

# Remediation of vinyl chloride in organic sediments using Hot Air Sparging

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 Photon Water  
 Photon Remediation

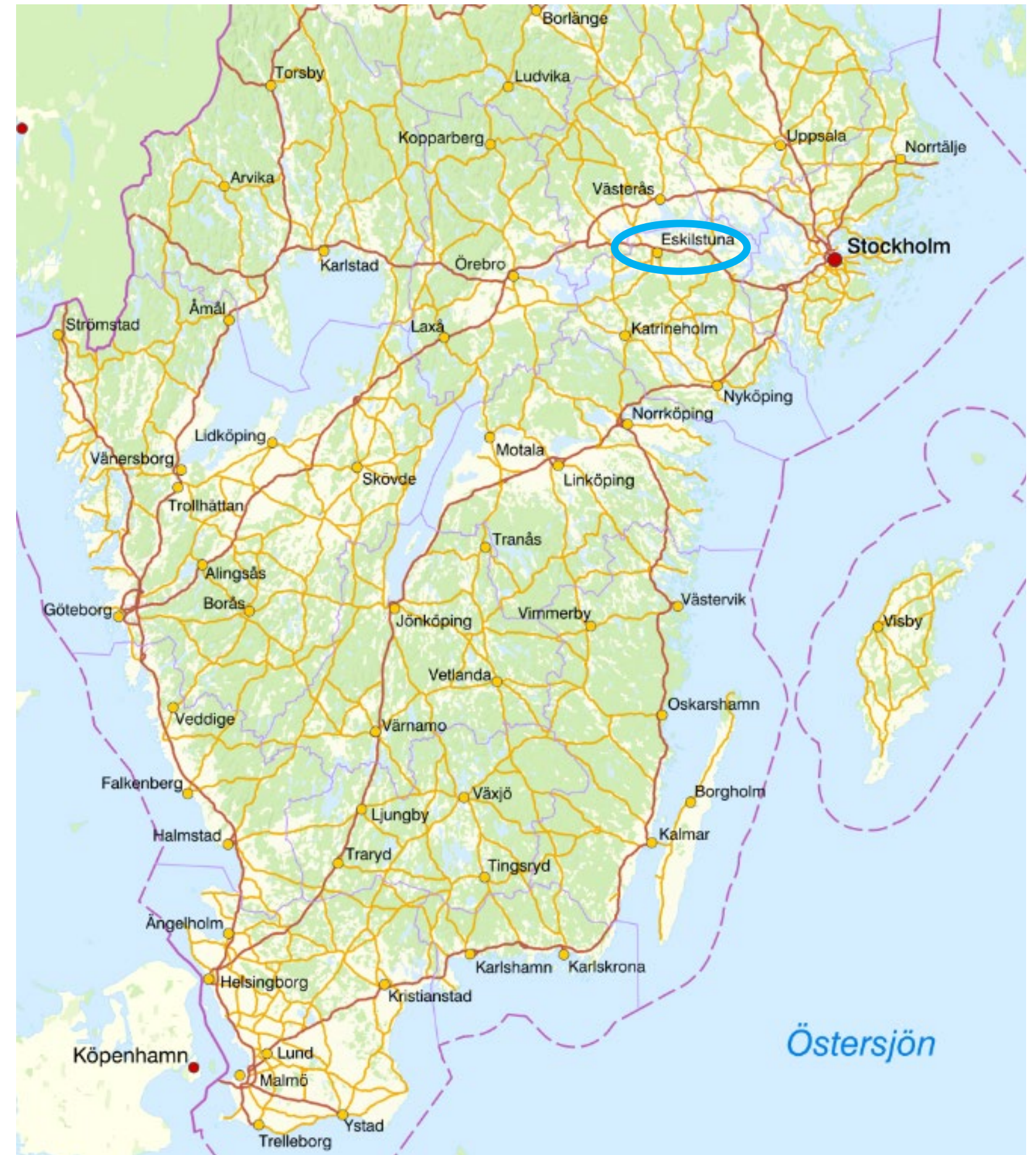
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# Background

