

Horní Moštěnice – Bypass

high-speed communication I/55

country: Czech Republic

realization: 2004 – 2006

material: Armatex® G 40/40

..... 21.000 m²

Armatex® G 80/80

..... 10.500 m²

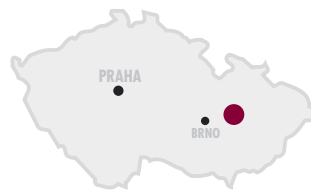


ARMATEX® G

woven geogrid from high-strength PET with PVC adjustment for soil reinforcement

purpose of usage:

soil reinforcement in three layers of embankments to improve the bearing-capacity and to levelling irregular settlement



The high-speed road I/55 routed in the section Olomouc – Přerov – Hodonín is loaded with very heavy traffic between Přerov and Horní Moštěnice. Up to 18,000 vehicles a day travel this section from Přerov to Zlín and then further to Slovakia. It was decided to construct a bypass of the village of Horní Moštěnice with length of 4.5 km as the situation becomes unacceptable. People in the village have their houses cracked and complain about permanent noise and dust. Effort has been made to enforce construction of a bypass for already several decades.

This section of the category S 11,5/80 with two bridges across the Moštěnka river and Dobřický creek should be completed by October, 2006. A noise silencing barrier has been constructed along the complete length of the bypass. The costs of the complete construction amount to approximately CZK 350 million.

Description of the construction SO 103 "Repair of the existing road I/55":

The building project deals with repair of the existing four-lane road I/55 without central dividing strip which is partially routed across the former technical municipal waste dumping site. The length of the repaired road is 360.0 m and the repair consists in exchange of a structure and bed of the existing road. The former value of the deformation modulus $E_{def,2}$ was 5 MPa.

The required minimum values of the deformation modulus $E_{def,2}$:

- | | |
|--|-------------------------|
| 1. Crushed gravel reconstruction layer | $E_{def,2} = 45,0$ MPa |
| 2. Crushed gravel reconstruction layer | $E_{def,2} = 90,0$ MPa |
| 3. Crushed gravel protective layer | $E_{def,2} = 120,0$ MPa |



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Factory Production Control
Certificate 0799-CPD-19



Assessment of ground body reinforcement:

SG – Geoprojekt limited company has assessed the projected design of reinforcement of the ground body under the reconstructed road I/55 reinforced with polyester geo-grids **Armatex® G**.

Deformation moduli with the values of at least 10; 45; 90 and 120 MPa were required by the designer on the boundaries between layers. The formation from crushed gravel with grain size of 0 – 63 mm compacted by 0.25 m.

The formation was constructed on a former municipal waste dumping site. Reaching of min. deformation moduli on the level of formation of the former ground level on min. values of 10 MPa was not guaranteed in line and in area. Spreading of thicker levelling layers in the places where the requirements for minimum deformation modulus values were not complied with was assumed by the project. Moreover, it was not possible to investigate and locate all unsuitable places through loading tests.

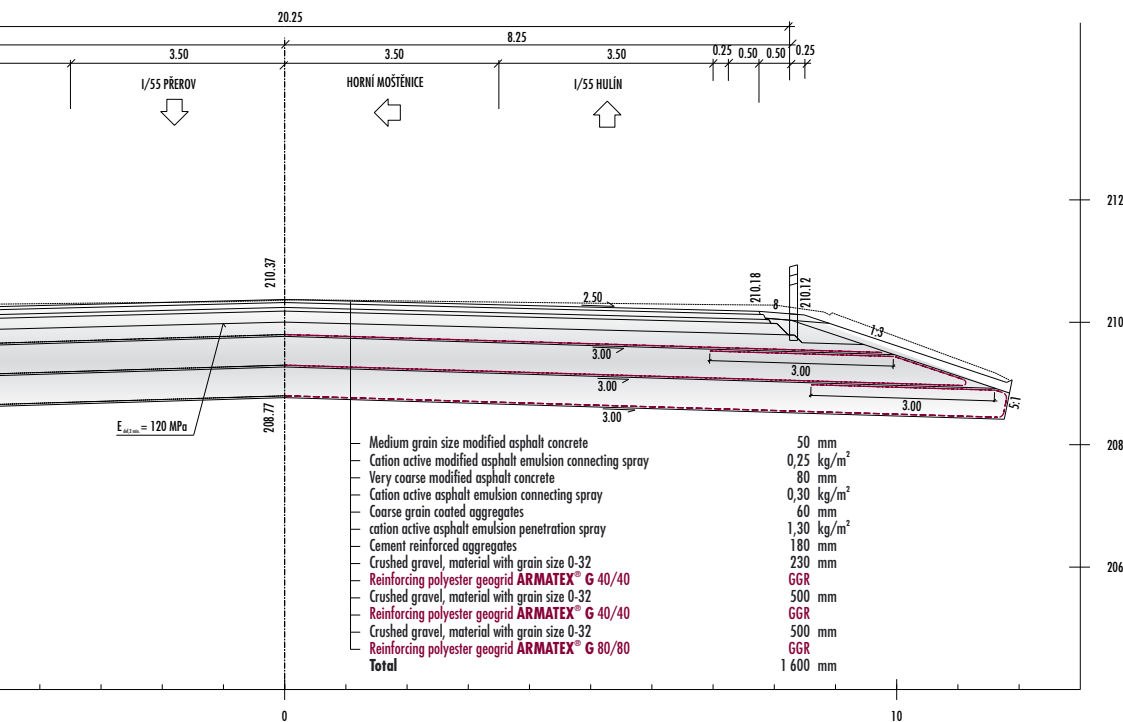
It was recommended to apply a levelling crushed gravel layer on which the first layer of the double-axis geogrid **Armatex® G 80/80** kN/m was laid down. Reinforcement within the complete extent of the substructure of the ground body for the road was provided by applying the high-strength geogrid. The remaining part of the ground body was constructed in accordance with the project layers were reinforced by the double-axis geogrid **Armatex® G 40/40** by 0.5 m (compacted by 0.25 m).

The strength specifications required by the designer have been complied with. Uniform and more economic reinforcement of the bed above the places with low load bearing capacity was provided using this method.

The requirements of the project and for dimensions of the geogrid mesh and its service life were satisfied by the supplier of the reinforcing synthetics materials.

More effective and durable levelling of uneven settling of individual places under the road was ensured by use of the geogrid **Armatex® G 80/80** in the basic reinforced layer of the ground body. Costs for excavation works, transport of levelling layers and their compacting were reduced during construction. The remaining structure of the ground body complies with the standards for designs and construction of roads and motorways.

REPAIR OF THE ROAD I/55 – CROSS SECTION km 0.200



investor:

Ředitelství silnic a dálnic ČR s.p.,

Praha

general designer:

Transconsult s.r.o., Hradec Králové

contractor:

Sdružení Moštěnice

SKANSKA DS a.s.

STRABAG a.s.

geotechnical survey:

UNIGEO, a.s.

judgment of reinforced

embankment:

SG – GEOPROJEKT spol. s r.o.

realization:

2004 – 2006