

# PROJECT PROFILE

An Affordable Wastewater Treatment and Reuse Solution for Commercial Properties

## MOUNTAIN TOP CONDOMINIUMS, U.S. VIRGIN ISLANDS

**Problem** The owners of a 23-unit condominium complex on the island of St. Thomas recognized the need to replace their failing wastewater system. They needed an easy-to-maintain replacement as soon as possible, but the steep hillside location and very limited land area made installation a challenge. In addition, the owners wanted a system that could be phased in, for budgetary reasons. And on top of that, the wastewater had to be treated to reuse quality for use in toilet flushing and outdoor watering.

**Solution** Susan Parten, P.E., had long been familiar with Orenco Systems® technologies. After evaluating the situation at the condominiums, she determined that an AdvanTex® Treatment System would provide effective treatment and also offer several cost-saving advantages, including low electricity and maintenance requirements.

## Effective AdvanTex® Treatment Offers Cost Savings



On the beautiful island of St. Thomas, an AdvanTex AX-Max™ Treatment System replaced a failed sequencing batch reactor at the Mountain Top condominiums.

On the small island of St. Thomas, the Mountain Top condominium complex had a big problem: its sequencing batch reactor (SBR) was failing. And a replacement treatment system was needed quickly, because residents relied on the recycled wastewater for use both in toilet flushing and landscape irrigation. But as the name “Mountain Top” suggests, the condominiums were located on a steep slope, and space for the new system was very limited. In fact, space was so tight that the treatment system had to be located right next to the swimming pool. And that meant it couldn’t be unsightly or give off any noticeable smell.

## Commercial — Reuse Market

### Project Overview

### ST. THOMAS, U.S. VIRGIN ISLANDS



#### Design Parameters

- 23-unit condominium complex
- 5.7 m<sup>3</sup>/day (1,500 gpd) average daily flow
- 11.4 m<sup>3</sup>/day (3,000 gpd) peak capacity

#### Start-Up Date

- September, 2014

#### Equipment Cost

- ~\$97,000 (Orenco equipment only)

#### Primary Treatment

- 28.4-m<sup>3</sup> (7,500-gal) T-Max™ tank

#### Secondary Treatment

- AdvanTex® AX-Max™ Treatment System

#### Tertiary Treatment

- Intermittent sand filter

#### Disinfection

- Chlorine tablet feeder and UV disinfection

#### Reuse Applications

- Toilet flushing
- Landscape irrigation

#### Monitoring and Control

- Orenco® MVP control panel

#### Engineer

- Susan M. Parten, P.E.

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**MOUNTAIN TOP CONDOMINIUMS, U.S. VIRGIN ISLANDS****Commercial —  
Reuse Market**

Fortunately, someone in the area was familiar with the work of Susan Parten, P.E. – an engineer specializing in sustainable wastewater systems – and referred her to the condominium association’s board of directors. Parten had been designing systems using Orenco® products and technologies for more than 20 years, so she recognized early on that an Orenco AdvanTex® Treatment System could provide the low-profile, high-quality treatment required, along with a small footprint and some much-needed cost savings.

To reduce up-front costs, Parten recommended that the project be completed in two phases. Phase I included the installation of an Orenco T-Max™ tank for primary treatment. This was followed by a new sand filter for tertiary polishing and then a cartridge filter and UV disinfection unit. An Orenco MVP control panel was also installed.

As soon as Phase I was completed, effluent quality immediately improved, even though primary-treated wastewater was still being dosed to the existing SBR prior to sand polishing. For the next year or so, flow tracking from the Orenco control panel was used to determine actual wastewater flows. This tracking turned out to be very important because flows were found to be significantly lower than estimated. This allowed for a reduction in the size – and the cost – of the secondary treatment unit that would be installed later.

Phase II involved the replacement of the old SBR with a 4.3-meter (14-ft) AdvanTex AX-Max™ Treatment System. Due to their sturdy construction, neither the T-Max tank nor the AX-Max unit require complete burial or high retaining walls, both of which would have raised the cost of installation considerably. Additional savings were realized through the AX-Max system’s low power requirements: fewer than 2 kWh per 3.785 m<sup>3</sup> (1000 gal.) of treated domestic wastewater. And because both units are fully enclosed, they’re not prone to odors, allowing for installation near the swimming pool.

Says Parten, “In the case of the Mountain Top condos, using the AdvanTex AX-Max recirculating packed-media treatment process following ample primary treatment enabled meeting several key project needs and avoiding certain high costs.”



*The Mountain Top condos use a T-Max™ tank for primary treatment, followed by a 4.3-meter (14-ft) AdvanTex AX-Max™ Treatment System. Together, they handle up to 11.4 m<sup>3</sup>/day (3,000 gpd).*

For more information about effluent sewers, Orenco Sewers™ and AdvanTex® Treatment Systems, contact Orenco Systems®, Inc.



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*Data used by Orenco to derive the representations and conclusions contained within this Project Profile were current as of January, 2017.*