Jolanta S. Switala – ITASCA Sweden

Geomechanical Engineer

Expertise	Rock Mechanics, Civil Engineering, Mining Engineering, Numerical Modelling
Education	M.Sc. Mining, Minerals and Environmental Program (Geotechnical and Environmental Program), 2016 Delft University of Technology, Delft, The Netherlands
	B.Sc. Civil Engineering, 2013 Wrocław University of Technology, Wrocław, Poland

Professional Experience

2023 – Present	Itasca Consultants AB, Stockholm, Sweden Geomechanical Engineer
2022 – 2023	WSP, Rock Mechanics, Stockholm, Sweden Assistant Technical Project Manager
2019 – 2022	WSP, Rock Mechanics, Stockholm, Sweden Experienced Geomechanical Engineer
2019 – 2017	Itasca Consultants AB, Stockholm, Sweden Geomechanical Engineer
2016	Boliden Mineral AB, Rock Mechanics, Boliden, Sweden Graduate Intern
2015	McKinsey & Company, Mining, Louvain-La-Neuve, Belgium Junior Analyst
2013	Inż – Geo, Geotechnics, Wrocław, Poland Lab Technician/Geologist's Assistant

Project Experience

Field work:
Geomechanical core logging (*RQD*, *RMR*, *Q*). Field investigations using Light Dynamic Penetrometer and VSS Plate. Collecting soil samples and determining their properties by performing various laboratory tests (density tests, Atterberg limits, sieve analysis, organic matter content, sand equivalent test SE, soil stabilization tests, shear tests, etc.).

Infrastructure:
Grouting: Grouting design for tunnels and open cuts in Högdalen Underground Depot project. Grouting design and execution evaluation for TBM project Anneberg-Skanstull. Grouting sensitivity analysis for different inflow requirements with regards to production costs and time in Tvärförbindelse Södertörn road tunnel.

Tunneling and open cuts: 2D and 3D numerical (3DEC, *RS2*, *RS3*, *Swedge*, *Unwedge*) and analytical stability calculations, support design and validation for tunnels and open cuts ranging from feasibility studies to detailed designs, including Stockholm metro expansion projects (Högdalen Underground Depot, TUBA), Slussen underground bus station, Hallsberg−Stenkumla and Hamnbanan railway projects. Technical support and follow-up during construction of Högdalen Underground Depot. Creation of technical documentation and bill of quantities according to AMA (Swedish specification codes) for the above stated projects.

Dams: Numerical simulation of temperature and pore pressure in a rockfill dam using FLAC.

Management:
Project Management: Technical management in a multidisciplinary Högdalen Underground Depot project (as part of the Stockholm metro expansion project) including creation of contracts (ATR, ÄTA), time, economy and resource planning and follow-up, coordination with the client and other technical disciplines as well as review and delivery of project documents. Project leader in LKAB project for evaluation of different mining methods and excavation sequences for levels below 1365 (including Kiruna, Malmberget, and Per Geijer).

Technical Innovation and Development: Leading technical development and innovation at Rock Mechanics department and coordination between departments at WSP Sweden.

Mining:
Open pits: Kinematic and numerical analysis of large-scale slope, interramp slope and bench stability and design for Boliden mines Kevitsa and Aitik, as well as Ellatzite open pit mine, together with data collection recommendation for the future studies.

Underground mining: Assessing infrastructure restriction volumes and seismic potential for future production in LKAB Kiruna using *FLAC3D*. 3D continuum (*FLAC3D*) and discontinuum (*3DEC*) numerical analysis for Boliden Tara Mines with the aim of assessing the consequences of mining the crown pillar, with particular focus on the surface impact, in addition to determining the influence of the existing faults on the crown pillar extraction. Evaluating the best mining sequence for Lappberget 1250, Garpenberg mine, from the rock mechanical point using *FLAC3D*.

Gathering and interpreting information on iron ore mines worldwide for cost curves calculation and supply modelling.

Parametric modelling:

Parametric modelling in Rhino+Grasshopper of 3D geometries, quantities and rock mechanical prognosis for Tvärförbindelse Södertörn project and metro line Fridhemsplan - Älvsjö. Mapping and borehole data visualization for various infrastructure projects in Rhino+Grasshopper.