



## Tailing Pond Sillamäe, Estonia

Sillamäe is small town located some 185 km east of Tallinn, Estonia, at the shore of the Gulf of Finland, in the Baltic Sea. Since 1959 the Sillamäe hydrometallurgical plant SILMET has discharged about 12 million tons of radioactive waste and oil shale ashes into a tailing pond. The pond is situated at the north-west of Sillamäe, directly on the shore line of the Baltic Sea. The tailing pond has grown up to 25 meters high, covering about 40 hectares.

The Estonian Government and the European Union have developed an environmental remediation project for the Sillamäe tailing pond. This project foresees the following:

- reinforcement of the depository dam by building a shore protection and a slope stabilisation;
- blocking the groundwater by building a diaphragm wall (water diverting system);
- covering the depository pond with a multi-layer waterproof covering.

Svašek Hydraulics and Royal Haskoning has been the advisor of the contractor OÜ Eesti Ehitus for the design of the shore protection, the slope stabilisation and the water diverting system.

For the geotechnical stability calculations of the tailing pond dam and the slopes the numerical model PLAXIS is used. Groundwater modelling was done using the hydrogeological flow model MODFLOW.

**Client**  
OÜ Eesti Ehitus

**Location**  
Sillamäe, Estonia

**Date**  
2002

**Services**  
Analysis of design wave data, design shore protection, geotechnical stability calculations (using PLAXIS), design of slope stability system, hydrogeological flow calculations (using MODFLOW), design of water diverting system

**Associated Firms**  
Royal Haskoning

**Svašek Hydraulics**

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