MOTORWAY PROJECT D4/R7, GREATER BRATISLAVA AREA

Client: PORR Bau GmbH, Vienna / FERROVIAL AGROMAN s.a., Madrid / DOPRAVOPROJEKT, a.s., Bratislava / D4R7 Construction s.r.o., Bratislava
Development Period: since 2015

THE PROJECT

The Slovak Public Private Partnership road project comprises the new construction of the motorway ring around Bratislava (D4) between Jarovce and Raca with a length of 27 km and the expressway R7 with a length of 32 km, running from the centre of Bratislava towards south-east.
Besides open road sections with two to three lanes per direction, 13 motorway links and approximately 100 crossing objects are realised.
The centrepiece of the project is the new *Danube* bridge and the approach bridges with a total length of 3 km.

OUR FUNCTION

Initially, BGG Consult has been commissioned for this project in the tendering phase with consulting in the fields of geotechnics and hydrogeology. Already in this stage, the geotechnical input was of great significance for the optimisation of the project design.
After the tender of the Consortium PORR - FERROVIAL was accepted, supplementary underground investigations were planned, supervised and evaluated. Based on these, Geotechnical Reports were prepared for the change of the building permits and subsequently for the detailed design phase.
During construction, the works are supervised from a geotechnical and hydrogeological point of view.

Foundation Danube Bridge:
Special attention has been given to the foundation of the *Danube* bridge from the beginning of the project, because high costs and high risks are involved. For several bridge designs, BGG Consult examined the foundation variants shallow foundation, pile foundation and box foundation. The studies also included numerical modelling with the method of finite elements. Finally, a classical foundation by means of cast-in-place concrete piles is carried out as the technically and economically best method.

Bridge Abutments on Reinforced Soil Structures (RSS):
For economical reasons, the abutments of numerous bridges are founded directly on reinforced soil structures. For the dimensioning and the assessment regarding the settlement behaviour, an intensive geotechnical attendance of the design process is of great importance. The feasability regarding this issue was also clarified based on numerical model calculations with the method of finite elements.

Construction of bridge abutments by reinforced soil with a facing of concrete panels