

## *Carollo has Demonstrated Experience in Wastewater Treatment Processes and Facility Design*

Since 1933, Carollo Engineers has provided full service environmental engineering assistance to municipal clients, specializing in the planning, design, and construction of water and wastewater facilities. Carollo's reputation is based upon client service and a continual commitment to quality. We currently maintain 32 offices in 13 states and have successfully completed projects throughout the United States.

Carollo offers a project team that brings the following benefits:

- Wastewater treatment operations specialists
- Wastewater facility design and construction specialists
- Qualified resources
- Technical competence
- Experience with regulatory agencies, including construction related permitting needs and effluent discharge permit requirements
- A client-focused management philosophy

### **Oxidation Ditch Experience**

Over the past 20 years, Carollo has been involved in the planning, design, and construction of more than 30 oxidation ditches in California and Nevada. The oxidation ditches range in size from the City of San Joaquin 0.25-mgd ditch to two 4.4-mgd ditches for the City of Delano. Twenty-six of the ditches are nitrification/denitrification (NDN) ditches where they reduce the total nitrogen concentration below 10 mg/L. These projects were completed under the review of four of the nine Regional Water Quality Control Boards in California.

The table on the following page provides a breakdown of recent oxidation ditch facilities designed by Carollo Engineers. As of 2012, all of the operating ditches are producing low, single-digit BOD and TSS effluent quality and those designed for Nitrogen Removal (Nitrification/Denitrification, NDN) are producing a Total Nitrogen less than 10 mg/L.



*Carollo provided design and construction management services for Livingston's Domestic Wastewater Treatment Plant, a 2-mgd oxidation ditch facility that replaced an existing pond system.*



*Process design of the City of Roseville 12-mgd Pleasant Grove Treatment Plant, which includes an oxidation ditch process designed for nitrification/denitrification and secondary clarifiers.*



*Carollo designed two NDN ditches with tertiary filters at the CMC, San Luis Obispo.*

Oxidation Ditch  
Qualifications

"Dedicated to creative, responsive, quality solutions for those we serve."

## Exhibit B - Carollo Engineers Oxidation Ditch Design Qualifications

Recent Experience on Planning and Design of Oxidation Ditch Facilities	
Client	Ditches/Sizes
<b>Operating Ditches:</b>	
City of Exeter, CA	Two ditches, 1.0 mgd each
City of Lindsay, CA	Two ditches, 0.9 mgd and 1.2 mgd
City of Hanford, CA	One NDN ditch, 3.25 mgd
City of Pismo Beach, CA	Two NDN ditches, 0.9 mgd each
CMC San Luis Obispo, CA	Two NDN ditches, 0.9 mgd each with tertiary filters
City of Livingston, CA	One NDN ditch, 2.2 mgd
City of Reedley, CA	One ditch NDN, 3.0 mgd
Cutler Orosi Sanitation District, CA	One ditch at 1 mgd
Camrosa Water District, CA	Two NDN ditches, 0.75 mgd with tertiary filters
Reno Stead Nevada, NV	One ditch, 1.5 mgd
South Truckee Meadows WWTP, NV	Two NDN ditches, 2.05 mgd each
City of Reedley, CA	One NDN ditch, 2.0 mgd
City of Delano, CA	Two NDN ditch, 4.4 mgd each (very low BOD)
City of Hughson, CA	One NDN ditch, 1.9 mgd
<b>Under Construction:</b>	
City of San Joaquin, CA	One NDN ditch, 0.25 mgd
<b>Greater than 90% Design (7 Ditches):</b>	
City of Livingston, CA	Domestic - Second NDN ditch, 2.2 mgd
City of Wasco, CA	Two NDN, 2.25 mgd
Camrosa Water District, CA	One NDN ditch, 1.0 mgd with tertiary filters
City of Livingston, CA	Industrial - Two NDN ditches, 2.2 mgd each
City of Sanger, CA	One NDN ditch, 1.8 mgd
<b>Facilities Plans</b>	
City of Ridgecrest, CA	One NDN ditch, 3.0 mgd
City of Arvin, CA	One NDN ditch, 2.0 mgd
City of Morro Bay, CA	Two NDN ditches, 0.75 each with tertiary filters



*Carollo recently completed design of the City of San Joaquin Wastewater Treatment Plant 0.5 mgd upgrade expansion project, which is currently under construction. The upgrade of their oxidation pond system was required by the Regional Water Quality Control Board to improve effluent quality to full secondary standards and also provide nitrogen removal.*