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In-Situ Remediation by Trap&Treat BOS100®/CAT100 – DNAPL Redevelopment Site Sweden

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Key Summary Information

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High Resolution Remedial Design Characterization performed in April 2019 including:

- 58 MIP Points
- 20 Dual Tube Undisturbed Soil Cores (250 high-density soil samples (every 50 cm or less) analysed free of charge)
- 12 GW Monitoring Wells

Price per m3 of soil investigated: < 15 SEK/m3

Additional 14 undisturbed soil cores performed in 2021 with 150 extra high-density soil samples collected (to define excavation zone around MW49) and 5 extra monitoring wells completed during remediation mobilization.
Total of ~400 soil samples (over entire project lifetime) analysed for free leading to an approximate 350-400,000 SEK cost saving

In-situ Remediation completed in September 2021 including:

- Treatment area of approx. 900 sqm
- Indirect treatment of soil and groundwater downstream of injections area (see GW results)
- Use of CAT100 for source treatment and BOS100® for barrier zone

Average treatment cost: ~930 SEK/m3 or 490 SEK/ton

Approx. 200 groundwater samples analysed free of charge by RPI Lab in Denver Colorado post injection. Commercial value of RPI Lab package per sample: ~2,500 SEK/sample (incl. VOCs, CVOCs, anions, fatty acids, dissolved gases) 500,000 SEK approx. cost saving (only shipment and admin costs charged to client each monitoring event).

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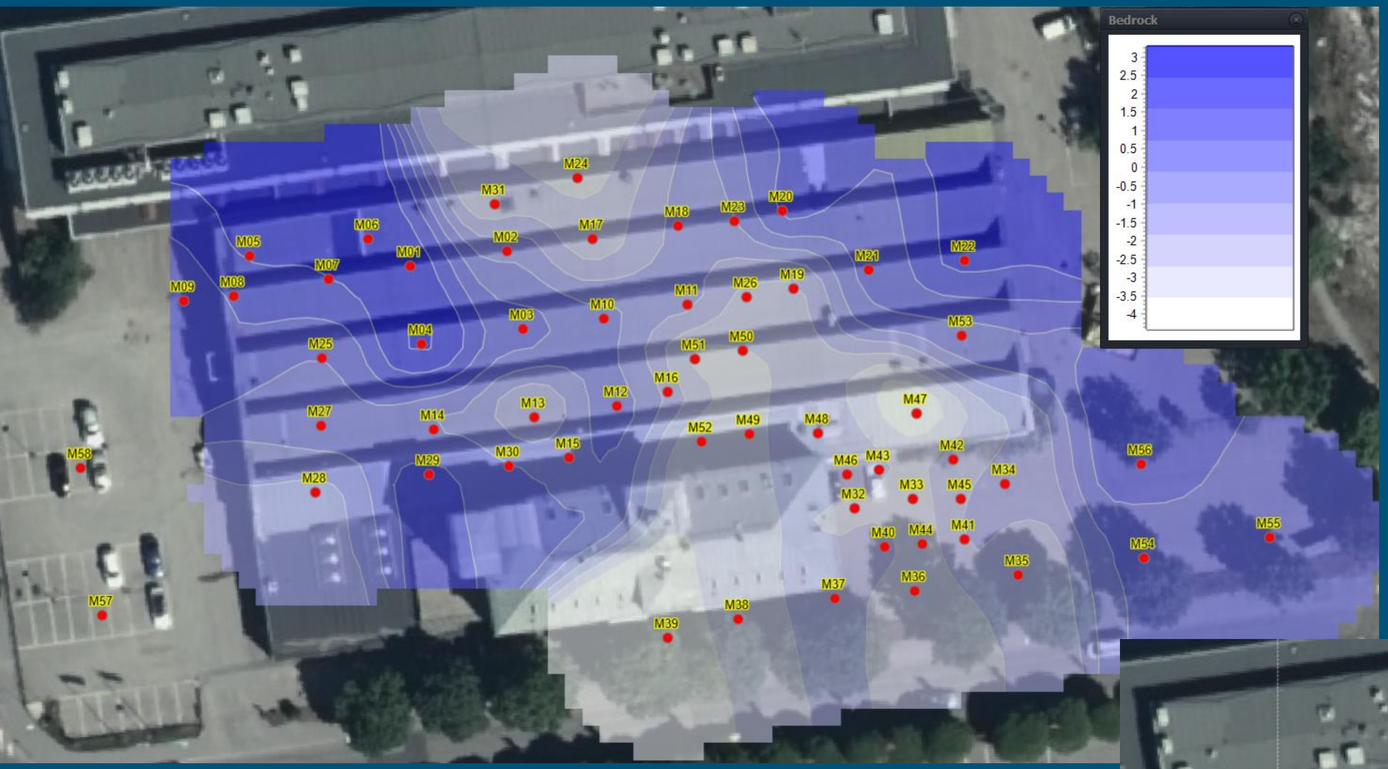
MIP Investigation – Bedrock Delineation



