

Sara Suikki

Geomechanical Engineer

Expertise

Rock mechanics, Numerical modeling

Education

M.Sc. Civil Engineering (Rock Mechanics and Geotechnical Engineering), 2018
Luleå University of Technology, Luleå, Sweden

Professional Experience

2021 - present

Itasca Consultants AB, Luleå, Sweden
Geomechanical Engineer

2019 – 2021

AFRY, Luleå, Sweden
Rock Mechanics Engineer

2018 – 2019

Norconsult AB, Luleå/Gothenburg, Sweden
Rock Mechanics/Geotechnical Engineer

2017

Itasca Consultants AB, Luleå, Sweden
Summer Internship, Numerical modeling

2016

Peab, Luleå, Sweden
Foreman, House Construction

Project Experience

Infrastructure projects:

Three-dimensional and two-dimensional continuum analysis (*FLAC3D* and *FLAC*) modeling for pylon foundations and anchor chambers for the new Grenlandsbrua, E18 Norway.

Work as Assistant Functional Manager for subproject Lovön, Förbifart Stockholm, including close work together with constructional managers and contractor to ensure that the design is implemented, e.g., example adjustments in design, revision of work plans, managing production errors, and field work.

Design work and three-dimensional continuum analysis (*FLAC3D*) for crossing between Kvarnberget and Götatunneln, Västlänken. Follow-up with contractor to plan and execute the complex rock excavation process. Internal project manager.

Design of reinforcement in horizontally jointed rock areas, Lovön, Förbifart Stockholm. Two-dimensional modeling (*FLAC*) and analytical calculations. Internal project manager.

Three-dimensional continuum analysis (*FLAC3D*) and development of construction documents for tunnel underneath Lambarfjärden, Förbifart Stockholm. As part of the analysis, the planned excavation process and the required reinforcement (bolts, lining, and spiling) were studied.

Calibration study with three-dimensional continuum models (*FLAC3D*) for an already excavated ramp tunnel with low rock coverage, subproject South, Förbifart Stockholm. The purpose of the study was to determine if installed reinforcement is efficient by performing a calibration study with the help of convergence measurements.

Three-dimensional continuum analysis (*FLAC3D*) and developing of construction documents for ramp tunnel with very low rock coverage in subproject Lovön, Förbifart Stockholm. The rock coverage in the area varies between 1.5– 6 m and with help of the models, the required bolts, lining, spiling, excavation process, and monitoring were determined. Internal project manager.

Three-dimensional continuum analysis (*FLAC3D*) and development of construction documents for Air Exchange Stations (AES) in subproject Lovön, Förbifart Stockholm. In total, eight AESes at depths between 50–100 m were studied. The AES-design includes large roof-spans up to 35 m, complex geometries and a connected vertical shaft. During the work reinforcement, the excavation procedure and monitoring were determined, and the design was followed-up during production. Internal project manager.

Three-dimensional continuum analysis (*FLAC3D*) and development of construction documents for vertical shafts in subproject Lovön, Förbifart Stockholm. The height of the shafts varies between 50–100 m, are 10 m diameter, and are designed to carry a heavy concrete lining on rock shelves.

Design of high, vertical rock slopes (up to 25 m) and reinforcement in subproject Kvarnberget, Västlänken. The slopes are located in central Gothenburg and are highly loaded by large buildings.

Study of stability and reinforcement for underwater slope for a dock in Asterholma, Åland.

Work with design for new double track tunnel along Malmbanan north of Kiruna.

Field work:

Inspection of rock silos and control of loose rock in Överkalix and Övertorneå, Svedavia.

Assistant project manager for inspection and action planning for Glödsbergstunneln. Planning and execution of the work.

Inspection of tunnels along Botniabanan, in total around 24 km of tunnel.

Ice and water inspection for Laduberg and Bergträsk tunnels, Älvsbyn.

Prior inspection of rock quality before construction work in Ramsele Powerstation.

Mining:

Inspection and action recommendations for problematic benches in the Kaunisvaara open pit mine.

Two- and three-dimensional continuum analysis (*FLAC* and *FLAC3D*) to evaluate mining method, geometries and excavation sequence in Tara Mine. The purpose of study was to increase extraction ratio.

Three-dimensional continuum analysis (*FLAC3D*) for slope stability in Kevitsa open pit.

Soil Engineering:

Geotechnical engineering and project management of several soil engineering projects with design work for bridges, railways, power lines, buildings, industries, etc., in different types of soil.