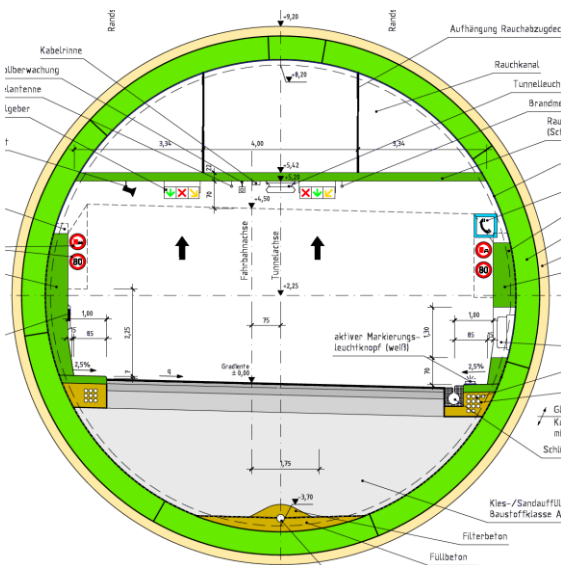
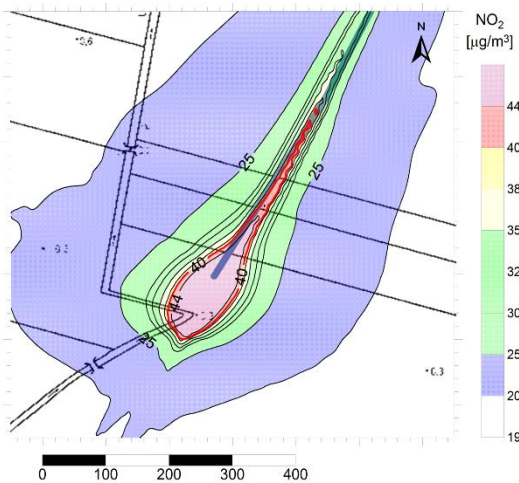


Longitudinal gradient course for the Elbe crossing A20 below the Elbe



Cross section of tunnel tube



Northern portal, NO₂ pollutant burden map in the reference year 2025

Description

The federal motorway A20 is part of the trans-European road network and will contribute to managing the transregional northern European and north-eastern European traffic flows. In a feasibility study, the tunnel length variant of 5.671 m was defined as the preferred solution.

Services

For the tunnel solution using automated shield tunneling, the required construction data were specified in the preliminary planning of the tunnel ventilation. In case of a constantly flowing unidirectional traffic, the natural piston effect of the vehicles suffices to obtain a sufficient longitudinal airflow. In exceptional cases such as stop-and-go traffic, the longitudinal ventilation is supported by jet fans.

Due to the traffic loads and the tunnel length, a thermal power of up to 100 MW is considered. For this purpose, a fume extraction system with controllable vents via an intermediate ceiling is provided. The jet fans serve to control the airflow speed in the tunnel tube. The ventilation system ensures high availability even for opposing traffic in one tube in case the other tube is completely closed. The investigation of the immission situation shows that the forecast values fall below the threshold values within the portal zones and are therefore not required as a measure to reduce the immissions of pollutants. In the course of the ADR categorization the "Procedure for the Categorization of Road Tunnels according to ADR 2007 (BASt, Federal Highway Research Institute)" was applied in stage 1b with the result that, if all threshold values are undercut, the Elbe crossing could be assigned to category A.