PRELIMINARY ENGINEERING REPORT
FOR
CITY OF LAKEPORT
WASTEWATER SYSTEM IMPROVEMENTS PROJECT

APRIL 2012

PACE ENGINEERING
REDDING, CALIFORNIA

PACE ENGINEERING

April 12, 2012

523.30.100

Mr. Scott Harter, City Engineer
City of Lakeport
225 Park Street
Lakeport, CA 95453

We are pleased to present the report entitled:

PRELIMINARY ENGINEERING REPORT
FOR THE
CITY OF LAKEPORT
WASTEWATER SYSTEM IMPROVEMENTS PROJECT

This report contains the results of our investigation of the Lakeport wastewater collection, treatment, and disposal systems. It includes recommendations for replacement and improvements to sewer collection and treatment facilities, project cost estimates, scheduling of the project, and financing options.

PACE Engineering is very pleased to have participated in this project. We would like to thank City staff for their able assistance in its preparation and USDA Rural Development for their contribution toward a viable recommended project. We look forward to working with both agencies toward the successful completion of the project.

Sincerely,

Thomas W. Warnock
Principal Engineer

TWW
Enclosures
c: w/report: Mark Brannigan, City of Lakeport
Lorie Ann Adams, Adams Ashby Group
Bob Klousner, Environmental Planning Partners, Inc.
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PRELIMINARY ENGINEERING REPORT

FOR THE

CITY OF LAKEPORT

WASTEWATER SYSTEM IMPROVEMENTS PROJECT

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APRIL 2012

JOB NO. 523.30

PACE ENGINEERING
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ACRONYMS AND ABBREVIATIONS

ABM	Air blown mortar
ADWF	Average dry weather flow
CCTV	Close circuit television
CDBG	Community Development Block Grant
CDO	Cease and desist order
CEQA	California Environmental Quality Act
City	City of Lakeport
CMP	Corrugated metal pipe
COP	Certificate of Participation
CRWQCB	California Regional Water Quality Control Board
CWSRF	Clean Water State Revolving Fund
DOF	Department of Finance
ENR CCI	Engineering News Record – Construction Cost Index
EPA	Environmental Protection Agency
GIS	Geographical information system
GPAD	Gallons per acre per day
GPD	Gallons per day
GPM	Gallons per minute
HDR	HDR Engineering, Inc.
HP	Horsepower
I&I	Infiltration and inflow
MGD	Million gallons per day
MHI	Median household income
MPN	Most probable number
MSP	Master Sewer Plan
NEPA	National Environmental Policy Act
NOV	Notice of violation
O&M	Operations and maintenance
PER	Preliminary Engineering Report
PLC	Programmable logic controller
PPD	Pounds per day
PWWF	Peak wet weather flow
RUE	Residential unit equivalent
RUS	Rural Utilities Service
SCADA	Supervisory Control and Data Acquisition
USDA RD	United States Department of Agriculture – Rural Development
USGS	United States Geological Survey
WDRs	Waste discharge requirements
WWTP	Wastewater treatment plant

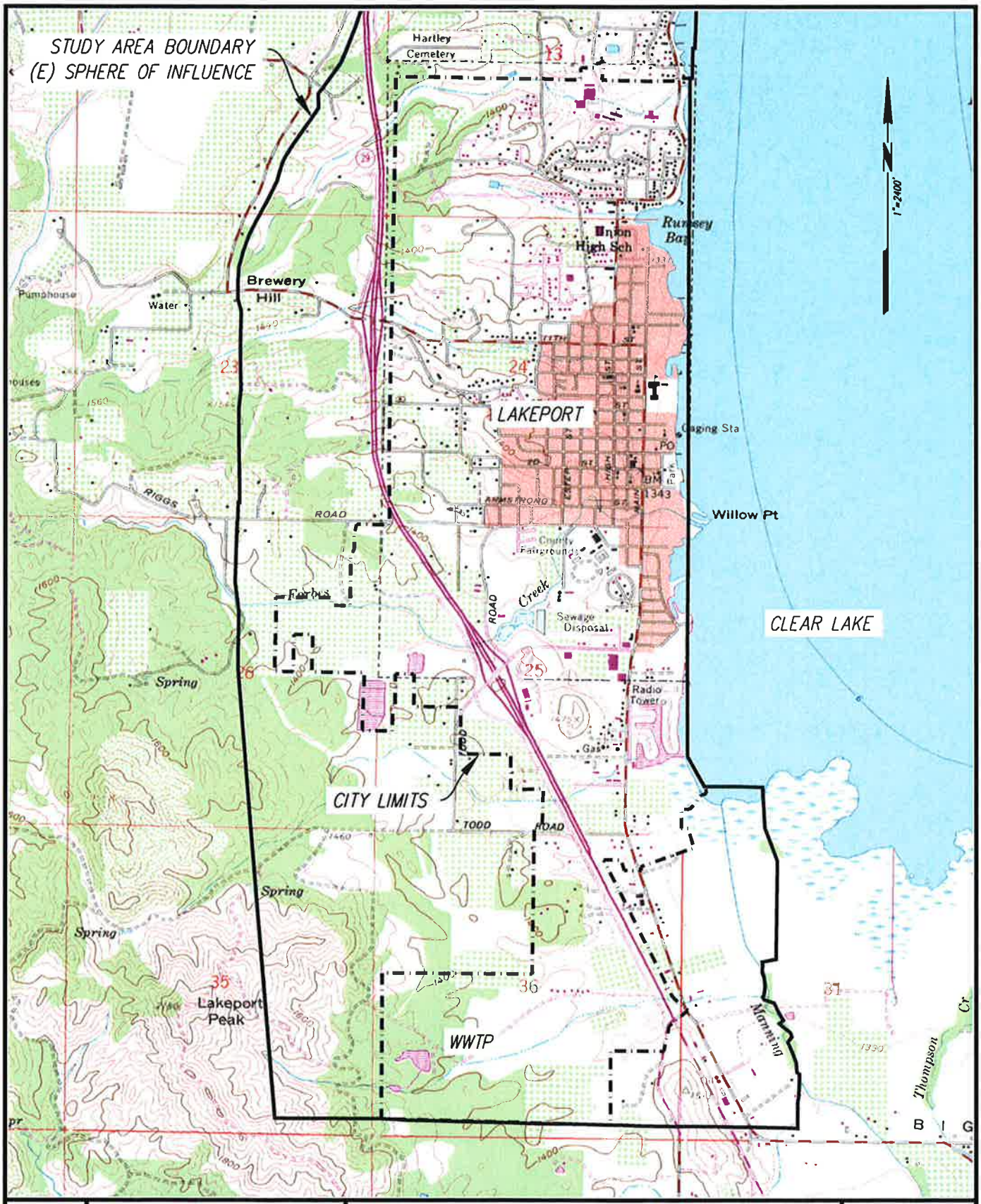
PRELIMINARY ENGINEERING REPORT
CITY OF LAKEPORT
WASTEWATER SYSTEM IMPROVEMENTS PROJECT
APRIL 2012

I. GENERAL

The City of Lakeport (City) was incorporated in 1888 and is located on the west shore of Clear Lake in Lake County, California. The City of Lakeport Municipal Sewer District owns and operates the wastewater collection and treatment system that serves the City and a portion of Lake County. The study area boundary is shown in Figure 1 of this report.

The Lakeport Wastewater Treatment Plant (WWTP) currently operates under Waste Discharge Requirements (WDRs) Order No. R5-2012-XXXX, which was adopted March 30, 2012, and can be found in Appendix A. The City's wastewater system is in need of improvements. The City received a Notice of Violation (NOV) in 2006 and Cease and Desist Order (CDO) No. R5-2007-0010 in 2007 from the California Regional Water Quality Control Board (CRWQCB). The NOV and CDO were in response to numerous sewer system overflows, inflow and infiltration problems, groundwater contamination, and storage capacity violations. Refer to Appendix B and C for the NOV and CDO, respectively.

As required by the CDO, the City updated its Master Sewer Plan (MSP) in 2008 (PACE, 2008). A number of near-term, intermediate, and long-term improvements were recommended in the 2008 MSP in order to correct sewage collection and treatment system deficiencies. The City contracted with PACE to prepare this Preliminary Engineering Report (PER), which recommends project specific wastewater system improvements, most of which were discussed in the MSP, determines costs associated with those improvements, and develops funding alternatives. The format of this report follows Rural Utilities Service (RUS) Bulletin 1780-3.



DATE			
04/12	PACE ENGINEERING REDDING, CALIFORNIA	CITY OF LAKEPORT PRELIMINARY ENGINEERING REPORT STUDY AREA BOUNDARY	FIGURE 1 JOB #523.30

Plot Date: April 09, 2012 - 10:46 am Login Name: lmccollum
File Name: M:\Land Projects\0523.30 Lakeport Wastewater PER\Sewer Plate 1.dwg, Layout: FIG 1

II. PROJECT PLANNING AREA

A. Location:

The proposed project is located in and around the City of Lakeport in Lake County, California. Lakeport lies on the west bank of Clear Lake, approximately 42 miles north of Santa Rosa and 91 miles north of San Francisco. The project study area is shown on a United States Geological Survey (USGS) map in Figure 1, with the WWTP located south of the City limits. The area encompasses approximately 4,000 acres.

B. Environmental Resources Present:

The proposed project alternatives do not appear to have any lasting, significant impact on land resources, historic sites, wetlands, flood plain, endangered species, or critical habitat. The project design and construction will need to obtain the appropriate permits and take into account specific mitigation measures, so as not to impact natural or prehistoric resources. These requirements are discussed in detail in a later section of this report. The City has enlisted the services of Environmental Planning Partners, Inc., to prepare complete environmental documentation of the project. Preliminary analysis indicates that an Initial Study/Mitigated Negative Declaration will be necessary to meet California Environmental Quality Act (CEQA) requirements. In addition, National Environmental Policy Act (NEPA)-like requirements will be met, along with submission of RUS Environmental Bulletin 1974A-602.

C. Growth Areas and Population Trends:

The State Department of Finance (DOF) estimated the City's population increased from 4,820 in 2000, to 5,125 in 2006 within the City limits. This is a population increase of approximately 1.0% per year. In order to estimate the number of additional households that may connect to the system in the next 20 years, the growth rates used in the 2008 MSP were based on the minimum growth alternative of 1.1% per year as defined in the City of Lakeport General Plan. The City currently serves an estimated 2,474 residential unit equivalents (RUEs). A RUE is defined as the average dry weather flow (ADWF) generated from a single-family household. Using this growth rate over the

next 20-year period, the estimated increase in the number of RUEs would be approximately 630 RUEs by year 2028. Of these future RUEs about 520 RUEs would be added to the City's main sewer area that is currently being served by the WWTP. This would result in an ADWF at the WWTP of roughly 0.48 million gallons per day (MGD) by year 2028. The WWTP has an existing ADWF capacity of 0.53 MGD per the WDRs, and as such has adequate capacity for the anticipated growth.

Although population growth rate could be used to predict future sewage flows, the population growth rate alone tends to neglect other factors that can affect wastewater production. For example, increases or decreases in commercial and industrial water use and the current trend for water saving appliances can also impact the production of wastewater in the future.

According to the Draft Sewer Rate Study currently being developed by HDR Engineering, Inc. (HDR), the City currently has 2,325 billed lateral connections that are equivalent to approximately 2,474 RUEs. Refer to Appendix D for a copy of the Draft Sewer Rate Study.

Given the current interest in northern California real estate, one should anticipate the low growth rate to continue during the upcoming years as the economy recovers. The median household income (MHI) for the City was $32,226 as measured by the U.S. Census Bureau in 2000. This is only 68% of the state average non-metropolitan MHI of $47,493 in 2000. More recently, the MHI for the City was $34,340 as measured by the U.S. Census Bureau in 2010, which is only 60% of the state average MHI of $57,708 in 2010.

III. EXISTING FACILITIES

A. Location Map:

The project is located mainly in Sections 13, 23-26, and 36, Township 14 North, Range 10 West, Mount Diablo Base and Meridian, as shown on the Lakeport California USGS Map in Figure 1.

B. History:

The City's original treatment plant, located at Larrecou Lane, was constructed in 1939. It was expanded in 1959, and again in 1979. The original plant used a series of clarifiers and a trickling filter to treat the wastewater prior to pumping it to an effluent reservoir for use as irrigation. In 1991, the City constructed a new wastewater facility at Linda Lane to replace the antiquated and inefficient Larrecou Lane treatment plant. The City's current wastewater facility has an ADWF treatment capacity of about 0.53 MGD and a peak wet weather flow (PWWF) capacity of approximately 3.0 MGD. The treatment plant is considered to be a secondary treatment facility.

As indicated in the 2008 MSP, the City sewer system consists of about 135,400 feet of collection sewers and 13,500 feet of 12- to 15-inch main interceptor sewers. In addition, there are over 540 manholes within the sewer collection system. Collection sewers are generally 6 to 10 inches in diameter and are used to collect wastewater from the building laterals. A significant amount of the collection sewers in the system (approximately 18,000 feet) are 4-inch diameter pipes. The main branches of the collection system, typically called trunk or interceptor sewers which are 12-inch and larger sewer pipes, convey wastewater to the treatment facility. Sewer piping materials consist of vitrified clay, Orangeburg, asbestos-concrete, plastic, PVC, and other assorted materials.

As with any sewage collection system that has been in existence for over 60 years, there is a tendency for leakage into sewer piping and manholes from groundwater, storm water run-off, and lake water in the case of the Lakeport system.

Leakage of unwanted water into the City's collection system is referred to as infiltration and inflow (I&I) and is a problem that the City has been dealing with for many years. I&I is a concern because it decreases the ability of the collection system to transmit sewage, reduces the volume of the City's treatment plant effluent storage facilities, and requires the City expend a significant amount of money in pumping and treating, what is in essence, large volumes of clean water.

In an effort to try and reduce this I&I load on the system, the City has performed several rehabilitation projects throughout its history:

- A sewer system evaluation survey of the Lakeport sewer system was performed by Gillett-Harris-Duranceau Associates in 1976. This survey included smoke testing of the collection system to determine sources of inflow, comprehensive manhole inspections to identify I&I defects, video inspecting over 15% of the City's sewers, and some flow monitoring. From this study, several areas of the City's collection system were identified for rehabilitation work.

- In 1979, the City performed an extensive rehabilitation program made up of sewer reconstruction, sewer video inspection, and grout sealing of sewer joints. These improvements were based largely on the 1976 study discussed above.

- In 1991 to 1992, the City performed an I&I analysis of the entire sewer system. This analysis involved smoke testing of the collection system to determine sources of inflow, manhole inspections, and wet weather flow monitoring. From this comprehensive analysis, several areas within the collection system were identified as having moderate to severe I&I.

- Using the 1991 and 1992 I&I study discussed above, the City preformed a major collection system rehabilitation project in 1993 and 1994. This project involved video inspecting, testing, and grout sealing of approximately 38,000 feet of main line sewer, and replacing 8,200 feet of 6- to 10-inch main sewer, as well as 3,100 feet of 3- and 4-inch lateral sewers within the right-of-way areas. In addition, the City also expanded the C Street pump station with upgrades to the pumps,

control equipment, and control building. This upgrade also included raising of the pump station wet well hatch 2 feet above the historical maximum lake level of 1,329.6 feet.

Implemented in 2003, the City currently has an ongoing I&I reduction program and staff dedicated to reducing or eliminating I&I within the collection system.

There are presently nine public operated sewage lift stations in the City: Martin Street, Clear Lake Avenue, Lakeshore Boulevard, Rose Street, C Street, Lakeport Boulevard, Lake County Lift Station No. 12, Larrecou Lane, and Linda Lane Lift Stations. The Lake County Lift Station No. 12 is operated by the Lake County Sanitary District, but it discharges into the Lakeport collection system. The Lakeshore Boulevard Lift Station is the City's newest lift station and it discharges sewage into the Lake County Sanitary District collection system for treatment at the County treatment facilities.

Due to the City's topography, generally sloping from west to east, the majority of the existing service area is served by gravity flow to several lift stations located at or near Clear Lake. Most the City's lift stations collect raw sewage from the collection system and pump it to both Larrecou and Linda Lane Lift Stations, which are the main lift stations that pump raw sewage to the WWTP.

C. Condition of Facilities:

Sewage Collection System**:** Portions of the existing City sewers are up to 60 years old and some of the collection system is made from clay pipe with mortar joints. Although the City has done significant I&I mitigation as previously indicated, flows at the WWTP can increase to three times the ADWF during peak rain events. In Lakeport, high lake levels coincide with elevated groundwater levels within the Lakeport region. As indicated in the 2008 MSP, plant flow data indicates when the lake level exceeds the elevation of 1,325 feet there is a moderate elevation of sewage flow into the WWTP. Consequently, there is a significant I&I component that increases the wastewater flows at the WWTP from an ADWF of about 0.38 MGD during the summer to PWWF in excess of 3.0 MGD.

Flooding of the City's collection system during high lake levels contributes to a significant amount of inflow. Flooding impacts the City's sewers by allowing water to enter open pick holes and joints in manhole lids, open sewer cleanout caps, and house drains illegally connected to the sewer system. Although considerable effort by the City to reduce I&I in the City's main collection system have been performed, a significant component of the I&I is generated from private sewers and house connections that are more difficult to address due to their location on private property. Several studies suggest that 50% of all I&I entering a public collection system is from private property.

In 1991 to 1992, the City performed an extensive I&I analysis and monitoring program (September 1992 Lakeport Sewer Infiltration and Inflow Analysis) that reviewed and identified several areas within the Lakeport collection system that had significant I&I rates. From this analysis, the City implemented the 1993 to 1994 collection system rehabilitation program that involved sewer rehabilitation and replacement in those high I&I areas. To update the previous I&I flow monitoring study, PACE and the City of Lakeport partnered to perform a systematic flow measurement program in the winter of 2007 and 2008. The flow monitoring consisted of measuring instantaneous wastewater flows at different monitoring station manholes during wet weather conditions to estimate I&I flow rates. The collection system flows were measured or observed at 18 strategic manholes and lift stations disbursed throughout the Lakeport collection system during each of the monitoring events. The monitoring manholes were selected on the basis of upstream service area, historical observed flows, flow isolation, and sewer size.

The field flow-monitoring effort consisted of going through the collection system at night and early morning, when the wastewater component of the flow was minimal, to measure flow at designated manholes. In some cases, measured flow would include the flow(s) measured in upstream monitoring stations, which was deducted from the measured flow to derive I&I contributions from the lone service area.

Although every effort was made to assign reasonable I&I allowance values within the wastewater collection system, the flow-monitoring data was limited to only two negligible rain events in January 2008 during preparation of the 2008 MSP. It is considered

imperative that the City continue its flow-monitoring program in order to confirm these estimated I&I allowances were valid and the City continue to work towards I&I reduction.

Typically, sewered areas that have I&I rates at or below 1,500 gallons per acre per day (GPAD) are considered to be within industry limits. As detailed in the 2008 MSP, a number of the monitoring stations had extrapolated values less than 1,500 GPAD, indicating sewers in these areas appear to be relatively tight. I&I rates in excess of 3,500 GPAD are considered high and indicate these sewers have defects that are sources for I&I. There were 11 monitored areas that had average extrapolated I&I rates above 3,500 GPAD, and out of these 6 monitored areas (Stations 3C, 4B, 7C, 9C, 9B, and 13A) had I&I rates in excess of 5,000 GPAD, indicating these areas are potential sources for severe I&I. These 11 monitoring areas represent about 1.6 MGD of the estimated extrapolated I&I flows or about 50% of the historical daily peak I&I flow entering the treatment plant during a 10-year rain event and an elevated lake level (i.e., above 1,329 feet). Refer to Appendix E for detailed results of the 11 monitored areas in the recommended I&I reduction program.

As part of the 2008 MSP, the PWWF for each reach of trunk sewer was determined using the H_2OMAP Sewer by MWHSoft computer program. Using an input sewer slope and diameter of the existing trunk sewer, together with compiled PWWF, the program computed the existing sewer capacity. If the existing sewer was found to be inadequate, a recommended size of a parallel sewer or a replacement sewer was determined in case the existing sewer was to be abandoned.

The analysis indicated that during present day PWWF, several segments of the 8-inch Main Street sewer between 6th Street and 10th Street can encounter surcharging conditions during PWWF. This surcharging condition has been observed in the field as City crews have reported several overflows within this segment of sewer over the past 5 to 10 years. In order to relieve this potential surcharge condition, it is recommended the existing 8-inch sewer be replaced with a new 12-inch sewer.

In addition, the hydraulic analysis indicated a significant segment of existing 12-inch sewer along Main Street, from Sixth Street to C Street also experiences moderate

surcharging during estimated PWWF. This is probably caused by the shallow slope of several segments of this sewer (i.e., some segments have slopes of 0.1 percent) and the influence of upstream lift stations, such as the Rose Avenue and Clear Lake Avenue lift stations. In order to relieve estimated peak flows within this sewer, the hydraulic analysis indicated a new 12-inch relief sewer should be constructed.

Several additional sewers were identified in the 2008 MSP as having inadequate capacity and needing improvements beyond the Main Street sewer main. The existing 8-inch sewer that connects High Street to Giselman Street along Lakeshore Boulevard appears to have moderate surcharge during PWWF. This surcharge was seen in the hydraulic analysis for 2008 and 2028. It is proposed that within the next 5 to 10 years this segment of sewer be paralleled with a second 8-inch sewer to increase its current capacity. However, this improvement is not recommended to be included in this project.

The analysis also indicated the existing 6-inch High Street sewer between 17th Street and Via Del Lago Street has the potential for surcharging during current and 20-year PWWF conditions. It is recommended this 400-foot sewer segment be replaced with an 8-inch sewer within the next 10 years, but not as a part of this project.

The hydraulic model suggested the 8-inch Martin Street sewer upstream of the Martin Street Lift Station, as well as two 6-inch segments of the Compton to Russell Street sewer may be under surcharging conditions during current PWWFs. It is suggested that the I&I reduction program will reduce the PWWF on these sewer segments appreciably reducing the potential for surcharging. It is recommended that the City monitor these sewer segments during wet weather conditions to determine if sewer capacity is an issue. Parallel or replacement of these sewers may be necessary within the next 5 to 20 years if I&I reductions do not occur or are ineffective.

Hwy 29 Force Mains: A 72-inch CMP conduit which lies underneath Highway 29 was inspected by the City and PACE on December 6, 1990. The conduit contains a ductile iron 8-inch and 12-inch force main that carries sewage from Larrecou Pump Station to the west side of Highway 29, and an 8-inch gravity sewer. The approximate length of the conduit is 670 feet. The depth at the 36-inch manhole located in the shopping center parking lot on the east side of the highway is approximately 18 feet from the surface to the top of the 12-inch force main. The depth at the manhole on Parallel Drive is approximately 12 feet from the surface to the top of the 8-inch force main. The conduit is inundated with groundwater and the condition of the conduit and pipes is questionable at best.

Photo 1: Force Main and Gravity Sewer Bracing

At the time of the 1990 inspection, the conduit was determined to be made of galvanized steel with no coating applied to the interior surface. The submerged CMP surface was covered with a layer of rust. There was no evidence of major groundwater leaks into the culvert, but small leaks were suspected at each culvert joint. One joint was observed to be deflected approximately 2 to 3 inches at the top from either poor installation or a slight collapse.

Photo 2: 72-inch CMP Conduit Displaced Joint

All three pipes were supported by concrete saddles spaced at 18 feet on center, which, at the time were found to adequately support the force mains. There were also ¼-inch by 1 ½-inch galvanized steel straps supporting the force mains to the side and bottom of

the culvert. The strap bolts were corroding over their entire surface. No leakage was detected in any of the force main piping; however, adequate thrust restraint was not present on the 12-inch force main at the Parallel Drive manhole. This was apparent when the inspection team observed the upstream flange coupling adaptor on the 90 degree elbow rotate when the WWTP effluent pumps turned off and on.

Photo 3: Pipe Supports and Bracing

Refer to Appendix F for the 1990 inspection results. The inspection was completed over 20 years ago, and at that time the condition of the CMP and pipe bolts and bracing was questionable. Therefore, it is recommended the City improve this critical portion of the wastewater collection system to alleviate the major risk of a sewage force main leak from occurring.

<u>Sewage Lift Stations</u>: The Clear Lake Avenue Lift Station is a small lift station that is located within the flood plain of Clear Lake. The close proximity of the lift station's wet well to the shore of Clear Lake and the poor construction of the wet well manhole makes this lift station prone to I&I due to high groundwater and localized flooding during high lake levels (i.e., the rim elevation of the wet well is below the maximum lake level elevation).

Photo 4: Clear Lake LS Control Panel

The small size of this lift station makes it difficult to access and it appears that some of the concrete manhole walls are showing signs of degradation (i.e., exposed aggregate). The station's wet well sits in the middle of Clear Lake Avenue and is difficult to enter by City operators during routine maintenance. Additionally, the station's pumps and piping are antiquated and in need of replacement.

Electrical controls are contained next to the wet well in a stand-alone electrical panel. The electrical control panel uses electrical relays to operate the lift station. Operation of the pumps is controlled by float switches within the wet well. The lift station pumps sewage to the gravity collection system on Main Street via a 4-inch force main. The alarm system is monitored via phone lines connected to the City's emergency response system.

A field investigation of this facility during the 2008 MSP noted the following:

- Inspection and/or repair of wet well equipment, including the submersible pumps, require City operators use confined space entry techniques to enter the wet well. Confined space entry procedures are required when there is the potential of injury or death to the person having to enter the wet well to make repairs.
- Access for maintenance and repair of the existing pumps within the wet well is difficult because of cramped space and the lack of a pump rail system for removing pumps from the surface.
- The concrete wet well is in poor condition with exposed aggregate around the wet well walls.

Wastewater Treatment: In 1991, the City constructed a new wastewater facility at Linda Lane to replace the antiquated and inefficient Larrecou Lane treatment plant. The City's current wastewater facility has an ADWF treatment capacity of about 0.53 MGD and a PWWF capacity of approximately 3.0 MGD. The WWTP is considered to be a secondary treatment facility.

The unit processes of the treatment plant consist of headworks with a mechanical screen, two earthen aeration basins, an effluent pump station, 48-inch diameter chlorine contact pipe, effluent reservoir, irrigation pump station, and effluent irrigation fields. Most processes at the treatment plant are automatically controlled by a programmable logic controller (PLC) that is located within the treatment plant control building.

Over the past several years, operators at the treatment plant have observed that due to wave and wind action, the earth below the 7-foot deep air blown mortar (ABM) apron

has begun to erode causing undermining of the ABM apron along the aeration pond slopes. The worst slope erosion appears to be located around the aeration basin access ramps. Although the City has implemented temporary measures to try and slow this undermining of the ABM (i.e., reinforcing the ABM and placing temporary concrete fill under the ABM), the continued degradation of the slopes due to this erosion could possibly cause further damage of the ABM slope protection and may lead to dike failure if left unchecked.

Photo 5: ABM Side Slope Failure

Depending on scheduling, repair of the slopes will require that on alternate years each aeration basin be taken out of service and dried so additional slope protection can be installed. As part of the ABM/slope repair, it is highly recommended the City remove accumulated sludge and grit from the bottom of each pond. The ponds appear to have a substantial layer of sludge which has accumulated since 1991. Sludge reduces aeration basin capacity and impacts pond treatment efficiencies. It is estimated, based on pond bottom sounding measurements taken by City staff in March 2009, that there is as much as 12 to 70 inches of sludge at the bottom of each pond. Refer to Appendix G for the 2009 sludge measurements, a Process Diagram of the existing WWTP, and plans for the existing aeration basins.

The City will be required to perform an analysis of the sludge prior to any disposal method. Laboratory analysis of the sludge would involve Title 22, California Code of Regulations, test requirements such as heavy metals, organic, and inorganic constituent testing. The sludge analysis results will determine what alternatives are best suited for sludge disposal. Options could include drying the sludge at the WWTP and land application onto City property or possibly disposing of the sludge at a landfill.

SCADA: In order to improve monitoring and maintenance of the City's lift stations and to better track sewage flows throughout the collection system, it is recommended

improvements to the major lift station controls and data acquisition be implemented. Installation of radio telemetry equipment and SCADA hardware and software at Rose Street, C Street, Martin Street, Lakeshore Boulevard, and the Lakeport Boulevard Lift Stations would allow City operators to better monitor these main lift stations within the system.

Additionally, the City is in need of replacing the outdated SCADA system currently in place at the other wastewater facilities. The City installed the current system in 1991 and the manufacturer and technical support staff are unable to repair or maintain the system's operation. A new system is necessary in order to meet current standards and operate reliably while unmanned. This will increase the City's ability to detect potential problems and alarm operators of health and safety threats.

D. Financial Status of Any Existing Facilities:

Annual Budget: Copies of previous and present operating budgets, including O&M costs are contained in Appendix H. Refer to Appendix I for the most recent audit.

The City is currently paying on two existing loans. Refer to Appendix I for the details of the indebtedness. The Year 2010 payment, balance owed as of June 2011, and term for each of the City's long-term debts are shown in Table 1 below:

TABLE 1
City of Lakeport
Wastewater System Improvements Project
Existing Debt

Description	Year 2010 Payment	Balance Owed as of June 2011	Term (Yr)
Series 1993-1 Sewer District Improvement Bonds – USDA RD	$100,000	$4,010,000	2032
2007 Series A Bonds – CSCDA	$55,000	$2,995,000	2037
Totals:	$155,000	$7,005,000	

According to the most recent audit, the Year 2011 operating expenses for the City's wastewater system was $1,950,925, which included the $155,000 debt service for outstanding debts. Not including the debt service payments, the average monthly operating cost for 2011 was about $150,000.

Rate Schedule: The City's current rate schedule was adopted by the City Council effective July 1, 2010. Wastewater service customers are billed monthly for a flat rate for sewer service. The base monthly rate is $46.79 for single-family residential dwellings located in the southern part of the City, and $35.41 in the northern part of the City. According to the Draft Water and Sewer Rate Study completed by HDR, there are currently 2,325 sewer connections being served. Refer to Appendix D for the Draft Rate Study. Details of the recommended future rates are also included in the Draft Rate Study.

IV. NEED FOR PROJECT

A. Health, Sanitation, and Security:

Portions of the City's wastewater collection and treatment system are in disrepair and dire need of improvements. The current deteriorating state of the system led to the City receiving an NOV and CDO from the CRWQCB in response to numerous sewer system overflows, I&I problems, and storage capacity violations. The storage capacity violations have since been corrected with expansion of the effluent disposal fields, but additional improvements are needed to address the remaining issues and violations indicated in the NOV and CDO, and to ensure the health and safety of residents.

Wastewater Collection System: Based on current estimated PWWF conditions, it appears the majority of the existing collection system has adequate capacity. However, several sewer segments within the existing collection system currently show signs of moderate to severe surcharging during peak rain events and require further corrective action in order to increase sewer capacity including approximately 1,450 feet of undersized 8-inch sewer on Main Street from Clear Lake Avenue to Sixth Street.

Portions of the existing City sewers are up to 60 years old and some of the collection system is made from clay pipe with cement mortar joints. Although the City has done significant I&I mitigation (i.e., video inspections, grout sealing, and replacement etc.) over the last 10 to 15 years, flows at the WWTP can increase to more than seven times the ADWF during peak rain events. Consequently, the 2008 MSP identified and

recommended six high priority subservice areas (Stations 3C, 4B, 7C, 9C, 9B, and 13A) which had I&I rates in excess of 5,000 GPAD, indicating these areas are potential sources for severe I&I. As such, repair and replacement of mainlines, manholes, and laterals in these areas is needed. Refer to Appendix E for details of these areas as indicated in the 2008 MSP.

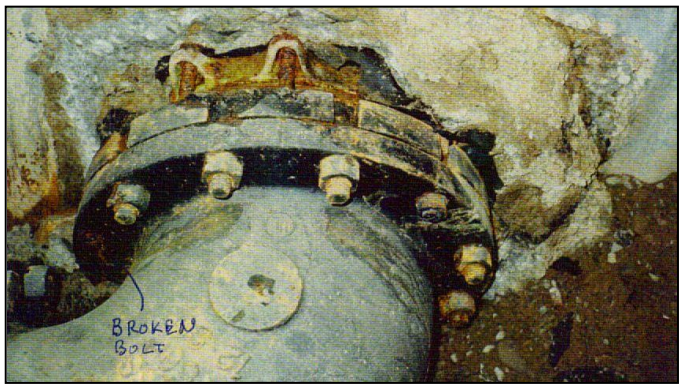


Photo 6: Broken Force Main Bolt and Corrosion

Hwy 29 Force Mains: A 72-inch CMP conduit which lies underneath Highway 29 and contains an 8-inch and 12-inch force main and an 8-inch gravity sewer is in poor condition and in need of rehabilitation. An inspection completed over 20 years ago indicated the CMP structure was rusted with possible failure occurring in at least one area, and groundwater leaks suspected at each culvert joint. Additionally, the bracing and bolts of the pipes and appurtenances was corroded, and adequate thrust restraint was not present. This is a critical portion of the wastewater collection system and a parallel, redundant force main is necessary to alleviate the major risk of a sewage force main leak from occurring.

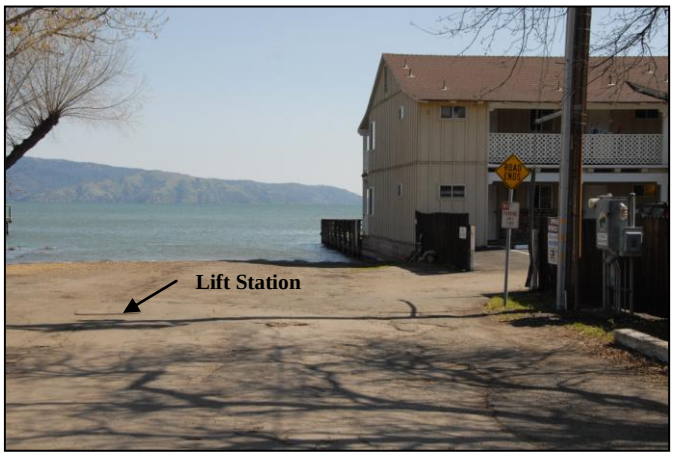


Photo 7: Clear Lake Lift Station Location

Sewage Lift Stations: The Clear Lake Avenue Lift Station is a small lift station that is located within the flood plain of Clear Lake. The station is poorly constructed, is inefficient, and is unsafe to maintain. The station's wet well sits in the middle of Clear Lake Avenue and requires confined space entry. The station's pumps and piping are inefficient and the entire lift station needs to be replaced.

Wastewater Treatment: Improvements needed at the WWTP include repair of the shotcrete slopes in the two aeration basins. Even though protected by shotcrete side slopes, wave action has undermined portions of the slopes. Depending on scheduling, repair will require that on alternate years each aeration basin be taken out of service and dried so additional slope protection can be installed. It is highly recommended while the aeration basins are out of service, the City remove the accumulated sludge that has been collecting at the bottom of the ponds. This sludge, estimated to be between 12 and 70 inches deep, diminishes the effective volume of the basins. If a biosolids disposal plan were in place, the sludge could be dried on-site and then land applied on City land. However, due to the new WDR requirements the sludge will most likely be dewatered using a temporary centrifuge or belt filter press and then disposed of at an approved landfill.

SCADA: Additionally, the City is in need of replacing the outdated SCADA system currently in place. The City installed portions of the current system in 1991 and the manufacturer and technical support staff are unable to repair or maintain the system's operation. A new system is necessary in order to meet current standards and operate reliably while unmanned. This will increase the City's ability to detect potential problems and alarm operators of health and safety threats.

B. System O&M:

Sewage Collection System: As with any sewage collection system that has been in existence for over 60 years, there is a tendency for leakage into sewer piping and manholes from groundwater, storm water run-off, and lake water in the case of the Lakeport system. In an effort to try and reduce this I&I loading on the system, the City has performed several rehabilitation projects throughout its history as previously discussed.

Implemented in 2003, the City has an ongoing I&I reduction program and staff dedicated to reducing or eliminating I&I within the collection system. The City's I&I efforts have included:

- Aerial mapping of the City including GIS mapping of the collection system.

- Inventory of all sewer utilities (i.e., manholes, sewer sizes, etc).
- GIS utility atlas provided to field crews for constant update.
- Completion of City Sewer Spillage Geodatabase.
- Purchase of flow meters for sewage lift stations in 2004.
- Installation of 44 sewer manhole covers in 2005.
- Routine internal close circuit television (CCTV) inspection of all gravity sewer main lines and some laterals using City owned CCTV equipment.
- Systematic smoke testing to identify open clean outs, leaking manholes, and damaged sewers in areas prone to high I&I and flooding.
- Identification, documentation, repairs, and enforcement of damaged and illicit connections to the gravity sewer system.
- Scheduling of maintenance, restoration, and replacement of damaged sewers and laterals.
- Physical assessment, photographing, and cataloging of all sewer manholes within the Lakeport collection system.
- Rehabilitation of over 50 deteriorating manholes and lids from 2004 to 2006.
- Purchase and installation of leak proof manhole covers on a significant number of manholes throughout the system.

Sewage Lift Stations: Due to the City's topography, generally sloping from west to east, the majority of the existing service area is served by gravity flow to seven lift stations located at or near Clear Lake. Most the City's lift stations collect raw sewage from the collection system and pump it to the Larrecou Lift Station and then on to the Linda Lane Lift Station, which is the main lift station that pumps all raw sewage to the City's WWTP.

In 1993, the C Street Lift Station was rehabilitated by installing new submersible pumps, upgrading electrical controls, and increasing the height of the wet well lids to elevation 1,331.7 feet, which is 2 feet above the historical maximum lake level. The lift station consists of an 8-foot diameter wet well that contains two rail-mounted 47-Hp submersible pumps which have an effective capacity of 1,100 GPM. C Street controls are housed in a block control building next to the wet well. This building also houses a dedicated diesel generator for emergency use. Level control within the wet well is accomplished by using a sonic transducer and redundant float switches. The City

recently installed a magnetic flow meter on the station's force main to better monitor flows coming from the lift station. This lift station is considered to be one of the City's major pumping facilties serving approximately 711 RUEs and collecting sewage from Main Street, Park Avenue, and Esplanade Avenue. Discharge from this lift station is pumped directly to the Larrecou Lift Station via an 8-inch force main.

The Lakeshore Boulevard Lift Station was constructed in 2005, making it the City's newest lift station. It was constructed to replace the Ashe Street Lift Station, which was outdated and unreliable. The Lakeshore Boulevard Lift Station consists of two 10-Hp rail-mounted submersible pumps, contained in a 6-foot diameter wet well. Sewage from this lift station can either be pumped to the City of Lakeport collection system or the Lake County sewage collection system. However, flows are generally pumped to the City collection system approximately 90% of the time except during periods of high rain. The effective capacity of the pumping facility is approximately 520 GPM. This lift station serves approximately 600 RUEs within the City of Lakeport and is considered to be one of the major lift stations within the City system. Controls are housed in a wood-framed control building next to the wet well and include a telephone based telemetry system for transmitting the lift station's alarms. This building also houses a dedicated 40 kW diesel generator and automatic transfer switch for operating the lift station during power outages and other emergencies. Level controls within the wet well are accomplished using a conductive liquid level probe and redundant float switches. Flow is monitored using a 6-inch magnetic flow meter contained in a separate vault.

The Clear Lake Lift Station consists of a 4-foot diameter wet well and two 1-Hp submersible pumps. The wet well is located within Clear Lake Avenue, next to the Skylark Shores Motel. The lift station serves the motel and several single-family homes, and has an effective capacity of about 120 GPM. The close proximity of the lift station wet well to the shore of Clear Lake, and the poor construction of the wet

Photo 8: Clear Lake Lift Station

well manhole, makes this lift station prone to I&I due to high groundwater and localized flooding during high lake levels (i.e., the rim elevation of the wet well is below the maximum lake level elevation). Electrical controls are contained next to the wet well in a stand-alone electrical panel. The electrical control panel uses electrical relays to operate the lift station. Operation of the pumps is controlled by float switches within the wet well. The lift station pumps sewage to the gravity collection system on Main Street via a 4-inch force main. The alarm system is monitored via phone lines connected to the City's emergency response system. A field investigation of this facility noted the following:

- Inspection and/or repair of wet well equipment, including the submersible pumps, require that City operators use confined space entry techniques to enter the wet well. Confined space entry procedures are required when there is the potential of injury or death to the person having to enter the wet well to make repairs.
- Access for maintenance and repair of the existing pumps within the wet well is difficult because of cramped space and the lack of a pump rail system for removing pumps from the surface.
- The concrete wet well is in poor condition with exposed aggregate around the wet well walls.

The Rose Avenue Lift Station is a wet well style lift station that serves approximately 90 RUEs along Main Street between Rose Avenue and 16th Street. The lift station consists of a 6-foot diameter wet well located within Main Street. Two submersible sewage pumps, each with an effective capacity of 500 GPM, are installed. The pumps are on rails and can be removed from the wet well by operators using a truck-mounted wench and boom. Level control within the wet well is performed using an ultra sound level transducer and redundant float switches. The lift station discharges to the gravity sewer system on North Main Street. Electrical controls are housed within a lockable control panel next to the wet well between the sidewalk and curb. Controls include a programmable logic controller, generator receptacle, and manual transfer switch for emergency operation of the lift station during power outages. Alarms at this lift station are transmitted via telephone to the City's operators.

The Lake County Lift Station (Lift Station No. 12) is located along south Main Street. As the name indicates, this lift station it maintained and operated by the Lake County Sanitation District, serving County Areas 9-1 and 9-3. The lift station consists of a 6-foot wet well and two rail-mounted 10-Hp submersible pumps with an estimated effective capacity of 450 GPM. The lift station currently serves approximately 180 RUEs. Discharge from this lift station is through a 6-inch force main which enters the Lakeport collection system along Main Street south of Peckham Court.

The Martin Street Lift Station is one of the oldest sewage lift stations in the Lakeport system. It consists of a 6-foot diameter wet well that is located along Martin Street and serves approximately 240 RUEs west of Ester Street. Two rail-mounted submersible sewage pumps, each with capacity of 420 GPM, are installed. Level control within the wet well is performed using float switches. Electrical controls are housed within a lockable control panel next to the wet well. Lift station controls contain a manual transfer switch for connecting a trailer-mounted generator to operate the lift station during power disruption. Alarms at this lift station are transmitted via telephone to the City's Fire Department emergency operator. The lift station flows are monitored using a magnetic flow meter within an on-site vault and all flows are pumped directly to the Larrecou Lift Station via an 8-inch force main. The lift station has a gravity overflow system such that if pumps are not in service flows can be diverted to the C Street Lift Station via the Martin Street and Main Street gravity sewer system.

The Lakeport Boulevard Lift Station is a wet well style lift station serving approximately 780 RUEs along Lakeport Boulevard and south Main Street. The lift station consists of a 6-foot diameter wet well located in a parking lot at the intersection of Main Street and Lakeport Boulevard. Two submersible sewage pumps are installed, each with an effective capacity of 1,000 GPM. The pumps are on rails and can be removed from the wet well by City operators using the City's truck-mounted wench and boom. Level control within the wet well is performed using float switches. Electrical controls are housed within a lockable control panel next to the wet well, behind the sidewalk. Controls include a generator receptacle and a manual transfer switch for emergency operation using the City's trailer-mounted generator. The existing controls are relay based. All alarms generated at this lift station are transmitted as a common alarm via

telephone to the City's Fire Department emergency operator who notifies the on-call City operator to respond. The lift station operation is not monitored via the City's SCADA and radio telemetry system. Recently, the City installed a magnetic flow meter to this lift station to monitor flows. The pump station pumps directly to the Larrecou Lift Station via a 6-inch force main.

The Larrecou Lane Lift Station was constructed in 1991 as a part of the treatment plant expansion. It consists of three 47-Hp rail-mounted submersible pumps contained in three separate 6-foot diameter wet wells. There is also a 6-foot screening manhole up stream of the wet wells that traps large diameter debris (i.e., 3-inch and larger) from entering the wet wells and damaging the pumps. The Larrecou Lift Station is considered to be a major lift station serving approximately 2,000 RUEs within the City. Currently, all flows collected in this lift station are pumped to the Linda Lane Lift Station at the WWTP via the 8-inch force main and 15- to 24-inch Parallel Drive gravity sewer. The effective capacity of the pumping facility is approximately 2,200 GPM (i.e., 3.2 MGD) with two of the three submersible pumps operating. Controls for this lift station are housed within the adjacent old wastewater treatment plant control building. The state of the art controls contain SCADA and phone based telemetry system for remotely monitoring the lift station's operations and a programmable logic controller (PLC). This building also houses a dedicated 40 kW diesel generator and automatic transfer switch for operating the lift station during power outages and other emergencies. Level controls within the wet well are accomplished using an ultrasound sonic-level transducer and redundant float switches.

The Linda Lane Lift Station is identical to the Larrecou Lift Station and was also constructed during the expansion of the treatment plant in 1991. It consists of three 47-Hp rail-mounted submersible pumps contained in three separate 6-foot diameter wet wells. There is also a 6-foot screening manhole up stream of the wet wells that traps large diameter debris (i.e., 3-inch and larger) from entering the wet wells and damaging the pumps. The Linda Lane Lift Station is a major lift station pumping all of the City's sewage directly to the headworks at the WWTP. The effective capacity of the pumping facility is approximately 2,600 GPM (3.74 MGD) with two of the three submersible pumps operating. Odor control at this lift station is via a small blower and vent piping

that evacuates air from the wet wells and blows it through potassium permanginate canisters next to the lift station control building. In addition, chlorine can be injected via the treatment plant chlorine system to the screening manhole at the lift station. City staff indicates localized odor problems due to excess hydrogen sulfide within the wet wells has been a concern in the past. Controls for this lift station are housed within a control building adjacent to the wet wells. The controls contain SCADA, radio telemetry, and a programmable logic controller. The control building also houses a dedicated 40 kW diesel generator and automatic transfer switch. Recently, the City replaced the sonic flow meter at the lift station with a new magnetic flow meter in order to monitor daily flows.

All of the City operated lift stations are provided with high wet well level alarms and power outage alarms that send a telephone signal to the City's Fire Department. In turn, the City's Fire Department notifies the City's on-call operator of the nature of the failure. Furthermore, all lift stations that do not have a dedicated generator are equipped with manual transfer stations, which allow the City's portable generators to be safely connected to lift stations during a power failure.

Wastewater Treatment: The unit processes of the treatment plant consist of headworks with a mechanical screen, two earthen aeration basins, an effluent pump station, 48-inch diameter chlorine contact pipe, effluent reservoir, irrigation pumping station, and effluent irrigation fields. Most processes at the treatment plant are automatically controlled by a programmable logic controller that is located within the treatment plant control building.

The headworks is a concrete structure with both manually cleaned and mechanically cleaned bar screens. The mechanically cleaned bar screen consists of a motor driven stainless steel belt that is activated on a timer which moves the trapped screenings into a trash dumpster for disposal at a local landfill. The manual bar screen is used only if the mechanical bar screen is not functioning, such as during a power outage, or to be manually cleaned. The headworks has a high-water alarm that activates when water levels reach 2 feet from the top of the headworks wall.

Wastewater flows from the headworks into the two 11.8 MG aeration basins. The aeration basins are about 15 feet deep and are constructed of earth with an ABM slope protection at the normal water level (the ABM apron is about 7 feet deep from the top of the dike). The wastewater detention time within each aeration basin at 1 MGD plant flow is approximately 24 days.

Influent from the headworks enters the bottom of the aeration basins where the settleable solids drop out and are spread over the bottom. These solids remain on the bottom where they can be further decomposed by anaerobic processes. It is estimated every 8 to 10 years the accumulated solids (i.e., sludge and grit) at the bottom of the aeration basins need to be removed in order to restore the basins designed detention time. Removal of solids is accomplished by dredging the ponds. Sludge removal has not been done since the ponds were placed into service in 1991.

The aeration basins are divided into two equally sized cells (i.e., Cell 1 and 2) by a geo-fabric baffle curtain. Each pond is equipped with three 20-Hp floating aerators, two aerators in Cell 1 and one aerator in Cell 2. The aerators provide two functions: they transfer oxygen into the basins required by the biological oxidation reactions, and they provide the mixing required for dispersing oxygen and for contacting the reactants (that is oxygen, wastewater, and microbes). The aerators are controlled by timers within the control building.

Effluent from Cell 1 passes through an opening in the center baffle curtain to Cell 2. Cell 2 has one floating aerator and is quiescent at the discharge end to allow the suspended solids (SS) to settle out prior to discharge to the effluent pumping station.

Over the past several years, operators at the treatment plant have observed that due to wave and wind action, the earth below the 7-foot deep ABM apron has begun to erode causing

Photo 9: ABM Side Slope Failure

undermining of the ABM apron along the aeration pond slopes. The worst slope erosion appears to be located around the aeration basin access ramps. Although the City has implemented temporary measures to try and slow this undermining of the ABM (i.e., reinforcing the ABM and placing temporary concrete fill under the ABM), the continued degradation of the slopes due to this erosion could possibly cause further damage of the ABM slope protection and may lead to dike failure if left unchecked.

The effluent pump station consists of a wet well, three 20-Hp vertical turbine pumps, and a flowmeter. The effluent pump station has an effective pumping capacity of approximately 3.5 MGD. Flow from each aeration basin enters the pump station from a screened aeration basin outlet structure where it is pumped to the effluent reservoir via a 16-inch to 48-inch chlorine contact pipe.

The force main/chlorine contact pipe conveys treated effluent from the effluent pump station to the storage reservoir. This pipe is approximately 1,250 feet long (i.e., 600 feet of 16-inch and 650 feet of 48-inch pipe) and is constructed of 16-inch diameter PVC pipe. The 48-inch chlorine contact pipe is cement–lined, coated, welded steel pipe. The force main and the chlorine contact pipe provide the necessary flow detention for disinfection prior to discharge into the storage reservoir. The force main/chlorine contact pipes are designed to allow a 30 minute chlorine contact time at a design PWWF of 3.0 MGD.

The treatment plant chlorine system is made up of two 1-ton chlorine gas cylinders that are stored in the chlorine storage room at the treatment plant control building. The chlorine storage room is ventilated and also contains a chlorine leak detector that activates local alarms at the plant when it detects concentrations of chlorine above one part per million. The 1-ton cylinders are transported to and from the treatment plant via trucks and are loaded and unloaded into the chlorine storage room via a dedicated electric hoist.

The chlorine system also contains three chlorinators that are used to inject chlorine solution to different treatment plant processes. Two of the chlorinators have a maximum 400 pounds per day (PPD) capacity and the third chlorinator has a 200 PPD

capacity. The No. 1 chlorinator serves to disinfect effluent at the effluent pumping station. The No. 2 chlorinator is used for irrigation chlorination and the No. 3 chlorinator is used for odor control at the Linda Lane Pump Station.

The chlorination system at the treatment plant serves the following three purposes:

- Used to pre-chlorinate the Linda Lane Pump Station for odor control.
- Chlorinate effluent at the irrigation pump station prior to sprinkler irrigation.
- Effluent disinfection into the storage reservoir.

Chlorination of the effluent prior to entering the effluent reservoir is required in order to maintain an average monthly effluent Coliform level of 23 MPN as mandated by the CRWQCB WDRs. Operators report, based on maintaining a 5 mg/L chlorine residual at the discharge of the chlorine contact pipe, current effluent chlorine dosage rates range from 90 to 120 pounds per day in the summer to 100 to 150 pounds per day during winter months.

Disinfection of the effluent prior to irrigation is not required but it is recommended in order to protect treatment operators. Pre-chlorination of the Linda Lane Pump Station is only required as needed to control odors at the pump station and headworks.

The plant contains an effluent storage reservoir with a maximum capacity of approximately 650 acre-feet (ac-ft) (i.e., 212 MG) at the spillway elevation of 1,432 feet. Treated water is stored in the effluent reservoir until such a time the treated effluent can be applied to the City's irrigation facilities, typically during April to October, when rain amounts are minimal. WDRs mandate the City cannot operate its effluent irrigation facilities during and no sooner than 24 hours after a rain event. Furthermore, the CRWQCB has stipulated the maximum reservoir level must not exceed 1,430 feet (i.e., 2 feet of free board below the spillway elevation), thus limiting the reservoir capacity to 600 ac-ft.

In April 2006, City operators determined the effluent reservoir was exceeding its mandated reservoir level of 1,430 feet. This was due to a number of factors including:

- Three months in the 2005-2006 rain year matching the 100-year rain event for that period. Rain in 2006 for the months of March and April exceeded the 100-year event by 150%.
- Based on the WDRs, on average there are typically 63 days when conditions are right for the City to irrigate between January through April. In 2006, the number of available irrigation days for effluent irrigation was reduced by one-third preventing City operators from discharging onto the irrigation fields.
- Severe I&I entering the treatment plant from the collection system (a significant portion of this I&I was later determined to be from high lake levels flooding open sewer clean-outs along private properties near the lake).

In order to prevent the effluent reservoir from overflowing, the City applied approximately 26 MG of chlorinated and treated effluent onto the City's irrigation fields from April 13, 2006 to April 24, 2006. Of the amount that was discharged onto the irrigation fields, approximately 3.0 to 6.0 MG of treated effluent and rainwater was released from the treatment plant site in violation of the CRWQCB WDRs. As a result, the CRWQCB issued CDO No. R5-2007-0010, requiring the City perform several upgrades to their effluent irrigation system and to submit a Master Sewer Plan.

