | 0.70                  | 0.662               | 4.000              | 4.000              | 0.333              | 0.0042                                       | 1.88                | 113                |
| <b>Vent Hole</b>    |                                  |                      |                       |                     |                    |                    |                    |  |                     |                    |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1/16 th            | 0.063              | 0.005              | 0.0011                                       | 0.51                | 31                 |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1/8 th             | 0.125              | 0.010              | 0.0016                                       | 0.72                | 43                 |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1/4 th             | 0.250              | 0.021              | 0.0023                                       | 1.02                | 61                 |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | one half           | 0.500              | 0.042              | 0.0032                                       | 1.44                | 87                 |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 3/4 ths            | 0.750              | 0.063              | 0.0039                                       | 1.77                | 106                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 inch             | 1.000              | 0.083              | 0.0045                                       | 2.04                | 122                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 1/4 "            | 1.250              | 0.104              | 0.0051                                       | 2.28                | 137                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 3/8"             | 1.375              | 0.115              | 0.0053                                       | 2.39                | 144                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 1/2"             | 1.500              | 0.125              | 0.0056                                       | 2.50                | 150                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 5/8"             | 1.625              | 0.135              | 0.0058                                       | 2.60                | 156                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 1 3/4"             | 1.750              | 0.146              | 0.0060                                       | 2.70                | 162                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 2 inches           | 2.000              | 0.167              | 0.0064                                       | 2.89                | 173                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 2 1/4"             | 2.250              | 0.188              | 0.0068                                       | 3.06                | 184                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 2 1/2"             | 2.500              | 0.208              | 0.0072                                       | 3.23                | 194                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 2 3/4"             | 2.750              | 0.229              | 0.0075                                       | 3.38                | 203                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 3 inches           | 3.000              | 0.250              | 0.0079                                       | 3.53                | 212                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 3 1/4"             | 3.250              | 0.271              | 0.0082                                       | 3.68                | 221                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 3 1/2"             | 3.500              | 0.292              | 0.0085                                       | 3.82                | 229                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 3 3/4"             | 3.750              | 0.313              | 0.0088                                       | 3.95                | 237                |
| 0.75                | 0.00307                          | 0.955                | 0.67                  | 0.640               | 4.000              | 4.000              | 0.333              | 0.0091                                       | 4.08                | 245                |
| <b>Vent Hole</b>    |                                  |                      |                       |                     |                    |                    |                    |  |                     |                    |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1/16 th            | 0.063              | 0.005              | 0.0020                                       | 0.88                | 53                 |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1/8 th             | 0.125              | 0.010              | 0.0028                                       | 1.25                | 75                 |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1/4 th             | 0.250              | 0.021              | 0.0039                                       | 1.77                | 106                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | one half           | 0.500              | 0.042              | 0.0056                                       | 2.50                | 150                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 3/4 ths            | 0.750              | 0.063              | 0.0068                                       | 3.06                | 184                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 inch             | 1.000              | 0.083              | 0.0079                                       | 3.54                | 212                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 1/4 "            | 1.250              | 0.104              | 0.0088                                       | 3.96                | 237                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 3/8"             | 1.375              | 0.115              | 0.0092                                       | 4.15                | 249                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 1/2"             | 1.500              | 0.125              | 0.0097                                       | 4.33                | 260                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 5/8"             | 1.625              | 0.135              | 0.0100                                       | 4.51                | 271                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 1 3/4"             | 1.750              | 0.146              | 0.0104                                       | 4.68                | 281                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 2 inches           | 2.000              | 0.167              | 0.0111                                       | 5.00                | 300                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 2 1/4"             | 2.250              | 0.188              | 0.0118                                       | 5.31                | 318                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 2 1/2"             | 2.500              | 0.208              | 0.0125                                       | 5.59                | 336                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 2 3/4"             | 2.750              | 0.229              | 0.0131                                       | 5.87                | 352                |
| 1.00                | 0.00545                          | 0.960                | 0.65                  | 0.624               | 3 inches           | 3.000              | 0.250              | 0.0136                                       | 6.13                | 368                |



## Pick and Vent Hole Estimation Chart - continued

**Estimated Flows thru Manhole Cover Vent Holes and Pick Holes for SSO estimating**

| Hole Dia.<br>Inches                | Area<br>sq. ft.                    | Coeff. of Vel.<br>Cv | Coeff. Of Cont.<br>Cc | C<br>Cv x Cc         | Water Ht<br>Inches | Water Ht<br>Inches | Water Ht<br>feet    | Q<br>cfs  | Q<br>gpm             | Q<br>gph            |
|------------------------------------|------------------------------------|----------------------|-----------------------|----------------------|--------------------|--------------------|---------------------|---|----------------------|---------------------|
|                                    | Formula:<br>=0.785*A*x*<br>A/x/144 |                      |                       | Formula:<br>=I*x^449 |                    |                    | Formula:<br>=G*x/12 | Formula:<br>=E*x*B*x*(S<br>QRT(2*32.<br>2*H*x)) | Formula:<br>=I*x^449 | Formula:<br>=J*x*60 |
| <b>Vent Hole</b>                   |                                    |                      |                       |                      |                    |                    |                     |   |                      |                     |
| 1.00                               | 0.00545                            | 0.960                | 0.65                  | 0.624                | 3 1/4"             | 3.250              | 0.271               | 0.0142  | 6.38                 | 383                 |
| 1.00                               | 0.00545                            | 0.960                | 0.65                  | 0.624                | 3 1/2"             | 3.500              | 0.292               | 0.0147  | 6.62                 | 397                 |
| 1.00                               | 0.00545                            | 0.960                | 0.65                  | 0.624                | 3 3/4"             | 3.750              | 0.313               | 0.0153  | 6.85                 | 411                 |
| 1.00                               | 0.00545                            | 0.960                | 0.65                  | 0.624                | 4.000              | 4.000              | 0.333               | 0.0158  | 7.08                 | 425                 |
| <b>Pick Hole semicircular area</b> |                                    |                      |                       |                      |                    |                    |                     |   |                      |                     |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 1/16 th            | 0.063              | 0.005               | 0.0010  | 0.44                 | 27                  |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 1/8 th             | 0.125              | 0.010               | 0.0014  | 0.63                 | 38                  |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 1/4 th             | 0.250              | 0.021               | 0.0020  | 0.89                 | 53                  |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | one half           | 0.500              | 0.042               | 0.0028  | 1.25                 | 75                  |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 3/4 ths            | 0.750              | 0.063               | 0.0034  | 1.53                 | 92                  |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 1 inch             | 1.000              | 0.083               | 0.0039  | 1.77                 | 106                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 1-1/2 inch         | 1.500              | 0.125               | 0.0048  | 2.17                 | 130                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 2 inches           | 2.000              | 0.167               | 0.0056  | 2.51                 | 150                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 2 1/4"             | 2.250              | 0.188               | 0.0059  | 2.66                 | 159                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 2 1/2"             | 2.500              | 0.208               | 0.0062  | 2.80                 | 168                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 2 3/4"             | 2.750              | 0.229               | 0.0065  | 2.94                 | 176                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 3 inches           | 3.000              | 0.250               | 0.0068  | 3.07                 | 184                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 3 1/4"             | 3.250              | 0.271               | 0.0071  | 3.19                 | 192                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 3 1/2"             | 3.500              | 0.292               | 0.0074  | 3.31                 | 199                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 3 3/4"             | 3.750              | 0.313               | 0.0076  | 3.43                 | 206                 |
| 1.00                               | 0.00273                            | 0.960                | 0.65                  | 0.624                | 4.000              | 4.000              | 0.333               | 0.0079  | 3.54                 | 213                 |

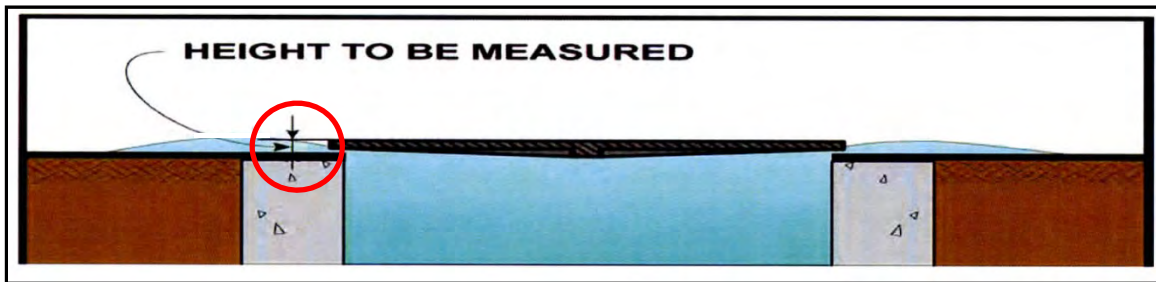
Courtesy of OCSD: Created 5/17/99 and modified 5/15/14, as an estimating tool for field staff. This is based on flow through orifices assumptions. Your city or agency may want to develop a similar tool.

