Industry

The Great Lakes Wind Power Plant

UNITED STATES

Monroe, MI

Owner
VenTower Industries, LLC

Engineer
Unknown

General contractor
Rudolph Libbe Inc.

Dates of work
2010/07 2010/10

Main figures

Controlled Modulus Columns
2000 EA.

Description

Located at the Port of Monroe, about 40 miles south of Detroit, Michigan, The Great Lakes Wind Power Plant is a manufacturing plant for wind turbine towers. Built on a former brownfield site, the 115,000 square foot state-of the-art manufacturing facility sits on 38 acres of a former 400 acre landfill, with another 48 acres for staging and storing towers. To improve the ground, support the high surface loads associated with the manufacturing process, and limit settlement, Menard implemented a design-build ground improvement solution using CMC Rigid Inclusions.

Ground conditions

The ground conditions on the brownfield site, which also included a former railroad bed, consisted of several feet of uncontrolled and sporadically contaminated fill with varying amounts of rocks, steel and other miscellaneous debris. Under the debris were organic soft clays underlain by stiff clays. Because of the potential presence of hazardous contaminants, personnel on the site were OSHA 40 HAZWOPER (Hazardous Waste Operations and Emergency Response) trained.

Solution

Because the building constructed on the site was a prefabricated Butler building, Menard installed tensioning elements in some of the CMC Rigid Inclusions to overcome the anticipated uplift induced into the footings during high winds, saving the owner the expense of increasing footing size to overcome uplift.
This ground improvement solution was also critical to eliminating contaminated soil removal at the site. CMC Rigid Inclusions are a preferred alternative for ground improvement at brownfields because they are installed using a specially-designed auger that displaces the soil laterally, with virtually no spoil and no need to dispose of contaminated soil.
The Menard solution provided ground improvement with, support of high-surface loads, uplift prevention and settlement well within project limits on time and under budget.