In response to the April 2006 emergency release of treated effluent from the treatment plant effluent reservoir discussed above, and to add irrigation capacity for future City growth, the CRWQCB required the City make modifications to the treatment plant effluent irrigation system. The following are the main components of the 2007 Effluent Irrigation System Expansion:

- Irrigation spray fields were increased in size from 242 acres to 332 acres.
- Two new tail-water pump stations were constructed to capture and return runoff from the new spray irrigation fields.

- A third 125-Hp vertical turbine pump was added to the existing irrigation pump station to increase the effective capacity (i.e., two pumps operating) of the station to approximately 2,800 GPM.
- A new magnetic flow meter was installed at the Linda Lane Lift Station to better monitor influent flows.
- A diversion ditch bypass pipe was installed to intercept surface runoff and divert it away from the plant's recapture basins, thus increasing the storage capacity of the basins for effluent storage.

Runoff from the irrigation fields is collected in a system of diversion ditches and recycle pumping stations that collect irrigation runoff and transport it to Recycle Reservoir No. 1. Recycle Reservoir No. 1 is an earthen reservoir with a storage capacity of approximately 3.5 ac-ft. Recycle Pumping Stations 2, 3, and 4 collect runoff from the individual irrigation areas and pump it back to Reservoir No. 1. Recycle Pumping Station No. 1 contains two vertical turbine pumps (10-Hp and a 15-Hp) that maintain Reservoir No. 1 levels based on reservoir level switches. Runoff is pumped back to the overland disposal fields.

The existing WWTP Process Diagram is shown in Appendix G. A summary of the design criteria for the existing facilities can be found in Appendix G as well.

C. Growth:

The City primarily consists of residential homes and commercial properties and has an estimated population of 5,200. Currently, the City has 2,325 sewer connections located within the service area boundary. This equates to approximately 2,474 RUEs according to the Draft Water and Sewer Rate Study. Given the current interest in northern California real estate, one should anticipate a low growth rate during the upcoming years as the economy continues to recover.

The current WWTP has an existing ADWF capacity of approximately 0.53 MGD as indicated in the new WDRs. The ADWF capacity is based on the ability of the WWTP to store and dispose of the annual effluent volume generated by the City. The design

PWWF capacity of the plant is estimated at 3.0 MGD. Based on recent historical plant flows and the City's ongoing I&I reduction program, the estimated peak flow at the plant is currently about 2.8 MGD.

As previously discussed, based on the City's current general plan and proposed developments submitted to the City's planning department, it is estimated that over the next 20 years there will be a 1.1% growth rate equating to approximately 630 RUEs added to the City's wastewater collection system. Of these future RUEs, about 520 RUEs would be added to the City's main sewer area that is currently being served by the WWTP. This would result in an ADWF at the treatment plant of roughly 0.48 MGD at year 2028. Therefore, there is adequate treatment capacity to accommodate planned future development. No components of the recommended projects herein will result in growth inducing impacts.

V. ALTERNATIVES CONSIDERED

A. Description:

Descriptions of the reasonable alternatives considered in planning solutions to meet the identified needs of the wastewater collection and treatment systems are summarized in Table 2.

TABLE 2
City of Lakeport
Wastewater System Improvements Project
Alternatives Considered

Wastewater Collection System Alternatives	Comments
1. A. Implement I&I reduction projects in subservice areas 9B, 9C, 3C, and 4B as shown in Figure 2 and detailed in Appendix E.	Eliminates sewer surcharging and potential sanitary sewer overflows in these areas during peak rain events. Estimated I&I reduction as much as 0.41 MGD could result.
B. Implement all high priority I&I projects recommended in the 2008 MSP.	Eliminates more sewer surcharging and capacity issues within the collection system, but is cost prohibitive for the City.
C. Do not complete any I&I improvement projects.	Sewer surcharging and sanitary sewer overflows would continue to occur during peak rain events, violating requirements of the CDO and NOV.
2. A. Upsize 8-inch sewer to new 12-inch on Main Street from Clear Lake Avenue to 6th Street via pipe bursting.	Alleviates inadequate sewer capacity in this busy downtown area during wet weather conditions where several sewer overflows have been observed.
B. Complete all recommended 2008 MSP sewer capacity improvements.	Increases sewer capacities throughout the collection system, but is cost prohibitive for the City.
C. Do not complete any sewer capacity improvements.	Sewer capacity issues including surcharging and possible overflows will continue to occur.
3. A. Replace Clear Lake Lift Station.	Replaces aging lift station with one not impacted by the flood plain and existing road.
B. No lift station improvements.	Lift station would continue to be subject to flooding.
4. A. Install new 16-inch ductile iron force main in new 30-inch steel casing under Highway 29.	Provides a reliable, redundant conveyance structure at this critical location for most of the City's wastewater from Larrecou Lift Station to Linda Lane Lift Station.
B. Rehabilitate existing 72-inch CMP culvert, 8-inch and 12-inch force mains, and 8-inch gravity sewer.	Improves the poor condition of the existing conduit and pipes, but confined space entry would still be required for maintenance. Additionally, ease of construction is an issue and no system redundancy would be provided.
C. Install 16-inch force main and 30-inch casing under Hwy 29, with new pump station on the west side of Hwy 29, and rehabilitate existing culvert and pipes.	Provides a complete long-term solution allowing for system redundancy, but is cost prohibitive.
D. Do nothing.	Leaves a critical portion of the collection system in an unreliable and unsafe condition with possible future force main leaks and conduit structure failure.

TABLE 2 City of Lakeport Wastewater System Improvements Project Alternatives Considered	
Wastewater Treatment Alternatives	**Comments**
1. A. Replace SCADA and telemetry system.	Allows City operators to reliably and efficiently control and collect data on the wastewater collection and treatment systems.
B. Do nothing.	System will be unreliable with frequent communication and equipment failures that cannot be resolved, leaving vital wastewater facilities at increasing risk of sanitary sewer overflows.
2. A. Rehabilitate aeration basin side slopes with new shotcrete and remove sludge from basins and thus protect dikes from erosion and possible failure.	Provides complete slope protection and allows for use of entire effective volume of basins.
B. Install riprap on bottom half of basin slopes and remove sludge from basins.	May slow down erosion process, but side slopes would continue to be undermined and would eventually be subject to failure.
C. Subgrade and pave bottom of basins, then install shotcrete on side slopes and remove sludge from basins.	Provides complete slope protection, reducing possibility of groundwater contamination, but is not necessary as the ponds were compacted to be relatively impermeable during their initial construction.
D. Do nothing.	Side slopes will continue to be undermined and eventually fail, causing substantial loss of original capital expenditure, plus incurring substantial fines from CRWQCB.

Wastewater Collection System Alternatives**:**

I&I Reduction Projects: In view of the large expenditures required to install parallel relief sewers and upgrading of the WWTP, it is imperative the City continue investing in long-term I&I reduction programs. Installing relief sewers without correcting major sources of I&I will only relieve existing bottlenecks and result in even higher PWWF downstream. Sewer systems in poor condition continue to deteriorate and, if not corrected, the volume of I&I will only increase with time. Reducing I&I will result in long-term savings to the City by reducing the volume of sewage treated at the WWTP and reducing the need for parallel or replacement sewers.

The average peak I&I rate for all of the sewers within the City was about 2,400 GPAD as measured in the 2008 MSP. Flow monitoring data indicates there are 11 flow monitoring areas that have extrapolated I&I flow rates that are significantly higher than the majority of the service areas. The total net peak sewage flow from the 11 highest flow monitoring areas resulting from a 50-year rain storm is about 1.59 MGD, which represents about 51% of the total estimated City system peak flow of 3.09 MGD. In addition, these areas only comprise about 300 sewered acres, or 15% of the total existing 2,000 sewered acres within the City limits. Therefore, it appears that 15% of the City's sewered area contributes 51% of the peak flows entering the collection system. While completing all 11 I&I reduction projects would have a significant impact on the system flows, the total project cost would be approximately $2.2 million. This is cost prohibitive for the City at the present time when additional improvements are needed to correct other system deficiencies. Therefore implementing four of the six highest priority I&I reduction projects in subservice areas 9B, 9C, 3C, and 4B as shown in Figure 2 is recommended at this time. These projects could result in an estimated I&I reduction of 0.41 MGD as shown in Appendix E.

In order for these I&I reduction projects to be effective, the City will need to address leakage from laterals and private building sewers. There have been several studies that point to sewer laterals and building connections as contributors of up to half of the I&I entering a collection system. In a study for the U.S. Environmental Protection Agency (EPA), it was noted that many sewer rehabilitation programs that did not address sewer laterals had a maximum I&I removal rate of about 30%. Furthermore, the EPA study also concluded the building connections and private sewer laterals contributed 50% of the total I&I into the system. Therefore, with a continued City commitment to substantially reduce I&I from laterals and private house connections, the best that can be hoped for in any I&I reduction program is about a 30% reduction.

Currently, the City's sewer ordinance addresses some of the issues attributed to I&I coming from private sewer laterals. The City's ordinance requires private laterals be periodically cleaned, inspected, and tested for I&I by the property owners at predetermined scheduled events, such as when applying for a building or plumbing permit. Furthermore, the City's ordinance also stipulates that approved cleanouts must

be installed within the existing private sewer laterals whenever the laterals are replaced or when the lateral is to be tested. Testing of private sewer laterals involve an exfiltration pressure test that measures the amount of pressure loss within the private sewer lateral over a set period of time. The ordinance stipulates that if the mandatory exfiltration test fails, the private property owner would be required to repair the lateral and retest, or possibly be fined a noncompliance fee.

Sewer Capacity Improvements: Trunk sewer design flows and the required sewer sizes were determined for the 2008 and 2028 conditions in the 2008 MSP. Several specific improvements were recommended based on the City's commitment to control and reducing I&I in the sewer system. If I&I reduction goals cannot be achieved, peak sewage flows in the system will be higher than estimated, which will result in future sewer capacity issues and the need for construction of additional relief sewers and treatment plant capacity.

The PWWF for each reach of trunk sewer was determined using the H_2OMAP Sewer by MWHSoft computer program. Model results were based on sewer length, diameter, slope, capacity, model PWWF, surcharge depth, and recommended replacement or parallel sewer. Using an input sewer slope and diameter of the existing trunk sewer, together with compiled PWWF, the program computed the existing sewer capacity. A total of seven sewer improvement projects were identified as possibly being needed in the next 5 to 20 years. If all of these projects were completed the City's wastewater system would be much improved with increased capacity and less sewer surcharging and sewer system overflows. However, the total cost to implement all of these projects is approximately $1.9 million which is cost prohibitive for the City at this time. Per the 2008 MSP, of the seven recommended improvements, only one was identified as being near-term (2008-2013), with four being intermediate-term (2013-

Photo 10: Main Street Sewer Location

2018), and the other two being long-term (2018-2028). Therefore, it is recommended the near-term project of upsizing the Main Street sewer from an 8-inch to a 12-inch from Clear Lake Avenue to 6th Street be completed at this time.

Clear Lake Lift Station Improvements: The 2008 MSP recommended this lift station be replaced and relocated due to several existing deficiencies. It is a small lift station that is located within the flood plain of Clear Lake. The small size of this lift station makes it difficult to access and it appears that some of the concrete manhole walls are showing signs of degradation (i.e., exposed aggregate). The station's wet well sits in the middle of Clear Lake Avenue and requires City operators to perform confined space entry during routine maintenance. Additionally, the station's pumps and piping are antiquated and in need of replacement. Leaving the existing lift station as is would continue to be a safety hazard for City operators with continued risk of flooding during high lake levels.

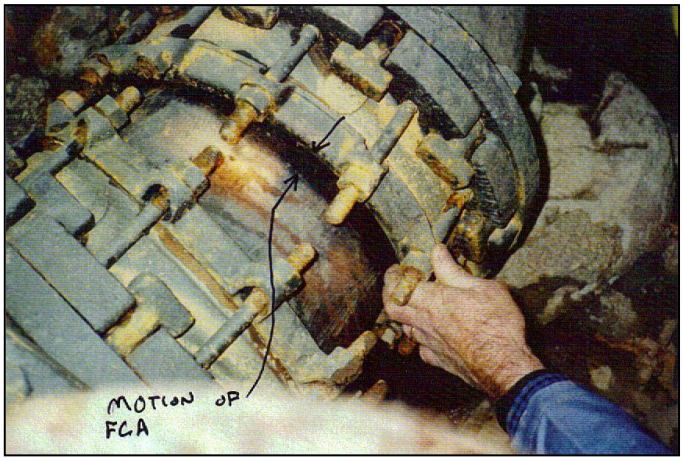


Photo 11: Inadequate Force Main Thrust Restraint

Highway 29 Force Main Crossing: As indicated in the PACE 1990 inspection letter (Appendix F), when the existing 72-inch CMP culvert was inspected more than 20 years ago, the condition of the culvert, force mains, and gravity sewer were questionable at best. The culvert was in danger of structural failure with groundwater leaking at the joints, and the force mains did not have adequate thrust restraints. This critical portion of the City's wastewater collection system is constantly inundated with groundwater and is badly in need of improvements.

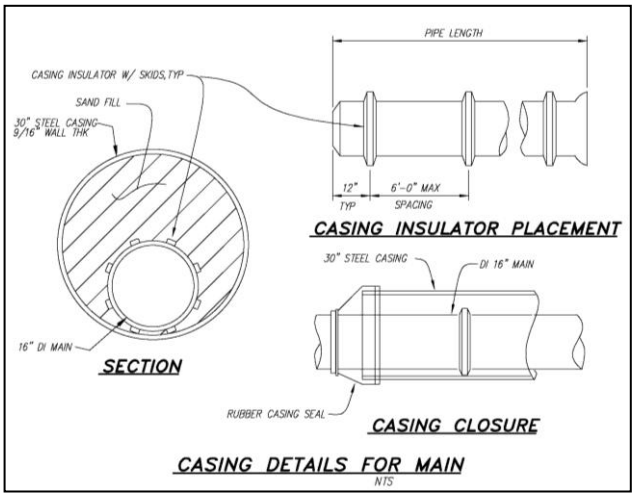


Photo 12: Example Force Main Casing Detail

It is recommended a new 16-inch ductile iron force main be installed within a 30-inch steel casing via directional drilling

under Highway 29 at a location adjacent to the current CMP culvert, but at substantially less depth. This will provide system redundancy for the force mains, with the new 16-inch force main in service and the existing force mains serving as a backup. This redundancy will allow the City to further investigate how best to rehabilitate the existing 72-inch culvert and provide proper bracing and support for the existing force mains and gravity sewer pipe at a later date.

Consideration was given to reinforcing the 72-inch culvert and improving the existing pipes as a part of this project; however, constructability and cost were large factors in choosing not to pursue this alternative. Flows in the 8-inch gravity pipe would have to be trucked around the crossing during construction, and flow in each of the two force mains would have to be diverted one at a time while the pipe is replaced. Additionally, the existing force mains would have to be braced against a CMP with questionable structural integrity to make any improvements to the pipes. In order to reinforce the CMP culvert, a smaller pipe would have to be installed, which would require all of the existing pipe anchors and bracing be removed, with the stability of all of the components coming into question. Even if these issues could be resolved and the improvements constructed, the pipes would still be extremely deep requiring confined space entry for maintenance. City operators are trained in this area, but they do not enter “Permit Required” confined spaces.

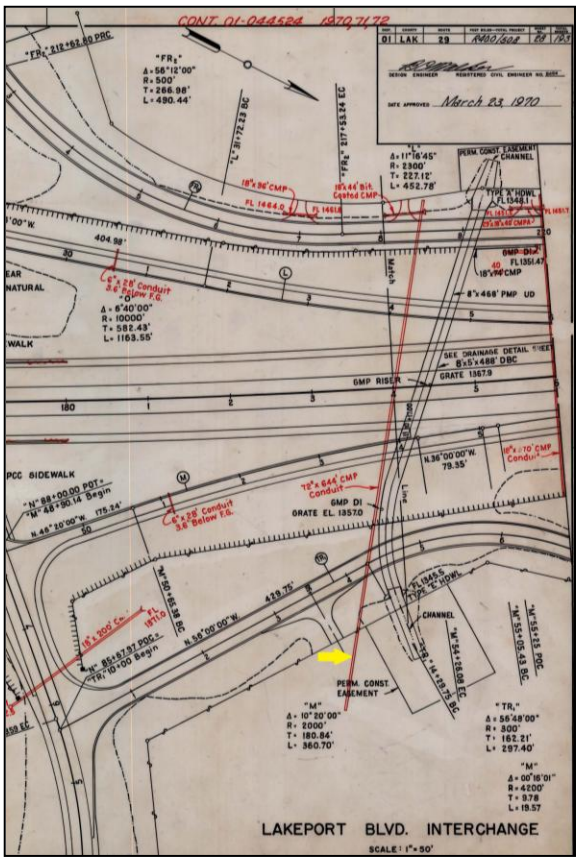


Photo 13: (E) 72-inch CMP Location

The ideal alternative would be for the City to install the new casing and force main, as well as to rehabilitate the existing CMP culvert and force mains for complete adequate system redundancy. Additionally, installing a small lift station on the west side of Highway 29 would eliminate the need for the 8-inch gravity sewer. However, to

complete all of these improvements is presently cost prohibitive for the City. As such, any improvements beyond installation of the new casing and force main are recommended at a later date.

Wastewater Treatment Alternatives:

SCADA: The existing SCADA controls system and telemetry system should be replaced in order to make operation of the entire collection and treatment system more reliable. It is recommended the existing "hard wire" telemetry system be replaced with a radio telemetry system compatible with the City's current radio system.

Photo 14: Aeration Basin Side Slope Failure

Aeration Basin Rehabilitation:

The aeration basin ABM slope protection is failing in many locations due to wind and wave erosion of the earth from under the ABM. In particular, the access ramps into the ponds have seen the worst damage to the ABM apron. The continued degradation of the aeration basin slopes and ABM apron may compromise the existing earthen dikes. It is recommended in order to properly repair the aeration pond dikes, each aeration basin would be taken out of service temporarily over two summers, between June to September, in order to dry the pond slopes. Pond 1 should be repaired first since it has a greater extent of damaged dike area followed by Pond 2. The intent is to completely remove the existing ABM for recycle and reuse by the City. The side slopes will be compacted to ensure a solid foundation prior to placement of new shotcrete. Shotcrete will be keyed into the top and bottom of the ponds to ensure continuous protection on the side slopes.

The placement of rock riprap along the dike slopes below the existing ABM apron to protect the slopes from further erosion was considered as an alternative; however, this would only be a short-term improvement. Riprap will not provide full slope protection and will only slow the erosion process, eventually leading to possible failure of the dikes.

Another considered alternative was to subgrade and pave the bottom of the basins up to the keyed in shotcrete side slopes for complete protection from erosion. However, a review of the original aeration basin plans and specifications indicated the intent was to construct the treatment ponds to be relatively impermeable. Refer to Appendix G for plans of the existing aeration basins.

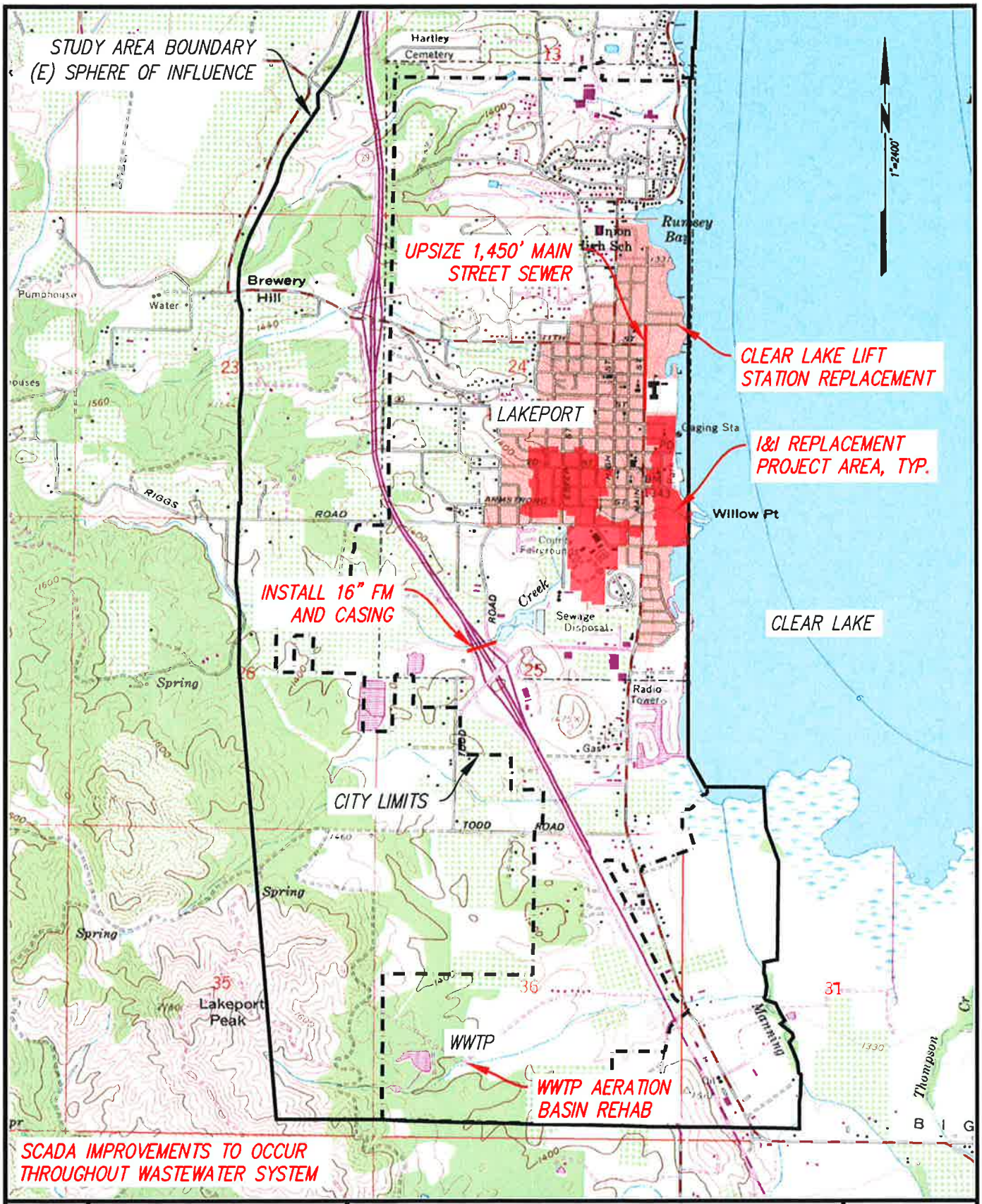
As indicated in the plans and specifications, a minimum of 18 inches normal to the cut slope and 18 inches of the existing bottom material was removed and replaced with compacted embankment material. Where small lenses of clean sands and gravels were encountered they were blended and mixed with surrounding clay and silt soils to form a suitable impermeable embankment material. If large pockets of materials were encountered that were not of sufficient clay or silt content to be used as embankment, they were removed from the ponds. Over excavation of the cut slopes was completed such that the minimum depth of over excavation normal to the slope was 18 inches. Eight inches of the material remaining after over excavation was then scarified, moisture conditioned to near optimum moisture content, and compacted to 92% relative compaction. Permeability tests performed by MTI Testing Laboratory Inc., on native soils from the two basin sites prior to construction verified these soils were suitable for use as reservoir liner material.

B. Design Criteria:

The design criteria used for evaluation of alternatives was taken from the 2008 MSP and is based on historical data and industry recognized standards. Refer to Appendix G for the existing WWTP design criteria.

C. Map:

The proposed WWTP and collection system improvements recommended in this report are shown in Figure 2.



DATE			
04/12	PACE ENGINEERING REDDING, CALIFORNIA	CITY OF LAKEPORT PRELIMINARY ENGINEERING REPORT RECOMMENDED IMPROVEMENTS	FIGURE 2 JOB #523.30

Plot Date: April 09, 2012 - 10:48 am Login Name: lmccollum
File Name: M:\Land Projects\0523.30 Lakeport Wastewater PER\Sewer Plate 1.dwg, Layout: FIG 2

D. Environmental Impacts:

The proposed project alternatives do not appear to have any lasting, significant impact on land resources, prehistoric or historic sites, wetlands, flood plain, endangered species, or critical habitat. The project design and construction will need to take into account specific mitigation measures for short-term construction related activities, so as not to cause any long-term environmental impacts. The permits for this project will likely require similar mitigation measures, which present no major hurdles as long as they are included in the construction contract documents and are monitored during the active phases of the project. A preliminary mitigation-monitoring checklist is included in Table 3. These measures will typically be required with all alternatives considered. These measures must be included in the construction contract and then adhered to both during and after construction of the project where applicable. Additionally, the City has enlisted the services of Environmental Planning Partners, Inc., to prepare compete environmental documentation of the project.

E. Land Requirements:

The existing WWTP and all associated wastewater system facilities that will be affected by replacement of the SCADA system are located on City property; therefore, no additional land will be required for or affected by these improvements. All collection system improvements will be located within the road rights-of-way, or within existing easements as much as possible. Preliminary cost estimates anticipate minimal additional easements being necessary, if any.

TABLE 3 City of Lakeport Wastewater System Improvements Project Preliminary Mitigation Monitoring Checklist	
Mitigation Measure	**Monitoring Action**
Work Area	
1. Minimize work area	Define limits of work area in contract documents and delineate any sensitive areas that are to be left undisturbed.
2. Erosion Control	Establish erosion control procedures in contract documents including sensitive areas to be left undisturbed. Standard practices required by the City will be strictly adhered to by the construction contractor and enforced by the engineer.
3. Revegetation of Disturbed Areas	All areas disturbed shall be seeded and mulched. Revegetation shall consist of native species, grasses, and forbs. Revegetation efforts shall be in place prior to the return of the wet season and no later than October 15th of each season.
Construction Activities	
1. Dust Control	Roads and work areas likely to generate dust shall be watered during construction activities and swept clean where possible.
2. Noise Control	Work hours will be limited typically to 7 a.m. to 7 p.m. in residential areas unless special activities, i.e. tie-ins, are required at night during periods of low water demand.
Sensitive Resources	
1. Fish Protection	Adverse activities on fish shall be minimized by not impacting nearby creeks. Erosion protection efforts shall be included as stated above.
2. Subsurface Cultural Resources	Where subsurface cultural materials are encountered during construction activities, all activities shall be halted within a 150-ft radius and an archaeologist called in to examine the artifacts and determine if additional mitigation measures are required.

F. Construction Problems:

Major construction problems are not anticipated for any of the project alternatives. New sewer mains will be constructed adjacent to existing pipelines within existing roads and/or utility easements. Trench dewatering may be required during construction. This is typically true of any sewer main work in this area. It is anticipated sewer main installation will not involve open-cut trenches over 8 feet in depth.

G. Cost Estimates:

Relative costs for alternative project components were considered when determining the recommended alternative summarized in Table 4. Construction and project cost estimates for the recommended project are summarized in Table 5. The estimated construction cost of the project is $4,008,000, and the total project cost, including indirect costs of $1,147,500, is estimated at $5,156,000. These costs are based upon similar, recent prevailing wage projects bid in northern California. Project costs have been projected forward 2.5% per year for construction in year 2013-2014 based upon the typical yearly increase in the Engineering News Record – Construction Cost Index (ENR CCI), which presently stands at 9273 for April 2012. The ENR CCI has been in place since 1908 and indexes the cost of construction taking into account 200 hours of common labor at a rate averaged over 20 cities, plus 25 cwt of standard structural steel shapes, 1.128 tons of Portland cement, and 1,088 board-feet of 2×4 lumber.

H. Advantages/Disadvantages:

The ability of the different alternatives for the necessary wastewater collection and treatment improvements were briefly summarized in Table 2. In general, a project of this size, which is financially restricted and substantially defined by the facilities it has existing and would like to continue to use, does not have a lot of feasible options. Therefore, it was determined a present worth cost analysis was not required due to lack of viable alternatives.

The advantages of the recommended alternative include:

- Reduce ongoing maintenance costs and potential sewer blockages, surcharging, flooding, and potential sanitary sewer overflow fines.
- Reduce I&I by an estimated 0.41 MGD when private lateral replacement is complete.
- Eliminate need for confined space entry and potential leakage of untreated sewage into Clear Lake at the Clear Lake Avenue Lift Station.
- Replacement of critical conveyance structure under Highway 29 providing system redundancy and substantial reduction in potential force main leaks.
- Rehabilitated aeration basins reducing the risk of dike failure and allowing for use of the entire effective volume of the basins.
- Reliable and efficient SCADA and telemetry system throughout the City wastewater facilities.

VI. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

A. Project Design:

Construction of the improvements summarized in Table 4 is recommended in order to improve upon the reliability of the wastewater collection and treatment system for the City. The project components include:

TABLE 4 **City of Lakeport** **Wastewater System Improvements Project** **Recommended Project Components**
1. Implement I&I reduction projects in subservice areas 9B, 9C, 3C, and 4B.
2. Upsize 8-inch Main Street sewer to 12-inch from Clear Lake Avenue to 6th Street.
3. Relocate and replace Clear Lake Avenue Lift Station.
4. Install 16-inch force main in 30-inch casing under Highway 29.
5. Replace existing SCADA and telemetry system.
6. Rehabilitate aeration basins with new shotcrete side slopes and sludge removal.

1. Implementation of the I&I reduction projects as shown in Figure 2 will result in decreased flows to the WWTP. This portion of the collection system accounts for about 95 sewered acres and approximately 0.41 MGD according to the 2008 MSP. Inspection, repair, and replacement of the sewer mains, manholes, and laterals in the public right-of-way in these areas should begin to alleviate the presence of known bottlenecks and sewage flooding. As previously discussed, in order to see significant I&I reduction results, inspection and replacement of private laterals to dwellings must be completed at a later date.

2. Upsizing approximately 1,450 feet of the existing 8-inch water main on Main Street to a new 12-inch sewer will eliminate surcharging and sewage overflows that have been observed in this area during PWWF. Pipe bursting will be utilized in order to minimize traffic impacts to this busy commercial area of the City.

3. Relocating the Clear Lake Lift Station to outside the roadway on Clear Lake Avenue and raising access above ground and above the flood plain will allow for ease of maintenance and operations and eliminate flooding that currently occurs during high lake levels. New pumps and a rail system will improve efficiency, operation, and maintenance of the lift station as well.

4. Installation of approximately 530 feet of new 16-inch ductile iron force main within a 30-inch steel casing via directional drilling under Highway 29 will provide system redundancy for the force mains. Having this redundancy allows the City to further investigate how best to reinforce the existing 72-inch culvert and provide proper bracing and support for eventual replacement of the force mains and gravity sewer pipe at a later date.

5. Replacement of the existing outdated and unreliable SCADA and telemetry system will allow City operators to more safely and efficiently maintain, control, and service the entire wastewater collection and treatment system. A main SCADA station is recommended at the corporation yard, along with remote access to the entire system for operators via laptop computers. Updates will include a computer station at the WWTP and operator interface panels at each lift station.

6. Rehabilitation of the aeration pond dikes will entail completely removing the existing ABM for recycle and reuse by the City. Side slopes will be compacted to ensure a solid foundation prior to placement of new shotcrete. The shotcrete will be 2.5 inches thick and will be keyed into the top and bottom of the ponds to ensure continuous protection on the side slopes.

B. Total Project Cost Estimate:

Construction and project cost estimates, including funding alternatives, are summarized in Tables 5 and 6. The estimated construction cost of the project is $4,008,000, and the total project cost including indirect costs of $1,147,500, is estimated at $5,156,000. These costs are based upon similar, recent prevailing wage projects bid in northern California. These costs have been projected forward to construction in year 2013-2014 based upon the ENR CCI, which presently stands at 9273 for April 2012.

TABLE 5
City of Lakeport
Wastewater System Improvements Project
Recommended Project Preliminary Cost Estimate

No.	Item	Quantity	Unit	Unit Cost	Total Cost
Construction Costs					
1	Dewater Oxidation Pond No. 1	1	LS	$5,000	$5,000
2	Mobilize sludge removal equipment to Pond 1	1	LS	$10,000	$10,000
3	Remove, transport, dispose of sludge from Pond 1 [1]	420	DT	$625	$262,500
4	Demolish oxidation pond shotcrete side slopes + dispose on site from Pond 1 [2]	120	CY	$54	$6,486
5	Grade & compact 6-inches into sideslopes & install footing to Pond 1 [3]	250	CY	$31	$7,763
6	Shotcrete w/ fibermesh Pond 1 side slopes & footing	500	CY	$515	$257,500
7	Dewater Oxidation Pond No. 2 into Oxidation Pond No. 1	1	LS	$5,000	$5,000
8	Mobilize sludge removal equipment to Pond 2	1	LS	$10,000	$10,000
9	Remove, transport, dispose of sludge from Pond 2 [1]	420	DT	$625	$262,500
10	Demolish Oxidation Pond 2 shotcrete side slopes [2]	120	CY	$54	$6,486
11	Grade sideslopes & install footing to Pond 2 [3]	250	CY	$31	$7,763
12	Shotcrete Oxidation Pond 2 sides	500	CY	$515	$257,500
13	Place Oxidation Pond No. 2 back into service	1	LS	$5,000	$5,000
14	Resurface dike roadways	240	CY	$40	$9,600
15	Demobilize equipment	1	LS	$5,000	$5,000
16	**Oxidation Ponds Subtotal**				**$1,118,000**
17	Directional drill 30-Inch x 0.25 wall steel casing	530	LF	$650	$344,500
18	16-Inch DIP restrained joint force main	530	LF	$100	$53,000
19	East tie-in to new force main	1	LS	$5,000	$5,000
20	West tie-in to new force main	1	LS	$5,000	$5,000
21	**16-Inch Force Main Subtotal**				**$407,500**
22	I&I Rehab Subservice Area 9B	1	LS	$259,000	$259,000
23	I&I Rehab Subservice Area 9C	1	LS	$64,000	$64,000
24	I&I Rehab Subservice Area 3C	1	LS	$104,000	$104,000
25	I&I Rehab Subservice Area 4B	1	LS	$118,000	$118,000
26	**I&I Reduction Subtotal [4]**				**$545,000**
27	Pipeburst (E) 8-inch to (N) 12-inch on Main St from Clear Lake to 6th St	1450	LF	$160	$232,000
28	Reinstall laterals to property line with two-way cleanout	30	EA	$3,500	$105,000
29	Replace pavement at launch pit and laterals	31	EA	$500	$15,500
30	**Main Street Pipeburst Subtotal**				**$352,500**
31	Mobilize	1	LS	$10,000	$10,000
32	Excavation	1	LS	$4,000	$4,000
33	Install manhole base & wetwell	1	LS	$8,000	$8,000
34	Install rails, pump, & electrical	1	LS	$30,000	$30,000
35	Backfill excavation	1	LS	$3,000	$3,000
36	Pavement replacement	1	LS	$2,000	$2,000
37	Connect (E) sewers & force main to new lift station	1	LS	$3,000	$3,000
38	Excavate, remove, dispose, backfill (E) lift station	1	LS	$10,000	$10,000
39	Test & demobilize	1	LS	$4,000	$4,000
40	**Clear Lake Avenue Lift Station Subtotal**				**$74,000**
41	Underground electrical at Lift Stations	9	EA	$2,000	$18,000
42	Aboveground electrical at Lift Stations & misc I/O terminations	9	EA	$3,000	$27,000
43	Furnish and install Lift Station RTUs	9	EA	$15,000	$135,000
44	Lift Station ORT	9	EA	$3,000	$27,000
45	Lift Station FAT	9	EA	$2,000	$18,000
46	Furnish and install Control Panel/Computer Work Station at Corporation Yard	1	LS	$100,000	$100,000
47	Furnish and install Control Panel/Computer Work Station at WWTP	1	LS	$50,000	$50,000
48	Add I/O & RTU at Recapture Ponds	4	EA	$15,000	$60,000
49	Add I/O & RTU at Lakeport Blvd Lift Station	1	EA	$15,000	$15,000
50	Add I/O & RTU at Lakeshore Blvd Lift Station	1	EA	$15,000	$15,000
51	Add I/O & RTU at Martin St Lift Station	1	EA	$15,000	$15,000
52	SCADA Programming - Process Control	1	LS	$50,000	$50,000
53	SCADA Programming - Reports	1	LS	$50,000	$50,000

TABLE 5
City of Lakeport
Wastewater System Improvements Project
Recommended Project Preliminary Cost Estimate

No.	Item	Quantity	Unit	Unit Cost	Total Cost
54	Computer equipment, licenses, and software	1	LS	$50,000	$50,000
55	WWTP pull wire & terminate	1	LS	$10,000	$10,000
56	SCADA startup & testing (ORT & FAT)	1	LS	$25,000	$25,000
57	Cleanup	1	LS	$6,800	$6,800
58	Equipment info	1	LS	$10,000	$10,000
59	**Sewer Pump Station & WWTP SCADA System Subtotal**				**$681,800**
60	***Subtotal Construction Cost***				$3,179,000
61	***Construction Contingency @ 20%***				$635,800
62	***Inflation Adder for Construction in 2013-2014 @ 2.5% per year***				$193,100
63	***TOTAL CONSTRUCTION COSTS***				***$4,008,000***
Indirect Costs					
64	Study and Report Phase (PER)				$20,000
65	Design Field Survey @ 6 Days				$25,320
66	Design				$418,000
67	Bidding/Contract Award Services				$10,000
68	Construction Phase Services				$356,000
69	Post-Construction Services				$0
70	As-Built (Record) Drawings				$5,000
71	***SubTotal Basic Services***				$834,000
72	***Resident Project Representative*** [5]				$94,600
73	***Additional Engineering Services***				
74	Geotechnical Services				$0
75	Construction Phase Surveying				$5,070
76	Easement Acquisition/ROW's				$10,000
77	Operation & Maintenance Manuals Supplied by Contractor				$0
78	Assistance w/ Certificates of Participation Funding				$0
79	Environmental Documentation Assistance				$0
80	Assistance with Permits				$5,000
81	***SubTotal Engineering Fee***				$948,670
82	***Engineering Fee Contingency @ 10%***				$94,867
83	***Engineering Fee Total***				***$1,043,500***
Other Indirect Costs					
84	Administration and Legal				$20,000
85	ROW & Easements Permits				$10,000
86	Environmental Documentation				$20,000
87	Additional Cash Flow Needs for Interim Financing Through Bidding @ 5% for 1 Year				$24,000
88	Bond Counsel for Certificates of Participation (COP) Loan Security				$30,000
89	***Other Indirect Costs Total***				$104,000
90	***TOTAL INDIRECT COSTS***				***$1,147,500***
TOTAL PROJECT COST					***$5,156,000***

Notes:

1. Sludge quantity is rough estimate only.
2. Oxidation Pond side slope removal cost includes PC 200 excavator, 10 CY Dump Truck, two operators, which remove 5 CY per hour, plus 15% markup on equipment & labor. $270
3. Oxidation Pond sideslope regarding costs include PC 200 excavator w/ compactor & operator plus 15% markup, which grades & compacts 5 CY per hour. $155
4. Refer to 2008 Master Sewer Plan, Table 13 (in Appendix E herein) for summary of sewer grout sealing, manhole repair, laterals, & sewer replacement.
5. Construction observation includes 77 days with per diem.

TABLE 6
City of Lakeport
Wastewater System Improvements Project
Project Funding Alternatives

TOTAL ESTIMATED CONSTRUCTION COSTS	$4,008,000
TOTAL ESTIMATED INDIRECT COSTS	$1,147,500
TOTAL ESTIMATED PROJECT COST	**$5,156,000**
Funding Alternative No. 1 - RD Low Interest Loan	
Grant @ 0%	$0
Low Interest Loan @ 100%	$5,156,000
Annual Loan Repayment @ 2.75%, 40 years (CRF=0.0415315)	$214,000
Annual Reserve Account @ 10% of Annual Debt Services	$21,400
Annual Estimated Short-Lived Asset Reserve[1]	$38,000
10% O&M Reserve Account[2]	$195,100
TOTAL ANNUAL LOAN REPAYMENT	**$468,500**
Number of Residential Unit Equivalents (RUEs)	2,474
Approximate Total Cost Per RUE	$2,084
Approximate Annual Cost Per RUE	$189
APPROXIMATE MONTHLY COST PER RUE	**$15.78**
TOTAL COP ANNUAL LOAN REPAYMENT[3]	**$214,136**
TOTAL COP MONTHLY LOAN REPAYMENT	**$17,844.67**
Funding Alternative No. 2 - RD Grant & Low Interest Loan	
Rural Development Grant @ 30%	$1,546,800
Rural Development Loan @ 70%	$3,609,200
Annual Loan Repayment @ 2.75%, 40 years (CRF=0.0415315)	$150,000
Annual Reserve Account @ 10% of Annual Debt Services	$15,000
Annual Estimated Short-Lived Asset Reserve[1]	$38,000
10% O&M Reserve Account[2]	$195,100
TOTAL ANNUAL LOAN REPAYMENT	**$398,100**
Number of Residential Unit Equivalents (RUEs)	2,474
Approximate Total Cost Per RUE	$1,459
Approximate Annual Cost Per RUE	$161
APPROXIMATE MONTHLY COST PER RUE	**$13.41**
TOTAL COP ANNUAL LOAN REPAYMENT[3]	**$149,896**
TOTAL COP MONTHLY LOAN REPAYMENT	**$12,491.33**

Notes:

1. The short-lived asset reserve is intended to provide the City with the means for accumulating funds to replace equipment and materials that have useful lives of 5 to 15 years.
2. RD requires sufficient project revenue to cover a 10% O&M increase after restructuring.
3. COP = Certificate of Participation will be used as the debt security method. A COP is financing in which a share of the lease revenues of an agreement are bought, rather than the bond being secured by those revenues.
4. Annual loan repayment based on USDA RD intermediate interest rate of 2.75% effective April 1, 2012, through June 30, 2012.

C. Annual Operating Budget:

The existing operating budget and most recent audit are included in Appendices H and I, respectively. The City will need to reconsider the income and expenditures, along with the new debt service required to repay any loan obtained.

1. Income: The City's current wastewater rate schedule was adopted by the City Council effective July 1, 2010. According to this rate schedule and the most recent audit, and assuming that the existing active customers remain, the minimum annual income should be approximately $1,623,268. A Water and Sewer Rate Study is currently being completed by HDR. Current and anticipated future wastewater rates are shown in the Draft Water and Sewer Rate Study located in Appendix D.

2. Operations and Maintenance (O&M) Costs: The City's existing operations and maintenance budget will be refined once the City has had the opportunity to operate through one year and consider the cost of the proposed project. It is anticipated the O&M budget will be increased by the required short-lived assets – see Table 8. The estimated pro-forma O&M annual expenses will be approximately $2,146,100, which includes a 10% O&M reserve of $195,100 based on the most recent audit. See Table 8 for a breakdown of the 100% loan funding scenario.

An approximate calculation of the short-lived assets currently present in the City's wastewater collection, treatment, and disposal system is shown in Table 7.

TABLE 7
City of Lakeport
Wastewater System Improvements Project
Short-Lived Assets Reserve Schedule

Asset Description	Replacement Period In Years	Total Estimated Cost	Estimated Annual Cost to Replacement
Traveling screen (bar screen)	10	$35,000	$3,500
2 C St Pumps	8	$46,000	$5,750
C St Radio Control Communication	10	$2,400	$240
Lakeshore Blvd. Pump	8	$8,900	$1,113
Linda Lane CPU	15	$650	$43
3 Linda Lane Pumps	8	$66,000	$8,250
Linda Lane PLC	15	$1,100	$73
Linda Lane Radio Control Communications	10	$2,400	$240
2 Clearlake Ave Pumps	8	$10,400	$1,300
Lakeport Blvd Pump	8	$18,000	$2,250
2 Martin St. Pumps	8	$14,900	$1,863
Rose Ave Radio Control Communications	10	$2,400	$240
Rose Ave. PLC	15	$1,100	$73
Rose Ave. U.P.S	15	$200	$13
Rose Ave Siemens	15	$650	$43
D.O Probe & pH/DO Meter	10	$2,420	$242
S32-QUAD Tank & Pump 25 gal.	10	$250	$25
Spare Aerator	8	$7,700	$963
Spectrophotometer	10	$950	$95
Tank & Pump 25 gal. spare	10	$250	$25
Lakeshore Blvd. Pump	8	$8,900	$1,113
2 Larrecou Lane Pumps	8	$46,000	$5,750
Cl2 Gas Detector Analyzer	10	$2,300	$230
WWTP Chart Recorder, CPU, and PLC	15	$2,700	$180
WWTP Digital Thermometer	10	$200	$20
WWTP Lanyard	10	$90	$9
WWTP Microwave	5	$100	$20
WWTP Radio Control Communications	10	$2,400	$240
WWTP Refrigerator	10	$529	$53
WWTP Safety Body Harness	10	$280	$28
WWTP Sample Refrigerator	10	$140	$14
WWTP UPS	10	$250	$25
Geo Pump Peristaltic Pump	15	$845	$56
Hand Grinder	13	$70	$5
S29 2008	10	$425	$43
Security Monitor	15	$100	$7
2 Service Vehicles	15	$58,000	$3,867
		Equivalent Annual Replacement Cost:	$38,000
		*Annual Cost Per RUE:	$15.36
* Assumes 2,474 RUEs		Monthly Cost Per RUE:	$1.28

TABLE 8 City of Lakeport Wastewater System Improvements Project Estimated Pro-Forma Expenses (100% Loan)			
	Annual Expense	***Annual Cost Per RUE**	***Monthly Cost Per RUE**
Estimated Pro-Forma O&M	$1,951,000	$788.60	$65.72
Proposed 10% O&M Reserve	$195,100	$78.86	$6.57
Estimated Short-Lived Asset Replacements	$38,000	$15.36	$1.28
Existing 1993-1 Sewer District Improvement Loan	$100,000	$40.42	$3.37
Existing 1993-1 Improvement Loan (10% reserve)	$10,000	$4.04	$0.34
Existing 2007 Series A Loan	$55,000	$22.23	$1.85
Existing 2007 Series A Loan (10% reserve)	$5,500	$2.22	$0.19
Proposed RD Loan @ $5,156,000	$214,000	$86.50	$7.21
Proposed RD Loan (10% reserve)	$21,400	$8.65	$0.72
Totals:	$2,590,000	$1,046.89	$87.24
* Assumes 2,474 RUEs			

VII. CONCLUSIONS AND RECOMMENDATIONS

Based upon the available information to date, the recommended project consists of the items summarized in Table 4. The advantages of the recommended alternative include:

- Reduce ongoing maintenance costs and potential sewer blockages, surcharging, flooding, and potential sanitary sewer overflow fines.
- Reduce I&I by an estimated 0.41 MGD when private lateral replacement is complete.
- Eliminate need for confined space entry and potential leakage of untreated sewage into Clear Lake at the Clear Lake Avenue Lift Station.
- Replacement of critical conveyance structure under Highway 29 providing system redundancy and substantial reduction in potential force main leaks.
- Rehabilitated aeration basins reducing the risk of dike failure and allowing for use of the entire effective volume of the basins.
- Reliable and efficient SCADA and telemetry system throughout the City wastewater facilities.

The total project cost including indirect costs for administration and engineering is estimated at $5,156,000.

Potential funding sources include the Clean Water State Revolving Fund (CWSRF), Community Development Block Grant (CDBG), and USDA RD funding programs. The CWSRF is competitive with projects involving existing wastewater discharge issues and/or treatment deficiencies ranking higher for funding than other wastewater system deficiencies. Since the City does not have a great deal of these high priority issues, the CWSRF is probably not a viable funding source. However, the City should continue to apply for additional grant funding through the CDBG program for lateral replacement on private property.

This report is one of a number of steps towards seeking funding through USDA RD which appears to be the most viable funding source for the City. Maximum grant offers typically apply to borrowers from small communities (less than 5,000 people) with an MHI of 60% or less than the non-metropolitan State MHI, and sewer rates in excess of 1.5% of the MHI. At this time, the City's average monthly sewer charge per RUE of $46.79 for southern customers is currently at 1.6% of the City MHI, while that of $35.41 for northern customers is at 1.2% of the City MHI. If the Draft Water and Sewer Rate Study is adopted, these rates will increase in future years. The City MHI of $34,340 was 60% of the State $57,708 MHI in 2010. The steps to receive project funding through RD are summarized in a preliminary schedule in Table 9.

TABLE 9 City of Lakeport Wastewater System Improvements Project Preliminary Project Schedule			
Item No.	**Action**	**Target Date**	**Completion Date**
1	City hires PACE to prepare a PER		03-12
2	PACE provides draft PER to the City		03-12
3	PACE submits final PER to the City		04-12
4	Environmental draft submitted	04-12	
5	City seeks grant/loan funding from USDA RD based on PER recommendations	04-12	
6	City reviews USDA RD Letter of Conditions	10-12	
7	City directs engineer to proceed with design	11-12	
8	Final design and specifications submitted to the City	05-13	
9	RD and City approves final design and specifications	07-13	
10	City approves advertising for bids	08-13	
11	City invites construction bids	09-13	
12	Construction bids received	10-13	
13	Construction contract awarded	11-13	
14	Begin construction	01-14	
15	Loan closes	02-14	
16	All grant/loan funds spent	10-14	
17	Construction completed	10-14	
18	City begins loan repayment	11-14	

APPENDIX A

ITEM: 15

SUBJECT: Uncontested Waste Discharge Requirements

REPORT: Following are the proposed waste discharge requirements that prohibit discharge to surface waters. All agencies and the dischargers concur or have offered no comments. Items indicated as updates on the summary agenda make the requirements consistent with current plans and policies of the Board.

a	**East Bay Municipal Utility District Camanche North Shore Recreation Area Water Treatment Plant Land Application, Amador County** The East Bay Municipal Utility District (Discharger) installed a new irrigation system at the one-acre Blue Oaks Playground and an adjacent three-acre wooded campground area to discharge filter backwash water generated from Camanche North Shore Water Treatment Plant (WTP). The WTP treats groundwater by pre-chlorination, filtration, and disinfection. The filter backwash water is discharged to two clay-lined ponds for evaporation. During the wet season, the overflow from the ponds flows into an unnamed creek and then into Camanche Reservoir. This surface water discharge is regulated under General Order R5-2008-0081-018 for Dewatering and Other Low Threat Discharge to Surface Water (the "General Oder"). During the summer, the unnamed creek may occasionally have standing or slow-flowing filter backwash water that could cause mosquito breeding. To reduce the public concerns regarding the mosquito issues, the Discharger installed an irrigation system that redirects the discharge from the storage ponds to the LAAs from April through October. This Order regulates the filter backwash water discharge on the LAAs and allows for a monthly average discharge of 10,000 gpd to the LAAs between 1 April and 30 October. The winter discharge into the unnamed creek and Camanche Reservoir remains under the regulation of the General Order.
b	**Wildhurst Vineyards, Wastewater Treatment Facility, Lake County** Wildhurst Vineyards is an existing winery that's been in operation since the late 1990's. Activities at the winery include receiving, crushing, pressing and fermentations of grapes, and bottling of wine. The Discharger is not regulated under waste discharge requirements and currently discharges winery wastewater to a septic tank and leach field system regulated by the county. The Discharger plans to increase the annual wine production from 10,000 cases of wine and 137 tons of crushed grapes to 60,000 cases and 1,200 tons of grapes. With the increased wine production, the Discharger plans to discontinue use of the winery wastewater septic tank and leach field system; and proposes to treat the winery wastewater through a pre-treatment process and aerated lined ponds, prior to land application to approximately 30 acres cropped with pear orchards.

	The proposed Order specifies discharge limits to the wastewater treatment ponds not to exceed 0.182 million gallons per calendar month or a total of 1.13 million gallons per year. The WDRs establish discharge prohibitions, specifications, effluent limitations, land application requirements, and groundwater monitoring requirements to assure protection of the beneficial uses of groundwater and prevent nuisance conditions.
c	**City of Lakeport Municipal Sewer District, Lakeport Wastewater Treatment Facility (WWTF), Lake County** The Lakeport WWTF is currently regulated under WDRs Order 98 207. The WWTF collects wastewater from residential and commercial developments, treats (using two unlined aerated basins) and disinfects (with chlorine) the wastewater for irrigation of approximately 242 acres of land application area (LAA) cropped with native vegetation. Non-milking cattle currently graze on the LAA. Cease and Desist Order (CDO) R5-2007-0010 was issued due to numerous violations related to sanitary sewer overflows, spills, storage capacity, land application area (LAA), and groundwater. The CDO required the Discharger to submit a Report of Waste Discharge to describe the facility improvements made and demonstrate that those improvements are compliant with State Water Resources Control Board Resolution 68-16. Facility improvements included expansion of the LAA to 332 acres and construction of two tailwater pump stations to capture and return runoff from the new LAA. The Order specifies discharge limits to the treatment ponds not to exceed a total annual flow of 310 million gallons, an average dry weather flow of 0.53 mgd, and a maximum average daily flow of 1.39 mgd. The Order establishes discharge prohibitions and specifications, LAA specifications, effluent limitations, and groundwater monitoring requirements to assure protection of the beneficial uses of groundwater and prevent nuisance conditions. Water recycling requirements are included for the cattle grazing operations, and the Order requires that the Discharger submit a Title 22 Engineering Report for the Production and Use of Recycled Water to the California Department of Public Health for approval.
d	**Sierra county department of public works and transportation, Loyalton Landfill, class III landfill; revised waste discharge requirements for construction, operation, and corrective action; Sierra County** The Loyalton Landfill is an 11-acre, unlined landfill about 1¼ miles southeast of the City of Loyalton. The landfill has been in operation since 1977, accepting primarily household and commercial wastes. Up to 4,500 tons per year of waste are discharged to the facility. In March 2003, low concentrations of volatile organic compounds, primarily Dichlorodifluoro-methane (Freon 12), were confirmed in groundwater at the site, causing the landfill to lose its small community liner exemption under federal Subtitle D regulations. Since then, for economic reasons (high cost of liner relative to tonnage), landfill development has been limited to vertical expansion over the March 2003 waste footprint. The proposed WDRs require that any proposed expansion of the landfill beyond the existing footprint be lined in accordance with Subtitle D regulations and limit any such

	expansion to the 10 acres of remaining developable area at the site. Vertical expansion of the landfill is also limited. The WDRs also include a proof period under Title 27 regulations for demonstrating the completion of groundwater corrective action. Such successful demonstration could potentially allow the landfill to re-qualify for the Subtitle D liner exemption if approved under revised WDRs. The monitoring and reporting program requires semiannual and five year monitoring for landfill constituents of concern. Surface drainage at the site is to Smithneck Creek, tributary to the Middle Fork of the Feather River. (JDM)

RECOMMENDATION: Adopt the proposed waste discharge requirements.

