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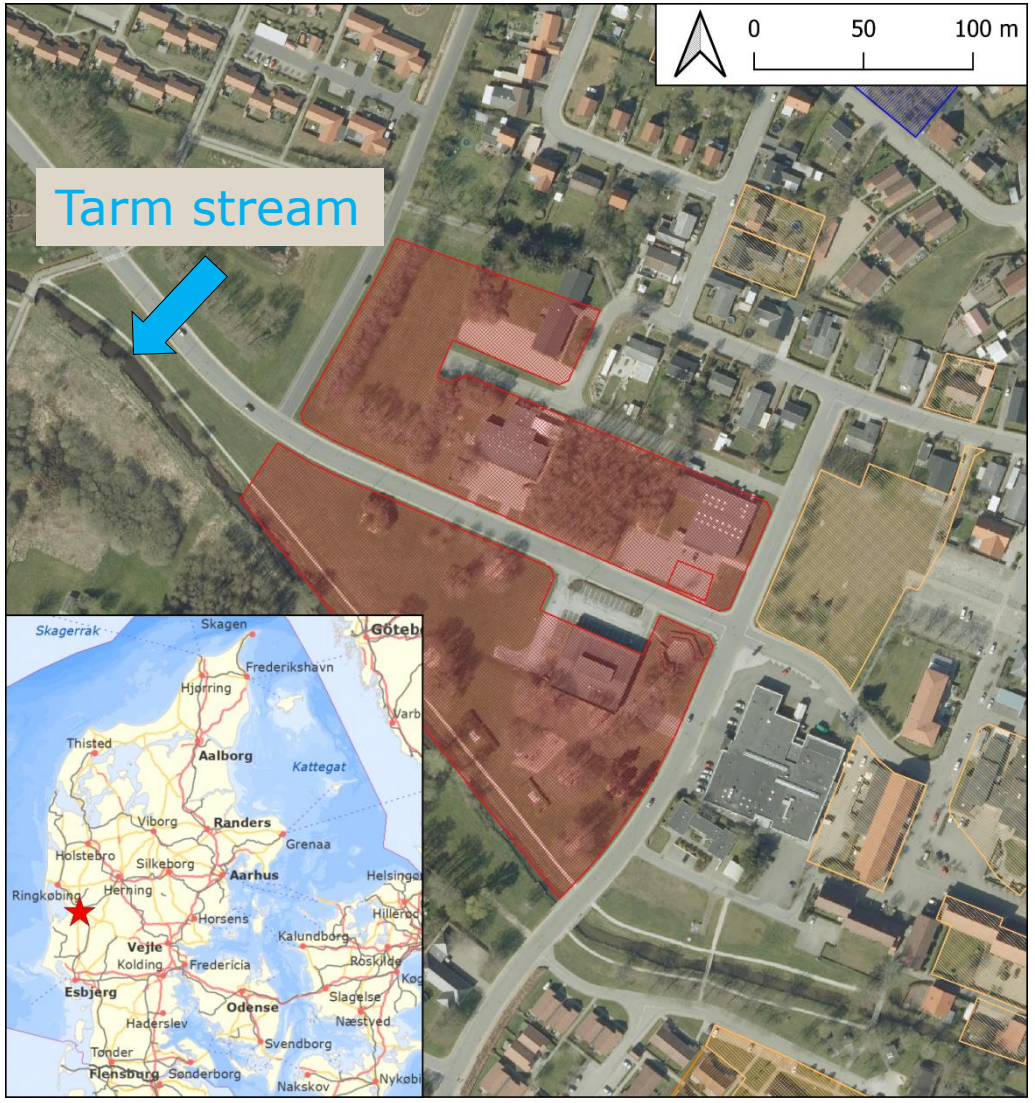
NEW STUDY-SITE FOR PILOT DK2B: OLD LANDFILL IN TARM

