Pipe Application / Egypt - "Primary care families"

Krah New Mena plastic

With approximately 8 million people Cairo (Egypt) is the most populous city in the Arab world. Today the metropolitan area of Cairo is even home to around 25 million people, which means that the provision of clean drinking water and disposal of wastewater is one of the biggest challenges of this region. To address this problem the government has embarked on the project "Primary care families", some time ago. This project aimed to support people, "*who had lost their homes in catastrophes or who lives in very bad conditions*."

As part of this project a sub-project for 12,500 residential units and 60,000 residents was planned and completed successfully 30 km south from the city center. This could be realized in collaboration with project partners as follows

- **EGEC (engineering consultancy)** - www.egec-xprt.com
- **Arab Contractor (Contractor)** - www.arabcont.com
- **Krah New Mena Plast (pipe manufacturer)** www.krahmisr.com

To offer help to the people as quickly as possible, the entire project was under a very high time pressure. That's why the estimated construction period had been one of the most important selection criteria for products and companies.

The company New Mena Plast / Cairo could meet all necessary demands of the project. It was advantageous that the selected and used profiled Krah pipes (made of polyethylene) could be produced directly at Mena New Plast / Cairo, thus the delivery time could be kept very low. The lightweight but very stable PE-profile pipes - with a weight of well under 50 kg per meter - could be handled on the construction site without the use of special equipment.

The complete pipeline of length: 3 Km divided between 500, 800 and 1000 mm pipe diameters. The durable welded joint was made by Krah welding equipment simultaneously with the pipe installation in less than half an hour. Thus the construction process was not disturbed and the installation time could be reduced to a minimum. Per day and welding machine more than 60 meters were installed.

The pipes have been statically calculated according to the standard ATV 127. Therefore, the

occurring loads as well as the soil and installation conditions were considered. The pipes were laid in a trench 1.2 to 2.5 m width up to 8 meters depth. Since polyethylene is a flexible pipe material which adopts to stress, we can by now expect a lifetime of more than 100 years. The homogeneous welded joints are very beneficial to lifetime of the pipes, as no additional seals must be used and the entire piping system is completely homogeneous and dense. The tightness is especially important to protect groundwater from contamination and thus prevent disease. So it was checked and verified successfully in 50 meter intervals. With the help of static analysis a solution to short term changes in environmental conditions can be found.

Because the pipeline route had to be rescheduled, very high traffic loads had to be considered for a subsection below a highway. Since flexible pipe systems create a synergistic association with soil, the installation conditions have been optimized so that even here an optimal load distribution could be ensured.