



**City of Redding
Sewer System Management Plan**



Table of Contents

Section I	Goals
Section II.....	Organization
Section III.....	Legal Authority
Section IV	Operation and Maintenance
Section V	Design and Performance
Section VI	Overflow Emergency Response Plan
Section VII	FOG Control Program
Section VII	System Evaluation and Capacity Assurance Plan
Section IX	Monitoring, Measurement and Program Modifications
Section X	SSMP Audits
Section XI	Communication Program
Appendix A.....	Organizational Chart
Appendix B.....	Employee Contact Information- During Work Hours
Appendix C.....	Employee Contact Information- After Hours
Appendix D.....	24 Hour Contacts for Equipment and Materials
Appendix E.....	Design Standards
Appendix F.....	SSO Reporting Flow Chart
Appendix G.....	Public Health Warning Sign
Appendix H.....	Performance Indicators
Appendix I	Agency Notification Instructions
Appendix J.....	Revision Record

City of Redding Sewer System Management Plan

Introduction

The preparation of this Sewer System Management Plan (SSMP) was mandated by State Water Resources Control Board Order Number 2006-0003-DWQ, and is intended to ensure proper funding and management of the City of Redding's sanitary sewer system. This SSMP includes provisions to provide proper and efficient management, operation, and maintenance of the sanitary sewer system, and implicitly takes into consideration risk management and cost benefit analysis. Also, this SSMP contains a spill response plan that establishes minimum procedures for immediate response to any sanitary sewer overflows (SSOs) in a manner designed to minimize water quality impacts and nuisance conditions.

Section I-Goals

This SSMP is intended to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help to achieve the following goals:

- Protect public health and the waterways of our community by the effective collection and treatment of wastewater.
- Comply with all applicable City, County, State and Federal regulations.
- Minimize the occurrence of SSOs with proactive operation and maintenance practices.
- Preserve and improve the wastewater collection system with effective maintenance, rehabilitation and replacement projects. Utilize thorough plan check and inspection procedures to insure that these projects adhere to all design and construction standards.
- Minimize the impact to public and private property as well as our waterways by rapid and effective response to customer service calls, interruptions of service, equipment alarms and SSOs.
- Ensure that the system has adequate capacity in all flow conditions to convey wastewater to the City's wastewater treatment plants without SSOs or disruption of service to our customers.
- Provide for sufficient staffing and funding to support our goals.
- Provide all employees with the necessary training, materials and equipment to allow them to perform their duties safely and effectively.
- Provide pertinent information to the general public, local leaders and the media regarding the wastewater collection system, including issues of system operation, maintenance, costs, improvement projects and utility programs.
- Promote a positive, ethical, and customer service oriented attitude among all employees.

Section II-Organization

1. City Council

- Establishes policies under which the City operates and appoints a City Manager to administer the affairs of the city.

2. City Manager

- Hiring of city staff, preparation of the bi-annual budget, administration and coordination of the City's operations, general supervision over all property under the control of the City and enforcement of city ordinance and applicable laws.

3. Redding Municipal Utilities Director

- Ensure that the needs of the Wastewater Department are adequately staffed and funded to service all the needs of the system and the public it serves.
- Assist in the procurement of funding for operations, maintenance and capital improvement projects (CIP).
- Oversee the development, maintenance, and implementation of design, construction, and inspection of new, repaired, and rehabilitated infrastructures.

4. Wastewater Utility Manager

- Ensure the goals of the wastewater utility are met and continue to be relevant with respect of the safety and concerns of the customers.
- Schedule identified CIP projects and secure the funding needed to properly maintain the collection system, minimizing SSOs and protecting the public.
- Supervise the development, maintenance, and implementation of design, construction, and inspection standards for new, repaired, and rehabilitated infrastructures.
- Oversee the creation and maintenance of collection system hydraulic models, and assess the ability of the system to meet capacity demands.
- Assist in the biennial SSMP audit reports assessing overall department performance and make changes to goals and maintenance needs.
- Serves as the Responsible Representative per Section J of State Water Resources Control Board Order Number 2006-0003-DWQ.

5. Wastewater Collections Supervisor

- Individual responsible for proper implementation of all SSO reporting as outlined in this SSMP.
- Prioritize and schedule routine preventive maintenance activities based on condition assessment data and historical field observations.
- Develop a list of CIP projects and have involvement in the procurement of project funding.
- Monitor and assess the effectiveness of the preventive maintenance program.

- Maintain and implement an overflow emergency response plan (OERP) and educate all involved personnel on communication, reporting, and mitigation procedures regarding SSOs.
- Oversee maintenance and updating of the collections system mapping and record drawings for both internal and external engineering purposes.
- Recommend changes as needed to the Wastewater Utilities Manager regarding the effectiveness of current activities in meeting the short and long term goals.

6. Wastewater Collections Working Supervisor

- Maintain accurate records of maintenance, inspection work performed, and present relevant field data to the Collections Supervisor for review.
- Oversee the preventive maintenance and assist in scheduling of priority areas needing attention.
- Oversee all closed circuit televised (CCTV) inspection work and ensure current assessment condition methods are met.
- Organize appropriate training for maintenance workers to ensure all necessary tasks are completed.
- Understand and implement procedures related to the OERP for responding to, mitigating, and reporting SSOs.
- Maintain the system hot spot list and areas affected by fats oils and grease (FOG) related discharges.
- Maintain records and maps of related SSOs and track any trends associated with them.
- Participate in and oversee infiltration and inflow monitoring, data collection and forward information onto appropriate personnel for analysis.

7. Lead workers and Maintenance workers

- Perform regularly scheduled maintenance activities within the wastewater collections system.
- Directly respond to customer inquiries and reports of SSOs, and relay any information promptly and accurately through the SSO chain of communication as necessary.
- Understand and implement procedures of the OERP for responding to, mitigating, and reporting SSO data.
- Identify and correct any FOG related issues within the collection system.
- Understand condition assessment reporting utilizing a quantitative rating system (such as NASSCO) when needed

8. Code Enforcement

- Ensure that the Wastewater Utility Department has the necessary authority to adequately maintain and control its collection system

9. Industrial Waste Division

- Maintain and implement FOG control standards and procedures, and verify FOG discharge compliance throughout the collection system through scheduled inspections.
- Ensure proper disposal of FOG wastes generated within the sanitary sewer system service areas.
- Investigate and enforcement of illicit FOG discharges.

- Require FOG pretreatment equipment during the Building Plan Check process.
- Inspect FOG pretreatment equipment during construction.
- Maintain FOG information on Linko database.
- Receive updated inspection lists and route maps from GIS.
- Oversee and conduct FOG and Wipes education programs to reduce discharge of grease and wipes to the system by the general public.

10. GIS

- Work with Underground Utility Locate Staff and Collections Staff to update sewer maps.

11. RMU Administration Manager

- Oversee and direct the work of Storm Drain Utilities Division.
- Schedule and oversee the daily work schedule of administration staff.

12. Administration staff

- Relay possible stoppage reports to Collections Staff.

13. Storm Drain Utilities

- Assist with locating and identifying all storm drain inlets and piping.
- Assist with containment and mitigation of SSOs.

14. Wastewater Compliance Coordinator

- Maintain regulatory compliance by ensuring that all necessary notification and documentation is completed.
- Assist with the SSMP audits assessing overall department performance and make changes to goals and maintenance needs.

Related Documents

Appendix A- Organizational Chart

Appendix B- Employee Contact Information During Work Hours

Appendix C- Employee Contact Information After Work Hours

III-Legal Authority

The City of Redding derives the legal authority to construct, maintain and operate its sanitary sewer system from the City of Redding Municipal Code, specifically Chapter 14.16. A discussion of the sections most pertinent to legal authority follows, and the entire Municipal Code can be found on the City of Redding Website at www.ci.redding.ca.us.

Section 14.16.100 of the Municipal Code details the City's authority to regulate or prohibit the discharge of waste to the City's sanitary sewer system. This section also allows for the establishment of limits, conditions, prohibitions, and best management practices that are enforceable and specifies the conditions such regulations will contain. Section 14.16.140 reserves for the City the right to establish more stringent standards or requirements on waste dischargers if deemed necessary.

Section 14.16.105 details the City's authority to deny or condition new or increased contributions of pollutants by industrial users. This includes the authority to sample industrial effluent, inspect industrial sites, and develop procedures to prevent accidental spills. Special requirements for industrial user permits are located in sections 14.16.400 through 14.16.490.

Section 14.16.140 of the Municipal Code states that the City "reserves the right to establish, by ordinance or in wastewater discharge permits, more stringent standards of requirements on discharges to the POTW if deemed necessary to comply with the objectives presented in Section 14.16.100 of this chapter or the prohibitions in Section 14.16.582 of this chapter".

Sections 14.16.300 through 14.16.380 lay out the regulations and standards pertaining to sewer construction and specify the provisions of permits for sewer connections.

Sections 14.16.500 through 14.16.590 specify the regulations pertaining to the general pretreatment of wastes, including restaurant FOG waste, to be discharged into the City's sanitary sewer system.

Sections 14.16.600 through 14.16.830 detail the authority of the City to enforce the conditions and regulations of Chapter 14.16, and the ability of the City to impose fines and penalties. Potential enforcement actions include Administrative Enforcement Actions, Judicial Enforcement Actions, and Supplemental Enforcement Actions.

Section 17.24.060 discusses the requirements for submittal of subdivision maps, and contains language that clearly states the need for developers to indicate the easements that will be provided for new public infrastructure, as well as access thereto.

Section 18.22 discusses the requirements for the provision of adequate public facilities, and lays out the method by which City staff verify that such facilities are provided, adequate and accessible.

Section IV-Operation and Maintenance

4.1 Mapping

Collection System Mapping

The City of Redding currently utilizes both an online GIS map database as well as a hard copy atlas of the entire system. Copies of the atlas are kept in each Wastewater Collection and Storm Water division vehicle as well as pertinent work areas and offices. These atlases identify and show the location of all the sewer mains, trunk lines, interceptors, manholes, rodholes, siphons, lift stations, force mains and other structures that comprise the sanitary sewer system. They show the size, type and length of each pipe, property lines and street names. They also identify and show the location of the creeks, streams, river and other major surface waters within the City limits.

These atlases are utilized to help crews with all manner of maintenance, repair and rehabilitation operations. In the event of a sanitary sewer overflow, they are utilized to locate the source of the overflow and to formulate any needed containment and pumping of wastewater back into the system.

When additions are made to the system or discrepancies are discovered within the atlas, the Wastewater Collection Supervisor provides this information to the GIS Division which then makes the needed changes in the database. These changes are also incorporated into the atlas, ensuring that accurate information is always available as needed.

During plan review for potential new development or construction, the GIS map server is used to help determine pipe capacities, topography, easement issues and ultimate buildout concerns.

4.2 Preventive Maintenance Program

A. Hydro-jetting

The Wastewater Collection Division utilizes two separate hydro-jetting machines to scour 6-inch through 18-inch sanitary sewer pipes. Priority is given to known problem areas, referred to as “Hot Spots”, which are scheduled for 3, 6 or 12 month interval cleaning. The “Hot Spot” list is made in conjunction with the FOG program instituted and maintained by the Industrial Waste Division. Hot spots are continually evaluated by closed circuit television inspection to determine the effectiveness of hydro-jetting as well as if the frequency of cleaning schedule needs to be adjusted.

Routine cleaning of the rest of the system is prioritized and performed based on the size and age of the system’s sewer mains and trunk lines within a given drainage basin. Upon completion of the cleaning of the basins, maps and cleaning logs are documented and stored for future reference.

B. Root control

The need for root control operations is determined from information obtained during hydro-jetting and closed circuit television (CCTV) inspections as well as stoppage and SSO incidents. Roots that could create a stoppage and/or a SSO are immediately removed by hydro-jetting equipped with a specialized root cutting nozzle. In instances of major root infiltration the exact location is verified utilizing the CCTV system and the pipe is excavated and repaired. All pipelines that have incurred root infiltration receive chemical root treatment to assist in the removal of roots and inhibit regrowth of the roots. Currently the City of Redding contracts out all chemical treatment processes, and hydro-jetting and CCTV inspections are utilized to monitor the effectiveness the root removal effort.

C. Remote manhole inspections

The City of Redding Wastewater Collection division has approximately 71 miles of sanitary sewer lines and 1850 manholes located out of the street right of ways. Identified as "Remote Areas" these systems are often located adjacent to creeks, streams and other sensitive riparian areas. Because of their locations these systems are susceptible to unauthorized entry and vandalism. To prevent this manholes have been retrofitted with specialized tamper proof hardware and are inspected in 1, 3 or 5 year intervals depending on the location and vulnerability of the system

4.3 Rehabilitation and Replacement Program

The City of Redding currently budgets \$500,000 annually (under Minor Extensions and Over sizing) for replacing sewer mains. The sewer mains are selected for replacement based on data gathered by CCTV inspection and flow monitoring operations. Additionally, the City budgets \$500,000 annually to address Infiltration and Inflow (I & I). These funds are utilized in both flow monitoring and rehabilitation/I & I removal efforts.

4.4 Inspection Program

The City of Redding Utilizes the CCTV system to inspect all new additions to the system prior to acceptance. All sewer lines that suffer stoppages or SSOs are immediately inspected with the CCTV system to determine the cause and the exact location of the stoppage. Other sewer lines are inspected based on data gathered from hydro-cleaning, flow monitoring, and smoke testing operations. This inspection data is collected on Granite XP software and stored in the GBA Master Series Program.

4.5 Staff Training

All Wastewater Collection personnel receive the following training:

- New employees receive Safety Orientation highlighting the Injury and Illness Prevention Program, HAZCOM, and the proper use of person protection equipment (PPE)
- Confined Space Entry procedures including rescue operations
- Excavation, trenching, and shoring operations

- CPR, First Aid and Automatic External Defibrillators
- Traffic control operations including flagging
- Forklift operations

Additionally Wastewater Collection personnel have developed a Sanitary Sewer Overflow Response Plan and Standard Operating Procedures (SOPs) for the following operation and maintenance procedures.

- Hydro-cleaning operations including the clearing of stoppages
- CCTV operations
- Manhole inspection including the remote manhole inspection program
- Use and updating of the sanitary sewer atlas system and the GIS
- Inspection, maintenance, alarm response, and emergency operations of lift stations
- SCADA system and it's use in monitoring lift station operations, flow rates, and equipment alarms
- Underground utility locating

4.6 Equipment and Parts Inventory

The Wastewater Collection Division stores a vast array of parts and materials for scheduled as well as emergency repairs to piping, manholes, lift stations and equipment. These materials are stored in the Wastewater Collection shop area and are readily available to all personnel. A complete list of the potential parts needed is stored in binder #4, located in the Working Supervisor's office. As there is currently no inventory tracking program used, parts and equipment are ordered and replaced on an as-needed basis. Emergency parts and materials as well as equipment (large bypass pumps, standby generators, etc.) can be obtained from local vendors who can be contacted seven days a week. Contact information with the phone numbers of these vendors is placed in the Master Binder located in the Working Supervisors office, and a copy is included as Appendix D.

Section V-Design and Performance

5.1 Design Standards

Additions to the system are required to meet the City of Redding Construction Standards, particularly sections 300.00, 300.20, and 301.00. This is reviewed during the plan check process and specifications are approved prior to construction. These standards are attached as Appendix E.

The City of Redding Construction Standards already contain design criteria for sewer pipe size, slope and minimum velocity. Also included is methodology for developing design flows. Recent investigation of design flow calculation methodologies used throughout California found that the City's design flow methodology is consistent with common engineering practice. City of Redding construction standards are revised on a bi-annual basis at which time refinement of criteria or methodologies may occur as necessary.

City of Redding Master Plans are used as the basis for identifying current or projected deficiencies in the existing pipe system. The Wastewater Utility Master Plan analysis methodology differs from the construction standard methodology due to the difference in extent of the system. Design for a single project does not necessitate analysis of the entire existing collection system because that analysis has already been performed with the Master Plan. Occasionally city staff performs parallel analysis to verify developer's engineers calculation of design flows. In most cases both methodologies resulted in very similar design flows.

City of Redding Master Plans are typically updated on five year intervals. The current wastewater master plan update is in the initial phase which involves attempting to capture rainfall and flow data during a significant storm event.

5.2 Inspection and Testing Standards

City of Redding Construction Standards, particularly sections 300.00, 300.10, 300.50, address the procedures for required cleaning, air testing and mandrelling of sewer lines as well as the vacuum testing of manholes. The City also has standard operating procedures for CCTV inspections, and also guidelines for major and minor lift stations. These standards are attached as Appendix E.

Section VI-Overflow Emergency Response Plan

During the incidence of an overflow, the following procedures will be used to ensure a timely and effective response.

Notification

A person who observes a sanitary sewer overflow (SSO) and seeks to report it to the Wastewater Utility can do so by calling 224-6068; this is the number listed in the local phone book for Municipal Utilities and the Wastewater Division. The resulting process varies by time of day as follows:

- During normal working hours, the report information is taken by Redding Municipal Utilities (RMU) Administrative staff located at the Corporation Yard at 20055 Viking Way. RMU Staff immediately attempt to contact the Wastewater Collection Supervisor at 224-6069, cell phone at 604-5074 or by radio #614. If unable to make contact, RMU staff attempt to contact the Working Supervisor at 224-6070, cell phone at 356-4599 or by radio # 631. If unable to make contact in this manner, RMU staff contact any available Wastewater Collection personnel utilizing an existing list of cell phone and radio call sign numbers.
- After normal working hours, the report information is taken by our telephone answering service personnel. They utilize the call-out information, provided by the Wastewater Collection Supervisor and updated every 2 weeks, which provides the home phone numbers of the Wastewater Collection staff. One member of the Wastewater Collection staff is assigned as the Stand By Person insuring that someone is always available to respond to the report.

In addition to public notification, the City or Redding's sanitary sewer system is protected by a series of alarms at key locations throughout the system. An equipment alarm from one of the City's 15 lift stations could indicate a situation that could result in a SSO and must therefore be responded to as if it were a reported SSO. All of these facilities have appropriate equipment alarm systems that are continuously monitored by our Redding Electrical Utility (REU) staff. During normal working hours, REU staff contact RMU Administrative staff and report the alarm. After normal working hours, REU staff contact the telephone answering service personnel as specified in the procedures for after hours public reporting of overflows.

The Wastewater Collection personnel assigned to the response must be in a position to respond immediately or, at the least, as soon as possible. Radio and/or telephone communications can and should take place between personnel involved with the response to ensure the quickest response with the appropriate personnel, equipment and materials.

Response

After receiving the SSO report information, the contact person, whether it is the Supervisor, Working Supervisor or RMU staff, will ensure that a minimum of a 2-person Wastewater Collection crew is immediately dispatched to the SSO. Whenever possible one of our “hydrocleaning” crews will be the first to be dispatched as they will be in the best position to relieve an SSO and provide any needed flushing/clean up water. The responding personnel will proceed to the reported location as quickly as possible, treating the event as their highest priority, and perform the following:

- Determine if an SSO is actually occurring and, if so, what category of SSO would it qualify as.
- Locate and eliminate the cause of the SSO.
- Contain any wastewater that has overflowed from the system and, if at all possible, return this wastewater back into the system.
- Upon arrival to the site and the confirmation of an SSO, Wastewater Collection personnel will immediately determine the amount and the category of the SSO and proceed as listed below under Reporting and Notification.
- Keep the Supervisor apprised of the situation so the Supervisor can assist in providing additional personnel, equipment and materials as needed for traffic control, confined space entry, flushing, pumping, clean up, posting, sampling, etc..
- Ensure that personnel involved adhere to all pertinent safety rules and regulations and appropriate Standard Operating Procedures (SOP’s) for wastewater collection operations.
- Complete a “stoppage” report and provide accurate data to facilitate the creation of any needed reports to the appropriate regulatory agencies.
- If the SSO affects private property, staff will contact the City of Redding Risk Management Division to evaluate health and safety needs and assess potential property damage.