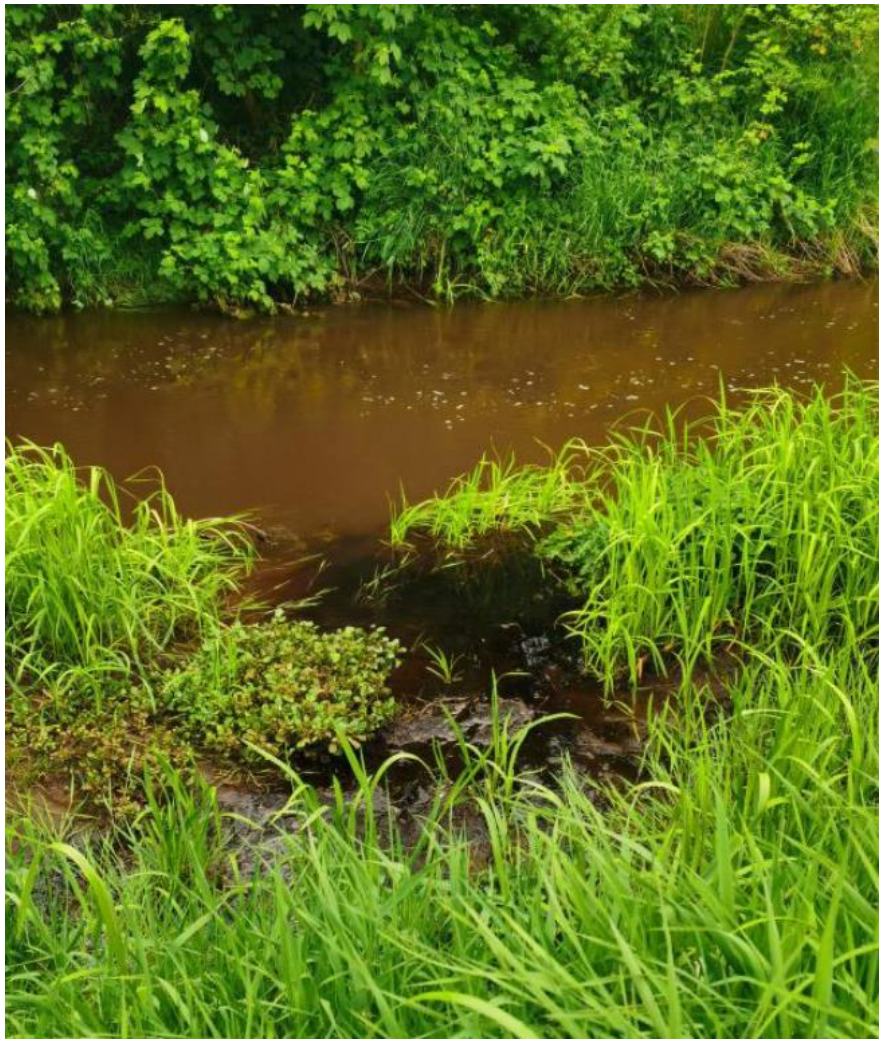
Purpose of the extension

- Dealing with seasonal/global climatic changes affecting the shallow hydrogeological system.
- Transferring insights on the tTEM system to other geophysical methods that are better at resolving the very shallow geology.
- Strenghten risk assessments of contaminated sites based on geophysical data.

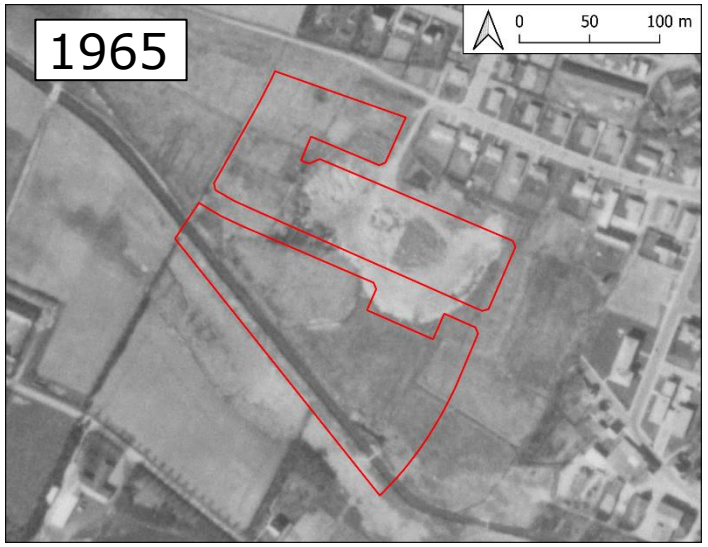


Why this site?

- A local citizen observed seepage to the stream this summer.
- Landfill was in use until 1967 – why no seepage until now?
- Hypothesis: rising groundwater level due to increased precipitation has mobilised the pollution/percolate.
- Question: if the hypothesis is true, can we expect increased seepage in the future due to climatic changes?



