



Groundwater Guardian Green Site Case Study

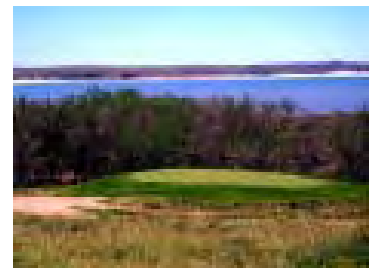
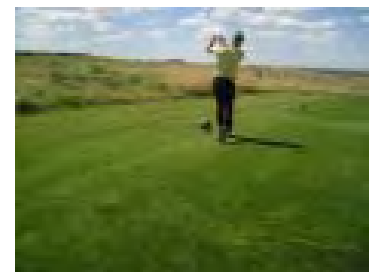
Bayside Golf Course

Bayside Golf Course emerged from the arroyos, ruts, bluffs and rugged grasslands of the Sandhills in western Nebraska. The first nine holes opened in 2000, with the grand opening of additional facilities following in 2001. This mixed-use development includes an 18-hole golf course, a lodge with capacity for 375 people, a pro shop, and numerous maintenance buildings. Twelve townhomes and four cabins are also available for lodgers, with more planned for the future. The course is generally open for nine months of the year, which is close to the area's seven to eight month growing season.

The area's annual precipitation is only 13 inches, so precipitation and the course's irrigation water readily infiltrate into the porous soil. Prior to being developed, the land was used as pasture, with some areas of original prairie still remaining. Standing on the golf course greens today it is easy to imagine what the area looked like over 160 years ago when pioneers traveled nearby on the Oregon Trail. The area's beautiful landscape makes it prime for further resort development; the area's steady winds, which average between nine and thirteen miles per hour all year long, and low humidity mean even the warmest days are comfortable.

The entire Bayside Golf Course facility is served by a non-community water system and is actively managed so that its drinking water well is protected from potential sources of contamination. Protection activities include:

- Taking required water samples properly and sending the samples to a certified laboratory for analysis. No problems have been detected to date.
- Always storing fertilizers and pesticides (i.e., 8,000 pounds granular, 50 pounds liquid annually) on an impervious surface in a secured facility capable of containing spillage.
- Always mixing and loading fertilizers and pesticides on an impervious surface capable of containing spillage.
- Applying tank rinsate (less than 200 gallons per month) over an area of similar land use.
- Altering or ceasing granular and liquid fertilizer and pesticide applications when wind speed alters the distribution. This is a regular occurrence for Bayside; one year managers went for 22 days without applying a granular product!



- Having a licensed applicator inspect equipment prior to each application, about twice a month during the growing season.
- Calibrating fertilizer and pesticide application equipment at least quarterly during the growing season.
- Testing soil and using the resulting nutrient analysis to apply fertilizer; often the amount of fertilizer applied is less than what is recommended by the soil test.
- Following integrated pest management practices, thus reducing the volume of pesticides used by 50%.
- Adding or replacing plants with lower input requirements than previous plants; this practice enables the course to avoid using upwards of 300 pounds of fertilizer and 15 gallons of pesticides annually.
- Maintaining a fertilizer and pesticide no-application zone around the wells on the property.
- Selecting new plants adapted to the climate of the region, thus saving upwards of 10,000 gallons of water annually.
- Tracking irrigation water use and modifying practices to reduce water use, which could save upwards of ten million gallons of water annually.
- Disposing of or recycling toxic substances properly, which generally add up to 300 golf cart batteries, 50 other batteries, 200 gallons of oil, and 20 tires annually.
- Arranging for a certified professional to regularly pump or otherwise service the facilities' on-site wastewater treatment system.
- Maintaining parking areas with approximately 90% porous surfaces, 800 yards of native pasture and grasses between the parking area and adjacent surface water, and engineered slopes so run-off does not run directly into surface water. Parking areas cover approximately two acres.
- Storing approximately 6,000 gallons of fuel above-ground with secondary containment annually.
- Recycling.
- Managing the course to maintain and increase wildlife habitat in areas outside the source water protection area.
- Using surfactants to reduce surface tension and decrease water use by better utilizing the water that is available.

Implementing the practices described previously enabled Bayside Golf Course to earn designation as a Groundwater Guardian Green Site during the program's pilot year. To maintain the designation, these practices must continue and the application describing them checked for accuracy every year.

For more information about Bayside Golf Club, contact Elton Nolde at (308) 287-2653 or noldeeltono@hotmail.com. Also visit www.baysidegolf.com. For more information about how the Groundwater Guardian Green Site program may be used to promote and document groundwater-friendly practices, contact Jennifer Wemhoff at (402) 434-2740 or jennifer@groundwater.org. Also visit www.groundwater.org/gg/greensites.html.