

Affordable Wastewater Solutions That Fit Your Community

For more than 25 years, Orenco Systems®, Inc. has helped communities all over the world find affordable solutions to a variety of wastewater problems.

Orenco's founders began researching effluent sewer collection systems and packed bed filter treatment systems in the 1970s. The company was incorporated in 1981 and started providing carefully engineered equipment and design support. Today, hundreds of communities — small and large — are meeting their wastewater needs with Orenco products and services. And Orenco's Engineered Systems division continues to provide these communities with a variety of support services. A list of our services is on the back.

The map below shows the location of many of these communities, including 10 of them that we profile briefly, in the following pages.



Orenco Systems®
Incorporated

*Changing the Way the
World Does Wastewater®*

800-348-9843

Affordable Wastewater Solutions

The Township of Hillsdale, New York

System size:
72 connections servicing 120 homes and businesses; 35,000 gpd

A classic New England village between the Hudson Valley and the Berkshires, Hillsdale has beautiful countryside, a quaint town square, well-to-do "week-enders" from Manhattan, and failing septic systems. In fact, the town has been under a consent order from the state's Department of Environmental Conservation since 1990. Hillsdale's consulting engineers, Clark Engineering & Surveying, recommended an Orenco® effluent sewer followed by an AdvanTex® Treatment System. Originally, the plans included a four-cell constructed wetlands for nitrogen-polishing before dispersal. Because the AdvanTex System is able to meet the TN requirement on its own, the town was able to remove the wetlands from the permit, saving approximately \$200,000. Grants and no-interest loans from a variety of sources are funding the project. Construction started in fall 2007, and the system should be fully installed by fall 2008. Wastewater Technologies, Inc. (WTI) provided consultation and equipment and will operate the system for the first year, after which the Town Sewer District will become the operator and service provider. With this system in place, Hillsdale will be out from under its consent order with a long-term, village-wide solution that protects public health and the environment, at a total cost of

Wickford Village, Rhode Island

System size:
80 housing units and community buildings; ~30,000 gpd design flow

A regional developer wanted to convert a military housing complex in the Wickford Village area to affordable housing. But replacing or rehabilitating the outdated and infiltration-prone gravity collection system serving the complex would have been prohibitively expensive because of the gas, electric, and water lines surrounding it. As an alternative, the consulting engineer recommended that two-inch diameter force mains be installed inside the existing eight-inch diameter gravity main, eliminating the need for trenching or boring around existing utilities and reducing infiltration. This installation was accomplished with minimal disruption at an affordable cost. Following the collection system, an AdvanTex textile filter manufactured by Orenco processes the wastewater to advanced treatment levels before it is discharged below the surface.

Mobile, Alabama



Glenwood, Alabama

System size:
~130 connections

This community needed a collection system to transport its sewage to the nearest municipal sewer. Unfortunately, the nearest municipal sewer was seven miles away. Glenwood selected an Orenco effluent sewer that uses an underground tank at each home with a lightweight but powerful 1/2-hp pump, which pumps the filtered effluent to the neighboring city, without a single lift station. Small diameter pipes (2-in. to 6-in.) were used for the service lines and main lines, which were installed following the contours of the land. With an effluent sewer, no large-diameter pipes, deep excavations, or manholes were required. The low-impact installation cost less and caused less disruption to the community than a traditional gravity sewer. And because the effluent is conveyed to a neighboring sewer system, no treatment system was needed and total project costs were substantially reduced.

Wickford Village, Rhode Island



Mobile, Alabama

System size:
11 separate systems serving 38 subdivisions

With more than a dozen utility-maintained decentralized systems in the region, Mobile has become a showcase for Orenco's wastewater technologies. South Alabama Utilities maintains most of them. In the late 1990s, the managers of this water and gas utility realized they needed to provide wastewater services to new subdivisions or risk losing customer share. Since then, SAU has installed Orenco effluent sewer collection systems serving 38 subdivisions, followed by 11 AdvanTex treatment plants in various locations. When all the developments are built out, SAU's facilities will have the capacity to handle half-a-million gallons of wastewater per day. At peak design flows, that's enough capacity to handle 2,000 new homes.

The Township of Hillsdale, New York



solutions That Fit Your Community

Lake City, Michigan

System size:
378 connections

Like many cities in Michigan, this community wanted to take advantage of the regulatory, operational, and cost benefits of a wastewater treatment lagoon. An Orenco effluent sewer system was installed, and filtered effluent (which has already received primary treatment at each property's underground tank) is pumped to the community's lagoon. Because effluent sewer collection systems are a fraction of the cost of gravity sewers, Lake City significantly minimized its need for upfront loans and grants. Since no solids flow through the system, small mainlines and low-cost air release valves (like those used in water delivery systems) contributed to the savings in installation costs. Moreover, since effluent sewer lines typically don't require pigging or flushing, operational costs are reduced as well.

