



The Merry Lea Environmental Learning Center, Goshen College, IN



The Merry Lea Environmental Learning Center was created to house Goshen College's expanding environmental science program and to enable students to live near the ecosystems they study at Merry Lea, the college's 1,150-acre nature preserve. It was conceived and designed to meet the highest standards of the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system. LEED buildings are required to meet rigorous standards in areas such as energy efficiency, water management, use of recycled materials and indoor air quality. The Rieth Village is one of the first LEED Platinum projects in the state of Indiana (Source Goshen College).



NSI participated in the Merry Lea project as one part of an incredibly effective integrated design team. NSI designed a wastewater treatment system that relied heavily upon constructed wetlands, a sand filter and a trickling filter. Primary treatment at the site occurred in a septic tank. Water from the septic tank then flowed to a trickling filter (BOD/TSS reduction), an aerated lagoon (Nitrification, BOD reduction), then to a constructed wetlands (Nitrification, Denitrification, BOD reduction), and finally to a recirculating sand filter (Nitrification, Denitrification, TSS/Solids filtration, Natural disinfection, BOD reduction). The cycle of Nitrification and Denitrification is crucial to the wastewater treatment process. At Merry Lea, this cycle is achieved in Phase 1 by passing effluent through the constructed wetland and the recirculating sand filter. Including a trickling filter and an aerated lagoon in the treatment process enhances the Nitrogen cycle. The trickling filter and lagoon nitrify the effluent, which is subsequently denitrified as it passes through the wetlands. A similar process occurs within the sand filter, which provides final nitrogen reductions prior to disposal or reuse.



The treatment cycle is so effective that treated effluent can be reused on site for flushing toilets and irrigation. The system has also become an important educational tool and amenity for students. The system designed by NSI allowed Merry Lea to meet the envisioned commitment that the water leaving the village site would be as close as possible to the quality it was when it entered the site.

images from top to bottom:
Rieth Village at Merry Lea
Aerial of Rieth Village
Constructed Wetland at Rieth Village

www.goshen.edu/merrylea/
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