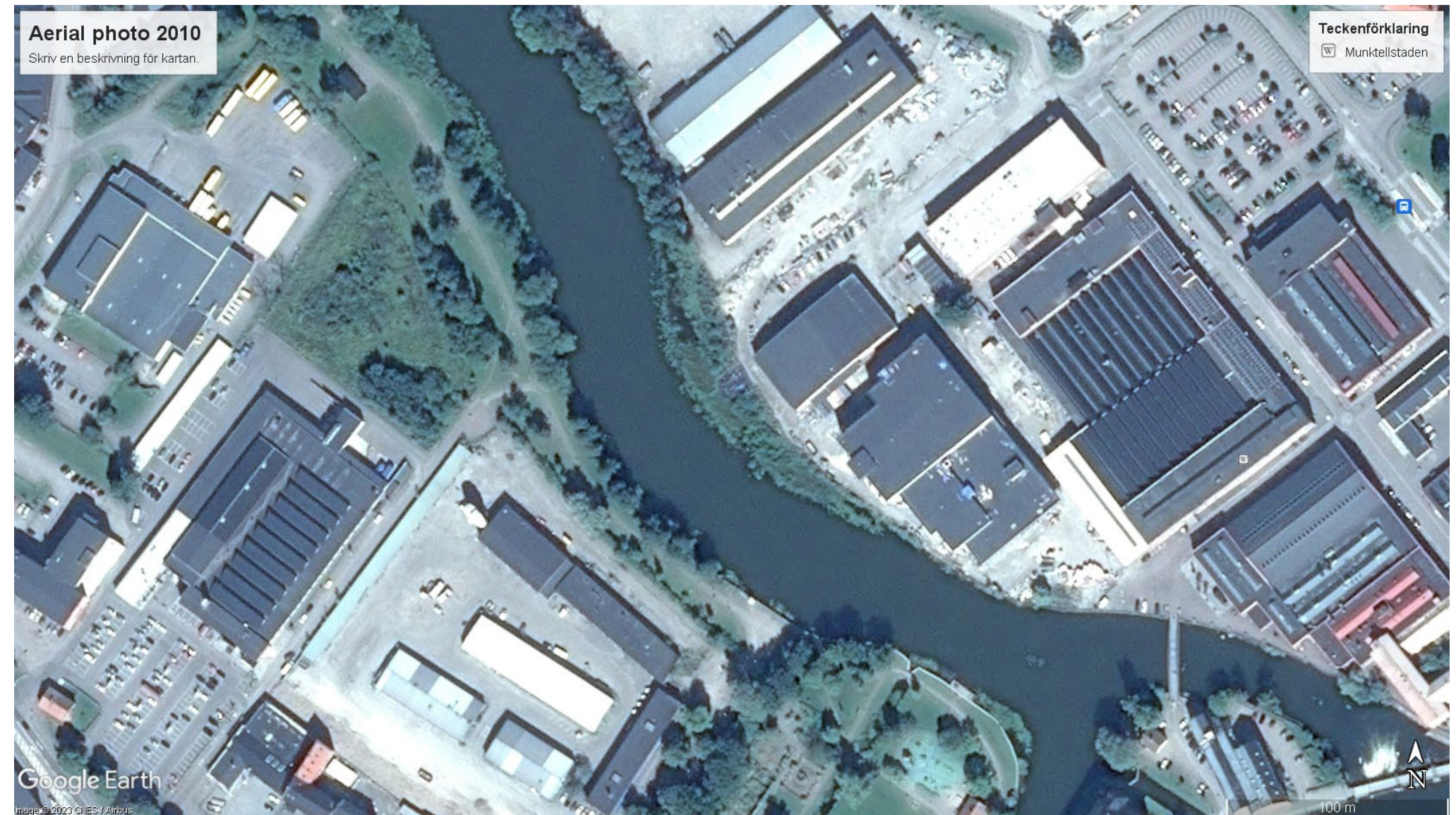
The city of Eskilstuna:

- Population ca 70 000 - Average sized with Swedish measurements.
- Long tradition of heavy industries.



