

PROJECT:

Preserve at Birch Lake

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LOCATION

Twin Cities, Minnesota

PROJECT TYPE

Residential Water

COMPLETION DATE

2006

WATER DESIGN

2 rotary drilled 400 gpm wells, 3 hydropneumatic water tanks, water distribution system

NEED

Ninety-eight residential lots, each 1 acre in size, are being developed in the northeastern Twin Cities Metropolitan Area. Both a reliable potable water source and a community water distribution system to serve the development are needed. An average daily water demand of 138,075 gallons per day must be supplied. Hydrogeologic and civil engineering skills must be used in concert with each other to develop an optimal water supply solution. A Water Appropriations Permit must be obtained from the Minnesota Department of Natural Resources (DNR).

SOLUTION

Two 12-inch diameter drinking water wells were rotary drilled into the Quaternary aquifer. A pumping test was performed to investigate the ability of the aquifer to supply sufficient water for development. The results of the pumping test showed that the aquifer was capable of supplying water at a sufficient flowrate for the development. Three 457 gallon hydropneumatic water storage tanks and a disinfection system will store and treat the water. The community will be served by a 15,750 ft long, 6-inch diameter water distribution system.

BENEFIT

Jacques Whitford NAWE brought multiple disciplines to bear in the design solution, including hydrogeologic analysis of the potable water source, engineering of the water storage, treatment, and distribution system, and permitting of the system with the Minnesota DNR. The client gained the benefit of having a “one-stop shop” consulting engineering firm for all aspects of the water distribution system design.



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