Project Profile
"Green" Schools Project
Erin District High School and Brisbane Public School
On-Site Wastewater Treatment System

Upper Grand District School Board

This project was completed under the Ministry of Research and Innovation's Green Schools Pilot Initiative. The intent of this program was to provide an opportunity to demonstrate and test green technology within the Ontario school system. Both Erin District High School and Brisbane Public School were operating sewage treatment systems that were not meeting effluent criteria mandated by the Ministry of the Environment.

New sewage treatment systems were designed using WaterlooBiofilter Systems treatment technology. The new treatment systems were designed to provide a higher level of treatment with lower energy requirements. In this way, the new treatment systems are considered "greener" than the old treatment systems.

Brisbane Public School—Waterloo Biofilter Shipping Container

Both treatment systems utilize the shipping container treatment units from Waterloo Biofilter Systems. The treatment train consists of a septic tank followed by a balancing tank to level out peak flows and ensure consistent dosing to the Biofilter treatment unit. The balancing tank doses the nitrifying Biofilter unit, where aerobic bacteria consume BOD and convert ammonia to nitrate. Suspended solids are also filtered out by the Biofilter media. From the nitrifying Biofilter, the treated sewage goes to the WaterNOx unit. Here, anaerobic bacteria convert nitrate to nitrogen gas. From the WaterNOx unit, the treated sewage proceeds to the polishing Biofillter. The polishing unit is identical to the nitrifying unit, only smaller, and it provides a final polishing to remove any BOD increase due to the WaterNOx treatment unit. After the final polisher, the treated sewage is discharged to disposal.

Erin District High School—System Under Construction

Both treatment plants are equipped with ultraviolet disinfection units. The UV units are not intended to be operated continuously; however, the intent is to show that the treatment system is capable of providing such a high level of treatment that the disinfected water could be reused for flushing toilets in the schools. Therefore, the UV units will be operated for several weeks each year as a demonstration of treatment quality. Wastewater reuse may be implemented in the future.

Both treatment systems were constructed over July and August 2010 and were operational for the start of school in September.

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