# Background

The small river Eskilstunaån flows through the city

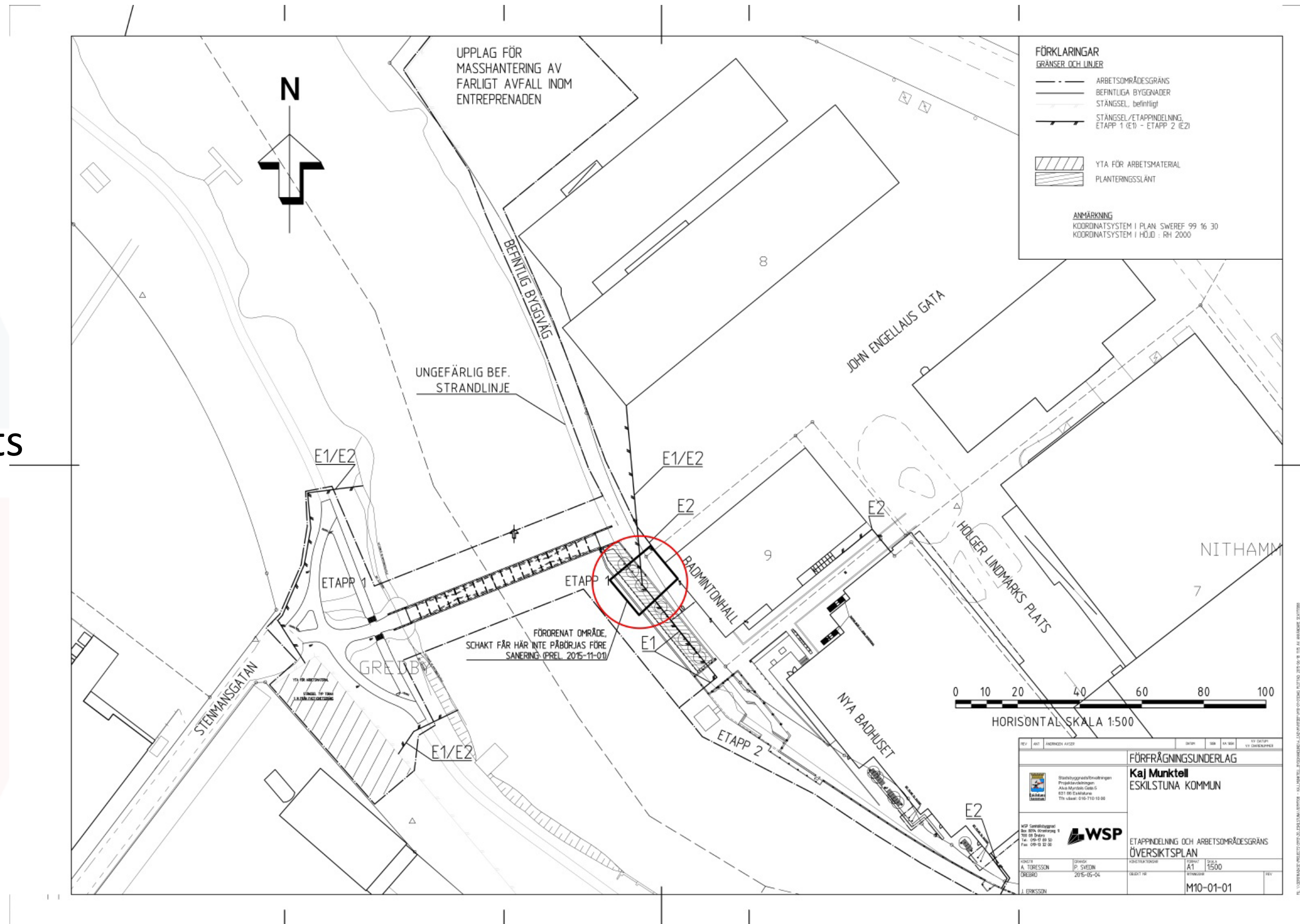


# Background

The city Counsel planned to develop the quite marshy shorelines and build a board walk

The water in the sediments had high rates of every possible contamination

In a small area (red ring) the rates of vinyl chloride was 55 mg/l



## Scope

Large excavation works were planned

Evaporating VC would cause health issues in the surroundings

A remediation target of 1 mg/l was calculated using modelling and Henrys law

We were given three months ...