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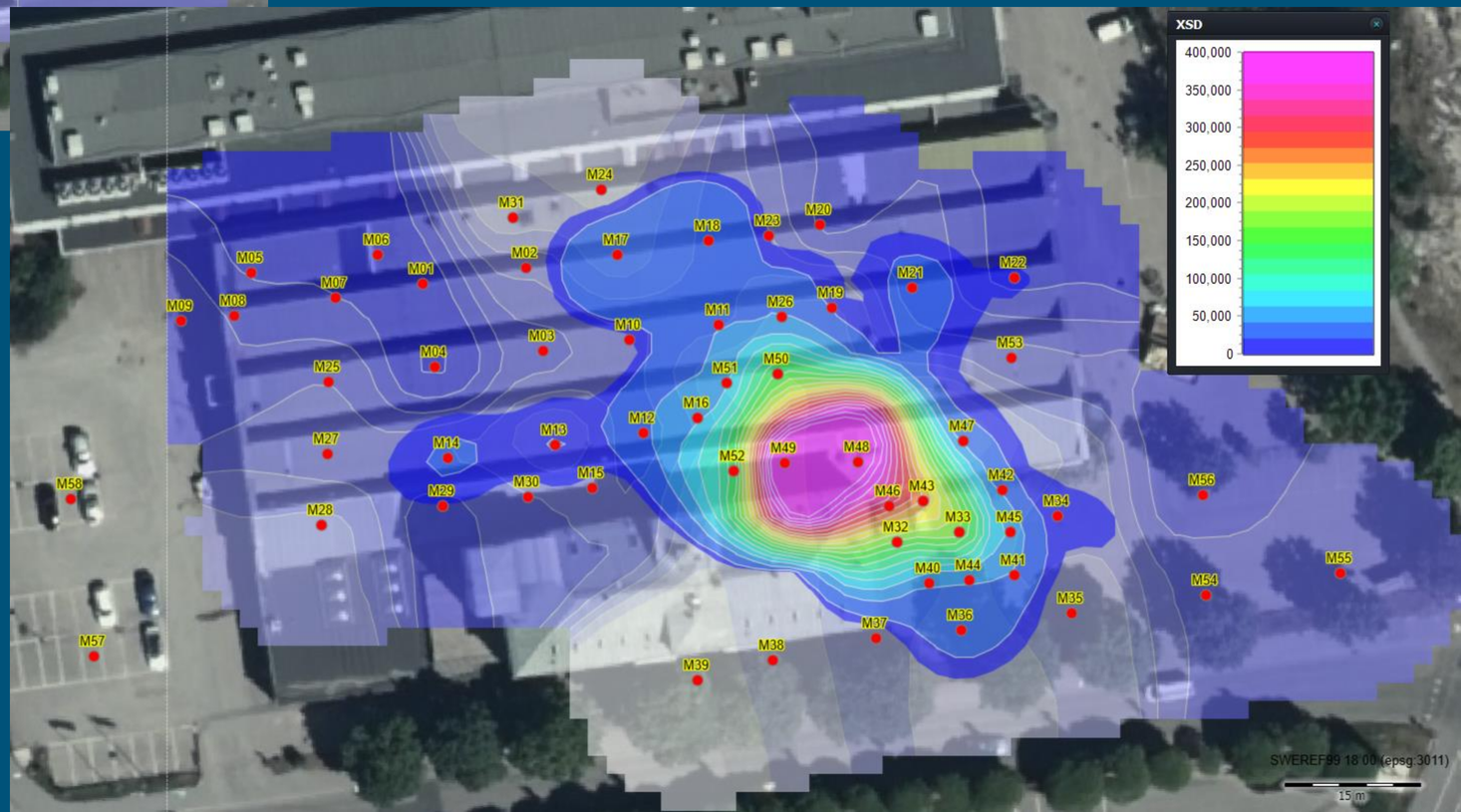

