



Foundations on Geotextile Encased Granular Columns: Overview, Experience, Perspectives

Dimiter Alexiew¹ and Graham Thomson²

¹HUESKER Synthetic GmbH, Technical Director, Gescher, Germany. E-mail: dalexiew@huesker.de

²HUESKER Synthetic GmbH, Area Director (Asia Pacific), Singapore. E-mail: grahamt@huesker.co.uk

The Geotextile Encased Columns (GEC) foundation system for embankments and dikes on soft soils was introduced some 20 years ago and is now considered State-of-the-art in Germany and step by step worldwide. The GECs consist of compacted granular fill similar e.g. to common gravel columns with one decisive difference: they are confined in a high-strength woven geotextile “cylinder” (encasement) controlling their behavior. Consequently, they work properly even in extremely soft soils and a wide range of fills incl. of sand can be used. Huge technological and design experience is available; verified design methods exist. The paper focuses due to brevity only on some basics and important aspects of design, installation, optimization and recent research.

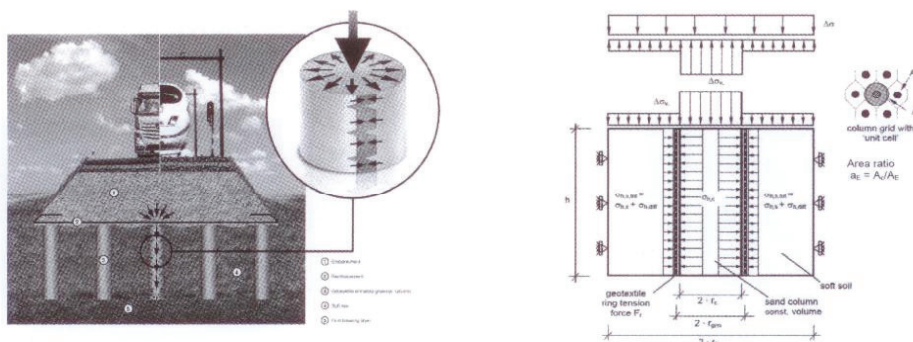


Figure 1. General scheme of the GEC-system (left) and “single cell” design method (right).

Keywords: Embankments, Soft soils, Geosynthetics, Encased granular columns, Optimization, Tensile modulus.

References

- Alexiew, D., Brokemper, D., Lothspeich, S. (2005). “Geotextile encased columns (GEC): Load capacity, geotextile selection and pre-design graphs”, Proc. Geofrontiers 2005, Austin, USA.
- Alexiew, D., Raithel, M., Küster, V., Detert, O. (2012). “15 years of experience with geotextile encased granular columns as foundation system”, Proc. Int. Symposium on Ground Improvement IS-GI, ISSMGE TC 211, Brussels.
- and 12 more...