

Geomechanical Engineer

Expertise	Rock Mechanics, Civil Engineering, Numerical Modelling
Education	M.Sc. Civil Engineering (Soil- and Rock Mechanics), 2022 Royal Institute of Technology, Stockholm, Sweden
Honors	Awarded the Best MSc thesis of the year 2022, by the Swedish national group of ISRM.

Professional Experience

2025–Present	ITASCA Sweden, Stockholm, Sweden Geomechanical Engineer
2022–2025	Sweco, Stockholm, Sweden Rock Engineer

Project Experience

Energy & Hydropower

Maersk Project Logistics Europe/Vattenfall Vattenkraft - Messaure (2024)

Impact study of a 300+ mt transport crossing a larger embankment dam. Two-dimensional numerical analyses were performed using FEM (Plaxis 2D), assessing the dam behavior under various load scenarios. The work resulted in detailed recommendations on how to execute the transport to minimize structural impact.

Vattenfall Vattenkraft (2023-2024)

Performance of three-dimensional dam modeling in Plaxis 3D, conducting coupled flow-deformation calculations under steady-state conditions. Performance of effective stress analyses with a focus on the effects of 3D inclination variations in the rock foundation of a dam.

Industry

Stockholm Vatten & Avfall – Stockholms Framtida Avloppsrening SFA (2022-2024)

Design of rock caverns and tunnels for the underground facilities Henriksdalsverket and Sicklaverket, two wastewater treatment plants in Stockholm. Having dual roles as rock engineer for the general project and sub-project manager for the Henriksdal facility. Several numerical analyses were performed in both Plaxis 2D & 3D and 3DEC. Design of rock reinforcement for both existing and new rock caverns were performed.

Östersunds kommun – Nytt Vattenverk Östersund (2022-2024)

Design of rock excavations, rock mass sealing and grouting for a drinking water facility. A vertical rock excavation was performed in a challenging area within expansive shales having a low strength while exerting a swelling pressure when exposed to oxygen. Responsibilities included design of rock and geotechnical reinforcement solutions to ensure stability during construction and operation.

Boliden – Aitik 2050 (2022-2024)

Design of a vertical rock excavation with construction works already ongoing due to tight timeframe (<1 month). Occurring concentrated loads near the rock crest were managed as well as the general rock stability. Performance of on-site follow up with contractors and client.

Stockholms Stad Exploateringskontoret – Sjöstadshöjden (2023-2024)

Analysis of the impact on Södra Länken traffic tunnels from the planned construction of residential buildings above tunnels with low rock cover. 2D and 3D numerical modeling were performed in Plaxis to verify ultimate and serviceability limit states being unaffected.

Östersunds kommun – Swelling shale (2023-2024)

Pilot project studying the effects of expansive shale (heaving) bedrock with the aim of identifying an occurring process and defining effective countermeasures. The project was performed for a specific building with an extensive damage history. Full scale measurements were to be initiated.

Google Sweden (2023)

Performance of rock slope stability analysis and design of reinforcement solutions for a new industrial establishment in central Sweden.

Infrastructure

Atrium Ljungberg (2024)

Having a role as rock mechanics engineer, providing technical support and follow up on rock and sheet pile wall stability. The project involved monitoring and stability assessment of a sheet pile wall with lack of horizontal support at its base at a new subway entrance.

Trafikverket – Norrbotniabanan (2023)

Design and quantification of reinforcement for rock slopes. Review of rock slope design and reinforcement.

Trafikverket – Road 57 (2022)

Conducted stability analyses of proposed rock slopes and performed rock sampling as part of the preliminary studies for the re-construction of Road 57 in Sweden.

PEAB Sverige - Lagnövägen (2022)

Inspection and design of rock reinforcement for rock slopes along a road in Stockholm.

Trafikverket – Road 226/571 (2022)

Conducted stability analyses of proposed rock slopes.

Mining

Epiroc Drills AB – Inspection of Sickla testing mine (2022)

Inspection and classification of a smaller vertical rock shaft reinforced with timber. Evaluation of unreinforced areas with raise bore holes. Performance of reinforcement proposals.

Field work

Stockholm Vatten & Avfall – SFA (2022-2024)

Engineering geological mapping/joint mapping of crystalline rocks during excavation of new rock caverns and tunnels. Mapping was performed during preliminary investigations and construction phase, applying the Q-system, and included assessments to support excavation and decisions of the rock reinforcement.

Östersunds kommun – Nytt vattenverk Östersund (2024)

Engineering geological mapping/joint mapping of rock slopes in sedimentary rock through the RMR/GSI system during both preliminary investigations and construction process. The mapping process included final decisions of rock reinforcement.

Sturegallerian (2023-2024)

Engineering geological mapping/joint mapping of rock slopes at Sturegallerian in Stockholm. Assessment of excavation surfaces with respect to their load bearing capacity. Field assessment of rock mass strength for pre tensioned rock anchors. Several rock slopes were performed as frozen excavation due to nearby buildings.

Vattenfall – Överby (2022)

Geological field mapping to verify rock type and potential contacts within a sulfide bearing rock mass investigation. Planned and arranged sampling of sulfide-bearing rock.

Stockholms Stad Exploateringskontoret - Mäläräng (2022)

Performed geological mapping and rock sampling for sulfide testing for a road relocation study with suspected sulfide-bearing rock.

Trafikverket – Road 226/571 (2022)

Conducted geological field mapping and sulfide sampling in preparation for the construction of a new roundabout.

Svenska kraftnät – Örby (2022)

Performance of sulfide-bearing rock sampling and geological mapping along the route of a new power line in Stockholm, Sweden.