**$Q=CA(2gh)^{.5}$     Where Q=cfs    C=Cv x Cc    A=area(sq. ft.)    g=32.2 ft/sec/sec  
h= water height (ft.)**



## Manhole Ring

Some manhole covers in use today typically only have one pick hole forcing most of the wastewater to escape from the perimeter of the manhole cover during higher flow SSOs. To estimate the volume in this example, measure the observed height of the wastewater plume exiting the manhole cover. Find the height and manhole diameter on the Manhole with Cover in Place to determine the flow rate escaping the manhole. The chart has two columns, one for 24-inch diameter covers and one for 36-inch diameter covers. Wastewater will also be escaping from the pick hole and must be accounted for separately by following the instructions for estimating an SSO from pick/vent hole. Multiply the flow rate times the number of holes that are discharging. The total estimated rate (gpm) is determined by adding together the rate being lost (gpm) from around the cover with the rate being lost (gpm) from the pick and/or vent hole(s). Once the total rate (gpm) has been determined, multiply the gpm by the duration of the SSO in minutes. This will result in the total estimated gallons of the SSO.



Example: The measured height of the plume exiting the ring of a 36-inch manhole is 1 inch. The total volume per minute would be 13 gpm from around the ring of a 36-inch manhole cover (from the attached chart). (Calculate the amount exiting the pick hole(s) and add to the total being lost around the ring). If the SSO lasted one hour the total wastewater lost would be 780 gallons ( $13 \times 60 = 780$ ).

|  |             |
|--|-------------|
| Estimated loss around ring (from chart)                                    | 13 gpm      |
| Duration of SSO  | 60 minutes  |
| Total SSO (without loss from pick hole)                                    | 780 gallons |
| (13 gal/min x 60 minutes = 780 gallons plus amount lost from pick hole(s)) |             |

**ESTIMATED SSO FLOW OUT OF MH WITH COVER IN PLACE**

**24" COVER**

| Height of spout above M/H rim<br>H in inches | SSO FLOW<br>Q |        | Min. Sewer size in which these flows are possible |
|--|---------------|--------|---|
|  | in gpm        | in MGD |   |
| 1/4  | 1             | 0.001  |   |
| 1/2  | 3             | 0.004  |   |
| 3/4  | 6             | 0.008  |   |
| 1  | 9             | 0.013  |   |
| 1 1/4  | 12            | 0.018  |   |
| 1 1/2  | 16            | 0.024  |   |
| 1 3/4  | 21            | 0.030  |   |
| 2  | 25            | 0.037  |   |
| 2 1/4  | 31            | 0.045  |   |
| 2 1/2  | 38            | 0.054  |   |
| 2 3/4  | 45            | 0.065  |   |
| 3  | 54            | 0.077  |   |
| 3 1/4  | 64            | 0.092  |   |
| 3 1/2  | 75            | 0.107  |   |
| 3 3/4  | 87            | 0.125  |   |
| 4  | 100           | 0.145  |   |
| 4 1/4  | 115           | 0.166  |   |
| 4 1/2  | 131           | 0.189  |   |
| 4 3/4  | 148           | 0.214  |   |
| 5  | 166           | 0.240  |   |
| 5 1/4  | 185           | 0.266  |   |
| 5 1/2  | 204           | 0.294  |   |
| 5 3/4  | 224           | 0.322  | 6"  |
| 6  | 244           | 0.352  |   |
| 6 1/4  | 265           | 0.382  |   |
| 6 1/2  | 286           | 0.412  |   |
| 6 3/4  | 308           | 0.444  |   |
| 7  | 331           | 0.476  |   |
| 7 1/4  | 354           | 0.509  |   |
| 7 1/2  | 377           | 0.543  |   |
| 7 3/4  | 401           | 0.578  | 8"  |
| 8  | 426           | 0.613  |   |
| 8 1/4  | 451           | 0.649  |   |
| 8 1/2  | 476           | 0.686  |   |
| 8 3/4  | 502           | 0.723  |   |
| 9  | 529           | 0.761  |   |

**36" COVER**

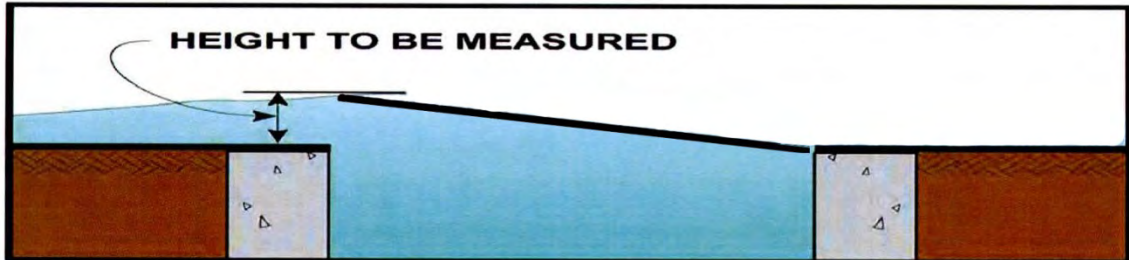
| Height of spout above M/H rim<br>H in inches | SSO FLOW<br>Q |        | Min. Sewer size in which these flows are possible |
|--|---------------|--------|---|
|  | in gpm        | in MGD |   |
| 1/4  | 1             | 0.002  |   |
| 1/2  | 4             | 0.006  |   |
| 3/4  | 8             | 0.012  |   |
| 1  | 13            | 0.019  |   |
| 1 1/4  | 18            | 0.026  |   |
| 1 1/2  | 24            | 0.035  |   |
| 1 3/4  | 31            | 0.044  |   |
| 2  | 37            | 0.054  |   |
| 2 1/4  | 45            | 0.065  |   |
| 2 1/2  | 55            | 0.079  |   |
| 2 3/4  | 66            | 0.095  |   |
| 3  | 78            | 0.113  |   |
| 3 1/4  | 93            | 0.134  |   |
| 3 1/2  | 109           | 0.157  |   |
| 3 3/4  | 127           | 0.183  |   |
| 4  | 147           | 0.211  |   |
| 4 1/4  | 169           | 0.243  |   |
| 4 1/2  | 192           | 0.276  |   |
| 4 3/4  | 217           | 0.312  | 6"  |
| 5  | 243           | 0.350  |   |
| 5 1/4  | 270           | 0.389  |   |
| 5 1/2  | 299           | 0.430  |   |
| 5 3/4  | 327           | 0.471  |   |
| 6  | 357           | 0.514  |   |
| 6 1/4  | 387           | 0.558  | 8"  |
| 6 1/2  | 419           | 0.603  |   |
| 6 3/4  | 451           | 0.649  |   |
| 7  | 483           | 0.696  |   |
| 7 1/4  | 517           | 0.744  |   |
| 7 1/2  | 551           | 0.794  |   |
| 7 3/4  | 587           | 0.845  | 10"   |
| 8  | 622           | 0.896  |   |
| 8 1/4  | 659           | 0.949  |   |
| 8 1/2  | 697           | 1.003  |   |
| 8 3/4  | 734           | 1.057  |   |
| 9  | 773           | 1.113  |   |

The formula used to develop Table 1 measures the maximum height of the water coming out of the maintenance manhole above the rim. The formula was taken from Hydraulics and Its Application by A.H. Gibson (Constable & Co. Limited).