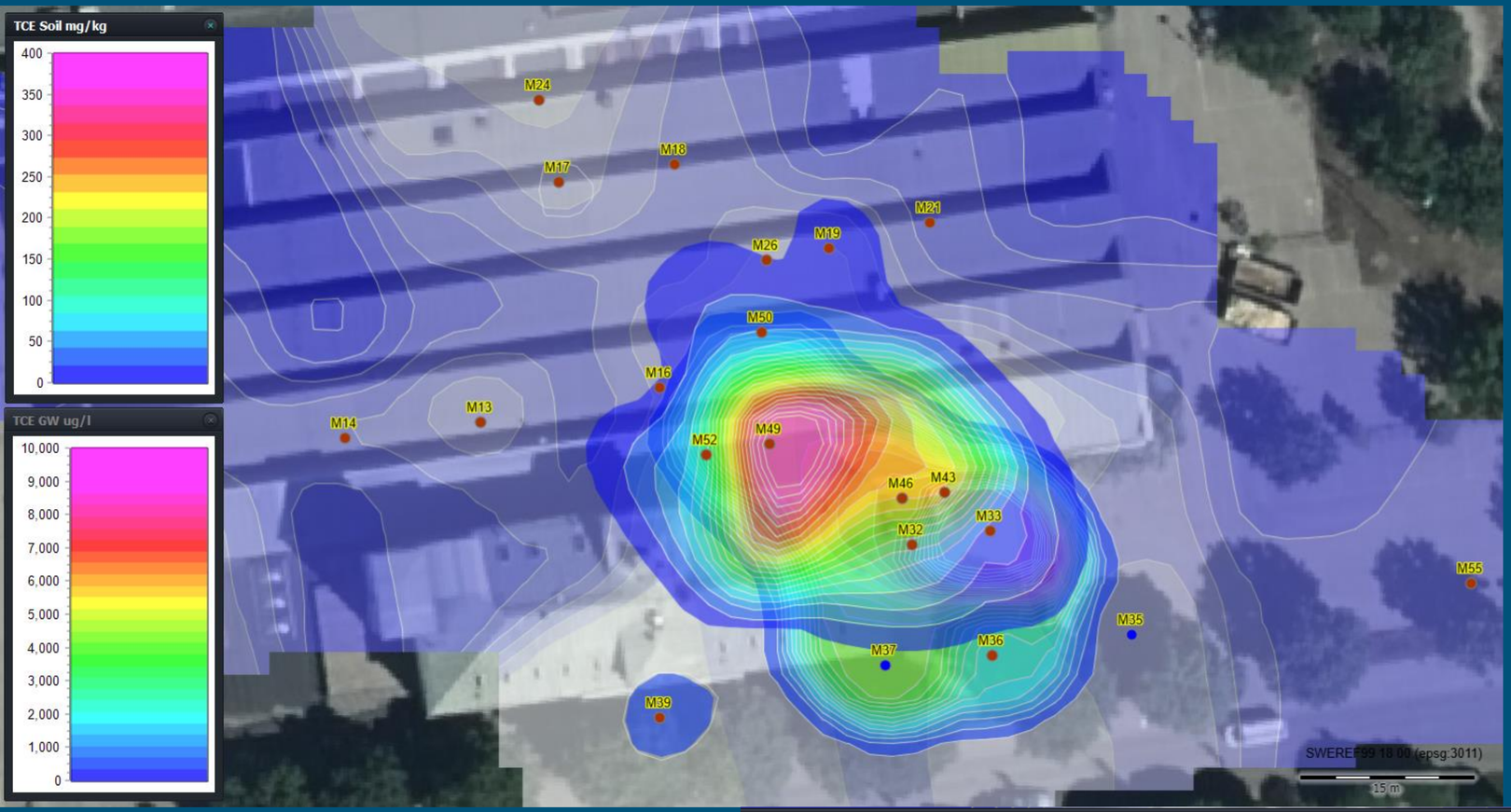

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Soil and GW Contamination Conditions

Upper contaminant profile in cross section shows soil contamination extent
Lower contamination profile shows the GW plume

