ITASCA Consultants AB
An Itasca International Company

Märit Berglind-Eriksson

Principal Engineer

Expertise	Rock Mechanics, Rock Engineering
Education	Completion of previous degree to M.Sc. (Civil engineering), 2000-2001 Luleå University of Technology, Luleå, Sweden
	Degree of Bachelor of Science in Rock and civil engineering, 1996 Luleå University of Technology, Luleå, Sweden
	Mining School Engineer, 1995 Bergsskolan, Filipstad, Sweden
	Degree of Bachelor of Science in construction, 1993 University of Gävle, Gävle, Sweden
Professional Affiliations	Board member of Swedish Rock Engineering Association
	Member of the research council for the Rock Engineering Research Foundation
	Chairman of the Committee "Bergdagarna", Swedish Rock Engineering Association

Professional Experience

2023 – Present	*Itasca Consultants, Falun, Sweden* *Principal Engineer*
2017 – 2023	*Sweco, Transport, Stockholm, Sweden,* *Chief Technology for Rock/Rock mechanics*
2012 – 2017	*ÅF, Large Projects, Stockholm, Sweden,* *Rock Engineer/Rock mechanics/Functional Manager ByPass Stockholm*
2009 – 2012	*Vectura Consulting AB, Infrastructure, Borlänge, Sweden,* *Rock Engineer/Rock mechanics*
2001 – 2009	*Vägverket Konsult, Infrastructure, Borlänge, Sweden,* *Rock Engineer/Rock mechanics*
1996 – 2001	*LKAB, Mine Planning Department, Kiruna, Sweden,* *Rock mechanics*

Project Experience

Infrastructure

West link, part Korsvägen, in Gothenburg. Acting as the client's technical design support with responsibility for verification during construction and follow-up and control of the design in the

construction phase in a larger group of consultants. Before this stage the consultant group have made redesigns where needed due to new information or changes (2019 – present).

Bypass Ludvika (2022-2023): Construction site follow-up of bypass Ludvika including 3 rock slopes close to existing homes.

Lead rock engineering designer for two metro stations under existing stations at Fridhemsplan and Liljeholmen in Stockholm – new metro line Fridhemsplan – Älvsjö (2022-2023).

Specialist rock engineering and rock mechanics for the detailed description phase for the railway Dingersjö-Kubikenborg (2020-2022). The stretch contains a tunnel and extensive rock slopes, more than 30 m.

Acting as the client's technical design support (mapping, reinforcement, and control of existing tunnel) for excavation of new rock slopes close to an existing rock tunnel and closure of the existing tunnel at Rämshyttan for Trafikverket (2020).

Specialist rock mechanics for technical solutions when drawing up the tender documents for four out of six work tunnels for the metro to Nacka in Stockholm (2018-2020).

Lead rock engineering designer for the Central station in Stockholm for tender documents for making it possible for two tracks to the south from the central station (2017-2019).

Lead rock engineering designer for FSK02 (rock tunnels) in the Stockholm Bypass (2014-2017). Lead rock engineering designer for the design of tender documents (drawings, technical description, and list of quantities according to AMA, control program, etc.) and in the construction phase.

The rock tunnel contract consists of 6 major main tunnel contracts and many smaller contracts. In the construction phase, the project is divided into 3 site offices in the south, north and on Lovön. Before that, (2012-2013) responsible for general design tunnel and design reports.

Stability investigations for rock slopes E18 Norrtälje-Kappelskär (2012).

Rock engineering designer of rock slopes in Skellefteå and Tärnaby before maintenance works (simple construction documents) for Trafikverket (2012).

Tender documents for interchange for Lindhagensgatan for Trafikverket. Design of a circulation in several levels under Essingeleden with rock excavation down between a bridge foundation and a land abutment for Essingeleden (2010-2011).

Lead rock engineering designer for a feasibility study for the railway stretch Stockholm – Järna (2010-2011).

Stability investigations for rock slopes E18 Traffic interchange Rosenkälla (2011-2012).

Stability investigations and actions for existing bridge support on rock for rock excavations in its immediate vicinity for Trafikverket (2010-2011).

Lead rock engineering designer for the detailed description phase of double track between Visinge- Täby Kyrkby, Roslagsbanan (2010-2011) and Vallentuna-Kragstalund (2009-2010).

Lead rock engineering designer for the investigation phase for the railway stretch Umeå-Robertsfors, Norrbottniabanan (2010-2011).

Lead rock engineering designer for the investigation phase for the railway stretch Umeå-Robertsfors, Norrbottniabanan (2010-2011).

Lead rock engineering designer for the investigation phase for the railway stretch Umeå-Robertsfors (Järnvägsutredning 110), Norrbottniabanan (2010-2011).

Project rock engineer for the investigations of double track between Vallentuna-Kragstalund, Roslagsbanan (2009-2010).

Specialist helping with the tender documents for a new road, Sundsvall Syd, with extensive rock slopes (2009-2010).

