



Ville Niutanen

Implementing Mass Stabilisation and Quality Assurance

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Introduction to Mass Stabilisation Execution

- Mass stabilisation planning documents
 - Laboratory studies – geotechnical designing
- Site visit and implementation planning
- Mapping the area to be stabilised
- On line reporting, block reporting
- Quality ctrl

Taking you through implementing with real case from year 2014 – YARA Uusikaupunki, Finland – Mass stabilising contaminated dredging material as a base for cargo storage field.



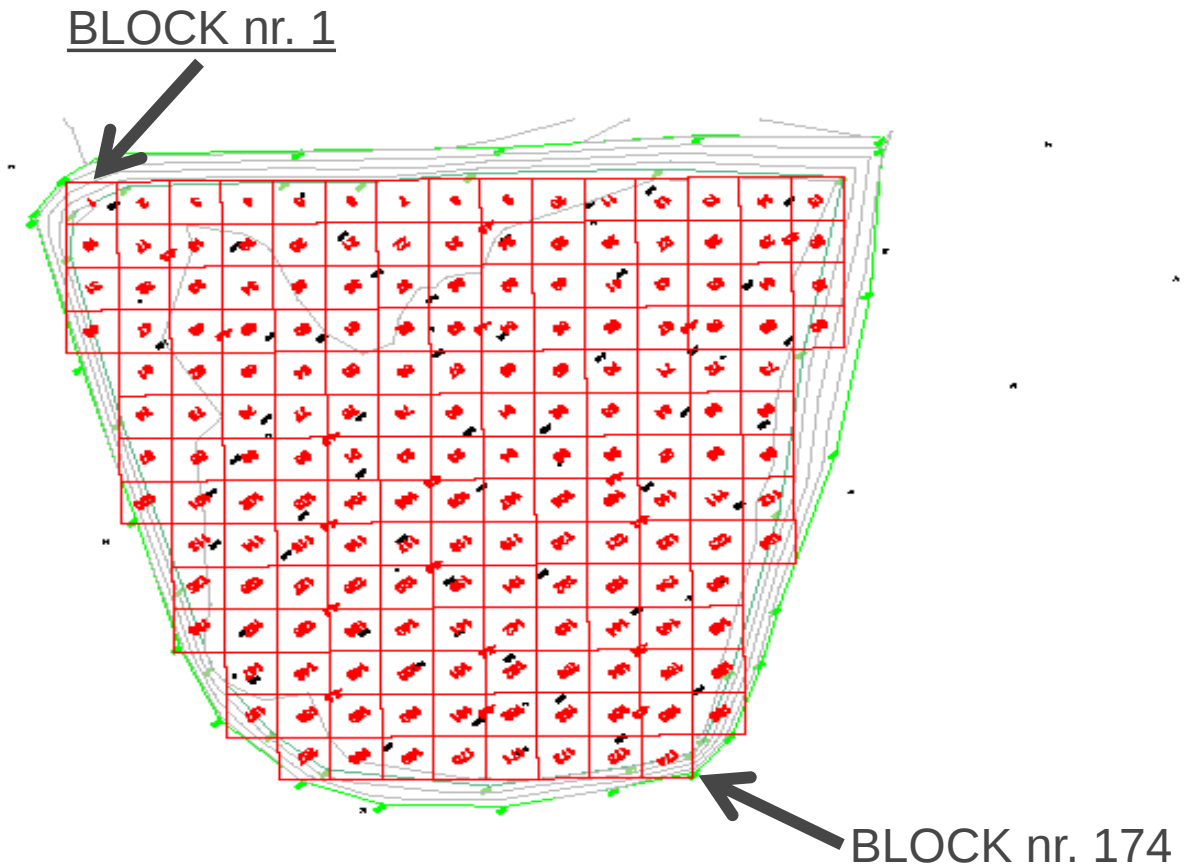
Site visit with execution planning



From where to start? Binder recipe? Binder storage, best location?
Optimal machinery? What kind of planning documents we have?
Do we have enough info for execution? Test fields? Timetable? ???



Project execution planning – mapping the area to be mass stabilised





Project execution planning – work planning documents

- Technical, environmental, safety plans
- Certificates
- Quality assurance plan
- Timetables
- Personnell lists
- Maps, site measuring (gps)

Documentation varies case by case – sometimes more, sometimes less



Mobilisation and starting up

- Stabilisation machinery mobilisation
 - Excavators
 - Binder feeders
 - Mixing tools
 - Binder storage silos
- Taking samples and testing the stabilising [base material](#)



Mass stabilising execution...