Reporting

Once the category of the SSO has been determined, the Supervisor or, if the Supervisor is not available, other most senior responding staff, will determine the appropriate reporting and notification procedures. As soon as possible, responding personnel will prepare and communicate a stoppage report to the Wastewater Collection Supervisor and Wastewater Compliance Coordinator. A flow chart detailing these reporting procedures is included as Appendix F. Also, all Wastewater Collection and Storm Drain vehicles contain a copy of the City’s Agency Notification Instructions. These instructions shall be used by City staff to ensure that all pertinent public agencies are contacted in the event of a SSO; a copy of the instructions is included as Appendix I.

A Private Lateral Sewage Discharge (PLSD) is a discharge from a private lateral or other private facility which is not caused by a blockage in the public sanitary sewer. All PLSDs must be reported to the Wastewater Collection Supervisor. The Supervisor may file a voluntary electronic report with the CIWQS reporting system. All efforts must be made by the Wastewater Collection crew in the field, the Supervisor and RMU staff to notify the responsible party as soon as possible and ensure

public health and safety are maintained.

A category 2 SSO is a sewage discharge from the public sanitary sewer system that does not meet the definition of a category 1 SSO, and all category 2 SSOs must be reported to the Supervisor along with a stoppage report as soon as possible. The Supervisor must file an electronic report with the CIWQS reporting system within 30 days.

A category 1 SSO is a sewage discharge from the public sanitary sewer system that: results in a discharge of 1,000 gallons of wastewater or more, results in a discharge to a drainage channel or surface water, or results in a discharge to a storm drainpipe that is not fully captured and returned to the sanitary sewer system. In the event of a category 1 SSO, the Wastewater Collection Supervisor is to be contacted immediately and the proper reporting procedures are to be carried out as specified below. Additionally, the Wastewater Collection Supervisor shall contact the Wastewater Utility Manager by phone at 224-6063 or by cell at 227-4264 and the Wastewater Compliance Coordinator at 224-4122 or by cell at 524-2420. The severity and location of the SSO may necessitate contacting the Director of RMU by phone at 224-6029 or by cell at 605-5151 and the City Manager at 225-4060.

In the case of a category 1 SSO, the California Emergency Management Agency (CEMA), Central Valley Regional Water Quality Control Board (RWQCB) and the Shasta County Division of Environmental Health must be notified as soon as possible but **no later than two (2) hours** after being made aware of the discharge. Also, as soon as possible but **no later than 24 hours** after being made aware of a discharge, a certification must be submitted to the RWQCB certifying that CEMA and the Shasta County Division of Environmental Health have been notified. Finally, **within three (3) calendar days** of the incident, the Supervisor shall submit a draft report of the incident to the CIWQS reporting system. **Within 15 calendar days** of the incident, this initial draft report must be updated as necessary and certified using the CIWQS reporting system.

SSOs reaching waterways that can be accessed by the general public shall have warning signs posted along the waterway accordingly, at common public entry points. In addition, a "Public Service Announcement" may need to be prepared and sent to the proper media outlets in the event of significant SSOs. Such public relations decisions shall be made only after providing all pertinent data to and consulting with the Wastewater Utility Manager.

In addition to the aforementioned notification requirements, the following notification procedures shall also be used:

- If the SSO comes into contact with the Storm Drain system, the Supervisor of that Division will be contacted at 224-2435 or cell 941-2295. Storm Drain personnel can assist in the tracking, capturing and pumping back into the system of the SSO.
- If the SSO appears to have caused damage to private property then the City's Risk Management Office will need to be notified at 225-3787.
- If the SSO comes into contact with surface waters then the Department of Fish and Game shall be notified at 225-4300.

- If it appears that the SSO would come into contact with the Sacramento River, the Supervisor and/or staff at the Foothill Water Treatment Plant shall be notified using 225-4475 or 225-7281. In addition the Supervisor and/or Staff at the Bella Vista Water District may need to be notified using 241-1085.

Mitigation

Once the SSO has been eliminated and the notification and reporting procedures have been properly addressed the following measures must be taken to prevent a recurrence:

- Collection crews will utilize the hydrocleaner to completely clean the sewer main where the SSO occurred. In the event of an SSO caused by grease or gravel, the sewer main upstream and downstream of the SSO should also be cleaned.

-Any wastewater that has overflowed and has been captured or contained will be put back into the system by Collection crews utilizing portable pumps or vacuum system. Caution must be taken not to put materials into the system that would restrict the flow or create an SSO.

-Collection crews may use water to further wash down an area. This water will also be returned to the system. In addition, rakes and other hand tools may be used to assist in returning sewage debris to the system. In some cases this debris may have to be collected in plastic bags or other containers and removed from the site. These materials will be taken to the Wastewater Treatment Plant for proper disposal. All tools, pumps and vacuum systems will be cleaned, flushed and disinfected after use.

-City of Redding Risk Management will take the lead in the event of a SSO that damages private property. Wastewater Collection personnel will provide any pertinent data to Risk Management as needed.

-Priority shall be placed on performing a (CCTV) evaluation of the system to inspect the sewer main to verify the cause and determine the exact location of the SSO. This process will also assist in determining any needed cleaning, rehabilitation or repair work that might be needed.

- The Wastewater Collection Supervisor, working in conjunction with the Wastewater Utility Manager, the RWQCB and the Shasta County Environmental Health Division, may determine that land areas and/or surface waters need to have samples taken and tested for total and fecal coliform. In addition, these same areas may need to have additional public health warning signs posted. An example of these public health warning signs is included as Appendix G.

Section VII-Fats, Oils & Grease (FOG) Control Program

7.1 Legal authority for FOG Program

Redding Municipal Code sections which relate to FOG removal at food service facilities are as follows: RMC 14.16.504 B requires installation of grease, oil and sand interceptors. Oil and Grease Interceptors (OGI's) or Sand and Oil Interceptors (SOI's) are required at facilities that generate excessive amounts of grease, oil or sand. Sections 14.16.530, 532, 534, 536, 540, and 940 regulate design, installation and maintenance of interceptors.

7.2 FOG Program specifics

The FOG Program consists of preparing an Industrial Waste Survey (IWS-2) during the Building Plan Check process to determine whether new construction or tenant improvements require FOG pretreatment. Facilities that require pretreatment must submit plans including the size and location of the pretreatment device. Facilities are then inspected by the Industrial Waste Division during construction. Upon final inspection, the facility is entered into the Linko FOG management program. GIS maps and inspection routes are updated monthly, and inspections of all facilities are conducted annually. Monthly reports from grease pumping companies detail the addresses and volumes of waste pumped. This information is entered into Linko to track interceptor maintenance.

VIII-System Evaluation and Capacity Assurance Plan

The 2003 Wastewater Utility Master Plan (WUMP) included seven tasks to generate a plan for providing sanitary sewer system capacity through the year 2010 and projecting improvements necessary through ultimate community buildout. The tasks were: review of existing data, development of computer modeling tools, analysis of hydraulic capacity using the computer modeling tools, development of land use scenarios for four planning time frames, existing system evaluation, capital improvement planning, and financing alternatives.

Research on the available computer models determined that the appropriate tool to use at the time of development of the master plan was a model called Hydra. Hydra is a computer model based on the computational engine provided by the U.S. Environmental Protection Agency computer model EPA-Net. The purpose of the model was to incorporate simulated dry weather flow, groundwater infiltration, and direct storm water inflow and infiltration into a hydraulic analysis of the collection system pipe network. Results of the analysis would then be used to determine necessary pipe sizes and lift station capacities to convey the required flows.

The WUMP included independent analysis for each of the City of Redding's two collection systems and treatment plants (Clear Creek and Stillwater). The Clear Creek collection system includes approximately 125 miles of collection system pipe ranging in size from 6 to 72 inches in diameter serving 25 square miles. Stillwater collection system model includes 95 miles of collection system pipes serving 18 square miles. Improvements necessary to resolve existing hydraulic deficiencies and prepare for projected population growth for both collection systems were then prioritized and folded into the Capital Improvement and Financing plan components of the studies.

Planning time frames for the 2003 WUMP were the years 2000, 2005, 2010 and ultimate build out (UBO). Land use was analyzed in detail and dry weather flow models developed and calibrated based on flow records at lift stations and treatment plants. Wet weather models were developed based on a 10-year 24-hour storm and calibrated using available meteorological data and flow recordings at lift stations and monitoring stations in the collection system.

Improvements identified for the existing collection system included 32 miles of pipes and upgrades to five lift stations. The 2010 planning period included improvements to the collection system based on projected population growth as determined in the Traffic Zone models. Improvements needed between 2000 and 2010 were 12 miles of pipe, upgrades to two lift stations and construction of three new lift stations. The final planning period (UBO or Ultimate Buildout) was developed based on General Plan land use designations and projected need for improvement to an additional 42 miles of pipe, improvements to 11 lift stations and construction of two new lift stations. The Master Plan also projected needed improvements to both wastewater treatment plants however, both projects have provided detailed studies for improvements and schedules that have superseded the 2003 effort.

Following the development of the WUMP the Hydra model was transferred to City Staff to use for planning and the basis for more detailed analysis. The WUMP is a planning level document intended for scheduling and long range fiscal planning of capital improvement construction. The level of detail and accuracy contained in the original analysis is not appropriate for detailed design.

The Hydra model is currently used for two purposes, as the framework or basis for refined analysis in the process of designing new infrastructure, and to verify whether a project that is proceeding in advance of the WUMP time frames will exceed capacity of existing downstream pipes.

Section IX- Monitoring, Measurement, and Program Modifications

The purpose of this section is to describe the process by which the City of Redding will monitor the effectiveness of the SSMP elements and provide for ongoing modifications in order to keep current, accurate and available data for any future audits. It is the City of Redding's intention that the SSMP remain a regularly updated, living document.

The City of Redding utilizes both computer based programs as well as hard copy data storage systems. The current computer based system, GBA Masterseries, is located on the computers located in the Wastewater Collection Supervisor and Working Supervisors' offices. The Wastewater Utilities Division is in the process of implementing a computerized maintenance management system program that is used by other City of Redding utilities in order to standardize data.

The purpose of the collection, utilization and evaluation of data is to assist in maintaining the collection system in order to prevent and reduce the number of SSOs, assist in prioritization of the CIP, and to ensure compliance with the Wastewater Discharge Requirements. A number of performance indicators are and will be tracked to evaluate the long-term effectiveness of the SSMP elements described in this plan. An example would include the correlation of the number of blockages compared to the total distances of sewer lines cleaned as part of the City's preventive maintenance program outlined in Section 6 of this SSMP.

Updates to this plan will continue to be ongoing as programs, organizational changes, updated regulatory requirements, and other changes occur. Attached as Appendix H is a matrix of potential performance indicators that will assist in evaluating progress under this SSMP.

Section X-SSMP Audits

Applicable Waste Discharge Requirements require the City to develop appropriate audit procedures to evaluate the effectiveness of this SSMP. These audits will ensure that all programs associated with the SSMP are being implemented and managed appropriately, and will identify deficiencies and include steps to correct any such deficiencies.

Audits shall be performed every two years, and shall include a written report that will be kept on file as part of this SSMP. The audits may include whatever areas of review are deemed necessary, but should at a minimum include a review of such areas as:

- * Document Control- A review of document handling, review, and maintenance procedures.
- * Training- A review of training programs necessary to ensure that the specifics of this SSMP are being implemented and the procedures for maintaining and reviewing records related to this training.
- * Targets and Objectives- A review of the progress made toward the goals and objectives specified in this SSMP, including a discussion of additional goals and objectives that have been identified.
- * Data Management- A review of the management of appropriate information needed to determine the progress towards goals and objectives, including the consideration of ways to better utilize data to implement benchmarks and other management tools.

This SSMP shall also be updated every five years, starting with the initial due date of June 16, 2014, and these updates must include any significant program changes. Recertification by the City Council is required if significant updates have been made. The recertification process shall also include entering the necessary data into the CIWQS reporting system and mailing the associated form to the State Water Board at:

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

SSMP Audit
6/13/2011

Auditing Staff:

Josh Keener, Wastewater Compliance Coordinator
Josh Vandiver, Wastewater Utility Supervisor - Collections
Bob Gullixson, Collections Lead Worker

Audit Findings:

- Document Control- A review of document handling, review, and maintenance procedures during the period audited found that document control has in general been adequate and sufficient to allow upkeep of the SSMP document, tracking of performance measures and maintenance of spill-related documentation. A few minor discrepancies in spill documentation were found and corrected, but these did not affect the notification and reporting required by SWRCB Order No. 2006-0003-DWQ or Order No. WQ 2008-0002-EXEC. An example of this are two instances where a stoppage report form was used to record information of a SSO instead of the Sewer Spill Report form. Also, auditing staff found various SSMP forms and documentation that needed to be updated; these changes have been made and are recorded in Appendix J of the SSMP.
- Training- The Collections Division has seen some turnover during the period audited, and the training of new staff, along the refresher training of existing staff, was found to be adequate and conducive of trained staff who are familiar with job tasks such as system maintenance and spill response procedures.
- Targets and Objectives- A review of performance towards the performance indicators found in Appendix H of the SSMP found that in general the Collections Division has made great strides towards improvement of those indicators. For example, the annual number of SSOs, as well as the overall volume discharged, was reduced during the period audited. The number of SSOs per 100 miles of collection system continues to compare favorably to both the Region 5 and statewide averages. The auditing staff determined that future audits would be bolstered by an inclusion of documentation on performance indicator progress. An example would be charts, tables, or graphs indicating the annual number of SSOs, annual spill volumes, etc.

General Conclusions:

Overall, the SSMP and related programs were found to be effective, well managed, and adequate as the foundation of a well operated and maintained collection system program. All programs are being implemented and managed appropriately, and the needed minor changes noted above did not result in any system deficiencies. Another SSMP audit will be performed prior to June 22, 2013, and that audit will take into consideration the recommendations made by auditing staff in the areas of performance indicator documentation.

Section XI-Communications Program

11.1 Communications With the Public

The City of Redding's wastewater-related public education program consists of radio ads on Results Radio and TV ads on Channel 7 concerning the disposal of grease, wipes and household hazardous waste to the sanitary sewer system. Wipes Clog Pipes print ads and door hangers are used periodically to raise awareness about properly disposing of cleaning wipes in the trash, and mailers are often enclosed with billing notices to educate citizens about various Wastewater issues.

11.2 Communications With Satellite Agencies

The City of Redding does not have any existing agreements with other agencies that could be considered Satellite Agencies. The City of Redding does, however, receive and treat waste from private third parties, such as the Redding Rancheria, and has agreements with these entities. These are binding legal agreements, which specify the volume and quality of the wastewater received, as well as the location of receipt and the associated ongoing costs.

Appendix A

Organizational Chart

**PUBLIC WORKS
WASTEWATER UTILITY
DIVISIONS 870, 871, 872, 874, 875**

**BRIAN CRANE
PUBLIC WORKS DIRECTOR**

**JON MCCLAIN
ASSISTANT PUBLIC WORKS DIRECTOR**

**VACANT
WASTEWATER UTILITY MANAGER**

**Troy Mitchell P/W
Supervisor
Clear Creek
875**

**Josh Keener
Wastewater
Compliance
Coordinator
871**

**Josh Vandiver
P/W Supervisor
Collection
874**

**Marcia Ames
P/W Supervisor
Industrial Waste
870**

**John Szychulda
P/W Supervisor
Stillwater
872**

- Calvin Johnson
Sr. W/W Plant Op
Grade IV
- Dave Musso
Sr. W/W Plant Op
Grade IV
- Ray Karr
Sr. W/W Lab
Tech
- Tom Stephens
W/W Plant Op
Grade III
- Vacant
W/W Plant Op
Grade III
- Mike Pittman
Wastewater Lab
Technician
- Temporary Pos
(1)

- Bob Gullixson
Working Super
W/W Collec
Grade III
- Steve Hollingsworth
W/W Coll
Leadworker
Grade IV
- Alex Bostick
W/W Coll
Leadworker
Grade III
- Ted Mattioli
W/W Coll
Leadworker
Grade III
- Bill Hunt
W/W Coll Maint
Worker
Grade II
- Dominic McCurtain
W/W Coll Maint
Worker
Grade II
- David Campbell
P/W Maint. Wrk
Grade I
- David Faganello
P/W Maint. Wrk
Grade I
- Kevin Garner
P/W Maint. Wrk
Grade I
- Zachary Zanni
P/W Maint. Wrk
Grade I
- Temp Pos
(2)

- Ted Crandall
Industrial Waste
Analyst
- Brian Hodge
Industrial Waste
Analyst
- Tracy Wyhlidko
Industrial Waste
Analyst

- Robert Bennett
Sr. W/W Plant Op
Grade III
- Joe Drysdale
Sr. W/W Plant Op
Grade III
- Vacant
Sr. W/W Lab
Tech
- Rick Harris
W/W Plant Op
Grade III
- David Johnston
W/W Plant Op
Grade V
- Temp Pos
(1)

Appendix B
Employee Contact
Information-During Work
Hours

CITY OF REDDING – PUBLIC WORKS – FIELD OPERATIONS

ADMINISTRATION #867 CHANNEL 1A (10 EMPLOYEES)

	BRIAN CRANE	PUBLIC WORKS DIRECTOR	245-7155	638-5098	FAX:
	JON McCLAIN	PUBLIC WORKS ASSISTANT DIRECTOR	224-6029	227-6082	224-6071
	Kim Collins	Management Analyst II	224-2430		
	Rhonda Ohler	Executive Assistant I	224-4330		
	Barbara Panike	Administrative Assistant I	224-6068	224-6079 (after hours)	
	Marty Wayne	Project Coordinator	224-4457	410-2204	
	Meiko Burroughs	Customer Service Representative	224-4455		
	Annie Hunt	Customer Service Representative	224-4323		
	Richard Elliott	Industrial Waste Analyst (Retired/Part-time Temp)	224-6050		
	Martha Vuist	NPDES Coordinator	224-6030	227-6830	
	Terri Webster	GIS Analyst II (GIS Division, Development Services)	224-4337		

STREETS DIVISION #511 CHANNEL 1B (10) (14)

200	Randy Campbell	P/W Supervisor - Streets	224-6077	227-2862	
211	James Carter	Working Supervisor – P/W			
213	Randy Amaral	Working Supervisor - P/W	224-6084	227-1847	FAX:
220	Mark Lloyd	P/W Lead Worker			224-4406
219	Dave Schultz	P/W Lead Worker			
223	Bill Coffee	Equipment Operator			
224	Glen Pine	Equipment Operator			
225	Neil Maxey	Equipment Operator			
	Richard Mullen	(Temp) P/W Maintenance Worker			
	Kely Miller	(Temp) P/W Maintenance Worker			

SIGN SHOP #511 CHANNEL 1B (4)

212	Ken Alves	Working Supervisor-P/W	224-6081	227-1864	FAX:
221	Carl Buchanan	P/W Lead Worker			224-6071
226	Terry Zalesny	Equipment Operator			
222	Darrell McDaniel	Parking Meter Service Worker		227-0165	

STORM DRAIN UTILITY #801 CHANNEL 1D (5)

680	John Stacher	P/W Supervisor – Storm Drain Utility	224-2435	941-5969	FAX:
681	Matt Cervenka	Working Supervisor-P/W (IBEW Co-Chair & Steward)		339-0284	224-6071
684	Kevin Chew	Equipment Operator	224-4343	351-2520	
682	Dave Jackson	P/W Lead Worker		227-1468	Standby:
683	Dan Jarrett	Heavy Equip Operator		351-2520	339-0284

ELECTRICAL TECHNICIANS / USA LOCATORS #807 CHANNEL 1A (9)

