

## TriAx®

### Tensar® Geogrids Reduce Carbon Footprint

#### Lower CO<sub>2</sub> Emissions with Geogrid-Reinforced Structures

The benefits of using Tensar® Geogrids to improve the subgrade in paved and unpaved roads, or to stabilize the sub-ballast layers beneath rail lines is well known. In each of these applications, installing a geogrid within the section reduces the required aggregate thickness, and thus the initial construction costs. The same holds true for reducing the asphalt thickness in a paved road application.

Pioneered in the United Kingdom, the Tensar Carbon Footprint Assessment program was developed to evaluate the environmental impact of stabilized and unstabilized road construction. A wind farm access road project was selected for an initial study. In order to achieve a valid comparison, the analysis included the CO<sub>2</sub> emissions associated with quarrying the aggregate, transporting it to the site and placing it in the ground. It also accounted for the emissions associated with the manufacturing and transportation of the geogrid. It was determined that on this particular project, a 20% reduction in carbon emissions was achieved with the use of Tensar Geogrids – a significant amount given today's "green" priorities. A similar study for a U.S. wind farm produced even more dramatic results.

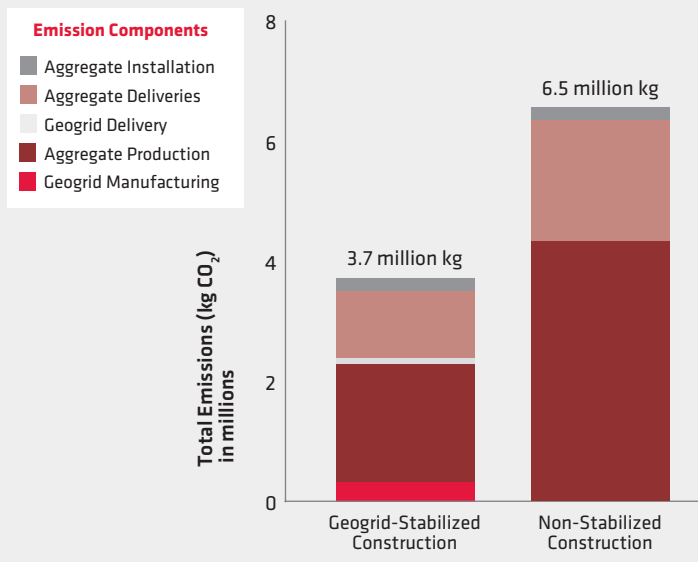
#### CASE STUDY: CO<sub>2</sub> EMISSIONS REDUCED 43% WITH TENSAR GEOGRIDS AT THE MAPLE RIDGE WIND FARM IN NEW YORK

The Maple Ridge Wind Farm is located in upstate New York, approximately 25 miles inland from Lake Ontario. At the time of its development, it was the largest wind farm east of the Mississippi River.

Phase I of the wind farm, developed in 2005, features 120 wind turbines sited along 23 miles of access roads that required improvement of the subgrade to support heavy construction equipment. Both unstabilized and stabilized road construction methods were considered. An unstabilized solution would have required a significantly greater thickness of aggregate fill to achieve a sufficient bearing capacity. In the end, a stabilized solution was adopted that included the installation of 453,000 square yards of Tensar Geogrid.

A carbon footprint assessment was subsequently undertaken and the results are featured in the bar chart to the left. Altogether, the use of Tensar Geogrids reduced CO<sub>2</sub> emissions by 43% compared to the emissions calculated for an unstabilized access road construction – a dramatic difference and important consideration for site development decisions.

Proportional CO<sub>2</sub> Emissions



The diagram shows that the Tensar Geogrid solution reduced CO<sub>2</sub> emissions by 43% in comparison to traditional unstabilized construction.

With a reduced aggregate or asphalt thickness, it can now be shown that geogrids also help to reduce the carbon footprint as well. Tensar International has developed a calculation tool, independently verified, that can determine the CO<sub>2</sub> emissions associated with a Tensar Geogrid solution and compare it with the emissions produced using a conventional thicker aggregate solution.



## THE TRIAX® GEOGRID ADVANTAGE

TriAx Geogrid enables engineers and contractors to reduce aggregate and save on installation time, materials and expense. With material costs increasing and site conditions becoming more challenging, engineers, contractors, developers and owners are choosing TriAx Geogrid to:

- ▶ **Avoid Overexcavation** – Reduces undercut, disposal and backfill to save time and expense.
- ▶ **Improve Site Access** – Provides access in the most severe soft soil conditions for working platforms and haul roads.
- ▶ **Lower Costs** – With less aggregate and faster construction schedules, construction costs are decreased.
- ▶ **Lower CO<sub>2</sub> Emissions** – Using Tensar TriAx Geogrids allow you to lower CO<sub>2</sub> emissions by avoiding additional aggregate deliveries.

## ADDITIONAL INFORMATION AND SERVICES

Tensar International, the leader in geosynthetic soil stabilization, offers systems for improving structures such as roadways, railyards, construction platforms and parking lots. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost-effective and installation-friendly, they provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources and expertise that have set the industry standard for more than three decades.

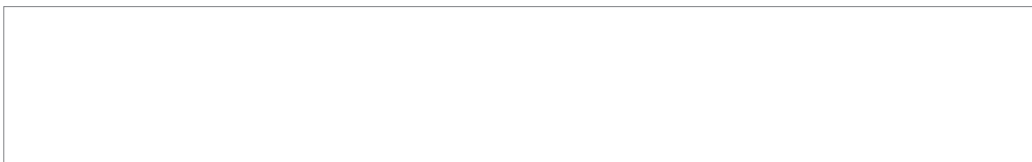


Maple Ridge Wind Farm, Lowville, New York

For more information on Tensar® TriAx® Geogrid, call **800-TENSAR-1**, visit **[www.tensarcorp.com](http://www.tensarcorp.com)** or email **[info@tensarcorp.com](mailto:info@tensarcorp.com)**.

We are happy to supply you with additional information on our geogrid products, installation guidelines, system specifications, design details, conceptual designs, preliminary cost estimates, case studies, software and much more.

Distributed by:



# Tensar®

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