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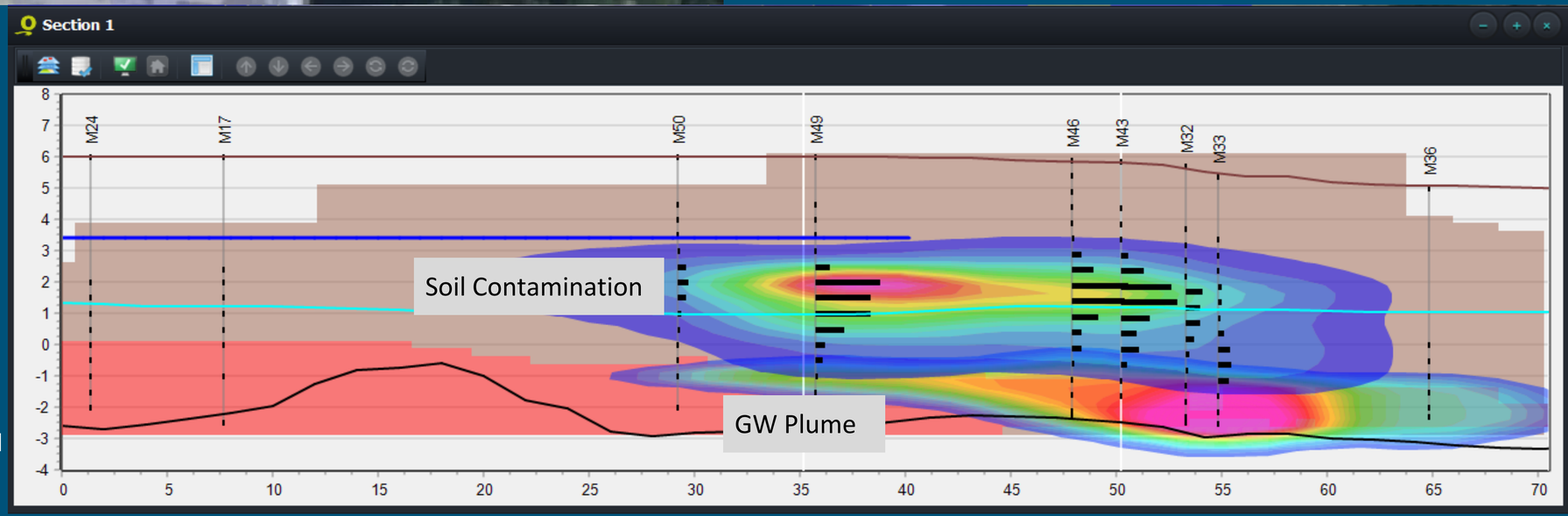
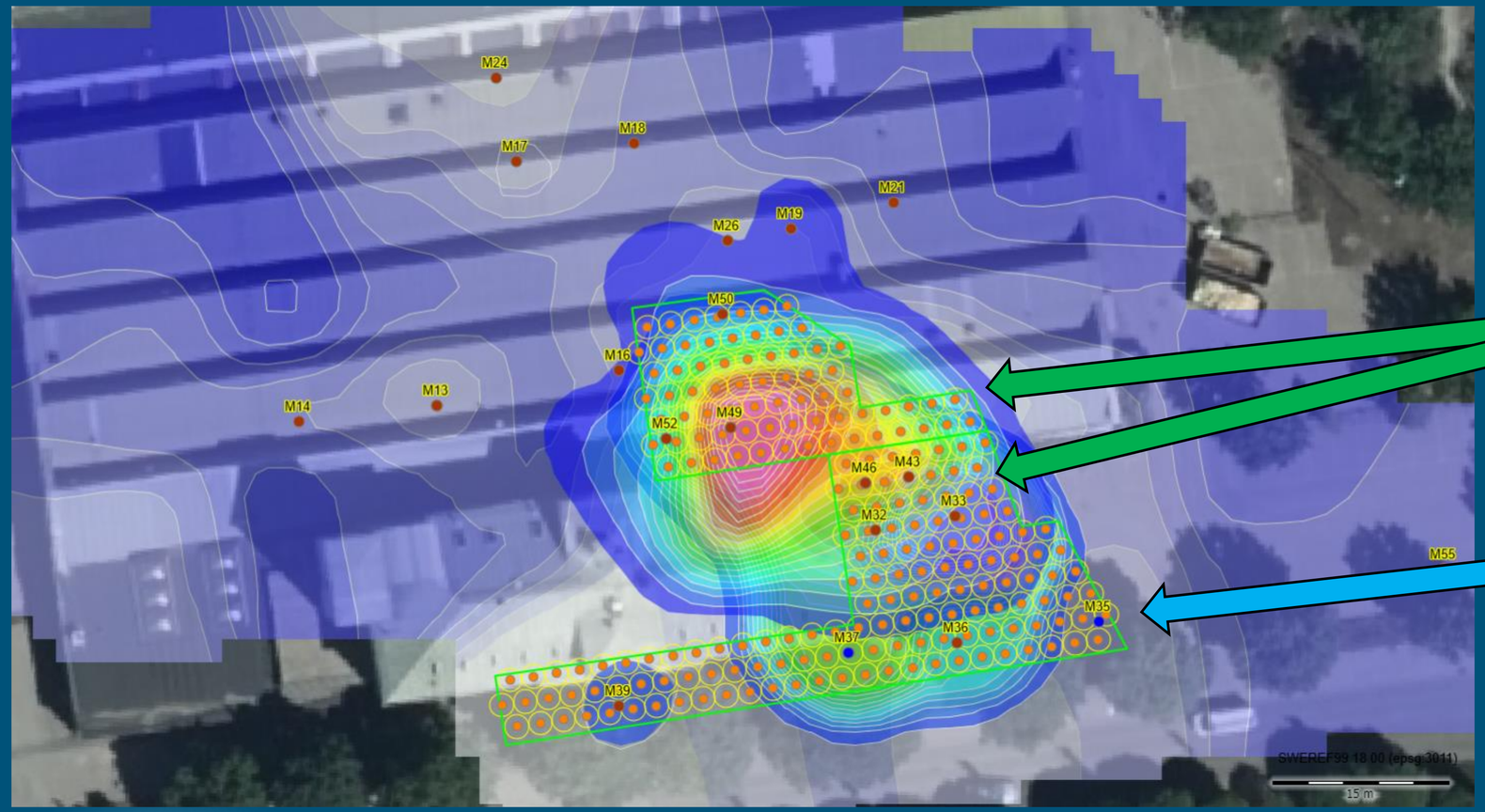
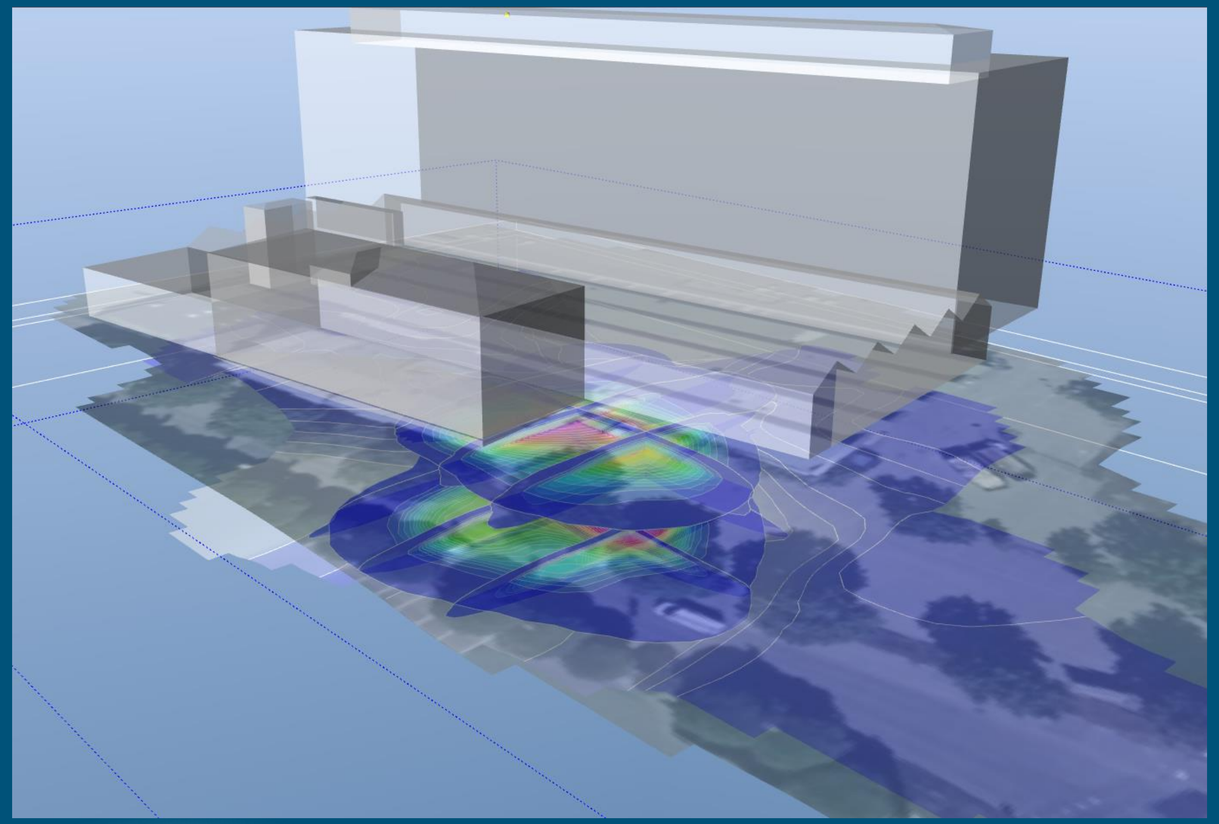


