

# Middindi Consulting (Pty) Ltd

Rock Engineering | Geology | Geotechnics



“The local and international Geotechnical Engineering consulting of choice, driven by Integrity and dedicated to excellence”.



**COMPANY** PROFILE

## **ROOTED IN TRADITION WITH A VISION FOR EXCELLENCE**

Middindi Consulting (Pty) Ltd was established in 2003 and is operating under the directorship of Trevor Rangasamy, a well-respected and highly recognised expert in the industry.

Trevor Rangasamy has more than 28 years of experience in the industry and has an impressive list of qualifications, awards and appointments behind his name.

In addition, Middindi has a full staff complement of 18 employees who have, collectively, more than 200 years of expertise. Middindi is one of the biggest specialist organisations in the industry and focus on hiring the most dynamic and passionate people.

Middindi operates under the vision: "The local and international Geotechnical Engineering consultancy of choice, driven by integrity and dedicated to excellence".

The core business of the company is the provision of Rock Engineering, Geotechnical and Geological services to the mining and minerals industry. Middindi Consulting specialises in the use of quantitative investigations of rock behaviour and support performance supplemented by experience, computer modelling and underground investigations. Middindi Provides practical and sustainable solutions to Rock Engineering problems.

## **VAST EXPERIENCE, EXTENSIVE KNOWLEDGE**

Middindi Consulting offers a multitude of services that complement one another and assure clients of comprehensive solutions which are the edge of market developments and suited to their unique requirements.

### **Our capabilities include:**

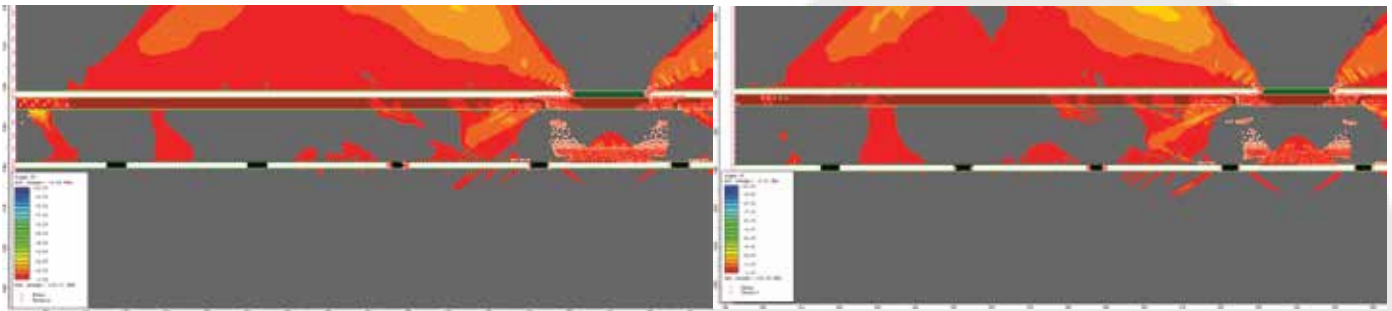
- Rock engineering strategies for optimal mining and mine design.
- Rock engineering input into feasibility studies using Concept, PFS and BFS.
- Geological and geotechnical assessments for both underground and surface workings.
- Geotechnical logging that is both orientated and unorientated using drill core, scanlines, cell or window mapping, photogrammetric and geophysical wire lines.
- The design and selection of support systems.
- Open pit, quarry, strip and waste rock dump designs
- Evaluation of laboratory and in-situ support performance.
- Compliance and strategic auditing.
- Research and development.
- Training and the compilation of unit standards, qualifications and learning materials.
- Inelastic and elastic numerical modelling.
- Compilation and review of rock-related Codes of Practice.
- Contract Rock Engineering Services.
- Risk Assessments.
- Forensic investigations.
- Shaft, mine layout and underground design.



