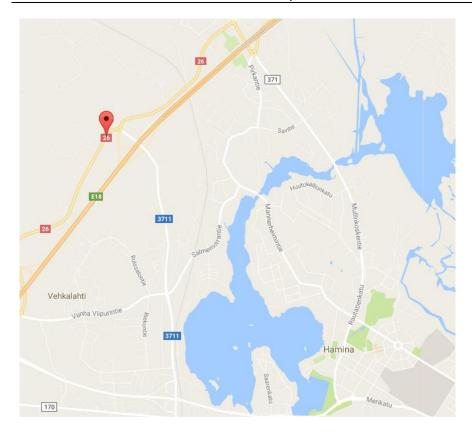
HAMINA D-STATION

Salmenkylä, Hamina, Finland Fuel station subgrade reinforcement

Key words: access road, parking field, mass stabilization

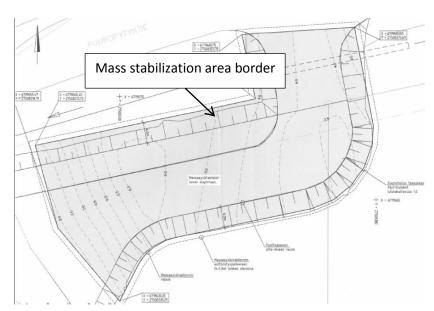
General information	The subgrade improvement of the fuel station in Hamina Salmenkylä was carried out
	with mass stabilization. The soil type in project area was mixture of poor quality clay
	and mud and the construction with traditional methods e.g. pile slab, mass replace-
	ment of light weight fill would have been unpractical or too expensive solutions.
Advantages of stabilization	With mass stabilization poor quality mass excavation and replacement or other
	more expensive solutions were avoided.
Project timetable	2014
Volumes and dimensions	Stabilized volume was approximately 7400 m ³ .
Geology and stabilized mate-	Clay and mud layer 0 - 7 meters, sand, glacial till and bed rock under clay layer
rial	
Target strength of the stabi-	Shear strength 40 kPa
lized material	
Binder(s)	Nordkalk GTC 75 kg/m³ (gypsum + lime + cement)
Laboratory and field tests	Quality control after hardening time with column penetrometer, the target shear
	strength was achieved.
Other	Target shear strength was easily achieved.
Long-term follow-up and	-
lessons learned	
Sources	Forsman, J, (2015), Mass stabilization in infrastructure and environmental construc-
	tion, Mass stabilization conference, Lahti.
Stabilization contractor	Lemminkäinen Oy





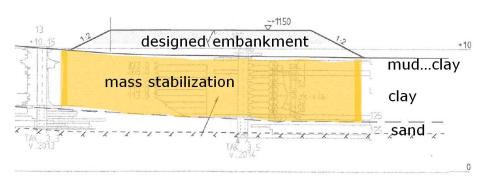


Situation before mass stabilization at project area



Mass stabilization plans

Cross section of the mass stabilized layer under embankment



Quality control sounding results (column penetrometer)

