



## Perth, ON saves over \$6 million in capital costs with Geotube® System

Minister's Award for  
**Environmental Excellence**

*2015 Award Winner*

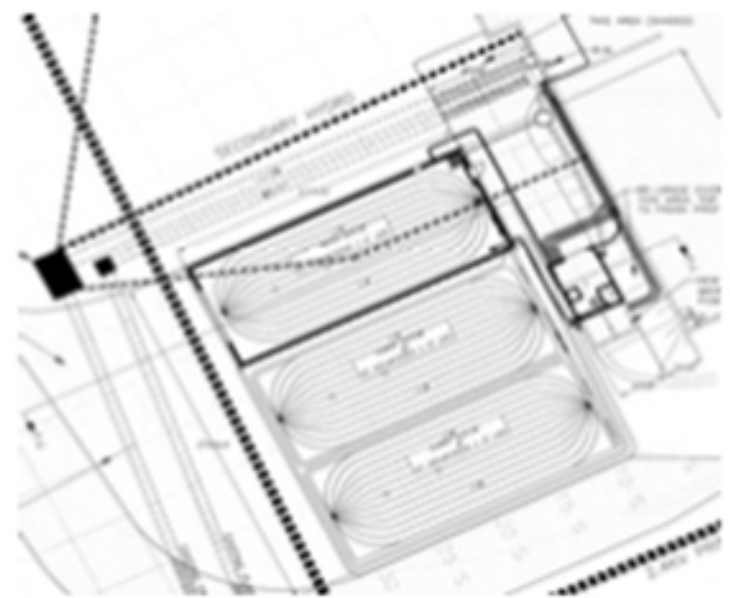
A simple, effective dewatering solution will enable Perth, ON to begin treating particle-laden process water from the coagulation tanks at its water treatment plant (WTP); eliminating discharge of solids to the Tay River and conserving precious capacity in the town's sewage lagoons. Rather than building a multi-million dollar treatment plant, the town will be using Geotube® containers to collect and dewater the solids onsite and to produce high quality filtrate that can be discharged directly into the river.

The solution, designed and delivered by Bishop Water Technologies, will cost less than \$1.25 million to fully implement, far less than the estimated \$7 million to build a conventional treatment facility.

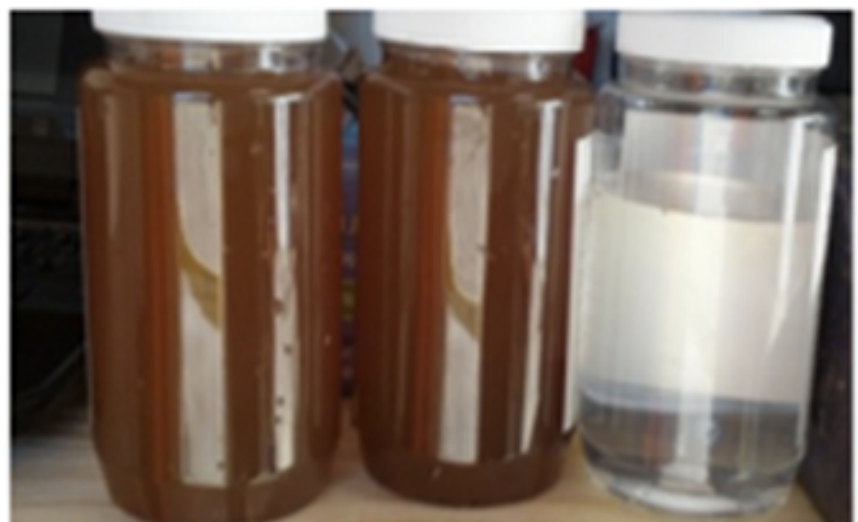
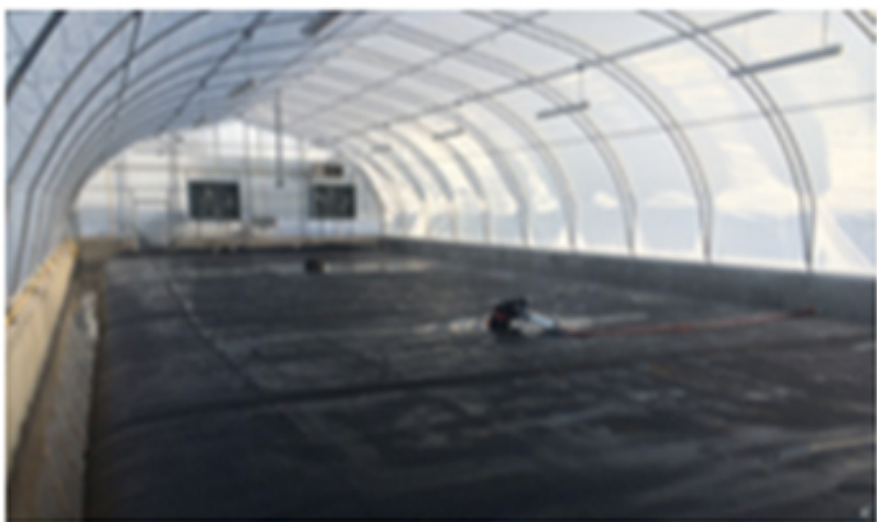
The Town's new treatment process, which uses Bishop Water's Geotube® system, will reduce the amount of solids discharging in to the river, from 2,000 mg of solids per litre per day to 25 mg of solids per litre per day. This will ensure that more than 300 dry metric tons of solids will be diverted from the Tay River per year.

