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CASE HISTORY

High flow triplanar geocomposites for roadway subsurface drainage, Route 58, Virginia DOT

PRODUCT	TENAX TENDRAIN high flow triplanar geocomposites
LOCATION	Franklin, Virginia, 2001
OWNER	Virginia Dept. of Transportation
PROJECT	Landsaver Environmental
CONTRACTOR	VDOT Dr. Mohamed Elfino VDOT Mr. George Boykin

PROBLEM

This project specifies a triplanar geocomposite as a drainage layer on top of existing concrete pavement with full depth asphalt overlay. TENAX TENDRAIN will be used for 1.8 km of roadway 2 lanes wide. The existing pavement is hydraulic cement concrete paving of varying depth and reinforcement. This pavement is jointed.

SOLUTION

The work consists of breaking and seating the existing concrete paving for full depth and full panel width. Installing TENAX TENDRAIN drainage geocomposite on the existing concrete pavement section and overlaying it with asphalt concrete. The pavement structure consisted of three layers totaling 240 mm of asphalt concrete, i.e. 150 mm BM-25 (Base), 50 mm IM-19A (Intermediate), and 40 mm SM-12.5D (Surface wearing course). The geocomposite will consist of a triplanar geonet core with 270 g/m2 nonwoven geotextile laminated to each side. Prior to the TENAX TENDRAIN installation, an asphalt tackifier was placed on the existing concrete paving. The TENAX TENDRAIN was then installed directly in the tackifier minimizing any wrinkles in the drainage geocomposite. A steel drum roller made two passes on top of the geocomposite to ensure good adherence to the existing pavement section.
A 90 mm lift of base asphalt was then placed directly on top of TENAX TENDRAIN using a rubber tracked asphalt box. The asphalt was then compacted with standard static steel drum rollers. After the initial lift of asphalt was placed, the road section was then opened to traffic with 75 mm of compacted asphalt directly on top of the TENAX TENDRAIN triplanar geocomposite. The next lift of base asphalt was placed within 30 days to a final asphalt thickness of 90 mm.

CONCLUSIONS

The TENAX TENDRAIN increased the design life of the pavement structure by providing lateral drainage and reinforcement. The three-planar structure worked as a stress dissipation layer between the existing cracks and joints in the base concrete pavement and the above asphalt overlay.