210	Dean Burroughs	Utility Specialist I – Locator	224-4210	440-6718	224-6071
209	Scott Hansen	Utility Specialist I – Locator	224-4456	356-4682	
240	Paul Landis	Field Foreman – Electrical Technician	224-6034	524-3401	FAX:
245	Gene Donham	Electrical Technician	224-6035	351-5973	224-6038
247	Tom Long	Electrical Technician	224-6035	351-4367	
514	Darryl Hughart	Electrical Technician – Foothill Water Treatment Plant	245-7174	351-1499	FAX:
525	Larry Hiatt	Electrical Technician – Foothill Water Treatment Plant	245-7175	351-5423	225-4935
	John Rossie	Electrical Technician – Clear Creek WWTP	225-4159	440-4745	
	David Lhuillier	Electrical Technician – Stillwater WWTP	378-6710	605-5791	

WATER UTILITY #861 CHANNEL 1A (25)

501	Vacant	Water Utility Manager (Brian Crane uses 224-6127)	224-6127	524-3173	FAX:
	Mike Robertson	Municipal Utilities Manager (Retired/Part-time Temp)	224-6040	638-5300	224-6071
	Pam Clackler	Water Conservation Specialist	224-6032		

FOOTHILL WATER TREATMENT PLANT #861 CHANNEL 1A (10)

509	Conrad Tona	P/W Supervisor-Water Treatment	225-4475	227-4124	FAX:
533	Steve Bosse	Working Supervisor - Water Plt T4T5		355-6248	225-4552
515	Mike Lawrence	Working Supervisor - Water Plt T4T5	225-4192	209-8929	
528	Vick Brown	Senior Water Plant Operator T4		945-8275	
561	Duane Cook	Water Plant Operator T3		510-7115	
	Joel Gerber	Water Plant Operator in Training			
502	Bruce Kuhn	Water Plant Operator T4	245-7281	604-3029	Standby:
505	Bill Sonnenberg	Water Plant Operator T3		515-4808	604-5071
532	Richard Coulter	P/W Maintenance Worker			
	Peter Felton	(Temp) P/W Maintenance Worker			

Appendix C
Employee Contact
Information-After Hours

Water Treatment Plant (Division 861)-225-4475/225-4192

Conrad Tona	P/W Supervisor-Water Treat	PO Box 1130	549-3942
Steve Bosse	Working Super-Water Treat	312 Kamp Way	229-3637
Vick Brown	Senior Water Plant Operator	14049 Old Oregon Trl.	275-5647
Duane Cook	Water Plant Operator	17310 Dorvel Ln	357-2956
Bruce Kuhn	Water Plant Operator	4235 Brittany Dr.	222-5301
Michel LaFlower	Water Plant Operator	1433 Orange Street	351-2845
Mike Lawrence	Working Super-Water Treat	19680 Hidden Hills Dr	347-3415

Wastewater Collection (Division 874)-224-6069

Josh Vandiver	P/W Supervisor-W/W Collec		209-1012
Alex Bostick	WW Leadworker	16595 Scout Ave	357-3129
David Campbell	P/W Maint Worker	3141 Churn Creek, 9	410-5822
David Fagenello	P/W Maint Worker	6525 El Camino Dr	243-1188
Kevin Garner	P/W Maint Worker	3339 Lawrence Rd	356-7803
Bob Gullixson	Working Super-Collection	4650 Fiddleneck	222-6826
Jaime Halter	PW Maint Worker	1266 Burton Ct #7	356-4335
Steve Hollingsworth	WW Leadworker	4888 Tralee Lane	246-4111
Bill Hunt	WW Coll Maint Worker	16869 Winchell Dr	247-7505
Dominic McCurtain	WW Coll Maint Worker	918 Montcrest Dr	223-9865
Ted Mattioli	WW Collec Maint Worker	16804 Winchell Dr	247-7358
Zach Zanni	P/W Maint Worker		

Clear Creek Wastewater Treatment (Division 875)-225-4157/4158

Troy Mitchell	P/W Supervisor-CC	1795 Record Ln	356-7831
George Coughran	WW Plant Operator	7043 Pit Road	241-7596
Calvin Johnson	WW Plant Operator	8685 Bass Pond Rd, Mlv	547-5777
Ray Karr	Senior Lab Technician	473 Milkwood Dr.	241-4858
Dave Musso	Senior WW Plant Operator	18588 Lloyd Ln.	247-0571
Mike Pittman	WW Lab Technician	3522 Timber Ln	365-2417
Tom Stephens	WW Plant Operator	21470 Old Hwy 44 Dr.	221-4827

Stillwater (Division 872)-378-6702/6701/6700

John Szychulda	P/W Supervisor-SW	11725 Wilder Rd., R.B.	529-3065
Robert Bennett	Senior WW Plant Operator	3534 Della Lane, Cttnw	347-1249
Nancy Cameron	Senior Lab Technician	17524 Bright Path And.	357-3613
Joe Drysdale	Senior WW Plant Operator	2600 Shady Lane #22	710-5058
Rick Harris	WW Plant Operator	PO Box 991688	605-1134
David Johnston	WW Plant Operator	13020 Hoy Road	529-0873

Industrial Waste Pretreatment (Division 870)-224-6049

Marcia Ames	P/W Supervisor-Ind. Waste	P. O. Box 991420	247-1419
Ted Crandall	Industrial Waste Ana.	21992 Whispering Waters	668-5909
Brian Hodge	Industrial Waste Ana.	21992 Whispering Waters	356-5041
Tracy Wyhlidko	Industrial Waste Ana.	11029 Joshua Ln	549-4796

Appendix D
24 Hour Contacts for
Equipment and Materials

24 HOUR EMERGENCY CONTACTS FOR EQUIPMENT AND MATERIALS

R&B Company – Howard Getchel, cell 330-1397/ home 221-6798
David Enck cell 330-1396

Camilla Valley / Ferguson – John Schmit cell 351-4873 / home 241-1614
Jim Paul cell 510-5675 / home 365-2669
Joel Matney cell 510-6152 / 357-4802

I-5 Rentals 226-8081 (transfers to answering service afterhours)

United Rentals 221-8851
800-877-3687

Drosher Equipment 241-0505 (transfers to on call person after hours)
Ed home 245-0510

Rain for Rent 662-1024 office (emergency bypass pumps)

Pac Machine (916) 387-1336 office (emergency bypass pumps)
Pat LaZansky cell (916) 416-2252

Munson Pumps 515-8024 (emergency bypass pumps)

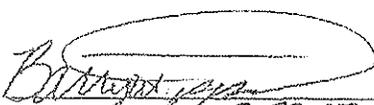
Appendix E
City of Redding Design
Standards

1. ACCEPTABLE PIPE MATERIALS:

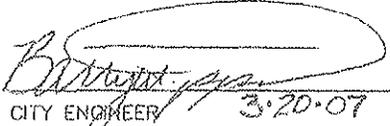
INTERCEPTORS (30"-60"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
TRUNK SEWER (15"-30"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
SEWER MAIN (8"-12"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
SEWER CONNECTIONS/LATERALS: (4" OR 6"):	VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) ABS SOLID WALL PIPE SDR 23.5 ASTM D-2751 ABS SOLID WALL PIPE SDR 26 ASTM D-2751 ABS SOLID WALL PIPE (DWV SCHEDULE 40) PVC SOLID WALL PIPE SDR 23.5 ASTM D-3034 PVC SOLID WALL PIPE SDR 26 ASTM D-3034
PRESSURE SEWER CONNECTIONS/LATERALS:	HDPE, HIGH DENSITY POLYETHYLENE PVC SOLID WALL PIPE (SCHEDULE 80) PVC SOLID WALL PIPE (C900)

**FOR USE IN SEWER PIPELINES FOR WHICH COMMERCIAL OR INDUSTRIAL AREAS ARE TRIBUTARY,
SPECIFIC APPROVAL IS REQUIRED FOR PLASTIC PIPE.**

2. THE LARGEST PIPELINE THAT CAN BE TAPPED FOR A SEWER CONNECTION LATERAL IS 15 INCH UNLESS APPROVED BY THE CITY ENGINEER.
3. PRIOR TO ACCEPTANCE OF THE SEWER, THE PIPELINES SHALL BE PROPERLY CLEANED OF ALL DEBRIS, AIR TESTED, MANDRELLED WHEN APPLICABLE, AND TELEVIEWED. PROPER CLEANING TECHNIQUES AND DEVICES SHALL BE UTILIZED TO INSURE NO DEBRIS, SAND, GRAVEL OR SILT WILL ENTER THE EXISTING CITY SEWER SYSTEM.
4. THE DOWNSTREAM END OF ALL NEW PIPELINES SHALL BE PLUGGED UNTIL THE SEWER IS ACCEPTED BY THE CITY.
5. MANDREL TESTING SHALL BE REQUIRED FOR PVC PIPE PER STANDARD SPECIFICATIONS SECTION 306-1.2.12.
6. THE CITY OF REDDING MAY PRECLUDE THE USE OF PVC PIPE IN AREAS OF HIGH GROUNDWATER OR UNSTABLE GROUND CONDITIONS OR WHEN A TRENCH SHIELD IS TO BE USED.
7. PRIOR TO ACCEPTANCE ALL MANHOLE SHALL SUCCESSFULLY PASS A VACUUM TEST PER CITY OF REDDING STANDARDS 300.10.
8. MINIMUM DEPTH OF COVER:
 - 1 A. 5.0 FEET OVER SEWER MAIN
 - B. 4.5 FEET OVER SEWER CONNECTIONS/LATERALS AT PROPERTY LINE (PER PAGE 301.00 & 622.00)
9. THE MINIMUM RADIUS CURVATURE FOR SEWER MAINS SHALL BE 1.5 TIMES THE MANUFACTURERS RECOMMENDATION. ALL CURVATURE OF FLEXIBLE PIPE SHALL BE MADE BY BENDING THE PIPE. NO DEFLECTION OF THE PIPE JOINTS SHALL BE ALLOWED. SHARPER CURVES MAY BE OBTAINED BY USING 3' COUPLINGS (18" MINIMUM BETWEEN COUPLINGS).
10. SEWER TAPS ON LIVE SEWER MAINS SHALL BE PERFORMED BY CITY OF REDDING CREW ONLY. CONTACT THE CITY SEWER DEPARTMENT TO SCHEDULE THE TAP.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT NOTES	APPROVED BY	SANITARY SEWER CONSTRUCTION CRITERIA
	MARK	DATE	REVISION	
			 CITY ENGINEER 3-20-07	

1. EACH MANHOLE SHALL BE TESTED IN THE PRESENCE OF THE CITY INSPECTOR FOR ACCEPTANCE PRIOR TO FINAL PAVING AND AFTER ALL BACKFILLING AND COMPACTION IS COMPLETED. INDUSTRY STANDARDS SUGGEST THAT THE MANHOLES BE PRETESTED IMMEDIATELY AFTER ASSEMBLY AND PRIOR TO BACKFILLING. SUCH PRETESTING IS FOR THE CONTRACTORS CONVENIENCE AND NEED NOT BE IN THE PRESENCE OF THE INSPECTOR.
2. ALL TESTING EQUIPMENT AND LABOR SHALL BE PROVIDED BY THE CONTRACTOR.
3. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED, TAKING CARE TO SECURELY BRACE THE PLUGS FROM BEING DRAWN INTO THE MANHOLE.
4. THE TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE TOP OF THE CONE SECTION AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
5. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO NINE INCHES. THE MANHOLE SHALL PASS IF THE TIME IS GREATER THAN 60 SECONDS FOR 48" DIAMETER MANHOLE, 75 SECONDS FOR 60", AND 90 SECONDS FOR 72".
6. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH A NONSHRINK GROUT. RETESTING SHALL PROCEED UNTIL SATISFACTORY TEST IS OBTAINED. NO GROUT SHALL BE PLACED IN THE HORIZONTAL JOINTS BEFORE TESTING.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY 	SPECIFICATIONS FOR VACUUM TESTING OF MANHOLES
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

1. DESIGN OF SEWER LINES SHALL BE BASED UPON AN AVERAGE DAILY FLOW OF 300 GALLONS PER HOUSEHOLD EQUIVALENT PER DAY PLUS 1,500 GALLONS PER ACRE PER DAY FOR STORM WATER AND GROUNDWATER INFILTRATION. PEAKING FACTORS SHALL BE PER CITY OF REDDING MASTER PLAN.
2. MAINS AND COLLECTOR SEWER LINES SHALL BE DESIGNED WITH A MINIMUM MANNING COEFFICIENT OF $N=0.013$.
3. THE MINIMUM SLOPE ALLOWED FOR SEWER PIPELINES SHALL BE:

8"	$s=0.0040$
10"	$s=0.0030$
12"	$s=0.0025$

THE MAX. LENGTH OF ANY DEAD END PIPELINE SHALL BE 250 FEET, OR LESS, SHALL HAVE A MIN. SLOPE OF $s=0.0040$ AND NO MORE THAN FOUR SERVICE CONNECTIONS.

4. MINIMUM GRADES SHALL NOT BE LESS THAN THOSE REQUIRED TO PRODUCE A VELOCITY OF TWO (2.0) FEET PER SECOND WHEN THE SEWER SIZE SELECTED IS FLOWING FULL OR HALF FULL. PIPE SIZES SHALL NOT BE ARBITRARILY INCREASED IN ORDER TO TAKE ADVANTAGE OF A FLATTER GRADE.
5. THE MINIMUM SIZE SEWER MAIN SHALL BE 8--INCH.
6. MINIMUM DEPTH OF COVER:
 - A. 5.0 FEET OVER SEWER MAIN
 - B. 4.5 FEET OVER SEWER CONNECTIONS/LATERALS AT PROPERTY LINE (STANDARD PAGE 301.00)

7. MANHOLE SPACING:

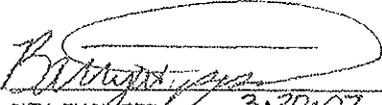
- | | | | |
|----|--|---|--------------------|
| A. | SEWERS 8 TO 12 INCH | : | 500 FEET MAXIMUM |
| B. | SEWERS 15 TO 30 INCH | : | 700 FEET MAXIMUM |
| C. | SEWERS 36 INCH AND LARGER | : | 1,000 FEET MAXIMUM |
| D. | AT ALL ANGLE POINTS IN HORIZONTAL AND VERTICAL ALIGNMENT | | |

8. DROP MANHOLES WILL NOT BE PERMITTED UNLESS APPROVED BY THE CITY ENGINEER.

9. MAXIMUM DEPTH OF COVER:

SEWER MAINS SHALL NOT BE DESIGNED WITH COVER EXCEEDING 15 FEET FROM FINISH SURFACE GRADE, UNLESS SPECIAL PERMISSION IS RECEIVED FROM THE CITY ENGINEER.

10. NO PRIVATE FORCE MAINS WILL BE ALLOWED IN THE CITY RIGHT-OF-WAY UNLESS PERMISSION IS RECEIVED FROM THE CITY ENGINEER.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT STD	APPROVED BY  CITY ENGINEER	SANITARY SEWER DESIGN CRITERIA
MARK	DATE	REVISION	3-20-07	

PVC SEWER PIPE AND FITTINGS FOR GRAVITY SEWERS SHALL BE MADE FROM ALL NEW, RIGID, UNPLASTICIZED POLYVINYL CHLORIDE IN ACCORDANCE WITH ASTM STANDARD SPECIFICATION D 3034 WITH A WALL THICKNESS OF AT LEAST SDR 26. SDR VALUES AND PVC MATERIAL REQUIREMENTS SHALL BE PER SECTION 207-17 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK). JOINTS SHALL CONSIST OF AN INTEGRAL BELL AND RUBBER RING ELASTOMERIC SEAL (GASKETS) MEETING THE REQUIREMENTS OF ASTM D3212 AND ASTM F 477. THE PIPE AND FITTINGS SHALL BE ASSEMBLED WITH THE PIPE MANUFACTURER'S RECOMMENDED LUBRICANT.

ALL PIPE SHALL HAVE A "HOME" MARK TO INDICATE FULL PENETRATION OF THE SPIGOT WHEN THE JOINT IS MADE.

FOR USE IN SEWER PIPELINES FOR WHICH COMMERCIAL OR INDUSTRIAL AREAS ARE TRIBUTARY, SPECIFIC APPROVAL IS REQUIRED FOR PLASTIC PIPE.

ALL PVC PIPELINES ENTERING OR LEAVING A CONCRETE STRUCTURE SHALL HAVE A STANDARD MANHOLE GASKET, AS RECOMMENDED BY THE PIPE MANUFACTURER, FIRMLY CLAMPED AROUND THE PIPE EXTERIOR AND CAST INTO THE STRUCTURE BASE OR NEAR THE STRUCTURE WALL CENTER AS A WATER STOP.

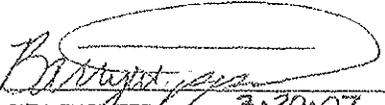
INSTALLATION, BEDDING, AND BACKFILL REQUIREMENTS FOR PVC SEWER PIPE SHALL BE IN ACCORDANCE WITH ASTM D 2321 AS MODIFIED BY CITY OF REDDING STANDARD PAGE 610.00.

AFTER PIPE INSTALLATION AND PLACEMENT AND COMPACTION OF BACKFILL, BUT PRIOR TO PLACEMENT OF PAVEMENT, ALL PIPELINES SHALL BE CLEANED AND THEN SEPERATELY MANDRELLED TO MEASURE FOR OBSTRUCTIONS. OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO DEFLECTIONS, JOINT OFFSETS, AND SEWER CONNECTIONS/LATERAL PIPE INTRUSIONS. A CONTRACTOR--SUPPLIED RIGID MANDREL MEETING THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS SECTION 306-1.2.12 WITH AN EFFECTIVE CIRCULAR CROSS--SECTION HAVING A DIAMETER OF AT LEAST 95 PERCENT OF THE MAXIMUM AVERAGE INSIDE DIAMETER, PER ASTM 3034, SHALL BE PULLED THROUGH THE PIPE BY HAND NOT SOONER THAN 30 DAYS AFTER COMPLETION OF PLACEMENT AND DENSIFICATION OF BACKFILL. THE MINIMUM EFFECTIVE LENGTH OF THE MANDREL SHALL BE EQUAL TO ITS NOMINAL DIAMETER. OBSTRUCTIONS DUE TO DEFLECTION SHALL BE CORRECTED BY REPLACEMENT OF THE OVER--DEFLECTED PIPE; RE--ROUNDING IN PLACE WILL NOT BE ALLOWED.

IF A SECTION OF PIPELINE FAILS TO MEET THE MANDREL TEST AND IS REPAIRED AND FAILS A SECOND TIME, IT SHALL BE REPLACED WITH AN APPROVED RIGID OR SEMI--RIGID PIPE MATERIAL AND CONNECTED WITH FLEXIBLE RUBBER COUPLINGS WITH STAINLESS STEEL CLAMPS.

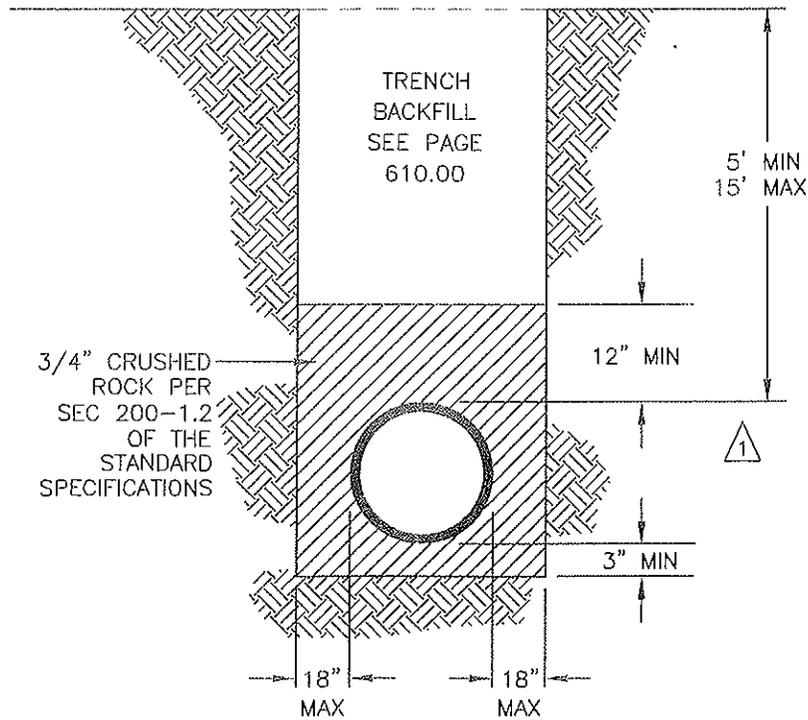
PVC PLASTIC SEWER PIPELINE MAY BE MANDREL TESTED AGAIN BEFORE THE TWELFTH MONTH FOLLOWING ACCEPTANCE AT THE DISCRETION OF THE MUNICIPAL UTILITIES DEPARTMENT. THE CONTRACTOR SHALL REPAIR ANY OBSTRUCTIONS CAUSED BY EXCESS DEFLECTION.

