

Case Study

Building on Subsoils with Low Bearing Capacity using
COMBIGRID® & SECUGRID®





Fig. 1: Installation of Combigrid® as base reinforcement in the construction area



Fig. 2: Detail - Combigrid® on subsoil with low bearing capacity

In Grasberg, Germany, asphalt concrete pavements in rural roads still exist. In this swampy area, also the state road L 133 was equipped with a stiff concrete pavement surface at that time.

Challenge No 1

The high traffic load, the deteriorated road structure and the subsoil with its low bearing capacity made rehabilitation unavoidable. Over time, cracks in the pavement had formed due to settlements and speed limits had to be imposed.

Solution

The responsible state authority decided to use geogrids to achieve a stiffening of the newly planned road structure. A complete soil replacement as an alternative would have been too expensive due to the low bearing capacity of the subsoil. It would also have been challenging to implement for lack of space. With Combigrid® and Secugrid® geogrids, a technical solution was found to meet the described challenges.

Challenge No 2

During the construction work, the client and the contractor were faced with another challenge. A gas pipeline running parallel to the roadway was much too close to the construction area. Relocating the pipeline would

have gone far beyond the time frame available for the project.

Solution

NAUE engineers, in cooperation with the responsible state authority, developed a concept within a short time to keep the lateral pressure resulting from the road pavement away from the gas pipeline.

The initially planned polypropylene (PP) geogrids were replaced by stiffer and less creep sensitive polyester (PET) geogrids and finally installed using the wrap-around method. As an additional safety buffer, the Secudrain® drainage mat was vertically placed next to the gas pipeline in a double layer arrangement.

Combigrid® was used at the base of the road structure as reinforcement with additional separation function between the sub-base and the soft peaty subsoil. The Secugrid® geogrid supplemented the reinforcement in the further construction to achieve an optimal and sustainable stiffening effect for the complete road structure. The Secudrain® drainage element formed a flexible frame due to the double laying to keep the lateral earth pressure away from the newly constructed road structure.

The use of Combigrid® and Secugrid® geogrids makes it possible to reduce future maintenance costs for the road

pavement despite the soft subgrade and increasing traffic volumes.

Combigrid® and Secugrid® were successfully used to build sustainably, safely, and economically for the future.



Fig. 3: Securing the natural gas pipeline in the lateral area

Project name
National Road L 133 in Grasberg, Germany

Client:
Niedersächsische Landesbehörde für
Straßenbau und Verkehr, Verden, Germany

Construction company:
Matthäi Bauunternehmen GmbH & Co. KG,
Bremervörde, Germany

Products:
Combigrid® 40/40 Q6 R156 C
Secugrid® 30/30 Q6
Secudrain® 201 WD601 201



NAUE GmbH & Co. KG
Gewerbestr. 2
32339 Espelkamp
Germany

Phone +49 5743 41-0
Fax +49 5743 41-240
info@naue.com
www.naue.com