Stability analyses (mostly numerical) for the planned metro stretch from Odenplan to Karolinska. Sub-consultant helping Nitro Consult with rock mechanics in the critical areas (2009-2010).

Rock engineer designer for tender documents for a walk and bicycle path with rock slopes at Gotland for Trafikverket (2009).

Lead rock engineering designer, tunnel safety and technical risk analysis for the whole project for the investigation phase for the railway stretch Gäddvik- Luleå (Järnvägsutredning 160), Norrbottniabanan (2007-2008). Several different options for crossing the Lule River and SSAB's industrial area were investigated with different combinations of rock tunnel, submerged tunnel and concrete tunnels.

Rock engineering designer for the investigation phase for the railway stretch Ostvik-länsgränsen, Norrbottniabanan (2006-2007). The investigation included four stretches with extensive tunnels in all options.

Reviewer for the client, lead rock engineering, for the detailed description phase of Citybanan i Stockholm (2006-2007).

Review of design documents for road tunnels at E18 Enköping for Vägverket (2006-2007).

Investigation and draft of supplementary text to Tunnel 2004 for potential approval of Thorbolt for Vägverket. The bolt didn't fulfill the requirements at that time, and the draft identified what requirements the bolt still needed to fulfill.

Lead rock engineering designer including tunnel safety and technical risk analysis for the whole project for the investigation phase for the railway Kiruna (2005). The investigation included four stretches with extensive tunnels in all options.

Lead rock engineering designer for the investigation phase for the railway Falun-Borlänge (2004-2005). The investigation included four stretches with extensive tunnels in all options.

Lead rock engineering designer for inspections of rock slopes in Nynäshamn for the municipality (2004).

Project rock engineer for the investigation phase for the railway Härnösand - Veda and Bollstabruk -Norr Nyland, Ådalsbanan (2003).

Project manager for road E14, rock tunnel at Åre (2003-2004). Rock investigation with the aim of placing the E14 in a tunnel under the ski slopes with roundabout and parking garage in the mountain to create ski-in-ski out in Åre's central community and better conditions for the downhill slope before the World Championships.

Rock engineer in the Skellefteå project, a road investigation in Skellefteå. The project contained several different tunnel options in the great variety of rock masses found in the area.

Project engineer for the detailed description phase for the railway Härnösand - Veda and Bollstabruk -Norr Nyland, Ådalsbanan (2003).

Lead rock engineering designer for renovation of a couple of short older railway tunnels, Öd 1-5 at Ådalsbanan, Veda-Bollstabruk (2003).

E4 Dala Järna - Vansbro: Construction site follow-up of a new road routing with rock slopes.

Assignment manager for the safety inspection of rock slopes and tunnels for Banverket in Banverket Mellersta Banregionen.

Nuclear Waste Disposal

SKB (2020-2021): Lead rock engineering designer for the design of a final repository for spent nuclear fuel, SKB Sweden.

Energy

Hybrit Pilot gas storage (2020-2021): Lead rock engineering designer for the design of the test pilot for hydrogen storage. Design and tender documents of rock cavern and adit (rock engineering, rock mechanics and grouting design).

Fortum – Spjutmo (2022): Construction of new fishways for upstream and downstream migration.

H2 Green Steel – Pre-study gas storage (2019-2020): Lead rock engineering designer for a location investigation for full-size hydrogen gas storage.

Citylink pre study (2011-2012): Specialist rock engineering and rock mechanics for a new electric connection in a tunnel under Stockholm. The project was a feasibility study of difficult under water passages with extensive weak zones. Investigation with regard to the suitability of operating the tunnel with TBM technology.

Specialist, stability investigation of a rock slope. 2D numerical analysis (RS2) of a weakness plan for verification of installed reinforcement and the need of additional reinforcement.

Contractors/developers

Veidekke (2019-2021): Technical support for rock excavation (specialist/review) for foundation of a multi-story car park near other structures (railway and existing Norra Länken) including 3D numerical analysis in Plaxis.

Skanska Sverige AB (2018): Assignment manager for construction work at ABB Ludvika. Design and building instructions for the basement and elevator shaft when laying a foundation of a building.

Skanska Sverige AB (2017): Rock specialist for Skanska in the tender phase for the West Link in Korsvägen.

NCC (2011): Stability analysis for existing underground supply tunnels at Arlanda in connection with the foundation of a hotel opposite Sky City including 2D numerical analysis (Plaxis).

Wallenstam (2009-2010): Rock investigation including numerical stability analysis and risk analysis for construction of a 20-story building above the metro with a low rock cover.

Industry

H2 Green Steel (2022-2023): Ground investigation for new steel plant. Responsible for rock investigations, stability analysis and technical description for rock slopes at the hydrogen site.

Google Sweden AB (2022): Ground investigation for construction works. Review of rock investigations, stability analysis and technical description for rock slopes.

