



## In-Situ Chemical Oxidation of Hydrocarbon Contaminated Soils.

**The Client:** Developer: Sonas Property Investments

**Project Manager:** GVA

**Engineers:** A2 (Environmental) and ACIES (Civils and Structures)

**The Challenge:** A2 Environmental carried out a site investigation on a former filling station site in the South side of Glasgow. The investigation identified hydrocarbon contaminated soils and groundwater which posed a risk to the future development and the environment. Contamination within the groundwater was identified as posing a risk to the environment.

**The Solution:** Following the findings of the site investigation Soilutions were contacted in order to identify the best available remediation technology to remove identified risks. Remedial works were agreed to involve a round of vacuum extraction from borehole installations across the contaminated area in order to minimise the contamination present on site, followed by the in-situ remediation of hydrocarbon contaminated soil and water with a Chemical Oxidant (Chemox). Up to 3 chemox applications were anticipated and budgeted for, with a monitoring visit scheduled after the second application to ascertain if targets had been met at that point.

A site specific working plan was submitted to and approved by SEPA under Soilutions' Mobile Plant License.

Chemox was applied to target soils using a Direct Push Injection Rig. Chemox was applied strategically to contain contamination within impacted treatment area, calculated doses were applied at intervals across the contaminated horizons within the water table. A second application was injected 2 weeks after the initial injection.

A2 Environmental monitored the progress of the treatment by sampling and analysing TPH concentrations within the groundwater.

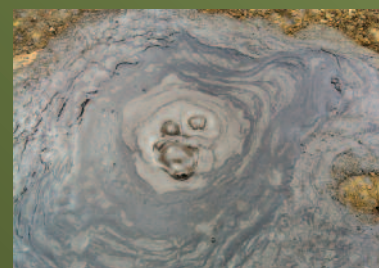
Site works were completed on schedule and to budget.

**Results:** 2 sets of injections proved sufficient. The project was delivered within schedule and under budget.

**Duration:** Total Treatment: 1 month

**Client Feedback:** "Sam and his team came recommended by a civil engineer. As one uninitiated to remediation procedures, he patiently talked me through the process, advised on many aspects of the work and also the compliance issues surrounding it all, to ensure we ended up with a clean site, complete with the necessary certification. The costs were competitive and the service excellent."

**James R Wright FRICS, GVA Ltd**



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