History (that we know)



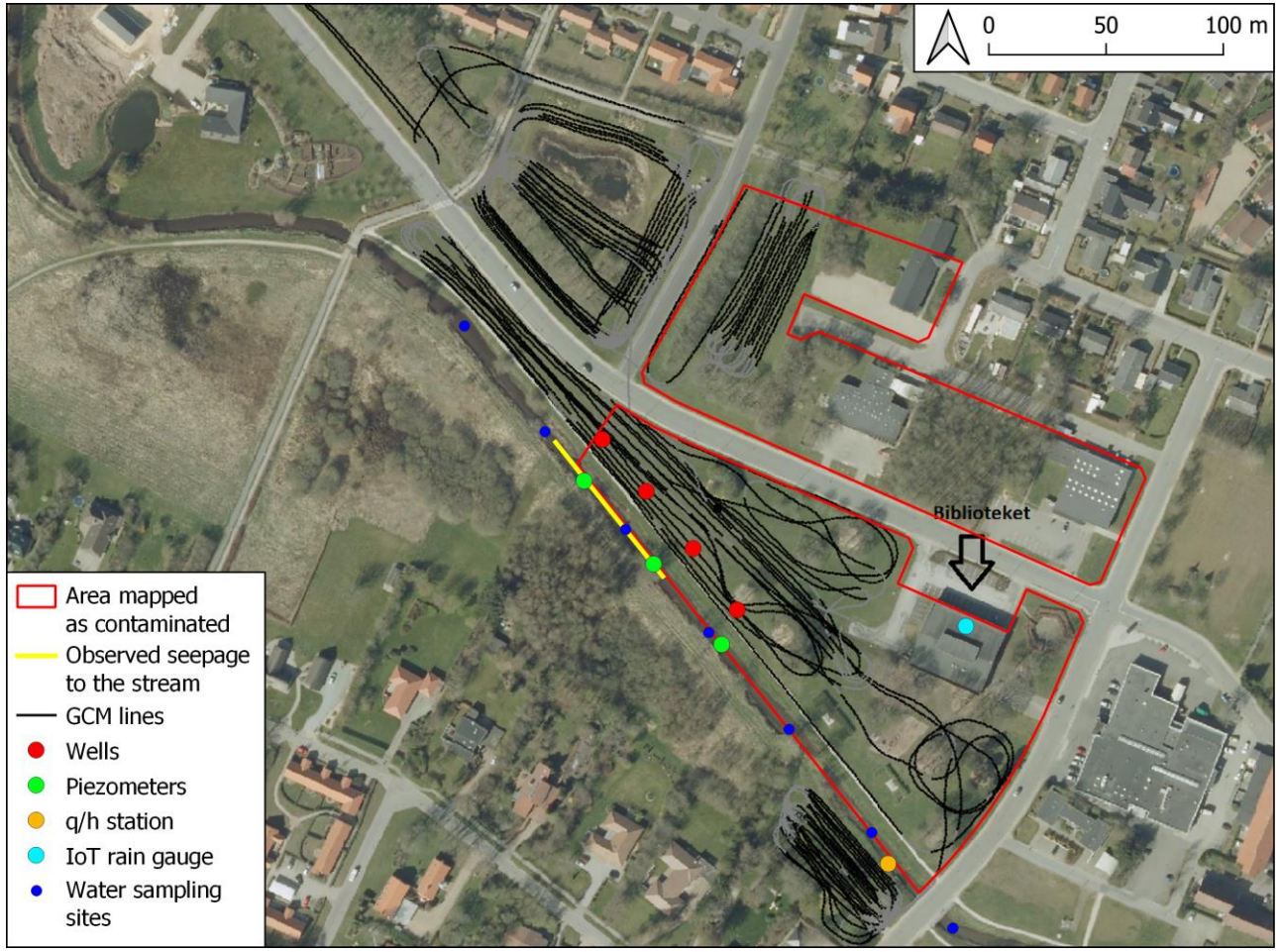
- Largest known extent of the landfill.
- In use from early 1950's until 1967.
- Waste is described as household waste, wet and dry waste from painting cabin and discharge from the city and a hospital.

- Water samples from two wells and a drain contains some total-N, sulphate and calcium.

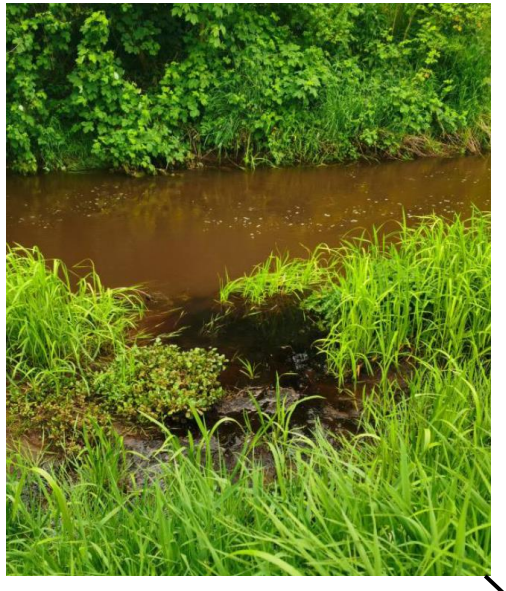
- Geotechnical survey with 4 boreholes in the NW part of the area.
- One soil sample that contains 1700 mg/kg TOC
- One groundwater sample that contains 390 µg/l TOC

