



Soil decontamination at “Schwarze Pumpe” brownfield site  
Spremberg | Germany

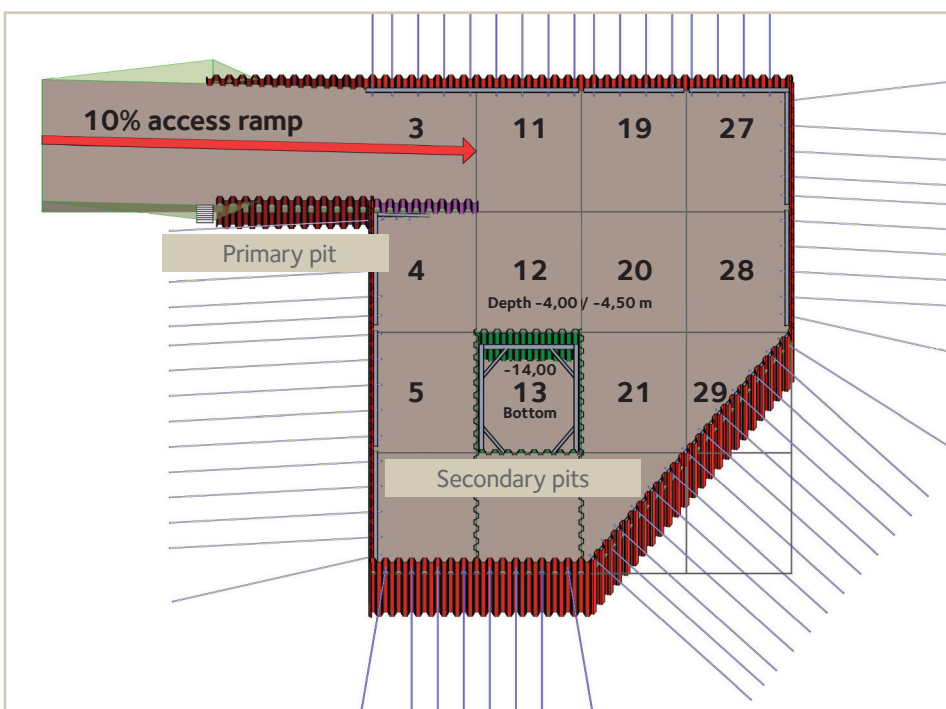


The “Schwarze Pumpe” industrial site in Spremberg, Germany

The “Schwarze Pumpe” industrial park is located about 120 km (75 miles) southeast of Berlin, in Spremberg, in the federal states of Brandenburg and Saxony. The site was established in 1955 under the name “VEB Gaskombinat Schwarze Pumpe” to exploit the brown coal mined nearby for power generation and refining into briquettes for domestic heating. This included gas production plants, coking plants, combined heat and power plants and briquette plants on the site, all interconnected with the necessary auxiliary facilities.

At its peak in 1989, the site was the largest brown coal processing plant in the world, with 15,200 employees. By 1992 this number had decreased to 6,600 employees. At the same time work commenced dismantling obsolete facilities to make way for the construction of new power plants that met today’s environmental protection standards. The remediation of contaminated sites that had accumulated over decades required careful planning and preparation.

The contract for the remediation of the first section was awarded in 2017, following a Europe-wide tender. 430,000 tonnes of polluted soil must be treated. The material, contaminated with benzene and phenols, is excavated, thermally treated and relocated on the site. A polluted soil treatment facility is set up on site in order to reduce transport of the hazardous material to a minimum.



Plan view



Execution of a secondary pit

## Remediation of "Schwarze Pumpe" brownfield site Spremberg | Germany

Project owner	Mining company Lausitzer & Mitteldeutsche (LMBV GmbH)
Design	Arge, CDM Smith
Contractors	Arge Lobbe / Bauer
Sheet piles	PU 22 <sup>-1</sup> 14.0 m-23.0 m S 355 GP 2,000 t The sheet piles are reused at least 3 times on site.



Main access ramp and anchored sheet piles retaining wall

The primary pit enclosure is first executed using anchored sheet piles. Heavy equipment can access the pit via long access ramps. Secondary pits are then executed within these closed areas, from which the contaminated soil will be gradually removed. When executing the secondary pits, a flexible strutting system is used to allow for easy dismantling after backfilling and adjustments during driving. More than 1.3 km of sheet piles will be installed. It is planned from the start to reuse the sheet piles several times. For this reason, the client opted for the PU 22<sup>-1</sup>

profile, which has proven itself over many years as a stable profile that is particularly suitable for reuse. The profile is rolled here with a 1 mm reduced thickness compared to the standard profile, to optimise the total tonnage of sheet piles, while maintaining sufficient bearing capacity for the project requirements. The installation is carried out using variable high frequency leader-guided vibratory hammers. The Beltan®Plus bituminous sealing system is applied in the sheet pile interlocks. It lubricates the interlocks and contributes to the watertightness of the steel sheet pile walls.

The sheet piles' length is optimised for each area and varies from 14.0 m to 23.0 m. The initial sheet pile length already takes into account the length reduction due to the reuse of the sheet piles. A double clamp is used to drive the longer sections, thus ensuring a balanced transmission of force to the double sheet piles. The best results in terms of verticality of the driving are obtained and the target depth is achieved at the toe of the sheet piles.

Any obstacles encountered during the driving are cleared. A water mist system is installed around the pit to limit the formation of dust. The sheet piles are temporarily stored on-site. After cleaning and decontamination, they will be returned to storage for reuse on future secondary pits.

In conclusion, steel sheet piling is the best solution here to ensure the safety of the excavation pit. It allows precise work and control of the project progress.



Excavating contaminated soil



Pile driving equipment

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