Pullout Resistance of Individual Longitudinal and Transverse Geogrid Ribs

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Abstract: This paper presents an evaluation of the soil-geogrid interaction, conducted to quantify the contributions of passive and interface shear mechanisms to the overall pullout resistance of geogrids. An experimental testing program was conducted in this investigation using both large-scale and newly developed individual-rib pullout devices. The large-scale pullout tests were conducted using uneasily coated geogrid specimens with and without transverse ribs. On the other hand, the individual-rib pullout tests were conducted using individual longitudinal and transverse ribs. A stress transfer model was implemented to predict the results of large-scale pullout tests using the parameters obtained from the individual-rib pullout tests. Good agreement was obtained between the results of large-scale pullout tests and the predictions obtained using parameters collected from individual-rib tests. For the dense mesh geogrids used in this investigation, the development of passive mechanisms in front of geogrid transverse ribs was found to influence significantly the interface shear mechanisms that develop along longitudinal ribs.

Full reference:

Teixeira, S.H.C., Bueno, B.S., and Zornberg, J.G. (2007). "Pullout Resistance of Individual Longitudinal and Transverse Geogrid Ribs." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, January, Vol. 133, No. 1, pp. 37-50.

Link to file*:

http://dx.doi.org/10.1061/(ASCE)1090-0241(2003)129:6(427)