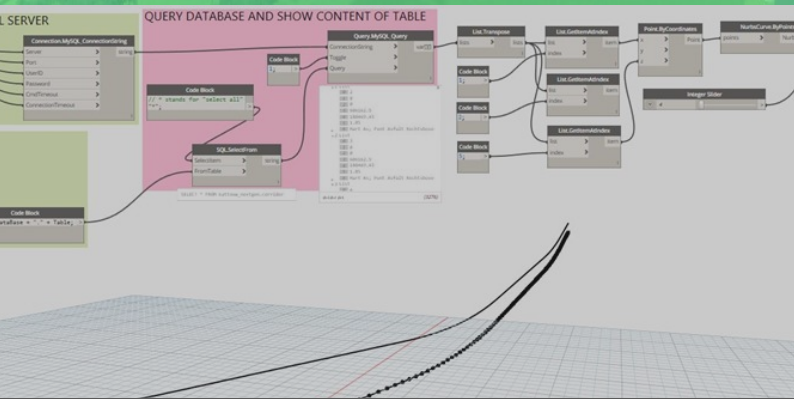


ANT

Case Study Tunnel Design



Tunnel Design

In a large infrastructure project in the southwest of the Netherlands, ANT was being used to design a tunnel. For this, both geotechnical and structural calculations as well as the 3D-design were connected to ANT. This enabled the project to work consistently and significantly decreased the lead time for implement changes.

Case Description

The first step in the design process is the based on the road alignment. Parameters like; starting point, profile of free space, number of driveways, soil characteristics, groundwater levels, are stored and managed in ANT. Based on this data, the calculations are automatically started in Plaxis. The results are sent back to ANT and displayed for approval and further processes.

Constructive calculations are based on the geotechnical calculations, combined with other parameters like; number of spans, type of poles and concrete class. Based on this data, the loads in the slabs are calculated and reinforcement configuration is defined and checked.

The inputs and results of these calculations are structured and stored in ANT. The calculated dimensions are used to generate the 3D model, which is the base for the 2D construction drawings. Since the models are generated, there were no inconsistencies in the design which increased the value of the model & drawings significantly.



By using ANT, the client was impressed of high quality of the 3d models. All elements have been built correctly and fully consistently coded in accordance with the project breakdown. Because of this quality, the model could be linked to the planning quickly, which provided a lot insight for the project team.



Major changes in all disciplines were possible up to be implemented at the last minute. This includes alignment changes, ground properties and the sheet piles. Without ANT this had not been possible.



Connecting the calculations (which had to be executed more than once) to ANT, gave a huge gain in time (more than 4x as fast). Since fewer moderate acts were required, the chance of errors was significantly reduced.