### Partially Covered Manhole

Sometimes an SSO will occur that only lifts one side of the manhole cover. This is especially true of manholes where the cover is on an incline with the cover lifting on the downward side of the manhole. To estimate the volume of an SSO under these conditions, calculate the area (in square feet) from where the wastewater is escaping and the velocity (in feet per second) that the wastewater is normally traveling in the sewer at half the pipe depth. The velocity is estimated from visual observation with 2 feet/second or less being a small velocity, 4 to 5 feet/second being a medium velocity, and 7 feet/second or higher being a large velocity. Velocities in the sewer above 7 feet/second may be strong enough to blow the manhole cover off. Higher velocities also tend to raise the manhole lid higher. Next, multiply by the duration

(in seconds) that the SSO occurred. Finally, multiply by 7.48 to determine the volume of the SSO in gallons. The formula is Volume (gallons) = Area (sq. ft.) x Velocity (ft/sec) x Time (in seconds) x 7.48 (gal/cu. ft.).



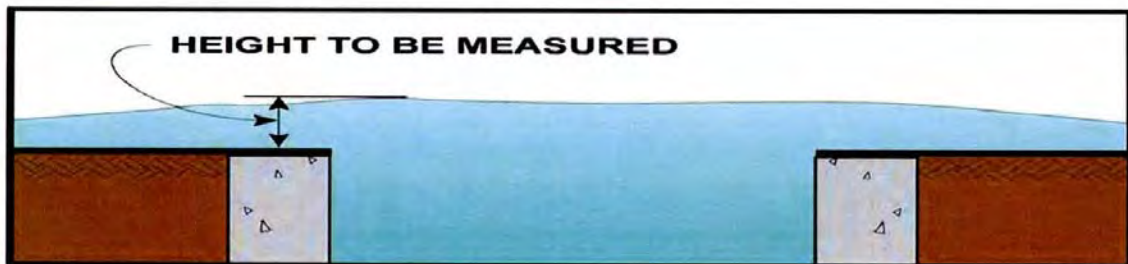
Example: The measured height of the plume exiting the side ring of a 24-inch manhole is 2 inches. Based upon the data provided in the Area Calculation Chart below, a 2-inch plume from one side of a 24-inch manhole cover provides 0.524 square feet of area. The velocity of the flow is estimated at 4 ft/sec (visual observation) with the assumed duration of the flow lasting for one hour. The total amount of the SSO is estimated at 56,441 gallons (.524 x 4 x 60 x 60 x 7.48 = 56,441)

|   |                   |
|---|-------------------|
| Height of plume   | 2 inches          |
| Area for 24 inch manhole  | 0.524 square feet |
| Estimated velocity  | 4 ft/sec          |
| Duration of SSO   | 60 minutes        |
| Conversion from cu. ft. to gallons  | 7.48              |
| Total estimated SSO volume  | 56,441 gallons    |
| (.524 sq. ft. x 4 ft/sec x 60 minutes x 60 sec/min x 7.48 gal/cu ft = 56,441 gal) |                   |

| Area Calculation Chart |                 |                 |
|------------------------|-----------------|-----------------|
| Height of Flow         | 24 Inch Manhole | 36 Inch Manhole |
| .5 inches              | 0.131 sq. ft.   | 0.195 sq. ft.   |
| 1 inches               | 0.262 sq. ft.   | 0.391 sq. ft.   |
| 1.5 inches             | 0.393 sq. ft.   | 0.586 sq. ft.   |
| 2 inches               | 0.524 sq. ft.   | 0.782 sq. ft.   |
| 2.5 inches             | 0.655 sq. ft.   | 0.977 sq. ft.   |
| 3 inches               | 0.786 sq. ft.   | 1.173 sq. ft.   |
| 3.5 inches             | 0.917 sq. ft.   | 1.368 sq. ft.   |
| 4 inches               | 1.048 sq. ft.   | 1.564 sq. ft.   |

## Open Manhole

In large events the force of the overflowing wastewater will have sufficient pressure and volume to unseat the cover from the frame and move the manhole cover away from the manhole. Typically, when the SSO rates reach approximately 7 cfs (approximately 3,000 gpm or about 4.32 mgd), there is sufficient flow and pressure to blow off the manhole cover. To estimate the volume of an SSO where the manhole cover has been removed, the average height of the plume of wastewater exiting the manhole must be measured. This measurement is from the pavement surface close to the manhole ring to the top of the plume. Take several measurements in several locations around the ring and average the findings. If possible, and being safe to protect yourself from the open manhole, find the average height of the plume for the size of the manhole lid (24-inch or 36-inch diameter) on the Area Calculation Chart to determine the rate of flow exiting the manhole. Multiply the flow rate expressed in gallons per minute from the chart multiplied by the duration of the SSO in minutes to determine the total volume of the SSO. A photo taken at a safe distance upon arrival may help you refine your estimate.



Example: Determine the observed height of the plume at several locations around the ring of the manhole and average the results. Determine the size of the manhole cover. If the average height of the plume exiting an open 24-inch diameter manhole is 2 inches, find 2 inches on the 24-inch Manhole Cover Removed Chart. Based upon the data provided in the Manhole Cover Removed Chart, the flow in gallons per minute would be 3,444 gpm. If the duration of the flow lasted for one hour (60 minutes), the total amount of the SSO would be estimated at 206,640 gallons ( $3,444 \times 60 = 206,640$ ).

|  |                 |
|--|-----------------|
| Height of plume (average) on 24-inch manhole | 2 inches        |
| Estimated flow from chart                    | 3,444 gpm       |
| Duration of SSO                              | 60 minutes      |
| Estimated SSO total volume                   | 206,640 gallons |

(Est flow from chart 3,444 x 60 minutes = 206,640)

**ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED**

**24" FRAME**

| Water<br>Height above<br>M/H frame<br>H in inches | S S O FLOW |        | Min. Sewer<br>size in which<br>these flows<br>are possible |
|---|------------|--------|--|
|   | Q          |        |  |
|   | in gpm     | in MGD |  |
| 1/8   | 28         | 0.04   |  |
| 1/4   | 62         | 0.09   |  |
| 3/8   | 111        | 0.16   |  |
| 1/2   | 160        | 0.23   |  |
| 5/8   | 215        | 0.31   | 6"   |
| 3/4   | 354        | 0.51   | 8"   |
| 7/8   | 569        | 0.82   | 10"  |
| 1   | 799        | 1.15   | 12"  |
| 1 1/8   | 1,035      | 1.49   |  |
| 1 1/4   | 1,340      | 1.93   | 15"  |
| 1 3/8   | 1,660      | 2.39   |  |
| 1 1/2   | 1,986      | 2.86   |  |
| 1 5/8   | 2,396      | 3.45   | 18"  |
| 1 3/4   | 2,799      | 4.03   |  |
| 1 7/8   | 3,132      | 4.51   |  |
| 2   | 3,444      | 4.96   | 21"  |
| 2 1/8   | 3,750      | 5.4    |  |
| 2 1/4   | 3,986      | 5.74   |  |
| 2 3/8   | 4,215      | 6.07   |  |
| 2 1/2   | 4,437      | 6.39   |  |
| 2 5/8   | 4,569      | 6.58   | 24"  |
| 2 3/4   | 4,687      | 6.75   |  |
| 2 7/8   | 4,799      | 6.91   |  |
| 3   | 4,910      | 7.07   |  |

