## "Care for the Land" Includes The Yahara Lakes

Neal Smith, Executive Director Holy Wisdom Monastery

Holy Wisdom Monastery, located on Highway M in the town of Westport, is part of the Lake Mendota Priority Watershed as well as the Yahara river and Rock river Basin watersheds. Over 400 acres of land surrounding the monastery drain into and through our 138 acres. This means that work done on this land greatly affects the amount and quality of water run-off into Lake Mendota. With its proximity to Governor Nelson State Park, Pheasant Branch Nature Preserve, Dorn's Creek Watershed, Six-Mile Creek and other natural and park areas, Holy Wisdom Monastery is a significant part of the protective green belt north of Madison.

As many know, development is rapidly replacing the farmlands that once surrounded Holy Wisdom Monastery. Rapid urbanization contiguous to monastery land has resulted in nonpoint source pollution that includes nutrients, pesticides, metals and sediment.

In 1996 in order to help mitigate the negative effects of this rapid development, the Sisters began partnering with environmental and civic groups, as well as thousands of individuals, to protect and restore monastery land to pre-settlement prairie. To date, about 100 acres have been restored. The Sisters also returned a silted-in 10,000-year-old glacial kettle lake to near its original size and created a major detention basin to filter sediment out of run-off headed toward Lake Mendota, further protecting the surrounding watershed.

When it became apparent that the large, inefficient conference facility at the monastery conflicted with their value of caring for the earth, the Sisters replaced it with a new building that is half the size of the old one. The new monastery building was recently designated the "greenest" LEED (Leadership in Energy and Environmental Design) Platinum-certified building in the U.S. in the NC (New Construction) v 2.2 category.

Before construction could begin, a storm water control plan had to be approved by both Dane County and the Town of Westport. The design had to prove that a 100 year rain event would not result in any added runoff from the site. During construction, an earthen berm was built around the site to contain all rainfall and snow melt. Detention areas were designed with filtration weepers to filter the water before it left the work area. In addition, all disturbed areas outside the berm were mulched or seeded when the work in the area was completed. The design of the site also ensured no runoff from the site in a 100 year storm.

The following components were built into the plan to help make this possible:

- Two rain gardens were constructed to detain and infiltrate runoff to the south and west of the new building. All site runoff was directed to these two areas. The rain gardens were seeded and planted with native broadleaved plants and grasses.
- Rain barrels were strategically placed around the building to capture roof runoff so it can be used to water the plants around the buildings and on the green roofs.
- The green roofs themselves will capture and use rainwater thereby reducing runoff.
- The landscape around the buildings was planted and seeded with native prairie.
   Any runoff not captured using the previous strategies will be diverted to relatively flat prairie areas where it will be absorbed
- Last, some parts of the parking area were made of pervious concrete, a type of concrete through which the water can drain and immediately infiltrate into the groundwater.

These and other design choices made by the Sisters have successfully controlled runoff from the site. They also significantly reduced the amount of runoff that was occurring prior to beginning the new construction. The engineers of Montgomery & Associates calculated that the runoff from a 100 year rain event will be reduced by over 13% as compared to predevelopment. Considering the fact that the building site is on top of a hill, this is a significant reduction.

"The goal in building Holy Wisdom Monastery was to create a smaller, energy-efficient building that would be in harmony with our surrounding acres of restored prairie," explained Sister Mary David Walgenbach, OSB, prioress at Holy Wisdom Monastery. "Our builder helped us design a simple, hospitable building to reflect our monastic values and complement the beauty of the land. With every design decision, we asked, does it express our mission, is it the greenest option, and is it cost effective?"

Not only is the new monastery building highly sustainable, but the Sisters take pride in the fact that the total project cost was \$241 per square foot, which includes all design, construction, furnishing, demolition, commissioning, and LEED certification costs.