Mgmt. Review_____
Legal Review _____

March 30, 2012
Central Valley Regional Water Quality Control Board meeting
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2012-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
LAKEPORT WASTEWATER TREATMENT FACILITY
LAKE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. The City of Lakeport Municipal Sewer District (CLMSD), hereafter referred to as Discharger, submitted a Report of Waste Discharge (RWD) dated March 2009 for the City of Lakeport Wastewater Treatment Facility (WWTF). The RWD was submitted to comply with Cease and Desist Order (CDO) R5-2007-0010 Task 16, and presents recent changes completed in 2008 as a part of the Reclaimed Water Disposal Area Expansion Project. The RWD was reviewed and determined to be complete on 28 August 2009. Additional information was submitted during the months of August, September, October, and November 2011.

2. The WWTF is located in Section 36, T14N, R10W, MDB&M and Section 1, T13N, R10W, MDB&M; southwest of Clear Lake, bounded on the south by Highway 175 and on the east by Highway 29. The WWTF is comprised of Lake County Assessor's Parcel Numbers 007-003-43, 007-003-46, and 005-035-06, -16 and -18. The location of the facility is shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. CLMSD owns and operates the WWTF, which includes collection, secondary wastewater treatment and storage, disinfection and on-site land application areas (LAAs).

4. The WWTF is regulated under Waste Discharge Requirements (WDRs) Order 98-207, adopted by the Central Valley Water Board on 23 October 1998. The WDRs prescribe a monthly average dry weather influent flow (ADWF) not to exceed 1.05 million gallons per day (mgd) and a maximum daily discharge not to exceed 3.8 million gallons (MG).

5. On 15 March 2007, the Central Valley Water Board adopted CDO Order R5-2007-0010. The CDO prescribed new discharge specifications, including an average monthly dry weather inflow not to exceed 0.42 mgd, an annual inflow not to exceed 885 acre-feet, and required the Discharger to submit a RWD after selecting facility improvements needed to ensure compliance.

EXISTING FACILITY AND DISCHARGE

6. The existing WWTF was constructed in 1991. The WWTF collects, treats, and disposes wastewater from residential and commercial developments within the City of Lakeport. The following table summarizes historical influent flows:

Calendar Year	Total Annual Influent Flow (MG)	Average Annual Flow (mgd)	Average Dry Weather Flow [1] (mgd)
2005	227.6	0.623	0.411
2006	233.1	0.639	0.385
2007	154.4	0.424	0.335
2008	179.1	0.489	0.354
2009	177.7	0.488	0.447
2010	249.9	0.685	0.472

[1] August through October

7. The treatment facility includes a headworks, two unlined aeration basins that provide secondary treatment, an effluent pump station, a chlorine disinfection system, an effluent reservoir, an irrigation pump station, and on-site land application areas. A process flow diagram of the treatment facility is shown in Attachment B, which is attached hereto and made part of this Order by reference.

   a. Wastewater is received at the headworks, which is equipped with a mechanical screen.

   b. From the headworks, wastewater enters into two 11.8-million gallon unlined aeration basins. The basins are 16 feet deep and constructed of earth with a blown mortar slope protection at the normal water level. Settleable solids remain on the basin floor to be further decomposed by anaerobic processes. Removal of the solids is accomplished by dredging the ponds as needed.

   c. The effluent pump station has a pumping capacity of approximately 3.5 mgd. Flow from each aeration basin enters the pump station and then is pumped to the storage reservoir via the chlorine contact pipe.

   d. The force main/chlorine contact pipe, approximately 1,250 feet long, provides chlorine contact and conveys disinfected effluent from the effluent pump station to the storage reservoir. Effluent chlorine dosage rates range from 90 to 120 pounds per day in the summer and 100 to 150 pounds per day in the winter months.

   e. The RWD states that the storage reservoir has a maximum capacity of approximately 650 ac-ft (212 MG) at the spillway elevation of 1,432 feet. WDRs Order 98-207 requires that the maximum reservoir level not exceed 1,430 feet (two feet freeboard below the spillway) thus allowing a permitted capacity of 600-ac-ft (195.5 MG).

   f. Effluent is stored in the reservoir before it is applied to irrigate the LAAs, typically during the months of April to October. The LAAs support native grasses and trees. The Discharger grazes cattle on the LAAs a few months out of the year. As part of

the 2007 Reclaimed Water Disposal Area Expansion Project (Expansion Project), the LAAs were increased from 242 to 332 acres as shown on Attachment C, which is hereto and made part of this Order by reference. Although the Discharger has not assigned names to the LAAs, there are a total of four, which are defined by the tributary runoff area to each of the tailwater recapture basins. Effluent application is by a sprinkler system.

g. Tailwater runoff from the LAAs is collected in recapture basins and pumped back into the treatment facility, as shown on Attachment C. Two additional tailwater pump stations were constructed as part of the 2007 Expansion Project to capture and return runoff from the expanded spray irrigation fields. In addition, a diversion ditch bypass pipe was installed to intercept surface runoff and divert it away from the WWTF's recapture (tailwater) basins, which thus increases storage capacity of the effluent storage reservoir.

h. Solids are generated at the headworks and aeration basins. Solids at the headworks are disposed of at a permitted landfill. Sludge accumulated in the aeration basins is periodically removed and disposed of offsite.

8. Influent wastewater samples are collected at the headworks on a weekly basis and analyzed for dissolved oxygen, pH, and temperature. The data below represents the 2008 influent characteristics.

Constituent	Minimum	Maximum	Monthly Average
Dissolved Oxygen	0.1 mg/L	1.9 mg/L	0.68 mg/L
pH	6.4	7.8	7.2
Temperature	52°F	77°	66.1°F

9. Treated wastewater is sampled at the end of the chlorine contact pipeline prior to discharge into the storage reservoir. Effluent characteristics based on monthly averages from January through September 2008 are shown below.

Constituent	Units	Minimum	Maximum	Average
Effluent Flow	MG	0.318	0.791	0.477
pH	Std.	6.5	7.3	6.9
Total Coliform	MPN/100 mL	0	280	0/69
BOD	mg/L	12.6	35.9	17.3 / 25.6 [1]
Settleable Solids	ml/L	<0.1	<0.1	<0.1
TDS	mg/L	330	400	355.6
Nitrate as Nitrogen	mg/L	4.4	53.0	18.5
TKN	mg/L	3.6	21.0	10.6
Specific Conductivity	µmhos/cm	462.0	601.0	557.7

[1] average minimum value/average maximum value

10. The Discharger has not complied with the total coliform organisms effluent limit of WDRs Order 98-207. Effluent coliform violations since 2009 are shown in the table below.

Date	Coliform Monthly Average (MPN/100 mL)	Coliform Daily Maximum (MPN/100 mL)
April 2009	52	201
May 2009	42	201
September 2009	41	201
October 2009	24	11
May 2010	950	3,500
June 2010	130	780
July 2010	34	120
May 2011	75	300
June 2011	623	840

In a 14 November 2011 letter, the Discharger stated that the total coliform violations were attributed to seasonal algae blooms that occur during the spring and fall months. This conclusion was based on the wastewater treatment operator's observations of the color of the treatment ponds when the samples were collected. The Discharger plans to increase chlorine feed rates and contact detention time during the months of April through October as a corrective action. Regardless, it is appropriate to require that a registered professional evaluate disinfection performance and recommend system or operational changes, as appropriate to ensure compliance with the effluent coliform limits of this Order.

MODIFICATIONS TO THE WASTEWATER SYSTEM

11. The RWD requested that the storage reservoir freeboard be reduced to the elevation of the dam spillway. The Division of Safety of Dams regulates the storage reservoir and the concrete spillway is set at 4.75 feet below the dam crest. The existing WDRs require two feet of freeboard below the reservoir spillway elevation. To mitigate the potential for wave action causing a spill and violation of the WDRs, the RWD proposed to install a floating boom at the storage reservoir spillway that would result in the following:

    a. Increase reservoir storage capacity to 650 ac-ft,

    b. Increase the WWTF's storage and disposal capacity from 0.42 to 0.55 mgd as an ADWF.

12. A water balance was included in the RWD. The water balance was prepared based on reasonable estimates of influent flows, inflow and infiltration (I/I), precipitations, percolation, and evaporation. The water balance was used to model disposal capacity during the 100-year, 365-day precipitation event followed by a year with average precipitation. The model shows that the WWTF has the storage capacity to handle an annual ADWF for up to 0.55 mgd if the storage reservoir freeboard is reduced as proposed in the RWD.

13. Based on the following, a one-foot freeboard at the spillway crest is appropriate to prevent spills.

    a. Data from three weather stations within the Lakeport Area (Department of Water Resources Rainfall Data) indicates that a spill would unlikely occur (one foot freeboard below the spillway crest) during a 100-year rainfall, 24-hour precipitation.

    b. The reservoir is located in an area such that trees and surrounding mountains provide some wind protection, and therefore substantial wave action is unlikely to occur.

    According to the water balance, one-foot freeboard requirement will provide sufficient storage capacity to support an average dry weather flow of 0.53 mgd.

14. The RWD indicates that there is significant sludge accumulation in the existing two wastewater treatment ponds. The Discharger envisions the sludge would be dried onsite prior to offsite disposal or onsite land application as a soil conditioner and fertilizer supplement. The RWD did not provide the information necessary to develop appropriate sludge discharge requirements.

15. Changes in the influent and effluent character are not anticipated.

SITE-SPECIFIC CONDITIONS

16. The surrounding land uses are primarily residential with some land use for the grazing of cattle.

17. The elevation of the WWTF ranges from approximately 1,560 feet above mean sea level (AMSL) at the western edge of the property to 1,350 feet AMSL at the eastern edge. The LAAs are moderately to steeply sloped. The annual average precipitation in the vicinity of the WWTF is approximately 29.03 inches. The 100-year return period annual precipitation is 58.25 inches based on data from the Western Regional Climate Center for Lakeport Station 0440701. The mean evapotranspiration rate is approximately 46.8 inches per month. All portions of the WWTF are outside the 100-year flood zone.

18. The WWTF is located on Franciscan Complex rocks, a mixture of deformed and metamorphosed greywacke, argillite, greenstone and serpentine. Terrace deposits comprise most of the local near-surface materials and the uppermost unit of Quaternary sediments. Franciscan Complex rocks are generally impermeable and are not considered water bearing formations although water is encountered along the contact between the Franciscan Complex and Quaternary sediments and possibly in fractures within the Franciscan.

19. The potable water supply for the City of Lakeport service area is Clear Lake and the Scotts Valley Aquifer, both of which are located in the same watershed. Potable water quality data from a single sample collected in 2005 is presented below:

Constituent	2005	Units
Chloride	3.7	mg/L
Sodium	8.4	mg/L
Electrical Conductivity	210	µmhos/cm
Nitrate	6.3	mg/L
Total Dissolved Solids	110	mg/L

GROUNDWATER CONSIDERATIONS

20. Shallow groundwater is encountered at depths ranging from 2 to 25 feet below ground surface (bgs) at the treatment plant and LAAs. The direction of groundwater flow is predominantly to the northeast at an approximate gradient of 0.0147 feet/foot.

21. The WWTF currently has six groundwater monitoring wells and one background well to monitor groundwater quality. The well locations are presented on Attachment C. In 2004, background well BK-1 and monitoring wells MW-1 to MW-4 were installed. In 2008, monitoring wells MW-5 and MW-6 were installed to provide baseline groundwater conditions prior to use of the additional LAAs and serve as downgradient wells.

    An additional background well was proposed, however no groundwater was encountered during drilling operations. The Discharger states that more than 40 feet of clay act as an aquitard east of the recently expanded LAAs, therefore application of wastewater to the LAAs expansion is unlikely to impact groundwater quality.

22. Monitoring well construction details are summarized below:

Well	Function/Location	Monitoring Well Depth, feet	Depth to Groundwater, feet	Groundwater Elevation, feet
BK-1	Upgradient/reservoir	29.62	8.25[1]	1459.39[1]
MW-1	Downgradient/ponds	24.62	2.58[1]	1370.40[1]
MW-2	Downgradient/ponds	24.58	2.00[1]	1357.57[1]
MW-3	Downgradient/LAAs	29.60	14.42[1]	1394.63[1]
MW-4	Cross-gradient/LAAs	29.80	25.16[1]	1377.07[1]
MW-5	Downgradient/ new LAAs	35.30	26.30[2]	1391.01[2]
MW-6	Downgradient/ new LAAs	36.30	16.10[2]	1382.70[2]

[1] Data recorded on 12/15/2005.
[2] Data recorded on 7/2/2008.

23. The means of the analytical groundwater quality data obtained from background well BK-1 and monitoring wells MW-1 through MW-6 are presented in the table below.

		Mean of Analytical Results, mg/L except as noted						
Constituents	WQO[7]	BK-1[1,6]	MW-1[1,6]	MW-2[1,6]	MW-3[1,6]	MW-4[1,6]	MW-5[2,6]	MW-6[2,6]
Iron	0.30[4]	1	6	1	11	13	109	42
Manganese	0.05[4]	0.07	0.16	0.03	0.08	0.17	1	0.40
Chloride	250[4]	14	123	150	90	105	11	7
Sulfate (SO_4)	250[4]	8	23	27	18	21	7	4
TDS	1,000[5]	232	658	578	294	397	176	179
Nitrate (as N)	10[3]	0.28	1.02	0.49	0.16	0.53	0.38	0.21
Total Coliform, MPN/100 mL	<2.2[8]	138	48	334	164	198	288	158

1 Average of groundwater samples collected during 9/04-9/11.
2 Average of groundwater samples collected during 6/08-9/11.
3 Primary Maximum Contaminant Level (MCL).
4 Secondary Maximum Contaminant Level (MCL).
5 Recommended upper level secondary MCL.
6 Non detect, mean of analytical results calculated using ½ the reporting limit.
7 WQO denotes Water Quality Objective
8 Basin Plan numeric objective

24. Analytical data indicates most constituents found in the downgradient monitoring wells were elevated compared to those found in background well BK-1; indicating some degradation by salinity, nutrients, total coliform organisms, and minerals has occurred.

a. Elevated chloride and total dissolved solids (TDS) concentrations were found in downgradient wells MW-1 through MW-4, however, concentrations were below the secondary MCL of 1,000 mg/L. The highest concentrations of TDS were detected in downgradient wells MW-1 and MW-2; and exceeded the concentrations in the effluent, background, and other downgradient wells. This apparent degradation is likely due to the spray field discharge, which concentrates salts.

b. Nitrate (as N) concentrations found in downgradient wells MW-1, -2, -4 and -5 exceeded background concentrations, but have been consistently below the primary MCL of 10 mg/L.

c. Analytical data indicates total coliform organism concentrations greater than 2.2 MPN/100mL, which is the Basin Plan's numeric water quality objective, in all of the monitoring wells. Groundwater coliform detections are likely due to cross-contamination of the monitoring wells during construction and/or subsequent sampling.

d. Both iron and manganese concentrations in wells MW-1, -3, -4, -5, and -6 exceed background concentrations and the respective secondary MCL. It is unknown

whether these samples were filtered prior to preservation and analysis, and therefore the elevated concentrations are suspect. In addition, groundwater samples from wells MW-5 and MW-6 indicate high minerals concentrations downgradient of the new LAAs, which have been in use only since 2009. This, in combination with proximity to the Mount Konocti volcano, suggests that iron and manganese are naturally occurring.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

25. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. Pursuant to Section 13263(a) of the California Water Code (Water Code), waste discharge requirements must implement the Basin Plan.

26. Surface water drainage is to Clear Lake. The beneficial uses of Clear Lake are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; spawning reproduction and/or early development; wildlife habitat; and commercial and sport fishing.

27. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

28. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.

29. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22. The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCL to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

30. In summary, the narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.

31. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater. The applicability of this objective to groundwater designated as MUN has been affirmed by State Water Board Order

WQO-2003-0014 and by a ruling of the Third District Court of Appeal. (*County of Sacramento v. State Water Resources Control Bd.* (2007) 153 Cal.App.4th 1579.)

ANTIDEGRADATION ANALYSIS

32. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation is limited and will provide social and economic benefit to the people of the state;

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses;

    c. The degradation is not expected to result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and

    d. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.

33. Resolution 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An anti-degradation analysis is required for a new discharge location, and/or an increased volume of waste and/or an increased concentration of waste constituents.

34. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater facility after best practicable source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, and waste management advantages of a municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on the water resource will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituents, the beneficial uses and most stringent water quality objective, source control measures, and waste constituent treatability).

35. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS and chloride), nutrients (nitrate as N), total coliform organisms, and minerals (specifically iron and manganese), and are discussed below:

a. Compared to background, chloride and TDS concentrations in the downgradient wells are elevated with the exception of wells MW-5 and MW-6. Although detections are below secondary MCL, the higher concentrations detected in wells MW-1 and MW-2 indicate some salinity degradation has occurred. Therefore, it is appropriate to adopt a numerical groundwater limitation of 1,000 mg/L (recommended upper secondary MCL limit) for TDS to protect groundwater quality.

b. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the treatment plant to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Groundwater monitoring data indicates nitrate (as nitrogen) exceeds background. However, the concentrations are below the primary MCL. The data do not indicate unreasonable degradation due to nitrate and the amount of available land application area should remove most of the nitrogen in the applied wastewater. However, groundwater can be shallow at locations throughout the site, so there is some threat that the discharge could cause an exceedance of the MCL for nitrate. It is therefore appropriate to adopt a numeric groundwater limitation of 10 mg/L based on the primary MCL for nitrate (as nitrogen) to protect the municipal and domestic use of groundwater.

c. For total coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective of 2.2 MPN/100mL depends on the ability of vadose zone soils below the treatment plant and saturated soils within the shallow water-bearing zone to provide adequate filtration. This Order requires that the Discharger continue to disinfect treated effluent. Disinfection reduces the potential threat, but the use of chlorine also increases the salinity of the effluent and creates trihalomethanes, neither of which is desirable. Additionally, disinfection does not prevent coliform impacts at the treatment plant site because treatment takes place in unlined ponds prior to disinfection.

d. Both the background and the downgradient wells indicate iron and manganese concentrations in exceedance of secondary MCLs. Elevated concentrations of these constituents may be attributed to the presence of volcanic rock within the area and changes in redox conditions or lack of filtration prior to sample preservation and/or analysis. It is therefore appropriate to prohibit degradation in excess of background groundwater quality for these constituents.

36. The WWTF provides treatment and control of the discharge that incorporates:

a. Technology using physical and biological processes to reduce BOD and suspended solids;

b. Technology for disinfection of municipal wastewater;

c. Land application of treated wastewater at agronomic rates for nutrients;

d. A tailwater system to collect and re-circulate irrigation runoff back into the WWTF and prevent the discharge of irrigation/storm water mixtures to surface waters; and

e. A diversion ditch bypass pipe to intercept surface runoff and divert it away from the tailwater recapture basins; therefore increasing storage capacity of the storage reservoir.

f. A backup generator for emergency power to the WWTF.

g. Alarms to alert power and equipment failure.

h. Certified operators to assure proper operation and maintenance.

37. This Order establishes groundwater limitations that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order requires effluent, groundwater, and water supply monitoring. If the results of monitoring reveal a previously undetected threat to water quality or indicate a change in waste character such that the threat to water quality is significantly increased, the Central Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16.

OTHER REGULATORY CONSIDERATIONS

38. The State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order 2006-0003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length; therefore, the General Order is applicable.

39. The United States Environmental Protection Agency (U.S. EPA) has promulgated biosolids reuse regulations in 40 Code of Federal Regulation (CFR) 503, Standard for the Use or Disposal of Sewage Sludge, which establishes management criteria for protection of ground and surface waters, set application rates for heavy metals, and establishes stabilization and disinfection criteria.

The Central Valley Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Central Valley Water Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the U.S EPA.

40. The State Board adopted Water Quality Order 97-03-DWQ (NPDES General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The wastewater treatment plant has a design capacity less than 1.0 mgd, and therefore the Discharger is not required to obtain coverage under NPDES General Permit No. CAS000001.

41. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

    The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2012-XXXX are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

42. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells.

43. The expansion of the land application area was subject to the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) ("CEQA"). Lake County is the CEQA Lead Agency for this project under the CEQA Guidelines.

44. The Draft Environmental Impact Report (DEIR) for the City of Lakeport Wastewater Treatment and Disposal Facilities Expansion Project was prepared in October 1989, followed by the Final Environmental Impact Report (FEIR) in January 1990. The DEIR and FEIR address the facility improvements described in the RWD. The following mitigation measures were identified in the FEIR that was approved by Lake County.

    a. Irrigation should not occur during periods of rain runoff when the irrigation runoff collection and return system is operational to prevent surface water pollution.

b. The city should test the water from the monitoring well and its runoff-collection sump for nitrate and other constituents as directed by the Central Valley Water Board to prevent groundwater pollution from storage and irrigation practices.

c. Sludge should be removed and disposed of in a manner approved by the Central Valley Water Board to prevent groundwater pollution from sludge disposal.

These mitigation measures are incorporated into this Order as discharge requirements to reduce water quality impacts to less than significant levels.

45. The action by the Central Valley Water Board to adopt waste discharge requirements for this existing facility is exempt from CEQA in accordance with California Code of Regulations, title 14, section 15301.

46. The discharge authorized herein and the treatment and storage facilities associated with the discharge are exempt from the requirements of Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in California Code of Regulations, title 27, section 20005 et seq. (hereafter Title 27). The exemption, pursuant to section 20090(a) and 20090(b) is based on the following:

a. The aerated treatment ponds and storage reservoir are exempt based on section 20090(a) because discharges to the treatment ponds and storage reservoir are regulated by WDRs that are consistent with applicable water quality objectives and residual sludges will be discharged only in accordance with the applicable regulations.

b. The discharge of treated wastewater to the LAAs is exempt based on section 20090(b).

i. The Central Valley Water Board has issued waste discharge requirements.

ii. The discharge complies with the Basin Plan; and

iii. The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

47. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

48. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

PUBLIC NOTICE

49. All of the above and details in the Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

50. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

51. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that Order 98-207 is rescinded except for purposes of enforcement, and pursuant to Water Code sections 13263 and 13267, the City of Lakeport Municipal Sewer District, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of waste classified as "hazardous" under California Code of Regulations, title 23, chapter 15, section 2521, or "designated," as defined in Water Code section 13173 is prohibited.

4. Discharge of wastewater to locations or in a manner different from that described in the Findings is prohibited.

5. Discharge of toxic substances into the wastewater treatment system such that biological treatment mechanisms are disrupted is prohibited.

6. Effective 1 December 2013, grazing of livestock within the LAAs is prohibited unless approved in writing by the Executive Officer subsequent to submittal of the report described in Provision H.1.e.

B. Discharge Specifications

1. Influent flows to the wastewater treatment ponds shall not exceed the following

Flow Measurement	Flow Limit
Total Annual Flow [1]	310 million gallons
Average Dry Weather Flow [2]	0.53 million gallons per day
Maximum Average Daily Flow [3]	1.39 million gallons per day

[1] As determined by the total flow for the calendar year.
[2] As determined by the total flow for the months of August through October, inclusive, divided by 92 days.
[3] As determined by the total flow during the calendar divided by the number of days in that month.

2. Wastewater treatment, storage, and disposal shall not cause a nuisance or condition of pollution as defined by the Water Code, section 13050.

3. The discharge shall not cause degradation of any water supply.

4. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.

5. Public contact with wastewater shall be precluded or controlled through such means as fences, signs, or acceptable alternatives.

6. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

7. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property at an intensity that creates or threatens to create nuisance conditions.

8. As a means of discerning compliance with Discharge Specification B.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within **10 days** and shall include a specific plan to resolve the low DO results within **30 days**.

9. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.

10. All conveyance, treatment, storage, and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

11. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment levees and prevent overtopping and/or structural failure.

12. The operating freeboard in the treatment ponds shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow. The operating freeboard in the effluent storage reservoir shall never be less than one foot as measured vertically from the water surface to the lowest point of overflow. As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

13. The treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

14. On or about **1 October** of each year, available pond storage shall at least equal the volume necessary to comply with Discharge Specifications B.12 and B.13.

15. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:

    a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

    b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

    d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

16. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.

17. Wastewater contained in any unlined pond shall not have a pH less than 6.0 or greater than 9.0.

18. The Discharger shall monitor sludge accumulation in the wastewater treatment/storage ponds at least every five years beginning in **2012**, and shall periodically remove sludge

as necessary to maintain adequate storage capacity. Specifically, if the estimated volume of sludge in the reservoir exceeds five percent of the permitted reservoir capacity, the Discharge shall complete sludge cleanout within **12 months** after the date of the estimate.

C. Land Application Area Specifications

1. Irrigation with treated wastewater shall be managed to minimize erosion, runoff, and movement of aerosols from the land application area.

2. Application of treated wastewater shall comply with the following setback requirements:

Setback Definition	Minimum Irrigation Setback (feet)
Edge of LAAs[1] to domestic well	50
Edge of LAAs[1] to any surface water drainage course[2]	50
Edge of LAAs[1] to a residence or place where public exposure could be similar to that of a park, playground, or school yard.	100

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return.

3. The volume of treated wastewater applied to the LAAs on any single day shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.

4. The discharge of treated wastewater to the LAAs shall be at reasonable agronomic rates designed to maximize uptake and breakdown of plant nutrients in the root zone and minimize the percolation of waste constituents below the root zone.

5. Irrigation of treated wastewater shall not be performed within 24 hours of a forecasted storm, during a storm, and within 24 hours after any measurable precipitation event, or when the ground is saturated.

6. All applied irrigation water must infiltrate before the next irrigation event. No irrigation shall be performed if the LAAs is saturated, or if there is evidence of pooling or ponding.

7. Spray irrigation of treated wastewater is prohibited during periods when wind velocities exceed 30 miles per hour.

8. From **1 October to 31 May**, the recapture basin valves shall remain in the closed position during and immediately following irrigation to contain all tailwater. Tailwater shall be pumped and drained from the recapture basins prior to opening the valve to allow release of subsequent storm water runoff via the tailwater collection system.

9. Areas irrigated with treated wastewater shall be managed to prevent breeding of mosquitoes. More specifically,

   a. Tailwater must be returned and all applied irrigation water must infiltrate completely within a 48-hour period.

   b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal and floating vegetation.

   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store reclaimed water.

D. Water Recycling Specifications

1. Effective 1 December 2013, the specifications of this section apply in addition to the Land Application Area Specifications.

2. The use of reclaimed water shall be limited to pasture.

3. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to California Code of Regulations, title 22, section 60323 and approved by the California Department of Public Health.

4. Recycled water shall be used in compliance with California Code of Regulations title 22, section 60304. Specifically, uses of recycled water shall be limited to those set forth in section(s) 60304(a), 60304(b), 60304(c), and 60304(d).

5. Use areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.

6. Use areas and recycled water impoundments shall be designed, maintained, and operated to comply with the following setback requirements.

Setback Definition	Minimum Irrigation Setback (feet)
Edge of use area to property boundary.	25
Edge of use area to public road right of way	30
Edge of use area to natural surface water drainage course.	50
Edge of use area to domestic water supply well.	100
Toe of recycled water impoundment berm to domestic water supply well.	100
Edge of use area to residence.	100
Edge of use area using spray irrigation to public park, playground, school yard, or similar place of potential public exposure.	100

7. Spray irrigation with recycled water is prohibited when wind speed (including gusts) exceeds 30 mph.

8. Sprinkler heads shall be of the type approved for recycled water and shall create a minimum amount of mist.

9. Direct or windblown spray shall be confined to the designated reclamation area and prevented from contacting drinking water facilities.

10. Public contact with reclaimed water shall be precluded through such means as fences, signs, and irrigation management practices. Fences and sign requirements, including signs with proper wording of sufficient size and its location, shall be in accordance with CDPH requirements.

11. Use areas that are accessible to the public shall be posted with signs that are visible to the public and no less than four inches high by eight inches wide. Signs shall be placed at all areas of public access and around the perimeter of all use areas and at above-ground portions of recycled water conveyances to alert the public of the use of recycled water. All signs shall display an international symbol similar to that shown in Attachment D, which is attached and forms part of this Order, and shall include the flowing working:

"RECYLED WATER – DO NOT DRINK"
"AGUA DE DESPERDICIO RECLAMADA – NO TOME"

12. All recycling equipment, pumps, piping, valves, and outlets shall be marked to differentiate them from potable water facilities. All recycled water distribution system piping shall be purple pipe or adequately wrapped with purple tape.

13. Recycled water controllers, valves, and similar appurtenances shall be affixed with reclaimed water warning signs as required by CDPH. The wastewater reclamation system shall be secured in a manner that permits operation by authorized personnel only and prevents operations that would cause a violation of this Order.

14. Quick couplers, if used, shall be different than those used in potable water systems.

15. Hose bibs and unlocked valves, if used, shall not be used in areas accessible to the public.

16. No physical connection shall exist between recycled water piping and any potable water supply system (including domestic wells), or between recycled water piping and any irrigation well that does not have an approved air gap or reduced pressure principle device.

17. There shall be at least a ten-foot horizontal and a one-foot vertical separation between all pipelines transporting recycled water and those transporting domestic supply, and the domestic supply pipeline shall be located above the recycled water pipeline.

18. No physical connection shall be made or allowed to exist between any recycled water system and any separate conveying potable water or auxiliary water source system.

19. A public water supply shall not be used as backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of California Code of Regulations title 17,sections 7602(a) and 7603(a).

20. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively wrapped with purple tape in accordance with California Health and Safety Code Section 4049.54.

21. Any backflow prevention device installed to protect a public water system shall be inspected and maintained in accordance with California Code of Regulations title 17 section 7605.

E. Solids/Sludge Disposal Specifications

1. Sludge means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the facility. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling.

2. Sludge and solid waste shall be removed from screens, sumps, and ponds as needed to ensure optimal plant operation and adequate hydraulic capacity.

3. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at a concentration that will violate the Groundwater Limitations of this Order.
4. Any storage of residual sludge, solid waste, and biosolids at the facility shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

5. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTFs, composting sites, soil

amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

6. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order 2000-10-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

7. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the regional water quality board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the regional water quality board may also initiate enforcement where appropriate.

F. Effluent Limitations

1. **Effectively immediately**, prior to discharge to the land application areas, effluent shall not exceed the following limits:

Constituent	Units	Monthly Average	Monthly Maximum
BOD_5 [1]	mg/L	40	80
Nitrate (as N)	mg/L	10	-

[1] 5-day biochemical oxygen demand at 20° C.

2. **Effectively immediately** as interim limits, prior to discharge to the land application areas and after full chlorine contact has been achieved, effluent shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Maximum
Total Coliform Organisms	MPN/100 mL[2]	23	500

[1] 5-day biochemical oxygen demand at 20° C.
[2] Most probable number per 100 mL.

3. **Effective 1 March 2014**, prior to discharge to the land application areas and after full chlorine contact has been achieved, effluent shall not exceed the following limits:

Constituent	Units	7-day Median	Daily Maximum
Total Coliform Organisms	MPN/100 mL[2]	23[3]	240

[1] 5-day biochemical oxygen demand at 20° C.
[2] Most probable number per 100 mL.
[3] Compliance shall be determined based on a 7-day median Sunday through Saturday, where sampling is performed daily Monday through Friday.

4. No wastewater contained in any pond shall have a pH less than 6.5 or greater than 10.0.

G. Groundwater Limitations

1. Release of waste constituents from any portion of the WWTF and LAAs shall not cause groundwater to contain any of the following constituents at a concentration greater than that listed below:

Constituent	Units	Limitations
pH	Std units	6.5 – 8.5[1]
Total Coliform Organisms	MPN/100 mL	2.2[2]
TDS	mg/L	1,000
Nitrate (as N)	mg/L	10

1 pH shall not be less than 6.5 or greater than 8.5
2 Effective on 1 October 2012

Compliance with this requirement shall be based on an intra-well analysis. Historical data shall be analyzed and the statistic (e.g., intra-well upper tolerance limit) shall be compared to the numeric limit.

2. For boron, chloride, iron, manganese, sodium and sulfate, release of waste constituents from any portion of the WWTF and LAAs shall not cause a statistically significant increase above the current concentration in each monitoring well. Compliance with this requirement shall be determined based on an annual intra-well statistical analysis.

H. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision H.2.

   a. By **1 January 2013**, the Discharger shall submit a *Groundwater Monitoring Well Disinfection Workplan* and *Sampling and Analysis Plan*. The *Groundwater Monitoring Well Disinfection Workplan* shall provide detailed procedures for well disinfection, and include a schedule to complete the work by **1 May 2013**. The *Sampling and Analysis Plan* shall identify and evaluate the effluent sampling location; and evaluate current sampling procedures. In addition, the plan shall propose effluent and groundwater sampling techniques designed to minimize cross-contamination of the monitoring wells and groundwater samples with coliform organisms.

b. By **1 May 2013**, the Discharger shall submit a *Groundwater Limitations Compliance Assessment Plan.* The plan shall describe and justify the statistical methods that will be used to evaluate compliance with the Groundwater Limitations of this Order for the constituents listed in the Monitoring and Reporting Program. Statistical analyses shall use methods prescribed in Title 27, Section 20415(e)(10) to evaluate compliance.

c. By **1 June 2013**, the Discharger shall submit a *Disinfection System Evaluation Report*. The report shall evaluate the operation and maintenance of the effluent disinfection system and describe any facility and operations improvements necessary to comply with the effluent limitations of this Order. If facility improvements are necessary to ensure consistent compliance with the effluent limits, by **1 June 2014**, a *Disinfection Improvements Completion Report* shall be submitted. This report shall document any facility improvements and operational changes implemented to comply with the WDRs. Analytical data for total coliform organisms shall be included to document compliance with the effluent limitations.

d. By **1 July 2013**, the Discharger shall submit a report documenting completion of the monitoring well disinfection in accordance with the approved *Groundwater Monitoring Well Disinfection Workplan* and implementation of the approved *Sampling and Analysis Plan*.

e. By **1 December 2013**, the Discharger shall submit proof of CDPH approval of a Title 22 Engineering Report for approval by the Executive Officer, and certify that all facility improvements required to comply with Wastewater Reclamation Specifications Section D and any supplemental requirements imposed by CDPH have been completed and fully operational.

f. **At least 180 days prior** to any sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolation from the sludge as it is drying, and include a schedule that shows how all dried sludge will be removed from the site prior to the onset of the rainy season (1 October). If the Discharger proposes to land apply biosolids at the effluent recycling site, the report shall include a Report of Waste Discharge and filing fee to apply for separate waste discharge requirements.

g. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, within **120 days** of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan.* The workplan shall set forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal

system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitations. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

h. A Discharger whose waste flow has been increasing, or it projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last thee year's average dry weather flows, peak wet weather flows, and total annual flows, as appropriate. When any projection shows that capacities of any part of the facilities may be exceeded in four years, the Discharger shall notify the Central Valley Water Board by **31 January.**

2. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

3. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

4. The Discharger shall comply with Monitoring and Reporting Program R5-2012-XXXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of the Discharger's self-monitoring reports shall be no later than the submittal date specified in the MRP.
5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

6. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the

reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

7. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

8. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

9. The Discharger shall provide certified wastewater treatment plant operators in accordance with California Code of Regulations title 23 division 3, chapter 26.

10. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.

11. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within **15 days** of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

12. The Discharger shall comply with the requirements of the Statewide General Waste Discharge Requirements (General WDRs) for Sanitary Sewer Systems (Water Quality Order 2006-0003), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order 2008-0002-EXEC), and any subsequent revisions thereto. Water Quality Order 2006-0003 and Order 2008-0002-EXEC require the Discharger to notify the Central Valley Water Board and take remedial action upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow.

13. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

14. In the event of any change in control or ownership of the facility or wastewater disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. If approved by the executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

15. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

16. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

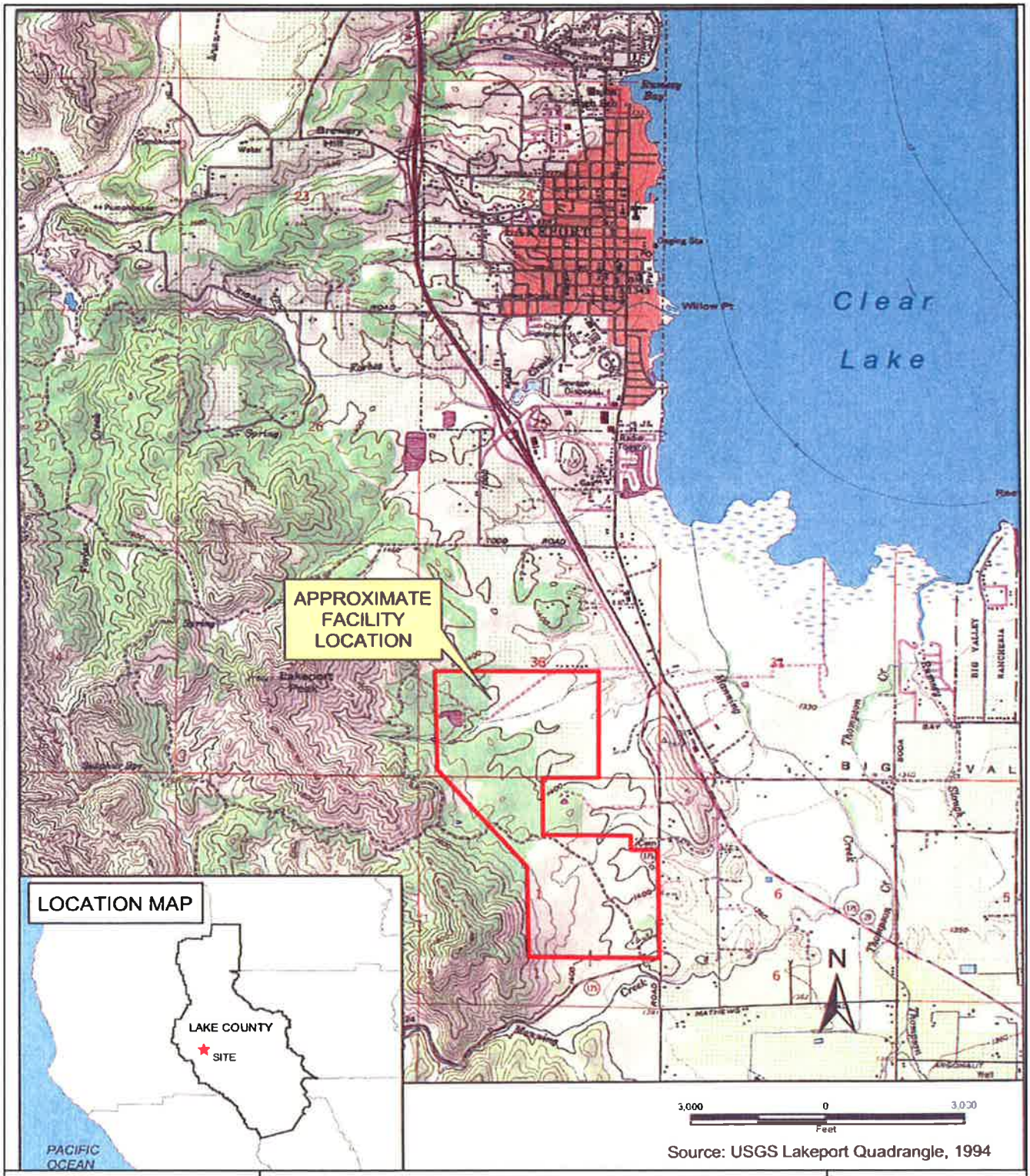
or will be provided upon request.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

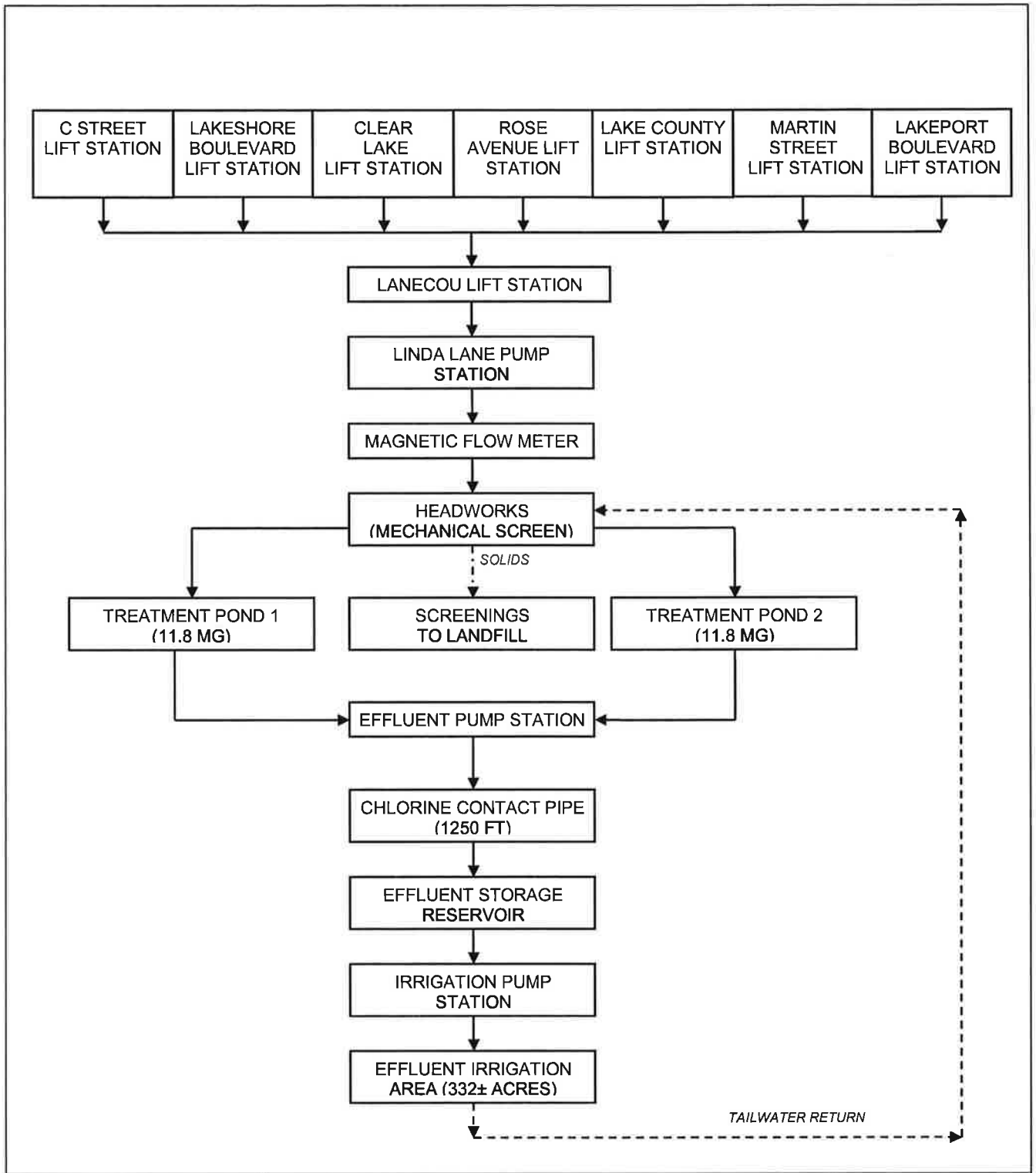
I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

_____
PAMELA C. CREEDON, Executive Officer

LLA: 022412



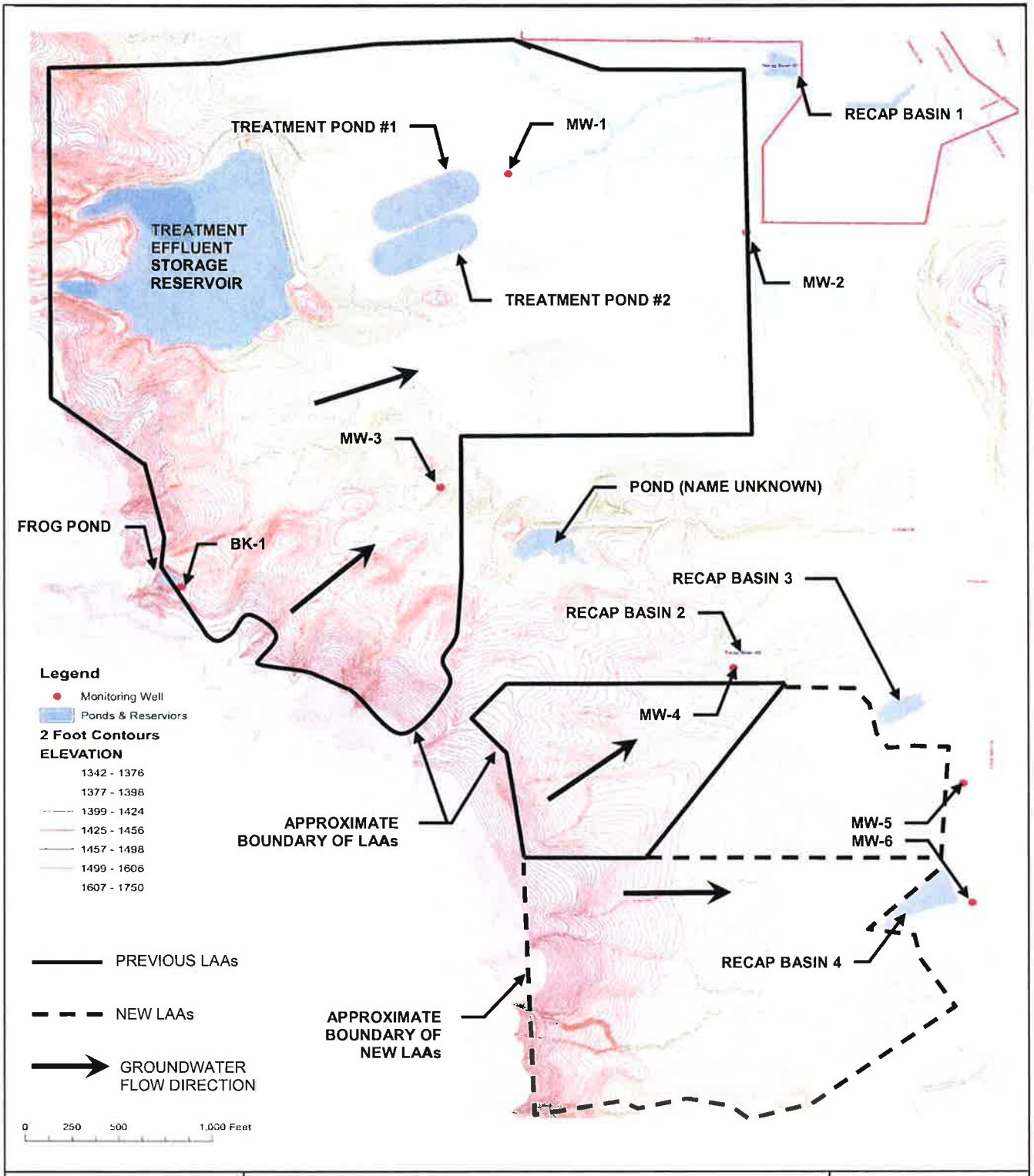
Drawing Reference: U.S.G.S Highland Springs TOPOGRAPHIC MAP 7.5 MINUTE QUAD	**SITE LOCATION MAP** CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT LAKEPORT WASTEWATER TREATMENT FACILITY LAKE COUNTY	N W E S approx. scale 1 in. = 3000 ft.



Drawing Reference:
PACE CIVIL, INC.

PROCESS FLOW DIAGRAM
CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
LAKEPORT WASTEWATER TREATMENT FACILITY
LAKE COUNTY

NO SCALE



Drawing Reference: City of Lakeport Utilities Department	**MONITORING WELL AND LAND APPLICATION AREA MAP** CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT LAKEPORT WASTEWATER TREATMENT PLANT LAKE COUNTY	N W E S 1 in = 800 ft

Drawing Reference: TITLE 22 , CALIFORNIA CODE OF REGULATIONS	**RECYCLE WATER SYMBOL** CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT LAKEPORT WASTEWATER TREATMENT FACILITY LAKE COUNTY	N W E S NO SCALE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-XXXX
FOR
CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
LAKEPORT WASTEWATER TREATMENT FACILITY
LAKE COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the influent flow, effluent, treatment pond and storage reservoir, land application areas, groundwater, water supply, and sludge. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

INFLUENT FLOW MONITORING

Influent flow monitoring shall include, at a minimum the following:

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly

EFFLUENT MONITORING

Effluent samples shall be representative of the treated wastewater prior to discharge to the land application areas after full chlorine contact has been achieved. The time of collection of grab samples shall be recorded. Effluent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Flow to the Storage Reservoir	mgd	Continuous	Daily	Monthly
pH	std units	Grab	Weekly	Monthly
BOD_5[1]	mg/L	Grab	Weekly	Monthly
Total Coliform Organisms[2]	MPN/100 mL	Grab	Daily[3]	Monthly
TDS	mg/L	Grab	Monthly	Monthly
Nitrate (as N)	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals[4]	mg/L	Grab	Annually	Annually

1 5-day biochemical oxygen demand @ 20 degrees C.
2 Most probable number (MPN) per 100 mL.
3 Samples shall be obtained daily Monday through Friday.
4 Standard minerals shall include, at a minimum, the following: boron, chloride, iron, magnesium, sodium, and sulfate. Samples shall be filtered with a 0.45 micron filter prior to digestion, preservation, and analysis

TREATMENT POND AND STORAGE RESERVOIR MONITORING

Samples shall be collected from an established sampling station located in an area that will provide a sample representative of the wastewater in each aerated pond and the effluent storage reservoir. Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet. Monitoring of both treatment ponds and the storage reservoir shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen	mg/L	Grab	Weekly	Monthly
pH	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm Seepage[1]	--	Observation	Weekly	Monthly
Sludge Depth	inches	Measurement	Annually	Annually

1 Containment berms shall be observed for signs of seepage or surfacing water along the exterior toe of the berms.

LAND APPLICATION AREA MONTIORING

Monitoring of the land application areas (LAAs) shall be conducted **daily during operation** when the disposal areas are used, and the results shall be included in the monthly monitoring reports. If irrigation does not occur during a reporting period, the monitoring report shall so state. Monitoring of the land application areas shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Effluent Flow to each LAA	gallons	Continuous	Daily	Monthly
Rainfall[1]	inches	Measurement	Daily	Monthly
Acreage Applied[2]	acres	Calculated	Daily	Monthly
Water Application Rate	inches/day	Calculated	Daily	Monthly
Nitrogen Loading Rate[3]	lbs/ac/month	Calculated	Monthly	Monthly
TDS Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly

1 Rainfall data collected from the weather station that is nearest to the LAA or a properly maintained onsite rain gauge.
2 Specific LAAs shall be identified.
3 Including contributions from applied fertilizer.

The nitrogen loading rate shall be determined using the following formula:

$$M = \frac{C \times V \times (8.345)}{A} + \frac{M_{fertilizer}}{A}$$

Where M = total nitrogen mass in pounds per acre per month (lb/ac/month);
C = average of total nitrogen monitoring results for calendar month in mg/L;
V = total effluent discharged to the field during calendar month in MG;
A = area of the field irrigated in acres,
$M_{fertilizer}$ = total monthly mass from any other source in pounds; and
Total nitrogen = (nitrate as nitrogen + TKN) in mg/L.

The TDS loading rate shall be determined using the following:

$$M = \frac{C \times V \times (8.345)}{A}$$

Where M = total TDS mass in pounds per acre per month (lb/ac/month);
C = total TDS monitoring results for calendar month in mg/L;
V = total effluent discharged to the field during calendar month in MG; and
A = area of the field irrigated in acres.

At least **once per week** when treated wastewater is being applied to the LAAs, the entire application area shall be inspected and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state and the monitoring below is not necessary. The following items shall be documented:

1. Evidence of erosion;
2. Containment berm condition;
3. Soil saturation;
4. Ponding;
5. Potential runoff to off-site areas;
6. Potential and actual discharge to surface waters; and
7. Odors that have the potential to be objectionable at or beyond the property boundary.

GROUNDWATER MONITORING

The Discharger shall establish a semi-annual and annual sampling schedule for groundwater monitoring. This monitoring program applies to all existing monitoring wells. Prior to construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network and shall be sampled and analyzed according to the schedule below.