Northvolt FEM AB (2023): Ground investigation for a new road at Kvarnsveden Northvolt. Responsible for rock investigations, stability analysis for rock slopes.

Boliden – Aitik mine (2022-2023): Specialist – review of the design and building instructions for a pump pit in rock.

Mining

Kiruna mine (1996-2001): Responsible for rock stability forecasts and follow-up of facilities and underground production areas, including cracking of the hanging wall and subsidence of the lying wall in Kiruna mine. Participated in planning of the location of new facilities underground. Carried out inspections and recommended rock reinforcement measures.

Falu mine – visitors mine, which is a world heritage site (2017-present): Responsible for rock mechanical and rock technical issues. Inspection of the visitors mine three times a year, above ground once or twice a year and the open pit and the closed newer "industrial mine" once a year.

Flogberget – visitors mine (2017 – present): Inspection of the visitors mine (open pits and underground) every spring before opening the mine. Long-term improvements to keep the mine safe.

Sala mine – visitors mine (2019, 2023): Inspection and proposed measures for rock reinforcement in an area with stability problems at level -155 m.

Dalhalla – open pit which is an outdoor arena (2022): Inspection of the open pit and proposals for improvements of rock reinforcement.

Stollgruvan – visitors mine (2021, 2022): Inspection of the visitors mine in Hofors before opening season 2021 due to settlements of a pillar in the mine and follow-up one year later.

Björkdal mine – new spillway (2020-2021): Design and tender documents of the curtain and contact grouting for the new spillway. Design for preparation of the foundation surface for the dam in different classes (from sealing of fractures, surface grouting to contact and surface grouting or concrete slabs).

Risk analysis

Project manager for a research and development project for the Swedish Road Administration. High flows, how to find places with high risks (2007).

Project manager for development of a method to identify risks for existing roads for the Swedish Road Administration (2004). The method was later refined and published in two publications VV publ. 2005:54 Handledning - riskanalys vald vägsträcka and 2005:55 Fördjupning – riskanalys vald vägsträcka (2006-2007). During the same period the publications was revised for the Swedish Railroad administration.

Several technical risk analyses including dangerous goods for railway meeting stations at Ådalsbanan (2001-2002) and Ostkustbanan (2005-2006), rail tunnels Ådalsbanan (2003), Gnesta rail yard (2005), Haningleden – road (2002), investigation for a new bypass in Sveg (2004), reviewer bypass Norrtälje (2005), E22 Söderleden (2006), Road 67 part Stingtorpet – Tärnsjö (2006), Avafors rail yard (2007), detailed development plan Händelö Gård – Norrköping (2009), road 16 Lund (2009-2010), detailed development plan Tändsticksområdet Norrköping (2009-2010), relocation of cooling water pipe for Akzo Sundsvall, detailed risk analysis for detailed development plan for a railway at Händelö (2010).

Reviewer and technical support of the risk analysis for the client SL for the planned metro stretch to Karolinska (2009-2010).

Tunnel safety investigation (all types of goods would be allowed in the tunnel) of a road alternative (E12) in a concrete tunnel in a corridor through residential areas to avoid disturbances in the surroundings in Umeå (2010-2011).

Work with helping the Swedish transport administration with the EU-directive for tunnel safety and its impact for Swedish road tunnels (2006).

Teaching and Academic Experience

Examiner and teacher for Rock mechanics 1 (2019, 2021, 2022) and Rock mechanics 2 (2018, 2019, 2022, 2023) at Bergsskolan in Filipstad.

Miscellaneous

IEG 2.0 B4 Underground constructions (2022-present): Member of the subgroup "*Eurocod implementation into underground facilities*". Eurocode Implementation, TC250/SC7. The work is part of the implementation of the Eurocodes for rock engineering underground rock mass.

IEG 2.0 A1.2 Basic requirements (2021): Project manager for investigation of how Eurokod 2.0 affects us in Sweden regarding Geotechnical complexity class (GCC), Geotechnical Category (GC), and consequence class (CC).

Energiforsk (2019-2020): Research and development for Energiforsk. Review of report for identification of requirements and their impact on the operation of the rock constructions of the hydropower industry.

Chief technology for rock at Sweco (2017-2020) with responsibility for internal technical development, business intelligence, software, education, quality routines, take part in relevant organizations in cooperation with teams and group leaders.

Project manager for development of a method to identify risks for existing roads for the Swedish Road Administration – Research and development (2004). The method was later refined and published in two publications VV publ. 2005:54 Handledning - riskanalys vald vägsträcka and 2005:55 Fördjupning – riskanalys vald vägsträcka (2006-2007). During the same period the publications were revised for the Swedish Railroad administration.

Project aiming to evaluate geophysical investigations in road design for the Swedish Road Administration – Research and development (2002). Developed the survey program for what methods to use where, evaluated the geophysical results with the geotechnical/geological and wrote the report.