Injection Plan Layout



- Total number of points: 205
- Injection depths: 3.5 / 4 m bgl to bedrock
- CAT100 used in the source area around MW49 and directly downstream (MW33 and MW46 area)
- BOS100® used at site boundary as PRB solution to ensure control of plume migration offsite
- DNAPL contaminated soil in the upper layers of MW49 area (3.5-4.0 m bgl) left untreated in agreement with client as part of the excavation plan for construction of underground parking

Pre Treatment vs. Post Treatment



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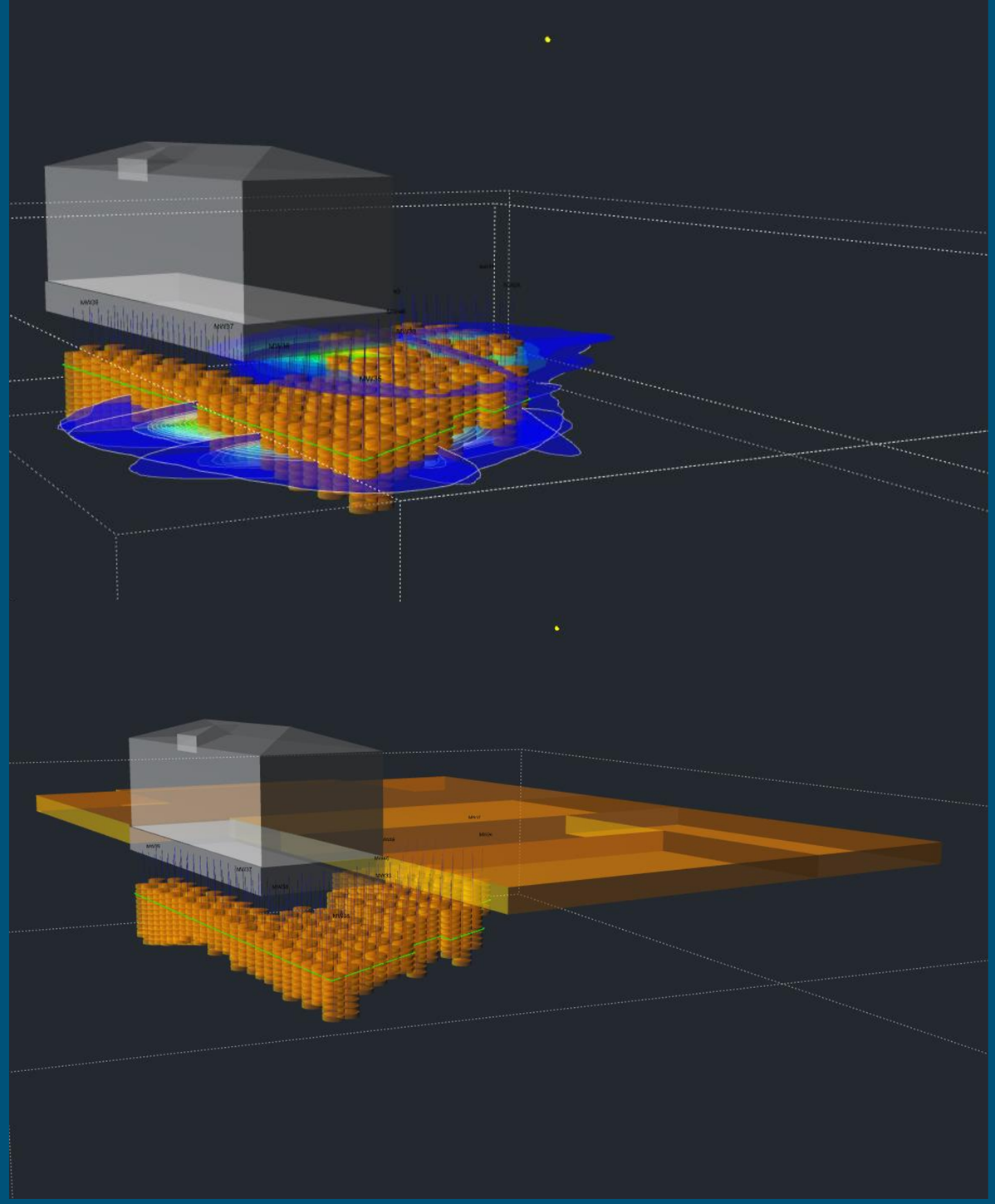