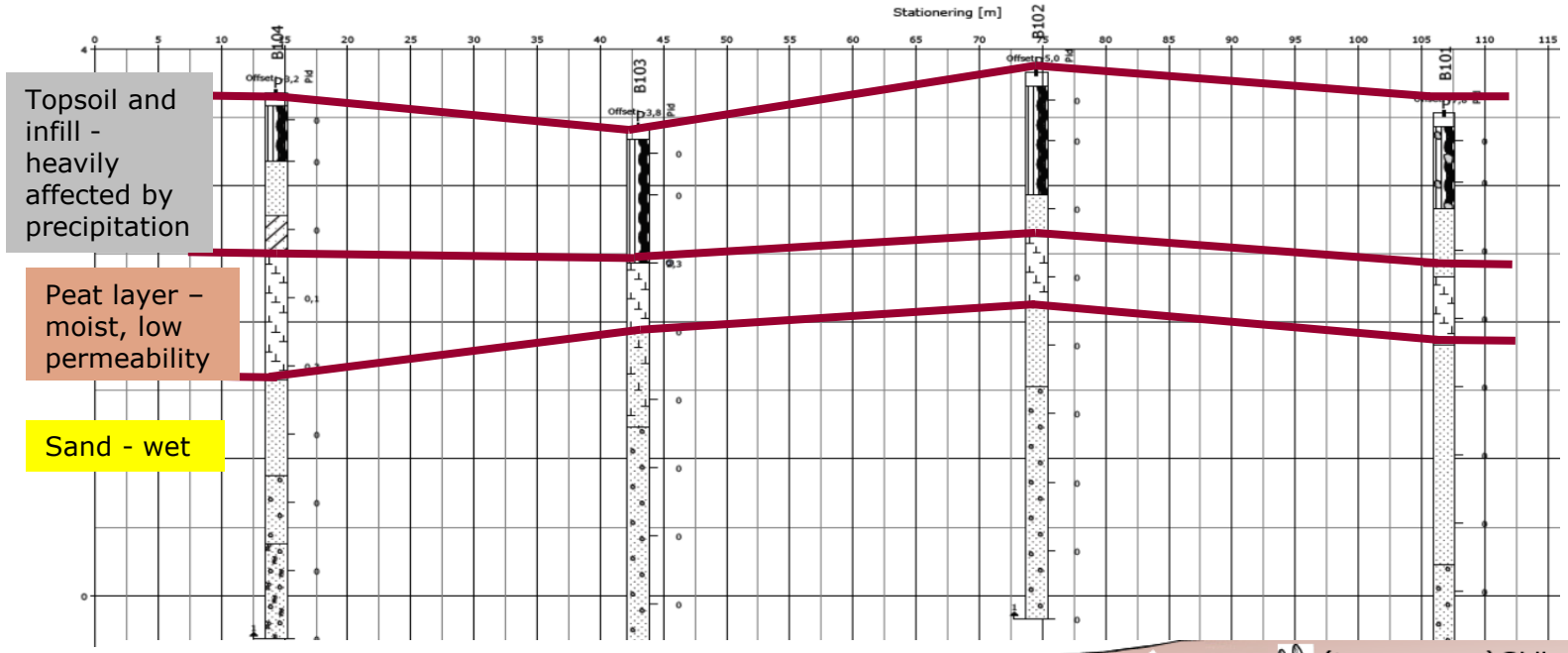
Planned/performed investigations

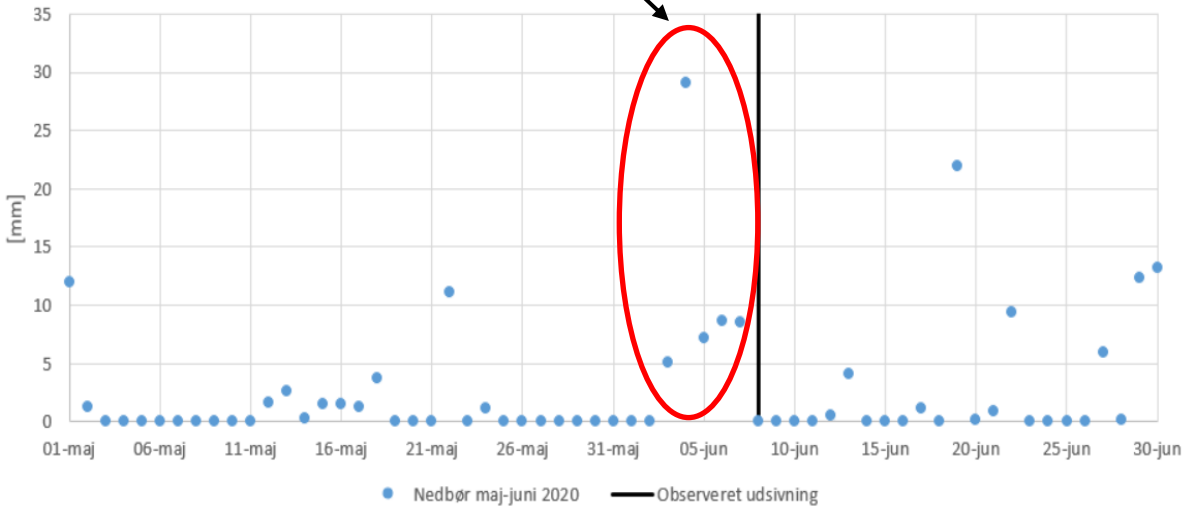
- Inspection of the site in August. Seepage was observed even in this rather dry period.
- Investigations/monitoring of the system over a full year's cycle.
- Geophysical survey with GCM and possibly also other methods (workshop regarding this is scheduled with the University of Aarhus).
- 4 wells with divers (some CTD) close to the stream for monitoring of hydraulic gradient and contaminants.
- 3 piezometers with divers (some CTD) above and below the bed of the stream.
- Sampling of the stream water on approx. monthly basis. Samples will be taken both up- and downstream the observed seepage.
- q/h station for monitoring head and flux in the stream.
