

# Tommie Wind Farm



**From left to right:** Samuel Nelsen, Alyssa Whaley, Johnathan Halva, Alisia Lemmons, Connor Gleeson.

## PROJECT SUMMARY:

The Tommie Wind Farm project is a 38-turbine wind energy site design in Minnesota, developed by our University of St. Thomas senior design team for Westwood Professional Services. The project focuses on turbine layout, access road layout, stormwater management, and hydrologic analysis, ensuring compliance with MnDOT and EPA regulations. Using AutoCAD Civil 3D, HydroCAD, and Flo-2D, the team delivered a 30% bid-ready site plan that supports sustainable energy goals while addressing environmental and engineering challenges.

## DESIGN GOAL:

The goal of the Tommie Wind Farm project is to develop a detailed site plan that optimizes wind turbine placement, access road locations, grading, and stormwater management while ensuring environmental and regulatory compliance. Deliverables include a site layout plan set, hydrology report, cost estimation summary, and Google Earth Pro visualization. Using AutoCAD Civil 3D, HydroCAD, and Flo-2D, the



Figure 1: shows a birds-eye view of the site (outlined in pink) and turbine locations.

supports efficient construction, long-term maintenance, and integration into the existing power grid, by providing a ready-for-bid 30% completion package for project stakeholders.

# Westwood

## TEAM 11

**INDUSTRY REPRESENTATIVE**

Keith Rapp

**FACULTY ADVISOR**

Dr. Ali Ling

## DESIGN CONSTRAINTS:

- **Code Requirements:** The Final design will meet all applicable federal, state, and county code requirements.
- **Useability:** The final design must provide an efficient site layout, access road design, and hydrological control system.
- **Permitting:** The final design must meet all applicable permitting and environmental regulations.
- **Stakeholders:** The final design must fulfill the required purpose for all impacted parties with minimal impact to the surrounding environment and community.



Turbine 27 model image

Figure 2: shows a turbine location and access road layout over topographic map