



Four Mile Road Subgrade Stabilization Project

Clearfield County, Pennsylvania

APPLICATION: The project owner, an oil and natural gas company, used Tensar® TriAx® Geogrid to create an unyielding and stable platform over 9.5 miles of weak access road soils.

THE CHALLENGE: Heavy trucks exploring natural gas formations in the area had made the existing access road, an unpaved forestry arterial maintained by the Pennsylvania Department of Conservation and Natural Resources (DCNR), unsuitable for traffic. The project owner needed an affordable way to restore the unpaved road and support year-round traffic volumes of up to 1,000 heavy vehicle trips per day.



Before TriAx Geogrid, the DCNR access roads were not suitable for traffic or heavy equipment. Now, the access roads easily support approximately 1,000 heavy vehicle trips per day.

SITE CONDITIONS: Increased traffic, significant snowfall, “ice lensing,” and soft subgrade soils (CBR = 1.0) were causing the road to deteriorate during the annual spring thaw cycle.

ALTERNATIVE SOLUTIONS: The project owner considered restoration strategies such as soil cement, a new 33-inch-thick aggregate top layer, or a competing geogrid in combination with an aggregate top layer. These solutions were rejected due to concerns over environmental impact, cost, and performance respectively.

THE SOLUTION: The project owner selected the Tensar Geogrid option that incorporated one layer of Tensar TX7 Geogrid as the best solution for stabilizing the roadway for public and commercial use. The system allowed the contractor to bridge saturated and crumbling soils by placing the TriAx Geogrid directly on the existing grade.

“TriAx is our first solution for soft subgrade issues,” says Jeff Osburn, project manager for Glenn O. Hawbaker. “It covers areas that can barely support equipment. It’s phenomenal how well it works.”

Osburn’s crew repaired the road crown where needed. His workers then covered all areas of the roadway with TX7 Geogrid and 16 to 30 inches of dense graded aggregate. Reducing the aggregate requirements saved the project owner an estimated \$1.2 million in material and installation costs.

PROJECT HIGHLIGHTS

Project:

Four Mile Road Subgrade Stabilization

Location:

Clearfield County, Pennsylvania

Installation:

August – November 2010

Product/System:

TX7 Geogrid

Quantity:

160,000 square yards

Owner/Developer:

A major oil and natural gas developer

Design Engineer:

Tensar International

General Contractor:

Glenn O. Hawbaker Construction, Inc.

Materials Supplier:

L/B Water Service, Inc.

“TriAx has a high-rib profile and a unique hexagonal shape that gives 360-degree load distribution,” says Tensar International Corporation Regional Manager David Lipomi. “Its superior base confinement means you can use less aggregate and still bridge wet soil conditions.”

“The TriAx roads are holding up beautifully, says DCNR assistant district forester Marty Lentz. “TriAx is affordable and goes in quickly even when field conditions are terrible. It’s definitely my preferred system for upgrading the roads in our state forests.”

THE TRIAX ADVANTAGE: Owners and managers of oil and gas sites are choosing TriAx Geogrid to:

- **Reduce construction costs:** TriAx Geogrid can reduce aggregate requirements up to 60% while also reducing labor and equipment needs.
- **Improve site access roads:** Easily installed, TriAx Geogrids improve surface quality to create longer lasting access roads with less maintenance requirements.
- **Increase safety:** TriAx Geogrids create stable and uniform roadways and working surfaces to minimize the potential for dangerous potholes or washouts.



TriAx Geogrid creates strong, stable access roads and working surfaces for increased productivity and reduced frequency of costly maintenance. A noticeable difference can be seen in the access road built with TX7, and the well pad in the background that was built without geogrid.



The unique properties of TriAx Geogrid allowed for a reduction in aggregate requirements that led to an estimated \$1.2 million in savings.

- **Enhance post-drilling production site access:** Once in the ground, TriAx Geogrids will not degrade, ensuring that access and site conditions will remain consistent and reliable to reach workover rigs in key locations.
- **Allow cold climate construction:** Since TriAx Geogrids can withstand extreme cold, there is no need to sacrifice productivity and performance during the winter and early spring months.

ADDITIONAL INFORMATION AND SERVICES:

Tensar International Corporation, the leader in geosynthetic soil reinforcement, offers systems for improving structures such as roadways, rail yards, 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 nearly three decades.

For more information on the TriAx Geogrids or other Tensar Systems, call 800-TENSAR-1, email info@tensarcorp.com or visit www.tensarcorp.com

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