**36" FRAME**

| Water<br>Height above<br>M/H frame<br>H in inches | S S O FLOW |        | Min. Sewer<br>size in which<br>these flows<br>are possible |
|---|------------|--------|--|
|   | Q          |        |  |
|   | in gpm     | in MGD |  |
| 1/8   | 49         | 0.07   |  |
| 1/4   | 111        | 0.16   |  |
| 3/8   | 187        | 0.27   | 6"   |
| 1/2   | 271        | 0.39   |  |
| 5/8   | 361        | 0.52   | 8"   |
| 3/4   | 458        | 0.66   |  |
| 7/8   | 556        | 0.8    | 10"  |
| 1   | 660        | 0.95   | 12"  |
| 1 1/8   | 1,035      | 1.49   |  |
| 1 1/4   | 1,486      | 2.14   | 15"  |
| 1 3/8   | 1,951      | 2.81   |  |
| 1 1/2   | 2,424      | 3.49   | 18"  |
| 1 5/8   | 2,903      | 4.18   |  |
| 1 3/4   | 3,382      | 4.87   |  |
| 1 7/8   | 3,917      | 5.64   | 21"  |
| 2   | 4,458      | 6.42   |  |
| 2 1/8   | 5,000      | 7.2    | 24"  |
| 2 1/4   | 5,556      | 8      |  |
| 2 3/8   | 6,118      | 8.81   |  |
| 2 1/2   | 6,764      | 9.74   |  |
| 2 5/8   | 7,403      | 10.66  |  |
| 2 3/4   | 7,972      | 11.48  | 30"  |
| 2 7/8   | 8,521      | 12.27  |  |
| 3   | 9,062      | 13.05  |  |
| 3 1/8   | 9,604      | 13.83  |  |
| 3 1/4   | 10,139     | 14.6   |  |
| 3 3/8   | 10,625     | 15.3   | 36"  |
| 3 1/2   | 11,097     | 15.98  |  |
| 3 5/8   | 11,569     | 16.66  |  |
| 3 3/4   | 12,035     | 17.33  |  |
| 3 7/8   | 12,486     | 17.98  |  |
| 4   | 12,861     | 18.52  |  |
| 4 1/8   | 13,076     | 18.83  |  |
| 4 1/4   | 13,285     | 19.13  |  |
| 4 3/8   | 13,486     | 19.42  |  |

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.



## Pictorial Reference

Currently there are two picture charts being widely used to assist with estimating SSO volumes. The older chart is the city of San Diego's Manhole Overflow Rate Chart with the newer chart being the CWEA Southern Section Collection Systems Committee (SSCSC) Manhole Overflow Gauge. Each chart is a pictorial depiction of how an overflowing manhole appears at a given flow rate. The SSCSC Manhole Overflow Gauge has an additional picture for each flow rate showing a wide angle view of the spill area. When using either of the pictorial reference charts, select which picture most accurately represents the SSO being estimated. Use the gpm of the associated picture multiplied times the duration of the SSO to determine the total spill volume. Example: If the selected picture shows 300 gpm and the duration of SSO is 55 minutes, the total estimated spill volume would be 16,500 gallons (300 gpm x 55 min).

|   |                |
|---|----------------|
| Selected picture volume                 | 300 gpm        |
| Duration of SSO                         | 55 minutes     |
| Total estimated SSO                     | 16,500 gallons |
| (300 gpm x 55 minutes = 16,500 gallons) |                |

*Note:* Data was obtained at training facilities where potable water was metered and photos were taken at various flow rates.

Training facilities also exist at the Orange County Sanitation District in Fountain Valley, CA.

As a reference point, an 8-inch diameter sewer flowing half full at a velocity of 2.5 ft/sec would have a flow rate of about 192 gal/min. If fully blocked, the SSO rate would be 192 gpm. For a partial blockage, the SSO rate will be less.

Other agencies have developed above ground estimating tools such as frame and cover sets that can be pressurized using potable water and simple flow meters.

# City of San Diego Manhole Overflow Picture Chart



Wastewater Collection Division  
(619) 654-4160



rev. 4/99

## Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

All estimates are calculated in gallons per minute (gpm)



City of San Diego  
Metropolitan Wastewater Department

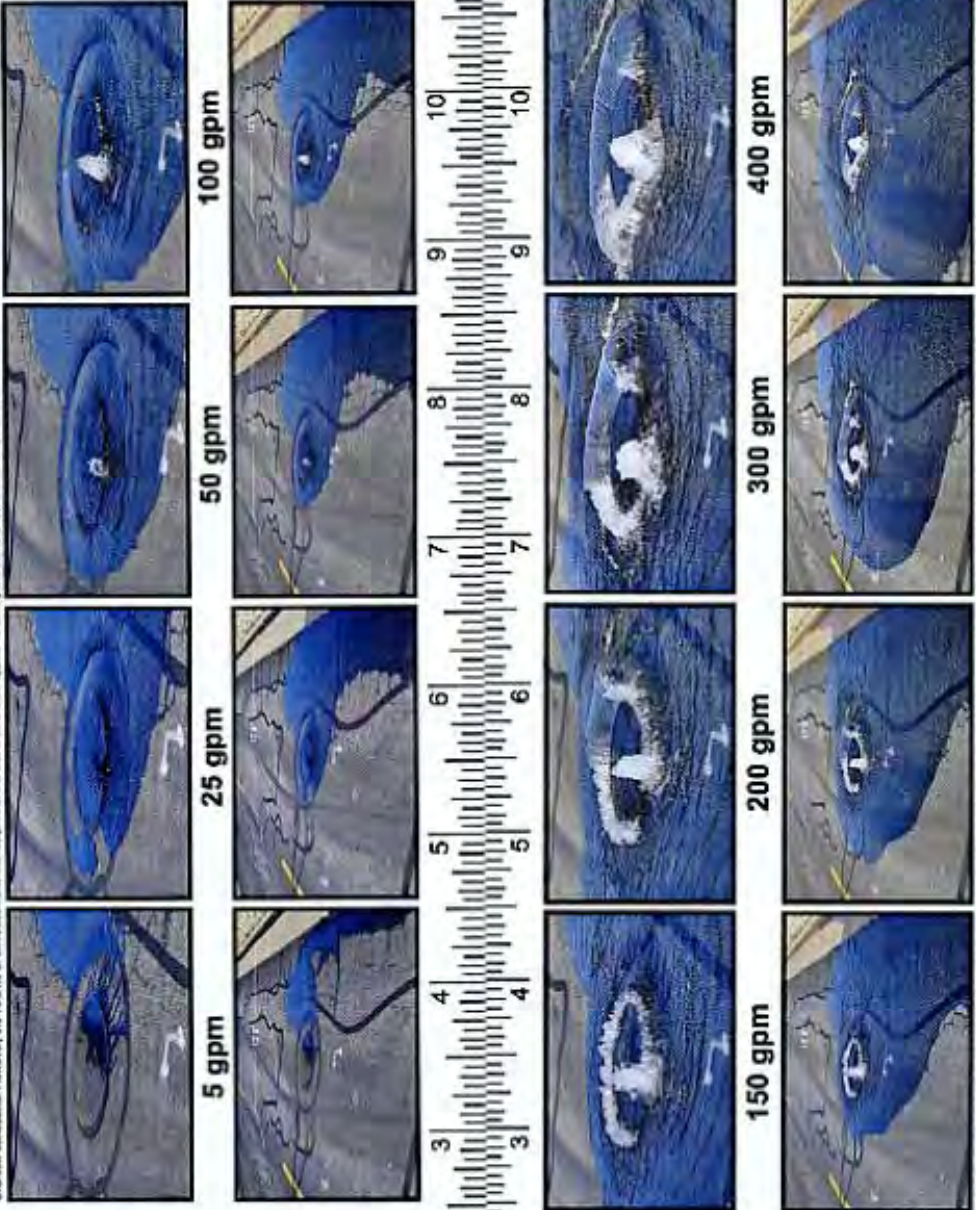


All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.



