Job Report

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HBR 202

Pic. 1: Use of drill rig type "Hütte 202" in confined conditions

THE PROJECT

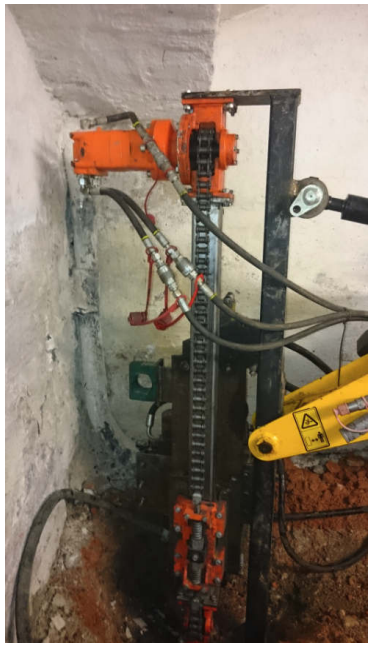
Contractor:	Neidhardt Grundbau GmbH
Contracting authority:	Landtag Mecklenburg-Western Pomerania
Location:	Schwerin Castle
Project description:	Redesign of plenary hall of Schwerin Castle Production of micro piles in confined conditions to install an elevator and sprinklers in Schwerin Castle
Equipment:	Hütte drill rig type HBR 202 Injection piles type GEWI Ø 50mm

JOB DESCRIPTION

Being aspirant to join the World Heritage List, the Castle Schwerin, built in 1845, has been accommodating the elected political representatives of the federal state of Mecklenburg-Western Pomerania. To be able to meet the requirements of a state-of-the-art parliament, the plenary hall underlies continuous reconstruction measures.

In the course of these measures, the production of a of total eleven micro piles for an elevator and sprinklers were planned in the basement level.

The projected works were not only complicated through the confined conditions (see pic. 1) but also through the requirements regarding the monumental protection. Small passageways, small corridors and low ceiling heights (sometimes only 1.50 m) required a small and compact drill rig as well as a lightweight mast with minimum dimensions.



Pic.2: Drill works in progress with a lightweight mast at a room height of 1.50 m

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We produced five micro piles type GEWI with a diameter of 50 mm and standard corrosion protection in the surrounding of the scheduled elevator. The on-site characteristics allowed the use of the compact Hütte drill rig type "HBR 202", whereas the on-site characteristics in the surrounding of the sprinkler station only allowed the use of the lightweight mast (see pic. 2). Due to the extremely low ceiling height of approx. 1.50 m we installed six reinforcement elements type TITAN. Compared to GEWI piles, those are easier to connect and due to their hollow cross-section, those serve as drill rods at the same time, too.

Besides the requirements resulting from the confined conditions, the basement level needed to be kept free from debris and fumes during the construction works. With the help of metres-long hose pipes and a suction unit, debris and emissions could be directed from the drilling spot to the outside.

Despite all the complications, we were able to produce all the piles according to our customer's requirements at their complete satisfaction, this way contributing our share for a state-of-the-art parliament. At this point, we wish good luck in regards to join the World Heritage List.

Construction data:	**Construction data:**
*****Piles for elevator*****	*****Piles for sprinkler*****
System: Injection piles type GEWI Ø 50mm	System: Micro piles type TITAN Øa/i 30/11 and 40/20mm
Steel/Cement: B500B / CEM III 42,5 HS	Steel/Cement: B500B / CEM III 42,5 HS
Quantity / Inclination: 5 pieces / vertical	Quantity / Inclination: 6 pieces / vertical
Max. steel length: l = 23,00m	Max. steel length: l = 13,50m
Max. rated pressure: Ec,d = 840kN	Max. rated pressure: Ec,d = 211kN
System: Rotary drilling with outer flushing	System: Rotary drilling with outer flushing
Soils: Fillings, sand	Soils: Fillings, sand

Courtesy Neidhardt Grundbau GmbH