

Case Study

application Haul/Access Roads
location Kincardine, Ontario, CA
product Mirafi® HP570

job owner Enbridge
contractor Amec Energy and Mining Division
asphalt contractor White Construction

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

The challenge was to place access roads on damp clay on a very tight schedule with no time to dry the soil. Enbridge Ontario Wind Power LP ("Enbridge") constructed a wind power project in the northern part of Kincardine, Ontario. Enbridge Ontario Wind Power LP is a wholly-owned subsidiary of Enbridge Inc., a Canadian company, based in Calgary, that is a leader in North American energy delivery. The project generates 181.5 megawatts (MW) of renewable energy - enough electricity to supply up to 60,000 Ontario homes.

The generation facilities include 110 wind Vestas V-82 turbine generators, each capable of producing 1.65 MW. Other project components include access roads, overhead and underground 44 kilovolt (kV) electrical collection lines, and a 44 kV to 230 kV electrical substation.

THE DESIGN

Generally the soil stratigraphy is composed of a topsoil veneer underlain by natural deposits of sands, silts, clays, silty clay/clayey silt, and silty sand/sandy silt. According to the Quaternary Geology of Ontario, the sources of these natural soil deposits are glaciolacustrine or lacustrine deposits. The consistency of the cohesive soils varies greatly with depth and location, and zones/pockets of very soft to soft clays to silty clays exist beneath access roads. The road cross section design called for 8" of CA2 (base stone) with a 4" cap of lighter stone. Mirafi® HP570 was placed on the compacted sub-base, base stone was then placed, compacted and capped with surface stone. White Construction, Inc. (WCI) constructed the project.

WCI formed its Wind Power Division to serve the fastest growing sector of renewable energy in North America, the principle of electricity is simply "make the turbine turn." With enough wind farms constructed around the world, wind power has the potential of supplying the world's demand for electricity, thus reducing dependency on dwindling reserves of fossil fuels. Usage of clean wind power systems can realize immediate benefits for the environment. With WCI's

combined strengths of experience in heavy industrial construction, heavy highway/road building capabilities, and heavy rigging and lifting, the addition of wind power construction to WCI's broad list of services was a natural development. The energy needs of North America will continue to grow, as will the increasing sensitivity of the environment. WCI will be there every step of the way to help with the improvement, development, and implementation of new energy sources.

Balance of Plant Construction: WCI performs service road network design and installation, Wind Turbine Generator (WTG) foundation design and installation, underground cabling installation, and switchyard/utility interconnect design and construction.

Consulting Services: WCI assists prospective project owners and/or developers in the areas of site selection and layout, budgeting, permit assistance, constructability, assistance in right of way acquisition, project schedule development, public relations with prospective landowners, erection of metrological towers.



Installing crushed limestone on textile using heavy equipment.



Installing Mirafi® HP570 on soft subbase access road.

THE CONSTRUCTION

The project was started in July, 2007 with completion of 110 towers in December, 2008. The project shut down for winter 2007-2008. During construction of the access roads, it was determined in a case by case basis, some areas of base stone was thickened in the wetter areas.

THE PERFORMANCE

The Mirafi® HP570 used on the project along with the field modification to stone cross-sections made this a very successful project.



Wet conditions did not stop construction. Mirafi® HP570 separated mud from the crushed limestone.



Access roads preformed well as heavy components were installed.



Mirafi® HP570 allows for heavy equipment to drive (while installing crushed limestone) directly on it.

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