Site Pictures

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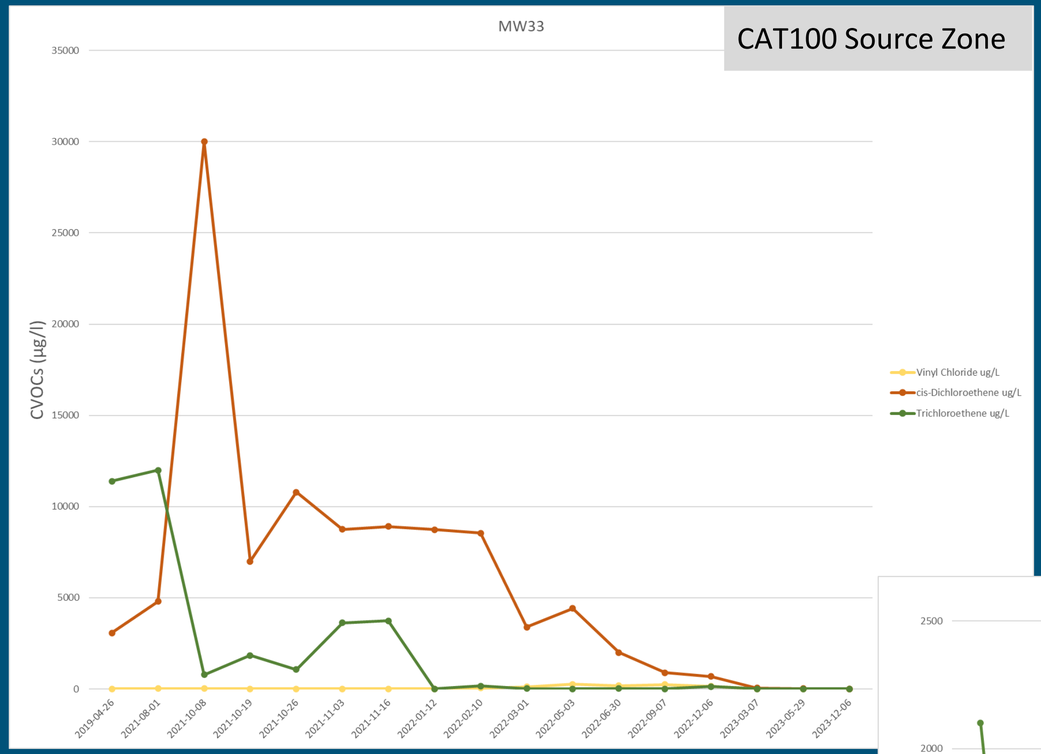
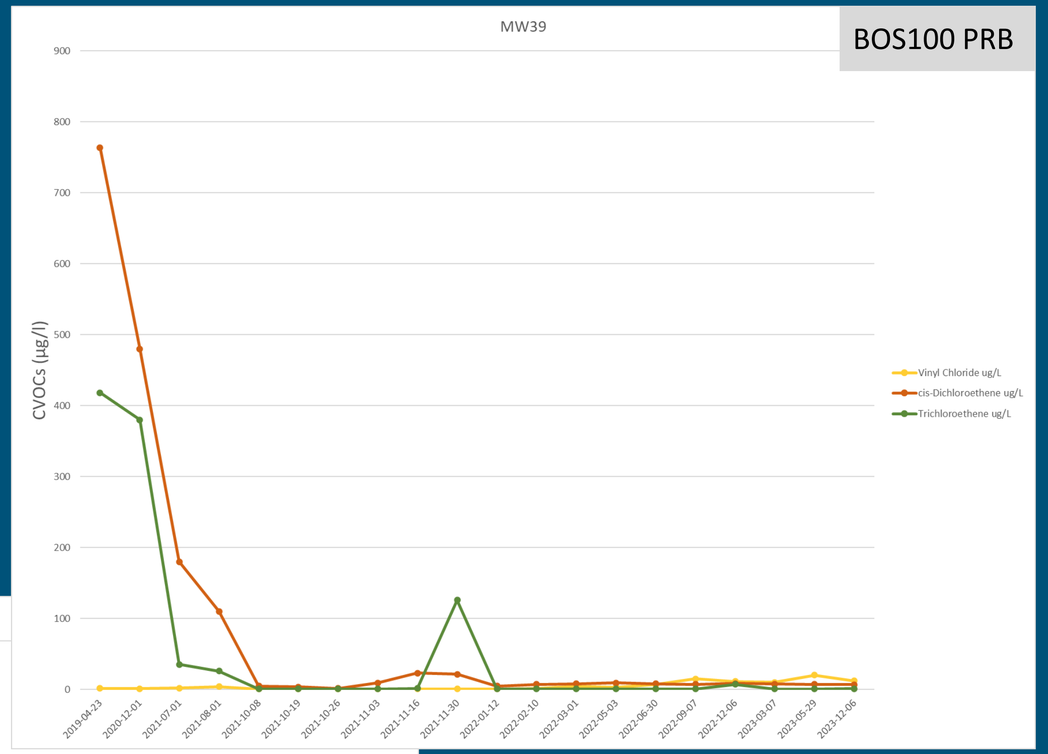
CVOCs GW Concentrations Pre- and Post Injection