All samples shall be collected and analyzed using approved EPA methods, the latest edition of *Standard Methods*, or as approved by the Executive Officer. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated to determine groundwater gradient and direction of flow. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to Groundwater	±0.01 feet	Measurement	Semi-annually	Semi-annually
Groundwater Elevation	±0.01 feet	Calculated	Semi-annually	Semi-annually
Gradient	feet/feet	Calculated	Semi-annually	Semi-annually
Gradient Direction	degrees	Calculated	Semi-annually	Semi-annually
pH	pH units	Grab	Semi-annually	Semi-annually
Total Coliform Organisms[1]	MPN/ 100 mL	Grab	Semi-annually	Semi-annually
Nitrate (as N)	mg/L	Grab	Semi-annually	Semi-annually
TDS	mg/L	Grab	Semi-annually	Semi-annually
Standard Minerals[2]	mg/L	Grab	Annually	Annually

[1] Coliform limits are effective on 1 October 2012.
[2] Standard minerals shall include, at a minimum, the following: boron, chloride, iron, manganese, sodium, and sulfate. Samples shall be filtered with a 0.45 micron filter prior to digestion, preservation, and analysis.

WATER SUPPLY MONITORING

The Discharger shall monitor the community water supply well as required by the California Department of Public Health, and shall report the following minimum monitoring data for each water supply well to the Central Valley Water Board.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Volume pumped to community distribution system	MG	--	--	Annually
TDS	mg/L	Grab	Annually	Annually
Electrical Conductivity	umhos/cm	Grab	Annually	Annually
Nitrate (as N)	mg/L	Grab	Annually	Annually
Standard minerals [1]	mg/L	Grab	Annually	Annually
Metals[2]	ug/L	Grab	Annually	Annually

[1] Standard Minerals shall include, at a minimum, the following: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as $CaCO_3$.

[2] Metals shall include, at a minimum, the following: arsenic, copper, lead, iron, manganese, nickel, and zinc.

SLUDGE MONITORING

The Discharger shall keep records regarding sludge generated by the treatment processes, including any analytical test results; the quantity of sludge removed for disposal; the quantity of sludge removed from the ponds and temporarily stored on site; and steps taken to prevent nuisance conditions. Records shall be stored onsite and available for review during inspections. If sludge is transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount sludge transported, the date removed form the facility, the disposal facility name and address, and copies of all analytical data required by the entity accepting the waste. These records shall be submitted as part of the Annual Monitoring Report.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all groundwater monitoring reports shall be prepared under the direct supervision of a registered professional engineer or geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the monthly monitoring reports shall include:

1. Results of the influent flow, effluent, treatment ponds and effluent storage reservoir, and land application area monitoring, including calculated values for the weekly 7-day median effluent total coliform organism result and land application area TDS and nitrogen loading rates.

2. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.

3. Copies of laboratory analytical report(s).

4. Copies of current calibration logs for all field test instruments.

B. Semi-Annual Monitoring Report

The Discharger shall establish a semi-annual sampling schedule for groundwater monitoring such that samples are obtained approximately every six months. Semi-annual Monitoring Reports shall be submitted to the Central Valley Water Board by the **1st day of the second month after the semi-annual event** (i.e., the January-June Semi-Annual Report is due by 1 August each year). The Semi-annual Monitoring Reports shall include the following:

1. Results of the semi-annual monitoring of groundwater.

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;

4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);

5. A comparison of the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

6. Summary data tables and graphs of historical and current water table elevations and analytical results;

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

An annual report shall be prepared. The Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February each year**. The Annual Monitoring Report shall include the following:

1. Calculated values for the total annual influent flow and average dry weather influent flow.

2. A statement of whether cattle were grazed on the land applications areas during the year.

3. Analytical results from the annual monitoring of the groundwater.

4. Analytical results from the annual water supply monitoring. The Discharger's Consumer Confidence Report (or Annual Water Quality Report) may be submitted to comply with this requirement.

5. Sludge monitoring results, if sludge was removed during the year.

6. **Effective 2012**, and every five years thereafter, an evaluation of sludge depth and sludge removal plans pursuant to Discharge Specification B.18.

7. Tabular and graphical summaries of all data collected during the year.

8. An annual intra-well analysis to determine compliance with the groundwater limitations prepared in accordance with the approved plan submitted pursuant to Provision H.1.e. For constituents where no further degradation is allowed, a statistical analysis of temporal trends within each well is required. For constituents with a numeric

groundwater limit, historical data shall be analyzed and the statistic shall be compared to the numeric value.

9. An evaluation of the performance of the WWTP which demonstrates the facility's ability to consistently meet treatment standards for recycled water use as specified in Division 4 of Title 22 of the California Code of Regulations.

10. An evaluation of the performance of the WWTP, including discussion of capacity issues, infiltration and inflow rates, pond sludge layer thickness, nuisance conditions, and a forecast anticipated in the next year.

11. An evaluation of the groundwater quality beneath the wastewater treatment facility and the land application area.

12. Summary of information on the disposal of sludge as described in the "Sludge Monitoring" section. If applicable, describe the volume of sludge removed during the year and means of off-site disposal.

13. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

14. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agents, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by:_____
PAMELA C. CREEDON, Executive Officer

_____
(Date)

LLA:022412

INFORMATION SHEET

ORDER R5-2012-XXXX
CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
LAKEPORT WASTEWATER TREATMENT FACILITY
LAKE COUNTY

Background

The City of Lakeport Municipal Sewer District (CLMSD) owns and operates the City of Lakeport Wastewater Treatment Facility (WWTF) located in Lake County. The WWTF services approximately 2,600 residential units. Domestic wastewater is treated in two unlined aeration basins, chlorine disinfected, then stored in a storage reservoir prior to land application to approximately 242 acres with native vegetation. The WWTF is regulated under Waste Discharge Requirements (WDRs) Order 98-207. A Cease and Desist Order (CDO) R5-2007-0010 was issued to the Discharger due to numerous violations related to sanitary sewer overflows, spills, storage capacity, land application area, and groundwater. CDO Task 16 required the Discharger to submit a Report of Waste Discharge (RWD) to reflect the proposed upgrades in the Sewer System Master Plan and demonstrate that the proposed improvements are compliant with State Water Resources Control Board Resolution 68-16 (The Antidegradation Policy). The following changes were completed as part of the 2007 Effluent Irrigation System Expansion:

- Irrigation spray fields were increased from 242 acres to 332 acres.
- Two new tail-water pump stations were constructed to capture and return runoff from the new spray fields.
- Diversion ditch bypass pipe installed to intercept storm water runoff and divert runoff away from the WWTF's recapture basin, thus increasing storage capacity of the effluent storage reservoir.

The derivation of selected terms and conditions of the Order is discussed below.

Order Terms and Conditions

The antidegradation directives of State Water Board Resolution 68-16 require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," or "Antidegradation" Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Central Valley Water Board to evaluate that fully characterizes:

- All waste constituents to be discharged;

- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation.

In allowing a discharge, the Central Valley Water Board must comply with California Water Code (Water Code) section 13263 in setting appropriate conditions. The Central Valley Water Board is required to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Central Valley Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (Water Code section 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Some degradation of the groundwater for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, and waste management advantages of municipal utility service far outweigh the environmental impact of a community that would otherwise be reliant on numerous individual wastewater systems, and the impact on the water resource will be substantially less. The Order authorizes some degradation consistent with the maximum benefit to the people of the State.

The following treatment and controls will be implemented at the WWTF:

- Technology using physical and biological processes to reduce the suspended solids and BOD;
- Technology for disinfection of municipal wastewater;
- Land application of treated wastewater at agronomic rates for nutrients;
- A tailwater system to collect and re-circulate irrigation runoff back into the WWTF and prevent the discharge of irrigation/storm water mixtures into surface waters; and
- A diversion ditch bypass to intercept storm water runoff and divert runoff from the tailwater recapture basins; therefore increasing storage capacity of the reservoir.
- A backup generator for emergency power to the WWTF.
- Alarms to alert power and equipment failure.
- Certified operators to assure proper operation and maintenance.

At this time, there is no reason to believe that additional measures are needed to protect groundwater quality. This Order establishes effluent and groundwater limitations; discharge specifications; land application area requirements; and monitoring requirements to assure protection of the beneficial uses of groundwater.

Groundwater Limitations
With the exception of salts (primary TDS), nutrients (nitrate as N), and total coliform organisms, the WDRs will set narrative groundwater limits not to exceed current groundwater quality.

- High TDS concentrations detected in wells MW-1 and MW-2, indicate some salinity degradation has occurred. Therefore, the WDRs include a numeric groundwater limitation of 1,000 mg/L for TDS to protect groundwater quality.
- Groundwater can be shallow at locations throughout the site. Therefore, the WDRs includes a numeric groundwater limitations of 10 mg/L for nitrate (as N) to protect the municipal and domestic use of groundwater.
- The Basin Plan's numeric water quality objective for total coliform organism is 2.2 MPN/100mL.

Discharge Specification B.1
The Division of Safety of Dams regulates the storage reservoir and the concrete spillway is set at 4.75 feet below the dam crest. The current WDRs require two feet of freeboard below the top of the spillway, which drains to a surface water drainage course. The Discharger wants to reduce the reservoir freeboard. Any minimal wave action could cause a spill with a zero freeboard, and therefore a violation of the WDRs. Based on the rainfall data from three Lakeport weather stations (Department of Water Resources), a spill would unlikely occur (at a one foot freeboard) during a 100-year rainfall, 24-hour precipitation event. The reservoir is located in an area such that trees and surrounding mountains provide some protection, and therefore substantial wave action is unlikely to occur. Therefore, the monthly average dry weather flow and annual flow to the reservoir was based on a one foot freeboard.

Wastewater Reclamation Specifications
The WDRs include Title 22 requirements for reclaimed water use areas if the Discharger chooses to graze cattle in the land application areas.

Effluent Limitations F.2, F.3 and Provision H.1.c
A monthly average coliform limit of 23 MPN/100 mL and a daily maximum coliform limit of 240 MPN/100 mL (in accordance with Title 22 requirements) appear to be an appropriate discharge requirement for the type of waste being discharged. However, based on recent effluent monitoring data, it appears that the Discharger may not be able to immediately comply. Therefore, the WDRs will require interim limits to allow the Discharger to evaluate the disinfection system, sampling procedures, and facility operations; and determine whether facility and/or operational improvements are necessary to protect groundwater quality. Final

effluent limitations will become effective 1 March 2014, following completion of any facility and operational improvements.

Provision H.1.f
The RWD indicates significant sludge accumulation in the existing treatment ponds. The Discharger envisions the sludge to be dried onsite prior to offsite disposal or onsite land application as a soil conditioner and fertilizer supplement. The RWD did not provide the information necessary to develop appropriate sludge discharge requirements. Therefore, prior to any sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan.*

The use and disposal of biosolids is subject to comply with Title 40, Code of Federal Regulations, Part 503 and valid waste discharge requirements, such as the General Biosolids Order (State Water Resources Control Board Water Quality Order 2009-10-DWQ, *General Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities.* If the Discharger proposes to land apply biosolids at the effluent recycling site, the *Sludge Cleanout Plan* shall include a RWD and filing fee to apply for separate waste discharge requirements.

Provisions H.1.e
Effective 1 December 2013, the grazing of non-milk producing animals on pasture irrigated with treated wastewater is prohibited unless the Discharger submits proof of CDPH approval of Title 22 Engineering Report and obtains approval by the Executive Officer.

Monitoring Requirements
The Order requires monitoring of the wastewater influent, effluent, groundwater, and water supply. Effluent and groundwater limitations are necessary to protect the municipal and domestic use of groundwater. If results of monitoring reveal a previously undetected threat to water quality or indicate a change in waste character such that the threat to water quality is significantly increase, the Central Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

Reopener

The conditions of discharge in the Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. If the information obtained from the monitoring activities indicate a significantly increased threat to water quality, it may be appropriate to reopen the Order to address compliance with the Basin Plan.

LLA:022412

APPENDIX B

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Arnold Schwarzenegger
Governor

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

3 August 2006

Mark Brannigan
City of Lakeport Municipal Sewer District
City of Lakeport Corporation Yard
591 Martin Street
Lakeport, CA 95453

NOTICE OF VIOLATION, WASTEWATER SPILL, CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT, LAKE COUNTY

Regional Water Board staff has reviewed a 27 April 2006 spill report and a 11 May 2006 follow-up report submitted by the City of Lakeport Municipal Sewer District (Discharger) that describes a discharge of treated wastewater from the Discharger's recapture reservoir to surface waters. The discharge occurred between 13 April and 24 April 2006 and was estimated at approximately 6,623,250 gallons. The discharge volume was based on a report from the Discharger's Engineer, in which he *"conservatively estimates that no more than 25% of the treated effluent that was applied via spray irrigation passed through the recapture reservoir at Linda Lane and left the treatment facility site."*

The spill report states that to prevent the storage reservoir from overflowing, the Discharger applied wastewater to its land application area via spray irrigation without controlling runoff to surface waters. In addition, the report states that prior to irrigation samples were collected from the storage reservoir and the nearby creek. The report also states that the Department of Fish and Game, Regional Water Quality Control Board, and Lake County Environmental Health Services, and Office of Emergency Services were notified. In addition, the report states that pumper trucks were used during the irrigation/discharge period; however the volume trucked offsite was not included in the report.

The City of Lakeport Municipal Sewer District has violated Waste Discharge Requirements (WDRs) Order No. 98-207 as specified below:

- Discharge Prohibition No. 1 of the WDRs states: "*Discharge of wastes to surface waters or surface water drainage courses is prohibited.*"
- Discharge Prohibition No. 2 of the WDRs states: "*Bypass or overflow of untreated or partially treated waste is prohibited.*"

The Discharger states that the primary cause of the discharge to surface waters was from the heavy rains that occurred during this period and the inability to allow for the land application area to dry prior to irrigation. To address this problem, the Discharger sent out a Scope of

Work (SOW) and a Request for Proposal (RFP) for an engineering consultant to develop a Sewer Master Plan. The Discharger states that the Sewer Master Plan is expected to be completed by next fiscal year.

By **15 September 2006**, please provide a copy of the SOW and the name of the consultant who has been hired to prepare the Sewer Master Plan. In addition, please provide a schedule for completion of the Sewer Master Plan.

In addition, by **15 September 2006** please submit a water balance prepared by a California Registered Engineer that evaluates the wastewater treatment system's capacity and ability of the ponds to maintain two feet of freeboard on a month-by-month basis. The water balance shall include monthly evaporation, precipitation, and percolation rates, and shall identify contributions from major sources to monthly discharge volumes such as subsurface inflows, storm water run-on, and any inflow and infiltration from the collection system. Rainfall shall be based on the 100-year return period total annual precipitation. The water balance shall also include realistic assumptions to the volume which can be sprayed on the disposal field in compliance with the WDRs.

Regional Water Board staff are extremely concerned about the magnitude of the spill and are evaluating additional enforcement action, which may include a civil liability (fine).

Should you have any questions regarding this Notice, please contact Guy Childs at (916) 464-4648.

MARK R. LIST, P.G., Chief
Waste Discharge to Land Unit

cc: Ray Ruminski Lake County Environmental Health Department, Lakeport

APPENDIX C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0010

CEASE AND DESIST ORDER

FOR
CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

TO CEASE AND DESIST
FROM DISCHARGING CONTRARY TO REQUIREMENTS

The Regional Water Quality Control Board, Central Valley Region, (hereafter referred to as "Regional Water Board") finds that:

1. Waste Discharge Requirements (WDRs) Order No. 98-207, adopted by the Regional Water Board on 23 October 1998, prescribes requirements for the wastewater system owned and operated by the City of Lakeport Municipal Sewer District (hereafter referred to as "Discharger"). Revised Monitoring and Reporting Program No. 98-207 was issued on 22 April 2004.

2. The Discharger's wastewater treatment and storage system is on the southwestern shore of Clear Lake in Section 1 of T13N, R10W, MDB&M. The facility is southwest of downtown Lakeport on the west side of Highway 29. Assessor's Parcel Numbers for the property are APN 007-003-43 and 46, and 005-035-06, 16 and 18.

Wastewater Treatment Facility

3. The WDRs prescribe requirements for the treatment and disposal of a monthly average dry weather flow not exceed 1.05 million gallons per day (mgd) and a maximum daily discharge not to exceed 3.8 million gallons.

4. The Wastewater Treatment Facility (WWTF) is comprised of a domestic wastewater collection system, a treatment facility, a storage reservoir, a tailwater recapture system and disposal fields. The collection system consists of approximately 250,000 linear feet of sewer main and laterals and collects wastewater from approximately 5,150 residents. The treatment system is designed to treat 1.05 mgd of domestic sewage in a baffled pond system. The effluent is disinfected to secondary standards prior to discharge to a 600 acre-foot storage reservoir (at two feet of freeboard) and to a land application area.

5. The Discharger states that the discharge from the storage reservoir is used to irrigate approximately 242 acres of pasture and open areas (land application areas). However, the WDRs state that the land application area consists of 340 acres. The Discharger states that 211 acres are spray irrigated and 31 acres are flood irrigated. The land application area is divided into 31 fields. On a typical irrigation day, between nine and ten fields are irrigated on an alternating schedule over a 12-hour period. A different set of irrigation fields are used each day over a three-day period.

Violations of the Waste Discharge Requirements

Spill Violations

6. Discharge Prohibition No. A.1 of WDRs Order No.98-207 states: *"Discharge of wastes to surface waters or surface water drainage courses is prohibited."*

7. Discharge Prohibition No. A.2 of WDRs Order No. 98-207 states: *"Bypass or overflow of untreated or partially treated effluent is prohibited."*

8. Since adoption of WDRs Order No. 98-207 on 23 October 1998, the Discharger has reported 64 spills from the collection system and 3 spills from the treatment system. Of these spills, 33 entered surface waters. The largest of these spills was partially treated wastewater that occurred over an 11 day period in April 2006 and was estimated between 3.6 and 6.6 million gallons. A description of these spills is presented as Attachment A of this Cease and Desist Order.

9. To prevent unauthorized discharges of wastewater to surface water and surface water drainage courses, it is appropriate to require a Spill Contingency Plan.

Storage Capacity Violations

10. Discharge Specification No. B.11 of the WDRs Order No. 98-207 states: *"Treatment ponds and the storage reservoir shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation and ancillary inflow and infiltration during the nonirrigating season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. The effluent storage reservoir freeboard shall never be less than two (2.0) feet (measured vertically at the spillway) except during years equaling or exceeding the precipitation of a 100-year return period. Treatment ponds shall never have a freeboard of less than 2.0 feet (measured vertically)."*

11. Monthly self-monitoring reports show that the freeboard in the storage reservoir was less than two feet in April and May 2006.

12. The Discharger's 18 September 2006 water balance, prepared by a California Registered Engineer, shows that there is adequate storage capacity for an average dry weather flow (ADWF) of 0.57 mgd. However, at the currently permitted ADWF of 1.05 mgd, there is inadequate storage capacity. The water balance is based on 100-year annual precipitation data, 600 acre-feet of storage with two feet of freeboard, a beginning storage volume in October of each year of 100 acre-feet or less, and applying wastewater to 260 acres of disposal area (however, the actual sprayfield area is 242 acres).

    Staff and the Discharger discussed how to measure the ADWF, and agreed that it is to be an average of the inflows for the months of August, September, and October each year. The ADWF for the years 2003 through 2006 ranges from 0.37 to 0.41 mgd.

Staff's California Registered Engineer worked with the Discharger to revise the water balance to reflect actual conditions and better model inflow/infiltration rates. Staff's revised water balance shows that there is adequate storage capacity for 0.35 mgd ADWF. Therefore, the Discharger does not have sufficient capacity for its current flows, in violation of the WDRs.

However, the Discharger has the ability to rapidly make two changes to increase its capacity: lower the volume remaining in the storage reservoir to 50 acre feet each October, and increase the sprayfield by 90 acres. When staff's revised water balance was changed to reflect these improvements, it shows that the Discharger has adequate storage capacity for an ADWF of 0.42 mgd.

13. The Discharger's 2006 General Plan and related documents found on 12 March 2007 at http://www.cityoflakeport.com/docs/Project-contacts-August-2006mxd-726200635900PM.pdf shows that it has approved projects to build 334 homes, and that it has pending applications for an additional 203 homes. If all of these projects are built, then the ADWF will increase from 0.4 mgd to 0.54 mgd, which is significantly over the calculated capacity.

14. Influent flows are currently measured using pump run times from the Linda Lane Pump Station. It is unknown when this was last calibrated and therefore to ensure that influent flows are accurately measured, it is appropriate to require that a proper flow meter be installed and all flow meters be calibrated.

Land Application Area Violations

15. Wastewater Reclamation Specification No. E.7 of the WDRs Order No. 98-207 states: *"The Discharger may not spray irrigate effluent during periods of precipitation and for at least 24 hours after cessation of precipitation or when winds exceed 30 mph."*

16. Monthly self-monitoring reports show that the Discharger has violated Wastewater Reclamation Specification No. E.7. During April 2006, rainfall occurred a total of four days and the Discharger applied wastewater to the land application areas via spray irrigation on these days. This discharge during precipitation events resulted in the discharge of wastewater to Clear Lake.

Groundwater Violations

17. Groundwater Limitations No. G.1 of the WDRs Order No. 98-207 states: *"The Discharger, in combination with other sources, shall not cause underlying groundwater to be degraded."*

18. The provisions of the WDRs and Revised Monitoring and Reporting Program (MRP) No. 98-207 require that the City of Lakeport install groundwater monitoring wells, sample the installed groundwater monitoring wells, and evaluate groundwater conditions related to the discharge of waste at the facility.

19. Five groundwater monitoring wells were installed at the WWTF and land application area in September 2004. Quarterly groundwater monitoring and sampling reports were submitted between November 2004 and December 2006. Review of the groundwater monitoring data shows that the discharge appears to have degraded groundwater when comparing the upgradient background well to the downgradient wells. Concentrations of Total Dissolved Solids (TDS), boron, iron, manganese, magnesium, potassium, sodium, and chloride in the downgradient wells are higher than those in the upgradient background well. The discharge of waste from the City of Lakeport's WWTF has violated the Groundwater Limitations of WDRs Order No. 98-207. Therefore, it is appropriate to require the Discharger to complete a Background Groundwater Quality Study Analysis and to evaluate Best Practicable Treatment Control Measures to reduce degradation to below water quality objectives.

Previous Enforcement

20. Since issuance of the current WDRs in October 1998, Regional Water Board records indicate that four Notices of Violations (NOVs) have been issued for multiple wastewater spills. These NOVs are summarized as follows:

    a. An NOV was issued on 15 January 2004 for a 66,000 gallon raw sewage spill that occurred on 27 October 2003 and for five other spills ranging from 25 to 100 gallons that occurred in November and December 2003. The NOV required the submittal of a *Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan* (SSS Plan). The SSS plan was received by Regional Water Board staff on 4 June 2004.

    b. An NOV was issued on 8 February 2006 for a raw sewage spill estimated at approximately 500 gallons that occurred on 31 December 2005 and the Discharger's inability to report the spill as required by the Standard Provisions and Reporting Requirements of the Waste Discharge Requirements. The spill was caused by (i) excessive amounts of rain accompanied with inflow and infiltration (I/I), (ii) fats, oils, and greases in the main sewer line, (iii) privately operated sewer pumps from nearby motels that are connected to the sewer main, (iv) and an undersized section of the sewer main. Because the Discharger did not report the spill as required by the Standard Provisions and Reporting Requirements, the NOV required the submittal of a technical report describing how they will change internal procedures such that all spills will be reported as required by the Standard Provisions. The NOV also required the submittal of a report showing the repairs that had been completed to reduce the I/I in the spill area, a copy of the ordinance submitted to City of Lakeport regarding the reduction of fats, oils, and grease from nearby restaurants connected to the main sewer line, results of the investigation regarding the operation of the privately operated sewer pumps during periods of heavy rains, and a timeline for the replacement of the undersized section of sewer main. The Discharger has submitted the required information.

c. An NOV was issued on 3 August 2006 for a discharge of wastewater into Clear Lake from the recapture reservoir. The discharge occurred between 13 and 24 April 2006 and was estimated to be between 3,600,000 and 6,600,000 gallons of partially treated wastewater. The Discharger based the estimate spilled on approximately 15 to 25 percent of the total amount of wastewater (24 million gallons) that was discharged to the spray field during this period. The primary causes of the spill were the inflow from the Willow Point area due to the high lake levels and the uncapped sewer cleanouts, the heavy rains that occurred during this period, the lack of storage capacity, and the inability to allow the land application area to dry prior to irrigation. The NOV required the Discharger to submit a water balance prepared by a California Registered Engineer evaluating the wastewater treatment system's capacity and ability of the ponds to maintain two feet of freeboard on a month-by-month basis. The technical report and water balance prepared by a California Registered Engineer were received on 18 September 2006.

d. On 9 January 2007, an NOV was issued for two raw sewage spills that occurred on 26 October and 9 November 2006. The October spill was estimated to be between 100 and 200 gallons, and was from an overflowing manhole. The spill entered a flowing storm drain and eventually Clear Lake and was caused by a grease blockage in the sewer pipe. The Discharger states that the sewer pipe was cleaned of grease deposits and video surveyed. The Discharger indicates that this section of sewer pipe will be inspected by the 3rd quarter 2007. The November spill, estimated at 90 gallons, occurred from an overflowing manhole located near the Clear Lake High School. The spill did not enter a surface water drainage course. The spill was caused by a blockage in the sewer line from a large mass of wet paper products possibly from vandalism. A video inspection conducted by the Discharger on 9 November 2006 indicated that there were no defects within the manhole or sewer mains.

Response to April 2006 Spill and Notice of Violation

21. On 10 August 2006, the Discharger requested a meeting with Regional Water Board staff to discuss the 3 August 2006 NOV and any additional enforcement action under consideration. The meeting with staff was held on 5 September 2006, and a subsequent meeting was held with the Executive Officer on 6 October 2006. The following information was presented at each meeting and in follow-up correspondence.

The Discharger states that the main cause of the April 2006 spill was the continuous rainfall that occurred beginning in December 2005 and the inability to apply wastewater to the land application area. Once the Discharger began irrigating in April, storm water run-on into the tailwater diversion ditch from the surrounding areas contributed to the increased volumes to the storage reservoir. In addition, the Discharger submitted the following information:

- In response to increased flows at Lift Station C, the City of Lakeport staff inspected the Willow Point RV Park on 1 March 2006 and found approximately 20 uncapped

private sewer cleanouts. The RV Park is immediately adjacent to Clear Lake.

- Extensive flooding occurred along the shores of Clear Lake and in the Willow Point RV Park from 6 March through 27 April 2006. This flooding allowed approximately 65 acre-feet of excess water to enter the collection system through the uncapped sewer cleanouts.

- The majority of the open sewer cleanouts were brought to grade and capped with watertight covers on 24 March 2006 after utilizing the services of the City of Lakeport Building Department, the California Housing and Community Development, and Lake County Environmental Health Department. Wastewater flows at the nearby Lift Station No. 6 have since been reduced. However, follow-up site investigations on 18 and 22 August 2006 indicate that the Recreation Vehicle (RV) Dump Station cleanout remains open and is subject to future flooding. The inspection also found that large amounts of rock and gravel were placed onsite to prevent future flooding of the area.

- The City of Lakeport will monitor the repairs made to the sewer cleanouts through inspections and take flow measurements both upstream and downstream of the Willow Point RV Park.

- The owner of the Willow Point RV Park has received citations from the Lake County Environmental Health Department and the California Department of Housing and Community Development for the two sewer spills. One of the sewer spills was discovered within five feet of the lake level on 1 March 2006.

The impact to beneficial uses from the millions of gallons of wastewater spilled into Clear Lake was negligible because (a) the wastewater was re-disinfected prior to discharge and (b) the heavy rains diluted any constituents of concern. In addition, the Discharger took action to prevent some wastewater from entering Clear Lake. Approximately 597,000 gallons of partially treated wastewater was transported by sewage pumper trucks to the Southeast Regional Wastewater Treatment Facility during a seven-day period from 13 through 21 April 2006 at a cost of approximately $96,000.

Inflow/Infiltration Assessment

22. Provision H.3.a of the WDRs requires that, in order to resolve capacity issues related to high inflow and infiltration (I/I), the Discharger was to submit an I/I assessment report by 1 June 1999. The report was not submitted until November 2000.

23. In a 10 May 2000 inspection report, Regional Water Board staff informed the Discharger that the wastewater treatment and disposal facilities appeared well-operated and maintained. However, the report also stated that the collection system had significant inflow/infiltration (I/I) problems (documented in Attachment A to this Order). To address these problems, the Discharger was reminded that the WDRs required submittal of an I/I assessment report, and that it should detail the City's plan and schedule for implementing a program to define the nature and extent of I/I in the collection system, establish cost

effective measures for reduction of I/I sources, and perform ongoing I/I prevention and control. The report was received in November 2000, and included the following:

Task	Target Completion Date	Status
Determine the strategy to mitigate the I/I problem	16 October 2001	Completed
Finalize the analysis of the new sewer rates and coordinate the rate increase with the Lake County Sanitation District rate increase.	10 January 2001	Completed
Implement the rate increase with Proposition 218 requirements.	31 March 2001	Completed
Hire additional staff for I/I issues, and obtain necessary monitoring equipment and provide training.	15 June 2001	Hired two additional staff in March and April 2004.
Conduct initial smoke testing, provide initial update for mapping the sewer collection system, conduct base flow monitoring, sewer testing and miscellaneous repair activities.	15 October 2001	Smoke testing began in June 2004 (as of June 2005 approximately 65 percent of the lines inspected). Geographical Information System (GIS) mapping of sewer manholes (2004/2005).
Issue repair notices and work orders for defective collection system facilities.	30 November 2001	Ongoing
Initiate wet weather flow monitoring	1 December 2001	Magnetic flow meters arrived in June 2004 and have been installed at four lift stations (Lakeshore Blvd., Rose Ave., Martin Street, and C Street). A fifth magnetic flow meter is planned to be installed at the Linda Lane lift station.
Conduct ongoing flow monitoring, mapping, and repair activities to the sewer collection system.	Ongoing	Ongoing

24. The Discharger states that a concerted effort has been made towards an I/I Reduction Program with the following actions having been taken: (a) aerial mapping of the city in 1991, 2002, 2006, (b) GIS mapping of utilities from 1999 to present, (c) inventory of sewer utilities from 2001 to present, (d) creation of the I/I Department in 2003, (e) providing a GIS utility atlas to field crews in 2004, (f) completion of the sewer spillage database in 2005, (g) physical inspection of all sewer manholes from 2001 to present, (h) video inspection of sewers from 2001 to present, (i) purchase of magnetic flow meters for sewage lift stations

in 2004, (j) restoration of 10 sewer manholes in 2004, 21 manholes in 2005, and 20 manholes in 2006, and (k) the installation of 44 sewer manhole covers in 2005.

25. The Discharger's 18 September 2006 technical report states that historically, the wastewater collection system has experienced substantial inflow and infiltration; however, the I/I Reduction Program was created in 2003 to identify the problem areas and repair the collection system. The Discharger states that an average of $225,000 per year has been spent on the I/I Reduction Program.

26. In addition, the Discharger indicates that it has recently contracted with a consultant to prepare a Sewer Master Plan. The Plan will address both collection system and treatment system improvements. The estimated cost to complete the plan is $50,000 and the scheduled completion date is 13 August 2007. In summary, the Master Plan will contain the following: (a) development of a service area and system map, (b) an inflow/infiltration flow monitoring program, (c) development of a hydraulic model, (d) an evaluation of, and recommended improvements to the wastewater treatment, storage and disposal system to accommodate the next 20 years of growth, (e) cost estimates associated with those recommended improvements, and (f) development of a sewer master plan map.

27. To ensure that a mechanism is in place to provide adequate funding needed for the treatment, storage and disposal capacity necessary to consistently comply with the permit conditions, it is appropriate for the Discharger to submit a Revenue Plan for existing and future expansion of the City of Lakeport's WWTF.

28. To ensure that adequate staffing is available to perform operation and maintenance of the wastewater treatment and disposal system to comply with the WDRs, it is appropriate that the Discharger submit a Staffing Analysis Report.

29. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems General Order No. 2006-0003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length, therefore the General Order is applicable. The Discharger applied for coverage under the General Order on 29 October 2006.

Regulatory Considerations

30. As a result of the events and activities described in this Order, the Regional Water Board finds that the Discharger has caused or permitted waste to be discharged in such a manner that it has created, and continues to threaten to create, a condition of pollution or nuisance. The Regional Water Board also finds that the Discharger is discharging waste in violation of WDRs No. 98-207 as described in the above Findings.

31. The Regional Water Board's Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) designates beneficial uses, includes water quality objectives to protect the beneficial uses, and includes implementation plans to implement the water quality objectives.

32. Surface water drainage from the facility is to Clear Lake. The beneficial uses of Clear Lake, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; water contact recreation; noncontact water recreation; warm freshwater habitat, cold freshwater habitat; spawning, reproduction, and/or early development; and wildlife habitat.

33. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

34. Section 13301 of the California Water Code states in part: "When a regional board finds that a discharge of waste is taking place or threatening to take place in violation of requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventive action. In the event of an existing or threatened violation of waste discharge requirements in the operation of a community sewer system, cease and desist orders may restrict or prohibit the volume, type, or concentration of waste that might be added to such system by discharges who did not discharge into the system prior to the issuance of the cease and desist order. Cease and desist orders may be issued directly by a board, after notice and hearing, or in accordance with the procedure set forth in Section 13302."

35. Section 13267(b) of the California Water Code states: " In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

36. The Discharger owns and operates the facility subject to this Order. Monitoring reports and other technical reports required by this Order are necessary to assure compliance with WDRs Order No. 98-207 and revised MRP No. 98-207 to assure protection of public health and safety.

37. The issuance of this Order is an enforcement action by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to Section 15321(a)(2), Title 14, California Code of Regulations.

38. On 15 March 2007, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Regional Water Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order and Connection Restriction.

39. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board to review the action in accordance with Section 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100,

Sacramento, CA, 95812-0100, within 30 days of the date on which the Regional Water Board action took place. Copies of the law and regulations applicable to filing petitions are available at www.waterboards.ca.gov/water_laws/index.html and also provided upon request.

IT IS HEREBY ORDERED that, pursuant to Sections 13301 and 13267 of the California Water Code, the City of Lakeport Municipal Sewer District, its agents, successors, and assigns, shall implement certain measures, and identify and implement facility improvements, in accordance with the scope and schedule set forth below to ensure long-term compliance with WDRs Order No. 98-207 or any revisions to those WDRs.

Each document submitted under this Order shall bear the following certification signed by the Discharger:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

1. The Discharger shall **immediately** comply with all aspects of WDRs Order No. 98-207, and in addition shall comply with all items described in this Order. Where the CDO imposes more stringent conditions than those provided in the WDRs, the Discharger shall comply with the more stringent conditions required by this Order.

2. Effective immediately, the average monthly dry weather inflow to the wastewater treatment plant shall not exceed 0.42 mgd (calculated by averaging the flows from August through October each year), and the annual inflow (measured from October through September) shall not exceed 885 acre-feet (approximately 288 million gallons).

3. Effective **1 November 2007**, the facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. The freeboard in the treatment ponds and storage reservoir shall never be less than two feet as measured from the water surface to the lowest point of overflow. By **1 October** of each year, the storage reservoir capacity shall at least equal the volume necessary to comply with the above.

4. Effective **1 April 2007**, irrigation with wastewater shall not be performed within 24 hours before a predicted precipitation event, during precipitation, or within 24 hours after any precipitation event, nor shall it be performed when ground is saturated or when winds exceed 30 mph.

5. By **1 June 2007**, the Discharger shall install a magnetic flow meter to accurately measure the influent wastewater flows into the wastewater treatment facility. By this date, the Discharger shall submit documentation certifying installation of the flow meter.

6. By **1 September 2007**, the Discharger shall submit a *Flow Meter Calibration Report* that demonstrates that all flow meters used for determining compliance with the WDRs and this Order have been independently calibrated by a third party. The report shall also (a) provide standard procedures for plant personnel to use when taking and recording flow measurements and (b) provide a schedule for on-going meter calibration, and (c) shall provide two months of data showing influent flows for the Linda Lane pump station calculated by both pump run times and by the magnetic flow meter, and shall discuss the differences and the impact on the water balance.

7. By **1 October of each year**, the volume of wastewater in the effluent storage reservoir shall not exceed 50 acre-feet.

Short Term Storage and Disposal Capacity Improvements

8. By **1 July 2007**, the Discharger shall submit and immediately implement a *Spill Contingency Plan* containing the interim measures necessary for preventing unauthorized discharges to surface water and surface water drainage courses from the WWTF. The Spill Contingency Plan shall remain in effect until all improvements to the WWTF are completed. The Spill Contingency Plan must, at a minimum, consider additional water conservation measures to reduce wastewater flows, provisions for transporting wastewater offsite for disposal, and provisions for increasing the capacity of the storage reservoir. The cost and funding mechanism for each contingency measure must be identified. The Spill Contingency Plan must identify the selected alternatives, and for each alternative, specify all necessary materials, staffing, and equipment required for implementation.

9. By **1 August 2007**, the Discharger shall submit a *Staffing Analysis Report* for the wastewater treatment, storage and disposal system. The analysis shall include a review of current staffing levels, allocation of staff tasks, an analysis of whether current staff allocation is adequate, and if necessary, describe the shortfalls and make recommendations for future staffing needs. If the analysis indicates additional staff are necessary, then the report shall also include a *Staffing Contingency Plan* describing the steps the Discharger shall take in the short term and long term to assure that it has enough staff to perform the necessary operation and maintenance activities associated with the wastewater storage and disposal system. If the analysis indicates additional staff are necessary, then the *Staffing Contingency Plan* shall also contain a proposed timeline for acquiring the necessary staff.

10. By **1 November 2007**, the Discharger shall submit a report demonstrating that it has completed the 90-acre expansion of the spray irrigation disposal fields. The report shall clearly show that tailwater generated on these fields will be captured and returned to the storage reservoir.

Groundwater Evaluation

11. By **1 November 2007**, the Discharger shall submit a *Background Groundwater Quality Study and Degradation Assessment Report*. For each groundwater monitoring parameter/constituent identified in revised MRP No. 98-207, the report shall present a summary of all monitoring data and calculation of the concentration in background monitoring well(s). Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the measured concentration in each compliance monitoring well with the proposed background concentration.

12. By **1 November 2007**, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of the waste constituent(s) to determine which best practicable treatment and control (BPTC) practices are necessary to implement to ensure that groundwater degradation is minimized. The workplan shall contain an evaluation of each component of the wastewater treatment facility and shall propose a comprehensive evaluation of appropriate treatment and control measures for each waste constituent causing degradation.

13. By **1 November 2008**, the Discharger shall submit a *BPTC Evaluation Report* containing the results of the study described in Ordered Item No. 12. The report shall recommend improvements to the WWTF that will result in compliance with the Groundwater Limitations of WDRs Order No. 98-207.

Sewer System Master Plan

14. By **1 July 2008**, the Discharger shall submit a *Sewer System Master Plan* that describes the facility improvements needed to:

    a. Increase overall storage and disposal capacity as necessary to comply with a 100-year total annual precipitation event;
    b. Provide enough wastewater storage and disposal capacity for current flows, as well as growth projected over the next 15 years;
    c. Prevent sanitary sewer overflows;
    d. Comply with pond freeboard requirements in the WDRs; and
    e. Address I/I (shall include items listed in Finding No. 26).

    The *Sewer System Master Plan* shall include a water balance for both the current inflow and projected flows through at least the year 2022, and shall clearly show the times of the year when wastewater must be stored versus when it may be applied to land. The water balance shall evaluate the wastewater storage reservoir's ability to provide sufficient capacity to maintain two feet of freeboard on a month-by-month basis. The water balance shall be based on all flows entering the wastewater system, 100-year annual precipitation returns, and compliance with the two-foot freeboard requirement in treatment ponds and storage reservoir, and shall model I/I flows using the method described in the July 2004 State Water Board training manual titled *"Training Handbook for Disposal of Non-Designated Waste to Land Systems"* or other appropriate method if approved by the Executive Officer. All assumptions and calculations used in preparing the water balance

must be clearly identified. The water balance shall include consideration of at least the following:

a. Wastewater flows from all sources such as subsurface inflows, storm water run-on, and any inflow and infiltration from the collection system;
b. Local precipitation data (indicate what weather station was used to obtain the data, and indicate what the total annual precipitation is for average and 100 year annual storm events, and show how that value was distributed throughout the year, by months, based on historical rainfall patterns);

c. Infiltration and inflow;

d. Local evaporation data;

e. Measured evaporation data from any enhanced evaporation system;

f. Projected percolation rates for the effluent storage reservoir; and

g. Irrigation disposal rates that comply with the requirements of the WDRs.

The *Sewer System Master Plan* shall include a proposed timeline for all improvements.

Revenue Plan

15. By **1 September 2008**, the Discharger shall submit a *Revenue Plan* for all work and improvements described in the Sewer System Master Plan. The Revenue Plan shall include the following:

    a. A detailed description of the scope and schedule of all planning, design, and construction, including improvements to existing facilities and construction of new facilities as needed to accommodate projected future influent flows over the next 15 years. A phased expansion plan may be proposed; and

    b. A preliminary capital cost estimate and a financing plan describing how the improvement project(s) will be funded.

Report of Waste Discharge

16. By **1 April 2009**, the Discharger shall submit a *Report of Waste Discharge* (RWD) to allow the WDRs to be revised to reflect the proposed upgrades in the Sewer System Master Plan. The RWD consists of the Form 200 *(Application for Report of Waste Discharge)* and a technical report that addresses all items listed in Attachment B to this Order, "*Additional Information Requirements for a Report of Waste Discharge.*" The Report of Waste Discharge shall clearly reference the groundwater monitoring data collected for the sprayfields and shall demonstrate that the proposed improvements are compliant with State Water Resources Control Board Resolution No. 68-16 (the Antidegradation Policy).

Progress Reports

17. **Beginning with the second quarter 2007**, the Discharger shall submit a *Quarterly Compliance Status Report*. These reports shall describe all work completed during the calendar quarter to comply with this Cease and Desist Order; any new, modified, or renovated component of the collection, treatment, storage, and disposal system and number of new connections authorized during that quarter. The reports shall specifically address work completed to identify and reduce I/I. These reports shall be submitted by the **1st day of the second month after the quarter** (e.g., the first quarterly report is due by 1 May of each year).

In addition to the above, the Discharger shall comply with all applicable provisions of the California Water Code that are not specifically referred to in this Order. As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all technical reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of $1,000 to $10,000 per day of violation, depending on the violation, pursuant to the California Water Code, including sections 13268, 13350 and 13385. The Regional Water Board reserves its right to take any enforcement actions authorized by law.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 15 March 2007.

- Original Signed by -

PAMELA C. CREEDON, Executive Officer

Attachment A - Summary of Spills from October 1998 through 2006
Attachment B - Additional Information Requirements for a Report of Waste Discharge

GJC/MRL/WSW: 15 March 2007

ATTACHMENT A

CEASE AND DESIST ORDER NO. R5-2007-0010

FOR

CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

The following table summaries the wastewater spills that have occurred (as documented in the Regional Water Board case file) since adoption of the Waste Discharge Requirements in October 1998 through the issuance of this Cease and Desist Order.

Date of Spill	Volume Discharged (Gallons)	Discharge to Surface Water Drainage Course?	Type of Waste	Location of Spill	Cause of Spill[1]
29 Oct 1998	>325,900	Yes	Partially Treated Effluent	2400 Linda Lane & Parallel Drive	Recapture pond gate partially open because pond was full and overflowing due to storm water flow into the pond
23 Nov 1998	400	Yes	Partially Treated Effluent	Disposal Site	Overflow from recapture pond caused during installation of plastic pipe in earthen berm
29 Dec 1998	100	Yes	Raw Sewage	420 2nd Street	Blockage in sewer lateral
30 Dec 1998	75	No	Raw Sewage	375 High Street	Plugged sewer lateral
16 Jan 1999	30	No	Raw Sewage	975 Armstrong and Russell Street	Blockage in sewer lateral
28 Jan 1999	50	No	Raw Sewage	635 11th and Main Streets	Blockage in sewer lateral
31 Jan 1999	20	No	Raw Sewage	40th and South Main Street	Plugged sewer service lateral
17 Feb 1999	50	Yes	Raw Sewage	475 Third Street and Tunis Ave.	Blockage in main sewer line
4 Mar 1999	30	Yes	Raw Sewage	825 Forbes	Roots in sewer lateral
13 Mar 1999	25	No	Raw Sewage	450 Hillcrest and Forest	Plugged sewer lateral
19 Apr 1999	30	Yes	Raw Sewage	480 Third Street and Tunis Ave.	Blockage in sewer lateral
23 June 1999	1,500	Yes	Raw Sewage	1940 Lakeshore Drive and Giselman	Blockage in main sewer line
18 Nov 1999	20	No	Raw Sewage	2235 Healton Circle	Plugged sewer lateral

Date of Spill	Volume Discharged (Gallons)	Discharge to Surface Water Drainage Course?	Type of Waste	Location of Spill	Cause of Spill[1]
19 March 2000	75 to100	No	Raw Sewage	Tunis Street between 2nd and 3rd Streets	Plugged sewer main
24 March 2000	25	No	Raw Sewage	480 3rd Street	Plugged sewer main
13 April 2000	50	No	Raw Sewage	475 3rd Street	Plugged sewer main
21 April 2000	50	No	Raw Sewage	210 11th Street	Plugged sewer lateral
16 May 2000	200	No	Raw Sewage	16th and 17th Streets	Debris blockage in sewer manhole
30 May 2000	30	No	Raw Sewage	Pecham Street	Blockage in sewer main
5 June 2000	25	Yes	Raw Sewage	1824 Via Del Cabana	Plugged sewer lateral
8 Sept 2000	50	No	Raw Sewage	155 South Forbes	Plugged sewer line cleanout
15 Nov 2000	100	Yes	Raw Sewage	Via Delago & Via Del Cabana	Blockage in sewer main
15 Nov 2000	150	Yes	Raw Sewage	1880 High Street	Blockage in sewer main
25 Dec 2000	50	No	Raw Sewage	224 2nd Street	Blockage in sewer main
9 Jan 2001	25	Yes	Raw Sewage	Peckham & South Main	Blockage in sewer main
9 Feb 2001	25	No	Raw Sewage	Parallel & Craig	Blockage in sewer main
23 Feb 2001	25	Yes	Raw Sewage	426 2nd Street	Plugged sewer main
23 Feb 2001	30	Yes	Raw Sewage	2019 South Main	Plugged sewer main
23 July 2001	30	Yes	Raw Sewage	Via Delago & Del Cabana	Blockage in sewer main
8 Oct 2001	10	No	Raw Sewage	425 3rd and Tunis Street	Plugged sewer main
9 Oct 2001	25	Yes	Raw Sewage	975 North Brush Street	Plugged sewer lateral
26 Nov 2001	25	Yes	Raw Sewage	1130 Mellor Street	Root blockage in sewer lateral
28 Feb 2002	40	Yes	Raw Sewage	475 Tunis Street	Blockage in sewer main

Date of Spill	Volume Discharged (Gallons)	Discharge to Surface Water Drainage Course?	Type of Waste	Location of Spill	Cause of Spill[1]
11 Mar 2002	25	No	Raw Sewage	480 3rd Street	Blockage in sewer main
30 April 2002	25	No	Raw Sewage	475 Tunis Street	Plugged sewer main
12 May 2002	20	No	Raw Sewage	1264 Craig Ave	Plugged sewer lateral
12 May 2002	10	No	Raw Sewage	1155 North Forbes	Plugged sewer lateral
25 June 2002	100	Yes	Raw Sewage	1425 North Main Street	Power failure to the pumps and controls
7 July 2002	50	No	Raw Sewage	1264 Craig Street	Plugged sewer lateral
17 July 2002	25	No	Raw Sewage	1155 North Forbes Street	Plugged sewer lateral
13 Sept 2002	15	No	Raw Sewage	2235 Healton Circle	Plugged sewer main
4 Oct 2002	20	Yes	Raw Sewage	100 North Main Street	Plugged sewer main
29 Oct 2002	50	No	Raw Sewage	992 19th Street	Blockage in sewer main
1 Nov 2002	50	No	Raw Sewage	1021 24th Street	Blockage in sewer main
8 Nov 2002	5	No	Raw Sewage	360 Third Street	Blockage in sewer lateral
13 Nov 2002	25	No	Raw Sewage	210 11th Street	Plugged sewer cleanout
18 Dec 2002	10	No	Raw Sewage	15th and High Street	Blockage in sewer main
10 Jan 2003	20	No	Raw Sewage	785 6th Street	Roots in sewer lateral
27 Jan 2003	300	Yes	Raw Sewage	755 11th Street	Blockage in sewer main
29 Jan 2003	25	Yes	Raw Sewage	Clearlake Ave & Main Street	Leaking valve cover
20 Feb 2003	500	Yes	Raw Sewage	6th Street	Grease blockage in sewer main
24 Feb 2003	50	Yes	Raw Sewage	High and 20th Streets	Grease blockage in sewer main
18 Oct 2003	15	Yes	Raw Sewage	195 South Main Street	Plugged sewer line
18 Oct 2003	15	Yes	Raw Sewage	235 South High Street	Plugged sewer line

Date of Spill	Volume Discharged (Gallons)	Discharge to Surface Water Drainage Course?	Type of Waste	Location of Spill	Cause of Spill[1]
27 Oct 2003	66,000	Yes	Raw Sewage	2485 Parallel Drive	Power failure and standby generator running out of fuel
18 Nov 2003	1,400	Yes	Raw Sewage	320 16th Street	Grease blockage in sewer line
24 Nov 2003	25	No	Raw Sewage	470 2nd Street	Plugged sewer main
30 Nov 2003	30	No.	Raw Sewage	867 14th Street	Plugged sewer lateral
15 Dec 2003	100	Yes	Raw Sewage	180 6th Street	Partially blocked sewer main
18 Dec 2003	100	Yes	Raw Sewage	180 6th Street	Partially blocked sewer main
29 Dec 2003	100	Yes	Raw Sewage	1005 North Main	Heavy rains and I/I problems
13 Mar 2004	15	No	Raw Sewage	975 Armstrong Ave.	Blockage in sewer lateral
19 July 2004	20	No	Raw Sewage	1155 North Forbes Street	Blockage in sewer lateral
31 Dec 2005	500	Yes	Raw Sewage	1100 North Main	I/I problems, grease blockage, undersized section of sewer pipe
13 – 24 April 2006	3,600,000 to 6,623,250	Yes	Partially Treated Effluent	Land Application Area	Excessive rains, I/I and storage capacity problems, flooding of sewer cleanouts at Willow Point RV Park
26 Oct 2006	200	Yes	Raw Sewage	Villa Del Lago and Via Del Cabana	Grease blockage in sewer line
9 Nov 2006	90	No	Raw Sewage	Lakeport Unified School District	Backup in manhole due to vandalism

[1]Based on Discharger's spill reports.

GJC/MRL/WSW: 15 March 2007

ATTACHMENT B

ADDITIONAL INFORMATION REQUIREMENTS FOR A REPORT OF WASTE DISCHARGE

CEASE AND DESIST ORDER NO. R5-2007-0010 *FOR CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT WASTEWATER TREATMENT FACILITY*

Provide a technical report prepared by a California Registered Civil Engineer that presents the following information:

1. A narrative description of all wastewater conveyance, treatment, and disposal systems currently existing at the facility.

2. A narrative description of all planned physical improvements, their purpose, and anticipated completion dates. If phased build out is planned provide scope and completion dates for each phase.

3. A process flow diagram, scaled treatment plant site plan, and scaled map(s) showing all existing and proposed effluent disposal areas (including conveyance and tailwater control systems.

4. For each pond and other waste containment structure, provide the following information. Discuss both existing and proposed ponds:
   a. Identification (name) and function of the pond;
   b. Surface area, depth, and volumetric capacity at two feet of freeboard;
   c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee;
   d. Materials used to construct each berm or levee;
   e. Description of engineered liner, if any;
   f. Estimated steady state percolation rate for each unlined pond;
   g. Depth to shallow groundwater below the planned base of the ponds;
   h. Overfilling/overflow prevention features; and
   i. Operation and maintenance procedures.

5. For each reclamation site, provide:
   a. Complete ownership information.
   b. A scaled map showing the topography, property boundary, streets, residences, surface waters, etc. A USGS topo map may be sufficient as a base map.

c. A scaled map showing the limits of the reclamation areas, reclaimed water conveyance systems, other irrigation water conveyance systems, on-site drainage, tailwater systems, and runoff controls (existing and proposed).

d. Net irrigation area.

e. Method(s) of irrigation, including typical frequency and depths of application for each month when irrigation will occur.

f. Typical cropping practices (crops grown, rotation cycles, use of fertilizers and pesticides, etc.).

g. Typical storm water management practices.

6. A description of the sources and types of wastewater flowing into the wastewater treatment system, design flow rates, and the design capacity of the system (existing and proposed). Include projected infiltration/inflow rates and peaking factors used in design calculations.

7. A description of emergency wastewater storage facilities or other means of preventing system bypass or failure during reasonably foreseeable overload conditions (e.g., power failure, sewer blockage, and illicit sewer discharges). Consider both potential problems at the plant and within the community sewer system.

8. A description of the community sewer system: materials, age, infiltration/inflow estimate, and lift station details (type, location, capacity, backup systems, and alarm features).

9. Chemical characterization of influent wastewater quality, including biochemical oxygen demand, total suspended solids, total dissolved solids, and nitrogenous compounds. Include a discussion of seasonal variations, if any, and supporting analytical data.

