Project Profile

Clearville Campground

On-Site Wastewater Treatment System

Municipality of Chatham-Kent

Clearville Campground is a seasonal park located on the shores of Lake Erie. The campground is owned and operated by the Municipality of Chatham-Kent. The sewage treatment system consisted of a septic tank and absorption trench disposal bed. The system was not functioning and needed replacement.

Waterloo Biofilter Shipping Container Treatment Unit

At the time, the campground consisted of 91 trailer sites, but there were plans to expand and add an additional 34 sites. Therefore, it was important to design a system that would be able to handle the additional flows once the campground was expanded.

System Controls Building

The soils on site are heavy clay and the existing bed had been constructed as a raised bed due to the clay soils. However, the bed ultimately failed because the water could not percolate through the clay. For this reason, and because there was limited space for a new disposal bed, it was decided to use surface discharge for disposal of treated wastewater. There is a creek that runs through the campground and drains into the Lake. It was determined that this creek would provide a good outlet for the treated wastewater.

Polyethylene Tank in Building

With surface discharge, it is important to have a high level of treatment to produce high quality effluent. K. Smart Associates Limited designed a treatment plant using Waterloo Biofilter Systems treatment technology. Two septic tanks provide primary treatment. The chemical Alum is dosed into the septic tanks to increase phosphorus removal rates. A flow balancing tank is used to balance peak flows and ensure consistent dosing to the Waterloo Biofilter treatment units. A Waterloo Biofilter shipping container plus one Waterloo Biofilter polyethylene tank located inside a control building provide tertiary treatment. The Biofilter effluent from the polyethylene tank is recirculated back to the septic tank to reduce the strength of incoming sewage and promote denitrification. The Biofilter effluent that is not recirculated is directed to an ultraviolet disinfection unit prior to disposal.

The system was constructed in 2004. Since the system was commissioned, the campground has completed its expansion and the treatment plant continues to operate properly and provide a high level of treatment.

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