## MIDDINDI CONSULTING HAS ACCESS TO INDUSTRY-LEADING SOFTWARE AND TECHNOLOGIES

### These include:

- UDEC, FLAC, SLIDE and MAP3D
- FLAC-Slope
- High-resolution, 50m depth range borehole camera
- Point load testing equipment
- In-depth knowledge of seismic system installations
- Geotechnical mapping tools, both orientated and unorientated core
- Impact split tester
- RocScience Software: DIPS, RocData, Unwedge, Swedge, RocPlane and Phase 8.0

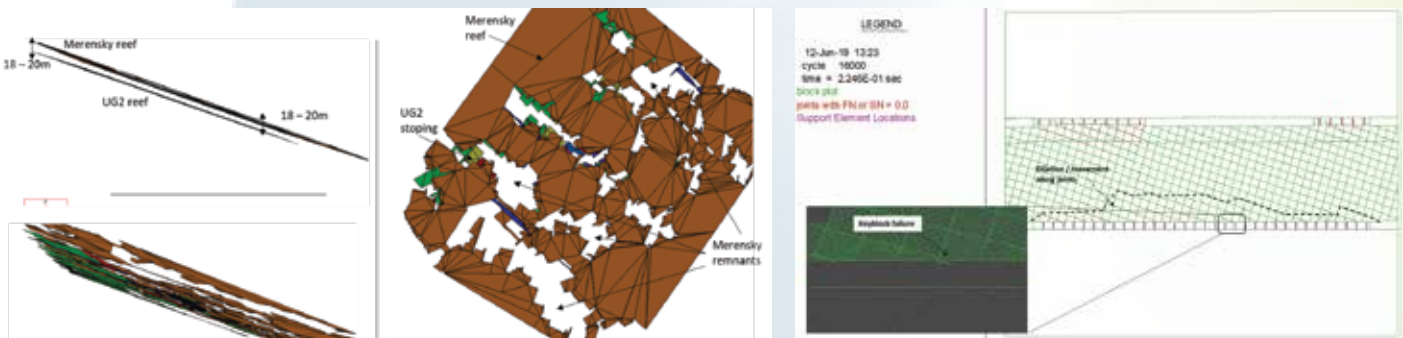


In addition, we have quick and seamless access to geotechnical orientation tools and close ties to the suppliers of complex and simple instrumentation and monitoring sites.

Middindi Consulting has used the combined experience and expertise of its employees and director to develop several papers and educational resources. Ground-breaking study guide material based on the existing Rock Engineering Certificate Syllabus, funded by the Mining Qualifications Authority (MQA) and initiated by the South African Chamber of Mines and the Rock Engineering Technical Advisory Committee, was compiled by Middindi Consulting.

Our employees are currently involved in offering training courses to the industry and have, in the past, volunteered as:

- Examiners for the chamber of mines Rock Engineering Certificate
- SANIRE local and regional committee
- Partake in organising committees for various symposia
- Lectures at the University of Pretoria and the University of the Witwatersrand





## EXTENSIVE SERVICES, FAR-REACHING METHODOLOGY

Middindi's team of engineers and geoscientists provide integrated rock engineering services for all stages of projects from the initial investigation through to design and construction. Stability and stress analyses are carried out using state-of-the-art numerical techniques where appropriate. The company uses its wealth of experience and technical knowledge to service the total spectrum of ore bodies in South Africa.



Within South Africa, the team has conducted projects in Barbeton, Brits, Burgersfort, Carletonville, Delmas, Evander, Gravelotte, Groblersdal, Johannesburg, Kimberly, Kriel, Kuruman, Loxton, Lydenburg, Machachadorp, Mafikeng, Messina, Middelburg, Northam, Ogies, Orkney, Phalaborwa, Pilansberg, Polokwane, Postmansburg, Pretoria, Rustenburg, Secunda, Swaruggens, Thabazimbi, Uppington, Vereeniging, Vhembe, Volksrust, Welkom, White River, and Witbank.

Outside of South Africa the team has concluded projects in Australia, Bosnia, Botswana, Canada, Chile, Czech Republic, The DRC, Ethiopia, Finland, Ghana, India, Ireland, Malawi, Mali, Mauratania, Mozambique, Namibia, Russia, Saudi Arabia, Scotland, Sierra Leone, Spain, Tajikistan, Tanzania, Turkey, Ukraine, Zambia and Zimbabwe.