- IoT rain gauge provides real-time precipitation data remotely which allows us to take water samples immediately after extreme events.

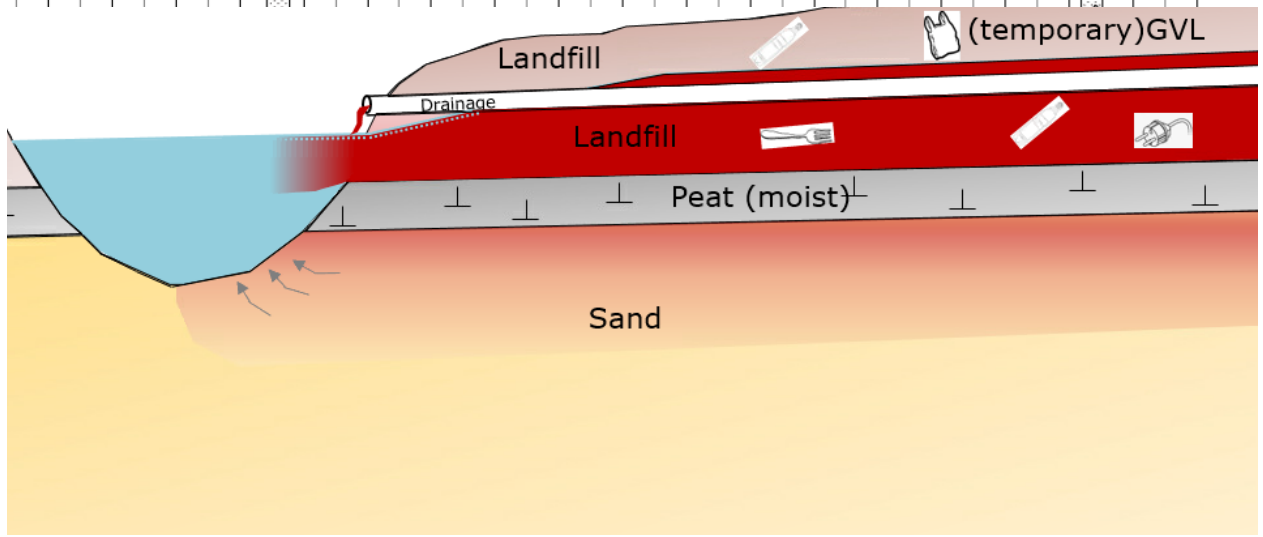


Geology and pollution – conceptual understanding









Benefits – what do we hope to gain from the investigations at this site

- Geophysical methods can strengthen the conceptual model which provides for an improved investigation strategy.
- Improved investigation strategy can expectedly reduce investigation costs considerably.
- Investigations taking climate change into consideration will lead to a more robust risk assessment.
- 80 sites close to surface water bodies are to be investigated over the next 2 years. Many of them are in some respect similar to this one.

Thanks for your attention

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