



Infiltrator Chambers Used in Minnesota's First Wetland Cluster Treatment System

To preserve open space and protect the rural character of the community, Lake Elmo, Minnesota refuses to connect to the regional sewer.

Project

Wetland cluster wastewater treatment system utilizing 45,000 square feet of Standard Infiltrator Chambers.

Installation Date

Summer 1997

Developer

Robert Engstrom Companies

Engineer

Scott D. Wallace
North American Wetland
Engineering

Permitting Agency

Minnesota Pollution
Control Agency

Design Flow Specifications

118,000 GPD

The City of Lake Elmo, Minnesota had no sewage collection or central treatment system and had been under pressure by the regional planning agency to allow the regional sewer into the community. Until 1992, regional sewer was not available to Lake Elmo and the entire community was served by onsite wastewater systems. Lake Elmo had purposely restricted its growth through zoning ordinances and land planning activities. The community realized that along with the regional sewer would come high-density development to pay for the high cost of "Big Pipe" infrastructure.

The Fields of St. Croix is an open space development on 226 acres in Lake Elmo. It has large tracts of open space surrounding a cluster of homes to be served by a central water and sewer system. The developer, Robert Engstrom Companies, did not want to install individual septic systems because they consume valuable land and spoil opportunities for community structure. No ordinances were in existence to accommodate such a request, and wastewater treatment was a concern. After months of work with the City and State, the development was able to proceed with the first state-permitted subsurface flow wetland in Minnesota.

The Fields of St. Croix community wastewater treatment system includes eight wetland treatment systems in the area, treating in excess of 118,000 gpd. Phase I of the system serves 49 homes using a standard subsurface flow constructed wetlands for wastewater treatment, and at-grade unlined wetland infiltration beds for disposal of treated effluent. Phase II includes 88 homes. A second treatment system utilizes a vertical flow wetland and a 45,000 sf Infiltrator chamber drainfield. Use of constructed wetlands technology and soil-based infiltration methods has allowed both phases to occur while preserving open space for the community. The Fields of St. Croix is regarded as one of the most innovative approaches to residential development in Minnesota.



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