ALL DEFLECTION TESTING SHALL BE WITNESSED BY THE **CITY INSPECTOR** AND BE CONDUCTED BY THE CONTRACTOR'S FORCES AND AT THE CONTRACTOR'S EXPENSE.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT STD	APPROVED BY 	POLYVINYL CHLORIDE (PVC) SEWER PIPE
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

FLEXIBLE

PVC SDR 26 (8 INCH-15 INCH)



NOTES:

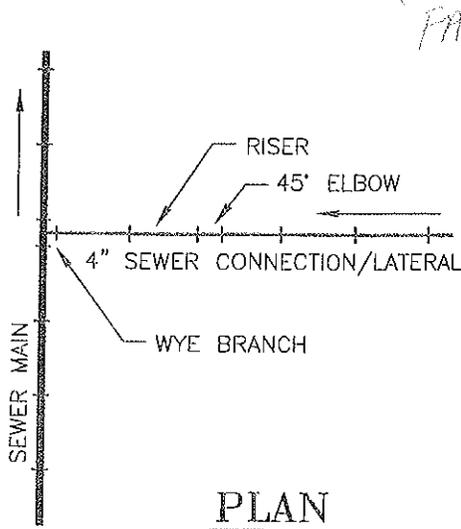
1. ALL FLEXIBLE PLASTIC SEWER MAINS SHALL BE MANDREL TESTED WITH 5% MAX DEFLECTION PRIOR TO TELEVIEWING. THE CONTRACTOR SHALL REPAIR ANY SEWER MAIN OBSTRUCTION CAUSED BY EXCESS DEFLECTION DUE TO THE USE OF SLEDS OR BOXES.

1 2. SEWER CONNECTIONS/LATERALS TO HAVE THE SAME BEDDING REQUIREMENTS AS SEWER MAINS.

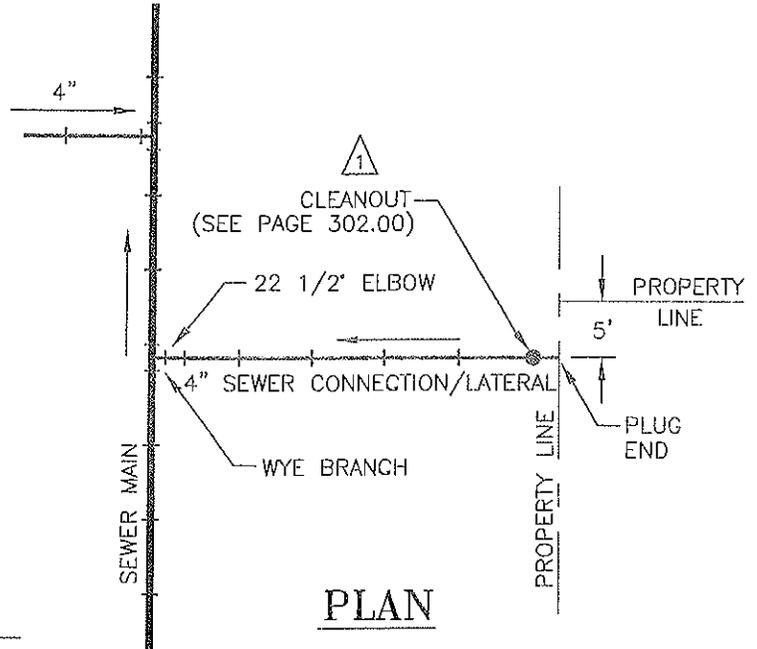
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT NOTES & DETAIL	APPROVED BY CITY ENGINEER	BEDDING FOR PLASTIC SEWER PIPE
MARK	DATE	REVISION	3-20-07	

NOTES:

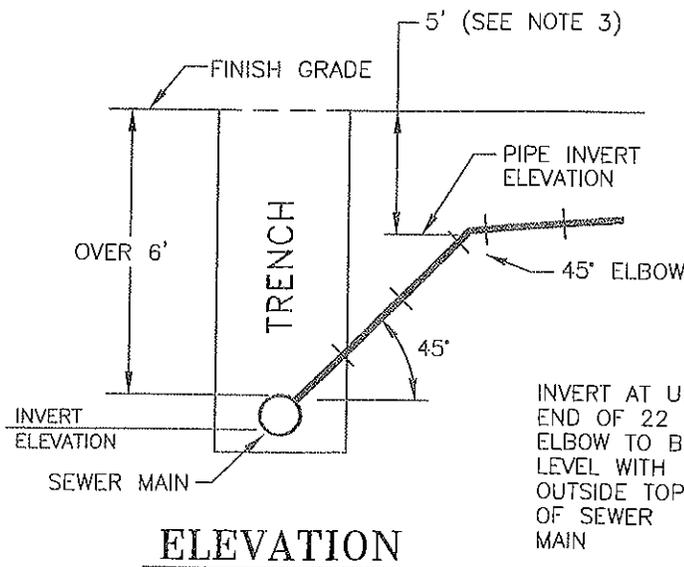
1. 90° TAPS ARE ACCEPTABLE.
2. RISERS SHALL BE INSTALLED WHEN DEPTH OF SEWER MAIN EXCEEDS 6 FT.
3. VERTICAL INSTALLATIONS (STOVEPIPING) WILL NOT BE ALLOWED.
4. WHERE SEWER MAIN IS IN AN EASEMENT, INSTALL A TEE BRANCH AND PLUG.
5. ~~PLACE 1/2" OR 5/8" PLASTIC CONDUIT (SCRAP) UPRIGHT AT PROPERTY LINE OVER END OF SEWER CONNECTION/LATERAL.~~
6. SEWER TAPS ON LIVE SEWER MAINS SHALL BE PERFORMED BY CITY OF REDDING CREW ONLY. CONTACT THE CITY INSPECTOR TO SCHEDULE TAP.
7. 1 STAMP "S" INTO CURB AT LOCATION OF LATERAL.



PLAN

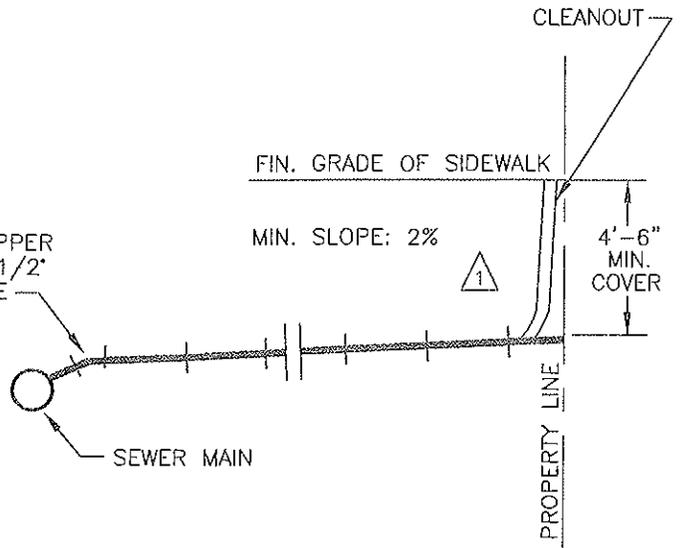


PLAN



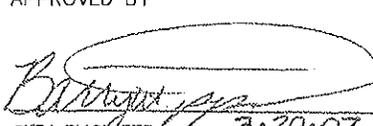
ELEVATION

INVERT AT UPPER END OF 22 1/2° ELBOW TO BE LEVEL WITH OUTSIDE TOP OF SEWER MAIN

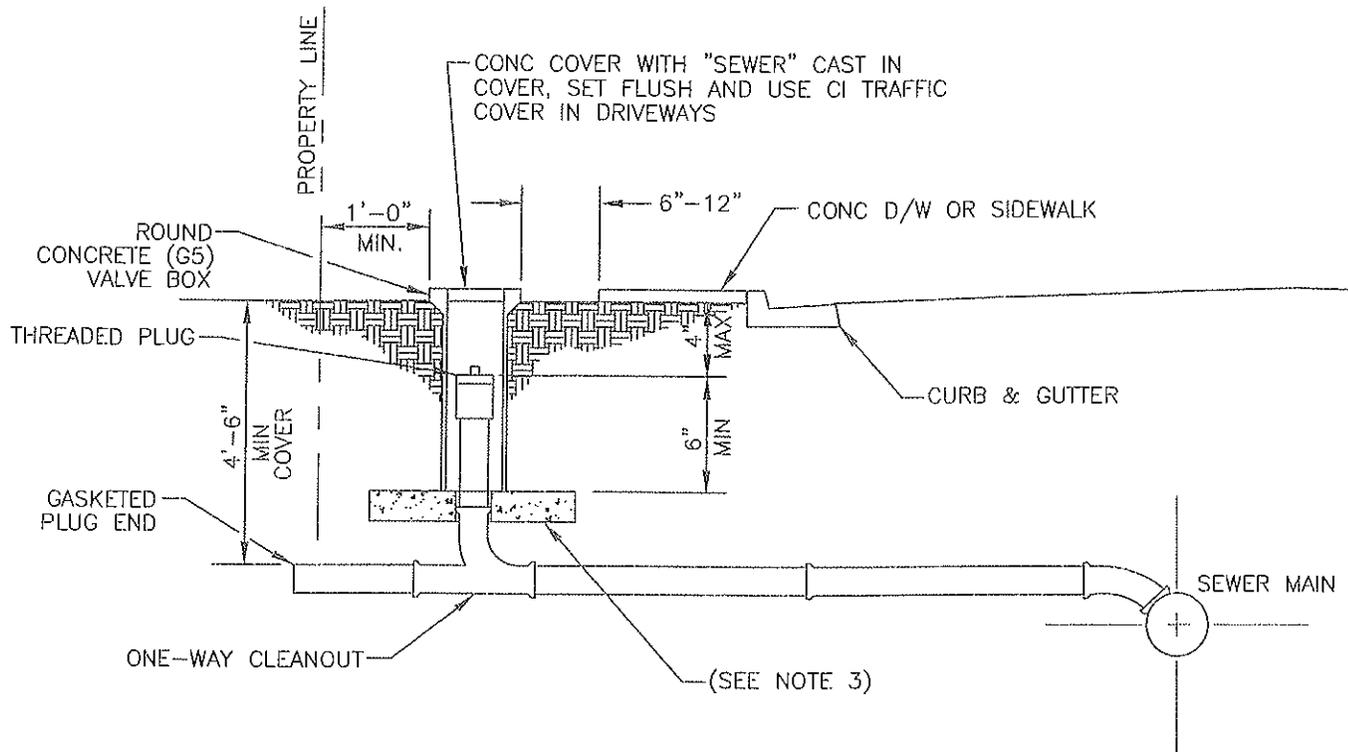


TYP. HOUSE CONNECTION

TYP. HOUSE CONNECTION RISER

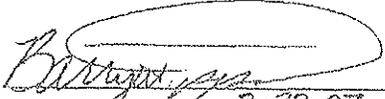
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT STD	APPROVED BY  CITY ENGINEER 3-20-07	
	MARK	DATE		
			TYPICAL HOUSE CONNECTION	

THIS STANDARD IS APPLICABLE TO ALL NEW RESIDENTIAL CONSTRUCTION.



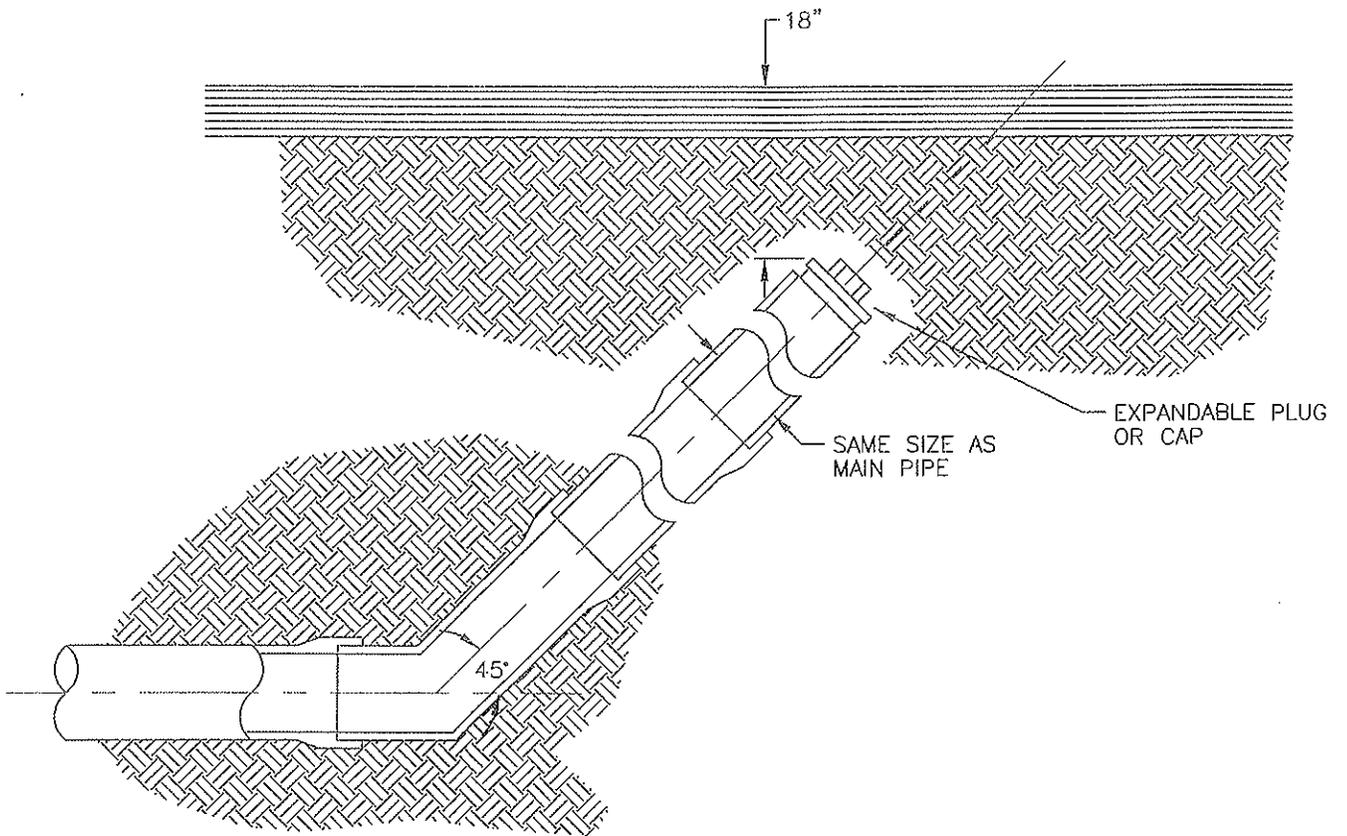
NOTES:

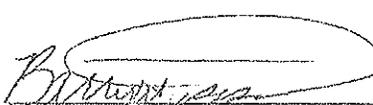
1. WHERE ~~CONC D/W OR SIDEWALK EXISTS~~, LATERAL CLEANOUT SHALL BE PLACED AT THE BACK OF ~~CONC. WITH 6"-12" CLR BETWEEN CONC AND CLEANOUT BOX~~. FOR ALL OTHER SITUATIONS, CLEANOUT SHALL BE PLACED 1' OFF THE PROPERTY LINE OR AS SHOWN ON THE PLANS. *WALK*
2. ONCE THE NEW SEWER MAIN AND LATERALS HAVE BEEN TESTED, ACCEPTED AND APPROVED TO BE PUT ON-LINE, CONTRACTOR SHALL CONNECT THE BUILDING LATERAL TO THE NEW CLEANOUT.
3. WHERE LATERAL CLEANOUT IS LOCATED IN DRIVEWAYS OR OTHER AREAS SUBJECT TO VEHICULAR TRAFFIC, INSTALL A 4" THICK BY 24" SQ. PRECAST CONC BLOCK W/ 6" DIA. HOLE IN CENTER OVER THE CLEANOUT PIPE AS SHOWN. *6"-12" BEHIND*

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY	ONE-WAY LATERAL CLEANOUT
	4-06	NEW STD		
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

NOTES:

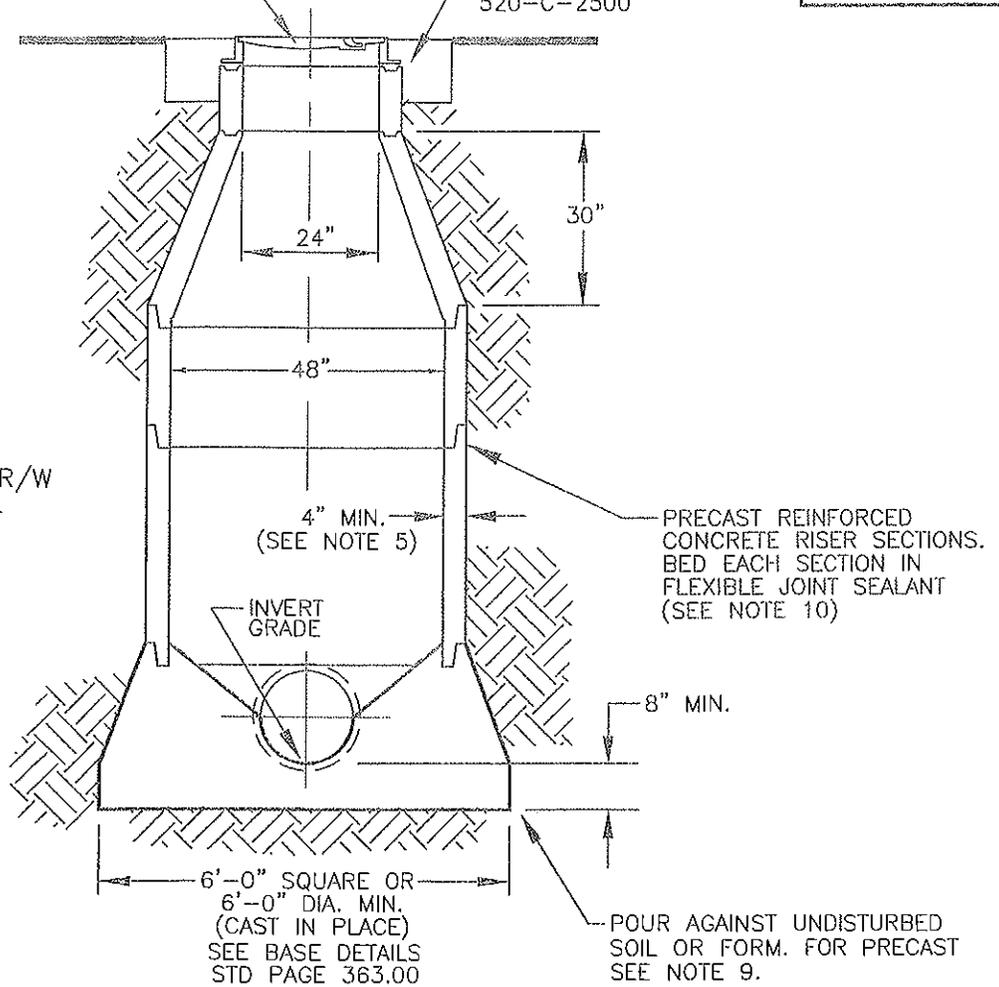
1. ALL WORK SHALL CONFORM TO THE CITY OF REDDING CONSTRUCTION STANDARDS AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.



DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY	SEWER MAIN TERMINATION
MARK	DATE	REVISION	 CITY ENGINEER 3-20-07	

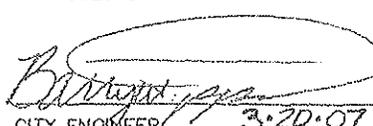
STD. MANHOLE FRAME AND COVER
(PAGE 364.20 OR PAGE 364.30)
FINISH GRADE ADJUSTMENT (PAGE 612.00)

CONCRETE COLLAR
520-C-2500



NOTES:

1. WHERE MANHOLES ARE NOT LOCATED IN STREETS OR TRAVELED WAY PLACE TOP OF MANHOLE 12" TO 24" ABOVE EXISTING GROUND UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
3. ECCENTRIC TYPE CONC. CONE SECTION SHALL BE INSTALLED IN PLACE OF CONCENTRIC CONES WHEN DIRECTED BY THE ENGINEER. WHEN ECCENTRIC CONE SECTION IS INSTALLED, THE VERTICAL WALL SHALL BE INSTALLED DOWNSTREAM.
4. PIPE MAY BE LAID THROUGH A LINE MANHOLE EXCEPT WHEN A GRADE OR LINE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETERS OF THE UPSTREAM AND THE DOWNSTREAM PIPES OR 0.20 FT. WHICH EVER IS GREATER.
5. PRECAST REINFORCED CONCRETE PIPE SEGMENTS SHALL CONFORM TO ASTM DESIGNATION: C478-70 4" MIN. THICKNESS.
6. PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS SHALL BE FORMED WITH MALE AND FEMALE ENDS.
7. WHEN CLAY PIPE IS INSTALLED PIPE SECTION SHALL NOT EXTEND MORE THAN 12" FROM SIDE OF MANHOLE.
8. WHEN ABS PIPE IS USED, THE BARREL OF THE PIPE SHALL BE PRE-PRIMED WITH SOLVENT AND SPRINKLED WITH SAND IN ORDER TO PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE. THIS REQUIREMENT IS IN ADDITION TO THE USE OF THE WATERSTOP.
9. PRECAST CONCRETE BASES MANUFACTURED BY COOK CONC. PRODUCTS OR TEICHERT AGGREGATE OR EQUAL MAY BE USED IN LIEU OF POURED IN-PLACE BASES. SEE STD PAGE 363.00
10. ALL SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT:
 - A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER.
 - A SINGLE BEAD SHALL BE USED IF THE SEALANT IS 1 1/4-INCH OR GREATER DIAMETER.
11. 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.

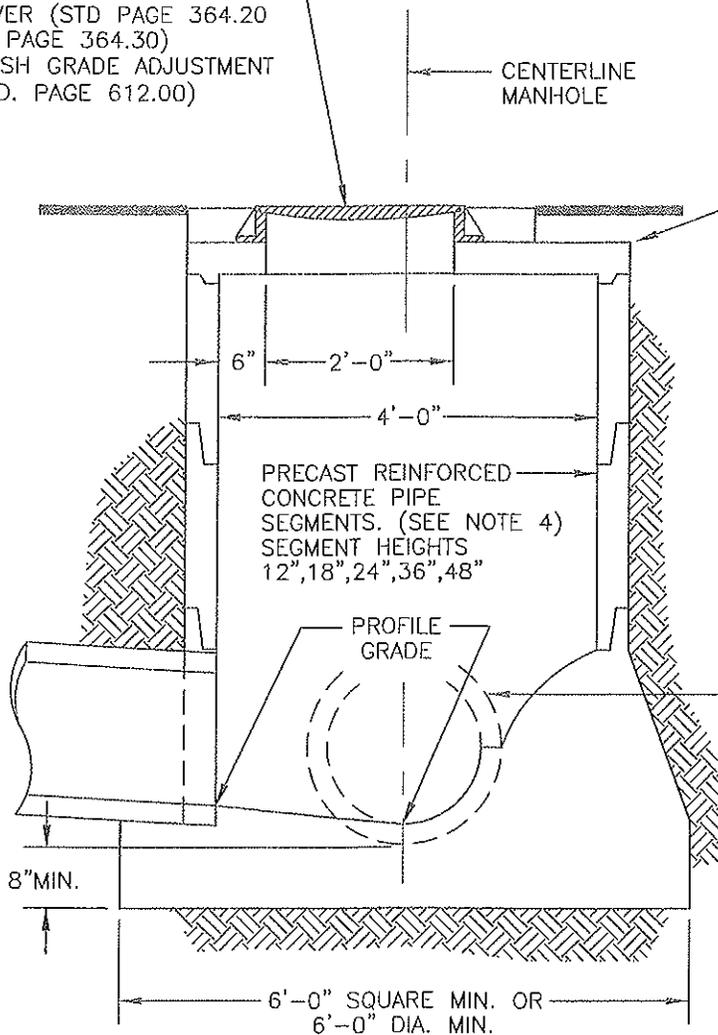
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	MOD. NOTE	APPROVED BY	TYPE 1 4 FT. SEWER MANHOLE
	MARK	DATE	REVISION	
			 CITY ENGINEER 3.20.07	

NOTES:

1. WHERE MANHOLES ARE NOT LOCATED IN STREETS, PLACE TOP OF MANHOLE COVER 12" TO 24" ABOVE FINISHED GRADE UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE BASE SHALL BE PER PAGE 100.00.
3. PIPE MAY BE LAID THROUGH A "LINE" MANHOLE EXCEPT WHERE A GRADE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETER IN THE UPSTREAM AND DOWNSTREAM PIPES OR 0.20 FT., WHICHEVER IS GREATER.
4. PRECAST REINFORCED CONCRETE MANHOLE SECTION SHALL CONFORM TO ASTM DESIGNATION C478 (6" MIN. WALL THICKNESS). SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
5. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT (KENT-SEAL OR EQUAL). A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.
- △ 6. 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.

MANHOLE FRAME AND COVER (STD PAGE 364.20 OR PAGE 364.30)
FINISH GRADE ADJUSTMENT (STD. PAGE 612.00)

CENTERLINE MANHOLE



REINFORCED CONCRETE LID SHALL MEET AASHTO HS20-44 REQUIREMENTS. APPROVAL OF THE LID DESIGN BY THE CITY ENGINEER MUST BE OBTAINED PRIOR TO INSTALLATION.

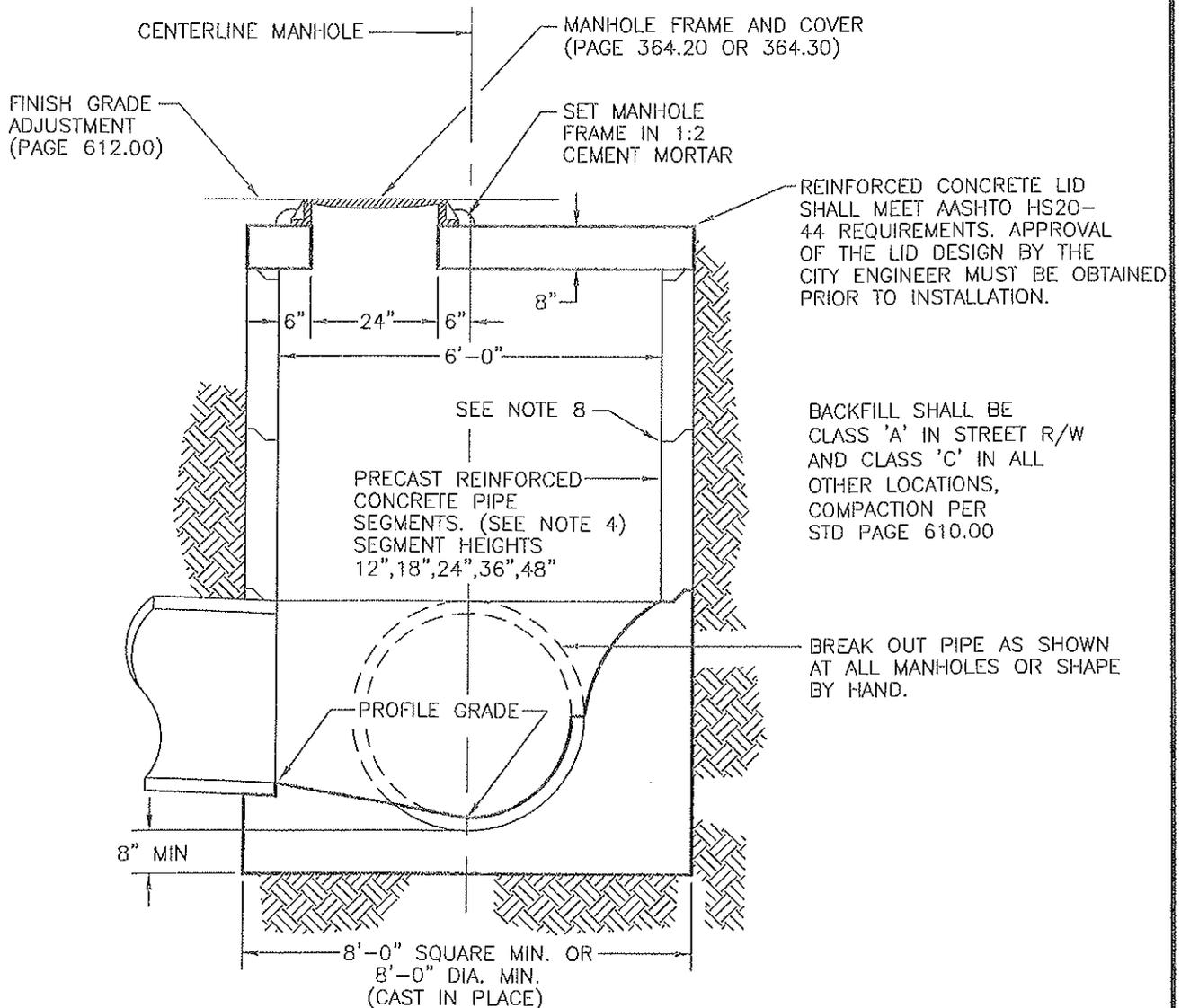
BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS, COMPACTION PER STD PAGE 610.00

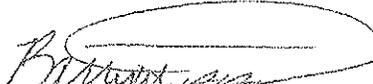
BREAK OUT PIPE AS SHOWN AT ALL MANHOLES OR SHAPE BY HAND.

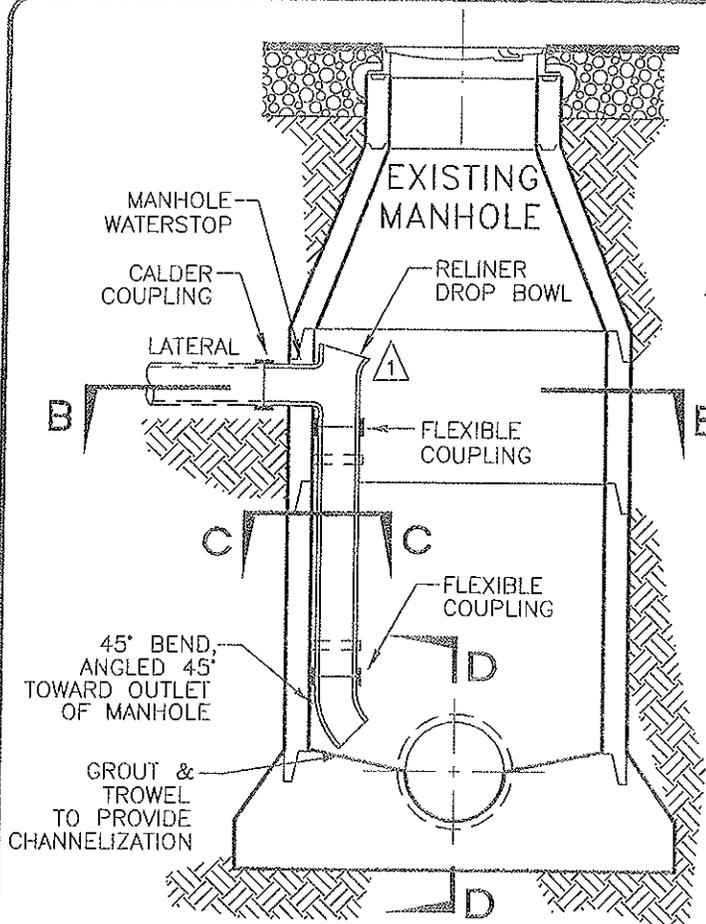
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△ 1	4-06	ADDED NOTE	APPROVED BY <i>[Signature]</i> CITY ENGINEER	TYPE 2 4 FT. SEWER MANHOLE
	MARK	DATE	REVISION	

NOTES:

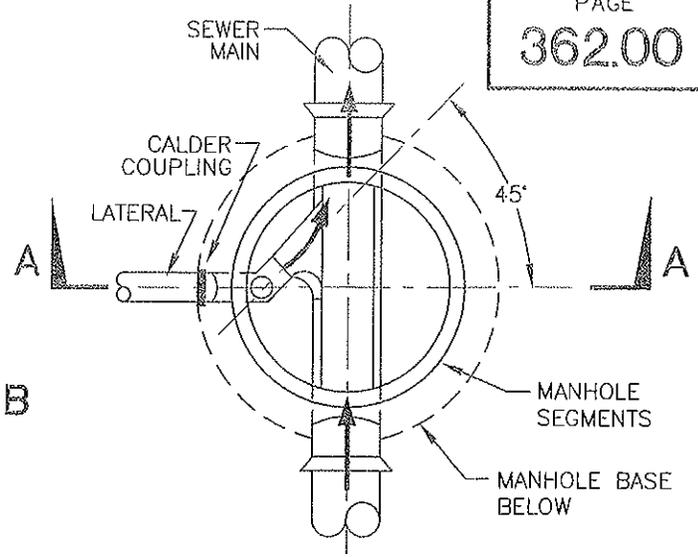
1. WHERE MANHOLES ARE NOT LOCATED IN STREETS, PLACE TOP OF MANHOLE COVER 12" TO 24" ABOVE FINISHED GRADE UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE BASE SHALL BE PER PAGE 100.00.
3. PIPE MAY BE LAID THROUGH A "LINE" MANHOLE EXCEPT WHERE A GRADE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN THE UPSTREAM PIPES AND THE DOWNSTREAM PIPE OR 0.17 FT. WHICHEVER IS GREATER.
4. PRECAST REINFORCED CONCRETE MANHOLE SECTION SHALL CONFORM TO ASTM DESIGNATION C478 (6" MIN. WALL THICKNESS). SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
5. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT (KENT-SEAL OR EQUAL). A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.
6. 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.
7. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT. A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.



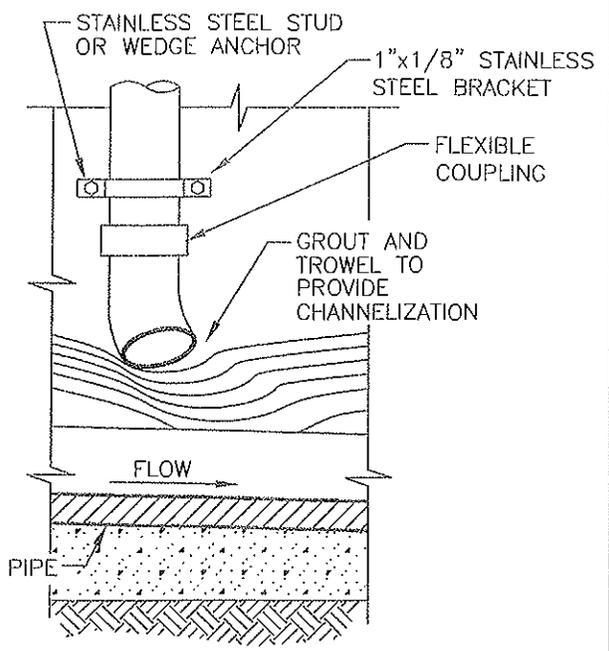
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		<p>STANDARD 6 FT. SEWER MANHOLE</p>
		 CITY ENGINEER 3-20-07		
MARK	DATE	REVISION		



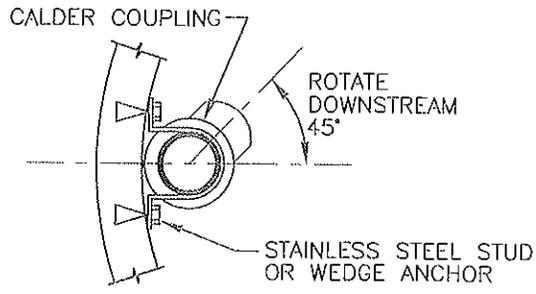
SECTION A-A



SECTION B-B



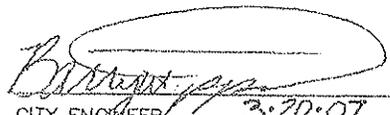
SECTION D-D

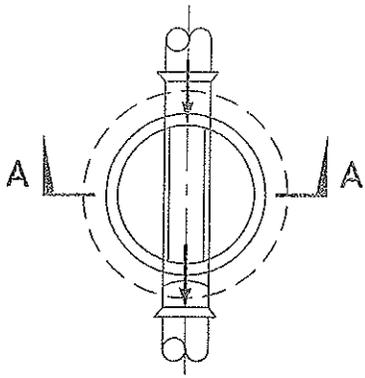


SECTION C-C

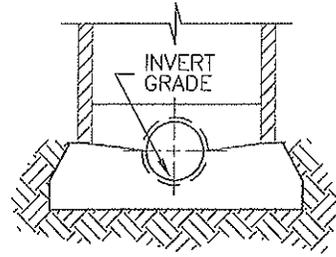
NOTES:

1. INSIDE DROP MANHOLES ALLOWED WHEN THE GRADE DIFFERENCE IS 6 FT. OR MORE ON EXISTING FACILITIES AND WITH SPECIAL APPROVALS BY THE CITY ENGINEER.
2. THIS TYPE OF DROP MANHOLE CONSTRUCTION MAY BE UTILIZED ONLY WHEN 8 INCH OR SMALLER PIPE IS USED.
3. VERTICAL PIPE SHALL BE 6 INCH FOR BOTH 6 INCH AND 8 INCH INCOMING LINES. 4 INCH VERTICAL PIPE MAY BE USED FROM 4 INCH INCOMING LINES.
4. ABS SCH 40 DWV PIPE SHALL BE USED IN THE DROP SECTION OF THE MANHOLE.
5. A CALDER COUPLING OR EQUAL SHALL BE USED ON THE JOINT IMMEDIATELY OUTSIDE THE MANHOLE.
6. A MINIMUM OF ONE STAINLESS STEEL BRACKET PER JOINT OF PIPE SHALL BE USED. A MINIMUM OF TWO BRACKETS SHALL BE USED PER MANHOLE INSTALLATION. BRACKET TO BE 1" X 1/8" STAINLESS STEEL ANCHORS PER BRACKET.
7. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'B' IN ALL OTHER LOCATIONS. COMPACTION PER STD PAGE 610.00.