# Geological conditions

Peaty sediments

Mostly consisting of organic material

Low permeability



## Considered methods

Method	Not suitable cause of ...
Excavation	Emissions
Chemical oxidation	Organic material, peat
Reductive dechlorination, biologic	Short time frame
Reductive dechlorination, chemical	Untested in these conditions
Pumpning, vacuumextraction	Low permeability

Chosen method: Hot Air Sparging

# Hot Air Sparging

Air Injection



Heating

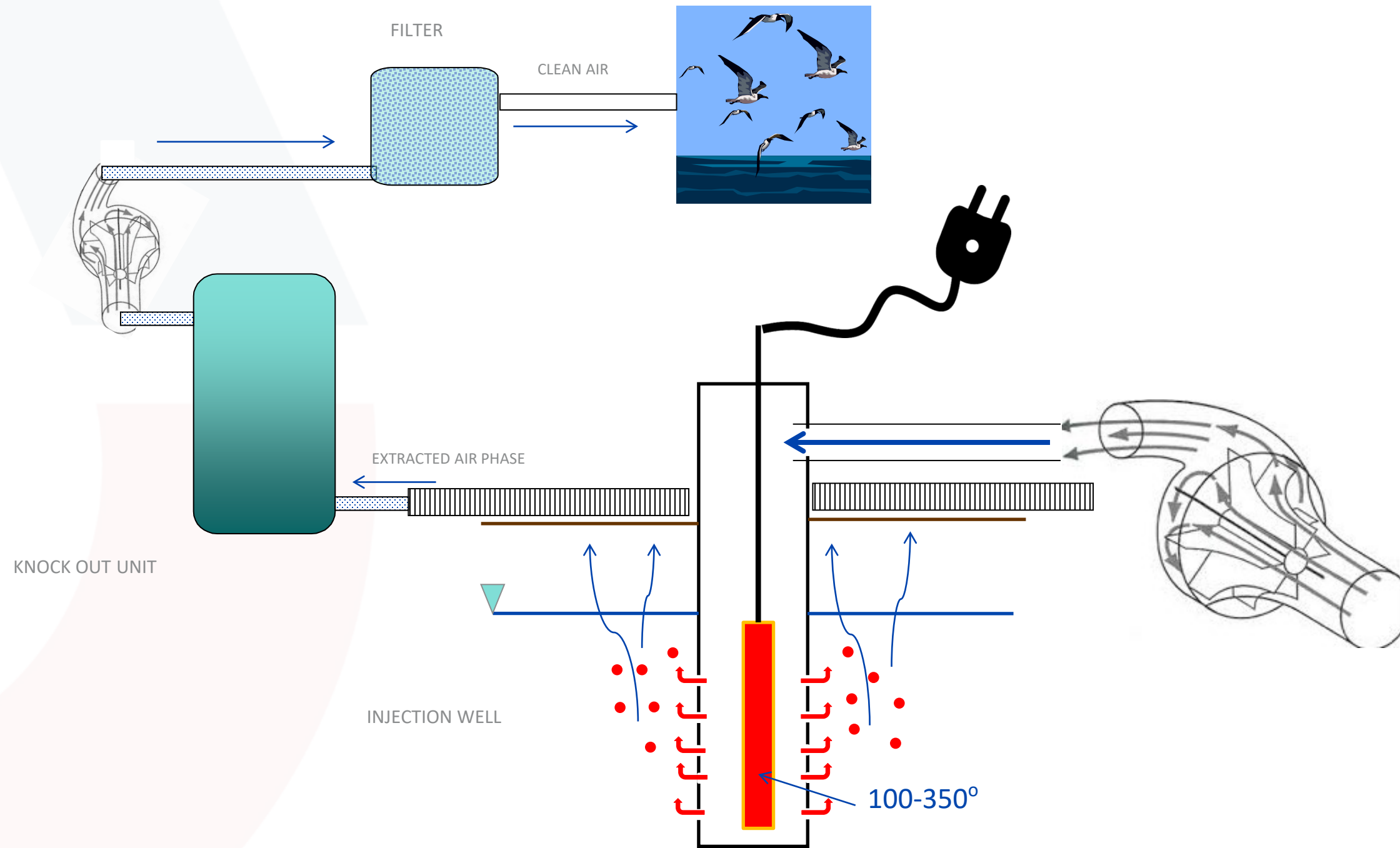


Extraction





# Hot Air Sparging



# Hot Air Sparging



# Hot Air Sparging



## Well, how did it go ..?

After one week with 100°C the rate of vinyl chloride had doubled.

Not what we had hoped for ...



## Well, how did it go ..?

The temperature was set up to 350°C which made the ground boil

After 3 months, the rate was well below the target



# The place nowadays



# Thank you for your attention

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