



COLLABORATIVE RESEARCH CENTER 837

INTERACTION MODELING IN MECHANIZED TUNNELING

RUB

TUNNELING IN SOFT SOILS IN URBAN ENVIRONMENT – IMPACT OF TUNNELING PROCESS ON OVERLYING BUILDINGS

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One possible way to reduce the impact on buildings is to locate the tunnels below the street pattern as much as possible, such that the main settlements occur well away from the buildings and their foundations. In the case of the North-South Line in Amsterdam, with sensitive buildings founded on piles, this resulted in relatively deep tunnels, however.

Therefore, the station boxes were deep and expensive, and risky. The alternative would be to tunnel above the pile tip level in soft holocene soils as a consequence. A theoretical study has been undertaken to investigate to what extent this is feasible and what the resulting impact on nearby buildings would be.

A second project looks into the interaction between the TBM shield and the surrounding soil. Most projects attempt to derive the impact of tunneling on the surrounding soil from measurements either at surface or below surface, but distanced somewhat from the actual TBM. Here the behavior of the TBM and the directly surrounding soil is obtained by data mining the process data collected during a TBM project in The Hague, the Netherlands. Based on these models, the interaction between the TBM driving process and the soil is derived, as a step towards minimizing the stress change due to tunneling on the soil and the resulting settlements.

Guests are welcome!