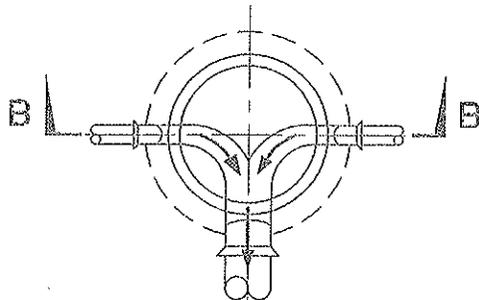
DWG DATE: 2--03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT NOTES & DETAIL	APPROVED BY	
			 CITY ENGINEER 3-20-07	
MARK	DATE	REVISION	4 FT. INSIDE DROP MANHOLE EXISTING MANHOLE ONLY	



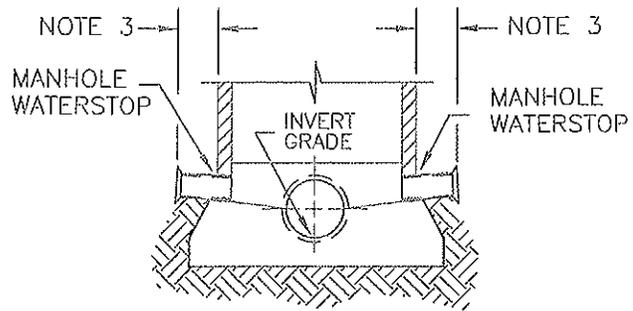
PLAN



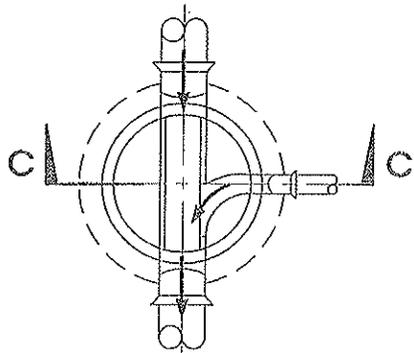
SECTION A-A



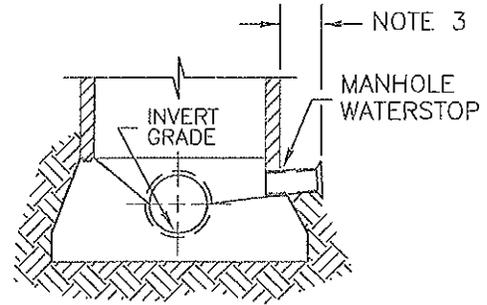
PLAN



SECTION B-B



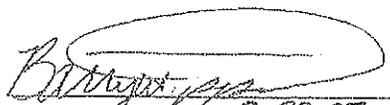
PLAN



SECTION C-C

NOTES:

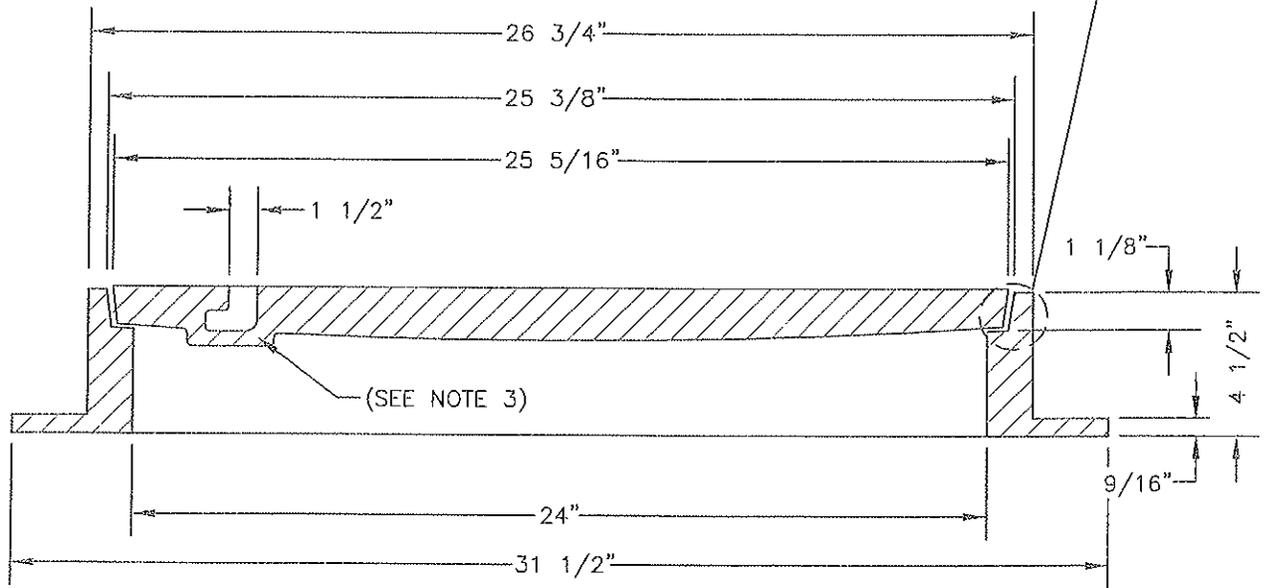
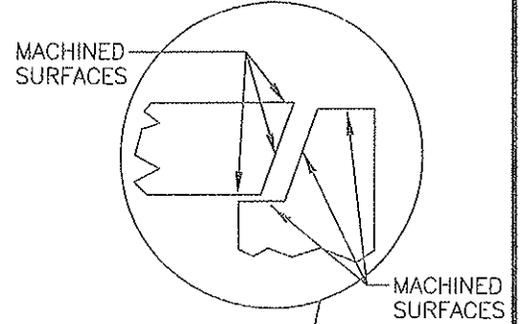
1. ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
2. PIPE MAY BE LAID THROUGH A LINE MANHOLE EXCEPT WHEN A GRADE OR LINE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETERS OF THE UPSTREAM AND THE DOWNSTREAM PIPES OR 0.20 FT. WHICHEVER IS GREATER.
3. WHEN CLAY PIPE IS INSTALLED, PIPE SECTION SHALL NOT EXTEND MORE THAN 12" FROM SIDE OF MANHOLE.
4. WHEN ABS PIPE IS USED, THE BARREL OF THE PIPE SHALL BE PRE-PRIMED WITH SOLVENT AND SPRINKLED WITH SAND IN ORDER TO PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE. THIS REQUIREMENT IS IN ADDITION TO THE USE OF THE WATERSTOP.
5. PRECAST CONCRETE BASES MANUFACTURED BY COOK CONCRETE PRODUCTS OR TEICHERT AGGREGATE OR EQUAL MAY BE USED IN LIEU OF POURED IN-PLACE BASES.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		<p>MANHOLE BASE DETAIL</p>
		 CITY ENGINEER 3.20.07		
MARK	DATE	REVISION		

ACCEPTABLE
MANUFACTURERS

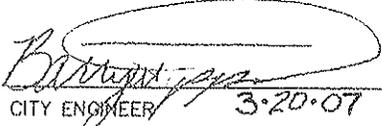
DOMESTIC MANUFACTURER ONLY

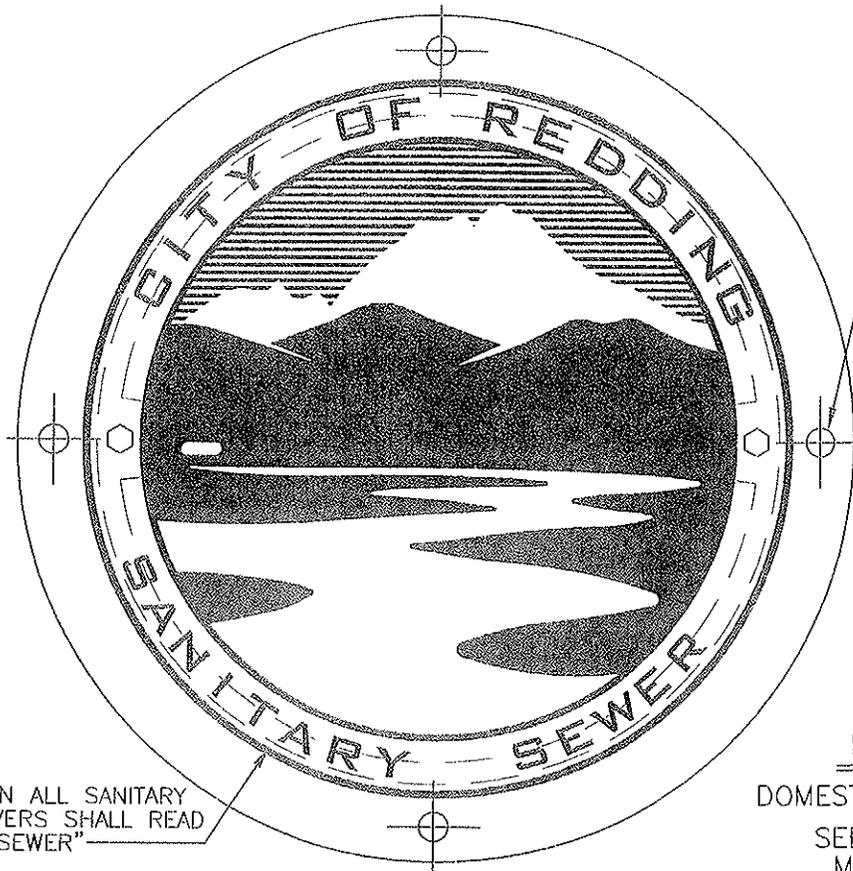
SEE CITY OF REDDING
MUNICIPAL UTILITIES 
SEWER DEPARTMENT
(530) 224-6069



NOTES:

1. FRAME AND COVER FULLY MACHINED ON SURFACES AS SHOWN TO PROVIDE NO-ROCK, NO-STICK FIT.
2. STANDARD COVER MARKINGS AVAILABLE: "SANITARY SEWER". CASTING SHALL BE ORDERED WITH THE APPROPRIATE MARKING.
-  3. CASTING SHALL BE FURNISHED WITH CLOSED PICKHOLES.
4. ALL PARTS OF ACCEPTABLE ASSEMBLIES ARE INTERCHANGEABLE.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT NOTES	APPROVED BY	24 INCH SEWER MANHOLE COVER ASSEMBLY (STREET TYPE)
	MARK	DATE	REVISION	
			 CITY ENGINEER 3.20.07	



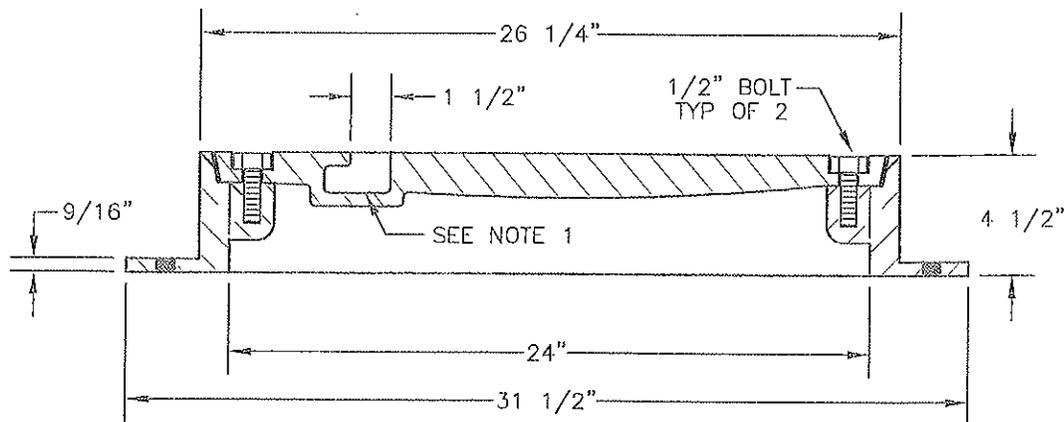
HOLES FOR 1/2" DIA
RED HEAD MULTI SET
DROP-IN ANCHORS OR
APPROVED EQUAL
MIN. 2 1/2" EMBEDMENT
(TYP. OF 4)

MARKING ON ALL SANITARY
SEWER COVERS SHALL READ
"SANITARY SEWER"

ACCEPTABLE
MANUFACTURERS

DOMESTIC MANUFACTURER ONLY

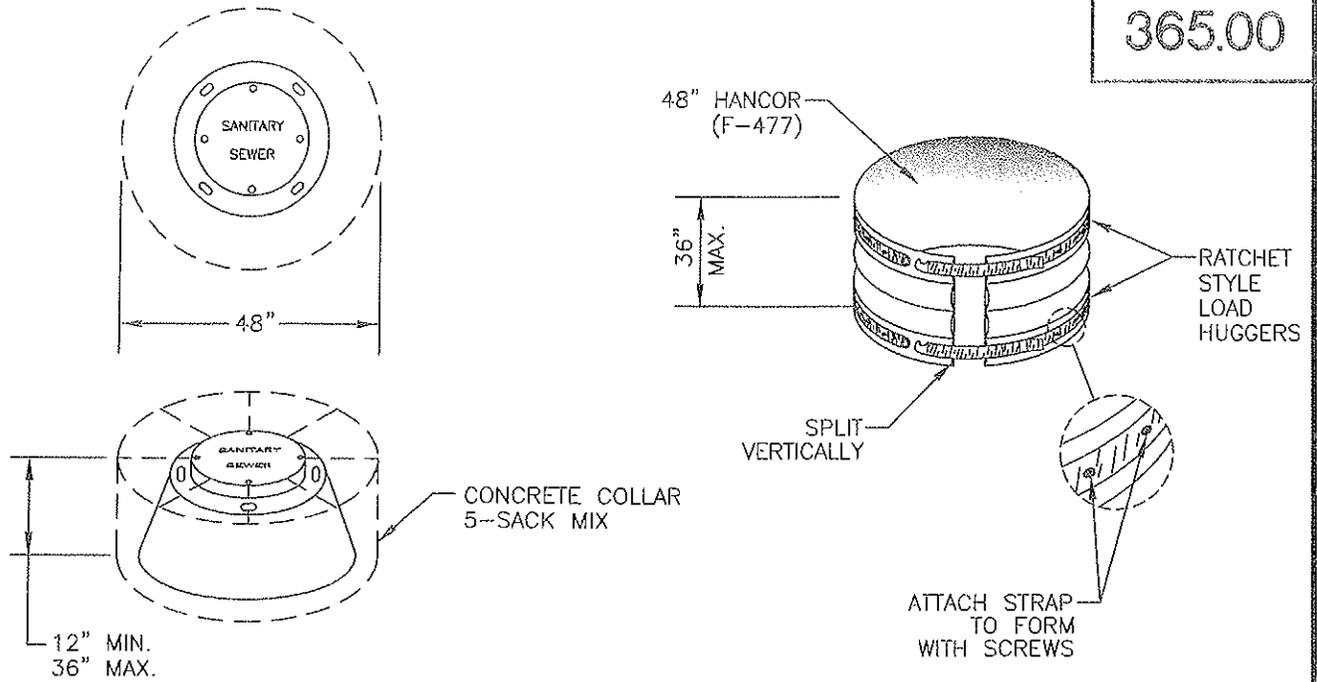
SEE CITY OF REDDING
MUNICIPAL UTILITIES 
SEWER DEPARTMENT
(530) 224-6069



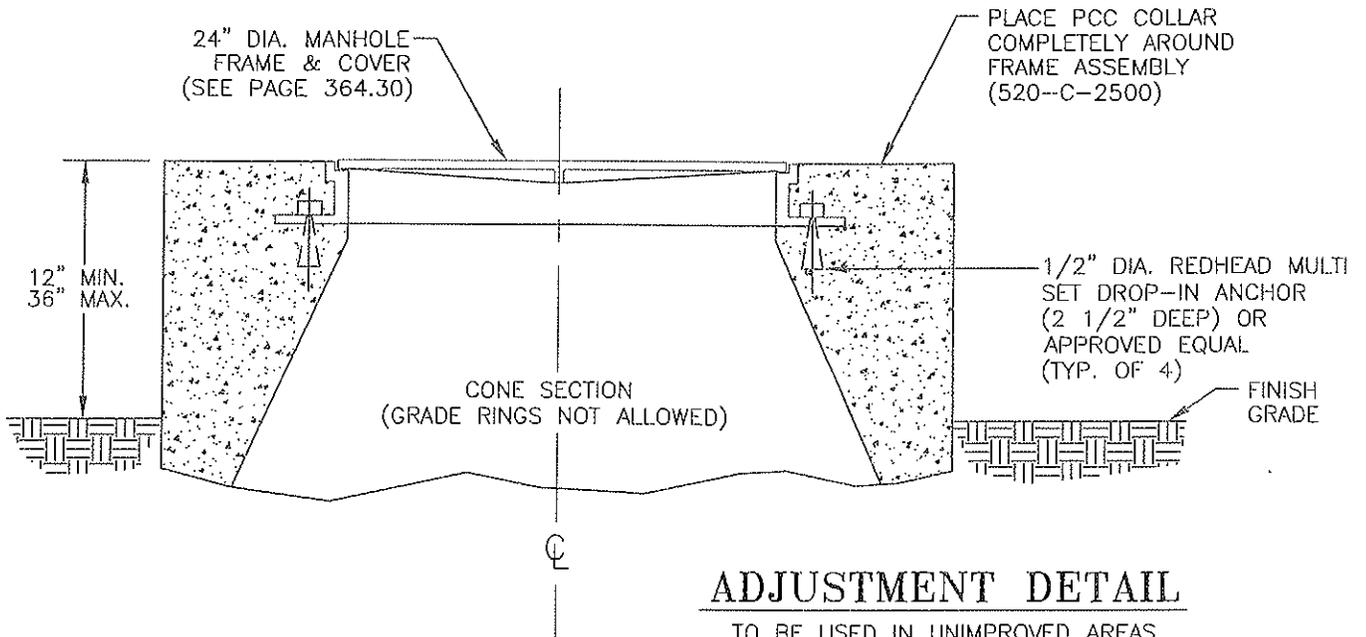
NOTES:

-  1. CASTING SHALL BE FURNISHED WITH CLOSED PICK HOLES.
- 2. ALL PARTS OF ACCEPTABLE ASSEMBLIES SHALL BE INTERCHANGEABLE.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT NOTES	APPROVED BY	SEWER MANHOLE COVER ASSEMBLY- BOLT DOWN
	MARK	DATE	REVISION	



CONCRETE BUNKER FORM



ADJUSTMENT DETAIL

TO BE USED IN UNIMPROVED AREAS
(SHOWING REQUIRED FRAME ASSEMBLY ANCHORAGE)

NOTE:

- FOR SEWER MANHOLE CONST. SEE PAGE 360.00.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY	SEWER MANHOLE ADJUSTMENT DETAILS -UNIMPROVED AREAS-
	4-06	NEW STD		
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

REQUIREMENT:

SAND AND SOIL INTERCEPTORS ARE REQUIRED FOR INDUSTRIAL AND COMMERCIAL ESTABLISHMENTS WHERE PRETREATMENT OF WASTEWATER EFFLUENT IS NECESSARY TO CAPTURE SOLIDS (SAND, SILTS ETC.) OR FLOATABLES (OILS ETC.).

THIS STANDARD APPLIES TO ALL NEW CONSTRUCTION, TENANT IMPROVEMENTS, REMODELS, AND EXISTING SYSTEMS WHICH ARE IN NEED OF UPGRADING.

SOI'S WILL BE SIZED FROM INDUSTRY SUBMITTED, CERTIFIED INDUSTRIAL WASTE SURVEY INFORMATION, OR BY CITY FIELD INSPECTION DATA. THE SIZING CRITERIA WILL FOLLOW THE UNIFORM PLUMBING CODE (U.P.C.) APPENDIX I-9. THE U.P.C. DOES NOT SPECIFY REQUIREMENTS FOR ALL SPECIFIC APPLICATIONS; HOWEVER, THE BASIC FORMULA MAY BE EASILY ADAPTED TO DIFFERING APPLICATIONS OR PARAMETERS.

SIZING CRITERIA:

1. PARAMETERS--THE PARAMETERS FOR SIZING SOI UNITS ARE HYDRAULIC LOADING, RETENTION TIME, AND STORAGE FACTOR FOR ONE OR MORE FIXTURES OR INDUSTRIAL APPLICATIONS.
2. SIZING FORMULA--THE SIZE OF THE SOI WILL BE DETERMINED BY USE OF THE FOLLOWING FORMULA:

$$\text{NUMBER OF UNITS WASHED PER HOUR} \times \text{WASTE FLOW RATE} \times \text{RETENTION TIME} \times \text{STORAGE FACTOR} = \text{INTERCEPTOR SIZE (LIQUID CAPACITY)}$$

* NUMBER OF UNITS WASHED PER HOUR (I.E., AUTO'S, ENGINES, PARTS, ETC.)

