Ecoflo®

Case Study

Cluster treatment system

Saint-Joseph
de Kamouraska

Customer: Municipality of Saint-Joseph-de-Kamouraska
County of Kamouraska, QC, Canada

Located approximately 180 kilometres East of Quebec City, and 20 km (12.5 mi) from Rivière-du-Loup, the municipality of Saint-Joseph-de-Kamouraska is part of the Bas-Saint-Laurent Administrative region. Founded in 1922, its economy is based primarily on agriculture and lumber. This peaceful rural community offers the typical tight-knit country lifestyle specifically well suited and appreciated by young families.

Facts

The municipality was looking for a wastewater treatment system with the capacity to service 80 households and commercial establishments for a population of 260 residents. The municipality had to address the following constraints:

- No existing collection system
- Water supply by individual wells on small lots restricting the possibility of installing conventional wastewater treatment systems
- Numerous failing septic installations
- Problems with groundwater and well contamination
- Community built on a hill - increased need for pumping stations
- Bedrocks near the surface
- Flooding area near the village limiting space for wastewater treatment installation

Challenges

As it is often the case with smaller rural municipalities, budgets to improve infrastructures are tight and limited. That is what the municipality of Saint-Joseph was facing. Bringing the sewer system from Rivière-du-Loup was a very expensive project. A decentralized wastewater treatment technology had to answer the constraint of being installed in a dense residential area with promontory topography and flood area. And topping it all, contaminants had to be eliminated in the drinking water and wells.

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Solution

PTA worked with Roche Engineering Group and they configured a wastewater treatment system made out of Ecoflo® Biofilters in cluster. This passive technology, using gravity and reaching high and stable level of treatment in all conditions, ensured flexibility for demographic expansion, and brought huge savings to all stakeholders.

- Decentralized wastewater treatment system
- Eighty (80) Ecoflo® Biofilters in cluster (ST-650 separated in five (5) clusters to reduce the need for pumping stations)
- Individual septic tanks for each household
- 100% gravity-based collection system using small diameter sewer pipe (100 to 150 mm in diameter and 2500 linear meters)
- Single dosing tank on each of the five (5) clusters
- Treated water released in the Rivière-du-Loup
- Cost of the project (2001): $950,000 – including $350,000 for wastewater treatment

Design criteria:

- Design flow: 76 m³/d
- Treated wastewater directed toward the Rivière Du Loup
- **Discharge criteria:**

$CBOD_5$	≤ 15 mg/L
TSS	≤ 15 mg/L
Fecal coliforms	≤ 50 000 CFU/100 mL

Results

Sampling from 2002 to 2009

	TSS (mg/L)	BOD_5 (mg/L)	Fecal coliforms (CFU/100 mL)	Number of sampling days
Septic tank effluent	49 ± 13	143 ± 39	1 446 517*	60
Ecoflo® effluent	5 ± 6	4 ± 2	9 870	94

* n = 30

Benefits and future

- Substantial savings compared with other conventional wastewater treatment systems
- Minimum impact on the roads infrastructure to install the small diameter sewer system
- Flexible system; possibility of future expansion.

"Saint-Joseph was the first community in North America to collect and treat its wastewater using a process of biofiltration with peat moss for a network of 80 urban dwellings. Saint-Joseph is an inspiration for many communities."

Sylvain Roy
Mayor of Saint-Joseph-de-Kamouraska

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