The team's exposure to different styles of orebodies and mining methods is extensive.



## EFFORTLESS MINING EXPERIENCE

Middindi consulting is an independent consultant and specialist service provider offering rock engineering, geotechnical and geological services to the mining and mineral industry. The company was founded based on empowering previously disadvantaged South Africans and advancing transformation in the mining industry and this remains a core part of our mission to this day.



We are a team of highly skilled professionals with extensive experience across a broad range of mining environments that include; deep level gold mining, coal mining, and copper mining in South Africa. Our depth of experience allows not only to take on highly technical projects but to deliver on large projects seamlessly and with effortless expertise.

We offer a set of practical services across the spectrum of geotechnical services and because of our experience in different mining environments, we are able to develop solutions to better assist our other clients. We provide legal compliance for all the solutions we deliver as standard.

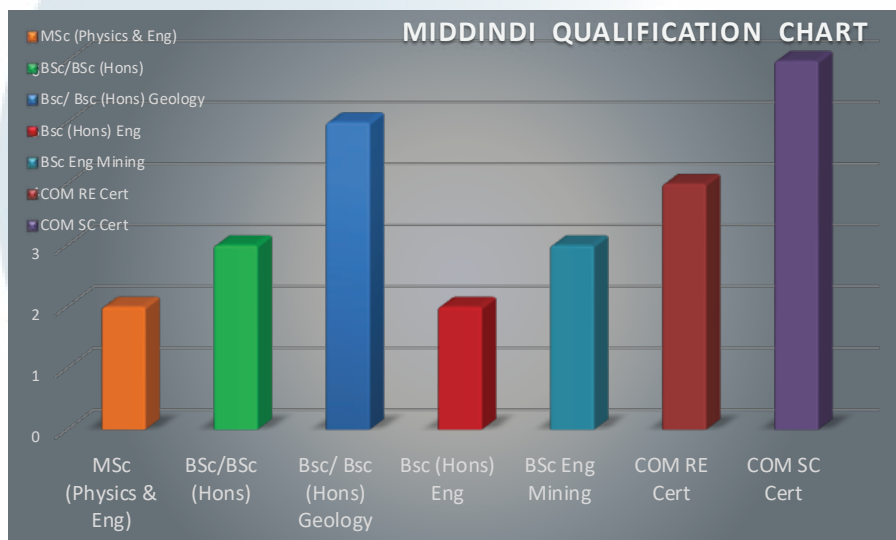
As part of our commitment to delivering solutions and services at the highest possible standards,

and to the latest specifications and market developments, Middindi Consulting is a member of several leading organisations. These all require significant investment into quality, training, expertise and deliverables and further assure our clients of our qualifications and capabilities.

Currently, we have active memberships with the following organisations: SANIRE, SAIMM, SOMP, SACNASP, ISRM.

## A MIRROR OF SOUTH AFRICAN DEMOGRAPHICS

Middindi consulting which started with two employees, has grown to 18 employees within a relatively short period of time, with a wide range of qualifications.



Middindi's practical and experienced personnel use a quantitative approach to base recommendations on observations and measurements rather than solely experience or numerical modelling.

The team has collectively been involved in production rock engineering, research and development, instrumentation and monitoring, geotechnical engineering, seismology, geology, due diligence and auditing, concept, PFS, DFS, FEED and execution level projects.

## **SUSTAINABLE DESIGNS, STABLE RELATIONSHIPS**

Middindi has well-established client relationships with many organisations in the mining industry, some of them include:

