

Rock Mechanics / Geotechnical Engineering

Expertise	Rock Mechanics, Geotechnical Engineering, Numerical Modeling.
Education	ME (Mining Engineering), 2001 Curtin University, Kalgoorlie, Western Australia BE (Geological Engineering), 1995 Royal Melbourne Institute of Technology University (RMIT), Australia
Affiliations	Member, Engineers Australia Chartered Professional Engineer (CPEng), Engineers Australia Member, Australian Geomechanics Society (AGS)
Professional Experience	
2007 - Present	<i>Itasca Australia Pty Ltd, Melbourne</i> <i>Senior Geotechnical Engineer, Director</i>
2003 - 2007	<i>Civil Geotechnical Services (Melbourne, Australia)</i> <i>Senior Geotechnical Engineer</i>
2001 - 2003	<i>Sinclair Knight Merz Pty Ltd (Melbourne, Australia)</i> <i>Geotechnical Engineer</i>
1999 - 2001	<i>Kalgoorlie Consolidated Gold Mines ('Super Pit', Kalgoorlie, W.A.)</i> <i>Geotechnical Engineer</i>
1996 - 1999	<i>BHP Iron Ore Pty Ltd (Mt Whaleback Mine, Newman, W.A.)</i> <i>Geotechnical and Drill & Blast Engineer</i>
1994 - 1995	<i>Perseverance Exploration Ltd (Fosterville Gold Mine, Victoria, Australia)</i> <i>Geotechnical Engineer</i>

Project Experience**Mining Projects**

Open-pit mining: Slope stability assessments for open-pit mines of various scale in both hard and soft rock environments. Activities include geotechnical field investigations, organization of laboratory testing programs, detailed analysis of soil, structural geological and rock-mass data, and deterministic and probabilistic analyses for pit slope stability. Detailed two and three-dimensional numerical modeling for pit slope stability at several large-scale open pits in Australia and overseas. Design and installation of ground support and slope monitoring networks, detailed analysis of slope monitoring data, and detailed analysis of current and predicted stability for several active pit-slope failures. Authored Master of Engineering thesis on the analysis of an interim slope at the Super Pit, Kalgoorlie, which included research into various topics associated with the data collection, data analysis and stability analyses. Geotechnical investigations and stability analyses for mineral sands mines and waste dumps. Mine-floor stability management at the Super Pit, including delineation of dangerous areas associated with remnant underground workings through dedicated probe drilling, downhole cavity laser surveys and microgravity surveys. Responsible for open-pit production and limits blast-pattern design and implementation at Mt Whaleback, including pattern configuration, charge and tie-in, detailed blasting assessments, blast damage monitoring,

developed site-specific guidelines for limits blasting practices. Designed, installed and monitored standpipe and vibrating wire piezometer networks, and designed and assessed horizontal depressurization drilling programs.

Underground Mine Backfill: Three-dimensional numerical analysis of underground paste-fill barricade structures, including mullock, fibrecrete, masonry and hybrid structures for varying drive profiles. Three-dimensional numerical analyses for paste-fill exposure stability.

Civil Projects

Tunneling: Two- and three-dimensional numerical analyses for several TBM and mined tunnels, including detailed analysis of stress redistribution, ground deformation and the behavior of various temporary and permanent ground support systems.

Foundation investigations: Geotechnical investigations and foundation analyses for various structures, including large-scale power stations, electrical substations, water tanks, pipelines, school sites, service stations, residential developments and bridges. Activities include organization and implementation of field investigation and laboratory testing programs, analysis of field and laboratory data, site classification according to Australian Standards, recommendations regarding founding materials, bearing capacity, settlement, excavation characteristics and the controlled placement of structural fill. Geotechnical field investigations and data analysis for wharf redevelopments, recommendations regarding pile driving, pile depths and wharf reconstruction. Three-dimensional numerical analyses of wind turbine foundations for several proposed wind farms in the U.S.

Landslides and soil slope stability: Geotechnical investigations and stability assessments for river and coastal slopes and for batters and trenches. Provided recommendations regarding batter and trench stability, excavation sequence for basements and shoring requirements, and parameters for retaining wall design. Detailed three-dimensional numerical modeling for a large shopping centre basement excavation in Sydney, involving soldier piles, anchors and waler beams. Performed Landslide Risk Assessments in accordance with Australian Geomechanics Society Guidelines, including field investigations, data analysis, slope stability analysis and risk analysis for damage to property and loss of human life.

Water resources and waste disposal: Geotechnical investigations for proposed water-storage lagoons, leachate ponds and wetland sites, including data analysis and recommendations regarding liner and embankment construction requirements, embankment stability, seepage analysis and potential borrow areas. Geotechnical investigations for proposed salt-harvesting works, including geotechnical and hydrogeological data collection and analysis, seepage modeling and subsequent design and specification of the pond lining and embankments; this included the design of groundwater monitoring programs and analysis of the effects of water chemistry on soil permeability. Supervision, testing and reporting for the construction of clay lined landfill cells.

Other civil projects: Geotechnical investigations for existing and planned pavements, pavement design, pavement condition assessments, recommendations for pavement rehabilitation. Offshore geotechnical investigations for a proposed channel-deepening project, including supervision of borehole drilling from a barge through soft marine sediments, and organization and presentation of geotechnical data for dredging analysis. Site contamination investigations for proposed developments, including field investigations, organization of laboratory testing, data analysis and reporting. Supervision for the placement of structural fill in accordance with Australian Standards, including field testing with nuclear density gauge, laboratory testing, data analysis and reporting. Forensic investigations for settlement and rising damp problems at residential and commercial building sites, including preparation of information to be used in legal hearings. Analysis and reporting of geotechnical laboratory testing for soil and rock at a NATA accredited laboratory, including consolidation, shrink-swell, permeability, triaxial shear strength, compaction, soaked CBR and basic index testing.