10. A description of all known or anticipated industrial dischargers whose individual BOD, total dissolved solids and/or hydraulic loads will be greater than 2% of the plant's total daily influent loading, including the following:

    a. Name;

    b. Industry;

    c. Nature of waste stream;

    d. Average daily flow (gpd and percentage of total plant loading);

    e. Peak daily flow;

    f. Average daily BOD loading (lb/day and percentage of total plant loading);

    g. Peak daily BOD loading;

    h. Salinity (e.g., total dissolved solids, electrical conductivity, major ions);

    i. Nitrogen (all forms);

    j. Nature of seasonal or diurnal variations in influent flow or quality, if any; and

k. Pre-treatment or self-monitoring programs, if any.

11. A description of the following for the both existing system and each phase of the proposed expansion:
    a. Average dry weather flow;
    b. Peak wet weather flow; and
    c. Effluent quality at the point of discharge to the disposal system (BOD, total suspended solids, settleable matter, nitrogenous compounds, electrical conductivity, pH, and total coliform organisms).

12. Narrative description of expected solids generation rates and handling/storage procedures:
    a. Debris;
    b. Grit and screenings; and
    c. Biosolids.

13. Narrative description of proposed solids disposal practices for debris, grit, screenings, and biosolids:
    a. Method of disposal;
    b. Frequency of disposal;
    c. Disposal site/area name(s) and location(s); and
    d. For biosolids (if beneficial re-use is proposed for reclamation sites):
        - Land application rates (dry tons per unit area per application, number of applications per year);
        - Soil incorporation practices;
        - Vegetation grown;
        - Runoff controls, if any; and
        - Public access controls.

14. A description of the types of soil underlying any planned ponds and effluent disposal areas (include a copy of the geotechnical report).

15. Projected monthly water balance for each phase of buildout demonstrating adequate containment capacity for the 100-year return period total annual precipitation, including consideration of at least the following.
    a. A minimum of two feet of freeboard in each pond at all times;
    b. Historical local evaporation data (monthly average values);
    c. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns;

d. Proposed wastewater loading rates distributed monthly in accordance with expected seasonal variations;

e. Projected long-term percolation rates (including consideration of percolation from unlined ponds and the effects of solids plugging on all ponds); and

f. Projected irrigation usage rates (if recycling is proposed).

16. Proposed flow limits and basis for the limit for the current facility and each phase of the planned expansion. Consider dry weather flows vs. peak flows and seasonal variations associated with major industrial dischargers. Include the technical basis for the proposed flow limit (e.g., design treatment capacity; hydraulic capacity of a main lift station, headworks, or other system element; and demonstrated effluent disposal capacity).

17. A narrative description of plant operation and maintenance procedures to be employed, including those associated with effluent storage and disposal.

18. A description of any policies or facility design features that reduce the potential for groundwater degradation (best practicable treatment and control or BPTC measures). Such features might include industrial discharger effluent quality limits, prohibitions on discharge of certain types of waste, advanced treatment, disinfection, concrete treatment structures, and pond lining systems.

19. Provide a technical report prepared by a Professional Geologist or Certified Hydrogeologist that provides an assessment of the following:

    a. Baseline groundwater quality at each new disposal or reclamation site.

    b. Groundwater degradation, if any, that has resulted from the existing operation; and

    c. The potential for the proposed effluent disposal expansion to degrade groundwater quality (at the plant and at reclamation/disposal sites).

    This assessment must be made based on site-specific data and must provide technically-based answers to the following questions based on historical data and supplemental data to be collected for the purpose of this study:

    - What is the groundwater elevation and gradient at the existing facility? At least one new well will be required to better define background groundwater quality outside the influence of any mounding around the ponds and at least one more well will required downgradient of the existing ponds.
    - What is background shallow groundwater quality for typical municipal waste constituents? Compare to established water quality objectives for protection of the beneficial uses of groundwater.[1]

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[1] Include analyses for the following: BOD, total coliform organisms, total dissolved solids, ammonia (as N), total Kjeldahl nitrogen, nitrate (as N), nitrite (as N), and a complete anion/cation scan with ion balance. Total coliform organisms shall be determined using the 15- or 25- tube method.

- What is the groundwater quality data downgradient of the existing WWTP and application areas.
- For each monitored constituent, has the existing facility degraded groundwater quality? If so:
  - What constituents exceed the applicable water quality objective?
  - What constituents exceed background concentrations?
  - Based on site hydrogeology, is the degradation contained within a defined area (or one that could be defined by additional investigation)?
  - What Best Practicable Treatment and Control (BPTC) methods will be utilized to minimize the degradation?
- What are subsurface conditions at the proposed new disposal sites?[2]
- What is the character of groundwater quality at the proposed new disposal sites? [2]
- Based on site hydrogeology, the nature of the waste, and the proposed disposal method, what level of degradation is expected to result from the expansion (if any)?
- If the proposed expansion will cause degradation, how will the degradation be confined or controlled?
- At a minimum, the report shall include the following:
  - Rationale for field investigation approach.
  - Description and documentation of all proposed investigational methods and activities.
  - Description of the site hydrogeology including stratigraphy, hydraulic conductivity of the soils, capillary rise, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (i.e., a site conceptual model)
  - A detailed map showing locations of all water wells including springs and isolated wetlands within one mile of the WWTP and land application areas.
  - Description of fate and transport mechanisms for all monitored constituents.
  - Description of data reduction/analysis techniques and results.
  - Presentation of historical and supplemental site-specific soil and groundwater data.
  - Comparison of groundwater quality data to background groundwater quality and water quality objectives for each constituent.
  - An analysis of all data and conclusions regarding each of the above questions.

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[2] This must be based on subsurface investigation at the proposed disposal site including soil borings and/or cone penetrometer tests and groundwater analyses. Groundwater samples may be obtained using a one-time sampling method such as Hydropunch®.

APPENDIX D

City of Lakeport
Water and Sewer Rate Study
Draft Summary Report

Introduction

HDR Engineering (HDR) was retained by the City of Lakeport (City) to conduct a comprehensive water and sewer rate study. The objective of the comprehensive rate study was to develop a financial plan and cost-based rates for each utility necessary to meet each utility's current and future operation and maintenance (O&M) and capital needs. This study also reviews the adequacy of existing water and sewer rates and provides the framework for any needed future adjustments.

Background and Context

It is important to describe the services the utilities provide in order to put the context of the rate study results into perspective. High-quality drinking water and sewer systems are essential to public health, business, and quality of life. When one considers everything that tap water delivers – safe drinking water, fire protection, support for the economy, the quality of life we enjoy, it is easier to compare water and sewer utility costs with monthly cable bills and cell phone bills to get a perspective on what it costs to have these utility services we often take for granted.

The American Water Works Association (AWWA), the water utility industry association, and other utility associations have documented the quantity of our water and sewer infrastructure that is aging and has determined that many communities must significantly increase their levels of investment in repair and rehabilitation of system components to protect public health and safety and to maintain environmental standards. In February, 2012, the AWWA released the most comprehensive-ever study on the need for re-investment in the nation's drinking water infrastructure, to address aging pipes and population shifts. Titled "Buried No Longer," the report evaluates drinking water infrastructure investment needs nationwide and covers the coming 25 to 40 year periods. Key findings include:

- **The needs are large.** The cost of replacing pipes at the end of their useful lives and addressing growth will total more than $1 trillion nationwide between 2011 and 2035 and exceed $1.7 trillion by 2050.
- **Household water bills will go up.** Although water bills will vary by community size and geographic region, for some communities the infrastructure costs alone could triple the size of a typical family's bill.
- **There are import differences based on system size.** As with many other costs, small communities with fewer people to share in the costs face the biggest challenge.
- **The costs keep coming.** Infrastructure renewal investments are likely to be incurred each year over several decades. For that reason, many utilities may choose to finance infrastructure replacement on a "pay-as-you-go" basis rather than through debt financing.
- **Postponing investment only makes the problem worse.** Postponing infrastructure investment in the near-term would raise the overall cost and increase the likelihood of water main breaks and other infrastructure failures.

Water and sewer infrastructure is aging and costing more and more each year to maintain, as well as to replace. Where does a utility begin the process of rehabilitation and replacement of

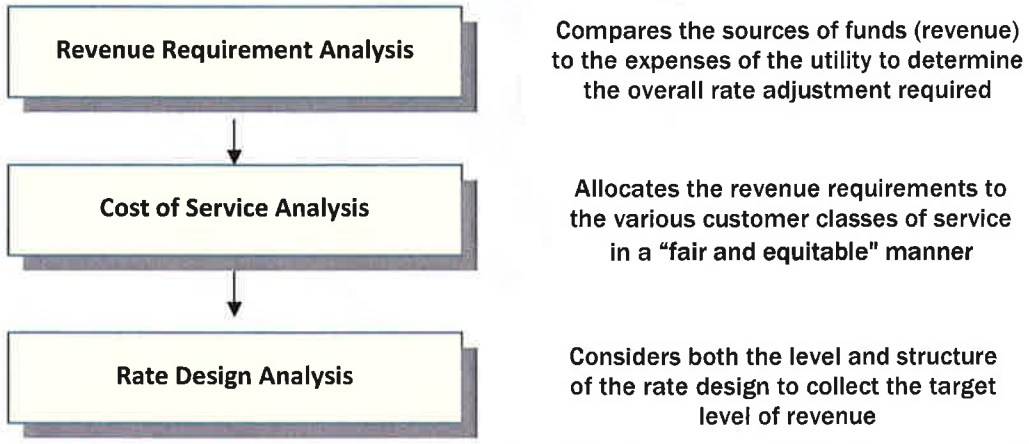
an infrastructure system? One approach is to initiate and manage a modern, methodical, and sustainable asset renewal process for the City's utilities. The findings of the rate study move the utilities in this direction, while balancing these needs with the rate impacts necessary to provide for proper management of the utilities.

These key findings of the AWWA study have also been determining factors in focusing the efforts in the utility rate study over the past year. The results of the analyses show that both the water and sewer utilities need rate adjustments, primarily to fully fund operations, infrastructure renewal and replacement, and to meet fire flow protection requirements. Lakeport is not alone in this reality. There are numerous utilities in California, and across the country, that need to adjust utility rates in order to properly fund and manage their systems in a prudent and responsible manner. A May 2011 Circle of Blue article noted that 30 major metropolitan areas within the U.S. had water rates that increased an average of 9% in 2010.

Overview of Rate Study Process

A comprehensive rate study consists of three interrelated analyses. They are a revenue requirement analysis, cost of service analysis and rate design analysis. Provided below in Figure ES-1 is a summary of these analyses.

Figure ES – 1
Overview of the Comprehensive of Rate Study Analyses



Each of the utilities was evaluated on a "stand-alone" basis. That is, no subsidies between either utility or other City fund should occur. By viewing the each utility on a stand-alone basis, the need to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to the utility's customers.

Summary of Study Results

In developing the revenue requirement, cost of service, and rate design analyses for each utility, several key assumptions and findings were made. These are as follows:

- The revenue requirements were developed for each utility for a six-year period of Fiscal year, (FY) 2012 – 2017.

- The City's FY 2012 budgets were used as a starting point in developing the rate models, with 2011 actual revenue and expenses available for comparison and projection purposes.
- Customer growth was estimated to be 0.0% through FY 2014, and 0.5% through the remainder of the test period.
- All expenses are escalated for inflation, ranging between 3% and 5%. Items escalated at 5% include: benefits, chemicals, fuel, and electricity.
- Revenues at present rates were calculated for FY 2012 based on actual customer data from FY 2010 and FY 2011 and the current water and sewer rate schedules.
- The revenue requirements for each utility attempts to provide funding for the following types of reserves, as required by some of the funding sources the City plans to use for capital projects:
  - ✓ **Operating Reserve of 15% of operating expenses** – Equates to 55 days of operating expenses. The purpose of this reserve is to provide cash flow during times of low revenue flow.
  - ✓ **Rate Stabilization/Debt Service Reserves equaling 2 months of rate revenue, or required bond reserve levels** – This reserve is intended to eventually provide the equivalent of annual debt payment for long-term debt issues to guarantee principle and interest payments.
  - ✓ **R&R/CIP Reserve targeting 5% of net capital assets** – Given three measures for targeting a renewal and replacement reserve, this target is the lowest when compared with 6-year average annual capital improvements, or 1 – 2% of original asset value. The purpose of this reserve is to ensure funding for any infrastructure replacement emergencies.
- There are various financial planning measures a utility can employ to ensure funding for infrastructure replacement. HDR recommends targeting a minimum level of annual depreciation expense on an annual basis. This level of funding allows for a utility's infrastructure to be replaced as it is deteriorating over time. Depreciation expense does not reflect actual replacement costs, so depreciation expense should always be seen as a minimum level of funding for capital renewal and replacement projects.
- Funding depreciation expense through rates also helps the utilities to meet the debt service coverage ratio requirements of the bond and loan covenants.
- Four alternative funding scenarios were developed for each utility to review the impacts of various levels of depreciation funding. The final recommended rate transition plan results in neither utility achieving the minimum funding level of full depreciation expense, but the scenarios offer options to move in this direction.

Water Utility Specific Findings

Revenue Requirement Analysis

- Using two different sets of data provided by the City, the revenues at present rates developed were $70,000 lower than the actual revenue received in 2011. Therefore, it appears some customer or consumption data may be missing from the data provided. This is one reason that cost of service results should be revised to reflect more accurate customer data prior to implementing interclass adjustments, as described below. Due to the variance, and the fact that revenue has come in close to budget projections and is on target to do so in FY 2012, HDR used the total budgeted revenue as provided by the City, and

allocated it to each customer class based on the portion of revenue calculated for each customer class within the revenues at present rates.

- During FY 2012 through FY 2015 available reserves are used to help fund operating and capital funding deficiencies. By FY 2017 reserves achieve the minimum levels, as noted above.
- Scenarios 1 funds only operations, existing debt and the reserves described above.
- Scenario 2, 3, and 4 fund the USDA and SRF funded projects, plus additional projects that are projected within the Utility's 2006 Master Plan. These Scenarios differ by the level of depreciation expense they are able to fund, with Scenario 4 funding the largest amount, but still not total depreciation expense.
- An additional $600,000 of debt (low-interest loans) is needed in order to fully fund the Master Plan replacement projects in the latter part of the test period.
- The City requested a 4-year implementation/phased-in approach to funding the total revenue requirement be developed. HDR recommends the 3-year approach be implemented because it meets the SRF requirement of 1.5% rate affordability test (presented at the end of this report) and it results in lower monthly rates in the long-term, while the increases are higher in the second and third years of implementation.

A summary of the water revenue requirement analysis for Scenario 3 is provided below in Table 1.

Table 1
Summary of the Water Revenue Requirements Analysis (000's)

	Actual	Budget			Projected		
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Revenues							
Rate Revenues	$1,150	$1,174	$1,174	$1,174	$1,177	$1,180	$1,183
Miscellaneous Revenues	120	107	91	92	93	94	96
Total Revenues	**$1,270**	**$1,281**	**$1,265**	**$1,266**	**$1,270**	**$1,274**	**$1,279**
Expenses							
Operations & Maintenance	$1,009	$1,145	$1,186	$1,229	$1,274	$1,321	$1,369
Transfers	0	42	44	46	49	51	54
Capital Funded Through Rates	9	9	45	75	105	135	165
Debt Service	254	254	254	254	564	570	591
Change in Working Capital +/-	(3)	(215)	(41)	29	(52)	157	194
Total Expenses	$1,269	$1,235	$1,489	$1,634	$1,940	$2,233	$2,372
Total Revenue Requirement	**$1,269**	**$1,235**	**$1,489**	**$1,634**	**$1,940**	**$2,233**	**$2,372**
Balance/(Deficiency) of Funds		$45	($224)	($368)	($670)	($960)	($1,094)
Plus: Bad Debt (4.0% of Rate Rev.)		**$46**	**$47**	**$47**	**$47**	**$47**	**$47**
Balance/(Deficiency) with Bad Debt		**($1)**	**($271)**	**($415)**	**($717)**	**($1,007)**	**($1,141)**

It should be noted that the balance or deficiencies in any single year are cumulative; any adjustments in the initial years will reduce the deficiency in the following years. Over the six-year period, rates need to be adjusted upwards in order to adequately and properly fund the water utility operations and capital improvements. The cumulative deficiency is $1.1 million, or nearly

100% of current rate revenue. This Scenario proposes the use of reserves, shown as negative values in the change in working capital line item, to help cover deficiencies through 2015. Then the reserves are replenished by FY 2017.

Table 1 reflects Scenario 3, funding two-thirds of annual depreciation expense, rather than one-third, or almost fully funding depreciation. This scenario also allows the utility to complete the USDA and SRF loan and grant funded improvements needed, along with other needed capital improvements later in the test period, as developed within the utility's 2006 Master Plan. These projects are replacement projects to provide fire flow projection and/or for renewal of pipelines in poor condition.

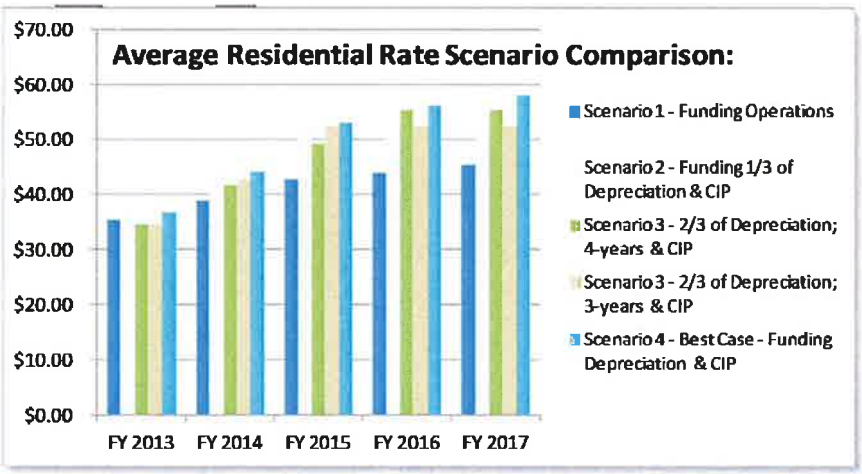
There is a four-year and a three-year implementation approach developed. The four-year implementation period provides a more gradual transition to fully funding the utility's essential operating and capital needs. However, the three-year implementation option slightly higher adjustments over a three year period, results in lower monthly rates overall, due to less use of reserves, so there is less need to replenish them in the latter part of the test period. This is presented in Table 2 below.

Table 2
Average Residential Water Bill* Adjustments – Two Options for Scenario 3

Implementation Option	Present Rate	FY 2013 July 2012	FY 2014 Jan 2014	FY 2015 Jan 2015	FY 2016 Jan 2016
Three-year Monthly Bill	**$28.25**	**$34.75**	**$42.75**	**$52.57**	**$52.57**
Monthly Bill Increase		$6.50	$8.00	$9.83	$0.00
Four-year Monthly Bill	**$28.25**	**$34.75**	**$41.70**	**$49.20**	**$55.50**
Monthly Bill Increase		$6.50	$6.95	$7.50	$6.30

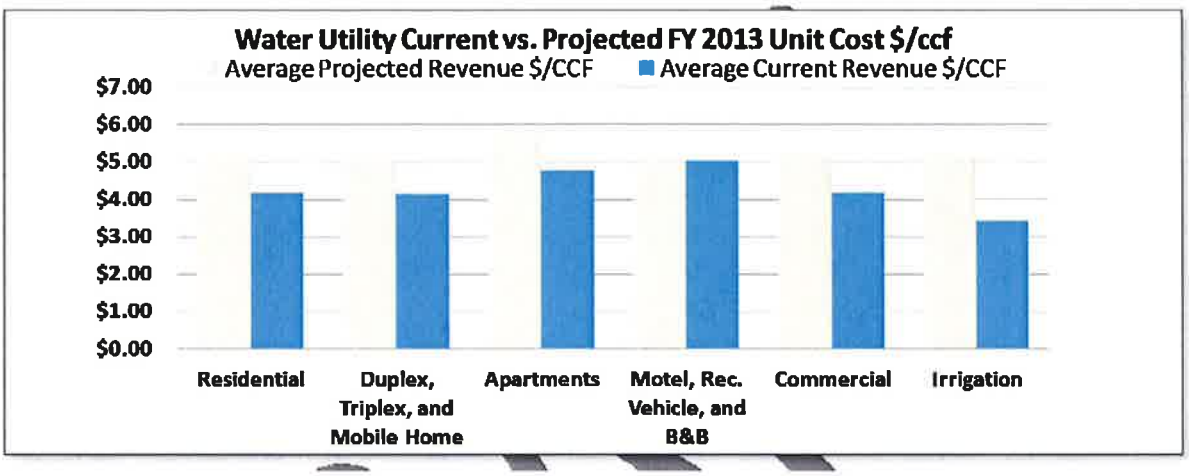
*Bill calculations assume 3/4-inch meter and 9 hundred cubic feet (ccf) of water usage, rate adjustments applied to existing rates.

It is clear that the three-year implementation option results in larger short-term increases which would minimize the average bill in the long-run while the four-year option will minimize the monthly rate increases, but increase the overall average monthly bill in the long-run. No rate adjustments are assumed for FY 2017 for either option. The figure below presents all four scenarios, with the three and four year options for Scenario 3.



Cost of Service Analysis

Cost of service results within 5%± the overall result are considered to be within cost of service. Based on the findings of the cost-of-service analyses conducted, all customer classes were within 5% of the overall results, with the exception of the motel/B7B customer class appearing to be slightly overpaying, while the irrigation customer class was slightly underpaying. With irrigation paying the rate rates by meter as other water customers, this would be expected. It is generally understood that irrigation customers contribute to demands on the system during peak periods. Therefore, they are allocated costs based on usage and peaking factors. This can be seen in the figure below.



As was noted earlier, there were concerns with the customer data HDR relied on to develop the cost of service analyses that could alter the results between customer classes. At the current time, given the level of rate adjustments required, the City's primary goal is to generate adequate revenue to fully fund operating and capital costs for the water utility, rates were therefore based on the results of the revenue requirement analysis. When cost of service interclass adjustments are implemented, rate impacts can be much greater than the overall average adjustment for some customers. Given the concerns with the cost of service analysis, and the necessary revenue adjustments, it is recommended that no cost of service adjustments be implemented at this time. It will be important to repeat a cost of service analysis in three to five years to determine if results are consistent with these cost of service results. At that time, the City can determine if the results dictate that interclass differences do exist and whether to make interclass adjustments.

Rate Design Analysis

The proposed rate designs were based on the results of the revenue requirement analysis. The water rates were designed to collect the targeted revenue as shown in the revenue requirement analysis. Rates were developed using "generally accepted" rate making methods and principles.

While designing rates, it was important to incorporate resource conservation goals that the City had in mind. Therefore, two rate designs were developed. The first rate option simply takes the existing rates and applies the necessary adjustments across the board to all customer classes and rate components.

- Two rate designs were developed for the water utility.
  - ✓ Option 1 applies the necessary adjustments to all rate components and all customer classes.
  - ✓ Option 2 adjusts the water allotment available within Tier 1 for each customer class. It also develops a third consumption Tier for the residential customer class to encourage efficient usage.

The existing and projected rate schedules are presented in the following tables.

Table 3
Present and Projected Residential Water Rates – Two Options for Scenario 3
4-year Implementation Approach

			PRESENT RATES	PROPOSED RATES July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
RESIDENTIAL								
Meter Rate	**Allotments (CCF)**							
Option 1 -								
3/4"	0 - 10		$17.45	$21.60	$26.05	$30.90	$34.85	$34.85
1"	0 - 20		34.87	$43.20	$52.10	$61.80	69.70	69.70
Option 2 -								
3/4"			$17.45	$21.60	$26.05	$30.90	$34.85	$34.85
1"			$34.87	43.20	52.10	61.80	69.70	69.70
Outside Residential (60% of Residential metered rates)								
Option 1 -								
3/4"	0 - 10		$27.92	$34.55	$41.70	$49.45	$55.75	$55.75
1"	0 - 20		55.79	69.10	83.35	98.90	111.50	111.50
Option 2 -								
3/4"			$27.92	$34.55	$41.70	$49.45	$55.75	$55.75
1"			55.79	69.10	83.35	98.90	111.50	111.50
Consumption (per ccf)	**Allotments (CCF)**							
Option 1 -	0 - 10							
Tier 1	0 - 20		$1.20	$1.40	$1.68	$1.98	$2.23	$2.23
Tier 2			2.98	3.47	4.17	4.91	5.54	5.54
Option 2 -	3/4" Meter	1" Meter						
Tier 1	0 - 6	0 - 12	N/A	$1.20	$1.44	$1.70	$1.92	$1.92
Tier 2	7 - 12	13 - 24	N/A	2.10	2.52	2.98	3.36	3.36
Tier 3	Over 12	Over 24	N/A	3.72	4.46	5.27	5.94	5.94

Recommended Water Rates

Given the City's goal of providing a conservation incentive for its customers, Option 2 rates would appear to better meet that goal by lowering the Tier 1 allotment for each customer class, and provide the residential class with a third consumption Tier. Within both rate options, each customer class generates the appropriate level of revenue expected from that class of service, based on the revenue currently generated by each class of service. As noted previously, two rate transition plans were developed, a three-year and a four-year plan. The three year meets the SRF financial affordability test sooner, and results in lower rates in the long-run. However, the City requested that a four-year implementation plan be developed. Those rates are presented below. The City will need to determine whether to implement over a three or four-year period.

Table 4
Present and Projected Multi-unit and Commercial Water Rates
Two Options for Scenario 3, 4-year Implementation

			PRESENT RATES	PROPOSED RATES July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
DUPLEX and MOBILE HOME								
Meter Rate	**Allotments (CCF)**							
each unit	0 - 8		$13.08	$16.20	$19.55	$23.15	$26.15	$26.15
Consumption (per ccf)	**Previous**	**New**						
Tier 1 each unit	0 - 8	0 - 5	$1.20	$1.40	$1.68	$1.98	$2.23	$2.23
Tier 2 each unit	> 8	> 5	2.98	3.47	4.17	4.91	5.54	5.54
APARTMENTS								
Meter Rate	**Allotments (CCF)**							
each unit	0 - 6		$10.47	$12.95	$15.65	$18.55	$20.90	$20.90
Consumption (per ccf)	**Previous**	**New**						
Tier 1 each unit	0 - 6	0 - 3	$1.20	$1.40	$1.68	$1.98	$2.23	$2.23
Tier 2 each unit	> 6	> 3	2.98	3.47	4.17	4.91	5.54	5.54
MOTEL and BED & BREAKFAST								
Meter Rate	**Allotments (CCF; each unit**							
	Previous	**New**						
per room w.o kitchen (5ccf)	0 - 5	0 - 3	$8.73	$10.80	$13.05	$15.45	$17.45	$17.45
per room w kitchen (6ccf)	0 - 6	0 - 4	$10.47	$12.95	$15.65	$18.55	$20.90	$20.90
Consumption (per ccf)								
Tier 1			$1.20	$1.40	$1.68	$1.98	$2.23	$2.23
Tier 2			2.98	3.47	4.17	4.91	5.54	5.54
COMMERCIAL & IRRIGATION								
Meter Rate	**Allotments (CCF; each unit**							
	Previous	**New**						
3/4"	0 - 10	0 - 6	$17.45	$21.60	$26.05	$30.90	$34.85	$34.85
1"	0 - 20	0 - 12	34.87	43.20	52.10	61.80	69.70	69.70
1.5"	0 - 40	0 - 24	72.64	89.90	108.45	128.65	145.10	145.10
2"	0 - 60	0 - 36	104.60	129.50	156.15	185.20	208.90	208.90
3"	0 - 120	0 - 72	209.31	259.10	312.45	370.65	418.10	418.10
4"	0 - 200	0 - 120	348.86	431.85	520.80	617.75	696.80	696.80
6"	0 - 385	0 - 230	671.47	831.15	1,002.40	1,189.00	1,341.20	1,341.20
Consumption (per ccf)								
Tier 1			$1.20	$1.40	$1.68	$1.98	$2.23	$2.23
Tier 2			2.98	3.47	4.17	4.91	5.54	5.54

Sewer Utility Specific Findings

The sewer utility rate study process was very similar to the water utility rate process.

Revenue Requirement Analysis

The findings of the sewer revenue requirement analysis are provided below.

- Using two different sets of data provided by the City, the revenues at present rates developed were $40,000 lower than the budgeted revenue for FY 2012. Because YTD revenue is tracking close to the FY 2012 budgeted revenue, and that is also close to the FY 2011 actual revenue, HDR used the FY 2012 budgeted revenue as a base for projections, and allocated it to each customer class based on the portion of revenue calculated for each customer class within the revenues at present rates.
- Similar to the water utility, between FY 2012 and FY 2015 operating reserves are used to help cover operating and capital funding deficiencies. By FY 2017 all reserves achieve the minimum levels, as described earlier.
- Scenarios 1 funds only operations, existing debt and the reserves described above.
- Scenario 2, 3, and 4 fund the USDA funded projects, plus additional projects that are projected within the utility's last Master Plan. These Scenarios differ by the level of depreciation expense they are able to fund, with Scenario 4 funding the largest amount, but still not total depreciation expense. FY 2011 depreciation was $627,000 and Scenario 4 gradually achieves approximately 50% of depreciation expense funding, or a maximum of $350,000 by FY 2017.
- Funding depreciation expense from rates also helps the utility to meet the debt service coverage ratio requirements.
- An additional $1.5 million of debt (assumed low-interest loans) is needed in order to complete the Master Plan capital projects including replacement and parallel projects and the Inflow and Infiltration (I/I) project improvements in the latter part of the test period.
- The City's goal in designing rates is to have the same service charge throughout the City for each customer class. HDR developed a rate design that phases-in this goal over a three year period.

A summary of the sewer revenue requirement analysis for Scenario 3 is provided below in Table 5.

Table 5 Summary of the Sewer Revenue Requirements Analysis (000's)						
	Budget		Projected			
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Rate Revenues	$1,505	$1,505	$1,505	$1,508	$1,512	$1,516
Miscellaneous Revenues	194	194	194	195	196	196
Total Revenues	**$1,699**	**$1,698**	**$1,699**	**$1,703**	**$1,708**	**$1,712**
Expenses						
Operations & Maintenance	$1,473	$1,526	$1,582	$1,640	$1,701	$1,763
Transfers	135	137	140	142	145	147
Capital Funded Through Rates	40	64	110	155	185	235
Debt Service	187	190	188	312	341	376
Change in Working Capital +/-	(201)	52	116	166	249	197
Total Expenses	$1,634	$1,970	$2,135	$2,415	$2,621	$2,719
Total Revenue Requirement	**$1,634**	**$1,970**	**$2,135**	**$2,415**	**$2,621**	**$2,719**
Balance/(Deficiency) of Funds	$64	($271)	($437)	($713)	($914)	($1,006)
Plus: Bad Debt (4.0% of Rate Rev.)	**$58**	**$60**	**$60**	**$60**	**$60**	**$60**
Balance/(Deficiency) with Bad Debt	**$7**	**($331)**	**($497)**	**($773)**	**($974)**	**($1,067)**

Again, the deficiencies are cumulative. Any rate adjustments made in the earlier years reduce the overall deficiency. Over the six-year period, rates need to be adjusted upwards in order to adequately and properly fund the sewer utility operations and capital improvements. The cumulative deficiency is just under $1.1 million with the bad debt (unpaid bills) included. This Scenario (3) proposes the use of operating reserves to help cover deficiencies through FY 2015. Then the operating reserves are replenished by FY 2017. Through the entire test period, the other reserves are gradually funded.

The results in Table 4 reflect Scenario 3, funding two-thirds of annual depreciation expense. This scenario also allows the utility to complete the USDA loan funded improvements needed, along with other needed capital improvements later in the test period, as developed within the utility's latest Master Plan. These are the replacement and parallel projects, along with the I/I reduction projects.

Similar to the water rate transition plan, a three-year and a four-year implementation approach has been developed. The four-year implementation period provides a more gradual transition to fully funding the utility's necessary operating and capital needs. However, the three-year implementation option with slightly higher adjustments over a three year period, results in lower monthly rates over the long-term. This is due to less need to replenish reserves because the rates are more fully funding the operating and capital costs in each year. This is presented in Table 6 below.

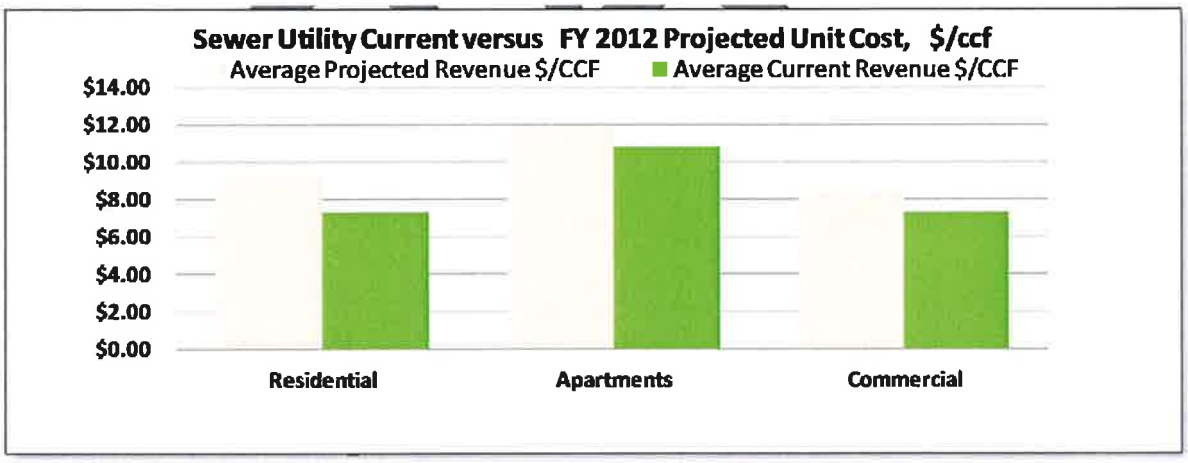
Table 6 Average Residential Sewer Bill* Adjustments – Two Options for Scenario 3					
Implementation Option	**Present Rate**	**FY 2013** July 2012	**FY 2014** Jan 2014	**FY 2015** Jan 2015	**FY 2016** Jan 2016
Three-year, Monthly Bill	**$46.79**	**$56.50**	**$65.10**	**$73.65**	**$73.65**
Monthly Bill Increase		$9.71	$8.60	$8.55	$0.00
Four-year, Monthly Bill	**$46.79**	**$56.50**	**$65.65**	**$71.00**	**$76.35**
Monthly Bill Increase		$9.71	$9.15	$5.35	$5.35

*Bill calculations assume 3/4-inch meter and 9 hundred cubic feet (ccf) of water usage.

The three-year implementation option has short-term pain in FY 2015 for long term gain with overall rates lower each month in the long-run. No rate adjustments are assumed for FY 2017 for either option.

Cost of Service Analysis

Cost of service results within 5%± the overall adjustment needed are considered to be within cost of service. Based upon the findings of the cost-of-service analyses conducted, two of the three customer classes were within 5% of the overall results, with the exception of the apartment customer class. They appear to be slightly overpaying. This can be seen in the figure below, where the differential between projected revenue and current revenue is less than the other two customer classes.



As was noted earlier, there were concerns with the accuracy of the data used to develop the cost of service analysis that could alter the results between customer classes. With the City's primary goal to generate adequate revenue to fully fund operating and capital costs, rates were therefore based on the results of the revenue requirement analysis. When cost of service interclass adjustments are implemented, rate impacts can be much greater than the overall average adjustment. Because the revenue requirement deficiencies are significant, it was determined the best course of action is to generate adequate revenue for the utility at this time. The cost of service represents usage and customer characteristics of a certain point in time. It is

important to repeat cost of service analyses every three to five years to determine if results are consistent. At that time, the City can determine if interclass differences do exist.

Rate Design Analysis

Rate design, was therefore, based upon the results of the revenue requirement analysis. Cost-based rates were designed to collect the targeted revenue as shown in the revenue requirement analysis. Rates were developed using "generally accepted" rate making methods and principles.

The City's primary rate design goal was to bring customer throughout the City into the same rate schedule. This can ease customer understanding and rate administration. Therefore, two rate designs were developed. The first rate option simply takes the existing rates and applies the necessary adjustments across the board to all customer classes and rate components.

- Two rate designs were developed for the utility.
  - ✓ Option 1 applies the necessary adjustments to all rate components and all customer classes
  - ✓ Option 2 over a three year period rates move closer together for the north and south customers. By FY 2015 all customers within each customer class are paying the same rate as customers throughout the City's service area.

The existing and Option 1 rate schedules are presented below. Option 1 applies the necessary adjustments to existing rates to generate adequate revenue each year.

Table 7
Sewer Utility Present and Projected Option 1 Rates (Existing Rate Design)
Four-year Implementation

	PRESENT RATES	OPTION 1 - PROPOSED RATES				
		July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
RESIDENTIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$52.70	$60.50	$65.60	$70.50	$70.50
South Customers	$46.79	$57.10	$67.40	$74.15	$79.70	$79.70
APARTMENTS						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$26.57	$41.90	$47.75	$51.60	$55.45	$55.45
South Customers	$36.05	$44.00	$51.90	$57.10	$61.40	$61.40
COMMERCIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$52.70	$60.50	$65.60	$70.50	$70.50
South Customers	$46.79	$57.10	$67.40	$74.15	$79.70	$79.70
Consumption (per ccf)						
0 - 8 CCF	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Above 8 CCF	5.36	6.54	7.72	8.49	9.13	9.13

*Includes $9.50/month payment for Basin 2000.

The rates in Table 8 below present Option 2 rates, showing the three-year transition of rates for the north and south areas gradually merging into the same rate City-wide, by customer class, by

FY 2015. Again, the four-year implementation time period is presented, as requested by City staff.

Table 8
Sewer Utility Present and Projected Rates – Option 2;
Four year Implementation

	PRESENT RATES	PROPOSED RATES July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
RESIDENTIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$53.90	$62.90	$71.00	$76.35	$76.35
South Customers	$46.79	$56.50	$65.65	$71.00	$76.35	$76.35
APARTMENTS						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$26.57	$43.17	$50.25	$55.10	$59.25	$59.25
South Customers	$36.05	$43.50	$50.75	$55.10	$59.25	$59.25
COMMERCIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$53.90	$62.90	$71.00	$76.35	$76.35
South Customers	$46.79	$56.50	$65.65	$71.00	$76.35	$76.35
Consumption (per ccf)						
0 - 8 CCF	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Above 8 CCF	5.36	6.54	7.72	8.49	9.13	9.13

*Includes $9.50/month payment for Basin 2000.

Affordability

The City of Lakeport is designated as a disadvantaged community. As such, it is eligible for more grant funding and lower interest loans for some capital projects, especially if rates begin to reach an affordability level. Various government agencies consider individual utility rates between 1.5% and 2.5% of the median household income to be an affordability issue. This level of rate typically qualifies a jurisdiction for better capital project funding. For example, if the water rate is 1.5% of the median household income, the City can qualify for the SRF project funding. In this case, it would be advantageous to the City's water customers to implement the 3-year rate implementation because once the debt payments for the projects begin the rate has reached the 1.5% affordability level, as shown below.

Additional advantages of this approach include the average residential rate remaining almost $3.00/month lower for more than one year than with the four-year implementation option. Other customer classes would also have similar lower rates with the three-year implementation option.

City of Lakeport
Review of Utility Rate Affordability

		Range of Affordability		
		1.50%	2.00%	2.50%
Median Household Income	$41,064			
Annual Bill at Affordability Limit		$615.96	$821.28	$1,026.60
Monthly Bill at Affordability Limit		$51.33	$68.44	$85.55
Water Utility - 4-year rate adjustment scenario				
Residential rate: 3/4" meter, 9 ccf usage: 2011 was $28.25				
Rate - FY 2013	**$34.75**	Pass	Pass	Pass
Percentage of median household income	**1.02%**			
Rate - FY 2014	**$41.70**	Pass	Pass	Pass
Percentage of median household income	**1.22%**			
Rate - FY 2015	**$49.21**	Pass	Pass	Pass
Percentage of median household income	**1.44%**			
Rate - FY 2016	**$55.50**	Fail	Pass	Pass
Percentage of median household income	**1.62%**			
Water Utility - 3-year rate adjustment scenario				
Residential rate: 3/4" meter, 9 ccf usage: 2011 was $28.25				
Rate - FY 2013	**$34.75**	Pass	Pass	Pass
Percentage of median household income	**1.02%**			
Rate - FY 2014	**$42.74**	Pass	Pass	Pass
Percentage of median household income	**1.25%**			
Rate - FY 2015	**$52.57**	Fail	Pass	Pass
Percentage of median household income	**1.54%**			
Rate - FY 2016	**$52.57**	Fail	Pass	Pass
Percentage of median household income	**1.54%**			

The City provided the median household income. No adjustment or increase was made to the median household income in calculating the percentage of household income in future years.

For sewer, it is a similar issue, though the City's sewer existing rates are already at 1.4% of median household income. All rate adjustment scenarios meet the 1.5% test and in the last two years (FY 2015 and 2016) the rates will meet the 2% affordability test, as shown below.

City of Lakeport
Review of Utility Rate Affordability

		Range of Affordability		
		1.50%	2.00%	2.50%
Median Household Income	$41,064			
Annual Bill at Affordability Limit		$615.96	$821.28	$1,026.60
Monthly Bill at Affordability Limit		$51.33	$68.44	$85.55
Sewer Utility - 3-year rate adjustment scenario				
Residential rate: Southside Customer - 2011 was $46.79				
Rate - FY 2013	**$57.08**	Fail	Pass	Pass
Percentage of median household income	**1.67%**			
Rate - FY 2014	**$67.36**	Fail	Pass	Pass
Percentage of median household income	**1.97%**			
Rate - FY 2015	**$78.47**	Fail	Fail	Pass
Percentage of median household income	**2.29%**			
Rate - FY 2016	**$78.47**	Fail	Fail	Pass
Percentage of median household income	**2.29%**			
Sewer Utility - 4-year rate adjustment scenario				
Residential rate: Southside Customer - 2011 was $46.79				
Rate - FY 2013	**$57.08**	Fail	Pass	Pass
Percentage of median household income	**1.67%**			
Rate - FY 2014	**$67.36**	Fail	Pass	Pass
Percentage of median household income	**1.97%**			
Rate - FY 2015	**$74.09**	Fail	Fail	Pass
Percentage of median household income	**2.17%**			
Rate - FY 2016	**$79.65**	Fail	Fail	Pass
Percentage of median household income	**2.33%**			

In these circumstances, when rates fail the affordability tests, one rate option some utilities implement is a low-income senior/disabled rate which is discounted from the regular utility rate. Discounts typically range from 15% to 75% reduction. This provides some rate relief to those most in need. The ways to implement such a rate are many. Funding can be from customer donations, social service agencies, general fund, etc. By implementing Option 2 rates for the water customers, with lower rates in the lower use Tiers, the rate structure itself gives low water users a way to keep their bills lower. Low-income seniors typically fit a low water use profile. For sewer customers, because the rate is a flat rate for residential customers, as the rates increase, a discount for low-income/fixed income households may become more important. Should the City decide to pursue this rate option, HDR can provide rate alternatives for consideration.

Summary

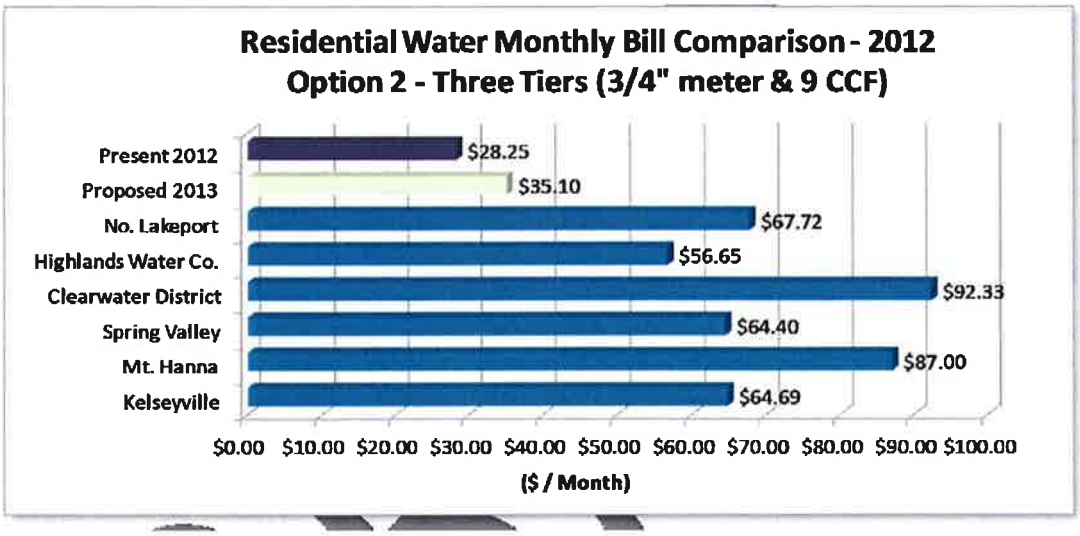
These rate studies were developed using "generally accepting" accounting and rate-setting principles and guidelines. The results of the rate studies for both utilities indicate that each utility is significantly deficient for the projected time period reviewed, through FY 2017. Rates are based on revenue requirement results, not implementing any cost of service adjustments at this time. A cost of service analysis should be repeated in three to five years to determine if any interclass differences exist.

All rate implementation scenarios, except Scenario 1, transition the utilities into a more sustainable operating environment of prudent management, where current rate revenue can support current operations as well as certain levels of needed capital improvements. That level of support varies by Scenario. Scenarios 3 and 4 help the utilities move to a position where the utilities' infrastructure can be maintained and managed in a prudent and proper way to allow the utilities to continue to provide the services into the future, by maintaining the infrastructure and facilities that provide these services in an on-going process.

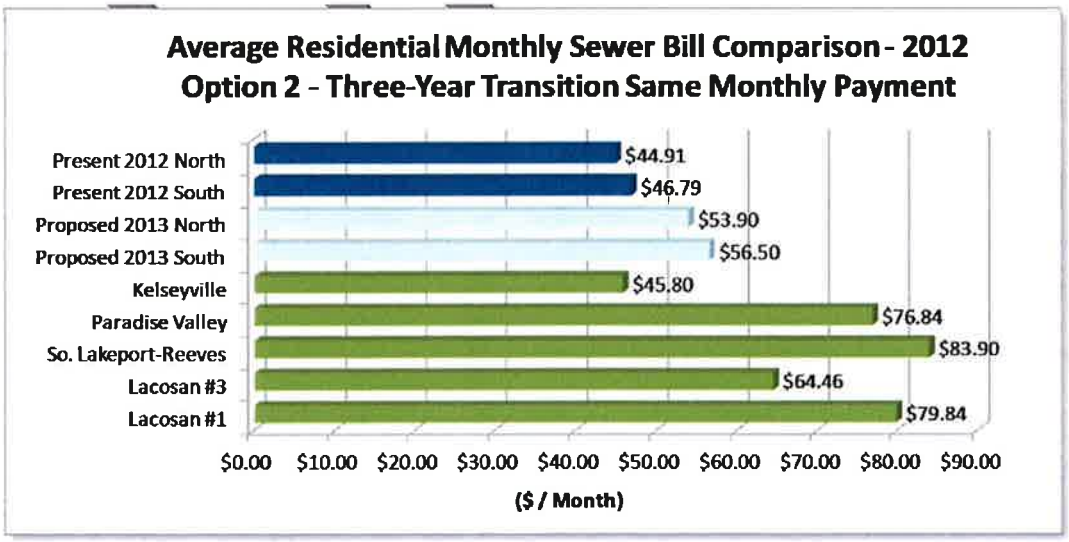
The implementation of the Scenario 3, Option 2 proposed rate adjustments should generate the additional revenue needed to meet each utility's operating and capital needs, along with the financial test requirements of the capital project funding agencies. These rate options also bring more equity to all customers in the sewer utility, and provide a stronger conservation signal for the water utility rates, along with the flexibility to manage ones utility bill. For the water utility, either the three-year implementation option for Scenario 3 or Scenario 4 is needed to meet the SRF funding agency requirement of rates at 1.5% of median household income.

Rate Comparison

A rate comparison was requested by the City. It is important to remember, when viewing bill comparisons with other utilities that rate comparisons are often like comparing apples and oranges. Each utility has different operating characteristics, procedures, customer mix, regulatory requirements, governing board decision making policies and practices, and so on. There is also no information collected about when these utilities last updated their rates. However, sometimes a view of rate comparisons can provide perspective of one utility's rates compared to others. The distinguishing operating and infrastructure condition factors must be considered as well. Provided below are comparisons of the City's current and proposed FY 2013 rates with FY 2012 rates of several surrounding utilities.



The rate comparison for sewer utilities is provided below, using Option 2 rates.