A&B Global Mining Consulting	Eskom Holdings Limited	Randgold Resources
African Rainbow Minerals	Evander Gold Mining (Pty) Ltd	RocScience
AGES (Pty)Ltd	Fox Consultants & Projects Managers (Pty) Ltd	RPM Global
Alphamin Resources Corporation	Gecko Cobalt Mining (Pty) Ltd	ScotGold Resources
Amari Manganese (Pty)Ltd	Glencore	Sebilo Resources (Pty)Ltd
Anglo American	Goldfields	Seismology in Mining (SIM)
Anglo Gold Ashanti	Golo Mining (Pty)Ltd	Shaft Sinkers (Pty)Ltd
Arcelor Mittal	Golder Associates	Sibanye Stillwater
Assmang Limited	Harmony Gold	Sibanye Gold Limited
BARA Consulting	Hummingbird Resources	SiM Mining Consultants
BARA Consulting UK	Impala Platinum	Sishen Iron Ore Company (Pty) Ltd
Barrick Platinum SA	International Ferro Metals (SA)(Pty)Ltd	Siyanda Bakgatla Platinum
Barris van Houten Consultants	Kalakgadi Manganese	Snowden
Bearing Man Group	Keaton Energy Holdings	Somika S.A.R.L
Benhaus Mining	Khoemacau Copper Mining (Pty)Ltd	South32
BHP Billiton	Kinsenda Copper Company	SRK Consulting
Black Mountain Mining (Pty) Ltd	Lanxess Chrome Mining (Pty)Ltd	Tetra4 (Pty) Ltd
Blackthorn Resources Limited	Lonmin Platinum	The MSA Group (Pty)Ltd
Brentley, Lucas & Associates (Pty)Ltd	MATSA	The Mineral Corporation
Boskop Manganese Mine	MDT Madencilik Tic.Ltd.Sti	Tshipi Entle Manganese Mining
Celtis Geotechnical CC	Metorex Copper Corporation DRC (Pty)Ltd	TWP Consulting Engineers
Cheadle Thompson & Haysom Inc Attorneys	Mine Health and Safety Council (MHSC)	Trichardt Crushers
CSA Global	Mining Qualifications Authority	Ukwazi
CSIR	Modikwa Platinum Joint Venture	United Manganese of Kalahari (UMK)
Cupric Canyon Copper	Mototolo Mine Joint Venture	University of Pretoria
Dathcom Mining SAS	Morokwa Manganese	Vedanta Resources
Deloitte	New Concept Mining	Wescoal Holdings Limited
Deswik Mining Consultants (Pty) Ltd	Northam Platinum Limited	Wsiswe Platinum Limited
Diacor CC	Paterson And Cooke	West Wits Mining
DRA Projects SA (Ptd)Ltd	Petra Diamonds	Zimplats
Eramet South Africa (Pty)Ltd	Platmin South Africa (Pty) Ltd	





## **KNOWLEDGE**

Taking an active role in the industry, Middindi's Director, Trevor Rangasamy together with Middindi's personnel, regularly attend conferences and contribute to several publications. Below is a list of some published papers.

**Hagan T, Vieira F.M.C.C, Kiboko M & Rangasamy T (2003).** Guidelines for the extraction of shaft pillars in South African gold mines. Guidebook. FutureMine. Johannesburg, South Africa

**James J.V, Rangasamy T & Petho S.Z (2008).** Excess shear stress analysis of seismicity associated with dykes. Proceedings. Deep and high stress mining 2008. Perth, Australia

**Leach A.R, Naidoo K, Spencer D & Rangasamy T (2001).** Accounting for non-standard geotechnical conditions in the gold and platinum industries. ISBN Guidebook. SIMRAC. Johannesburg, South Africa

**Leach A.R, Naidoo K, Spencer D & Rangasamy T (2001).** Accounting for non-standard geotechnical conditions in the gold and platinum industries. ISBN Guidebook. SIMRAC. Johannesburg, South Africa

**Le Bron K, Murphy S, Ward AK & Rangasamy T (2003).** The use of 'optimine' to design the extraction of a highly stressed block of ground. Proceedings. ISRM 2003. Johannesburg, South Africa

**Rangasamy T (2007).** Analysis of fracture imprints for appropriate selection of inter-panel lead/lag distances in South African gold mines. Proceedings. ISRM 2007. Volume 2, p779. Lisbon, Portugal.