# SSCSC Manhole Overflow Gauge

DISCLAIMER: This overflow simulation may appear differently from those in other systems because of the manhole lid disk hole configuration. Manhole lids with single or multiple disk holes may appear differently during overflow conditions. However, the volume of overflow and the height of the wet area should appear relatively the same under similar slope conditions.



DISCLAIMER: This overflow simulation may appear differently from those in other systems because of the manhole lid disk hole configuration. Manhole lids with single or multiple disk holes may appear differently during similar overflow conditions. However, the volume of overflow and the footprint of the wet area should appear relatively the same under similar slope conditions.



## SSCSC MANHOLE OVERFLOW GAUGE

Overflow Simulation courtesy of Eastern Municipal Water District

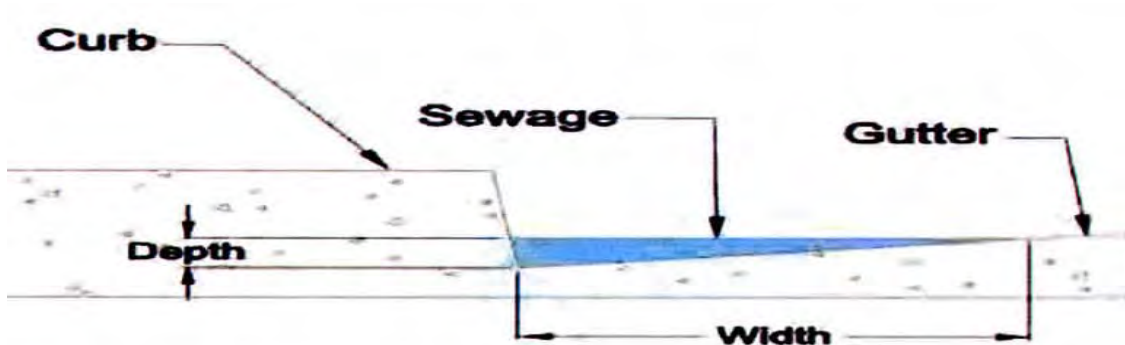


## PROVIDING QUALITY TRAINING FOR COLLECTION SYSTEM PERSONNEL SINCE 1991

Mission Statement: To continuously increase the level of professional of Collection Systems personnel involved in wastewater collection systems by providing education and training, while an active role in promoting certification, and recognizing proficiency is our first.

## Gutter Flow (Simplified Version)

Although the traditional Manning's Equation is used to calculate flows in open channels, this simplified version can be used to measure SSOs that are flowing in open channels such as ditches, curb and gutter, etc. and still achieve reasonable estimations. Two things need to be determined to utilize this method of spill estimation, the cross sectional area of the channel and the velocity of the flow in the channel. First, determine the cross sectional dimensions of the channel (width and depth of flow) to determine the area of the flow. Then determine the velocity of the flow in the channel. To determine the velocity, drop a small floating object (ping pong ball, leaf, small piece of wood, etc.) into the flow and time how long it takes the object to travel a measured distance. This should be practiced several times in a non-SSO situation, and averaged to determine the flow velocity. The velocity of the flow multiplied by the cross sectional area of the flow multiplied by the duration of the SSO will result in the approximate volume of the SSO.



$$Q = V \times A$$

$$\text{Flow (gal/min)} = \text{Velocity (ft/sec)} \times \text{Area (ft}^2\text{)} \times 7.48 \text{ gal/cu ft} \times 60 \text{ sec/min}$$

Example: If the cross section triangular area of the spill is calculated at .5 sq.ft. with the velocity measured at .25 ft. per second, the flow would be .125 cubic feet per second. Multiply times 449 (one cubic foot per second equals 449 gallons per minute) to determine the gallons per minute (56 gpm). If the SSO lasted for 35 minutes the total estimated spill volume would be 1,964 gallons.

Simplified Cross Section Area of the SSO



Estimated Triangular Area

0.5 square feet

Estimated Velocity

.25 feet per second

Duration of the SSO

35 minutes

Gallons per minute per cubic foot per second conversion

449

Total estimated spill volume

1,964 gallons

(Area .5 sq.ft. x Est velocity .25 ft. per sec. = .125 cfs x 449 = 56 gpm x 35 minutes = 1,964 estimated gallons spilled)

Gutters on steep hillsides will flow at higher velocities. Practice your estimating on flatter areas and steeper areas of your service area.

## Bucket Method

This method can be used for small spills due to partial blockages where the entire flow stream could be captured in a bucket. Estimate how many minutes it takes to fill the bucket. Dividing the volume of the bucket (in gallons) by the elapsed time to fill the bucket (in minutes). This provides the flow rate in gallons per minute (gpm). Once the gpm has been established, multiply the gpm by the total time duration in minutes of the SSO until it stopped to determine the total estimated volume of the SSO.

Example: If it takes 30 seconds (.5 minutes) to fill a 5 gallon bucket and the total spill duration was 20 minutes, the total spill volume would be 200 gallons. ( $5\text{gal}/.5\text{ min} = 10\text{ gpm} \times 20\text{ min} = 200\text{ gal}$ ).

Time to fill a 5 gallon bucket

30 seconds (.5 minute)

Duration of SSO

20 minutes

Estimated spill volume

200 gallons

(5 gallons every 30 seconds equals 10 gallons per minute x 20 minutes = 200 gallons)

You can practice visual estimating by filling a bucket of known volume for a measured time from a garden hose.

## Pipe Size

To calculate an SSO based upon pipe size requires the diameter of the pipe, the depth of flow in the pipe downstream of the blockage during and after the blockage, and the flow velocity in the pipe. This method calculates the amount of flow in the pipe at the same time of the day during the blockage compared to the amount of flow normally in the pipe to determine how much flow had been lost over time.

To use this method, measure the flow depth at the nearest manhole downstream from the blockage. Record the depth reading. Once the blockage has been cleared and the flow stabilized, measure the flow depth at the same manhole as before and record the reading. The attached chart can be used on various size pipelines where the velocity is 2.0 feet per second. Pipelines of other rates will have to be calculated.

To use the attached chart, find the depth of the flow during the blockage in column 1. Follow the row across to the diameter of the pipe where the blockage has occurred. The number listed will be the flow rate in gallons per minute for pipelines with a velocity of 2 feet per second. Next find the flow depth after the blockage has been removed and the flow stabilized. Move across the chart to the proper pipe size and record the flow rate for a free flowing pipeline. Subtract the flow rate from the blocked pipe from the flow rate of the free flowing pipe. The remainder will be the flow rate lost. Multiply the flow rate lost times the duration of the SSO to determine the total flow volume lost. Example: If the flow depth during the blockage of a 10-inch pipe was 1 inch, the flow rate would 25 gpm. After the blockage was cleared and the flow stabilized, the flow depth was now 5 inches then the flow rate would be 240 gpm. To determine the amount lost, subtract the gpm (pipe blocked) from the gpm (pipe cleared) ( $240 \text{ gpm} - 25 \text{ gpm} = 215 \text{ gpm}$ ) leaving the flow rate of the SSO. Multiply the remaining flow rate multiplied by the duration of the SSO in minutes to estimate the total volume of the SSO.