City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 1
SUMMARY OF THE REVENUE REQUIREMENT

	Actual FY 2011	Budget FY 2012	Projected FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Revenues							
Rate Revenues	$1,439,606	$1,504,600	$1,504,600	$1,504,600	$1,508,362	$1,512,132	$1,515,913
Miscellaneous Revenues	233,458	194,059	193,744	193,930	194,503	195,593	196,399
Total Revenues	$1,673,064	$1,698,659	$1,698,344	$1,698,530	$1,702,865	$1,707,725	$1,712,311
Expenses							
Operations and Maintenance Expense	$1,295,246	$1,472,770	$1,526,496	$1,582,311	$1,640,301	$1,700,557	$1,763,173
Transfers	$93,348	$135,000	$137,250	$139,613	$142,093	$144,698	$147,433
Capital Funded Through Rates	15,500	40,200	63,896	110,000	155,000	185,000	235,000
Debt Service	189,460	187,260	189,960	187,560	311,785	341,494	375,582
Change in Working Capital +/-	0	(200,919)	51,930	115,828	166,317	247,865	197,427
Total Expenses	$1,593,554	$1,634,311	$1,969,532	$2,135,311	$2,415,496	$2,619,614	$2,718,615
Total Revenue Requirement	**$1,593,554**	**$1,634,311**	**$1,969,532**	**$2,135,311**	**$2,415,496**	**$2,619,614**	**$2,718,615**
Balance/(Deficiency) of Funds	$79,510	$64,348	($271,188)	($436,782)	($712,632)	($911,889)	($1,006,303)
Increase as a % of Present Rate Revenues	-5.5%	-4.3%	18.0%	29.0%	47.2%	60.3%	66.4%
Plus: Bad Debt (at 4.0% per year)	**$0**	**$57,584**	**$60,184**	**$60,184**	**$60,184**	**$60,334**	**$60,485**
Balance/(Deficiency) Includeing Bad Debt	**$107,253**	**$6,764**	**($331,372)**	**($496,966)**	**($772,816)**	**($972,224)**	**($1,066,789)**
Increase as a % of Pres. Rates with Bad Debt	**-7.5%**	**-0.4%**	**22.0%**	**33.0%**	**51.2%**	**64.3%**	**70.4%**
Proposed Rate Adjustments	**0.0%**	**0.0%**	**22.0%**	**18.0%**	**10.0%**	**7.5%**	**0.0%**
Additional Revenue from Adjustment	**$0**	**$0**	**$331,012**	**$496,217**	**$771,648**	**$972,216**	**$1,064,666**
Total Balance/(Deficiency) of Funds	**$107,253**	**$6,764**	**($360)**	**($749)**	**($1,168)**	**($8)**	**($2,122)**
Additional Rate Adjustment Required	**7.5%**	**0.4%**	**0.0%**	**0.0%**	**-0.1%**	**0.0%**	**-0.1%**
Average Residential Rate - $/ Month		**$46.79** (South Residential Customer)					
After CPI Rate Adjustment - January 1st implementation		$46.79	$46.79	$57.08	$67.36	$74.09	$79.65
After Proposed Rate Adjustment - January 1st implementation		$46.79	$57.08	$67.36	$74.09	$79.65	$79.65
Monthly $ Difference		$0.00	$10.29	$10.28	$6.74	$5.56	$0.00
Debt Service Coverage Ratio							
Before Rate Adjustment	2.14	1.21	0.90	0.62	0.20	0.02	0.00
After Proposed Rate Adjustment	2.14	1.21	2.65	3.27	2.68	2.87	2.70

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 2
ESCALATION FACTORS

	Actual FY 2011	Budget FY 2012	Projected FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	*Notes*
Rate Implemenation Date								
Current Rates	N/A	N/A	1	2	2	2	2	1=July FY; 2=Jan FY
Proposed Rates	N/A	N/A	1	2	2	2	2	1=July FY; 2=Jan FY
Revenues								
Rate Revenues [1]	Actual	Budget	0.0%	0.0%	0.0%	0.0%	0.0%	
Miscellaneous Revenues	Actual	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Growth	Actual	0.0%	0.0%	0.0%	0.5%	0.5%	0.5%	
Expenses								
Labor	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Benefits	Actual	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Materials & Supplies	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Chemicals	Actual	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Fuel	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Equipment	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Energy	Actual	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Utilities	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Miscellaneous	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Transfers	Actual	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Bad Debt	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
Interest	Actual	0.4%	0.4%	0.5%	0.8%	1.0%	1.0%	
Current USDA Loan								
Year	40	40	40	40	40	40	40	
Interest Rate	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	
Future USDA Loan								
Year	40	40	40	40	40	40	40	
Interest Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	

Notes:
[1] Based on the third quarter reporting period San Francisco Bay CPI

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 3
SOURCES AND APPLICATIONS OF FUNDS

	Actual	Budget	Projected					
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	*Notes:*
REVENUES								
Rate Revenues [2] [3]								
Residential	$869,538	$908,795	$908,795	$908,795	$911,067	$913,345	$915,629	As Rate Revenues [1]
Apartments	66,475	69,476	69,476	69,476	69,650	69,824	69,999	As Rate Revenues [1]
Commercial	503,593	526,328	526,328	526,328	527,644	528,963	530,286	As Rate Revenues [1]
Total Rate Revenues	$1,439,606	$1,504,600	$1,504,600	$1,504,600	$1,508,362	$1,512,132	$1,515,913	
Other Revenues								
CLMSD Basin 2000	$93,348	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	As Flat
CLMSD M&O Tax	1,237	1,249	1,262	1,274	1,287	1,300	1,313	As Miscellaneous Revenues
County Service	108,314	75,000	75,000	75,000	75,000	75,000	75,000	As Rate Revenues [1]
Property Leases	30,000	25,000	25,250	25,503	25,758	26,015	26,275	As Miscellaneous Revenues
Connection Charge	0	1,000	1,010	1,020	1,030	1,041	1,051	As Miscellaneous Revenues
Miscellaneous Fees	0	100	101	102	103	104	105	As Miscellaneous Revenues
Interest Income	559	1,710	1,121	1,031	1,325	2,133	2,654	Calculated
Total Other Revenues	$233,458	$194,059	$193,744	$193,930	$194,503	$195,593	$196,399	
Transfers: In	$27,743	$0	$0	$0	$0	$0	$0	
TOTAL REVENUES	**$1,700,807**	**$1,698,659**	**$1,698,344**	**$1,698,530**	**$1,702,865**	**$1,707,725**	**$1,712,311**	

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 3
SOURCES AND APPLICATIONS OF FUNDS

	Actual	Budget	Projected					
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	*Notes:*
OPERATIONS AND MAINTENANCE EXPENSE								
Sewer Utility (601)								
Salaries [4]	$471,791	$421,430	$434,073	$447,095	$460,508	$474,324	$488,553	As Labor
Benefits	299,522	267,551	280,928	294,975	309,723	325,209	341,470	As Benefits
Materials and Supplies	334,042	355,777	366,451	377,444	388,767	400,430	412,443	As Materials & Supplies
Treatment Chemicals	0	18,000	18,900	19,845	20,837	21,879	22,973	As Chemicals
Fuel	0	16,175	16,660	17,160	17,675	18,205	18,751	As Fuel
Energy	0	191,590	201,170	211,228	221,789	232,879	244,523	As Energy
Travel and Training	5,095	5,427	5,589	5,757	5,930	6,108	6,291	As Miscellaneous
Other [5]	184,796	196,820	202,725	208,807	215,071	221,523	228,169	As Miscellaneous
Total Sewer Utility (601)	$1,295,246	$1,472,770	$1,526,496	$1,582,311	$1,640,301	$1,700,557	$1,763,173	
TOTAL O&M EXPENSES	**$1,295,246**	**$1,472,770**	**$1,526,496**	**$1,582,311**	**$1,640,301**	**$1,700,557**	**$1,763,173**	
Transfers								
Transfer Out	$0	$45,000	$47,250	$49,613	$52,093	$54,698	$57,433	As Transfers
Basin 2000	93,348	90,000	90,000	90,000	90,000	90,000	90,000	As Flat
Total Transfers	$93,348	$135,000	$137,250	$139,613	$142,093	$144,698	$147,433	
CAPITAL FUNDED THROUGH RATES (Exh. 4)	**$15,500**	**$40,200**	**$63,896**	**$110,000**	**$155,000**	**$185,000**	**$235,000**	Approx. Deprec. $627K for FY '11
Debt Service								
CSCDA Wastewater Revenue bonds Series 2007A	$189,460	$187,260	$189,960	$187,560	$190,060	$187,460	$189,760	Debt Service Schedule
USDA Loan [6]	0	0	0	0	121,725	121,725	121,725	Calculated at 40 years; 2.2%
New Debt Service	0	0	0	0	0	32,309	64,097	Calculated at 40 years; 3%
Total Debt Service	$189,460	$187,260	$189,960	$187,560	$311,785	$341,494	$375,582	
Change in Working Capital +/-								
Transfers To - CLMSD Utility M&O Fund (601)	$0	($200,919)	($93,570)	($54,672)	($4,183)	$77,365	$26,927	
Transfers To - Rate Stabilization/Debt Service Reserve	0	0	29,000	54,000	54,000	54,000	54,000	
Transfers To - R&R/CIP Reserve	0	0	116,500	116,500	116,500	116,500	116,500	
Total Transfers to Reserves	$0	($200,919)	$51,930	$115,828	$166,317	$247,865	$197,427	

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 3
SOURCES AND APPLICATIONS OF FUNDS

	Actual FY 2011	Budget FY 2012	Projected FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Notes:
TOTAL REVENUE REQUIREMENT	$1,593,554	$1,634,311	$1,969,532	$2,135,311	$2,415,496	$2,619,614	$2,718,615	
Balance/(Deficiency) of Funds	$107,253	$64,348	($271,188)	($436,782)	($712,632)	($911,889)	($1,006,303)	
Increase as a % of Present Rate Revenues	-7.5%	-4.3%	18.0%	29.0%	47.2%	60.3%	66.4%	
Plus: Bad Debt (at 4.0% per year)	**$0**	**$57,584**	**$60,184**	**$60,184**	**$60,184**	**$60,334**	**$60,485**	As Bad Debt
Balance/(Deficiency) Includeing Bad Debt	**$107,253**	**$6,764**	**($331,372)**	**($496,966)**	**($772,816)**	**($972,224)**	**($1,066,789)**	
Increase as a % of Pres. Rates with Bad Debt	**-7.5%**	**-0.4%**	**22.0%**	**33.0%**	**51.2%**	**64.3%**	**70.4%**	
			July 1st 2012	Jan 1st 2014	Jan 1st 2015	Jan 1st 2016	Jan 1st 2017	
Proposed Rate Adjustment [7]	**0.0%**	**0.0%**	**22.0%**	**18.0%**	**10.0%**	**7.5%**	**0.0%**	
Additional Revenue from Rate Increase	**$0**	**$0**	**$331,012**	**$496,217**	**$771,648**	**$972,216**	**$1,064,666**	
Balance/Deficiency of Funds	**$107,253**	**$6,764**	**($360)**	**($749)**	**($1,168)**	**($8)**	**($2,122)**	
Deficiency as a % of Rate Revenues	**-7.5%**	**-0.4%**	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.1%**	

Notes:
[1] CPI increases are applied to expenses, if CPI exceeds the 3% for general expenses and fuel and 5% for chemicals and electric costs per the third quarter reporting period San Fancisco Bay CPI, then CPI can be adjusted.
[2] Rate adjustment is implemented January 1st each year.
[3] Projected rate revenues include growth.
[4] Salaries and Benefits were combined in the 2011 Actuals report and 2012 budget. Each sum was separtated based on the 2011 financial statement salaries and benefits split.
[5] Includes Property Tax Assestments.
[6] Estimated for payments to begin after project is completed.
[7] FY 2013 adjustment includes last adjustment of Resolution No. 2308 (2007).

Average Residential Rate - $/ Month		$46.79	(South Residential Customer)					
After CPI Rate Adjustment - January 1st implementation		$46.79	$46.79	$57.08	$67.36	$74.09	$79.65	
After Proposed Rate Adjustment - January 1st implementation		$46.79	$57.08	$67.36	$74.09	$79.65	$79.65	
Monthly $ Difference		$0.00	$10.29	$10.28	$6.74	$5.56	$0.00	
Debt Service Coverage Ratio								
Before Rate Adjustment	2.14	1.21	0.90	0.62	0.20	0.02	0.00	Minimum 1.25
After Proposed Rate Adjustment	2.14	1.21	2.65	3.27	2.68	2.87	2.70	Minimum 1.25

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 3
SOURCES AND APPLICATIONS OF FUNDS

	Actual FY 2011	Budget FY 2012	Projected FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Notes:
CLMSD Utility M&O Fund (601)								
Beginning Fund Balance	$527,925	$527,925	$327,006	$233,436	$178,764	$174,582	$251,947	
Plus: To Operating Reserve	0	(200,919)	(93,570)	(54,672)	(4,183)	77,365	26,927	
Transfers to Capital Reserve	0	0	0	0	0	0	0	
Less: Capital From Rates	0	0	0	0	0	0	0	
Ending Reserve Balance	$527,925	$327,006	$233,436	$178,764	$174,582	$251,947	$278,875	
Target Reserve = 15% Operating Expenses	*$194,000*	*$221,000*	*$229,000*	*$237,000*	*$246,000*	*$255,000*	*$264,000*	
Rate Stabilization/Debt Service Reserve								
Beginning Fund Balance	$0	$0	$0	$29,000	$83,420	$138,524	$194,179	
Transfer In from Operations	0	0	29,000	54,000	54,000	54,000	54,000	
Interest Earnings	0	0	0	420	1,104	1,655	0	
Use of Reserves	0	0	0	0	0	0	0	
Ending Reserve Balance	$0	$0	$29,000	$83,420	$138,524	$194,179	$248,179	
Target Reserve = 2 Months of Rate Revenue	*$237,000*	*$247,000*	*$247,000*	*$247,000*	*$248,000*	*$249,000*	*$249,000*	
R&R/CIP Reserve								
Beginning Fund Balance	$0	$0	$0	$116,500	$234,311	$353,736	$474,356	
Transfer In from Operations	0	0	116,500	116,500	116,500	116,500	116,500	
Interest Earnings	0	0	0	1,311	2,926	4,120	0	
Use of Reserves	0	0	0	0	0	0	0	
Ending Reserve Balance	$0	$0	$116,500	$234,311	$353,736	$474,356	$590,856	
Target Reserve = 5% of Capital Assets [1]	*$586,000*	*$586,000*	*$586,000*	*$586,000*	*$586,000*	*$586,000*	*$586,000*	
Total Cash Reserves	**$527,925**	**$327,006**	**$378,936**	**$496,495**	**$666,842**	**$920,483**	**$1,117,910**	
Total Target Cash Reserves	$1,017,000	$1,054,000	$1,062,000	$1,070,000	$1,080,000	$1,090,000	$1,099,000	
Balance/(Deficiency) of Reserves	($489,075)	($726,994)	($683,064)	($573,505)	($413,158)	($169,517)	$18,910	
CLMSD Expansion Fund (602)								
Beginning Fund Balance	$454,290	$446,087	$437,852	$430,016	$423,203	$417,385	$411,509	
Capital Outlay/CIP (Fund 602)	0	0	0	0	0	0	0	
Revenue (Interest Earnings)	1,797	1,764	2,164	3,188	4,182	4,124	0	
CLMSD Service Fee	10,000	10,000	10,000	10,000	10,000	10,000	10,000	
Ending Fund Balance	$446,087	$437,852	$430,016	$423,203	$417,385	$411,509	$401,509	

[1] Capital Assets, Net of Depreciation, from the City's Statement of Net Assets, Year-Ended June 30, 2011, page 21.

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 4
CAPITAL IMPROVEMENT PROJECTS

	Actual FY 2011	Budget FY 2012	Projected FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Total	Notes
Capital Improvement Program									
USDA Projects									
Main Street Sewer Replacement									
Lift Station Radio Telemetry and SCADA Improve.									
I&I Reduction Program									
Clearlake Lift Station Replacement									
Treatment Plant - Repair Aeration Basin & Remove Sludge									
Total Projects in USDA Loan	$0	$0	$1,594,200	$1,594,200	$0	$0	$0	$3,188,400	
Miscellaneous Projects									
Treatment Plant - Inspect & Clean Chlorine Gas System	$0	$0	$0	$0	$0	$0	$80,000		
Treatment Plant - Modify Recycle Pump Station No. 1	0	0	0	25,000	0	0	0		
I&I Reduction Program	0	0	0	0	0	282,000	282,000		
Linda Lane Lift Station Odor Control	0	0	0	12,000	0	0	0		
Lakeshore Blvd and N High St Parallel	0	0	0	0	0	180,000	0		
Main St. Parallel Sewer	0	0	0	0	29,151	150,000	535,849		
N High St Sewer Replacement	0	0	0	4,602	55,398	0	0		
Martin St Parallel Sewer	0	0	0	0	0	250,000	0		
Total Miscellaneous Projects	$0	$0	$0	$41,602	$84,549	$862,000	$897,849	$1,886,000	
Automobiles and Trucks	$0	$0	$15,000	$15,450	$15,914	$16,391	$16,883	$79,638	As Equipment
Shop and Other Equipment	0	17,000	25,000	25,750	26,523	27,319	28,139	149,731	As Equipment
Office Equipment and Furnishings	0	3,700	3,811	3,925	4,043	4,164	4,289	23,932	As Equipment
Land, Structures, & Improvements	0	19,500	20,085	20,688	21,309	21,948	22,606	126,136	As Equipment
Unidentified Capital improvement Projects	$0	$0	$0	$0	$0	$0	$0	$0	
Total Capital Improvements	**$0**	**$40,200**	**$1,658,096**	**$1,701,615**	**$152,338**	**$931,822**	**$969,766**	$5,453,837	
Capital									
Transfer to R&R/CIP Reserve Fund	$0	$0	$0	$2,585	$2,662	$0	$0		
Total Capital	$0	$0	$0	$2,585	$2,662	$0	$0	$5,247	
Total Capital Improvements and Capital	**$0**	**$40,200**	**$1,658,096**	**$1,704,200**	**$155,000**	**$931,822**	**$969,766**	$5,459,084	
Less: Funding Sources Other Than Rates									
Operating Reserves	$0	$0	$0	$0	$0	$0	$0	$0	
Capital Reserve Funds	0	0	0	0	0	0	0	0	
USDA Grant Funding	0	0	0	0	0	0	0	0	
USDA Loan Proceeds	0	0	1,594,200	1,594,200	0	0	0	3,188,400	
SRF Loan Proceeds	0	0	0	0	0	0	0	0	
New Low Interest Loan	0	0	0	0	0	746,822	734,766	1,481,588	
Total Funding Sources Other Than Rates	$0	$0	$1,594,200	$1,594,200	$0	$746,822	$734,766	$4,669,988	
CAPITAL FUNDED THROUGH RATES	**$0**	**$40,200**	**$63,896**	**$110,000**	**$155,000**	**$185,000**	**$235,000**	$789,096	Approx. Deprec. $627K for FY '11

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 5
Summary of the VOLUME Allocation Factor

	FY 2011 Annual Flow in CCF [1]	4% Inflow and Infiltration	Total Annual Flow at Plant (CCF)	Avg. Daily Flow At Plant (MGD) [2]	% of Total
Residential	124,632	4,985	129,617	0.3	61.3%
Apartments	6,436	257	6,693	0.0	3.2%
Commercial	72,174	2,887	75,061	0.2	35.5%
Total Volume	203,242		211,371	0.4	100.0%
		Actual plant flow [3]	*192,381*	*0.4*	
Allocation Factor				**(VOL)**	

Notes:
[1] Annual total based on winter water consumption (December through March).
[2] Calculated by multiplying total CCF by 748 to get total gallons. Then divided total gallons by 1,000,000 and 365 to reach MGD.
[3] Average dry-weather flow (ADWF) from City's Records, 2009

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 6
Summary of the CUSTOMER Allocation Factors

	Actual Customer		Customer Service & Accounting			
	Number of Accounts [1]	% of Total	Number of Units [2]	Weighting Factor	Weighted Customer	% of Total
Residential	1,731	74.5%	1,731	1.00	1,731	70.0%
Apartments	173	7.4%	173	1.25	216	8.7%
Commercial	421	18.1%	421	1.25	526	21.3%
Total	2,325	100.0%	2,325		2,474	100.0%
Allocation Factor		**(AC)**				**(WCA)**

Notes:
[1] Total number of accounts billed.
[2] Total number of actual units in the system.

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 7
Summary of the STRENGTH RELATED Allocation Factor

		BOD			TDS		
	Annual Flow (CCF) [1]	Avg. Factor (mg/l) [2]	Calculated Pounds	% of Total	Avg. Factor (mg/l) [2]	Calculated Pounds	% of Total
Residential	129,617	225	181,934	51.2%	225	181,934	56.8%
Apartments	6,693	230	9,603	2.7%	230	9,603	3.0%
Commercial	75,061	350	163,889	46.1%	275	128,770	40.2%
Total	211,371		355,426	100.0%		320,307	100.0%
Allocation Factor				**(BOD)**			**(TDS)**

Notes:
[1] Reflects winter water consumption (December through March) for residential but adjusted to match treatment plant flow records, average dry weather flow, 2009 (see Exhibit 5).
[2] Average strength factors from California State Water Resources Control Board, Revenue Program Guidelines, 1998 edition, p. G-21.

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 8
Summary of the REVENUE Allocation Factor

	Projected Year FY 2013	% of Total
Residential	$908,795	60.4%
Apartments	69,476	4.6%
Commercial	526,328	35.0%
Total Rate Revenues	$1,504,600	100.0%
Allocation Factor		**(RR)**

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 9
FUNCTIONALIZATION & CLASSIFICATION OF RATE BASE

	Total Plant FY 2011	Operating Volume (VOL)	Bio-oxygen Demand (BOD)	Customer Related: Total Disolved Solids (TDS)	Customer Related: Weighted for: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Revenue (RR)	Direct (DA)	*Basis of Classification*		
Land	$1,735,233	$1,611,155	$62,039	$62,039	$0	$0	$0	$0	As Treatment & Collection		
Treatment Plant											
Expansion Ponds	$3,001,048	$3,001,048	$0	$0	$0	$0	$0	$0	100% VOL		
Contents of WWTP	206,080	103,040	51,520	51,520	0	0	0	0	50% VOL	25% BOD	25% TDS
Treatment Plant	2,608,619	1,304,310	652,155	652,155	0	0	0	0	50% VOL	25% BOD	25% TDS
Total Treatment Plant	$5,815,747	$4,408,398	$703,675	$703,675	$0	$0	$0	$0			
Collection System											
Lift Station	$402,226	$402,226	$0	$0	$0	$0	$0	$0	100% VOL		
Pumping	381,103	381,103	0	0	0	0	0	0	100% VOL		
Trunk Lines	13,082,787	13,082,787	0	0	0	0	0	0	100% VOL		
Total Collection System	$13,866,116	$13,866,116	$0	$0	$0	$0	$0	$0			
Plant Before General Plant	$21,417,096	$19,885,669	$765,714	$765,714	$0	$0	$0	$0			
Percent Plant Before General Plant	100.0%	92.8%	3.6%	3.6%	0.0%	0.0%	0.0%	0.0%	Factor Plant Before General		
General Plant											
Buildings	$0	$0	$0	$0	$0	$0	$0	$0	Factor Plant Before General		
Machinery & Equipment	342,000	317,545	12,227	12,227	0	0	0	0	Factor Plant Before General		
Infrastructure	0	0	0	0	0	0	0	0	Factor Plant Before General		
Total General Plant	$342,000	$317,545	$12,227	$12,227	$0	$0	$0	$0			
TOTAL PLANT IN SERVICE	**$21,759,096**	**$20,203,214**	**$777,941**	**$777,941**	**$0**	**$0**	**$0**	**$0**			
Less: Accumulated Depreciation											
Treatment Plant	$858,649	$650,865	$103,892	$103,892	$0	$0	$0	$0	As Treatment Plant		
Collection System	8,947,677	8,947,677	0	0	0	0	0	0	As Collection System		
General Plant	297,051	275,810	10,620	10,620	0	0	0	0	As General Plant		
Total Accumulated Depreciation	$10,103,376	$9,874,352	$114,512	$114,512	$0	$0	$0	$0			
Net Plant in Service	**$11,655,720**	**$10,328,862**	**$663,429**	**$663,429**	**$0**	**$0**	**$0**	**$0**			

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 10
FUNCTIONALIZATION & CLASSIFICATION OF REVENUE REQUIREMENTS

			Strength Related		Customer Related				
	Expenses FY 2013	Volume (VOL)	Bio-Oxygen Demand (BOD)	Total Disolved Solids (TDS)	Actual Customer (AC)	Cust. Acctg. (WCA)	Revenue Related (RR)	Direct Assign. (DA)	*Basis of Classification*
OPERATIONS AND MAINTENANCE EXPENSE									
Sewer Utility (601)									
Salaries	$434,073	$365,365	$7,057	$7,057	$27,298	$27,298	$0	$0	As All Other O&M
Benefits	280,928	236,461	4,567	4,567	17,667	17,667	0	0	As All Other O&M
Materials and Supplies	366,451	340,248	13,102	13,102	0	0	0	0	As Total Plant in Service
Treatment Chemicals	18,900	18,900	0	0	0	0	0	0	100% VOL
Fuel	16,660	16,660	0	0	0	0	0	0	100% VOL
Energy	201,170	201,170	0	0	0	0	0	0	100% VOL
Travel and Training	5,589	4,705	91	91	351	351	0	0	As All Other O&M
Other	202,725	101,362	0	0	50,681	50,681	0	0	50% VOL 25% AC 25% WCA
Total Sewer Utility (601)	$1,526,496	$1,284,869	$24,816	$24,816	$95,997	$95,997	$0	$0	
TOTAL O&M EXPENSES	**$1,526,496**	**$1,284,869**	**$24,816**	**$24,816**	**$95,997**	**$95,997**	**$0**	**$0**	
Transfers									
Transfer Out	$47,250	$39,771	$768	$768	$2,971	$2,971	$0	$0	As Total O&M Expenses
Basin 2000 [1]	90,000	0	0	0	0	0	90,000	0	100% RR
Total Transfers	$137,250	$39,771	$768	$768	$2,971	$2,971	$90,000	$0	
CAPITAL FUNDED THROUGH RATES	**$63,896**	**$12,779**	**$15,974**	**$15,974**	**$19,169**	**$0**	**$0**	**$0**	20% VOL 25% BOD 25% TDS 30% AC
Debt Service									
CSCDA Wastewater Revenue bonds Series 2007A	$189,960	$159,892	$3,088	$3,088	$11,946	$11,946	$0	$0	As Total O&M Expenses
USDA Loan	0	0	0	0	0	0	0	0	As Total O&M Expenses
New Debt Service	0	0	0	0	0	0	0	0	As Total O&M Expenses
Total Debt Service	$189,960	$159,892	$3,088	$3,088	$11,946	$11,946	$0	$0	
Change in Working Capital +/-									
Transfers To - CLMSD Utility M&O Fund (601)	($93,570)	$0	$0	$0	$0	$0	($93,570)	$0	100% RR
Transfers To - Rate Stabilization/Debt Service Reserve	29,000	0	0	0	0	0	29,000	0	100% RR
Transfers To - R&R/CIP Reserve	116,500	0	0	0	0	0	116,500	0	100% RR
Total Transfers to Reserves	$51,930	$0	$0	$0	$0	$0	$51,930	$0	
Plus: Bad Debt (Escalated at 4.0% per year)	$60,184	$0	$0	$0	$0	$0	$60,184	$0	100% RR

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 10
FUNCTIONALIZATION & CLASSIFICATION OF REVENUE REQUIREMENTS

			Strength Related		Customer Related				
	Expenses FY 2013	Volume (VOL)	Bio-Oxygen Demand (BOD)	Total Disolved Solids (TDS)	Actual Customer (AC)	Cust. Acctg. (WCA)	Revenue Related (RR)	Direct Assign. (DA)	*Basis of Classification*
TOTAL REVENUE REQUIREMENT	**$2,029,716**	**$1,497,311**	**$44,646**	**$44,646**	**$130,084**	**$110,915**	**$202,114**	**$0**	
Less: Miscellaneous Revenues									
CLMSD Basin 2000 [1]	$90,000	$0	$0	$0	$0	$0	$90,000	$0	100% RR
CLMSD M&O Tax	1,262	931	28	28	81	69	126	0	As Total Revenue Requirements
County Service	75,000	55,327	1,650	1,650	4,807	4,098	7,468	0	As Total Revenue Requirements
Property Leases	25,250	18,627	555	555	1,618	1,380	2,514	0	As Total Revenue Requirements
Connection Charge	1,010	745	22	22	65	55	101	0	As Total Revenue Requirements
Miscellaneous Fees	101	75	2	2	6	6	10	0	As Total Revenue Requirements
Interest Income	1,121	827	25	25	72	61	112	0	As Total Revenue Requirements
Total Miscellaneous Revenues	$193,744	$76,531	$2,282	$2,282	$6,649	$5,669	$100,331	$0	
Transfers: In	$0	$0	$0	$0	$0	$0	$0	$0	100% RR
NET REVENUE REQUIREMENT	**$1,835,972**	**$1,420,780**	**$42,364**	**$42,364**	**$123,435**	**$105,246**	**$101,783**	**$0**	

Notes:
[1] Revenue is a pass-through for expense of the Basin 2000 bonds.

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 11
ALLOCATION OF REVENUE REQUIREMENTS

Classification Components	Net Revenue Requirement	Residential	Apartments	Commercial	Allocation Factor
Volume	$1,420,780	$871,252	$44,989	$504,539	(VOL)
Strength Related					
Bio-Oxygen Demand	$42,364	$21,685	$1,145	$19,534	(BOD)
Total Disolved Solids	42,364	24,063	1,270	17,031	(TDS)
	$84,729	$45,748	$2,415	$36,566	
Customer Related					
Actual Customer	$123,435	$91,899	$9,185	$22,351	(AC)
Weighted for Cust. Acctg.	105,246	73,653	9,201	22,392	(WCA)
Total Customer Related	$228,680	$165,552	$18,386	$44,743	
Revenue Related	$101,783	$61,478	$4,700	$35,605	(RR)
Direct Assignment	$0	$0	$0	$0	(DA)
NET REVENUE REQUIREMENT	**$1,835,972**	**$1,144,030**	**$70,489**	**$621,453**	

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 12
COST OF SERVICE ANALYSIS

	Expenses FY 2013	Residential	Apartments	Commercial
Revenues at Present Rates	$1,504,600	$908,795	$69,476	$526,328
Allocated Revenue Requirement	$1,835,972	$1,144,030	$70,489	$621,453
Balance/(Deficiency) of Fund	($331,372)	($235,235)	($1,013)	($95,124)
Required % Change in Rates	**22.0%**	**25.9%**	**1.5%**	**18.1%**

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 13
AVERAGE UNIT COSTS

	Total	Residential	Apartments	Commercial
Volume $/CCF	$6.99	$6.99	$6.99	$6.99
BOD $/CCF	0.21	0.17	0.18	0.27
TDS $/CCF	0.21	0.19	0.20	0.24
Revenue/Direct $/CCF	0.50	0.49	0.73	0.49
Total $/CCF	$7.91	$7.85	$8.10	$7.99
Customer Costs - $/account/month	$8.20	$7.97	$8.86	$8.86
Average Projected Revenue $/CCF	$9.03	$9.18	$10.95	$8.61
Average Current Revenue $/CCF	$7.40	$7.29	$10.80	$7.29
Basic Data:				
Annual Water Consumption (CCF)	203,242	124,632	6,436	72,174
Number of Accounts	2,325	1,731	173	421

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 14
REVENUE AT PRESENT RATES

		Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	TOTAL
RESIDENTIAL														
	Mo. Rate													
North Customers	$35.41	635	635	635	635	635	635	635	635	635	635	635	635	635
South Customers	$46.79	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096
Consumption (per ccf)														
All Consumption	$0.00	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	
Total Consumption		10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	124,632
Revenues														
Meter Charge		$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$885,206
Water Consumption Charge		0	0	0	0	0	0	0	0	0	0	0	0	0
Total Revenue		**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$73,767**	**$885,206**
APARTMENTS														
	Mo. Rate													
North Customers	$26.57	63	63	63	63	63	63	63	63	63	63	63	63	63
South Customers	$36.05	110	110	110	110	110	110	110	110	110	110	110	110	110
Consumption (per ccf)														
All Consumption	$0.00	536	536	536	536	536	536	536	536	536	536	536	536	
Total Consumption		536	536	536	536	536	536	536	536	536	536	536	536	6,436
Revenues														
Meter Charge		$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$5,639	$67,673
Water Consumption Charge		0	0	0	0	0	0	0	0	0	0	0	0	0
Total Revenue		**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$5,639**	**$67,673**
COMMERCIAL														
	Mo. Rate													
North Customers	$35.41	19	19	19	19	19	19	19	19	19	19	19	19	19
South Customers	$46.79	402	402	402	402	402	402	402	402	402	402	402	402	402
Consumption (per ccf)														
0 - 8 CCF	$0.00	1,695	1,791	1,815	1,720	1,727	1,473	1,598	1,669	1,530	1,433	1,845	1,849	
Above 8 CCF	5.36	5,480	6,732	7,261	4,846	4,623	3,071	3,569	3,419	2,830	1,992	4,263	3,944	
Total Consumption		7,175	8,523	9,076	6,566	6,350	4,544	5,167	5,088	4,360	3,425	6,108	5,792	72,174
Revenues														
Meter Charge		$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$19,482	$233,788
Water Consumption Charge		29,373	36,084	38,919	25,975	24,779	16,461	19,130	18,326	15,169	10,677	22,850	21,137	278,878
Total Revenue		**$48,855**	**$55,566**	**$58,401**	**$45,457**	**$44,262**	**$35,943**	**$38,612**	**$37,808**	**$34,651**	**$30,159**	**$42,332**	**$40,620**	**$512,667**

City of Lakeport
Sewer Utility - Scenario 3 - Funding 2/3 of Depreciation
Exhibit 14
REVENUE AT PRESENT RATES

	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	TOTAL
SUMMARY													
Number of Customers													
Residential	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731	1,731
Apartments	173	173	173	173	173	173	173	173	173	173	173	173	173
Commercial	421	421	421	421	421	421	421	421	421	421	421	421	421
	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325	2,325
Consumption													
Residential	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	10,386	124,632
Apartments	536	536	536	536	536	536	536	536	536	536	536	536	6,436
Commercial	7,175	8,523	9,076	6,566	6,350	4,544	5,167	5,088	4,360	3,425	6,108	5,792	72,174
	18,097	19,445	19,998	17,488	17,272	15,466	16,089	16,010	15,282	14,347	17,030	16,714	203,242
Total Revenue													
Residential	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$73,767	$885,206
Apartments	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	67,673
Commercial	48,855	55,566	58,401	45,457	44,262	35,943	38,612	37,808	34,651	30,159	42,332	40,620	512,667
	$128,262	$134,972	$137,808	$124,864	$123,668	$115,350	$118,019	$117,215	$114,058	$109,566	$121,739	$120,026	$1,465,546

FY 2012 Budget (Service Charges)	$1,504,600
	($39,054)
	-2.60%

FY 2011 Actual (Service Charges)	$1,514,954
	($49,408)
	-3.26%

City of Lakeport
Sewer Utility - Summary of Rate Design
OPTION 1 - Across the Board Adjustments

	PRESENT RATES	OPTION 1 - PROPOSED RATES				
		July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
RESIDENTIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$52.70	$60.50	$65.60	$70.50	$70.50
South Customers	$46.79	$57.10	$67.40	$74.15	$79.70	$79.70
APARTMENTS						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$26.57	$41.90	$47.75	$51.60	$55.45	$55.45
South Customers	$36.05	$44.00	$51.90	$57.10	$61.40	$61.40
COMMERCIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$52.70	$60.50	$65.60	$70.50	$70.50
South Customers	$46.79	$57.10	$67.40	$74.15	$79.70	$79.70
Consumption (per ccf)						
0 - 8 CCF	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Above 8 CCF	5.36	6.54	7.72	8.49	9.13	9.13

City of Lakeport
Sewer Utility - Summary of Rate Design
OPTION 2 - North and South Same Rate Transition

	PRESENT RATES	PROPOSED RATES				
		July 1st 2012	Jan. 1st 2014	Jan. 1st 2015	Jan. 1st 2016	Jan. 1st 2017
RESIDENTIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$53.90	$62.90	$71.00	$76.35	$76.35
South Customers	$46.79	$56.50	$65.65	$71.00	$76.35	$76.35
APARTMENTS						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$26.57	$43.17	$50.25	$55.10	$59.25	$59.25
South Customers	$36.05	$43.50	$50.75	$55.10	$59.25	$59.25
COMMERCIAL						
Meter Rate						
Meter Size	Mo. Rate					
North Customers*	$35.41	$53.90	$62.90	$71.00	$76.35	$76.35
South Customers	$46.79	$56.50	$65.65	$71.00	$76.35	$76.35
Consumption (per ccf)						
0 - 8 CCF	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Above 8 CCF	5.36	6.54	7.72	8.49	9.13	9.13

City of Lakeport
Sewer Utility - RESIDENTIAL Monthly Bill Comparison
Proposed Rate Transition - Option 1 - Across the Board Adjustments

	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]	$44.91	$52.70	$7.79	$52.70	$60.50	$7.80	$60.50	$65.60	$5.10
South Customers	$46.79	$57.10	$10.31	$57.10	$67.40	$10.30	$67.40	$74.15	$6.75

2011/2012 Present Rates		July 1st 2012-2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Base Charge		**Base Charge**		**Base Charge**		**Base Charge**	
North	$35.41	North	$43.20	North	$51.00	North	$56.10
South	46.79	South	57.10	South	67.40	South	74.15
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50

Note: [1] Basin 2000 Rate is only applied to the North customers.

City of Lakeport
Sewer Utility - RESIDENTIAL Monthly Bill Comparison
Proposed Rate Transition - Option 2 - North & South Same Monthly Charge

	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]	$44.91	$53.90	$8.99	$53.90	$62.90	$9.00	$62.90	$71.00	$8.10
South Customers	$46.79	$56.50	$9.71	$56.50	$65.65	$9.15	$65.65	$71.00	$5.35

2011/2012 Present Rates		July 1st 2012-2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Base Charge		**Base Charge**		**Base Charge**		**Base Charge**	
North	$35.41	North	$44.40	North	$53.40	North	$61.50
South	46.79	South	56.50	South	65.65	South	71.00
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50

Note: [1] Basin 2000 Rate is only applied to the North customers.

City of Lakeport
Sewer Utility - APARTMENTS Monthly Bill Comparison
Proposed Rate Transition - Option 1 - Across the Board Adjustments

	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]	$36.07	$41.90	$5.83	$41.90	$47.75	$5.85	$47.75	$51.60	$3.85
South Customers	$36.05	$44.00	$7.95	$44.00	$51.90	$7.90	$51.90	$57.10	$5.20

2011/2012 Present Rates		July 1st 2012-2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Metered Base Charge		**Metered Base Charge**		**Metered Base Charge**		**Metered Base Charge**	
North	$26.57	North	$32.40	North	$38.25	North	$42.10
South	36.05	South	44.00	South	51.90	South	57.10
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50

Note: [1] Basin 2000 Rate is only applied to the North customers.

City of Lakeport
Sewer Utility - APARTMENTS Monthly Bill Comparison
Proposed Rate Transition - Option 2 - North & South Same Monthly Charge

	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]	$36.07	$43.17	$7.10	$43.17	$50.25	$7.08	$50.25	$55.10	$4.85
South Customers	$36.05	$43.50	$7.45	$43.50	$50.75	$7.25	$50.75	$55.10	$4.35

2011/2012 Present Rates		July 1st 2012-2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Metered Base Charge		**Metered Base Charge**		**Metered Base Charge**		**Metered Base Charge**	
North	$26.57	North	$33.67	North	$40.75	North	$45.60
South	36.05	South	43.50	South	50.75	South	55.10
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50

Note: [1] Basin 2000 Rate is only applied to the North customers.

City of Lakeport
Sewer Utility - COMMERCIAL Monthly Bill Comparison
Proposed Rate Transition - Option 1 - Across the Board Adjustments

Consumption (CCF)	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]									
0	$44.91	$52.70	$7.79	$52.70	$60.50	$7.80	$60.50	$65.60	$5.10
2	44.91	52.70	7.79	52.70	60.50	7.80	60.50	65.60	5.10
4	44.91	52.70	7.79	52.70	60.50	7.80	60.50	65.60	5.10
6	44.91	52.70	7.79	52.70	60.50	7.80	60.50	65.60	5.10
8	44.91	52.70	7.79	52.70	60.50	7.80	60.50	65.60	5.10
10	55.63	65.78	10.15	65.78	75.94	10.16	75.94	82.58	6.64
12	66.35	78.86	12.51	78.86	91.38	12.52	91.38	99.56	8.18
14	77.07	91.94	14.87	91.94	106.82	14.88	106.82	116.54	9.72
16	87.79	105.02	17.23	105.02	122.26	17.24	122.26	133.52	11.26
South Customers									
0	$46.79	$57.10	$10.31	$57.10	$67.40	$10.30	$67.40	$74.15	$6.75
2	46.79	57.10	10.31	57.10	67.40	10.30	67.40	74.15	6.75
4	46.79	57.10	10.31	57.10	67.40	10.30	67.40	74.15	6.75
6	46.79	57.10	10.31	57.10	67.40	10.30	67.40	74.15	6.75
8	46.79	57.10	10.31	57.10	67.40	10.30	67.40	74.15	6.75
10	57.51	70.18	12.67	70.18	82.84	12.66	82.84	91.13	8.29
12	68.23	83.26	15.03	83.26	98.28	15.02	98.28	108.11	9.83
14	78.95	96.34	17.39	96.34	113.72	17.38	113.72	125.09	11.37
16	89.67	109.42	19.75	109.42	129.16	19.74	129.16	142.07	12.91

2011/2012 Present Rates		July 1st 2012 - 2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Metered Base Charge		**Metered Base Charge**		**Metered Base Charge**		**Metered Base Charge**	
North	$35.41	North	$43.20	North	$51.00	North	$56.10
South	46.79	South	57.10	South	67.40	South	74.15
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50
Volume (per ccf)		**Volume (per ccf)**		**Volume (per ccf)**		**Volume (per ccf)**	
0 - 8 CCF	$0.00	0 - 8 CCF	$0.00	0 - 8 CCF	$0.00	0 - 8 CCF	$0.00
Over 8 CCF	5.36	Over 8 CCF	6.54	Over 8 CCF	7.72	Over 8 CCF	8.49

Note: [1] Basin 2000 Rate is only applied to the North customers.

City of Lakeport
Sewer Utility - COMMERCIAL Monthly Bill Comparison
Proposed Rate Transition - Option 2 - North & South Same Monthly Charge

Consumption (per CCF)	July 1st 2012 - 2013 Proposed Rates			Jan 1st 2014 Proposed Rates			Jan 1st 2015 Proposed Rates		
	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference	Present Rates	Proposed Rates	$ Difference
North Customer [1]									
0	$44.91	$53.90	$8.99	$53.90	$62.90	$9.00	$62.90	$71.00	$8.10
2	44.91	53.90	8.99	53.90	62.90	9.00	62.90	71.00	8.10
4	44.91	53.90	8.99	53.90	62.90	9.00	62.90	71.00	8.10
6	44.91	53.90	8.99	53.90	62.90	9.00	62.90	71.00	8.10
8	44.91	53.90	8.99	53.90	62.90	9.00	62.90	71.00	8.10
10	55.63	66.98	11.35	66.98	78.34	11.36	78.34	87.98	9.64
12	66.35	80.06	13.71	80.06	93.78	13.72	93.78	104.96	11.18
14	77.07	93.14	16.07	93.14	109.22	16.08	109.22	121.94	12.72
16	87.79	106.22	18.43	106.22	124.66	18.44	124.66	138.92	14.26
South Customers									
0	$46.79	$56.50	$9.71	$56.50	$65.65	$9.15	$65.65	$71.00	$5.35
2	46.79	56.50	9.71	56.50	65.65	9.15	65.65	71.00	5.35
4	46.79	56.50	9.71	56.50	65.65	9.15	65.65	71.00	5.35
6	46.79	56.50	9.71	56.50	65.65	9.15	65.65	71.00	5.35
8	46.79	56.50	9.71	56.50	65.65	9.15	65.65	71.00	5.35
10	57.51	69.58	12.07	69.58	81.09	11.51	81.09	87.98	6.89
12	68.23	82.66	14.43	82.66	96.53	13.87	96.53	104.96	8.43
14	78.95	95.74	16.79	95.74	111.97	16.23	111.97	121.94	9.97
16	89.67	108.82	19.15	108.82	127.41	18.59	127.41	138.92	11.51

2011/2012 Present Rates		July 1st 2012 - 2013 Proposed Rates		Jan 1st 2014 Proposed Rates		Jan 1st 2015 Proposed Rates	
Metered Base Charge		**Metered Base Charge**		**Metered Base Charge**		**Metered Base Charge**	
North	$35.41	North	$44.40	North	$53.40	North	$61.50
South	46.79	South	56.50	South	65.65	South	71.00
Basin 2000 Rate [1]	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50	**Basin 2000 Rate [1]**	$9.50
Volume (per ccf)		**Volume (per ccf)**		**Volume (per ccf)**		**Volume (per ccf)**	
0 - 8 CCF	$0.00	0 - 8 CCF	$0.00	0 - 8 CCF	$0.00	0 - 8 CCF	$0.00
Over 8 CCF	5.36	Over 8 CCF	6.54	Over 8 CCF	7.72	Over 8 CCF	8.49

Note: [1] Basin 2000 Rate is only applied to the North customers.

APPENDIX E

City of Lakeport

2008 MASTER SEWER PLAN

INFILTRATION AND INFLOW REDUCTION PROGRAM

	Approx 2008 I&I								Phase 2 - Sewer Repair and Replacement [3]												Total Project Cost[13]	Ultimate Estimated I&I Reduction	
									Mainline Grout Sealing		Manhole Repair or Replacement				Sewer Repair or Replacement				Lateral Repairs				
																			Lateral [1]				
	Subservice Area[14]	Existing Sewered Area (Ac)	MGD	GPAD	Sewer Size (inches)	Estimated Length (ft)	MH's	Estimated # of Laterals [1],[2]	Grout Sealing (ft)[4]	Sealing Costs ($)[5]	MH's Repaired (ea)[6]	MH's Repair Costs ($)[6]	MH's Replaced (ea)[7]	MH's Replaced ($)[7]	Main Size (Inches)	Length (ft)[8]	Unit Cost ($/LF)[9]	Total Cost	Number [10]	Cost @$6,700 ea.		%	(MGD)
INITIAL I&I REDUCTION TARGET AREA (2008 to 2018)	9B	28.6	0.33	11,550	8	300	11	86	60	$300	1	$4,000	1	$6,000	8	60	$163	$9,800	17	$113,900	$319,100	60%	0.198
					6	3,540			708	$3,700					6	708	$158	$111,900					
					4	2,130			426	$2,200					4	426	$158	$67,300					
	7C	2	0.013	6,700	6	250	1	8	50	$300	0	$0	0	$0	6	50	$158	$7,900	2	$13,400	$21,600	75%	0.010
	9C	10.5	0.062	5,950	6	890	5	23	178	$900	0	$0	0	$0	6	178	$158	$28,100	5	$33,500	$79,400	65%	0.040
					4	520			104	$500					4	104	$158	$16,400					
	4B	28	0.161	5,740	8	1,150	13	18	230	$1,200	1	$4,000	1	$6,000	8	230	$163	$37,500	4	$26,800	$144,400	75%	0.121
					6	1,230			246	$1,300					6	246	$158	$38,900					
					4	880			176	$900					4	176	$158	$27,800					
	13A	33.9	0.179	5,270	8	2,260	22	102	452	$2,400	2	$8,000	2	$12,000	8	452	$163	$73,700	20	$134,000	$321,500	50%	0.090
					6	2,370			474	$2,500					6	474	$158	$74,900					
					4	430			86	$400					4	86	$158	$13,600					
	3C	27.6	0.137	5,010	8	2,500	14	53	500	$2,600	1	$4,000	1	$6,000	8	250 [11]	$163	$38,300	6 [12]	$40,200	$127,800	35%	0.048
					6	745			149	$800					6	149	$158	$23,500					
					4	380			76	$400					4	76	$158	$12,000					
SUBSEQUENT I&I REDUCTION TARGET AREA (2018 to 2028)	10B	44.5	0.201	4,510	8	2,185	23	100	437	$2,300	2	$8,000	2	$12,000	8	437	$163	$71,200	20	$134,000	$303,200	50%	0.101
					6	2,320			464	$2,400		$0			6	464	$158	$73,300					
	7B	5.3	0.022	4,210	8	227	3	15	45	$200	0	$0	0	$0	8	45.4	$163	$7,400	3	$20,100	$58,900	60%	0.013
					6	380			76	$400					6	76	$158	$12,000					
					4	575			115	$600					4	115	$158	$18,200					
	1B	32.9	0.139	4,210	8	460	16	40	92	$500	2	$8,000	2	$12,000	8	92	$163	$15,000	8	$53,600	$189,900	65%	0.090
					6	3,090			618	$3,200					6	618	$158	$97,600					
	7A	61	0.25	4,100	8	980	15	65	196	$1,000	2	$8,000	2	$12,000	8	196	$163	$31,900	13	$87,100	$268,200	60%	0.150
					6	2,150			430	$2,200					6	430	$158	$67,900					
					4	1,780			356	$1,900					4	356	$158	$56,200					
	9A	23	0.094	4,080	8	1,350	10	30	270	$1,400	1	$4,000	1	$6,000	8	270	$163	$44,000	6	$40,200	$142,000	55%	0.052
					6	1,360			272	$1,400					6	272	$158	$43,000					
					4	60			12	$100					4	12	$158	$1,900					
SUBTOTAL INITIAL I&I TARGET AREA		130.6	0.882			19,575	66	290	3,915	$20,400	5	$20,000	5	$30,000		3415		$726,100	48	$361,800	$1,013,800		0.506
TOTAL ALL HIGH I&I AREAS		**297.3**	**1.588**			**36,492**	**133**	**540**	**7,298**	**$38,000**	**12**	**$48,000**	**12**	**$72,000**		**6,798**		**$1,121,200**	**98**	**$696,800**	**$1,976,000**		**0.912**

NOTES:

(1) Laterals refer to the sewer pipe serving the property from the sewer main to the property line (i.e., lateral in the public right-of-way).
(2) House connection refers to the sewer pipe on private property from the property line to the structure being served.
(3) All costs include 25% engineering and 15% contingency and are based on prevailing wages and Contractor costs.
(4) Grout sealing of mainline sewers assumes that 20% of the sewers in the high I&I target areas will require sealing.
(5) Grout sealing costs based on 10-foot sewer pipe segments. $52/joint includes 40% Engineering and contingency.
(6) Cost for manhole repairs based on 10% of the existing MHs needing some type of repair. Repair cost $4,000/MH.

MGD = Million Gallons Per Day
GPAD = Gallons Per Acre Per Day

(7) Cost for manhole replacement based on 10% of the existing MHs needing replacement. Replacement cost $6,000/MH.
(8) Replacement and/or repair of sewers is based on 20% of the existing sewers needing some type of replacement or repair (i.e., lining, pipe bursting, etc.).
(9) Replacement sewer costs assume pavement restoration and sewer depth less then 8 feet deep.
(10) Replacement and/or repair of laterals is based on 20% of the existing laterals needing some type of replacement or repair (i.e., lining, pipe bursting, etc.).
(11) Due to previous rehabilitation project completed in 1994, replacement and/or repair of sewers in this area is based on only 10% of the existing sewers needing some type of replacement or repair (i.e., lining, pipe bursting, etc.).
(12) Due to previous rehabilitation project completed in 1994, replacement and/or repair of laterals in this area is based on only 10% of the existing laterals needing some type of replacement or repair (i.e., lining, pipe bursting, etc.).
(13) Project Costs shown here are June 2008 dollars and should be projected to present day costs using the ENR CCI.
(14) Subservice areas shown highlighted in orange are recommended as a part of the Wastewater System Improvements Project

APPENDIX F

PACE ENGINEERING
Professional Associated Consulting Engineers Incorporated

K

December 14, 1990

523.07

City of Lakeport
225 Park Street
Lakeport, CA 95453

Attention: Mike Stevenson and Lew Pollock

Gentlemen:

On December 6, 1990 Lew Pollock and I (Bruce Crom) inspected the 72-inch conduit under Highway 29. Larry Kepple also reviewed the section near the entrance at the shopping center and remained in the tunnel entrance as a precaution while we went through it.

This conduit contains the ductile iron 8-inch and 12-inch force main and 8-inch gravity sewer from the shopping center parking lot to a manhole located on the west side of Parallel Drive. The approximate length of this conduit is 670 feet. Entrance to the conduit was gained by descending a 36-inch manhole located in the shopping center parking lot. Prior to Lew and I entering the conduit the City crew had placed a pump into this manhole to pump water that had accumulated in the tunnel from groundwater infiltration. The pumping rate was maintained at 15 to 20 gallons per minute (GPM) to keep the tunnel from refilling with water. The crew had also set up fan ventilators at both entrance and exit manholes to try and push air through the conduit. This ventilation technique was adequate but for future work in this tunnel the ventilators should be enclosed at the top of the manholes so that short-circuiting at the manholes does not occur. Furthermore, Lew wore a SCBA as a precaution, but it was never used during our inspection.

The two force mains and the 8-inch gravity sewer were located at the bottom of the tunnel throughout the entire length. The 8-inch force main appeared to be lower than the 12-inch force main in the first 30 to 50 feet of the tunnel and then sloped upward until the 12-inch and 8-inch force main inverts were equal throughout the rest of the tunnel. All three pipes were supported by the same type of concrete saddles that were observed in the tunnel under the shopping center. These saddles were spaced at 18 feet o.c. and consisted of concrete filled bags

1730 SOUTH STREET • REDDING, CA 96001 • (916) 244-0202 • FAX (916) 244-1978

formed around each pipe with a poured in place concrete header on top of the bags. This header appeared to have the wooden form work still in place from the initial pour. The spacing of these saddles corresponded to the bell spacing of the force mains. Although there was a great deal of decomposition of the wooden form work on these saddles, the general consensus is that the saddles are in satisfactory condition and support the force mains adequately.

In addition to the concrete saddles we noted 1/4-inch by 1-1/2-inch galvanized steel straps supporting the force mains to the side and bottom of the culvert. The straps appeared to be in good shape considering their submerged condition; however, the strap bolts were corroding over their entire surface. After cleaning the corrosion off these nuts and bolts it appeared that they were in pretty good shape. I would expect, however, that these nuts and bolts will be the first things to fail due to deterioration over time. Fortunately, the concrete saddles are the main supporting members on the force main and their condition appears to be sound and should last the life of the conduit and piping. It appears the need for the straps and bolts were essentially replaced with the concrete saddles.

The CMP conduit appeared to be made from galvanized steel with no coating applied to the interior surface. The surface of the CMP that was submerged was covered with a layer of rust. The surface that was not submerged was in good shape with the galvanized surface being visible. The culvert slopes up from the shopping center toward Parallel Drive (the depth at the shopping center is 18 feet from the surface to the top of the 12-inch force main. The depth at the manhole at Parallel Drive is 10 feet 11 inches from the surface to the top of the 8-inch force main). There was no evidence of any major groundwater leaks into the culvert during our inspection but I would suspect that each culvert joint was leaking a little water. The structural integrity of the joints looked fairly good, however, there appeared to be one joint (approximately 400 feet into the tunnel) that had been deflected approximately 2 to 3 inches at the top from either poor installation or possibly a slight collapse (see picture).

The ductile iron piping appeared to be in good shape. No leakage was detected in any of the force main piping through the entire length of the conduit. The biggest immediate danger to the force main piping was located at the Parallel Drive manhole. At this location the 8-inch force main and 12-inch force main tee into each other and 8 and 12-inch gate valves isolate this tee (see attached diagram). The 12-inch force main makes a 90 degree turn and exits the culvert where it continues up Parallel Drive. The 8-inch force main goes through the end of the culvert and continues to the effluent ponds. It was evident from our

inspection that the 12-inch 90 degree elbow was lacking any substantial thrust support. Where the 12-inch f.m. exited the 72-inch culvert there appeared to be some type of anchorage of the down stream flange on the 12-inch elbow into a supporting concrete block at the wall, however, one of the thrust bolts was broken and what remained was not adequate in supporting the perpendicular thrust of the force main. This was proven to be true when the inspection team observed the upstream flange by flange coupling adaptor (FCA) on the elbow rotate 3/4 to 1-inch away from the upstream spool when the treatment plant effluent pumps would turn off. From these observations it was evident that this elbow would have to be supported from thrust immediately. A plan was developed and given to Lew Pollock for a quick repair consisting of a large thrust block inside the tunnel.

