

WHEN BUILDING A BLUE FOOTBRIDGE – CONSTRUCTION CHALLENGES

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Summary

2019 saw the completion of a road upgrade project in the town of Mo i Rana in Nordland county in Norway. The project, owned by the Norwegian Public Road Administration, had the objective of a safer and more efficient daily commute for students at the Arctic Circle High School. This is achieved by providing improved links to bus routes along the busy Fv810 main road, not least by constructing a footbridge over the road. EFLA Consulting Engineers carried out the bridge design. A preliminary design phase resulted in the chosen bridge being a 106-m long steel girder bridge in six spans. The very effective 3-m wide cross section consists of a 610-mm diameter steel tube as the primary member, supporting an orthotropic stiffened deck plate and stainless-steel edge girders. Variable depth to bedrock along the bridge length led to different foundation designs for the bridge supports, with four of the seven bridge axes being founded on piles and the rest directly on bedrock. Following an open tender and contractor selection process, the bridge construction works started in October 2018. The construction process saw some significant challenges, which are reported in the paper. These included a re-design of one of the end abutment foundations due to an unexpected bedrock profile, and the late discovery of substantial welding deformations of the longest bridge span element, which had to be remedied by an in-situ temperature treatment. Handling these challenges presented an interesting learning experience for the bridge owner, the design team and the contractor.

Keywords: Footbridge; steel girder; bedrock; construction challenges; temperature treatment.