| Flow Depth Inches | 8" PIPE | 10" PIPE | 12" PIPE | 15" PIPE | 18" PIPE | 21" PIPE | 24" PIPE |
|-------------------|---------|----------|----------|----------|----------|----------|----------|
| 1                 | 20 GPM  | 25 GPM   | 30 GPM   | 35 GPM   | 40 GPM   | 45 GPM   | 50 GPM   |
| 2                 | 60      | 70       | 80       | 85       | 95       | 105      | 125      |
| 3                 | 110     | 125      | 135      | 150      | 175      | 185      | 210      |
| 4                 | 160     | 180      | 200      | 235      | 260      | 285      | 320      |
| 5                 | 190     | 240      | 280      | 315      | 360      | 380      | 445      |
| 6                 | 260     | 310      | 355      | 415      | 455      | 500      | 555      |
| 7                 | 290     | 370      | 425      | 495      | 570      | 620      | 695      |
| 8                 | 320     | 430      | 500      | 600      | 680      | 760      | 815      |
| 9                 |         | 465      | 575      | 690      | 800      | 890      | 965      |
| 10                |         | 490      | 625      | 775      | 905      | 1005     | 1120     |
| 11                |         |          | 685      | 870      | 1020     | 1135     | 1275     |
| 12                |         |          | 715      | 935      | 1130     | 1260     | 1410     |
| 13                |         |          |          | 1020     | 1240     | 1415     | 1580     |
| 14                |         |          |          | 1070     | 1345     | 1520     | 1690     |
| 15                |         |          |          | 1105     | 1425     | 1650     | 1850     |
| 16                |         |          |          |          | 1495     | 1760     | 1990     |
| 17                |         |          |          |          | 1550     | 1880     | 2110     |
| 18                |         |          |          |          | 1595     | 1980     | 2285     |
| 19                |         |          |          |          |          | 2050     | 2410     |
| 20                |         |          |          |          |          | 2115     | 2530     |
| 21                |         |          |          |          |          | 2160     | 2630     |
| 22                |         |          |          |          |          |          | 2700     |
| 23                |         |          |          |          |          |          | 2765     |
| 24                |         |          |          |          |          |          | 2820     |

Note: the chart assumes V = 2.0 feet per second and n = 0.013

1. Record the time that spill was reported.
2. Record the flow, in inches, downstream of the spill or blockage. Record the pipe size in inches. Determine flow rate in gallons per minute (GPM) using chart above.
3. Re-establish flow and allow stabilizing. Record the time that flow stabilizes and the depth of flow, in inches. Determine flow rate using chart above.
4. Subtract the flow rate calculated in #2 from the flow rate calculated in #3.
5. Multiply the result of 4 by the minutes elapsed from notification to stopping overflow.
6. Report total amount in gallons on the SSO Report.

*Note: The above chart is only for pipelines of the diameters shown and flowing at a velocity of 2.0 ft/sec.*

## Metered Flow

Estimates of the amount of wastewater spilled from a continuously metered system can be achieved utilizing upstream and downstream flow meters located close to the point where the wastewater escaped. Flow meters may be located at strategic locations throughout the wastewater collection system or at the intake or discharge of wastewater pump or lift stations. Flow metering usually occurs on pressure systems. If a spill is suspected on a metered upstream wastewater line, check the flow meter readings for abnormalities and note the time they start. Also check the flow meter readings at the downstream flow meter. If the downstream readings are lower than usual, the difference may be the amount of wastewater being lost to a spill. Abnormal pumping cycles for pump or lift stations located downstream from the spill can also be used to estimate the volume of a spill. Portable flow meters could also be installed in gravity sewers after a SSO event to help verify average flows at various times of the day when full or partial blockages may have occurred. You should also perform

this on the same day of the week that the SSO occurred. This is also a good way to understand how flows will change during the day in various parts of your system.

## **Rain Events**

Previous examples of methods throughout the document were all in dry weather situations. Rain events cause substantial difficulties for SSO responders in establishing an accurate estimate of an SSO. Infiltration into the sewer system will increase, sometimes dramatically, the system flow including the amount of the SSO. When estimating the SSO amount during a rain event, the estimate is to include only the amount of wastewater that left the collection system (this includes any clear water inflow and/or infiltration (I&I) that entered the collection system upstream of the SSO) and not any waters that the wastewater comingled with after leaving the system. Although the comingled waters are considered contaminated by the SSO and may be involved in the cleanup, they should not be considered in the estimate of the volume of sewage spilled for the event. Consult with your city or agency management or your site-specific procedures to be used during wet weather SSOs.

## **Saturated Soils**

Spills that have occurred on or migrated to grassy or dirt areas can be estimated if the area is dry and is not regularly irrigated like a field or dirt parking lot. This method is effective only during dry weather and not during or after a rain event. To estimate how much wastewater has been lost to the soil, first determine how many cubic feet of soil has been wetted. First determine the size of the area where the spill occurred. This is done in the same manner as for spills that occurred on hard surfaces and as discussed in the Measured Volume Method. Next determine how deep the soil has been saturated. To determine the depth of the soil saturation, dig several test holes with a round point shovel until dry soil is reached. Measure the depth of each hole and determine the average depth of the saturated soil. Multiply the area of the spill (in square feet) times the average depth of the soil saturation to determine the amount (in cubic feet) of saturated soil. Different types of soils will retain moisture in different amounts. Water will penetrate sandy soils quicker than clay soils and clay soils are capable of holding more moisture than sandy soils. Use an average of 18% moisture content when estimating the amount of wastewater that has saturated the soil.

Example: If the spill was contained in a dry dirt or grassy area of 10 feet by 20 feet, the area of the spill would be 200 square feet if it was a perfect rectangle (assumed). If the wastewater penetrated the soil to an average depth of 3 inches, the total amount of saturated soil would be 50 cubic feet ( $10 \times 20 \times .25 = 50$  cf.). To determine the amount of wastewater suspended in the wetted soil, multiply the 50 cubic feet times 7.48 gallons per cubic foot ( $50 \text{ cf} \times 7.48 \text{ gal/cf} = 374$  gallons). Next multiply the gallons times the average amount of moisture the soil can hold (use 18% as a rough estimate or calculate the soil moisture) to determine the actual estimated amount of wastewater that has saturated the soil ( $374 \text{ gal} \times .18 = 67.3$  gallons of wastewater contained in the soil for the area of the spill). Add the amount of wastewater estimated to be contained in the soil with the amount of surface wastewater that was removed to achieve an estimated total amount of the wastewater spill.

Simple method to calculate soil moisture content:

Equipment needed: One coffee filter; a funnel; a graduated measuring cup; a jar or bottle.

Place the coffee filter into the funnel. Place the funnel into the mouth of the jar or bottle.

Place one cup of clean dry soil from the spill site onto the coffee filter. Pour one cup (8 ounces) of water onto the soil and allow the water to drain into the jar. Once the water has stopped dripping from the funnel, remove the funnel and measure the amount of water in the jar. The difference between the amount of water in the jar and the 8 ounces originally poured over the soil is the amount of moisture the soil retained.

Example: If six and one half ounces (6.5) remained in the jar, one and one half ounce (1.5) or 18.75% remained in the soil. The soil moisture content would be 18.75%.

## **Combo Truck or Vacuum Truck Recovery**

When the spill is contained to a specific area and recovered by a combo or vacuum truck, the amount recovered can be used in calculating the amount of the original spill. If the spill is contained on a hard surface, estimate the total spill volume by what was captured by the combo or vacuum truck plus the amount that could not be captured. To estimate the amount not captured by the combo or vacuum truck, use the Measured Volume Method. For wet spots on concrete, use a depth of 0.0013 ft. or 1/64 inch. For wet stains on asphalt, use a depth of

0.0026 ft. or 1/32 inch. If the spill is contained on soil, use the Saturated Soils Method to determine how much of the spill soaked into the soil and add to the amount captured by the combo or vacuum truck.

### **Conversion Factors**

1.0 cfs = .6463 mgd

One cubic foot of water (cf) = 7.48 gallons

One cubic foot of water per second (cfs) = 448.8 gallons per minute

A cylinder 1 foot in diameter and one foot deep = 5.87 gallons

A 1 square foot triangle 1 foot deep = 3.25 gallons

One inch or 1/12 ft = .083 feet

### **Volumes Recovered with Trucks or Pumped to Tanks**

Level gauge on truck or

Known volume of the full tank or

Number of full tank trucks used during large SSO events

Use your agency's approved conversion factors, if available.