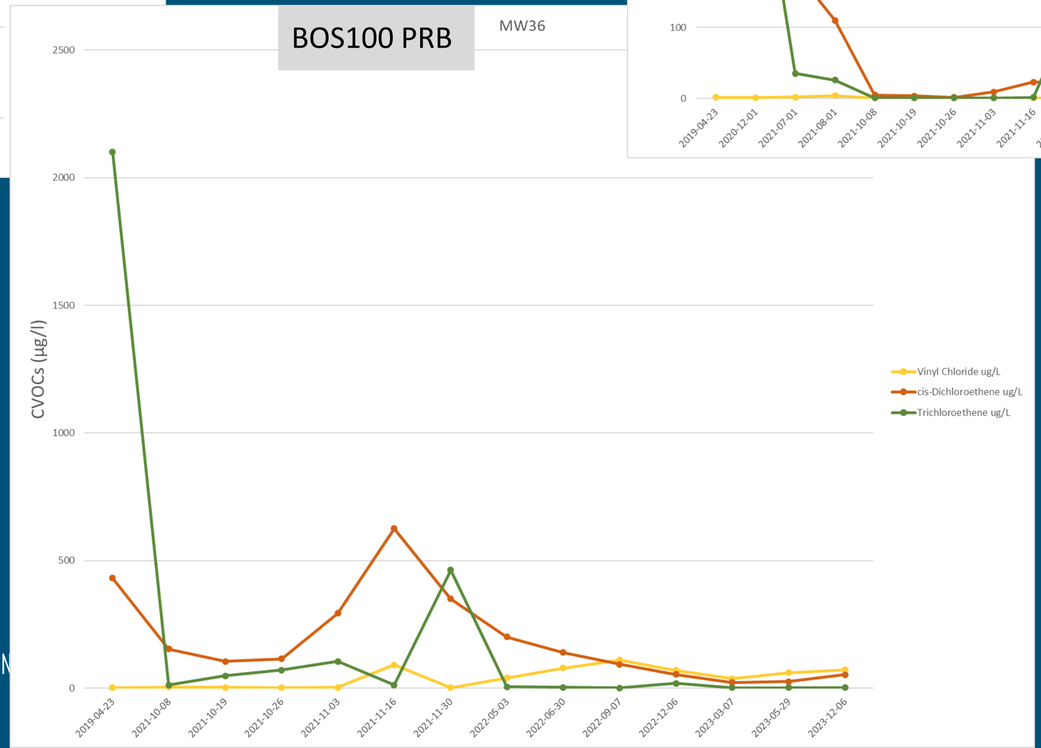
CAT100 Source Zone



BOS100 PRB



BOS100 PRB



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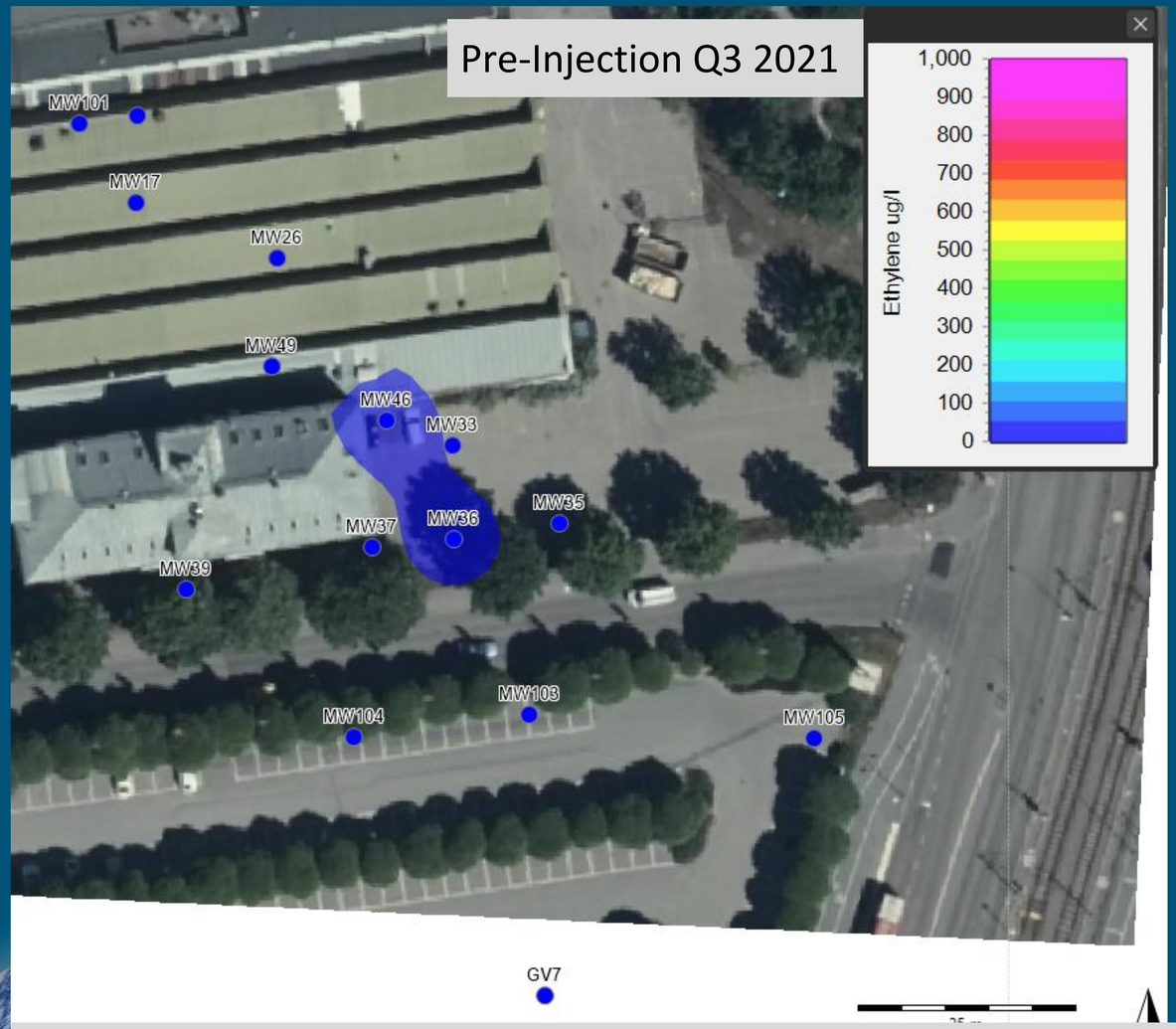
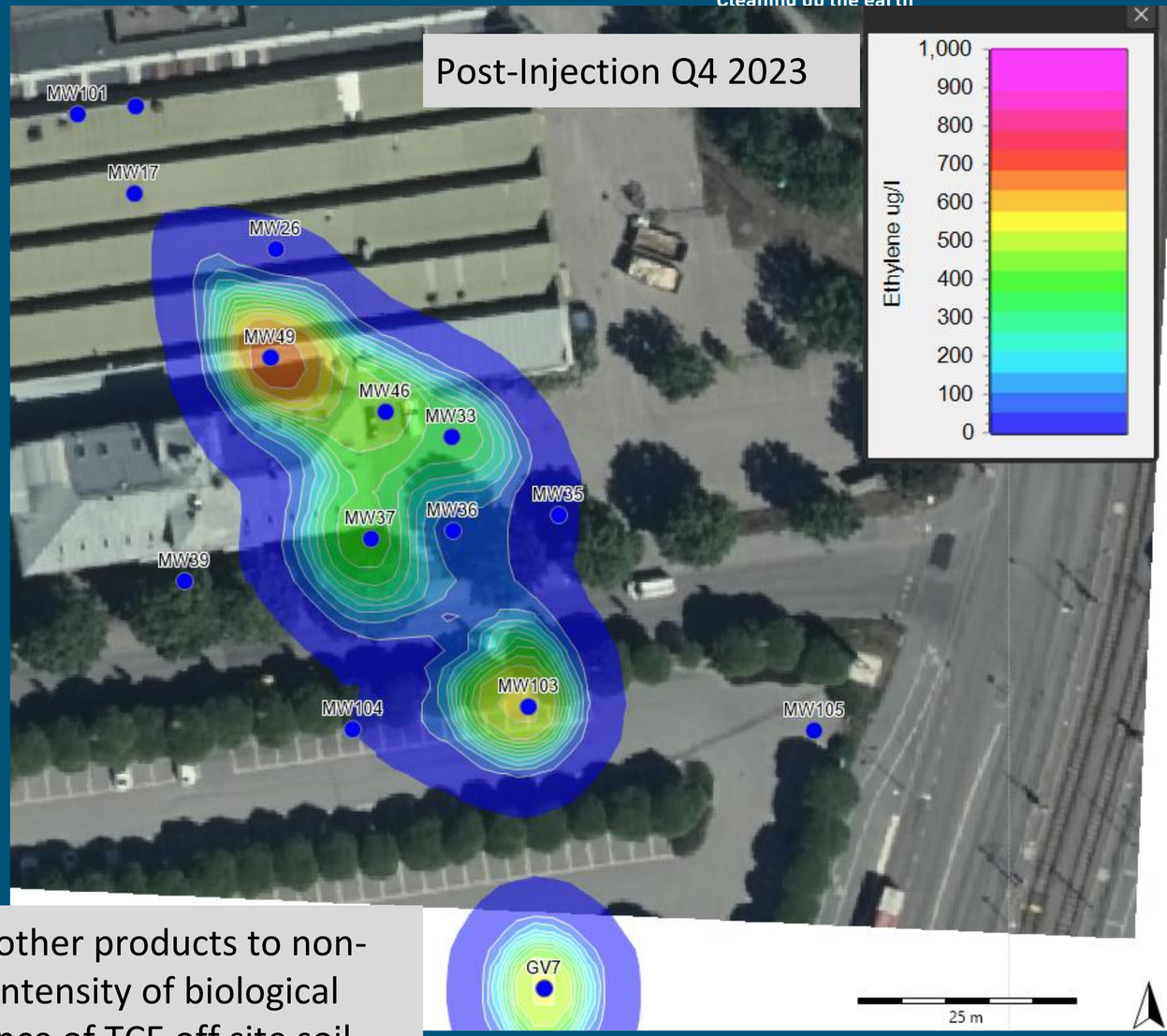
Ethylene GW Concentrations Pre- and Post Injection





OBS – Ethylene results provide evidence of on-going full conversion of mother products to non-hazardous end products. The highest the concentrations, the higher the intensity of biological activity. Off-site ethylene generation at MW103 and GV7 indicates presence of TCE off site soil contaminant mass being indirectly degraded as an effect of CAT100 injections

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