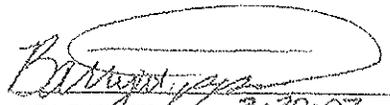
** WASTE FLOW RATE--GALLONS PER UNIT CLEANED (FOR INTERMITTENT USE), OR GALLONS PER HOUR (FOR CONSTANT USE)

*** RETENTION TIME 2.0 HOURS

**** STORAGE FACTORS--VEHICLE/EQUIPMENT/PARTS, ETC. WASHING

- | | |
|---|-----------|
| A. SELF SERVICE/PUBLIC | 1.5 HOURS |
| B. EMPLOYEE OPERATED AUTOMATED/COMMERCIAL | 2.0 HOURS |
| C. OTHER INDUSTRIAL/COMMERCIAL APPLICATIONS | 2.0 HOURS |

THE MINIMUM SIZE SOI ALLOWED BY THE CITY IS 100 GALLONS. ADJUSTMENTS FOR EXTUNUATING CIRCUMSTANCES WILL INCLUDE ESTABLISHMENT OF AN AGREED UPON SOI MAINTENENCE (PUMPING) SCHEDULE, BETWEEN THE FACILITY OWNER/OPERATOR AND THE CITY.

DWG DATE: 2--03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		SAND AND OIL INTERCEPTORS (SOI)
		 CITY ENGINEER 3-20-07		
MARK	DATE	REVISION		

DESIGN:

ALL NEW CONSTRUCTION AND UPGRADES, WHERE SOI'S ARE REQUIRED SHALL BE CONSTRUCTED TO INCLUDE A SAMPLE MONITORING STATION. FACILITIES REQUIRED TO INSTALL ON SOI AND/OR SAMPLE MONITORING STATION, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS. THE USE OF AUXILIARY OR ALTERNATE PRETREATMENT SYSTEMS IN CONJUNCTION WITH OR IN LIEU OF AN SOI UNIT MUST BE APPROVED BY THE CITY'S INDUSTRIAL WASTE DIVISION PRIOR TO INSTALLATION.

STANDARD REV: SEPTEMBER 19, 2003

IF AN EXISTING UNDERSIZED UNIT IS STRUCTURALLY SOUND AND INSTALLED PROPERLY, THEN, IN LIEU OF REPLACING IT WITH A LARGER UNIT, THE OWNER MAY CHOOSE TO INSTALL AN ADDITIONAL UNIT IN SERIES WITH THE EXISTING UNIT TO SATISFY THE TOTAL SIZE CAPACITY REQUIRED.

THE ATTACHED STANDARD SOI DRAWING APPLIES TO UNITS OF 100 THROUGH 1,500 GALLON CAPACITY. UNITS OVER 1,500 GALLON CAPACITY MUST HAVE AT LEAST 3 COMPARTMENTS.

ALL SEALING WITH A FLEXIBLE JOINT SEALANT OF RISERS AND COVER RINGS SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. ALL GROUTING OF INTERNAL PLUMBING SHALL BE THE RESPONSIBILITY OF THE CUSTOMER AND/OR CONTRACTOR.

FINAL INSPECTION REQUIRES UNBOLTED MANHOLE LIDS WHICH OPEN FREELY.

ALL REQUIRED SOI'S SHALL BE INSTALLED AND PROPERLY MAINTAINED WITH ALL INTERNAL REQUIRED PLUMBING OF PROPER DESIGN AND LENGTH IN PLACE AT ALL TIMES.

REQUIREMENT:

OIL AND GREASE INTERCEPTORS ARE REQUIRED FOR INDUSTRIAL AND COMMERCIAL FOOD ESTABLISHMENTS WHERE PRETREATMENT OF WASTEWATER EFFLUENT IS INDICATED AS NECESSARY TO CAPTURE GREASES, OILS, OR FOOD SOLIDS.

THIS STANDARD APPLIES TO ALL NEW CONSTRUCTION, TENANT IMPROVEMENTS, REMODELS, AND EXISTING SYSTEMS WHICH ARE IN NEED OF UPGRADING.

OGI'S WILL BE SIZED FROM INDUSTRY SUBMITTED, CERTIFIED FOOD PREPARATION FACILITY SURVEY INFORMATION. THE SIZING CRITERIA WILL FOLLOW THE UNIFORM PLUMBING CODE (U.P.C.) APPENDIX H. THE INTERCEPTOR SIZE (IN GALLONS) WILL BE ESTABLISHED BY A FORMULA.

SIZING CRITERIA:

1. PARAMETERS--THE PARAMETERS FOR SIZING A GREASE INTERCEPTOR ARE HYDRAULIC LOADING AND GREASE STORAGE CAPACITY, FOR ONE OR MORE FIXTURES.
2. SIZING FORMULA--THE SIZE OF THE INTERCEPTOR SHALL BE DETERMINED BY THE FOLLOWING FORMULA:

$$\begin{matrix} \text{NUMBER OF MEALS} & \times & \text{WASTE FLOW} & \times & \text{RETENTION} & \times & \text{STORAGE} & = & \text{INTERCEPTOR SIZE} \\ \text{PER PER HOUR} & * & \text{RATE} & ** & \text{TIME} & *** & \text{FACTOR} & **** & \text{(LIQUID CAPACITY)} \end{matrix}$$

* MEALS SERVED AT PEAK HOUR (OR), TOTAL SEATING CAPACITY

** WASTE FLOW RATE:

- | | |
|--|---------------|
| A. WITH DISHWASHING MACHINE | 6 GALLON FLOW |
| B. WITHOUT DISHWASHING MACHINE | 5 GALLON FLOW |
| C. SINGLE SERVICE KITCHEN ¹ | 2 GALLON FLOW |
| D. FOOD WASTE DISPOSER ² | 1 GALLON FLOW |

*** RETENSION TIMES

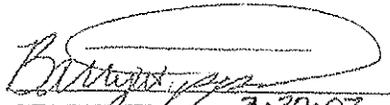
- | | |
|-------------------------------------|-----------|
| COMMERCIAL KITCHEN WASTE DISHWASHER | 2.5 HOURS |
| SINGLE SERVICE KITCHEN | 1.5 HOURS |

**** STORAGE FACTORS

- | | | |
|-----------------------------------|-------------------|-----|
| FULLY EQUIPPED COMMERCIAL KITCHEN | 8 HOUR OPERATION: | 1 |
| | 16 HOUR OPERATION | 2 |
| | 24 HOUR OPERATION | 3 |
| SINGLE SERVICE KITCHEN | | 1.5 |

¹ FAST FOOD FACILITIES USING ONLY PLASTIC UTENSILS, PAPER PLATES, ETC.

² FOOD WASTE DISPOSER ADD 1 TO A, B, OR C.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		OIL AND GREASE INTERCEPTORS (OGI)
		 CITY ENGINEER 3.20.07		
MARK	DATE	REVISION		

THE MINIMUM SIZE OGI ALLOWED BY THE CITY IS 1250 GALLONS. FOR VERY LARGE OGI REQUIREMENTS THE MAXIMUM SIZE REQUIREMENT WILL BE ESTABLISHED ON A CASE BY CASE BASIS. ADJUSTMENTS FOR FACILITIES REQUIRED TO INSTALL ON SOI AND/OR SAMPLE MONITORING STATION, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS. THE USE OF AUXILIARY OR ALTERNATE PRETREATMENT SYSTEMS IN CONJUNCTION WITH OR IN LIEU OF AN SOI UNIT MUST BE APPROVED

DESIGN:

ALL NEW CONSTRUCTION AND UPGRADES, WHERE SOI'S ARE REQUIRED SHALL BE CONSTRUCTED TO INCLUDE A SAMPLE MONITORING STATION. ALL FOOD WASTE DISPOSERS (GARBAGE GRINDERS) SHALL BE CONNECTED TO THE OGI INFLUENT PLUMBING.

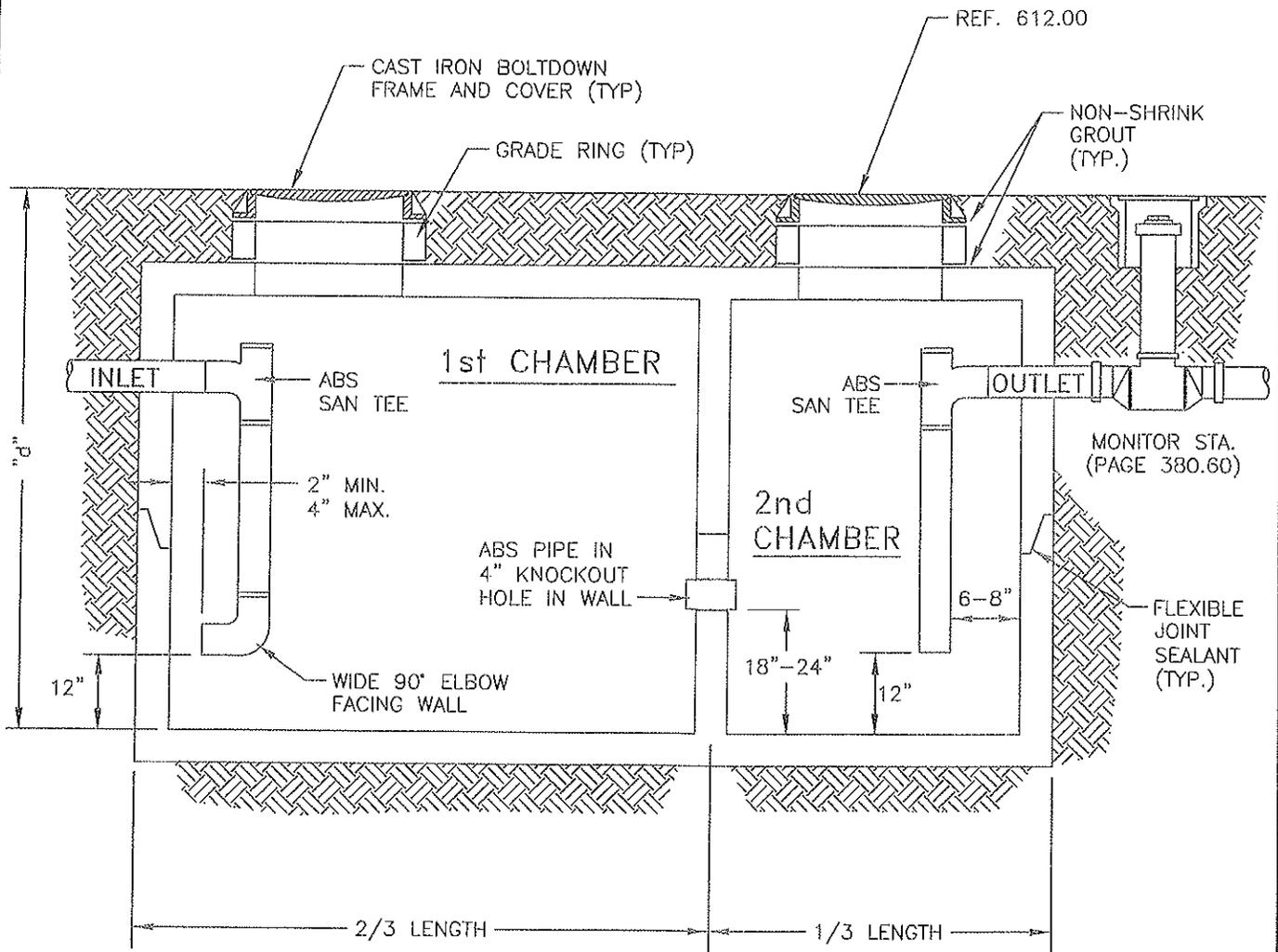
FACILITIES REQUIRED TO INSTALL OGI'S AND/OR SAMPLE MONITORING STATIONS, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS.

IF AN EXISTING UNDERSIZED UNIT IS STRUCTURALLY SOUND AND INSTALLED PROPERLY, THEN, IN LIEU OF REPLACING IT WITH A LARGER UNIT, THE OWNER MAY CHOOSE TO INSTALL AN ADDITIONAL UNIT IN SERIES WITH THE EXISTING UNIT TO SATISFY THE TOTAL SIZE CAPACITY REQUIRED. IN SUCH CASES THE BAFFLE WALL WITHIN THE EXISTING OGI MUST BE MODIFIED BY SCORING AND CUTTING A CENTERED 24-INCH MAXIMUM SQUARE HOLE IN THE BAFFLE WALL, WHICH BEGINS NO LESS THAN 12-INCHES FROM THE TOP OF THE BAFFLE WALL.

THE ATTACHED STANDARD SOI DRAWING APPLIES TO UNITS OF 100 THROUGH 1,500 GALLON CAPACITY. UNITS OVER 1,500 GALLON CAPACITY MUST HAVE AT LEAST 3 COMPARTMENTS.

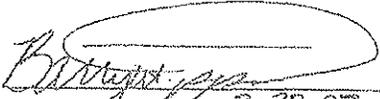
ALL SEALING WITH A FLEXIBLE JOINT SEALANT OF RISERS AND COVER RINGS SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. ALL GROUTING OF INTERNAL PLUMBING SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. FINAL INSPECTION REQUIRES UNBOLTED MANHOLE LIDS WHICH OPEN FREELY.

ALL REQUIRED OGI'S SHALL BE INSTALLED AND PROPERLY MAINTAINED WITH ALL INTERNAL REQUIRED PLUMBING OF PROPER DESIGN AND LENGTH IN PLACE AT ALL TIMES.



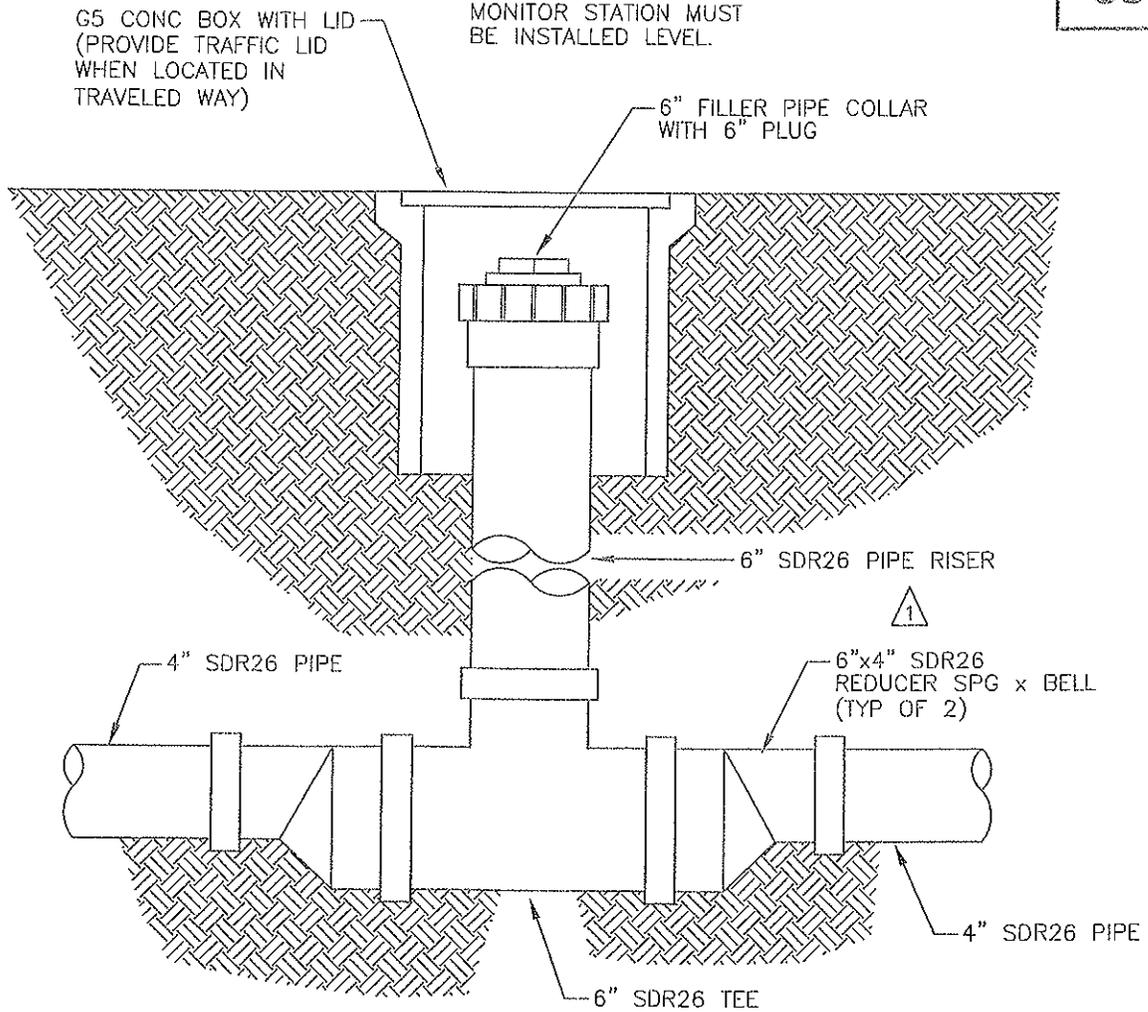
NOTES:

1. MINIMUM WALL THICKNESS SHALL BE 4".
2. SYSTEMS THAT HAVE THE POTENTIAL OF SUPPORTING VEHICLES OR WHERE VEHICLES CAN BE LOCATED WITHIN DISTANCE "d" FROM THE CHAMBER WALL SHALL BE DESIGNED TO SUPPORT AASHTO HS20-44 LOADING. APPROVAL OF DESIGN MUST BE OBTAINED PRIOR TO INSTALLATION.
3. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS PER STD PAGE 610.00

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		SAND AND OIL AND OIL AND GREASE INTERCEPTOR
		 CITY ENGINEER 3-20-07		
MARK	DATE	REVISION	SOI AND OGI	

NOTE:

MONITOR STATION MUST
BE INSTALLED LEVEL.