## References

California Environmental Protection Agency

<http://www.calepa.ca.gov/>

State Water Resources Control Board

<http://www.swrcb.ca.gov/>

Sanitary Sewer Overflow (SSO) Reduction Program

[http://www.swrcb.ca.gov/water\\_issues/programs/sso/index.shtml](http://www.swrcb.ca.gov/water_issues/programs/sso/index.shtml)

## Sample Worksheet

(City or Agency Name)

# SSO Volume Estimation Worksheet

SSO Address/Location: \_\_\_\_\_ Date: \_\_\_\_\_

SSO Volume Method of Estimation (check appropriate box and provide appropriate information for method used below)

Pictorial Reference Flow Rate Chart (San Diego Chart  CWEA Ruler   
Vent or Pick Holes  Eyeball estimate

Measured volume  Counting Connections  Manhole Ring  Partially Covered  
Manhole  Open Manhole

Bucket Method  Pipe Size Method  Gutter Flow Method  Metered Flow   
Rain Event Method

Saturated Soils Method  Combo/Vacuum Truck Recovery Method

Spill Start Date: \_\_\_\_\_ Spill Start Time: \_\_\_\_\_

Spill End Date: \_\_\_\_\_ Spill End Time: \_\_\_\_\_ Total Est. Spill Volume (gal): \_\_\_\_\_

Provide a detailed description of the method(s) used to determine the SSO estimate. (Use additional sheets as needed)

Signed: \_\_\_\_\_

Date: \_\_\_\_\_



## CAPITAL IMPROVEMENT PROGRAM

The East Orange County Water District adopts a Capital Improvement Program for each fiscal year as part of the District's overall budgeting process. The Capital Improvement Program budgets funds over a five-year horizon, with annual refinement provided.

The Capital Budget and Capital Improvement Program costs are based on a current cost estimate and may increase or decrease upon completion of the programs. Projects are prioritized through the District's Water and Sewer Master Plan and Condition Assessments. The Water Master Plan and Condition Assessment was completed in 2015 inclusive of a 25-year prioritized list of rehabilitation and replacement projects. The Sewer Master Plan and Condition Assessment was approved by the Board on July 19, 2018.

A copy of the District's current Capital Improvement Program budgets, as well as the Operating Budgets, are posted on the District's website.





(714) 538-5815  
available 24 hours a day



- Home
- View/Pay My Bill
- Customer Care
- Conservation
- Transparency
- Contact Us

DID YOU  
KNOW?

### Sewer Lateral

What if my toilet and drains back up?  
Find out if you have a problem with your Sewer Lateral.  
Contact a licensed plumber with experience dealing with Sewer Laterals.

[Learn More >>](#)

*Property owners are responsible for the maintenance, repair or replacement of sewer lines connecting their homes to the public sewer line under the street.*



### Hometown Service. Fiscal Discipline. Direct Accountability

East Orange County Water District (EOCWD) was founded in 1961 under the principles of local community service and stringent fiscal discipline, which it maintains to this day. With all five water district Directors living locally in East Orange and North Tustin, this small local water district understands the needs of our local community. EOCWD prides itself on providing high-quality, reliable water to you and your neighbors at a fair price. Our field staff, like our directors, live in the community in which they work. We're your neighbors and you can rely on us to be responsive to you your needs and responsible with your hard-earned ratepayer dollars. We strive to make our operations transparent and have dedicated a section of this website to making it easier for our customers to understand our budget and financial reports and track the actions of the Board of Directors. If you have any questions or need any assistance with your water use

LPostcard sent to 80,000 resident



Dear Neighbor,

The Orange County Sanitation District (OCSD) has owned and operated a handful of community sewer systems in north and central Orange County since inheriting them from the County of Orange in 1985. Over the past 10 years, however, OCSD has been gradually divesting itself of local system ownership so it can focus exclusively on its core mission of providing wastewater collection, treatment, and recycling at the regional level.

About three years ago, OCSD proposed a transfer of ownership and operation of your local sewer system (Sewer Area 7) to East Orange County Water District (EOCWD), which has provided local water service in the cities of Tustin and Orange as well as the unincorporated communities of North Tustin, East Orange, and Santa Ana for more than a half century. We are pleased to announce that our districts recently received the necessary governmental approvals from the Orange County Local Agency Formation Commission to finalize this transfer and that EOCWD will officially take over as your new local sewer service provider on August 1, 2016. OCSD will remain your regional sewer provider.

**This transfer is good for OCSD and EOCWD but as a Sewer Area 7 customer, here is what you receive:**

- **50% Rate Reduction on your local fees (starting with your upcoming 2016/2017 property tax bill) from \$216/year to \$108/year for a single family home.**
- **High-quality sewer service with continued annual inspections, cleanings, and maintenance of community sewer lines**
- **Local accountability and representation by a Board of Directors that you elect**
- **System ownership/operation by your community's local water district**

Please note that because of the timing of this change, you will continue to see "Orange County Sanitation District-Sewer Area 7" on your property tax bill for 2016/17. The bill will reflect your local fees with EOCWD's name beginning in July, 2017. Regardless of the name, the 50% rate reduction on your local fees will be put into effect immediately.

EOCWD understands and appreciates the responsibility that comes with the acquisition of the sewers in your community and its team of professional and experienced staff is ready and eager to get started on August 1st. We will be reaching out to you with some other informative material about how to take care of the sewer that leads from your home to the street, and to connect with us on our website and social media. If you have any questions about the transfer or you wish to find out more about EOCWD, please call **714.538.5815** or visit **[www.eocwd.com](http://www.eocwd.com)**.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Orlund", written in a cursive style.

Lisa Orlund  
General Manager  
East Orange County Water District



Other side of postcard



Got a sewer spill  
on your street  
or walkway?

Call 714.538.5815



185 North McPherson Road  
Orange, Ca 92869-3720

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# School News

*Education + Communication = A Better Nation*

**Covering the Tustin Unified School District**



Volume 12, Issue 60

[www.SchoolNewsRollCall.com](http://www.SchoolNewsRollCall.com)

November 2016–January 2017

## Dual Language Program Looks to the Future



Student Ravenna Rodriguez explains to teacher Adriana Zamora how many dots there are during a math talk.



Students Macey Albarian and Christopher Calvo practice counting skills through counting collections.



Veoh teacher Bertha Picasso helps her students identify Spanish words and say them frequently through rhymes and songs. (story on page 7)

[www.SchoolNewsRollCall.com](http://www.SchoolNewsRollCall.com)

## Board of Education



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President



**Jonathan Abelow**  
Vice President



**Tammie Bullard**  
Clerk



**James Laird**  
Member



**Francine Scinto**  
Member



**Kay Coop**  
Founder/Publisher



*Netragrednik*

This school year is going way too fast. Reading Dr. Franklin's message and the articles in this issue it is easy to see the students haven't let a moment go to waste.

Our next issue is February 15. Until then have a Happy Thanksgiving, fun Winter Break, Happy Holidays and Happy New Year!

A Educational message about roots and overflows

# School News

Education + Communication = A Better Nation

[www.schoolnewsrollcall.com](http://www.schoolnewsrollcall.com)

Covering the  
TUSTIN UNIFIED SCHOOL DISTRICT

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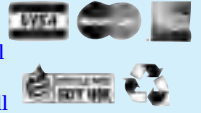
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# DID YOU KNOW?

Property owners are responsible for the maintenance, repair or replacement of sewer lines connecting their homes to the public sewer line under the street.

Sewer lines connecting homes to public sewer lines are called "Sewer Laterals." These privately owned Sewer Laterals are especially vulnerable as Southern California faces historic drought conditions and tree roots seeking water extend, potentially damaging and clogging Sewer Laterals.

### What should I do if my drains or toilets back up?

First, find out if you have a problem with your Sewer Lateral. Contact a licensed plumber with experience dealing with Sewer Laterals. You should also contact your sewer provider, East Orange County Water District at 714-538-5815 or [admin@eocwd.com](mailto:admin@eocwd.com) when any work will be done on your Sewer Lateral.

