WETLAND TREATMENT SOLUTIONS

MSR® Technology
Award Winning Engineered Wetlands for Wastewater Treatment

Municipal Case Study – Appleton – Glenwood Wastewater and Sludge

Glenwood and Appleton are two towns on opposite sides of the Gander River in Newfoundland. Both towns had ageing, overloaded sewage systems, which could no longer meet the environmental regulations required for discharge into the Gander River.

MSR® technology can be used to replace or in combination with other technologies can achieve higher levels of sewage treatment. Mr. Glenn Sharp, P. Eng was the lead engineer on a proposal to design and build an Engineered Wetland as an environmentally friendly sewage treatment alternative. The system successfully treats the waste, such that the resultant clean water can be safely discharged into the sensitive salmon river system, in accordance with all relevant environmental legislation.

Since commissioning in 2006 (17 years old) the system has continued to perform above the design requirements. All effluent analysis has shown that the output provides more treatment than the regulations for secondary sewage treatment and performs on a yearly average at a tertiary treatment level. These results and the numerous awards indicate a very successful secondary treatment project.

Second Year Average Tested Data – Appleton/Glenwood Engineered Wetland

Parameter (mg/l)	Inlet	Wetland		Down River		Standard
		Outlet	Reduction	Outlet	Reduction	
BOD	210.7	9.2	95.7%	1.5	99.3%	20 mg/l
TSS	1390.7	3.2	99.8%	1.0	99.9%	30 mg/l
Nitrogen (ammonia)	11.4	6.0	47.1%	0.3	97.8%	2.0 mg/l
Total Phosphorous	1.3	0.6	58.3%	0.01	99.2%	1.0 mg/l
Total Coliform (MPN/100 ml)	2,364,000	59,400	97.5%	190	100%	5,000

The effluent from both towns is pumped to the treatment facility where it passes through a grinder and a spiral lift screen to remove non-organic materials. The flow then enters a series of settling chambers where suspended solids settle out.

During times of high infiltration, the flow is split by a weir that sends the main flow to the main wetland treatment beds and any excess to the storm water treatment bed.

There is no bypass on this system. The wetlands reduce the contaminants by biological treatment. The two flows are recombined at the end of the system and discharged to the Gander River. Other than the screen and grinder there are no mechanical or electrical components. No electricity or chemicals are required in the wetland treatment beds.

Sludge from the settling chambers is pumped to sludge treatment wetland cells where it is mineralized by the plants resulting in a compost-like end product that can be used for landscaping. With treatment of settled solids as well as the liquids, and with no by-pass, this is truly a complete treatment system.

The project received numerous awards and recognition: in 2008, the town of Appleton received the Provincial Environmental Award: in 2010 the project received the Federation of Canadian Municipalities award for Leadership in Wastewater and Stormwater Design; also, in 2010 it received the PEGNL Professional Engineering & Geoscientists of Newfoundland Environmental Award and has since received more awards.

This project, along with other similar designs are now generating Carbon Offsets, through our affiliated company Sharp Management Ltd. See www.sharpmgmt.ca for details.

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Providing Engineered Wetland Consulting Design, Construction and Operations of the most Sustainable Wastewater Treatment Systems

Engineered Wetland Treatment with MSR® Technology

Wetland Treatment Solutions (WTS) consults, designs, constructs, and operates engineered wetland treatment systems for sewage, landfill leachate, hydrocarbons, and other wastewaters. WTS has the most sustainable wastewater treatment systems on the market due to; our very low operating costs with no chemicals, no electricity, no moving parts, and with a system life of over 75 years. Just specialty plants, proprietary soil mixtures and the sun, natural based infrastructure to host, stimulate, and maintain microbial bacteria to consume your waste.

WTS is currently working on the goal to make these systems ZERO COST to operate and 100% sustainable. We are doing this by selling CSA Certified Carbon Offsets that are generated from these engineered wetland designs through our associated companies Sharp Management and Carbon Zero. Please visit http://sharpmgmt.ca to see more on this.

Our President Mr. Glenn Sharp P. Eng was awarded the 2019 Industry Champion Award by NEIA the Newfoundland & Labrador Environmental Industry Association for his work on Carbon Offsets. Mr. Sharp is also the designer on record for the largest subsurface engineered wetland treatment projects in Canada. Stephenville NL - 8000 P.E. and Bishop's Falls - 4500 P.E. His past engineered wetland designs have won numerous awards including; FCM award for Appleton-Glenwood wetland system, NRC sustainability award Marystown wetland system, CWWA Canadian Water & Wastewater Association award Bishop's Falls wetland system, PEGNL Professional Engineering Association of NL award Stephenville wetland system, and several NL Provincial Dept. of Environment awards for wetland wastewater and sludge treatment.

Please contact us and let us show you how an engineered wetland treatment system can not only solve your wastewater, landfill or sludge issues, but will provide a system that is innovative green and the most sustainable choice. The engineered wetland technology MSR (Microbial Soil Reeds) will still be treating your community's and your great grandchildren's waste 75 to 100 years from now. With no electricity or moving parts in the treatment process to replace or maintain, the operation costs are the lowest in the industry.

This is a nature-based infrastructure solution for your Wastewater or Stormwater treatment needs.

WTS also provides work internationally – for example WTS has previously worked in the Caribbean for the Solid Waste Management Company of Trinidad & Tobago Ltd. (SWMCOL) on the Guanapo landfill leachate project. A pilot wetland system was designed and run over a two-year period with excellent treatment results. We are hopeful and look forward to SWMCOL allocating the funding to move forward with the full-scale implementation project.

If you have a pilot project, we will be able to help with the funding, and we are always interested, please contact us.

Regards

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