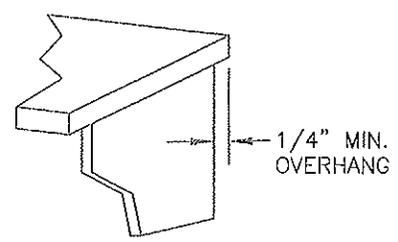
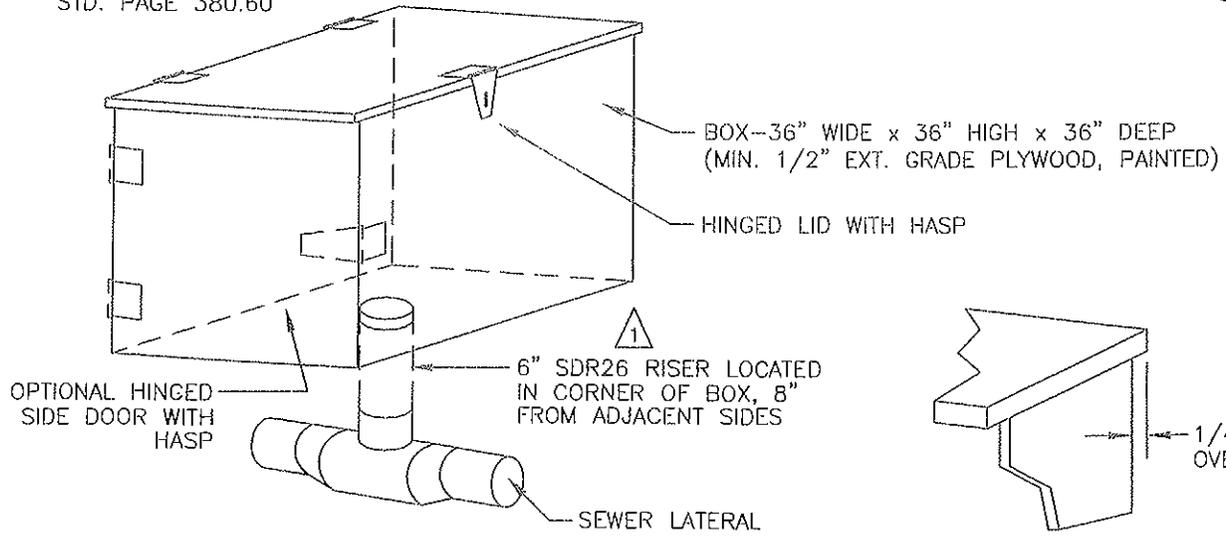
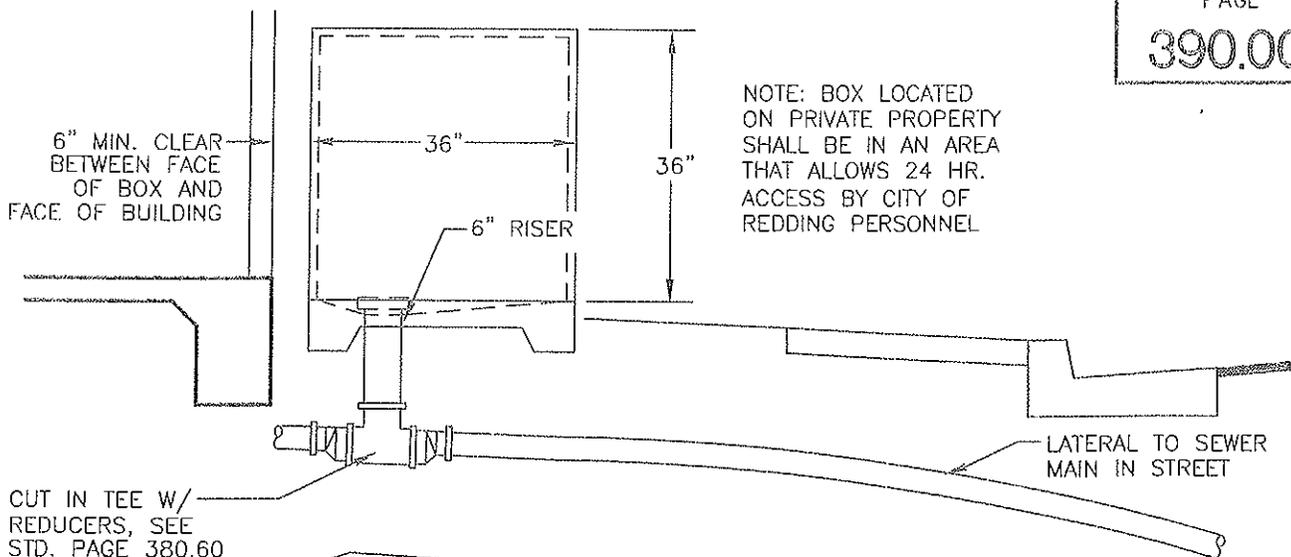
△ PARTS LIST

- 6" SDR26 TEE ————— 1 EA
- 6"x4" SDR26 REDUCER ——— 2 EA
(SPG x BELL)
- 6" FILLER PIPE COLLAR ——— 1 EA
- 6" PLUG ————— 1 EA
- G5 CONCRETE BOX ————— 1 EA
- G5 SEWER LID ————— 1 EA

IF REQUIRED

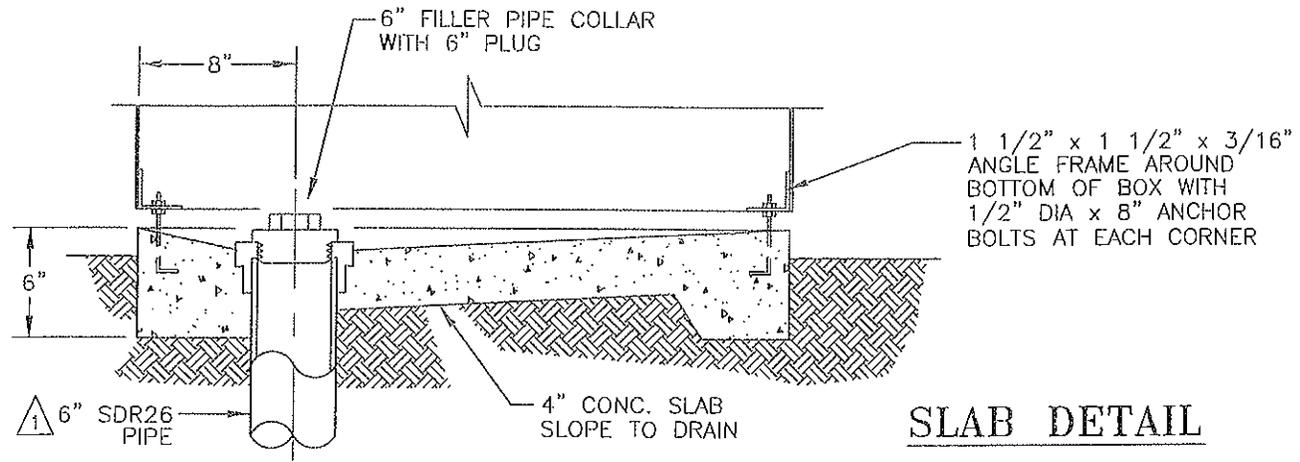
- 4" ABS COUPLING ————— 1 EA
- 4" ABS x SDR BUSHING ——— 1 EA

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△ MARK	4-06	EDIT DETAIL	APPROVED BY <i>[Signature]</i> CITY ENGINEER	INTERCEPTOR MONITOR STATION
	DATE	REVISION	3-20-07	

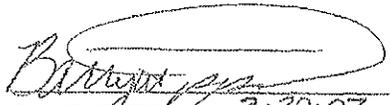


BOX DETAIL

LID DETAIL



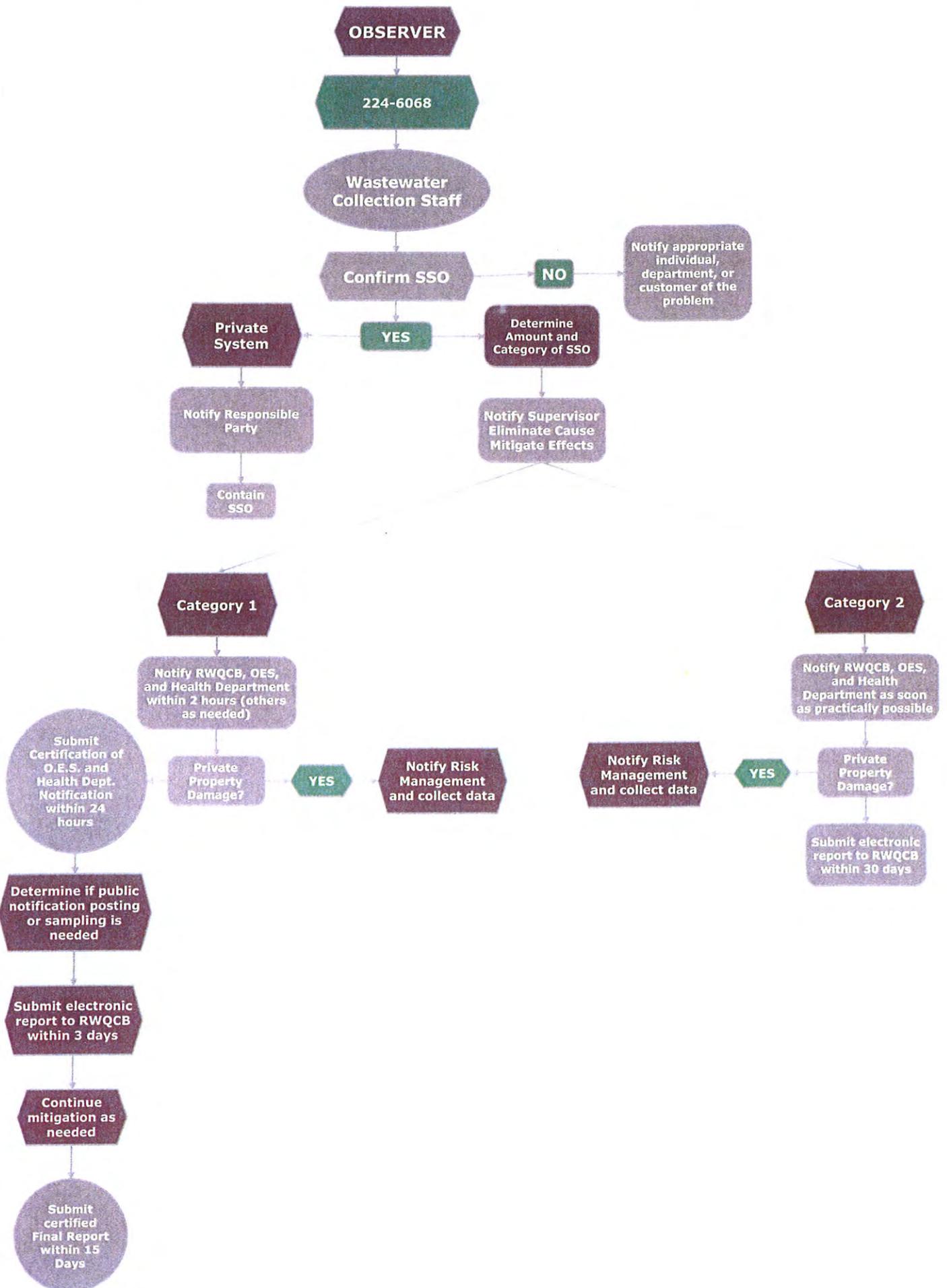
SLAB DETAIL

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT DETAIL	APPROVED BY	ABOVE GRADE WASTEWATER MONITORING STATION
	MARK	DATE	REVISION	
			 CITY ENGINEER 3.20.07	

Appendix F

SSO Reporting Flowchart

REPORT OF SANITARY SEWER OVERFLOW OR LIFT STATION EQUIPMENT ALARM



Appendix G

Public Health Warning Sign

WARNING

**This area and waters
may be contaminated by
sewage.**

**Contact is not advised
with these waters due to
the increased risk of
illness.**

**City of Redding
Wastewater Division
530-224-6069**



Appendix H

Performance Indicators

PROPOSED SSMP PERFORMANCE INDICATORS

Indicator
Number of SSOs (by season)
Wet Season
Dry Season
Number of SSOs (by volume)
<10 gal
10 - 99 gal
100 - 999 gal
≥ 1000 gal
SSO Volume
Total
Recovered
Number of SSO (by cause)
Blockages
Roots
Grease
Debris
Debris from Laterals
Vandalism
Construction Debris
Multiple Causes
Infrastructure Failure
Inflow & Infiltration
Electrical Power Failure (lift stations)
Flow Capacity Deficiency
Natural Disaster
Bypass
Cause Unknown
Number of SSOs per mile of sewer per year
Volume of SSOs per mile of sewer per year
Average Emergency Response Time
Business Hours
Non-business Hours
Maintenance Activities (lineal ft/yr)
Televised Inspection
Hydrocleaning
Smoke Inspection
Remote Manhole Inspection

Appendix I
Agency Notification
Instructions

AGENCY NOTIFICATION INSTRUCTIONS

- **Category 1- Sewage spills of 1,000 gallons or more, or ANY spill that discharges to a drainage channel or surface water, or that reaches a storm drain and is not fully recovered:**

Call the supervisors listed below and ask them to make the necessary notifications. If no manager is contacted and agrees to make notifications, it is your responsibility to do so. Within 2 hours of becoming aware of a Sanitary Sewer Overflow (SSO) **that reaches a drainage channel or surface water**, notify the California Emergency Management Agency (CEMA) and obtain a CEMA incident number. Also notify Shasta County Environmental Health, the California Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Game (DFG).

- **Supervisors/Leadworkers:** For Category 1 spills: In addition to the 2-hour notification above, within 24 hours of becoming aware of a spill to a drainage channel or surface water, submit a certification, by email or in writing, to the RWQCB stating that CEMA and Environmental Health have been notified. Report to the online CIWQS SSO database as soon as possible, and in no case later than 3 days after the spill.
- **Category 2- All other SSO's:** Call the supervisors listed below if necessary, and gather the information listed below in red. Supervisors will provide this information to Josh Keener or Josh Vandiver so they can report to the online CIWQS SSO database within the required time line.

Notify appropriate supervisors before proceeding with all other notifications.

NAME	WORK PHONE (Office)	WORK PHONE (Cell)	24 HOUR (Home)	24 HOUR (Cell)
Josh Vandiver	530-224-6069	530-209-1012		530-209-1012
Josh Keener	530-224-4122	530-524-2420	530-247-0174	530-524-2420
Steve Hollingsworth	530-224-6070	530-356-4622		
Jon McClain	530-224-6029	530-227-6082		

EMERGENCY INFORMATION REQUIRED FOR SSO's AND HAZ MAT INCIDENTS

Obtain as much information as possible about an SSO or hazardous material release and report to the appropriate agencies as listed on the back of this sheet, including the following information:

- Even if no notifications are made, provide this information to Josh Keener for reporting
- **Your name, location, organization, and telephone number**
- **Name and address of the party responsible for the incident (if known)**
- **Date and time of the incident, including time Collections notified, time crew arrived, time incident ends**
- **Location of the incident, including PICTURES OF ALL SPILLS**
- **Source and cause of the release or spill and whether surface water or drainage channel was affected**
- **Type and quantity of material(s) released or spilled, including volume recovered if SSO**
- **Danger or threat posed by the release or spill**
- **Weather conditions at the incident location**
- **Name of carrier, vessel, railcar, truck number, or other identifying information**
- **Whether an evacuation has occurred**
- **Other agencies notified or about to be notified**
- **Any other information that may help emergency personnel respond to incident**
- **Once call is made to CEMA, record CEMA incident number**

MAINTAIN A LOG BOOK OF ALL: CALLS, CONTACTED PERSONS' NAMES, CONVERSATIONS, TIMES, OBSERVATIONS, ANY INCIDENT NUMBERS THAT ARE ASSIGNED, OTHER RELATED INFORMATION, ETC.

INSTRUCTIONS ON THE OTHER SIDE OF THIS SHEET AND THE TABLE BELOW LISTS THE AGENCIES AND CONDITIONS REQUIRED FOR NOTIFICATION:

CONDITION	AGENCY													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Category 1- Sewage spill > or = 1000 gallons (Category 1)	X	X	X		X									
Category 1- Sewage spill < 1000 gallons with threat to health or affecting surface water or drainage channel (Category 1)	X	X	X								X			
Spill entering storm water conveyance system and not fully recovered (Category 1)	X		X		X								X	
Chlorine release > 10 lbs	X	X	X		X	X	X	X		X	X			
Chlorine release < 10 lbs		X	X		X									
Sulfur Dioxide release > 500 lbs	X	X	X		X	X	X	X		X	X			
Sulfur Dioxide release < 500 lbs		X	X		X									
Prohibited conditions that impact Waters of the State		X	X								X			
Prohibited conditions that impact State roadway (reportable quantity)		X		X	X									
Incident resulting in property damage									X					
Railroad HazMat (spills/incidents involving railroad property)												X		
Spill in proximity to Bella Vista Water District intake near North Market Street Lift Station														X

	Agency	Phone/Website	Contact	Email/notes
1	California Emergency Management Agency (CEMA)	1-800-852-7550		
2	CV Regional Water Quality Control Board HAZ MAT to storm drain	530-224-4845/224-4993 http://ciwqs.waterboards.ca.gov/	Stacy Gotham Bryan Smith George Day	sgotham@waterboards.ca.gov bsmith@waterboards.ca.gov gday@waterboards.ca.gov
3	Shasta County Environmental Health CUPA - HAZ MAT	530 225-5787 (call SHASCOM 245-6550 on weekends)	Mark Cramer Jim Whittle	mcramer@co.shasta.ca.us jwhittle@co.shasta.ca.us
4	Cal Trans (for highways)	530-225-3066	Carl Snibbe	carl_snibbe@dot.ca.gov
5	RMU Field Ops 7 AM-4:30 M - F	530-224-6068		
6	City of Redding Haz Mat, SCHMIRT, Highway Patrol	911		Local Emergency Response Agencies
7	National Response Center	800-424-8802		Only if hazmat > reportable quantity: 10 lbs chlorine, 500 lbs sulfur dioxide; report within 15 minutes
8	Department of Toxic Substances Control (DTSC)	510-540-2122		Notify within 15 days, then again when cleaned up
9	City of Redding Risk Mgmt	530-225-4387/ 524-2626	Chris Carmona	ccarmona@ci.redding.ca.us
10	Shasta Co. Air Quality	530-225-5674	Ross Bell	rebell@co.shasta.ca.us
11	California DFG	530-225-2300		
12	Union Pacific Response Management Center (RMCC)	888-877-7267 24 hour 916-789-5241 admin	Benjamin Salo	brsalo@up.com
13	Redding Storm Drain Utility	530-245-1111/410-2195	Answering Service (John Stacher or standby #)	Request on-call Storm Drain crew
14	Bella Vista Water District (BVWD)	530-241-1085	Answering Personnel	Note proximity of spill to BVWD water intake near North Market Street Lift Station

Revised 10/2012

City of Redding Wastewater Collections

Spill Response

Standard Operating Procedure

1. Key Information Notes Required
 - a. Time of call received
 - b. Time of arrival on scene
 - c. Approximate GPM and amount of spill
 - d. Time stoppage relieved and cause
 - e. Contact with storm drain or waterway
 - f. Status of Cleanup (returned or un-captured) Estimated Gallons
2. Immediate action taken
 - a. Prevent contamination of waterways by whatever means necessary
 - b. Evaluate and relieve stoppage
 - c. Take pictures if practical
3. Notifications required
 - a. Josh Vandiver- Supervisor - 530-209-1012/530-275-5607
 - i. Josh Keener- Compliance - 530-524-2420
 - ii. Dennis McBride -- Manager -- 530-227-4264
 - iii. Chris Cannona - Risk Management 530-524-2626
 - iv. John Stacher -- Storm Drains -- 530-931-5969
 - v. Marcia Ames -- Industrial Waste - 530-351-1794
4. Coordinating efforts
 - a. Evaluate assistance level required and call for backup
 - i. Personnel
 - ii. Equipment (Pumps, sandbags, Vac Truck, etc. chlorinator/diffuser ect)
 - iii. Contact Storm Drains in the event of contact to their system
 - iv. Contact Industrial Waste if commercial industry is involved
5. Cleanup procedure and follow up required
 - a. Flush and Pump
 - b. Erosion control if needed
 - c. Post area if waters are contacted
 - d. Pictures of completed cleanup
 - e. Make sure affected customer is informed and satisfied. Provide contact information for Chris Cannona and Josh Vandiver
6. Detailed report with pictures and all hand written notes turned in to Working Foreman office.
7. Provide follow up recommendations
 - a. TV mainline
 - b. Sampling areas
 - c. Locations of signs
 - d. Repairs needed

Sewer System Management Plan (SSMP)

Revision Record

Section Revised	Page Revised	Date	Revised By
Appendix A- Org. Chart	Organization Chart	6/17/2011	JK
Appendix B- Employee Contact Info- During Work Hours	Contact Info. Chart	6/17/2011	JK
Appendix C- Employee Contact Info-After Hours	Contact Info. Chart	6/17/2011	JK
Appendix D- 24-hr Contact Info for Equipment and Materials	24-hour Equipment and Material Contacts	6/17/2011	JK
Appendix E- CoR Design Standards	Added Standards Pages 300.80, 301, 302, 350, 360, 360.10, 361, 362, 363, 364.20, 364.30, 365, 380, 380.10, 380.40, 380.60, 390	6/17/2011	JK
Appendix F- SSO Reporting Flowchart	Flowchart	6/17/2011	JK
Appendix I- Agency Notification Instruction and Spill Response SOP	Agency Notification Sheet	6/17/2011	JK
Appendix J- Revision Record	Added Appendix J	6/17/2011	JK