CASE STUDY

Chambers Used in Exfiltration Bed for Municipal WWTP in Ontario

Bayham, ON

SYSTEM SPECIFICATIONS
Exfiltration Bed for Municipal WWTP

INSTALLATION DATE
1998

PRODUCTS
Infiltrator Chambers

OWNER
Bayham, Ontario

ENGINEER
Acres & Associates Environmental Ltd, Niagra Falls, ON

INSTALLER
Stone Town Construction, St. Mary's, ON

DESCRIPTION

The cost for sewer extensions and centralized treatment plant expansions was high and not a favored expenditure by most taxpayers. With continued community growth and lack of government funding, municipal managers are enhancing current facilities and coordinating wastewater treatment programs locally to provide cost-effective, ecologically sound wastewater treatment.

The Port Burwell Sewage Treatment Plant sits on the shore of Big Otter Creek near Lake Erie in Bayham, ON. Due to steady growth in the surrounding area, expanded wastewater treatment services were needed, while at the same time, protecting the lake. To accommodate the growth, the decision was made to connect the surrounding communities to the area's Port Burwell Sewage Treatment Plant and to explore how this facility could be modified for future efficiency, added capacity, and environmental stability.

Engineers created a conceptual design report for the plant. Based on projected population growth in and around the Big Otter Creek area it was determined that the treatment capacity of the existing Port Burwell plant would have to be expanded from 528 m^3 per day to 1,060 m^3 per day.

A solution converting the originally designed outfall to an exfiltration bed utilizing Infiltrator chambers saved considerable cost and also provided additional pollutant removal. Key benefits included expansion of the overall plant capacity and a reduction in phosphorous. With the exfiltration chamber system solution, phosphorous is naturally removed by the soil, thereby reducing the impact to the sensitive lake environment.

The chamber gallery is located in the existing plant outfall easement adjacent to the treatment facility. It provides sufficient capacity to discharge the effluent from the Sequenced Batch Reactors (SBRs) on a sequential basis including a 25% surcharge. The design also includes inspection ports and manholes so the bed can be physically inspected. The entire bed area is excavated to a depth of approximately 1.2 meters.

A concern from the start was the fluctuating ground water levels in the area, which could result in the bed becoming submerged. The system was designed so that the hydraulics of the plant ensures that the plant effluent will enter the bed and filter through the soil then into the groundwater.

Infiltrator Water Technologies
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