- Starting the [mass stabilisation](#) with block reporting

BLOCK ID	Date	Len	Wid	Area	Depth	Volume	Binder 1 KC30/70 kg/m3	Binder 2 Kipsi kg/m3	Binder 1 KC30/70 kg	Binder 2 Gypsum kg	Remarks
	pvm	m	m	m ²	m	m ³					
1	3.6.2014	2	5	10,00	1,0	10,00	50	30	500	300	Slope, rocks
2	3.6.2014	5	5	25,00	2,0	50,00	50	30	2500	1500	Slope
3	3.6.2014	5	5	25,00	2,0	50,00	50	30	2500	1500	Slope, cables
4	3.6.2014	5	5	25,00	2,0	50,00	50	30	2500	1500	Slope



...mass stabilising execution

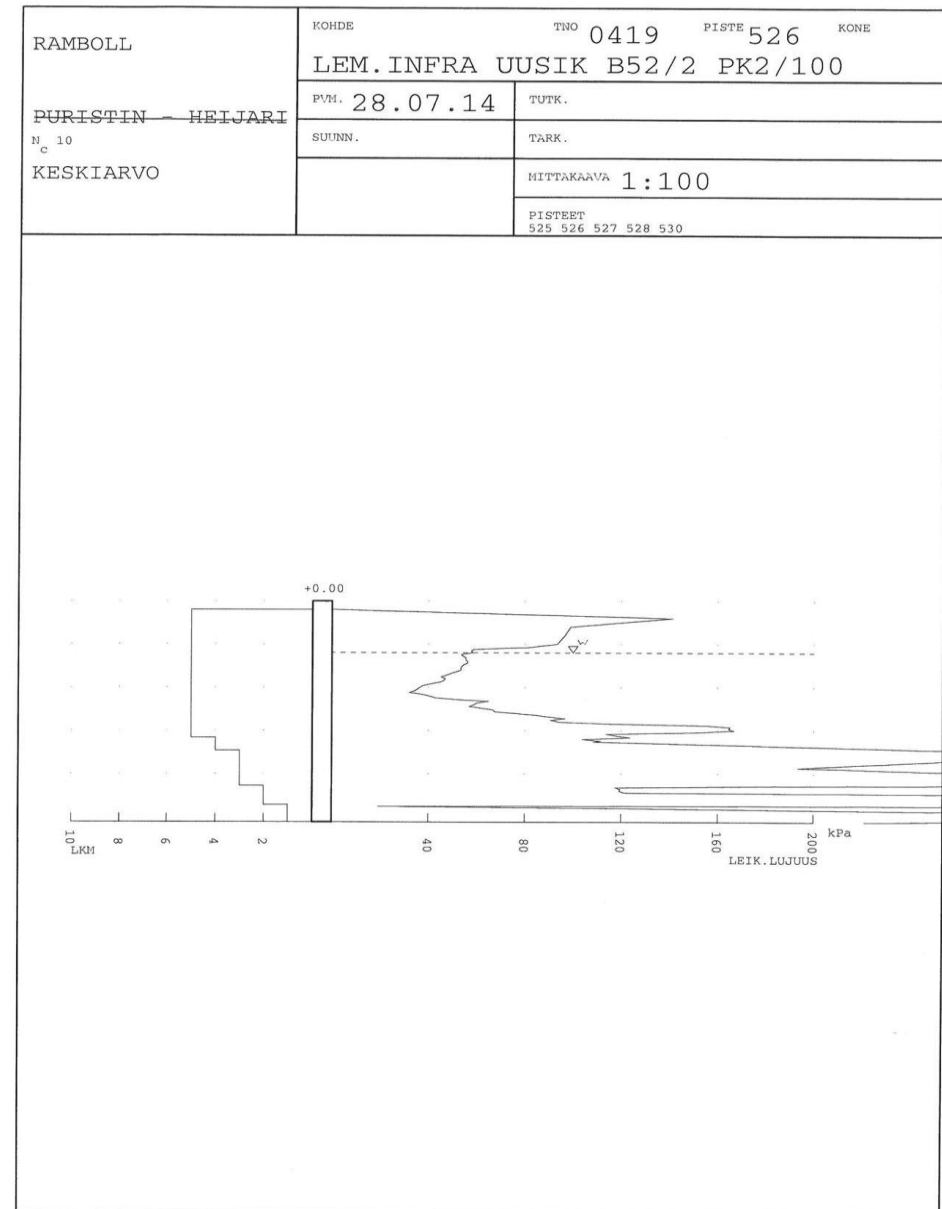
- Finishing the mass stabilisation
- Constructing the preload embankment
- Preparing site for quality control drillings





Finishing and quality control data

- Quality control drillings (column/vane penetrometer) – usually 30, 60, 90 d
- Sample taking from test pits
- Installing the settlement plates





Reporting of mass stabilisation

- In the end of mass stabilisation project, usually work report is made, which may include:
 - Work plans
 - Block data, block maps (3 d data)
 - Diary notes
 - Quality qtrl reports
 - Delivery notes for binders, preload embankment materials
 - Other relevant info

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