



Renovation of a drinking water pipeline

A relining project on the Alleenring in Frankfurt

The Alleenring is Frankfurt's second ring road. Running along part of it, below ground, there is a DN 500 drinking water pipeline and because of the danger of fractures to it a length of 2,300 meters needed to be renovated between the intersections at the Nibelungenplatz and the Danziger Platz. The pipeline supplies drinking water to the northern part of Frankfurt, the great metropolis on the Main, from the areas in the south of the town where the water is obtained and it was suffering from the infirmities of old age – it had been laid between 1904 and 1939. Possible methods of renovation had been considered beforehand in a comparison of variants which was made as part of a feasibility study. The study had looked at the economic, technical and operating aspects of five variant methods of renovation and in so doing had also taken into account incidental conditions relevant to the project such as traffic and environmental requirements, because the Alleenring is a major artery for east-west connections which carries high levels of traffic. As well as deciding that the pipe should be of

the DN 300 size, the study also concluded that, for economic reasons, the renovation should be carried out by a trenchless method.

BLS® joints and pipe relining came out the winners

Shortlisted among the suitable, largely trenchless methods considered was pipe relining using either butt-welded steel pipes or ductile cast iron pipes and the BLS® restrained socket joint. A cost comparison between the two types of pipe did show them to be almost on a par with one another. However, when the time and the quality assurance required for the making of the welds when using steel pipes were compared with the making of the BLS® restrained socket joints when using ductile cast iron pipes, the former were assessed as taking more time. With the BLS® system, only eight minutes is needed for each socket joint and – and this was another crucial point in favour of the tried and tested Buderus joint – angular deflections of up to 3.5° are possible. So, a

clear plus for BLS®! Consequently, when the method was laid down, the pipes decided on were Buderus DN 300 K 9 PN 10 ZMA pipes with a cement-mortar coating and BLS® sockets. The renovation of the pipe was carried out from June 2008 on in two sections. 35 trenches (installation and pulling-in trenches) in the area occupied by the carriageway and roadside trees on the Alleenring were needed to allow the units of pipe to be pulled in on schedule.

Training having been given at the installing company by employees of the BGW Applications Engineering Division, the handling and laying directions for pipe relining were followed and all the pipes, which were delivered from Wetzlar straight to the site in Frankfurt in packs of four, were pulled in without any problems. Thanks to the excellent way in which all the parties involved worked together, the renovation, which was completed in October 2008 with the entry into service of the water pipeline, was and will remain a lasting success for the customer, Netzdienste Rhein Main GmbH.

The Nibelungenplatz on the Alleenring in Frankfurt



Installing the Buderus DN 300 ductile pipes



Making a BLS® restrained socket joint

