



The Fern Resort plant is believed to be the first permitted membrane wastewater plant in Ontario.



The building was designed and constructed to blend into the resort's natural surroundings.

Sewage Treatment Plant Replacement - Fern Resort

In the mid 1980s, Fern Resort applied to the Ministry of the Environment (MOE) for an expansion of its existing facultative lagoon, to service up to 600 persons using the resort facilities. The project was put on hold until the 1990s, when the lack of an alternative treatment or storage facility became an issue.

The project proceeded based on providing a new treatment technology, that being a membrane bioreactor (utilizing the patented ZenoGem™ process). The plant was designed for an average daily flow of 163 m³/d, to accommodate the sewage flow from approximately 500 persons at 325 L/cd. The project included an upgrade of the existing pump station, and the provision of a new membrane treatment facility, located in a small building near the lagoon. The pump station upgrade included the provision of two constant-speed grinder pumps to eliminate large solids - a necessity for the membrane process.

The membrane bioreactor, housed in a compact (8 x 10 metre), single storey building, consists of a poured concrete anoxic chamber, three aerobic chambers and a soak tank for cleaning the membranes.

The plant, started up in June 2000, is believed to be the first permitted membrane wastewater plant in Ontario. Certificate of Approval effluent requirements are all being met.

Project Facts

Client: Fern Resort

Key Design Criteria:

Design Flow:

- 163 m³/d ADF

Effluent Criteria:

- TP < 0.25 mg/L

- NH₃ < 2 mg/L (summer)

4 mg/L (winter)

Project Cost: \$700,000 (2001)