Bethel Heights, Arkansas

System size:
More than 400 connections at partial build-out

This Northwest Arkansas town was growing rapidly in widely dispersed areas. It needed to accommodate its new developments with municipal wastewater services, but it also needed a wastewater solution that required minimal upfront expense. After researching its options, Bethel Heights selected a modular, "pay as you build" technology. An Orenco effluent sewer with an AdvanTex textile media filter has been installed in phases, allowing for capacity on demand, and, more importantly, the ability to defer costs until new developments broke ground. Had Bethel Heights chosen a typical gravity sewer system, the city would have needed a large up-front loan to cover the cost of the collection system (which makes up approximately 70-80% of total project costs), as well as rapid connections to fund the payments.

Watkins, Iowa

System size:
50 connections; ~16,000 gpd design flow

This small rural community needed a treatment system capable of meeting NPDES discharge requirements, to treat the wastewater collected by its newly constructed gravity sewer. Watkins selected and installed a compact AdvanTex AX100 textile treatment system manufactured by Orenco. Raw wastewater travels a short distance via gravity (and a single lift station) to the AdvanTex system, after which it is disinfected and discharged to a nearby surface water. Because of the AX100's minimal operational requirements the local utility, Poweshiek Water Association, runs the system with just a part-time operator. In contrast, traditional activated sludge treatment plants require a full-time operator, don't operate satisfactorily at low flows, and typically have complicated controls and optimization requirements, all of which are difficult for small rural communities to manage.

Elkton, Oregon

System size:
~100 connections

In the late eighties, individual onsite septic systems in Elkton, Oregon — along the beautiful Umpqua River — were failing, threatening the river's water quality. In addition the septic systems were limited in capacity, and merchants realized they couldn't expand their businesses without making improvements. In 1989, a watertight Orenco effluent sewer system was installed, followed by a recirculating sand filter and a large drainfield that does double-duty as a sheep pasture. With a total system cost of \$897,800, the average installation was less than \$7,000 per connection, a fraction of the cost of a conventional gravity sewer. Operational costs are minimal, also, partly because tanks are only pumped once every 10-15+ years, depending upon loading. Best of all, only two-thirds of the system's capacity is being used, so Orenco's technology will serve Elkton and its growing businesses, long into the future.

Iowa Countryside



Bethel Heights, Arkansas (AdvanTex® Treatment System)



Elkton, Oregon



Lacey, Washington

System size:
2,800 connections

Located about 50 miles south of Seattle, the City of Lacey was incorporated in 1966 and, by 2000, its population had grown to 31,000. Lacey lacked the wastewater infrastructure to accommodate this growth, and expanding its infrastructure using a traditional sewerage approach would have been very costly. In the mid-eighties, the city looked to Orenco effluent sewers as a solution, and in 1986, the first system was installed. Today, Lacey has a 33-square-mile wastewater service area that includes approximately 100 miles of gravity sewer mains with 7,800 connections and 46 miles of effluent sewer mains with 2,800 connections.

Lacey, Washington



Anchorage Tank & Welding, Inc.
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Diamond Lake, Washington

System size:
~530 connections

In the early 1970s, residents of Diamond Lake, Washington knew that something had to be done about their wastewater because the lake was being destroyed by leaking septic tanks and failing drainfields. The community needed federal funding assistance but, even so, a gravity system was out of the question. After nearly 15 years of research and planning, the commission decided on an Orenco effluent sewer. Construction began in 1987 and, as it turned out, 25 percent of the excavation had to be blasted for the tanks and collection lines. Had the engineers known about the rock, the gravity sewer cost estimates would have been even higher. More than 20 years later, the community continues to be happy with its system. Homeowners pay a nominal amount for their wastewater service, and the lake has completely recovered.



Diamond Lake, Washington

Equipment Plus Support Services

Orenco now employs nearly 300 people and sells its equipment through a network of more than 100 distributors. Our products have been installed throughout North America and in nearly 50 countries around the world.

While Orenco is well-known for its carefully engineered and reliable wastewater systems, we do more than simply supply equipment. If you are having difficulty in any of the following areas, Orenco can help. Call 800-348-9843 for assistance with ...

- Planning
- Regulatory compliance and approvals
- Life cycle cost analysis
- Equipment packages
- Financing
- Design and construction
- Contractor pre-qualification
- Construction management
- Ordinance development
- Rate setting
- O&M protocols
- Asset management



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