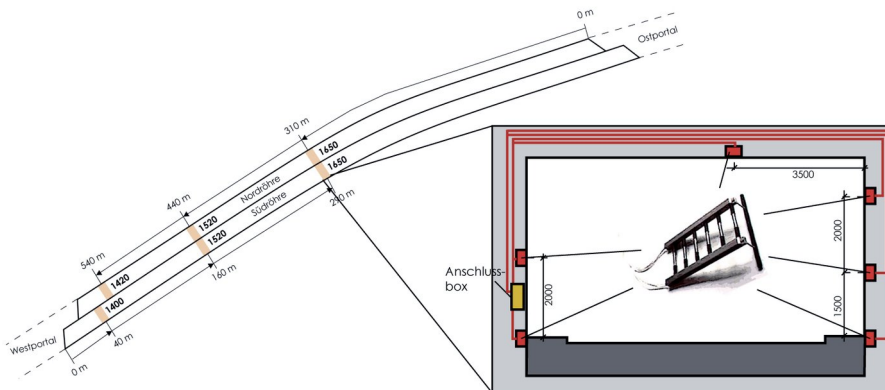


Reference Engineering

Long-term Observation of a Daywork Tunnel



Problem and task

Between 1993 and 2002, among other things the roofing Lüsslingen was erected in daywork during the new building of the highway N5 between Solothurn and Biel. As independent surface protection measure and integral component of the protective concept, in-depth impregnation was applied serving as a chloride barrier (used for the first time in Switzerland). This way, capillary liquid absorption could be efficiently avoided. Chloride sensors were installed at suitable and representative positions as to observe the efficiency of this measure during the occupancy period. These sensors have to indicate the penetration of chloride early to allow the taking of measures in time (before reinforcement corrosion starts). Furthermore, the regular measurements should not disturb the traffic.

Solution

Totally 27 chloride sensors were installed in various distances to the portal and in various cross-section positions. The cables lead to a central connecting box in the service canal which is located between the two tunnels. The manual measurement of the corrosion potentials, corrosion flow, temperature and resistances as the function of distance from the construction unit surface takes place regularly. The equipment is also prepared for continuous measurements with automatical datalogging systems.

Judgement

This installed observation system allows us to detect the penetration of chloride early and with little effort. It is possible to continuously estimate the risk of reinforcement corrosion. The use of this observation system made an important contribution to a long

Facts

Duration of the project:
Since 2001

Building owner and client:
Civil Engineering Office
Kanton Solothurn



repair-free occupancy period of these constructions.

