SGME | Engineering new environments

CAPABILITY STATEMENT

SUBJECT

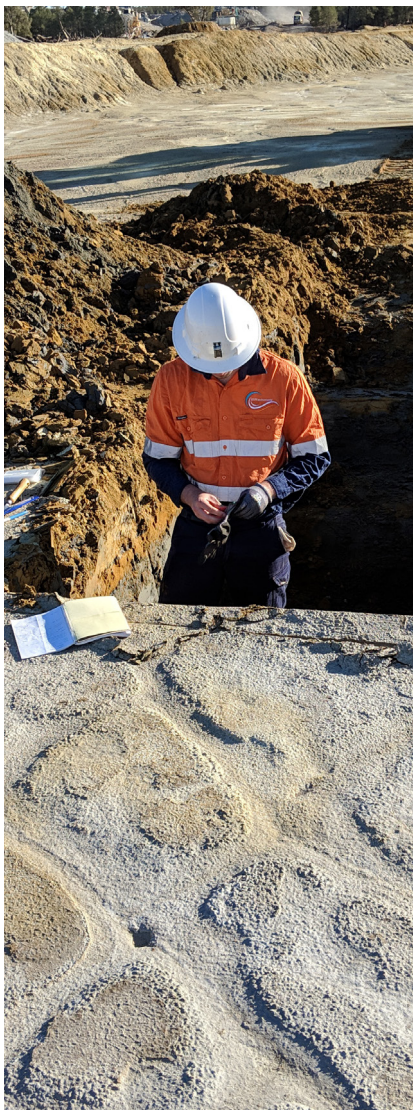
# Site Investigations and Characterisation

MARKETS

Feasibility and Mine Planning I Mine Operations I Mine and Quarry Closure
Rehabilitation, Monitoring and Research

ISO

9001:2015 I 14001:2015 I 45001:2018



## Site Investigations and Characterisation

Effective site investigation is not just important, it is the cornerstone of successful mining operations. It provides the foundation for all project planning and execution, whether the project involves expansion, relocation, or greenfield construction. A tailored site investigation, followed by detailed factual and interpretive geotechnical reporting, is essential for a project's success.

On-site geotechnical data collection and interpretation, including activities such as core logging, are pivotal in the evaluation of geotechnical conditions for mining operations. These fundamental activities involve the systematic gathering of soil and rock samples, in situ testing, and the recording of geological features. Core logging, a key component of this process, entails meticulous and detailed examination and documentation of rock cores obtained from drilling. This involves describing the lithology, structure, weathering, and any visible mineralisation or alteration. Accurate core logging provides crucial insights into the subsurface conditions, enabling geotechnical engineers to assess the rock's strength, stability, and suitability for mining.

Structural geology evaluation, rock mass structural fabric analysis, and geotechnical domain evaluation are critical components in understanding and managing the complexities of geological formations in mining operations. These evaluations involve analysing the orientation, distribution, and relationship of rock structures, delving into the arrangement and properties of the rock mass, and classifying it into distinct zones based on structural characteristics. This comprehensive approach ensures accurate predictions of rock stability and supports the development of effective excavation and support strategies, enhancing overall safety and efficiency in mining projects.

## Key Considerations for Geotechnical Site Investigation:

1. **Comprehensive Site Characterisation:** Ensuring thorough and detailed site characterisation through advanced geotechnical investigation techniques to accurately assess ground conditions and geological complexities.
2. **Data Integrity and Reliability:** Maintaining high data integrity and reliability standards throughout the site investigation process, from data collection to interpretation and reporting, to support informed decision-making and mitigate risks effectively.
3. **Integration of Multidisciplinary Data:** Integrating geotechnical data with hydrogeology, structural geology, and environmental science insights to provide a holistic understanding of site conditions and their implications for project design and safety.
4. **Adaptive Approach to Risk Management:** Implementing an adaptive approach to risk management that anticipates and responds to evolving geotechnical challenges and site conditions, ensuring proactive mitigation strategies are in place throughout the project lifecycle.
5. **Stakeholder Communication and Transparency:** Actively engage with stakeholders, including project teams, local communities, regulatory authorities, and other relevant parties, to foster transparency, build trust, and effectively address concerns regarding the project's geotechnical aspects.

## Approach

SGME's approach to geotechnical site investigation is rooted in expertise, innovation, and proactive engagement. We prioritise a thorough understanding of site-specific geological and geotechnical challenges, utilising advanced technologies and rigorous data analysis to develop precise strategies. Collaborating closely with clients allows us to tailor our investigation methods to assess ground conditions effectively, identify potential risks, and optimise design parameters for excavation and support systems. This approach ensures that our solutions are robust and aligned with project objectives from initial assessment to detailed design phases.

## Outcomes

Engaging SGME for geotechnical site investigation ensures the development of crafted strategies tailored to address site-specific challenges. Our approach emphasises site characterisation using advanced techniques and rigorous data analysis, providing a comprehensive understanding of ground conditions and early identification of risks. We prioritise efficiency, sustainability, safety, and thorough risk management throughout the process, integrating state-of-the-art technologies to deliver accurate geotechnical data that supports informed decision-making and optimised design. Through proactive stakeholder engagement and strategic planning, we align project objectives with regulatory standards and stakeholder expectations, enhancing project outcomes and promoting long-term viability and resilience for mining operations.

## Working with SGME

Engaging SGME as a collaborative partner delivers numerous benefits:

- **Improved return on investment (ROI):** Our expertise maximises ROI to satisfy investor expectations.
- **Reduced mine closure risks and disruptions:** Our strategies minimise complex closure risks to ensure a smooth future land use transition.
- **Addressing environmental, social, and governance (ESG) risks:** We focus on ESG criteria to mitigate environmental impacts and meet regulatory standards.
- **Enhanced strategic insight:** Collaboration boosts your performance through strategic planning.
- **Industry collaboration:** We foster partnerships with mining experts, staying abreast of technology and regulatory advancements.
- **Future risk vigilance:** Our proactive approach anticipates future risks to aid informed decision-making.
- **Innovative solutions for safe execution:** Our expertise delivers innovative solutions to ensure safe execution.

Our proactive approach ensures adaptability, sustainability and responsible development to safeguard the mining industry creating enduring value.

**CONTACT**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