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Additional "green" features include:

- Photovoltaic panels on the roof provide 13% of total energy cost. The system is expandable and the goal is to eventually provide 100% of the monastery's energy needs from on-site, renewable sources – and a zero carbon footprint.
- Specially coated, high-performance windows keep heat losses/gains to a minimum and provide abundant daylight and aesthetic prairie views.
- An efficient geothermal heating and cooling system uses 39 closed-loop wells, each 300 feet deep.
- A white, membrane roof and highly reflective pavers help keep the surroundings cool.
- Bamboo, a rapidly renewable resource, was used for the Assembly Room floor, Gathering Space and on the ceilings of the Oratory and Meditation Chapel.

Prior to beginning work on Holy Wisdom, the Sisters responsibly deconstructed Benedict House, the old retreat facility. 99.75% of the old building was diverted from landfill via recycling, reusing, and donating to other charities.

The monastery continues to accept donations toward the remaining \$900,000 of its capital campaign for the project. Tours of the new building and the restored lands are available, and we would be pleased to offer a tour for Yahara Lakes Association members anytime. For more information visit <a href="https://www.benedictinewomen.org">www.benedictinewomen.org</a>.

## Know Your Lakeshore . . .

## Floating Tar Spoils Bathing

By Don Sanford

That headline greeted readers of the Wisconsin State Journal on July 14, 1903. The article went on to say that almost a mile of beach was rendered useless by the tar. The latest victims of this mess were the Highland Cadets who went swimming and were completely covered by the tar. They were forced to take baths in turpentine and kerosene to remove the sticky mess.

There were no oil wells or supertankers on the lake so where did this come from?

At the turn of the century, cities and large institutions like the asylum produced gas for lighting from coal. The byproduct of this process called coal gasification; a tar-like material, was dumped into the municipal sewage system. When the State Hospital for the Insane opened in 1860, Lake Mendota provided both drinking water and a sewage disposal plant. Initially, open wells on the property provided drinking water but these proved inadequate and in 1877, Lake Mendota water was used, untreated, at the facility. Meanwhile, about 700 feet away from that intake, untreated sewage flowed into the lake from an outfall on the Woodward's (Warner) Bay side of the property.

It's unimaginable today, but in those days little was known about bacteria nor it's effects on drinking water and it's connection to Typhoid fever. Around 1887, following a typhoid epidemic at the facility and a report from a then-unknown water chemist, Magnus Swenson, the drinking water supply was switched to artesian water from a deep well on the property. However, water for all other purposes came from an intake that now stretched nearly 1700 feet into the lake. Despite that effort, staff and residents still complained that the water flowing from taps at the asylum smelled. And, because of the convoluted plumbing system, it was possible and likely that drinking water and lake water pipes were cross-connected.

Around 1903, filtering beds were installed as the Asylum's sewage treatment system. It was still primitive at best. The mix of untreated sewage and the by-products of the coal gas plant continued to flow into Woodward (Warner) Bay. The white greasy material floated around the lake, where it eventually cooled and sank clinging to the bottom in the shallows.

Around 1905, workers noticed that the icehouse on Governors Island smelled of sewage. Still nothing was done to stop the flow of sewage into Lake Mendota. In 1907, following repeated typhoid epidemics at the institution; the supply of lake water was cut off which curbed further outbreaks. However the sewage continued to flow.

Around 1910, the hospital received funding for a primitive sewage treatment plant near Farwell's Point. Even so, the facility's sewage problem persisted. In 1925, Madison City Engineer E. E. Parker stated that 200,000 gallons of raw, untreated sewage from the State Hospital and the Wisconsin Memorial Hospital entered the lake every day. By 1933 that number was increased to 250,000 gallons. Calls were again made for the creation of a metropolitan sewerage system to rid the lake of the largest single source of pollution. In 1930, the Lakeview Sanitarium opened on Northport Drive and was connected to the relatively new Madison Metropolitan Sewerage District (MMSD). Five years later, a seventy-five year attack on the water quality of Lake Mendota came to an end. On May 28, 1935 with modest publicity, the valve was first opened on the new interceptor connecting the State hospital to the MMSD line on Northport Drive.