The Geotube® dewatering solution works in three stages. As sludge is pumped into the tube, it is mixed with a polymer that separates solids from the liquid. Filtered effluent flows through a dual filament polypropylene fabric, keeping solids trapped inside the container. The filtrate is then directed back to the Tay River.

In partnership with Andrum Associates Inc. in Ottawa, Bishop Water Technologies began a design build as the general contractor, project manager and equipment supplier, and Maple Reinders as the builder. The contracts were signed and work began in August, 2014.



*Perth Design Drawings (Andrum Associates)*



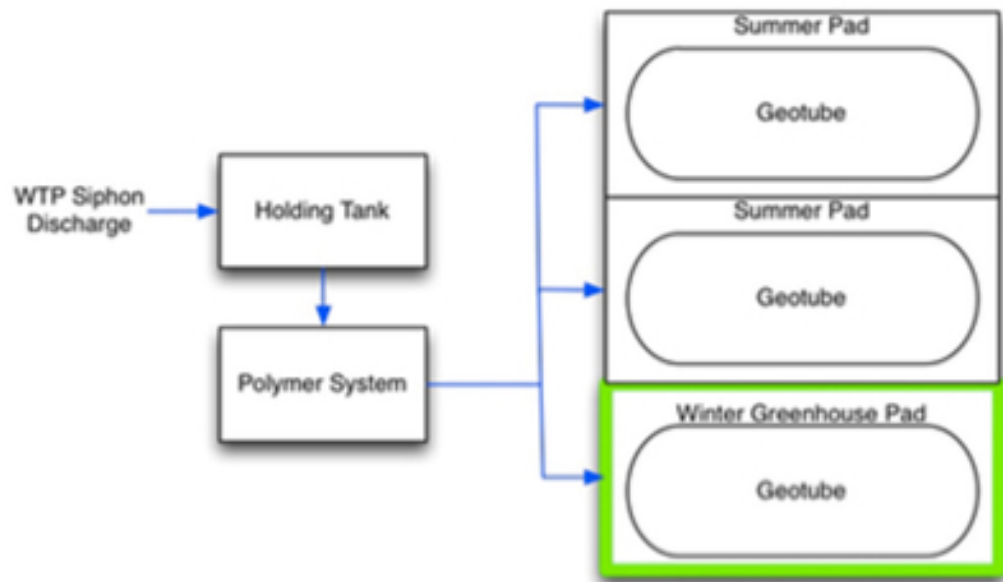
*Dewatering Geotube® (right) and raw and treated siphon discharge (left)*



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Construction proceeded quickly, with the civil works including mechanical, electrical, concrete, asphalt, piping and greenhouse installation being completed by early December 2014. After a successful commissioning period, substantial completion was achieved on December 22, 2014.



*Process diagram*

Residuals from the siphon discharge of the water treatment process are first sent to a holding tank 4 times per day. Operators of the plant are then able to process residuals through the polymer system and into a Geotube® for dewatering. After being calibrated, an automated PLC system ensures proper polymer dosage to match the flow rate of residuals into the Geotube®.

A greenhouse is used to house a Geotube® for winter operations, allowing the facility to operate year round.

Testing shows that the Geotube system is able to remove suspended solids from 2000mg/L to 4mg/L, far below the required limit before the treated water is discharged back into the Tay River.



*Polymer System*

Parameter	Influent (mg/L)	Geotube Filtrate (mg/L)	Discharge Limit (mg/L)
TSS	2000	4	25

*Geotube® Filtrate Results*



*Completed Perth Residuals Treatment Facility*