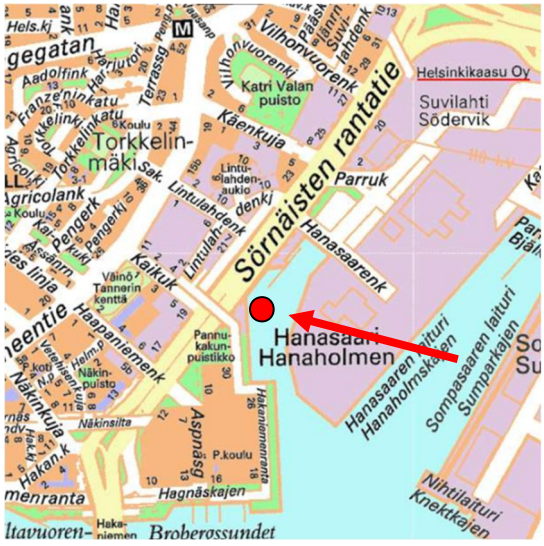
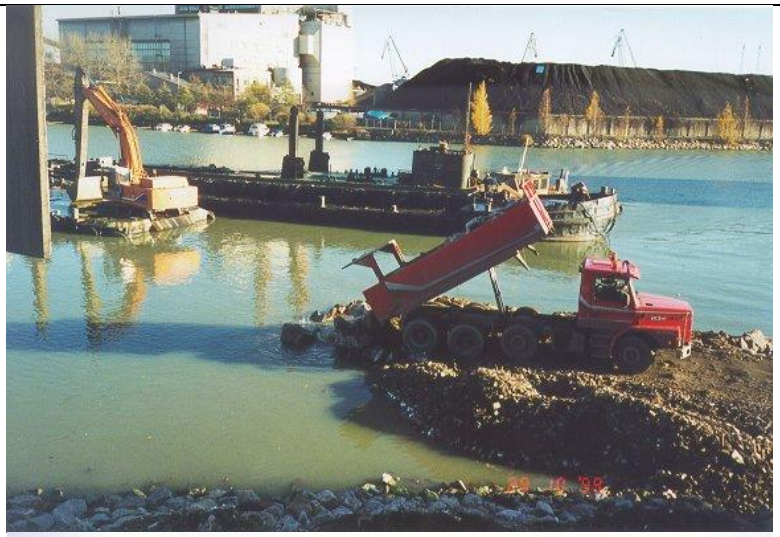
SÖRNÄISTEN RANTA Sörnäinen, Helsinki, Finland Construction of a parking area on a sea fill	Key words: Contaminated sediment, Sea area filling, Sea fill, Mass stabilization
General information	The coastal neighbourhood of Sörnäisten ranta in Helsinki is an old city sector of industrial and harbour area. Nowadays these activities have been replaced by residential building and other city activities, and the infrastructure of the area has been improved after the coastal construction with mass stabilization in 1998. Many coastal constructions have been carried out by dredging sediment (mud) from the sea bottom and replacing it with frictional materials (e.g. blasted rock). In some cases, the dredged sediment has been considered unsuitable for any kind of construction purposes and transported to deposit areas. In the Sörnäisten ranta case the relocation of dredged sediment was not allowed due to its contamination. Instead, it was decided to reuse the contaminated dredged sediment in the coastal structure of the new shoreline of Sörnäisten ranta.
Advantages of stabilization	For two major reasons it was necessary to stabilise and solidify the sediment. Bearing capacity had to be improved in order to avoid stability problems and settlements. Also, any future leaking of contaminants to the environment had to be avoided. With mass stabilization both of these issues could be dealt in cost-efficient way.
Project timetable	1999-2000
Volumes and dimensions	Approximately 6800 m^3 volume was stabilized.
Geology and stabilized material	Contaminated dredged sediment (mud) containing heavy metals, PCB and oils. Very high water content.
Target strength of the stabilized material	Shear strength 30 kPa
Binder(s)	Rapid cement 110 kg/m^3
Laboratory and field tests	Column penetrometer and vane penetrometer tests after construction.
Other	-
Long-term follow-up and lessons learned	Technical testing after 2 years (water permeability, shear strength, resistant against freezing-thawing, bearing capacity). In addition, environmental testing including total concentration, leaching tests and column test was carried out after two years. In 2016 column penetrometer and vane tests were performed 17 years after stabilization to examine long-term strength development. The strength had increased.
Sources	Forsman, J. *et al.* (2008), *Case stories, Harbours - Mass stabilisation of contaminated dredging mud in Sörnäinen, Helsinki*, International Mass Stabilisation Conference, Lahti, Finland. Mehtälä, J., Tanska, H., Asikainen, H. & Miettinen, M. 2000. *Mass stabilisation of contaminated dredging mud in Sörnäinen, Helsinki*. Paper B48. Proceedings of Ecogeo, an international conference in Helsinki. Piispanen, P. 2017. *Long-term functionality of mass stabilization.* Master's Thesis Aalto University. Espoo.
Stabilization contractor	YIT





Dredging and building of the edge embankment

Mass stabilisation work and construction of the compacting layer

Preload embankment on top of the stabilized area