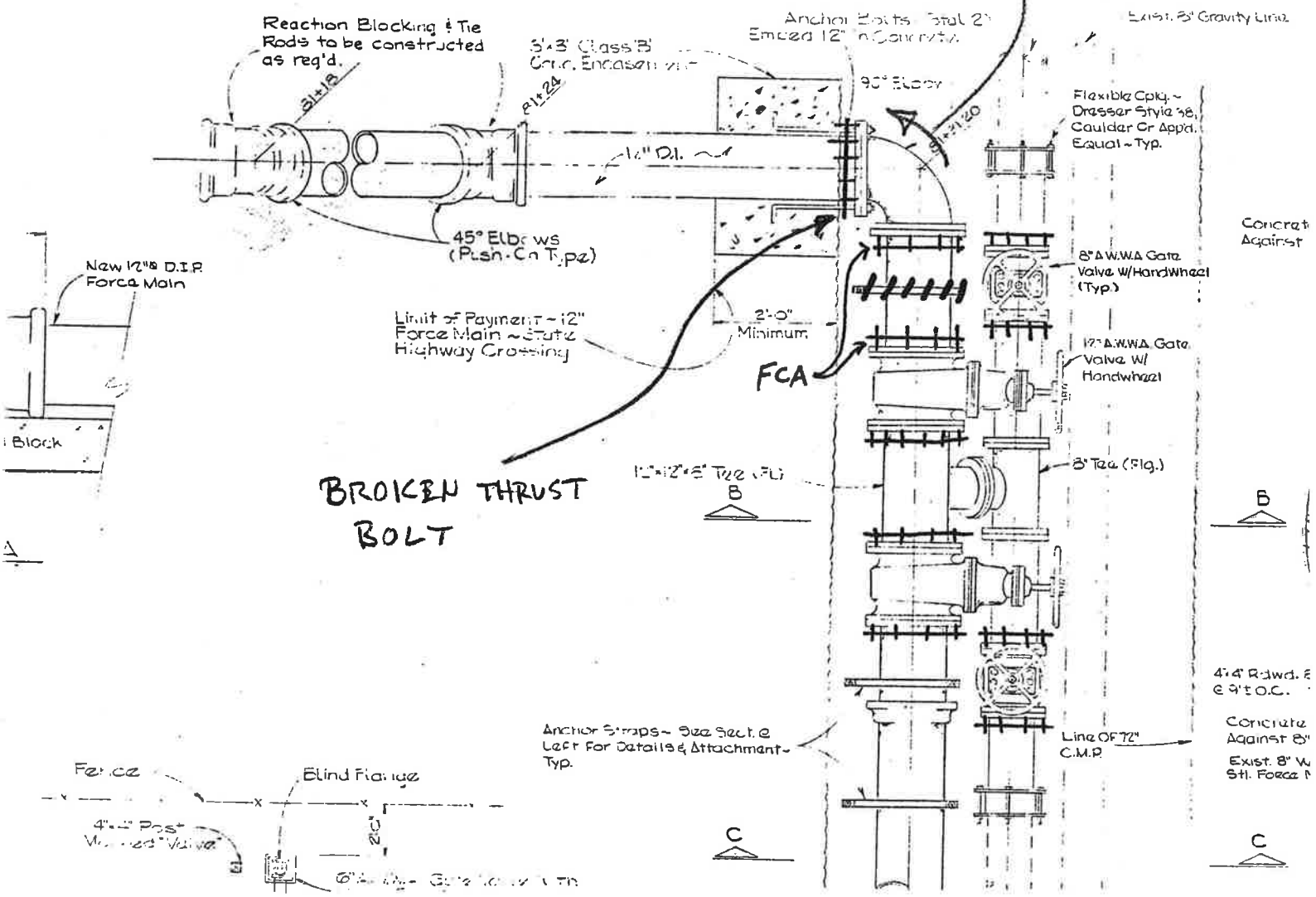
Very truly yours,

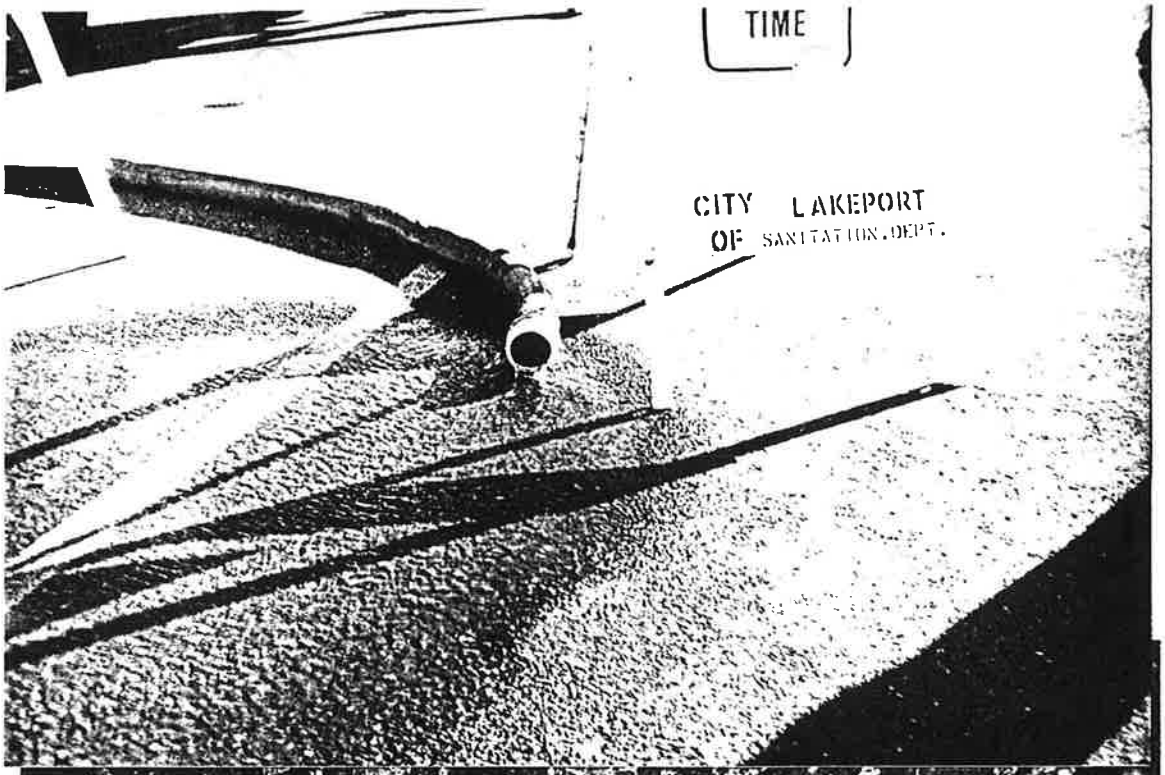
Bruce A. Crom

Bruce A. Crom
Staff Engineer

WP-A/BAC/kbr
enclosure

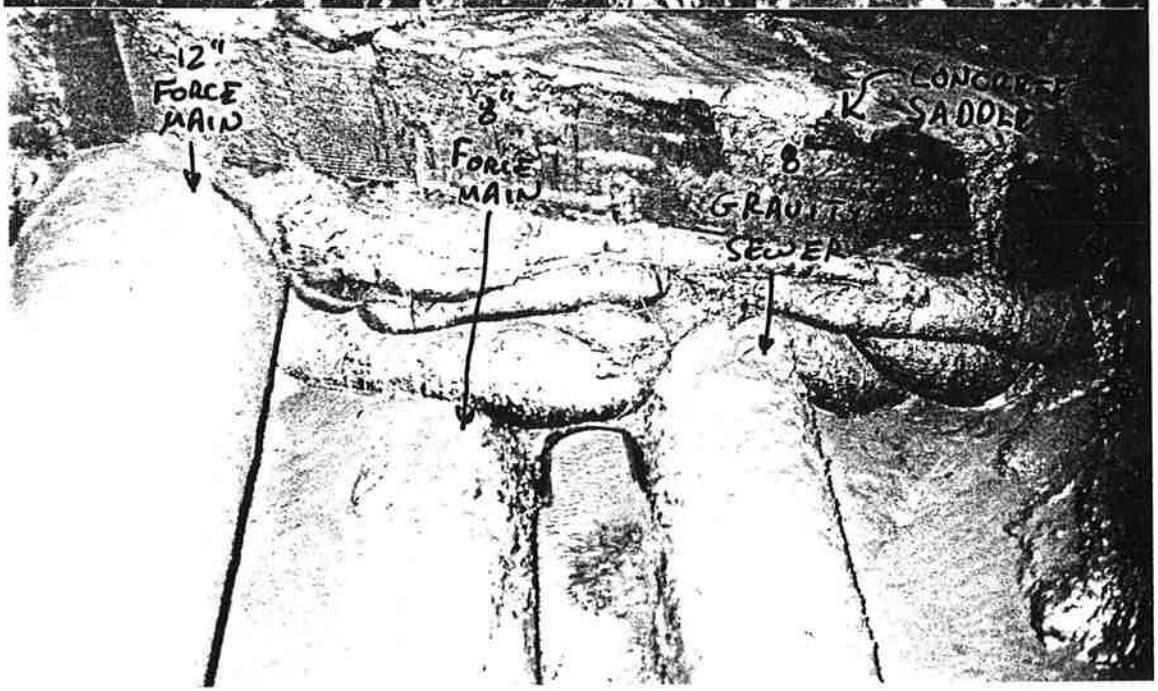
ELBOW ROTATING
3/4" ± DURING
PUMP OFF CYCLE.





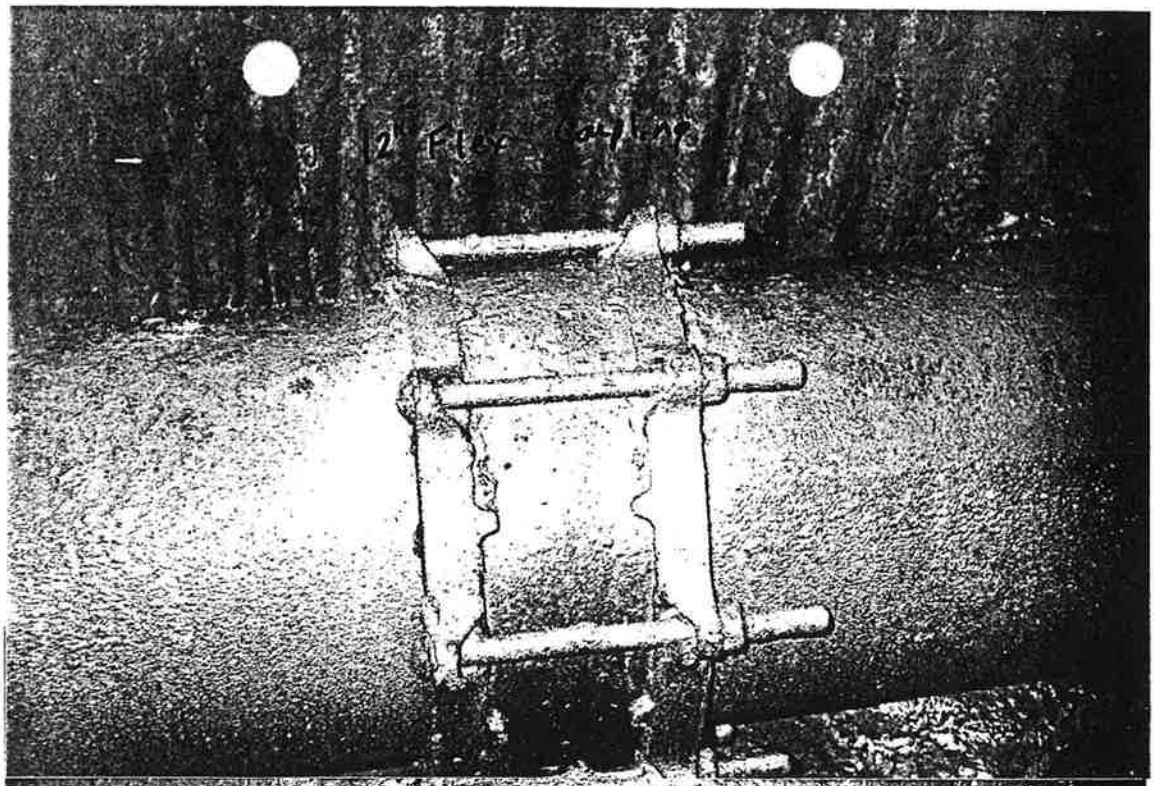
72" CMP
15-20 gpm
pumping fr
M.H. @ sh
ping center

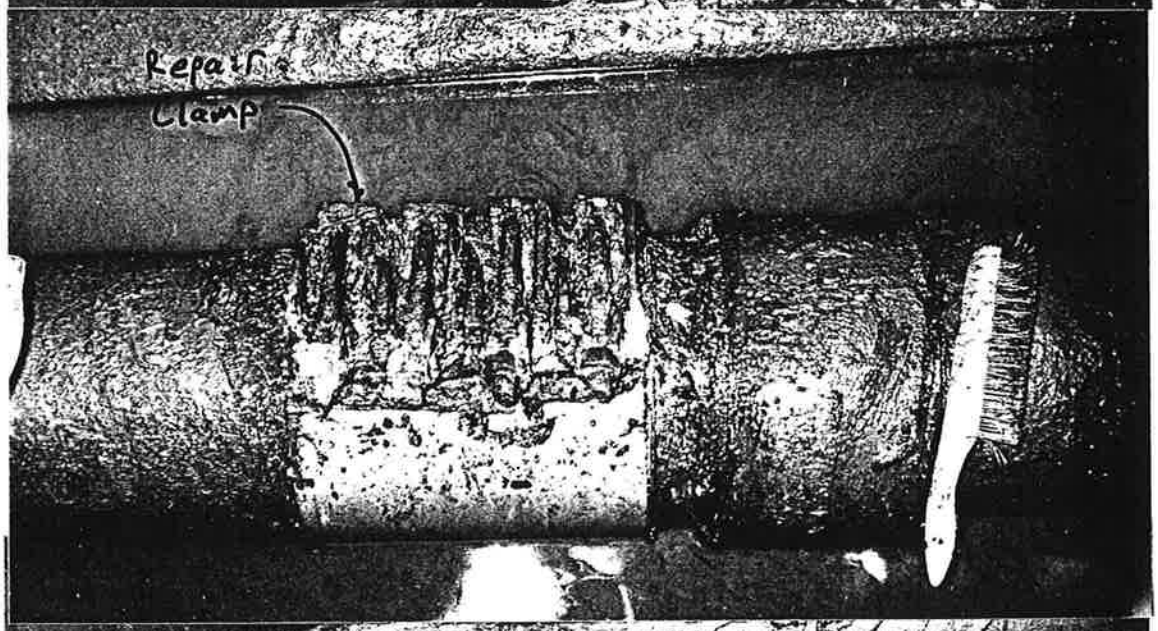
72" CMP
Corrosion
Scale.



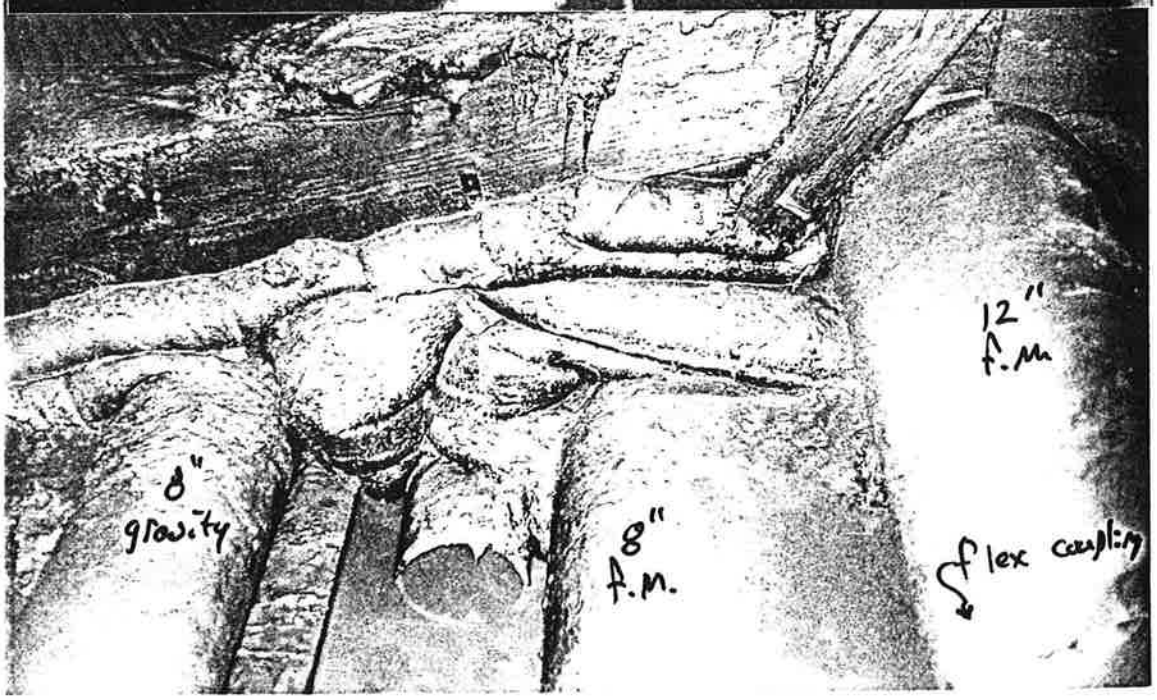
Concrete
Saddle i
72" CMP

72" C.M.

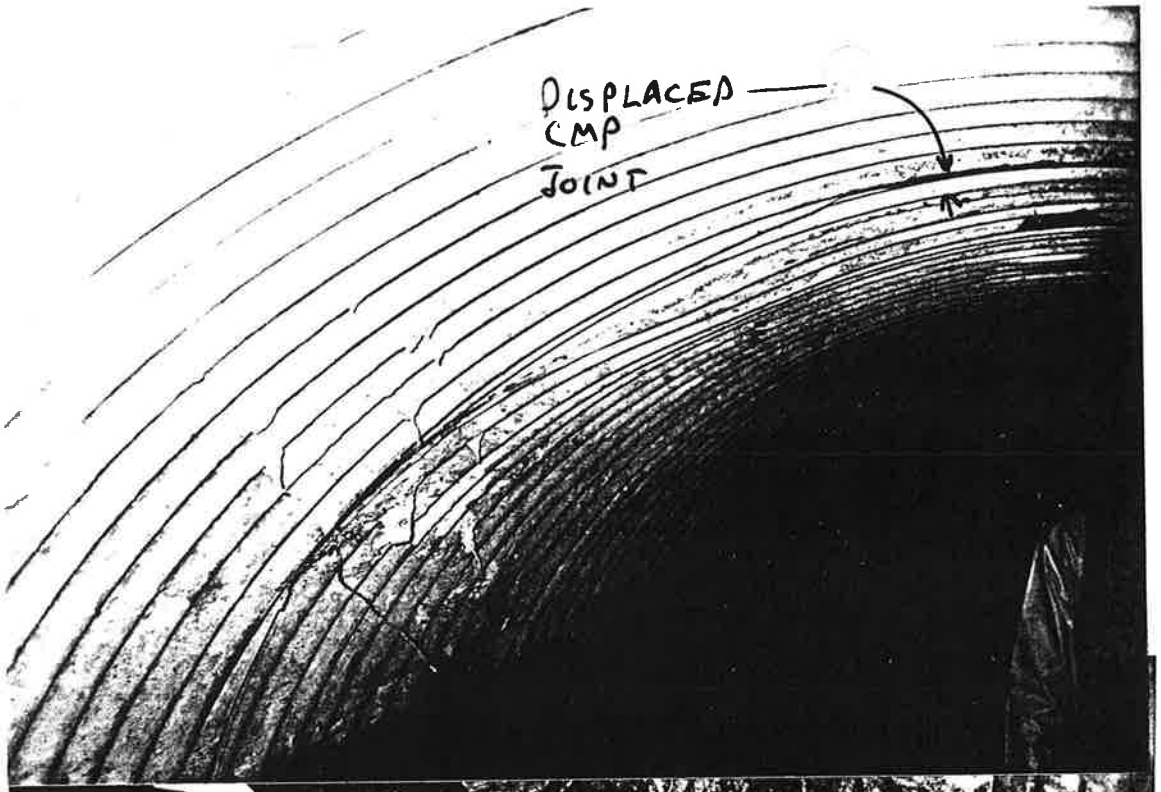


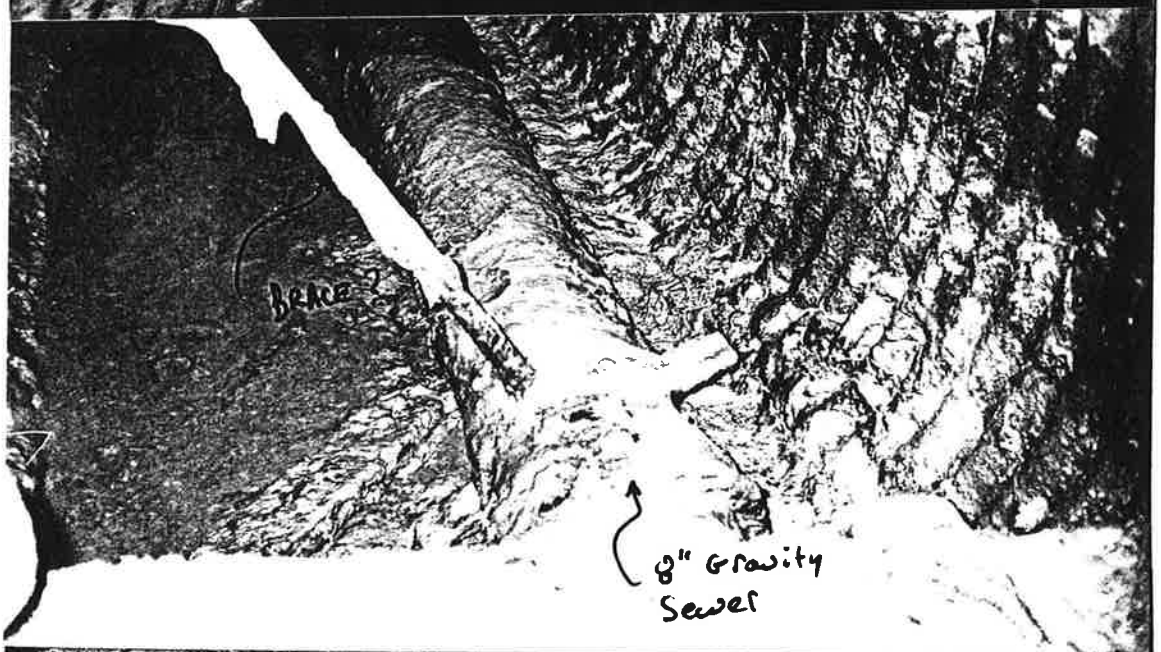


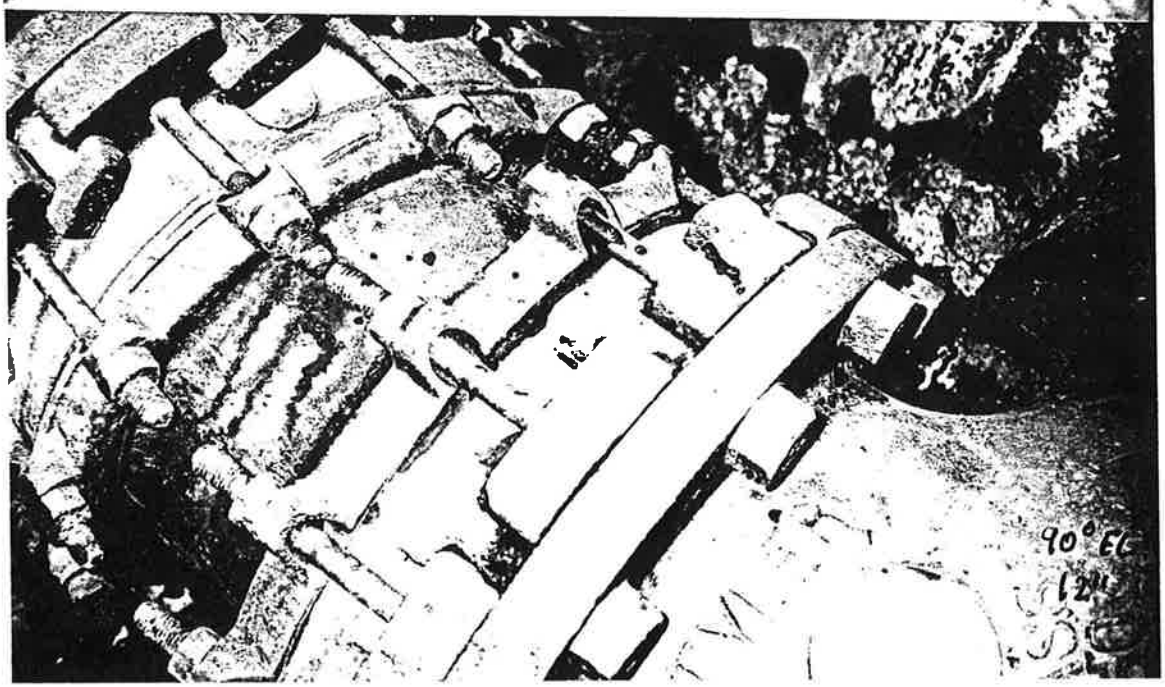
Repair clam
installed o
8" force ma
at point
of previous
pipe ruptu



72" CMP
Displaced CMP joint ≈ 400 into tunnel.

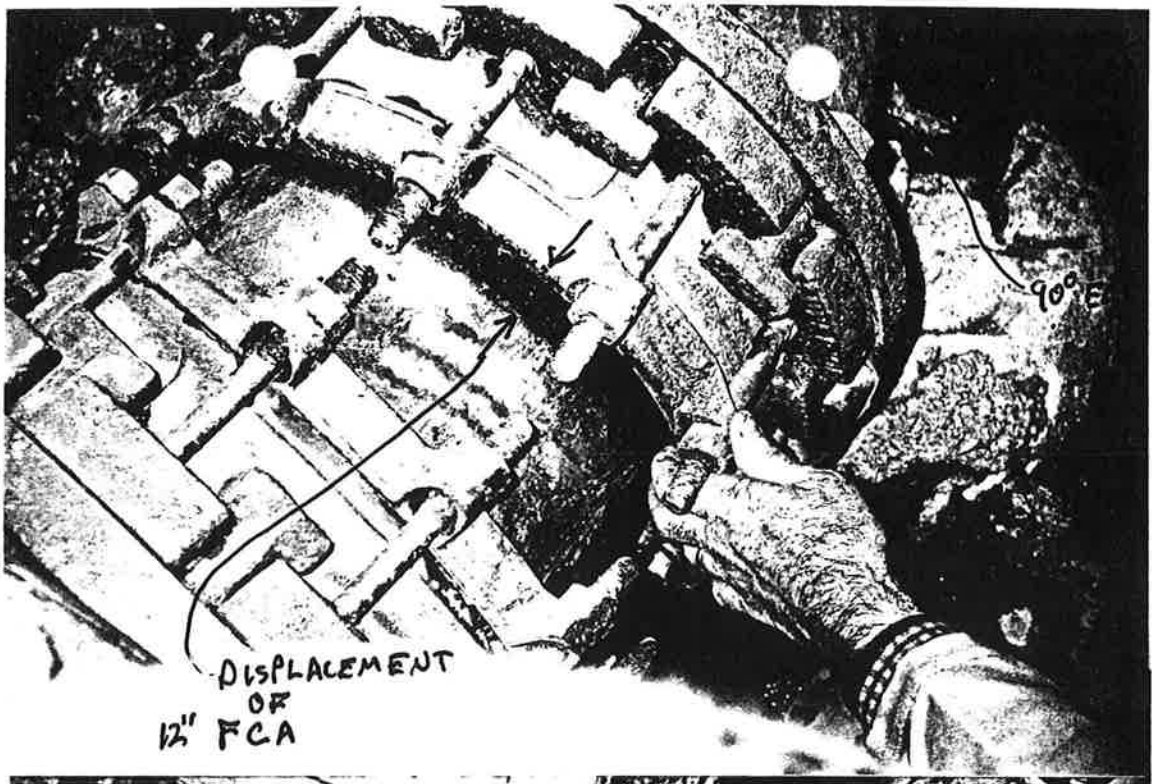






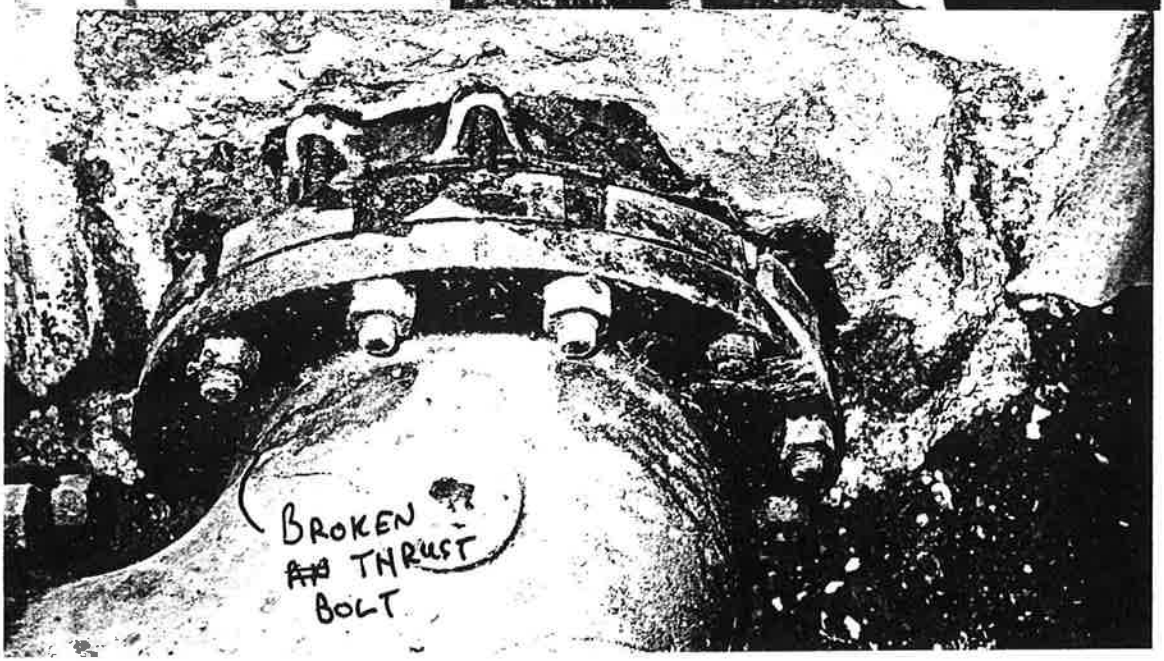
72" CMP

FCA displac
ment dur
pump on op



12" & 8" g
valves @
parallel P
M.H.

90° EL. w/
flange x fc
exiting 7
CMP.



APPENDIX G

CITY OF LAKEPORT
2008 MASTER SEWER PLAN
WASTEWATER TREATMENT FACILITIES DESIGN CRITERIA

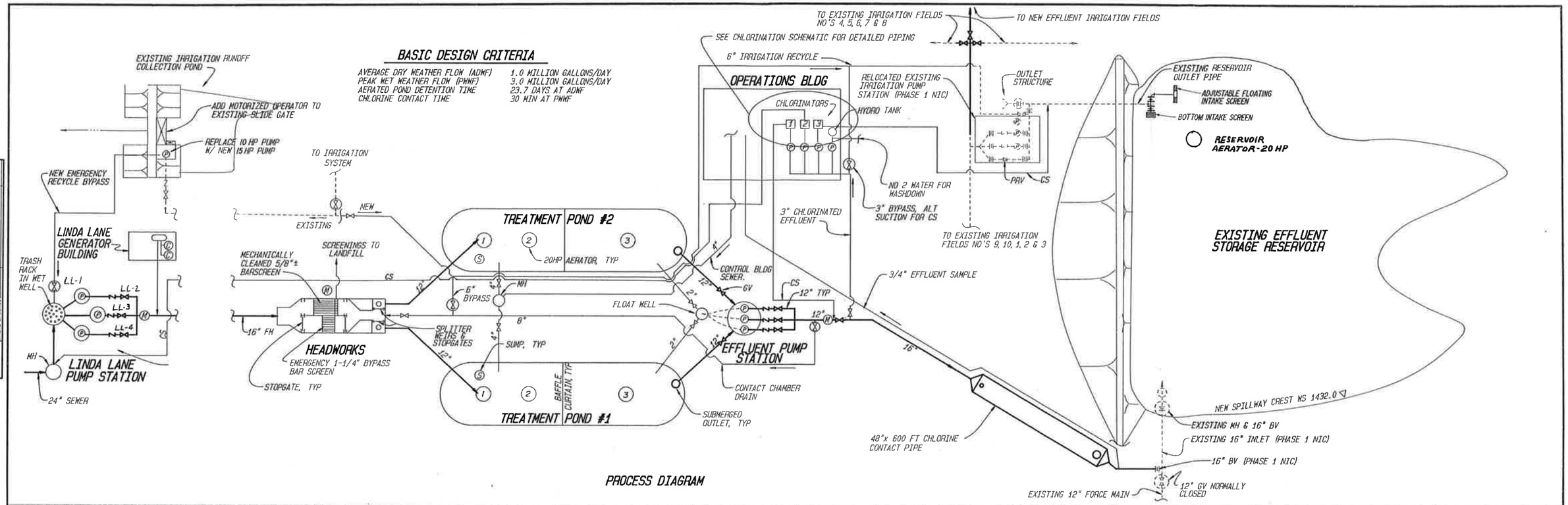
Item	Capacity
Household Equivalents	4,000±
Average Dry Weather Flow (ADWF) MGD	1.0
Peak Wet Weather Flow (PWWF) MGD	3.0
Sewage Loading	
Biochemical Oxygen Demand (BOD_5)	
Concentration, mg/L	240
Lbs/Day	2,000
Total Suspended Soils	
Concentration, mg/l	240
Lbs/Day	2,000
FIRST-STAGE TREATMENT	
Number of Aeration Cells	2
Cell Surface Area, Acres	1.42
Cell Volume, MG	5.89
Detention Time at ADWF, Days	11.8
Cell Depth Range, Ft	15-17
BOD_5 Loading, Lbs/Day/Cell	1001
Aeration Capacity Required, Lbs O_2/Lb BOD5 Applied	2
Estimated Minimum Oxygen Supply Potential	
Assumptions: T=24°C;	
Elev = 1,400 FT.; 1.5 mg/L Residual 0_2;	
Beta 0.9; Alpha 0.8; Standard Rate 3.2 Lbs/Hr;	
Lbs 0_2/Hp Hr	1.64
Theoretical Horsepower	
Required Hp/Cell	25.4
Aerator Size Used, Hp Nominal	2 @ 20
Estimated BOD_5 Reduction, %	58
SECOND STAGE TREATMENT	
Number of Aeration Cells	2
Cell Surface Area, Acres	1.42
Cell Volume, MG	5.89
Detention Time at ADWF, Days	11.8
Cell Depth Range, Ft	13-15
BOD_5 Loading, Lbs/Day/Cell	420
Aeration Capacity Required, Lbs O_2/Lb BOD_5 Applied	2
Estimated Minimum Oxygen Supply Potential, Lbs O_2/Hp/Hr	1.74
Theoretical Hp/Cell	10.1
Aerator Size Used, Hp Nominal	20
Estimated BOD_5 Reduction, %	33
ESTIMATED EFFLUENT QUALITY FROM AERATED PONDS	

CITY OF LAKEPORT
2008 MASTER SEWER PLAN
WASTEWATER TREATMENT FACILITIES DESIGN CRITERIA

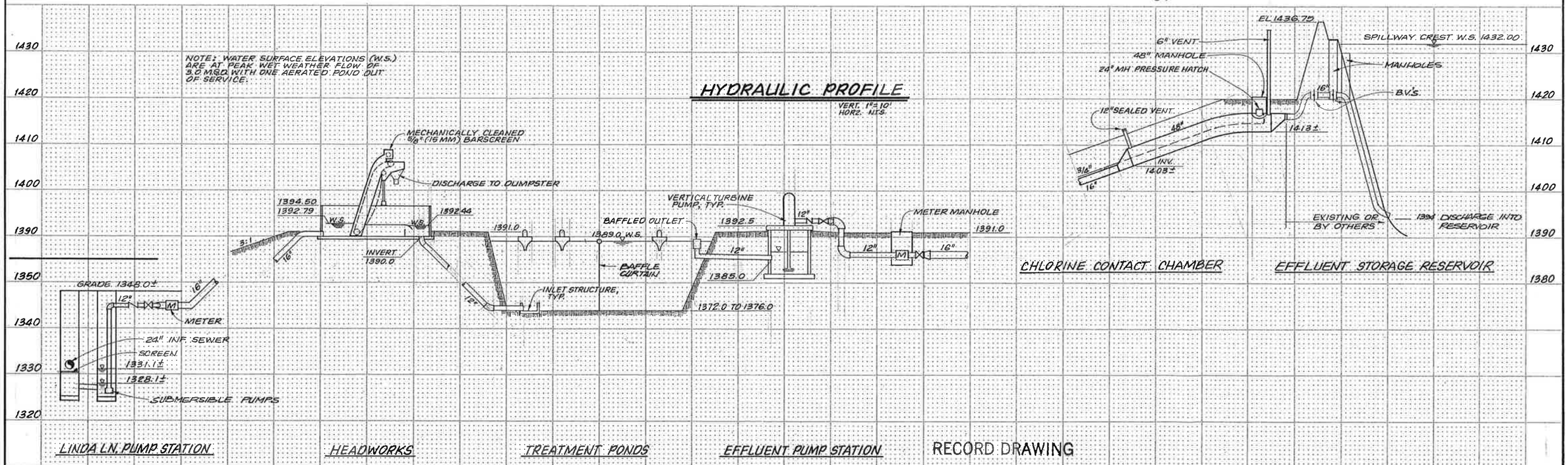
Item	Capacity
BOD_5 mg/L, Average	34
Total Suspended Solids, mg/L, Average	60
Total Nitrogen, N, mg/L	10 to 30
Total Phosphorus, P, mg/L	5 to 10
STORAGE RESERVOIR	
Capacity, Acre Feet	600
Depth, Ft, Maximum	42
Average Surface Area, Acres	28
BOD5 Loading Rate, Lbs/Day, Average	284
Loading Rate, Lbs/Acre/Day	10.1
CHLORINATION	
Number of Gas Chlorinators	3
Maximum Dosage Per Chlorinator, Lbs/Day	325
Maximum Dosage for Disinfection, mg/L	24
Typical Dosage to Irrigation System, mg/L	5
Chlorinator Feedwater Pumps	3
Chlorinator Feedwater Pump Capacity, GPM	24
IRRIGATION	
Annual Application Rate - Average, Ac-Ft/Yr	3.0
-Maximum, Ac-Ft/Yr	3.5
Irrigation Cycle - Irrigation Days	1
- Rest Days	6
Cycle Application Rate, Inches/Day	
Normal (4.4 Hours to 6.1 Hours)	1.1- 1.4
Maximum (7.4 Hours)	1.7
Sprinkler Application Rate, Inches/Hour	0.22 TO 0.24
Disposal Requirements, Ac-Ft/Yr	
100-Year Rainfall, 0.45 MGD ADWF	1,043
Current Net Irrigation Area, Acres	332
Typical Sprinklered Area	90
Peak Month Application Rate, Ac-Ft	215
Maximum Flow Rate (Two Irrigation Pumps), GPM	2,800
Typical Number Sprinklers in Each Field	100
Flow Per Sprinkler, GPM	28

BASIC DESIGN CRITERIA

AVERAGE DRY WEATHER FLOW (ADWF)	1.0 MILLION GALLONS/DAY
PEAK WET WEATHER FLOW (PWWF)	3.0 MILLION GALLONS/DAY
AERATED POND DETENTION TIME	23.7 DAYS AT ADWF
CHLORINE CONTACT TIME	30 MIN AT PWWF



PROCESS DIAGRAM



FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK NO., BY, DATE

REVISIONS

NO.	DATE	
	3/93	RECORD DRAWING INFORMATION

PACE ENGINEERING
REDDING, CALIFORNIA

DES. PC	CKD. LGK	JOB NO.
DRN. GKC	DATE 10/91	523.09

SIGNED — REGISTERED PROFESSIONAL ENGINEER LEON G. KOPPLE EXP. 6-30-93 No. 17217 STATE OF CALIFORNIA

CITY OF LAKEPORT
MUNICIPAL SEWER DISTRICT NO. 1
PHASE 2 WASTEWATER TREATMENT & DISPOSAL FACILITIES REPLACEMENT/EXPANSION
PROCESS DIAGRAM & PROFILE

SHEET 13

OGDEN SURVEYING EQUIPMENT CO. 80660

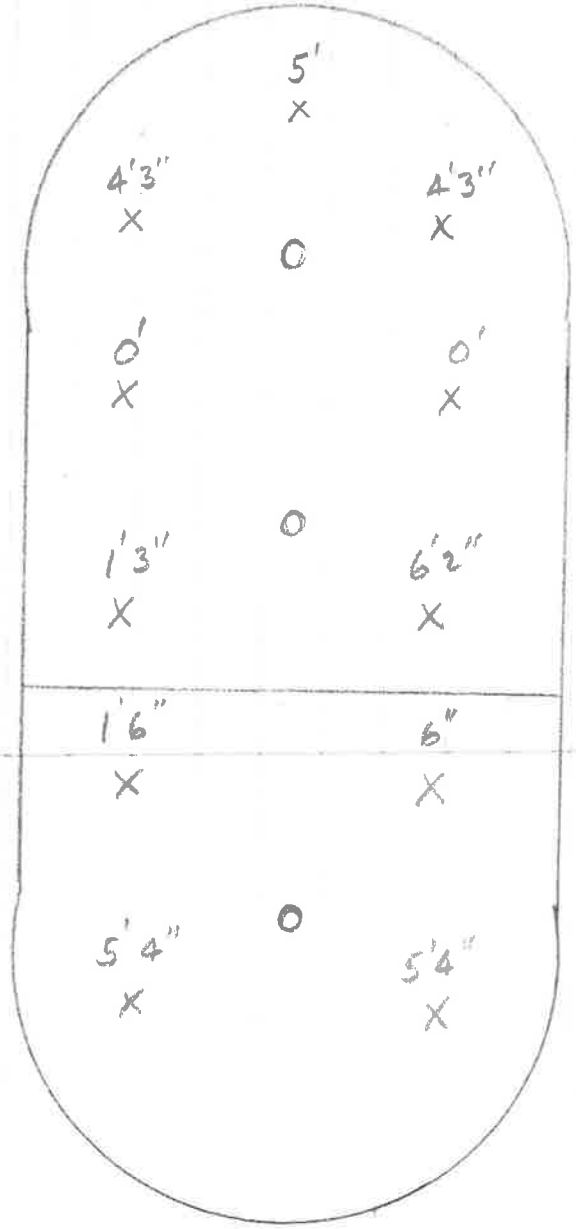
N

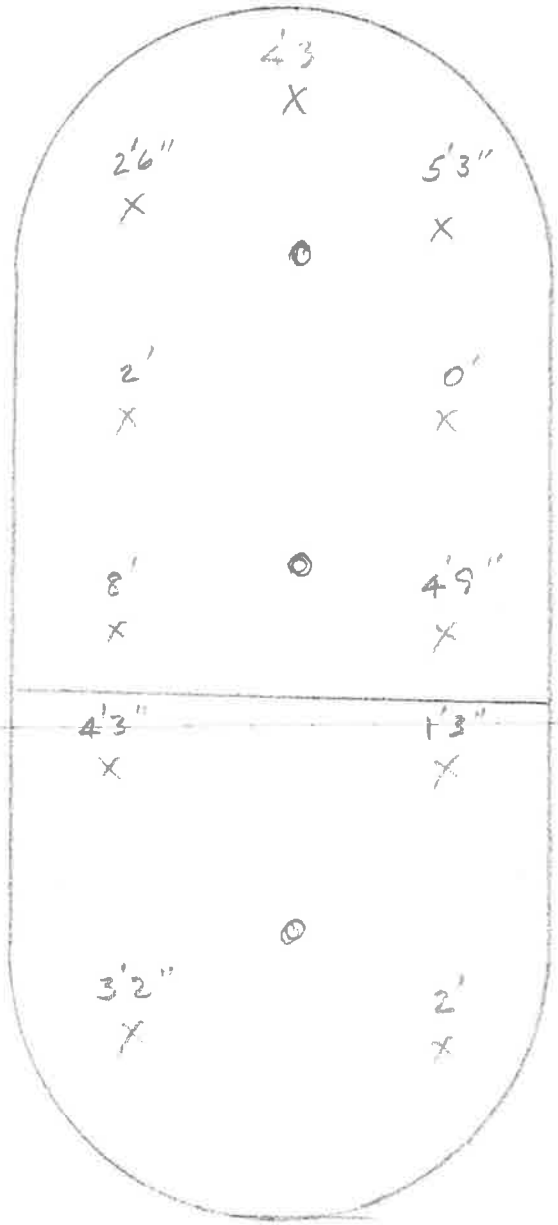
NORTH POND

SOUTH POND

1-3-09

CITY OF LAKEPORT





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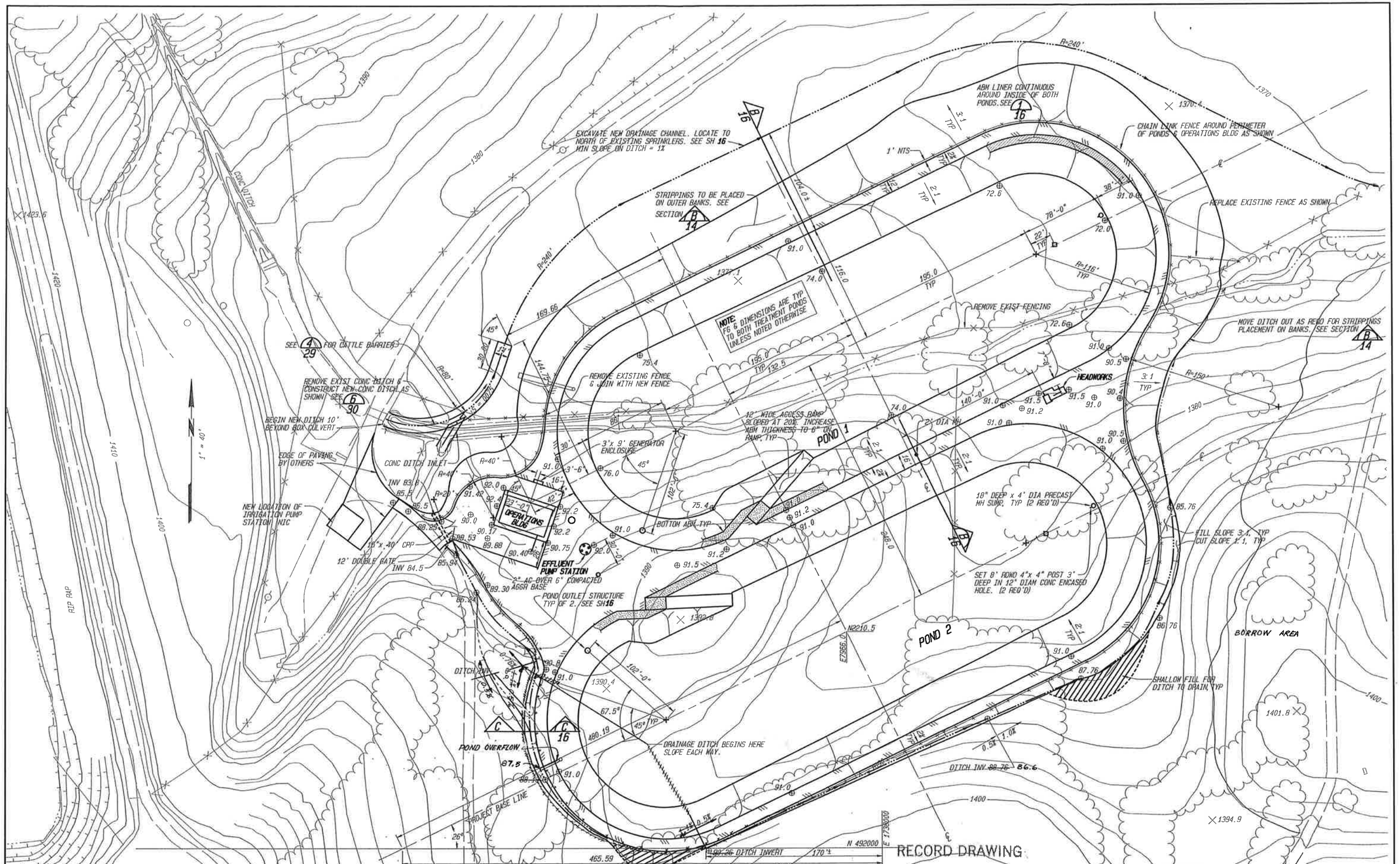


REVISIONS		
NO	DATE	
1	3/93	RECORD DRAWING INFORMATION

PACE ENGINEERING
REDDING, CALIFORNIA

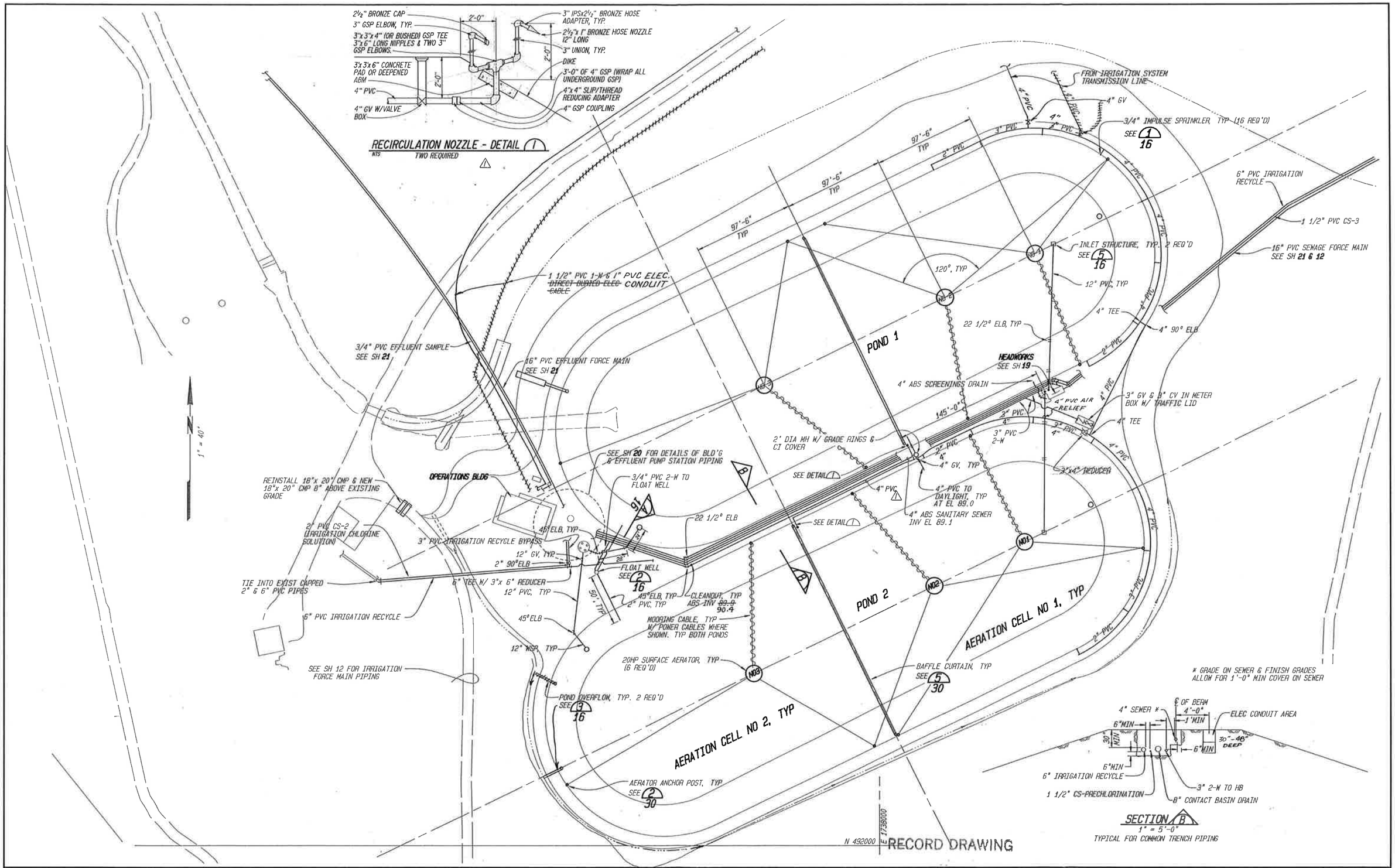
DES	PLC	CKD	LGK	JOB NO.
DRN	SKC	DATE	10/91	523.09

