The Brenner north-approach section lies in the Lower Inn Valley, in Tyrol, Austria – surrounded by an extremely challenging environment; the Alpine mountain range. Safety throughout the three-year construction period (to be finished in December 2012), requires technologically advanced equipment.

ZOKA is a German acronym for access control, locating position, communication and alarm. The ZOKA system was put to the test when chosen as the most suitable all-in-one safety and control system for this project.

The central monitoring station, located at the construction office in Terfens, controls access of people, vehicles and machines. Everyone who works on the project has an individual ID card with RFID tags which lets the ZOKA system determine the exact location. In the event of an emergency, the tags provide information regarding the exact location to guide rescue crews straight to the emergency scene. The Brenner north-approach tunnel is divided into various positioning zones to provide real-time detailed information on all movement across the tunnel. Moreover with the high-resolution video surveillance on all vehicle entry points of the tunnel, every movement is easily monitored and can be recorded at the same time.

Equally important to access control and position monitoring, are reliable communication and alarming. Special telephones at the cabinets are distributed across the tunnel length, to ensure an optimal, reliable and functional network at all times. Several different systems are also used for mobile communication and connected to the central control centre. The WLAN Access Points (APs) are installed in all offices, in and outside the tunnel and control centre, for mobile communication with VoIP and data transmission. The Digital trunked radios (TETRA) and IP Emergency phones are also used in case of emergencies. In order to have a high level redundancy, all these systems are connected to the control centre with a fibre optic cable network.

Each communication cabinet is furnished with emergency (rotating) lights and a signal horn that can be activated from the central control centre. With the usage of UPS units, which ensures continuous power supply to all emergency equipment and communication systems, evacuation can be handled perfectly. Site lighting has to comply with statutory requirements and is designed to meet the specific needs of the site, which also indicates the escape and rescue routes in case of emergency. Site ventilation systems ensure that threshold limit values for toxic substances on the site are not exceeded.

The ZOKA system is really a great benefit (and indeed an improvement) to our project and the way we used to approach our projects. Many thanks to the ZOKA system for providing an effective coordination of the extensive work and contributing to the success of the project.