

## **Geotechnical Engineer**

**Expertise** Geotechnical Engineering (Mining/Civil) — rock mechanics (hard and soft), soil mechanics, advanced numerical modeling: tunneling/underground excavations, ground control; underground and open pit mining, slope stability; foundation engineering.

**Education** Ph.D. (Geotechnical Engineering), 2006  
M.Eng. (Geotechnical Engineering), 2002  
University of Alberta, Edmonton, Canada  
B.Eng. (Civil Engineering), 1997  
Dalhousie University (TUNS), Nova Scotia, Canada  
Certificate of Engineering, 1993  
Mount Allison University, New Brunswick, Canada

**Professional Affiliations** International Society for Rock Mechanics (ISRM), Canadian Geotechnical Society (CGS), Minnesota Geotechnical Society (MGS).

**Professional Registrations** Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA), P.Eng. status

### **Professional Experience**

2005 - Present *Itasca Consulting Group, Inc., Minneapolis, Minnesota  
Geotechnical/Mining Engineer*

2002 - 2005 *University of Alberta, Edmonton, Canada  
Graduate Student/Research Assistant*

1998 - 2002 *Geo-Engineering (MST) Ltd., Calgary, Canada, Geotechnical Engineer*

1996 - 1998 *AMEC Earth & Environmental Ltd., Alberta  
Canada, Geotechnical Engineer*

### **Project Experience**

*Applied Advanced Numerical Analysis:* Finite difference, finite element, boundary element, distinct element, limit-equilibrium methods and bearing-capacity analysis for a wide range of geomechanics projects.

*Tunneling/Underground Operations:* Ph.D. research on tunneling in Opalinus Clay (claystone) at the Mont Terri rock laboratory, Switzerland. Extensive use of numerical analysis/modeling for underground mining operations, including support design, stability assessment and surface subsidence estimation. Analysis of longwall mining, room-and-pillar mining, cave mining, solution mining, mine infrastructure, caverns and backfilling. Analysis of tunneling problem under squeezing, gravity-controlled wedge and brittle spalling modes of instability. Ongoing research of support design methods for mine tunnels under all models of instability.

*Slope Stability:* Participated in a number of Mining and Civil soil and rock slope-stability projects involving field investigations, instrumentation and monitoring, data interpretation, analysis, and design/implementation of remedial measures.

*Foundation Engineering:* Provided design and construction recommendations for numerous industrial/oilfield, commercial and residential projects, including forensic foundation projects.

*Site Characterization:* Site assessments using a range of equipment in numerous and varied sites in soils and rock. Geological mapping, borehole and core logging, air photo interpretation, helicopter site reconnaissance, instrumentation installation, monitoring and interpretation. Underground mine/tunnel inspections and stability evaluations.

*Pipeline Construction:* Performed reconnaissance and investigations for pipeline project routing and feasibility relating mainly to directionally drilled (HDD) stream crossings and slope stability issues.

*Geo-Environmental Engineering:* Conducted Phase I and II Environmental Site Assessments. Gained familiarity with handling, testing and analytical procedures as well as the Federal and Provincial regulatory environments (Canada).

*Project Management:* Involved in many aspects of project management including marketing, cost estimates, invoicing, personnel and resource utilization, and project safety issues.