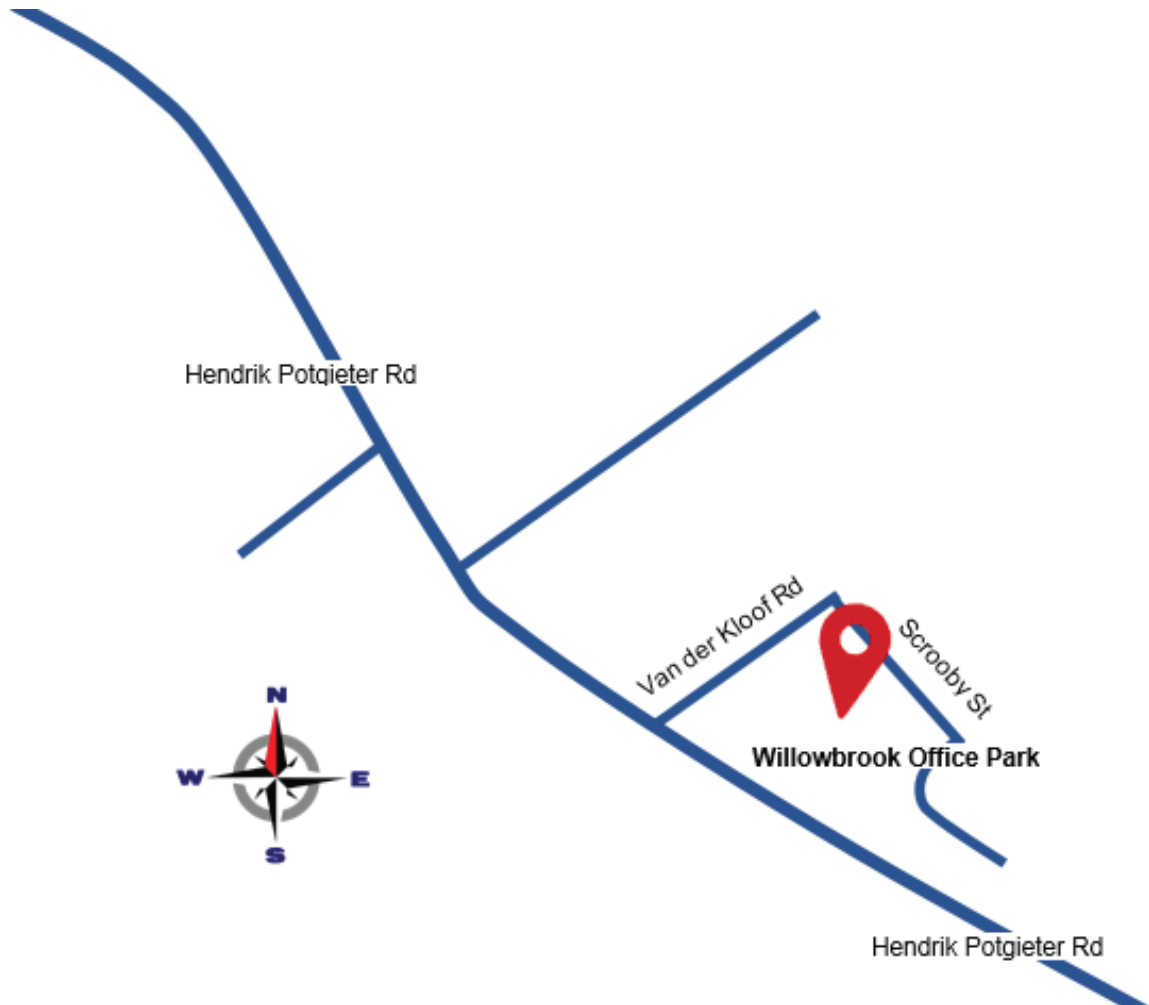
**Rangasamy T (2015).** The use of underground mines for High Head Underground Pump Storage Schemes. Muldersdrift, South Africa. Presentation Proceedings, SANIRE 2015 Symposium.

**Rangasamy T, Harijhan N & Petho SZ & Swanepoel D (2012).** Geotechnical design of the buffer zones located around the waste rock dump cut 17 at Goeddevonden Colliery, Xstrata Coal South Africa. Sun City, South Africa. Proceedings, Southern Hemisphere International Rock Mechanics Symposium.

**Rangasamy T & A.J Jager (2002).** A selective review of remnant definitions and creation in the South African gold mining industry. Proceedings. SARES 2002. Macceuvlei, South Africa.



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