An Affordable Wastewater Solution for Commercial Properties

WAPSIE VALLEY HIGH SCHOOL, FAIRBANK, IOWA

Problem

Wapsie Valley High School had surfacing wastewater flowing over the school’s parking lot from a 45-year-old drainfield. Highly variable flows and site constraints posed additional problems.

Solution

The school installed a compact AdvanTex® AX100 Wastewater Treatment System, which is capable of handling variable flows, and a TCOM™ remote telemetry monitoring system, both manufactured by Orenco Systems®, Inc.

New Wastewater System Overcomes Multiple Challenges

In 2004, Wapsie Valley High School desperately needed a wastewater solution. Partially treated, odorous wastewater was surfacing from the school’s 45-year-old drainfield and flowing over the schools’ parking lot. School officials hired MMS Consultants to evaluate options for a new system.

MMS had to design a system that could deal with the school’s highly variable wastewater flows. In addition to serving 350 students and staff, the rural school also hosted community activities, including athletic, music programs, drama, and conferences. During the school year, wastewater flows averaged 5,000 gpd, and big events strained the system’s capacity to a peak of 13,000 gpd. But during the summer, flows dwindled to almost nothing. Most wastewater treatment technologies perform poorly when flows vary this much.

Another challenge for the treatment system was Iowa’s winter temperatures, which typically approach 0° F.

In addition to these challenges, MMS had to cope with construction constraints. Space on campus was limited, and school officials insisted on preserving existing athletic space and other areas throughout the school grounds. Only a small section of land, located within 20 feet of classrooms, was available. Moreover, construction had to be completed within a 10-week window during the 2005 summer break.

After evaluating the situation, MMS Consultants chose an AdvanTex Treatment System, manufactured by Orenco Systems, for its relatively simple, robust, and part-time operation, low energy consumption, and ease of construction. AdvanTex is a textile packed-bed filter that operates in the recirculating mode and is unaffected by variable flows. More-
Over, its low energy consumption and minimal maintenance requirements were an affordable solution.

It took only four weeks to install and commission an AdvanTex Treatment System with four AX100 pods, which easily fit into the allotted space. MMS provided design, permitting, and construction management for the project.

Once the AdvanTex system was installed, the consistently high quality of the effluent took the strain off the existing drainfield, which was rehabilitated and placed back into service. Today, the system’s effluent cBOD\textsubscript{5}, TSS, and NH\textsubscript{3}-N average less than 10 mg/L, 10 mg/L, and 5 mg/L, respectively.

For a complete Design/Engineering package for AdvanTex AX100 Treatment Systems, contact Orenco Systems, Inc.

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