Learn more at [www.eocwd.com](http://www.eocwd.com)





Same ad published in Foothill Sentry - 50,000 circulation

# DID YOU KNOW?

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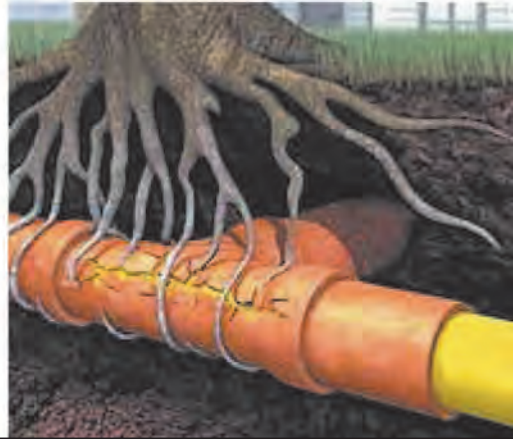
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Learn more at [www.eocwd.com](http://www.eocwd.com)





# SSMP Audit Procedures

## Purpose and Scope

- Determine that permit requirements and standard operating procedures are adhered to.
- Provide regulatory information and best management practices (BMPs) to appropriate staff, when requested, during the audit process and audit findings follow-up period.
- Help obtain a favorable viewpoint from regulatory agencies and the public
- Reduce liability for non-compliance issues.
- Provide management the status of the division's compliance and conformance with environmental programs.
- Environmental audits shall encompass federal state and local regulations and EOCWD BMPs relating to the SSMP.

## Objectives

- A. Determine whether the organization is in compliance with environmental regulations including permits, reporting requirements and agency policies and procedures.
- B. Evaluate the effectiveness of management system that are in place to manage the District's risk and ensure compliance
- C. Identify opportunities where waste can be minimized and pollution eliminated at the source.
- D. Review the means of protecting physical assets through loss prevention measures such as management of change and preventative and predictive maintenance.

## Definitions

- A. Audit: A formal, discrete (snapshot) examination of the agency's compliance and conformance status in a defined program area. It includes interviews with staff, investigation and inspection of equipment, records, environmental control systems, testing and analysis procedures, and any other aspect that affects compliance and conformance.
- B. Audit Finding: Audit Findings require correction or resolution and shall be documented using the Audit Findings Spreadsheet. Final verification of the response to the audit finding shall be the responsibility of the General Manager. Audit findings shall be presented to appropriate the Board of Directors.
- C. Audit Findings Spreadsheet: A spreadsheet used to document findings or concerns discovered during any audit and record resolutions of those findings. This spreadsheet is included in Volume II of the SSMP and can be found in the printed version or on the S: Drive, SSMP, Volume II, Appendix Q2.
- D. Audit Manager: The District staff person appointed to oversee the conduct of the audit.
- E. BMP: Best Management Practice. Action or prohibition based on strength of experience, professional recommendation or other non-compliance related source designed to improve specific program area.

# SSMP Audit Procedures

- F. Policy: An operating procedure or management directive established by the District. Policies may be written or unwritten.
- G. Professional Conduct: Environmental audits shall be conducted following the Professional Conduct Code of Ethics set forth by the Environmental Auditing Roundtable (EAR).
- H. Third Party Auditor: An outside contractor who is a certified environmental auditor experienced in conducting environmental audits. The third party auditor is in charge of conducting audits.
- I. SSMP Audit: The independent appraisal of the District's environmental compliance and conformance functions. The objective of an internal audit is to assist District staff in performing their responsibilities more effectively. It is conducted by a third-party certified auditor.

## EOCWD Roles and Responsibilities

- A. Executive Management: Executive management shall support the audit and the timely approval of funds and staff resources necessary to resolve compliance and conformance findings.
- B. Audit Manager: The Audit Manager shall be responsible for maintaining the overall schedule of audits and contacting the Third-Party Auditor to assure audits are completed on schedule. The Audit Manager shall be responsible for posting results on the Audit Findings Spreadsheet. Also responsible for preparing the Scope of Work (SOW) for the audit by coordinating comments from appropriate staff, develops the requests for proposals (RFP) and creates the list of Contractors RFP should be sent to by determining if the proposed third party auditor possesses the necessary knowledge, skills, ability, and certification to perform the assignment. Schedules kick off meeting. Schedules audit interviews or request Division Administrative Assistant to schedule interviews. Assures meeting invites are accepted. Sends e-mail to staff to be interviewed with an explanation of pending audit. Manages third-party auditors contracted to perform environmental audits. Gathers auditor's requested documents from appropriate personnel and sends to third-party auditor for his/her review. Attends field visits and interviews with the auditor. Reviews draft reports and findings and send to appropriate personnel for review. Sends draft with comments back to third-party auditor to incorporate. Sends the final report and findings spreadsheet to Executive Management. Schedules closing meeting. In charge of updating the findings spreadsheet and making sure findings are completed.
- C. Third Party Auditor: While conducting an audit, the auditor will provide analyses, appraisals, recommendations, and information concerning the activities reviewed.
- D. Audited Divisions: Audited divisions are expected to review, edit and comment on the Scope of Work or Request for Proposals (RFPs ). Answer questions posed by the auditor and to comply with information requests to provide records, documentation and equipment for review. The audited divisions will verify the accuracy of any audit findings received and implement resolutions to the problems identified and notify the Audit Manager once the findings have been resolved.

# SSMP Audit Procedures

## Procedures for Third-Party Audit

| <b>Task No.</b> | <b>Task</b>  | <b>Responsible Party</b>              |
|-----------------|--|---------------------------------------|
| 1               | Reviews the Audit Schedule and determines when audits should be completed. Confirms decision with Executive Management   | Audit Manager                         |
| 2               | Notified Division of pending audit   | Audit Manager                         |
| 3               | Develops Scope of Work and RFP   | Audit Manager                         |
| 4               | Provides Scope of Work and RFP along with pre-qualified list of recipients to Executive Management for approval  | Audit Manager                         |
| 5               | Upon approval, solicits Proposals  | Audit Manager                         |
| 6               | Reviews Proposal with Executive Management and prepares Rating Sheet for evaluation  | Audit Manager                         |
| 7               | Prepares Board Memo for recommended Thir-Party Auditor   | Audit Manager                         |
| 8               | Oversees contract execution and prepares NTP for Executive Management  | Audit Manager                         |
| 9               | Conducts Audit   | Third Party Auditor                   |
| 10              | Manages Third-Party Auditor and provides regular briefings on audit status to Executive Management; assures audit is within budget and if not, notifies Executive Management asap                                | Audit Manager                         |
| 11              | Reviews draft Audit Report and Audit Findings Spreadsheet with Executive Management.   | Audit Manager                         |
| 12              | In coordination with division staff, analyzes root cause of Findings, makes recommendations, including task assignments, and prepares schedule for completion; presents all to Executive Management for approval | Audit Manager and Division Staff      |
| 13              | In coordination with Third-Party Auditor, prepares Board memo for audit presentation to Board  | Audit Manager and Third-Party Auditor |
| 14              | Assures that findings are resolved, tasks are completed and closed on Audit Findings Spreadsheet and reported to Executive Management  | Audit Manager and Division Staff      |

# SSMP Audit Procedures

## Third-Party Contractor Requirements

- A. The audit will include the following elements provided by the Third-Party Auditor:
1. Kick off meeting with Appropriate Personnel
  2. Safety orientation
  3. Orientation tour (if required)
  4. Safety debriefing
  5. Records/documentation review
  6. Developing questionnaires
  7. Staff interviews
  8. Physical inspection of facilities and site
  9. End of day summary reviews with Audit Manager
  10. Final closing meeting to present findings, schedule to resolve findings/recommendations
  11. Draft Audit Report and draft findings spreadsheet.
  12. Final Audit Report and final finding spreadsheet that includes comments from District staff.













