FRÅN PROBLEM TILL LÖSNING: DRAGSTAG I LÖS LERA FÖR E03 KVARNBERGET

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Abstract

This paper presents the lessons learned from E03 Kvarnberget where soft clay injected anchors were introduced to support temporary retaining walls in the construction of a 13-meter-deep cut-and-cover tunnel within a confined urban area that ensured safety, minimized ground movements, avoided clashes with third-party assets, and supported a more sustainable project approach than more traditional support solutions. Given this was the first time soft clay anchors were to be utilized for a deep excavation (>10m) in Gothenburg and located in a highly sensitive urban area with tight movement criteria, significant consideration of design and production risks was necessary prior to construction and to gain approval for the detailed design. An investigation was carried out to better understand these risks including a desk study of previous relevant experience, full scale trials and development of design and production methodology following the trials and use of the observational method during construction. This article will summarize this work in addition to providing insights from production and with respect to installation of anchors, retaining walls and associated works and performance of the retaining wall with respect to movement criteria and loads in anchors.

Specific challenges that were overcome include highly variable bedrock levels, the complex creep-driven behavior of soft clay, constructability constraints and need for “open excavation”, reducing carbon footprint, and unknown performance of soil anchors in Gothenburg Clay.