Tensar®

TriAx®

Phased Construction of Asphalt Pavements

How Incorporating Tensar® TriAx® Geogrids Increases Road Performance

PHASED CONSTRUCTION

Phased construction has become a common practice in recent years – particularly in residential developments. In order to build a roadway to gain site access as quickly as possible, contractors initially place the aggregate component of the pavement and then, a thin asphalt layer on top. Once the

overall site construction has been completed, the remaining asphalt is placed, ensuring a pleasant, clean finish to the road. This technique is particularly useful when local trenches are required for the installation of utility pipes and cables.

PERFORMANCE IMPLICATIONS

Pavement distress in the form of cracking at the surface of the asphalt is common on roads within housing subdivisions. In many cases, these cracks start to appear within a very short period of time following construction – sometimes in as little as one or two years.

Once the cracking starts to develop, the pavement's deterioration will accelerate very quickly. Pavement distress, as depicted by the "alligator cracking" shown in Photo 3 (below), is the most common deterioration, and is characteristic of a deep-seated problem within the pavement structure. In other words, a standard surface rehabilitation program will not be sufficient to overcome the problem and instead, the current owner of the road will face an expensive replacement of the road's foundation layers.

CAUSE OF PREMATURE PAVEMENT FAILURE

Consider the three pavement sections shown on the reverse side of this flyer (Figures 1–3).

Based on the current method prescribed by The American Association of State Highway and Transportation Officials (AASHTO) for the design of flexible pavements, the allowable trafficking levels obtained for these pavement sections are shown in ESAL's above Figures 1 through 3.

Strange as it may sound, in this typical example, the implications of **leaving off the 1.5 in. of asphalt** surfacing during a phased construction procedure **results in an 80% reduction in the trafficking capacity of the pavement**. For subdivision-type roads however, the majority of heavy traffic is experienced during the construction of the surrounding housing and the road itself.

It is not surprising then, that when the asphalt surface layer is installed at the end of construction, the rest of the road is approaching the end of its design life. The placement of this thin surface layer results in some additional trafficking capacity, but after a year or two, the road will start to show surface distress – indicative of structural integrity problems associated with the lower layers.

THE SOLUTION

The performance benefits associated with the inclusion of Tensar® Geogrids within the aggregate base have been demonstrated and quantified through extensive research and

Photo 1 – Subdivision road during construction.

Photo 2 – Condition of road at end of construction.

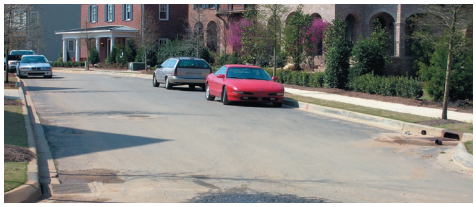

Photo 3 – Condition of road after 2 to 3 years.

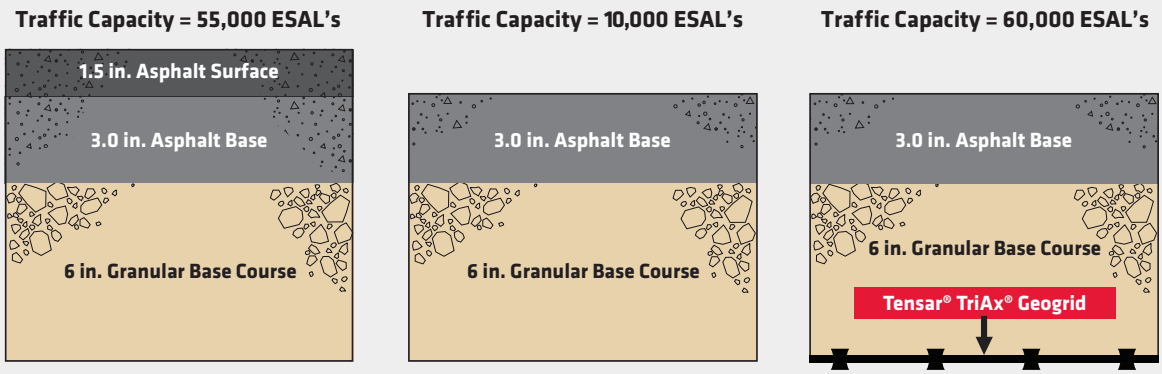

Fig. 1 – As Designed Section

*Fig. 2 – Actual Section during Construction**

Fig. 3 – TriAx Geogrid during Construction

Leaving off the 1.5 in. of asphalt surfacing results in an 80% reduction in the trafficking capacity of the pavement.

project monitoring for more than 20 years. In this specific application, it can be demonstrated that the loss in trafficking capacity resulting from the absence of the asphalt surface layer during the critical construction period, is more than compensated for by the inclusion of a layer of Tensar® TriAx® Geogrid within the pavement section.

The bottom line – the long-term performance of the road is exactly as it was intended to be in the original pavement design.

DESIGN SOFTWARE

SpectraPave software provides pavement design engineers the most powerful tool available for evaluating roadway design options and optimizing pavement performance using Tensar Geogrids. This free program specializes in the optimization of paved roadways as well as the stabilization of unpaved roadways and construction platforms.

This comprehensive, systems-based design software suite offers the full benefits of Tensar's knowledge and experience in analyzing both subgrade stabilization and pavement optimization applications. These applications incorporate the entire range of Tensar TriAx geogrids.

Download today at **www.TensarCorp.com/SpectraPave**

EXPERIENCE YOU CAN RELY ON

Tensar International Corporation, 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 more information on Tensar® TriAx® Geogrid, call **800-TENSAR-1**, visit **www.tensarcorp.com** or email **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.

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