SIGNED
REGISTERED PROFESSIONAL ENGINEER LARRY E. KEPPEL EXP. 6-30-93 No. 12117 CIVIL STATE OF CALIFORNIA

CITY OF LAKEPORT
MUNICIPAL SEWER DISTRICT NO. 1
PHASE 2 WASTEWATER TREATMENT & DISPOSAL FACILITIES REPLACEMENT/EXPANSION

TREATMENT PONDS SITE PLAN

SHEET 14



REVISIONS		
NO	DATE	
1	12-02-91	CHANGED PER ADDENDUM No. 1
2	3/93	RECORD DRAWING INFORMATION

PACE ENGINEERING
REDDING, CALIFORNIA

DES	PLC	CKD	LGK	JOB NO.
DRN	SKC	DATE	10/91	523.09

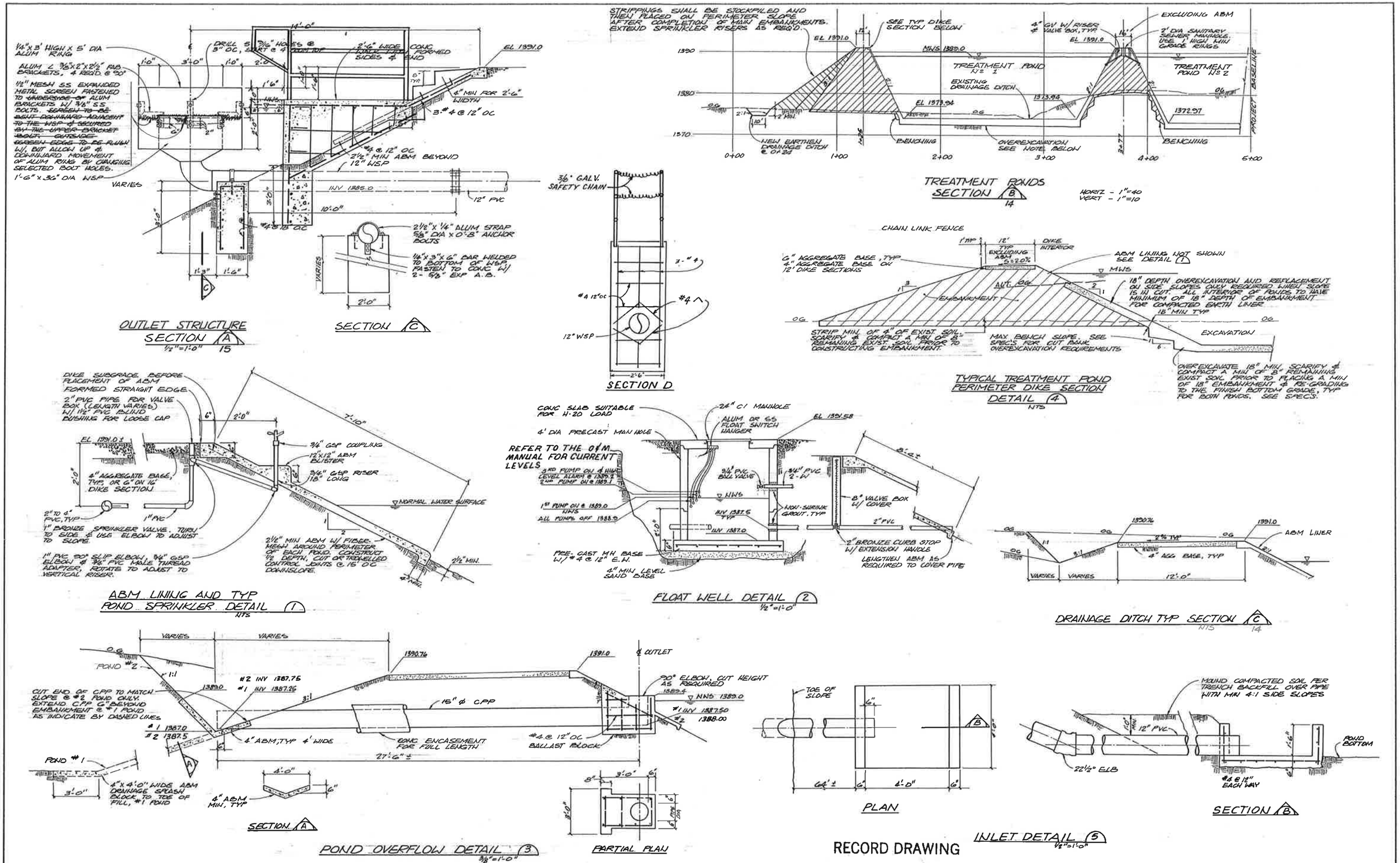
SIGNED

REGISTERED PROFESSIONAL ENGINEER LEIF G. KEPPLE EXP. 6-30-93 No. 12217 CIVIL STATE OF CALIFORNIA

CITY OF LAKEPORT
MUNICIPAL SEWER DISTRICT NO. 1
PHASE 2 WASTEWATER TREATMENT & DISPOSAL FACILITIES REPLACEMENT/EXPANSION

TREATMENT PONDS PIPING PLAN

SHEET 15



REVISIONS		
NO	DATE	
1	3/93	RECORD DRAWING INFORMATION

PACE ENGINEERING
REDDING, CALIFORNIA

DES PC	CKD LGE	JOB NO.	
DRN JLL	DATE 10-91	623.09	

SIGNED

REGISTERED PROFESSIONAL ENGINEER LARRY E. JOFFE EXP. 6-30-93 No. 17217 STATE OF CALIFORNIA

CITY OF LAKEPORT
MUNICIPAL SEWER DISTRICT NO. 1
PHASE 2 WASTEWATER TREATMENT & DISPOSAL
FACILITIES REPLACEMENT/EXPANSION
TREATMENT POND SECTIONS & DETAILS

SHEET 16

APPENDIX H

CITY OF LAKEPORT
Budget
Fiscal Year 2009 / 2010
Sewer Maintenance & Operations
Fund 601

Account No.	Description	2006/2007 Actual	2007/2008 Actual	2008/2009 Actual	2009/2010 Requested
	Revenue:				
700.008	CLMSD M & O Tax	1,265	2,408		1,000
750.501	Interest Earnings	16,156	1,376		3,650
750.502	Property Leases	30,000	22,500		25,000
770.706	CLMSD Service Charges	1,071,794	1,276,513		1,470,536
770.707	CLMSD Service Misc Fees	753	-		-
770.708	CLMSD County Service Charges	118,724	189,894		100,000
770.709	CLMSD Service Connection Charges	14,821	18,910		10,000
770.716	CLMSD Basin 2000	89,880	92,610		95,000
780.801	Sundry Revenues	141	-		-
780.806	Insurance Rebates	14,880	-		-
780.825	Other Income	-	-		46,000
780.850	Bond Proceeds	-	2,296,174		-
	Total Revenue	**1,358,414**	**3,900,384**	**-**	**1,751,186**
	Expenditures:				
910.000	Salaries	413,633	437,496		500,776
911.000	Benefits	220,324	224,614		230,979
912.000	Part Time Employee Salaries	402	-		2,500
915.000	Overtime Pay	7,658	8,643		2,000
915.001	Standby	4,302	4,074		4,000
916.000	Retiree Health Insurance	31,218	38,678		46,885
	Total Salaries and Benefits	677,537	713,505	-	787,140
920.000	Electricity and Propane	169,222	138,802		140,000
921.000	Telephone	10,027	10,655		10,000
922.000	Advertising & Public Notices	1,930	1,706		1,562
923.000	Postage	6,188	5,539		6,400
924.000	Office Supplies	2,370	2,309		1,925
925.000	Gasoline and Oil	12,418	18,068		20,000
926.000	Vehicle Maintenance	715	1,750		6,400
927.000	Equipment Maintenance	24,227	21,952		16,000
928.000	Special Departmental Supplies	45,481	45,193		38,262
929.000	Equipment Rents and Leases	888	1,183		1,845
929.001	Office Rent/Maint and City Council	-	-		53,928
930.000	Professional/Contractual Services	473,772	343,618		132,207
930.002	Professional Services - Eng/Planning	-	-		25,500
930.008	Basin 2000 Payments	89,411	91,756		95,000
930.009	NW Treatment Plant Expense	-	-	-	150,000
930.010	Regulatory Permit Fees	-	-	-	20,000
931.000	Dues and Subscriptions	580	1,400		1,532
932.000	Insurance and Surety Bonds	86,229	67,653		60,722
933.000	Travel and Training	1,392	4,098		8,250
940.000	Property Taxes	2,289	2,327		3,500
942.000	Depreciation Expense	551,937	-		-
950.000	Debt Service	-	-		186,560

CITY OF LAKEPORT
Budget
Fiscal Year 2009 / 2010
Sewer Maintenance & Operations
Fund 601

Account No.	Description	2006/2007 Actual	2007/2008 Actual	2008/2009 Actual	2009/2010 Requested
950.003	FHA Sewer Rev Bond Principal	16,000	-		-
951.003	FHA Sewer Rev Bond Interest	12,300	-		-
	Total Operating Expense	1,507,374	758,007	-	979,593
960.000	Automobiles and Trucks	3,582	4,200		
970.000	Shop/Other Equipment	5,576	5,825		
980.000	Office Equipment and Furnishings	1,178	1,238		
990.000	Land, Structures, and Improvements	580	5,993		9,500
990.401	Ashe Street Pump Station	-	-		-
990.402	W/W Treatment Plant Improvement Project	-	2,528,619		-
	Total Capital Outlay	10,916	2,545,875	-	9,500
	Total Expenditures	**2,195,826**	**4,017,387**	**-**	**1,776,233**

Budget Detail

Budget
Fiscal Year 2010/2011
Sewer Maintenance & Operations
Fund 601

Account No.	Description	2008/2009 Actual	2009/2010 Adopted	2009/2010 Actuals	2010/2011 Preliminary	2010/2011 Final Budget
	Revenue:					
700.008	CLMSD M & O Tax	1,008	1,000	2,545	1,237	1,237
750.501	Interest Earnings	3,716	3,650	1,088	1,385	1,385
750.502	Property Leases	30,000	25,000	25,000	25,000	25,000
770.706	CLMSD Service Charges	1,581,433	1,470,536	1,463,250	1,475,000	1,475,000
770.707	CLMSD Service Misc Fees	165	-	-	-	-
770.708	CLMSD County Service Charges	71,038	100,000	72,699	75,000	75,000
770.709	CLMSD Service Connection Charges	1,218	10,000	-	1,200	1,200
770.716	CLMSD Basin 2000	94,284	95,000	93,625	95,000	95,000
780.825	Other Income	-	46,000	-	-	-
780.850	Bond Proceeds	248,212	-		-	-
790.000	Transfers In				-	27,742
	Total Revenue	**2,031,075**	**1,751,186**	**1,658,207**	**1,673,822**	**1,701,564**
	Expenditures:					
910.000	Salaries	540,442	500,776	556,538	465,975	443,700
911.000	Benefits	220,684	230,979	216,687	190,756	176,328
912.000	Part Time Employee Salaries	3,082	2,500	4,670	4,500	4,500
915.000	Overtime Pay	14,924	2,000	5,588	1,200	1,200
915.001	Standby	4,606	4,000	5,708	4,000	4,000
916.000	Retiree Health Insurance	29,031	46,885	48,614	41,683	41,683
	Total Salaries and Benefits	812,769	787,140	836,804	708,114	671,410
920.000	Electricity and Propane	115,405	140,000	109,960	149,000	149,000
921.000	Telephone	10,176	10,000	11,394	10,000	10,000
922.000	Advertising & Public Notices	788	1,562	-	1,000	1,000
923.000	Postage	4,765	6,400	5,960	6,400	6,400
924.000	Office Supplies	1,969	1,925	2,869	2,000	2,000
925.000	Gasoline and Oil	15,188	20,000	12,259	15,000	15,000
926.000	Vehicle Maintenance	2,885	6,400	1,629	5,000	5,000
927.000	Equipment Maintenance	10,526	16,000	10,205	9,950	27,950
928.000	Special Departmental Supplies	35,621	38,262	20,745	38,000	38,000
929.000	Equipment Rents and Leases	930	1,845	944	1,500	1,500
929.001	Office Rent/Maint and City Council	53,500	53,928	53,928	54,845	54,845
930.000	Professional/Contractual Services	226,433	117,207	107,834	80,550	80,550
930.002	Professional Services - Eng/Planning	549	25,500	14,109	18,250	18,250
930.008	Basin 2000 Payments	92,130	95,000	69,472	95,000	95,000
930.009	NW Treatment Plant Expense	39,624	150,000	142,252	150,000	150,000
930.010	Regulatory Permit Fees	-	20,000	17,502	20,500	20,500
931.000	Dues and Subscriptions	974	1,532	622	1,200	1,200
932.000	Insurance and Surety Bonds	61,383	60,722	80,457	50,933	50,933
933.000	Travel and Training	7,563	8,250	6,538	6,600	6,600
940.000	Property Taxes	2,410	3,500	2,461	3,000	3,000
940.001	Vector Control Assessment	-	-	67	100	100
942.000	Depreciation Expense	-	-	624,355	-	-
950.000	Debt Service	160,498	186,560	186,560	189,460	189,460
	Total Operating Expense	843,318	964,593	1,482,123	908,288	926,288
960.000	Automobiles and Trucks	-	-		-	-
970.000	Shop/Other Equipment	12,328	-	632	-	18,000
980.000	Office Equipment and Furnishings	3,005	-	1,029	-	-
990.000	Land, Structures, and Improvements	15,625	9,500	-		
990.402	W/W Treatment Plant Improvement Project	22,117	-	-	-	-
	Total Capital Outlay	53,076	9,500	1,662	-	18,000
	Total Expenditures	**1,709,162**	**1,761,233**	**2,320,588**	**1,616,402**	**1,615,698**

Budget Surplus/(Deficit)		**85,866**
Beginning Fund Balance		**252,410**
Anticipated Ending Fund Balance		**338,276**

	Prior Year Actual	Current Yr Amended Budget	Current Year Estimate	Next Year Adopted Budget	Budget Percent Change
Fund: 601 - CLMSD UTILITY M & O FUND					
Expenditures					
Dept: 0000 NON-DEPARTMENTAL					
991.000 TRANSFERS OUT	0	0	0	45,000	0.00
Total NON-DEPARTMENTAL	0	0	0	45,000	0.00
Dept: 1020 ADMINISTRATIVE SERVICES					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	46,380	0.00
911.000 FRINGE BENEFITS	0	0	0	16,948	0.00
930.000 PROFESSIONAL/CONTRACTURAL SVCS	0	0	0	7,000	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	1,980	0.00
Total ADMINISTRATIVE SERVICES	0	0	0	72,308	0.00
Dept: 1030 CITY ATTORNEY-GEN'L					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	7,619	0.00
911.000 FRINGE BENEFITS	0	0	0	4,616	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	516	0.00
Total CITY ATTORNEY-GEN'L	0	0	0	12,751	0.00
Dept: 1041 FINANCE					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	65,222	0.00
911.000 FRINGE BENEFITS	0	0	0	30,089	0.00
912.000 PART TIME EMPLOYEE SALARIES	0	0	0	3,200	0.00
915.000 OVERTIME PAY	0	0	0	500	0.00
921.000 TELEPHONE	0	0	0	2,323	0.00
922.000 ADVERTISING & PUBLIC NOTICES	0	0	0	2,500	0.00
923.000 POSTAGE	0	0	0	6,000	0.00
924.000 OFFICE SUPPLIES	0	0	0	1,000	0.00
927.000 EQUIPMENT MAINTENANCE	0	0	0	2,000	0.00
928.000 SPECIAL DEPARTMENTAL SUPPLIES	0	0	0	1,075	0.00
929.000 EQUIPMENT RENTS AND LEASES	0	0	0	250	0.00
930.000 PROFESSIONAL/CONTRACTURAL SVCS	0	0	0	10,663	0.00
931.000 DUES AND SUBSCRIPTIONS	0	0	0	188	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	2,579	0.00
933.000 TRAVEL AND TRAINING	0	0	0	1,775	0.00
980.000 OFFICE EQUIPMENT/FURNISHINGS	0	0	0	625	0.00
Total FINANCE	0	0	0	129,989	0.00
Dept: 1050 COMMUNITY DEV: PLANNING					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	6,743	0.00
911.000 FRINGE BENEFITS	0	0	0	2,760	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	660	0.00
Total COMMUNITY DEV: PLANNING	0	0	0	10,163	0.00
Dept: 1051 COMMUNITY DEV: BUILDING					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	5,898	0.00
911.000 FRINGE BENEFITS	0	0	0	2,413	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	660	0.00
Total COMMUNITY DEV: BUILDING	0	0	0	8,971	0.00
Dept: 1052 CITY ENGINEER					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	22,328	0.00
911.000 FRINGE BENEFITS	0	0	0	10,738	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	1,032	0.00
Total CITY ENGINEER	0	0	0	34,098	0.00
Dept: 3020 PUBLIC WORKS					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	30,110	0.00
911.000 FRINGE BENEFITS	0	0	0	15,058	0.00
932.000 INSURANCE AND SURETY BONDS	0	0	0	2,888	0.00
Total PUBLIC WORKS	0	0	0	48,056	0.00

	Prior Year Actual	Current Yr Amended Budget	Current Year Estimate	Next Year Adopted Budget	Budget Percent Change
Fund: 601 - CLMSD UTILITY M & O FUND					
Expenditures					
Dept: 4020 CLMSD MAINTENANCE & OPERATIONS					
910.000 REGULAR EMPLOYEE SALARIES	555,538	443,700	424,125	133,885	-69.83
911.000 FRINGE BENEFITS	216,687	176,328	210,000	63,284	-64.11
912.000 PART TIME EMPLOYEE SALARIES	4,670	4,500	5,054	9,100	102.22
915.000 OVERTIME PAY	5,588	1,200	8,143	8,500	608.33
915.001 STANDBY PAY	5,708	4,000	5,500	5,000	25.00
920.000 ELECTRICITY AND PROPANE	109,960	149,000	185,995	195,500	31.21
921.000 TELEPHONE	11,394	10,000	8,979	8,500	-15.00
922.000 ADVERTISING & PUBLIC NOTICES	0	1,000	2,500	6,900	590.00
923.000 POSTAGE	5,960	6,400	5,580	2,200	-65.63
924.000 OFFICE SUPPLIES	2,869	2,000	2,360	1,200	-40.00
925.000 GASOLINE AND OIL	12,259	15,000	13,074	16,175	7.83
926.000 VEHICLE MAINTENANCE	1,629	5,000	5,824	7,200	44.00
927.000 EQUIPMENT MAINTENANCE	10,205	27,950	18,000	29,000	3.76
928.000 SPECIAL DEPARTMENTAL SUPPLIES	20,745	38,000	38,000	20,900	-45.00
928.005 TREATMENT CHEMICALS	0	0	0	18,000	0.00
929.000 EQUIPMENT RENTS AND LEASES	944	1,500	1,200	1,500	0.00
929.001 OFFICE RENT/MNTNCE & CITY CNCL	53,928	54,845	54,845	48,751	-11.11
930.000 PROFESSIONAL/CONTRACTURAL SVCS	107,834	80,550	80,550	78,350	-2.73
930.002 PROFESSIONAL SVCS-ENGR/PLNG	14,109	18,250	15,000	20,000	9.59
930.004 LAB ANALYSIS	0	0	0	22,000	0.00
930.008 BASIN 2000 PAYMENTS	69,472	95,000	114,394	95,000	0.00
930.009 NW TRTMT PLANT EXPENSE	142,252	150,000	2,152	100,000	-33.33
930.010 REGULATORY PERMIT FEES	17,502	20,500	20,500	22,300	8.78
931.000 DUES AND SUBSCRIPTIONS	622	1,200	1,200	5,600	366.67
932.000 INSURANCE AND SURETY BONDS	80,457	50,933	57,894	29,704	-41.68
933.000 TRAVEL AND TRAINING	6,538	6,600	4,000	6,600	0.00
940.000 PROPERTY TAXES	2,461	3,000	2,907	3,230	7.67
940.001 VECTOR CONTROL ASSESSMENT	67	100	67	90	-10.00
950.000 DEBT SERVICE	186,560	189,460	189,458	187,260	-1.16
970.000 SHOP/OTHER EQUIPMENT	632	18,000	20,418	17,000	-5.56
980.000 OFFICE EQUIPMENT/FURNISHINGS	1,029	0	0	3,700	0.00
990.000 LAND, STRUCTURES & IMPRVMNTS	0	0	119	19,500	0.00
Total CLMSD MAINTENANCE & OPERATIONS	1,647,619	1,574,016	1,497,838	1,185,929	-24.66
Dept: 5020 WATER MAINTENANCE & OPERATIONS					
910.000 REGULAR EMPLOYEE SALARIES	0	0	0	132,260	0.00
911.000 FRINGE BENEFITS	0	0	0	66,330	0.00
Total WATER MAINTENANCE & OPERATIONS	0	0	0	198,590	0.00
Total Expenditures	1,647,619	1,574,016	1,497,838	1,745,855	10.92
Total CLMSD UTILITY M & O FUND	10,588	99,806	237,498	-45,655	-145.74
Fund: 602 - CLMSD EXPANSION FUND					
Revenues					
Dept: 0000 NON-DEPARTMENTAL					
750.501 INTEREST EARNINGS	2,005	0	0	2,333	0.00
770.710 CLMSD SERVICE EXPANSION FEE	65,000	0	-17,724	10,000	0.00
Total NON-DEPARTMENTAL	67,005	0	-17,724	12,333	0.00
Total Revenues	67,005	0	-17,724	12,333	0.00

APPENDIX I

CITY OF LAKEPORT MUNICIPAL SEWER DISTRICT NO. 1

BASIC FINANCIAL STATEMENTS

JUNE 30, 2011

City of Lakeport Municipal Sewer District No. 1
Basic Financial Statements
For the year ended June 30, 2011

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JJACPA, Inc.

A Professional Accounting Services Corp.

INDEPENDENT AUDITORS' REPORT

The Board of Directors
City of Lakeport Municipal Sewer District No. 1
Lakeport, California

We have audited the accompanying basic financial statements of the City of Lakeport Municipal Sewer District No. 1 (District) as of and for the year ended June 30, 2011, as listed in the foregoing table of contents. These basic financial statements are the responsibility of the management of the District. Our responsibility is to express an opinion on these basic financial statements based on our audit. The prior year summarized comparative information has been derived from the District's June 30, 2010, financial statements in which an unqualified opinion was expressed by other auditors on those financial statements.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the State Controller's *Minimum Audit Requirements for California Special Districts*. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the basic financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the basic financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall basic financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the financial position of the City of Lakeport Municipal Sewer District No. 1 as of June 30, 2011, and the results of its operations and cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

The Management's Discussion and Analysis (MD&A) on pages three to ten are not required parts of the basic financial statements but are supplementary information required by the Governmental Accounting Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the required supplementary information. However, we did not audit the information and express no opinion on it.

Our audit was made for the purpose of forming an opinion on the basic financial statements of the City of Lakeport Municipal Sewer District No. 1 taken as a whole. The accompanying supplementary schedule is presented for purposes of additional analysis and is not a required part of the basic financial statements. The information presented in this supplementary schedule has been subjected to the auditing procedures applied in the audit of the financial statements and, in our opinion, is fairly presented in all material respects in relation to the basic financial statements taken as a whole.

JJACPA, Inc.

February 1, 2012

J JACPA, Inc.

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www.jjacpa.com

City of Lakeport Municipal Sewer District No. 1
Financial Statements
For the year ended June 30, 2011

Management's Discussion and Analysis

This section of City of Lakeport Municipal Sewer District No. 1's (District) basic financial statements presents management's discussion and analysis of the District's financial performance during the fiscal year ended June 30, 2011. Since this management's discussion and analysis is designed to focus on current activities, resulting change and current known facts, please read it in conjunction with the District's basic financial statements (pages 12 - 14) and the footnotes (pages 15 - 21).

Financial Highlights

At June 30, 2011, the District's net assets decreased to $8,552,716 from $8,724,240 in 2010 or $171,524 as can be seen on Page 12. Operating revenues decreased by $14,104 and non-operating revenues increased by $55,103 as can be seen on Page 13. Operating expenses decreased by $189,956 as can be seen on Page 7. Depreciation expense increased by $18,471.

Using This Report

In December 1998, the Governmental Accounting Standards Board (GASB) released statement No. 33, *Accounting and Financial Reporting for Nonexchange Transactions*, which revised the reporting of property tax revenue. In June 1999, GASB released statement No. 34, *Basic Financial Statements -- and Management's Discussion and Analysis -- for State and Local Governments*. Changes in Statement No. 34 require a comprehensive one-line look at the entity as a whole and capitalization of assets and depreciation for agencies not reporting on the accrual basis of accounting. Since the District has historically reported all activities in enterprise funds in a manner similar to business activities and followed the accrual basis of accounting, the District merely has been required to reclassify certain balances to utilize the new Statement No. 34 terminology. There were no major reconciling items necessary or elimination of balances due to the implementation of Statement No. 34.

The annual financial statements include the Independent Auditors' Report, this management's discussion and analysis, the basic financial statements, and notes to basic financial statements.

Financial Analysis of the District as a Whole

Net Assets
As of June 30, 2011 and 2010

	2011	2010	Increase (Decrease)	Percent Change
Assets:				
Current assets	$2,092,355	$1,717,111	$375,244	21.9%
Non-current assets	13,629,980	14,264,159	(634,179)	(4.4)%
Total assets	15,722,335	15,981,270	(258,935)	(1.6)%
Liabilities:				
Current liabilities	189,029	151,960	37,069	24.4%
Non-current liabilities	6,980,590	7,105,070	(124,480)	(1.8)%
Total liabilities	7,169,619	7,257,030	(87,411)	(1.2)%
Net assets:				
Investment in capital assets, net of related debt	6,532,659	7,635,928	(1,103,269)	(14.4)%
Restricted	796,958	60,919	736,039	1208.2%
Unrestricted	1,223,099	1,027,393	195,706	19.0%
Total net assets	$8,552,716	$8,724,240	$(171,524)	(2.0)%

This schedule is prepared from the District's Statement of Net Assets (page 12), which is presented on the accrual basis of accounting whereby assets are capitalized and depreciated.

As can be seen from the table above, net assets at June 30, 2011, decreased to $8,552,716 from $8,724,240 in 2010 or $171,524. This was a result of decreased operating revenue, which continued to be lower than operating expenses and the inclusion of depreciation and amortization, which are a non-cash expense. Restricted net assets represents amounts restricted for use in Assessment District 91-1.

Financial Analysis of the District as a Whole, Continued

Operating Results
For the years ended June 30, 2011and 2010

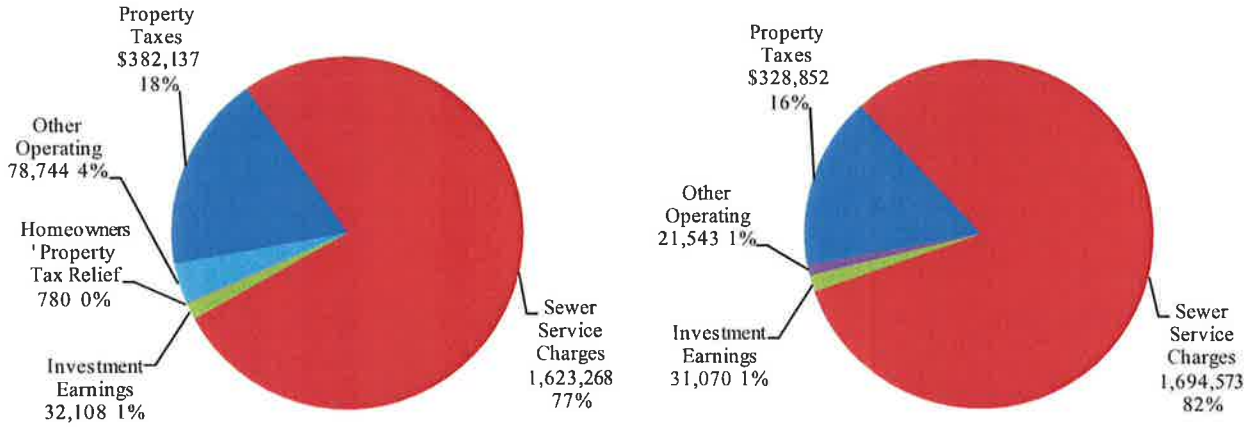
	2011	2010	Increase (Decrease)	Percent Change
Operating revenues	$ 1,702,012	$ 1,716,116	$ (14,104)	(0.8)%
Operating expenses	1,950,925	2,140,881	(189,956)	(8.9)%
Operating loss	(248,913)	(424,765)	175,852	(41.4)%
Non-operating revenues	415,025	359,922	55,103	15.3%
Non-operating expenses	(337,636)	(334,861)	(2,775)	0.0%
Net income (loss)	(171,524)	(399,704)	228,180	(57.1)%
Net assets:				
Beginning of year	8,724,240	9,123,944	(399,704)	(4.4)%
End of year	$ 8,552,716	$ 8,724,240	$ (171,524)	(2.0)%

While the Statement of Net Assets shows the change in financial position of net assets, the operating results are reflected in the Statement of Revenues, Expenses, and Changes in Net Assets (page 13). This statement provides answers to the nature and source of the change in financial position of net assets.

Financial Analysis of the District as a Whole, Continued

The following is a graphic illustration of revenues by source:

Revenues By Source
Both Operating & Non-Operating



FY 2010-2011			FY 2009-2010		Increase (Decrease)
$ 382,137	18.1%	**Property Taxes**	$ 328,852	15.8%	$ 53,285
1,623,268	76.7%	**Sewer Service Charges**	1,694,573	81.6%	(71,305)
32,108	1.5%	**Investment Earnings**	31,070	1.5%	1,038
780	0.0%	**Homeowners' Property Tax Relief**	-	0.0%	780
78,744	3.7%	**Other Operating**	21,543	1.0%	57,201
$ 2,117,037	100.0%	**Totals**	$ 2,076,038	100.0%	$ 40,999

Property Taxes increased by $53,285 due to County apportionments being slightly higher. Sewer user service charges decreased by $71,305 as described on page 9. Investment Earnings increased by $1,038 due to interest received on higher cash balances. Other revenues increased by $57,201 primarily the result of connection fees, which can fluctuate dramatically from year to year.

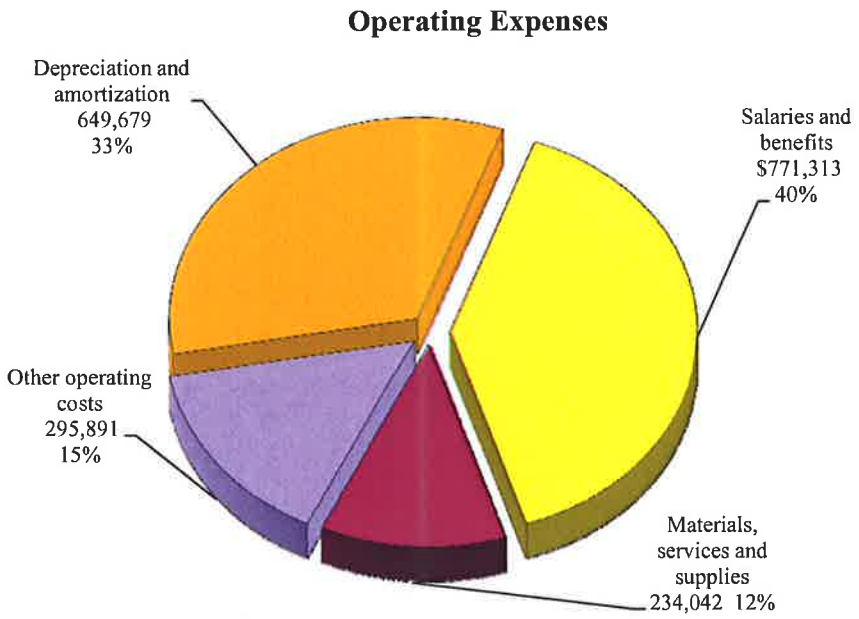
Financial Analysis of the District as a Whole, Continued

Operating Expenses decreased by $189,956 as detailed below:

Operating Expenses
For the years ended June 30, 2011 and 2010

	2011	2010	Increase (Decrease)	Percent Change
Operating expenses:				
Salaries and benefits	$ 771,313	$ 836,804	$ (65,491)	(7.8)%
Materials, services and supplies	234,042	540,787	(306,745)	(56.7)%
Other operating costs	295,891	132,082	163,809	124.0%
Depreciation and amortization	649,679	631,208	18,471	2.9%
Total	$ 1,950,925	$ 2,140,881	$ (189,956)	(8.9)%
Net capital assets	$ 13,464,659	$ 14,075,711	$ (611,052)	(4.3)%

The following is a graphic illustration of operating expenses:



Financial Analysis of the District as a Whole, Continued

Analysis of Net Assets
As of June 30, 2011 and 2010

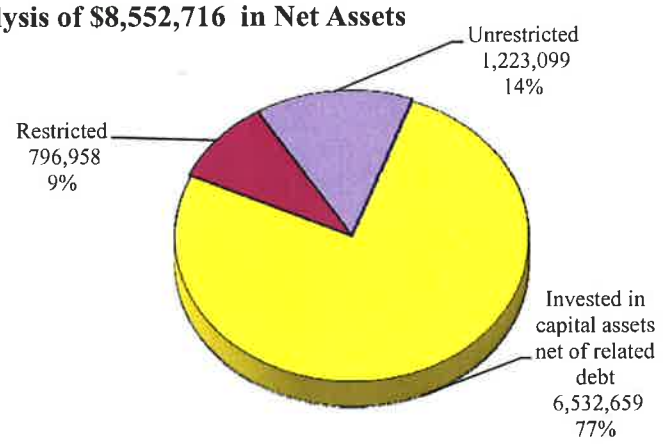
	2011	2010	Increase (Decrease)	Percent Change
Net assets:				
Invested in capital assets	$ 6,532,659	$ 7,635,928	$ (1,103,269)	(14.4)%
Restricted	796,958	60,919	736,039	1208.2%
Unrestricted	2,020,057	1,027,393	992,664	96.6%
Total	$ 9,349,674	$ 8,724,240	$ 625,434	7.2%

The change in net assets is a decrease of $171,524, primarily the result of decreased operating revenue, which was lower than operating expenses by $248,913, but was offset by increased non-operating revenues, which exceeded non-operating expenses by $77,389. Current charges for service and non-operating revenues, as compared with the year ended 2010, continue to be sufficient to fund operations, excluding depreciation and amortization, which are considered non-cash expenses. The District reported a net cash increase in 2011 of $390,552.

The District's revenue to expense ratio, excluding depreciation and amortization, was 1.70 at June 30, 2011. This ratio is illustrated further in the Schedule of Debt Service Coverage, included as a Supplementary Schedule at the end of this document.

The following is a graphic illustration of net assets:

Analysis of $8,552,716 in Net Assets



Economic Factors and Potential Future Results

The District completed a Sewer System Master Plan in June 2008. In 2008, the Plan identified most of the sanitary sewer system as being over 30 years old. The Master Plan provides guidance on system upgrades and refurbishments. Over the next 20 years (FY 2008-2009 through FY 2028-2029), capital investment was estimated at $5,006,000. Since the Plan was completed, some construction projects far exceeded the Plan's estimates.

Using the Plan as a guide, the District continues to plan a program of repair and replacement of the sanitary infrastructure. To finance this effort, as well as on-going operations and maintenance, the sewer user service charge likely will be increased and outside funding will be sought, most likely through the United Stated Department of Agriculture (USDA), Rural Development.

The District is in the fourth year of a five-year rate increase plan, which began in 2007. That increase was the result of imposed regulatory requirements by the Central Valley State Water Resource Control Board under a cease and desist order. That order required the District to design and construct a wastewater irrigation field near the current treatment facility. It has proven insufficient, however, in meeting the short, medium, and long-term capital improvement goals of the District as well as adequately funding basic operations.

Since the 2008 plan was completed, the State and Regional Water Boards have implemented a system of requirements for wastewater collection agencies known as a Sewer System Management Plan (SSMP) that sets out additional parameters for master plans that were not addressed in the 2008 plan.

Asset Management refers to the establishment of levels of services for the District. These levels of service, similar to roles or the function of the sewer system, are:

1. Maintain sewer service to customers.
2. Maintain regulatory compliance.
3. Minimize inflow and infiltration (I/I).
4. Fund and implement an aggressive capital improvement program.

The costs associated with maintaining adequate levels of service are highly dependent on the age of the system, I/I issues, and the topography of the District. Wastewater flow from individual dwelling units is a relatively minor component when determining projects and their associated costs. It is important to note that the rehabilitation/replacement of sewer mains and laterals is as much (if not more so) a result of changes in design requirements as it is a result of deteriorated and undersized pipes.

Over the next 20 years major capital investment is estimated at $10,000,000. Staff continues to evaluate a second 5-year stepped increase in the sewer user service charge and low interest, long-term loans/bonds to finance the effort, as well as on-going operations and maintenance.

Contacting the District's Financial Management

This financial report is designed to provide our citizens, taxpayers, customers, investors, and creditors with a general overview of the District's finances and to show the District's accountability for the money it receives. If you have questions about this report, contact City of Lakeport Municipal Sewer District No. 1 in care of the City of Lakeport, 225 Park Street, Lakeport, CA, (707) 263-5615.

BASIC FINANCIAL STATEMENTS

City of Lakeport Municipal Sewer District No. 1

Statement of Net Assets

June 30, 2011

(with comparative balances for June 30, 2010)

	2011	2010
ASSETS		
Current assets:		
Cash equivalents and investments - pooled	$ 1,931,497	$ 1,540,945
Accounts receivable	119,016	127,239
Taxes receivable	11,218	-
Interest receivable	175	-
Inventory	30,449	48,927
Total current assets	2,092,355	1,717,111
Property, plant and equipment:		
Non-depreciable	1,735,233	1,735,233
Depreciable	22,039,363	22,023,863
Less accumulated depreciation	(10,309,937)	(9,683,385)
Net property, plant and equipment	13,464,659	14,075,711
Deferred charges	165,321	188,448
Total assets	$ 15,722,335	$ 15,981,270
LIABILITIES AND NET ASSETS		
Current liabilities:		
Accounts payable and accrued liabilities	$ 50,671	$ 50,352
Compensated absences	4,806	4,600
Interest payable	133,552	97,008
Total current liabilities	189,029	151,960
Long-term liabilities:		
Compensated absences	48,590	15,070
Due within one year	160,000	155,000
Due after one year	6,772,000	6,935,000
Total long-term liabilities	6,980,590	7,105,070
Total liabilities	7,169,619	7,257,030
Net assets:		
Invested in capital assets, net of related debt	6,532,659	7,635,928
Restricted	796,958	60,919
Unrestricted	1,223,099	1,027,393
Total net assets	8,552,716	8,724,240
Total liabilities and net assets	$ 15,722,335	$ 15,981,270

The accompanying notes are an integral part of these basic financial statements.

City of Lakeport Municipal Sewer District No. 1

Statement of Revenues, Expenses, and Changes in Net Assets
For the year ended June 30, 2011
(with comparative balances for the year ended June 30, 2010)

	2011	2010
OPERATING REVENUES:		
Charges for services:		
Sewer service charges	$ 1,623,268	$ 1,694,573
Other	78,744	21,543
Total operating revenues	1,702,012	1,716,116
OPERATING EXPENSES:		
Salaries and benefits	771,313	836,804
Materials, services and supplies	234,042	540,787
Other operating costs	295,891	132,082
Depreciation and amortization expense	649,679	631,208
Total operating expenses	1,950,925	2,140,881
OPERATING LOSS	(248,913)	(424,765)
NON-OPERATING REVENUES (EXPENSES):		
Property taxes	382,137	328,852
Homeowners' property tax relief	780	-
Investment earnings	32,108	31,070
Interest and debt service expenses	(337,636)	(334,861)
Total non-operating revenues (expenses)	77,389	25,061
Net income	(171,524)	(399,704)
NET ASSETS:		
Beginning of year	8,724,240	9,123,944
End of year	$ 8,552,716	$ 8,724,240

The accompanying notes are an integral part of these basic financial statements.

City of Lakeport Municipal Sewer District No. 1

Statement of Cash Flows

For the year ended June 30, 2011

(with comparative balances for the year ended June 30, 2010)

	2011	2010
CASH FLOWS FROM OPERATING ACTIVITIES:		
Receipts from customers	$ 1,710,235	$ 1,715,778
Payments to vendors for services and supplies	(511,774)	(713,395)
Payments to City of Lakeport employees	(737,587)	(812,710)
Net cash provided(used) by operating activities	460,874	189,673
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES:		
Property taxes and apportioned amounts	394,135	328,852
Net cash provided by non-capital financing activities	394,135	328,852
CASH FLOW FROM CAPITAL AND RELATED FINANCING ACTIVITIES:		
Acquisition and construction of capital assets	(15,500)	(24,439)
Principal payments on long-term debt	(158,000)	(145,000)
Interest paid on long-term financing	(322,890)	(358,566)
Net cash used by capital and related financing activities	(496,390)	(528,005)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Investment income received	31,933	31,070
Net increase(decrease) in cash	390,552	21,590
CASH AND INVESTMENTS:		
Beginning of year	1,540,945	1,519,355
End of year	$ 1,931,497	$ 1,540,945
CASH FLOWS FROM OPERATING ACTIVITIES:		
Reconciliation of operating income (loss) to net cash provided (used) by operating activities:		
Operating loss	$ (248,913)	$ (424,765)
Adjustments to reconcile operating income (loss) to net cash provided by operating activities		
Depreciation and amortization	649,679	631,208
Changes in current assets and liabilities:		
Accounts receivable	8,223	(338)
Inventory	18,478	(8,827)
Accounts payable and accrued liabilities	(319)	(20,057)
Compensated absences	33,726	12,452
Net cash provided(used) by operating activities	$ 460,874	$ 189,673

The accompanying notes are an integral part of these basic financial statements.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The financial statements of City of Lakeport Municipal Sewer District No. 1 (District) have been prepared in conformity with accounting principles generally accepted in the United States of America (GAAP) as applied to governmental enterprises classified as proprietary fund types. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The reports are based on all applicable GASB pronouncements as well as applicable Financial Accounting Standards Board (FASB) Statements and Interpretations, Accounting Principles Board Opinions, and Accounting Review Boards of the Committee on Accounting Procedure issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements. The more significant of the District's accounting policies are described below.

A. Description of the Reporting Entity

City of Lakeport Municipal Sewer District No. 1 is a component unit of the City of Lakeport. The District provides sewage collection services for the City, limited areas of the surrounding communities referred to as North Lakeport and certain unincorporated land within Lake County. The District's collection system consists of approximately 135,400 feet of collector mains and 13,500 feet of interceptor sewers. The District is an integral part of the City and is included in the City's June 30, 2011, and 2010, basic financial statements. City personnel provide all engineering, management, and operational services to the wastewater collection system, including management and operational services for sewage collection pump station maintenance. A large portion of the funding of the District's sewage facilities was funded by federal and state sources, with the remainder of the funding by the District's users.

B. Fund Accounting Classification and Basis of Accounting

On the Statement of Net Assets and the Statement of Revenues, Expenses, and Changes in Net Assets, business-like activities are presented using the economic resources measurement focus. The accounting objectives of this measurement focus are the determination of net income, financial position, and cash flows. All assets and liabilities (whether current or noncurrent) associated with their activities are reported. Fund equity is classified as net assets.

Enterprise funds account for operations that are financed and operated in a manner similar to private business enterprises where the intent is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges. The acquisition and capital improvement of the physical plant facilities required to provide these goods and services are financed from existing cash resources, the issuance of bonds, and cash flow from operations.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES, Continued

B. Fund Accounting Classification and Basis of Accounting, continued

The District's operations are funded almost entirely by user fees imposed as a rate based on type of usage (e.g. commercial, residential, etc.). The bulk of that rate is a flat amount charged primarily to residential users. Commercial accounts are charged a tiered rate based on water usage. The District collects a small maintenance and operations user fee (applied to operations) and a special assessment, which is applied to the repayment of a bond issued to construct the current treatment facility in 1993.

C. Cash Equivalents and Investments

For the purposes of the Statement of Net Assets and Statement of Cash Flows, "cash equivalents and investments" includes all demand, savings accounts, and certificates of deposits or short-term investments with an original maturity of three months or less.

The District, through the City of Lakeport, pools cash and investments from all funds for the purpose of increasing income through investment activities. Highly liquid money market investments with maturities of one year or less at time of purchase are stated at amortized cost. All other investments are stated at fair value in accordance with GASB Statement No. 31, *Accounting and Financial Reporting for Certain Investments and for External Investment Pools*. Market value is used as fair value for those securities for which market quotations are readily available.

The District indirectly, through the City of Lakeport, participates in an investment pool managed by the State of California titled Local Agency Investment Fund (LAIF) which has invested a portion of the pool funds in Structured Notes and Asset-Backed Securities. LAIF's investments are subject to credit risk with the full faith and credit of the State of California collateralizing these investments. In addition, these Structured Notes and Asset-Backed Securities are subject to market risk as to changes in interest rates.

D. Fixed Assets

Purchased fixed assets are valued at cost where historical records are available and at an estimated historical cost where no historical records exist. Donated fixed assets are valued at their estimated fair value on the date received.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend asset lives are not capitalized. Improvements are capitalized. Depreciation is provided on a straight-line basis over estimated useful lives ranging from 5 to 40 years.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES, Continued

E. Compensated Absences

The liability for vested vacation pay is recorded as an expense when the vacation is taken. Unused balances of vacation and sick time are accrued by employees when earned and may be subject to maximum accrual limits. Sick time accrued is paid in full to the employee when employment is terminated. There is no maximum accrual amount for sick time. Vacation time has a maximum accrual of 400 hours, dependent on the accrual rate of that employee, which is based on years of service. Upon termination of employment, vacation is paid out at a maximum of 50% of the accrued time available, depending on years of service. Compensatory time accrued is paid in full at the end of employment. The District estimates that 9% of accrued time would be used within the next operating period (twelve months).

F. Comparative Data

Comparative data for the prior year has been presented in the accompanying financial statements in order to provide an understanding of changes in the District's financial position and operations.

G. Reclassifications

Certain amounts from the prior year have been reclassified to conform to the current year's presentation.

2. CASH AND INVESTMENTS

A. Cash Deposits

The District pools cash from all sources. The District invests excess cash in the City of Lakeport, an unrated investment pool, which at June 30, 2011, approximated fair value of $6,433,021.

The California Government Code requires California banks and savings and loan associations to secure government cash deposits by pledging securities as collateral. This Code states that collateral pledged in this manner shall have the effect of perfecting a security interest in such collateral superior to those of a general creditor. Thus, collateral is considered to be held in the government's name.

According to California law, the market value of pledged securities with banking institutions must equal at least 110% of the government's cash deposits. California law also allows institutions to secure government deposits by pledging first trust deed mortgage notes having a value of 150% of the government's total cash deposits. The government can waive collateral requirements for cash deposits, which are fully insured up to $250,000 by the Federal Deposit Insurance Corporation.

The City Treasurer maintains the cash and investment pool, on behalf of the District, as their custodian, which includes cash balances and authorized investments for all District funds, which is invested to enhance interest earnings. The pooled interest earned is allocated monthly to the District based on average daily cash and investment balance.

2. CASH AND INVESTMENTS, Continued

B. Authorized Investments

Under provisions of the District/City's Investment Policy and in accordance with California Government Code Section 53601 & 53635 (a-n), the District/City may invest or deposit in the following types of investments:

- Local District Bonds
- US Treasury Obligations
- US Agencies
- Time Deposits
- Negotiable Certificates of Deposit
- Bankers' Acceptances
- Commercial Paper
- Local Agency Investment Funds (LAIF) of California State Treasurer's Office (State Pool)
- State of California Obligations
- CA Local District Obligations
- Repurchase Agreements (Repos)
- Reverse Repurchase Agreements
- Medium-Term Notes (Corporate Debt Investment Grade)
- Mutual Funds
- Money Market Funds
- Collateralized Bank Deposits

Criteria for selecting investments and the order of priority are:

- *Safety* - The safety and risk associated with an investment refers to the potential loss of principal, interest, or a combination of these amounts. The District/City only invests in those investments that they consider very safe.

- *Liquidity* - This refers to the ability to "cash in" at any moment in time with a minimal possibility of losing some portion of principal or interest. Liquidity is an important investment quality especially when the need for unexpected funds occurs occasionally.

- *Yield* - This refers to the rate of return and is the least important of the criteria. Safe, liquid investments do not enjoy the yields of investments not having those characteristics.

2. CASH AND INVESTMENTS, Continued

C. Safekeeping

Securities purchased from broker-dealers are held in third party safekeeping by the trust department of the broker-dealer or other designated third party trust in the District/City's name and control, whenever possible.

D. Investments in External Investment Pools

The District's investments with the City at June 30, 2011, included a portion of the pool funds invested in structured notes and asset backed securities and similar transactions through the Local Agency Investment Fund (LAIF). These investments may include the following:

Structured Notes are debt securities (other than asset-backed securities) whose cash-flow characteristics (coupon rate, redemption amount, or stated maturity) depends on one or more indices and/or that have embedded forwards or options.

Asset-backed Securities, the bulk of which are mortgage-backed securities, entitle their purchaser to receive a share of the cash flows from a pool of assets such as principal and interest repayments from a pool of mortgages (such as CMOs) or credit card receivables.

As of June 30, 2011, LAIF had invested 1.91% of its pooled assets in structured notes and asset-backed securities and similar transactions.

3. PROPERTY TAXES

Property taxes attach as an enforceable lien as of March 1. Taxes are levied on July 1 and payable in two installments on December 10 and April 10. All general property taxes are then allocated by the County Auditor's office utilizing the Teeter System of allocation in which levied amounts are directly allocated to the various taxing entities per the legislation-implementing Proposition 13 and the County retains any interest and penalties on delinquent taxes. The method of allocation used by the County is subject to review by the State of California.

4. CAPITAL ASSETS

The following is a summary of changes in property, plant and equipment during the fiscal year:

	Balance June 30, 2010	Additions	Deletions	Balance June 30, 2011
Land	$1,735,233	$ -	$ -	$1,735,233
Buildings, improvements and infrastructure	21,574,244	147,558	-	21,721,802
Equipment	449,619	-	(132,058)	317,561
Total depreciable property, at cost	22,023,863	147,558	(132,058)	22,039,363
Accumulated depreciation	(9,683,385)	(626,552)	-	(10,309,937)
Total depreciable property, net	12,340,478	(478,994)	(132,058)	11,729,426
Total	$14,075,711	$(478,994)	$(132,058)	$13,464,659

These assets are being depreciated on a straight-line basis over their estimated useful lives ranging from 5 to 40 years.

5. LONG-TERM LIABILITIES

The District generally incurs debt to finance projects or purchase assets, which will have useful lives equal to or greater than the related debt. The District's debt issues and transactions related to District activities are summarized below and discussed in detail subsequently:

	Balance July 1, 2010	Additions	Retirements	Balance June 30, 2011	Due Within One Year
2007 Series A Sewer Revenue Bonds	$3,010,000	$ -	$ (55,000)	$ 2,955,000	$ 55,000
Sewer District Improvement Bonds	4,110,000	-	(100,000)	4,010,000	105,000
Compensated absences	19,670	53,396	(19,670)	53,396	4,806
Total	$ 7,139,670	$ 53,396	$ (174,670)	$ 7,018,396	$ 164,806

2007 Sewer Revenue Bonds Series A – 2007 Series A, total issue $3,060,000. Annual principal and interest payments are due September 1st, with semiannual interest payments due March 1st, interest at 5.31% per annum, secured by wastewater fund revenue, maturing in year 2037.

Sewer District Improvement Bonds – Series 1993-1, USDA Rural Development, total issue 5,196,270. Annual principal and interest payments are due September 1st, with semi-annual interest payments due March 1st, interest at 5% per annum, secured by property assessment revenue from the South Assessment District 91-1, maturing in year 2032.

5. LONG-TERM LIABILITIES, Continued

Future debt service at June 30, 2011, is as follows for the Bonds:

Year Ending June 30,	2007 Sewer Revenue Bonds Series A		Sewer District Improvement Bonds		Total	
	Principal	Interest	Principal	Interest	Principal	Interest
2012	$ 55,000	$ 132,260	$ 105,000	$ 199,875	$ 160,000	$ 332,135
2013	60,000	129,960	110,000	192,500	170,000	322,460
2014	60,000	127,560	115,000	186,875	175,000	314,435
2015	65,000	125,060	120,000	3,000	185,000	128,060
2016	65,000	122,460	125,000	174,875	190,000	297,335
2017-2021	375,000	569,300	735,000	770,125	1,110,000	1,339,425
2022-2026	460,000	478,625	935,000	562,375	1,395,000	1,041,000
2027-2031	575,000	362,377	1,200,000	297,250	1,775,000	659,627
2032-2036	720,000	212,248	565,000	28,625	1,285,000	240,873
2037-2041	520,000	37,763	-	-	520,000	37,763
Total	$ 2,955,000	$ 2,297,613	$ 4,010,000	$ 2,415,500	$ 6,965,000	$ 4,713,113
Due within one year	$ 55,000	$ 132,260	$ 105,000	$ 199,875	$ 160,000	$ 332,135
Due after one year	2,900,000	2,165,353	3,905,000	2,215,625	6,805,000	4,380,978
Total	$ 2,955,000	$ 2,297,613	$ 4,010,000	$ 2,415,500	$ 6,965,000	$ 4,713,113

6. RISK MANAGEMENT

The District is insured under the City and is exposed to various risks of loss related to torts, theft of, damage to and destruction of assets, errors and omissions, injuries to employees, and natural disasters.

The City's insurance coverage and the respective coverage providers are as follows:

Amount	Coverage Provider	Payment Source
Liability Claim:		
$0 - $5,000	Self-insured	Banking layer
$5,001 - $10,000,000	Redwood Empire Municipal Insurance Fund	Shared risk
Workers' Compensation:		
$0 - $5,000	Self-insured	Banking layer
$5,001 - Statutory	Redwood Empire Municipal Insurance Fund	Shared risk

The City purchases insurance through the Redwood Empire Municipal Insurance Fund (REMIF) for all other risks of loss. The City also participates in insurance programs through REMIF for employee dental and vision claims. There have been no significant reductions in insurance coverage from coverage in the prior fiscal year.

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SUPPLEMENTARY SCHEDULES

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City of Lakeport Municipal Sewer District No. 1

Schedule of Debt Service Coverage

June 30, 2011 and 2010

In conjunction with the 2007 Series A Sewer Revenue Bonds, the District has covenanted to fix, prescribe and collect rates and charges for the sewer service which will be sufficient to yield during the year net revenues equal to 110% of the debt service paid during the year. For purposes of this calculation, net revenues equals net income plus depreciation and amortization expenses. The debt service requirement for 2011 and 2010 is as follows:

	2011	2010
Operating loss	$ (248,913)	$ (424,765)
Add:		
Depreciation and amortization	649,679	631,208
Interest revenue	32,108	31,070
Property taxes	382,137	328,852
Homeowners' property tax relief	780	-
Net revenue	$ 815,791	$ 566,365
Debt service:		
Principal	$ 158,000	$ 145,000
Interest	322,890	358,566
Total debt service	$ 480,890	$ 503,566
Calculated coverage	1.70	1.12

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