



## Fields of St Croix

Location: Lake Elmo, Minnesota

Project Type: Residential Development

Waste Type: Domestic

Completion Date: 1997

Design Flow: 44,000

Treatment: Subsurface Flow Wetland with  
Forced Bed Aeration

**Need:** The City of Lake Elmo has no sewage collection or central treatment system but is under intense pressure to allow regional sewer into the community, triggering a wave of high-density development. In order to preserve the rural character of Lake Elmo, City planners developed a breakthrough land-use ordinance that requires 50% of the land to be set aside as permanent open space. The Fields of St. Croix development is an open space development on 226 acres in Lake Elmo. It was the first community development in Minnesota that strives for all aspects of sustainable living. The developer, Robert Engstrom Companies, did not want to install individual septic systems because they consume valuable land and spoil opportunities for community structure. NAWE was brought in to solve the wastewater problem.

**Solution:** Phase I of the community wastewater system serves 49 homes and was the first wetland treatment system to be permitted by the Minnesota Pollution Control Agency. The wastewater technology selected for Phase I was a standard subsurface flow constructed wetlands (two 9,000 sf cells) for wastewater treatment and at grade unlined wetland infiltration beds (two 9,000 sf cells) for disposal of treated effluent. This system became operational in 1997. Phase II began construction of 88 homes in late 1999. A second treatment system utilizing a vertical flow wetland with Forced Bed Aeration (™) (two 5,000 sf cells) and a 45,000 sf infiltrator chamber drainfield was completed in 2000. Both systems are permitted by the Minnesota Pollution Control Agency and operated by NAWE

**Benefit:** 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 development successfully addresses two big environmental concerns - urban sprawl and ground water pollution caused by conventional on-site septic systems. It is therefore regarded as one of the most innovative approaches to residential development in Minnesota. Fields of St Croix was the 1998 winner of the Minnesota Environmental Initiative Award for Land Use and Community Development. The National Home Builders selected the Fields of St Croix development for the Best of the Region Award in 1998.



Hands-on, ecological engineering providing  
practical, innovative solutions.