



## ARAD BY-PASS, ROMANIA

Client: PORR Technobau & Umwelt AG  
 Development Period: 1/2009 to 2/2011

### THE PROJECT

On the western side of the Romanian town Arad, a motorway by-pass has been established.

The new construction features four lanes and emergency lanes with a roadway width of 26 m, and a length of 12 km. In the context of the project, four grade-separated junctions, the bridge over the *Mures River* with a length of 500 m (river bridge and foreshore bridge) and twelve other bridges were implemented.

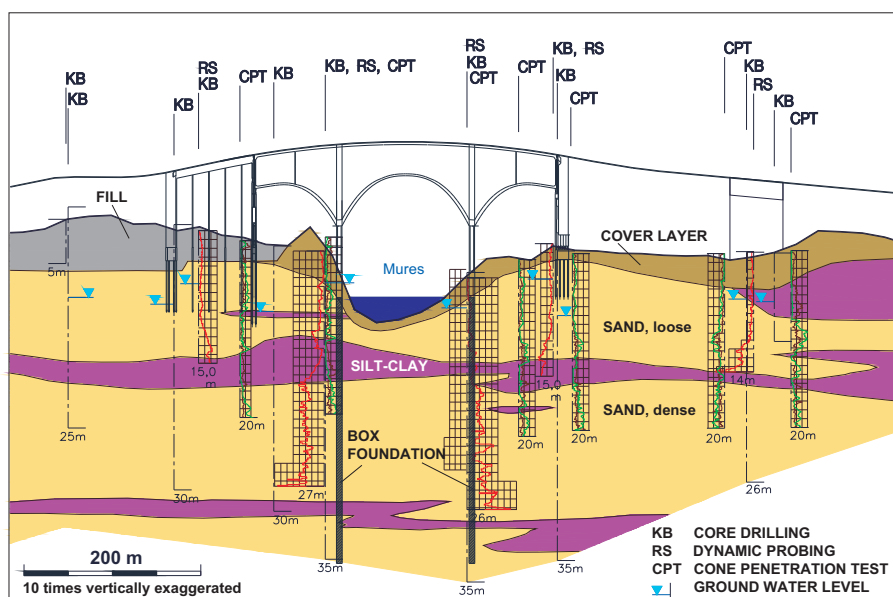
### OUR FUNCTION

BGG Consult was commissioned by the construction consortium with the consulting in the fields of geotechnics and hydrogeology during tendering and construction phase.

The work included first of all the planning and supervision of additional subsoil explorations and the preparation of documents for submission at the local authorities. Subsequently, the deep foundations of the bridge have been optimised and dimensioned in close cooperation with the designers and the inspection engineers. For the bridges, numerous pile load tests (compressive, tensile, horizontal) were planned and supervised. Furthermore, soil improvement measures (vibro compaction) and embankments have been designed with consideration of earthquake loads.

#### "Box Foundation" Mures Bridge:

The bridge across the *Mures River* is designed as a three-bay, bending-resistant structure with field widths of 95 m / 150 m / 95 m. For the foundation of the two main pillars, a so-called box-foundation has been chosen. With this foundation method, a bored pile box is connected to a cover slab, which is seated directly on the ground. For the dimensioning of the foundation, the skin friction at the outer side of the box on the one hand, and the ground area of the complete box on the other hand can be taken into account. Hence, a significant optimisation in comparison to a conventional foundation by single piles was possible.



Excerpt of the longitudinal profile in the area of the Mures Bridge