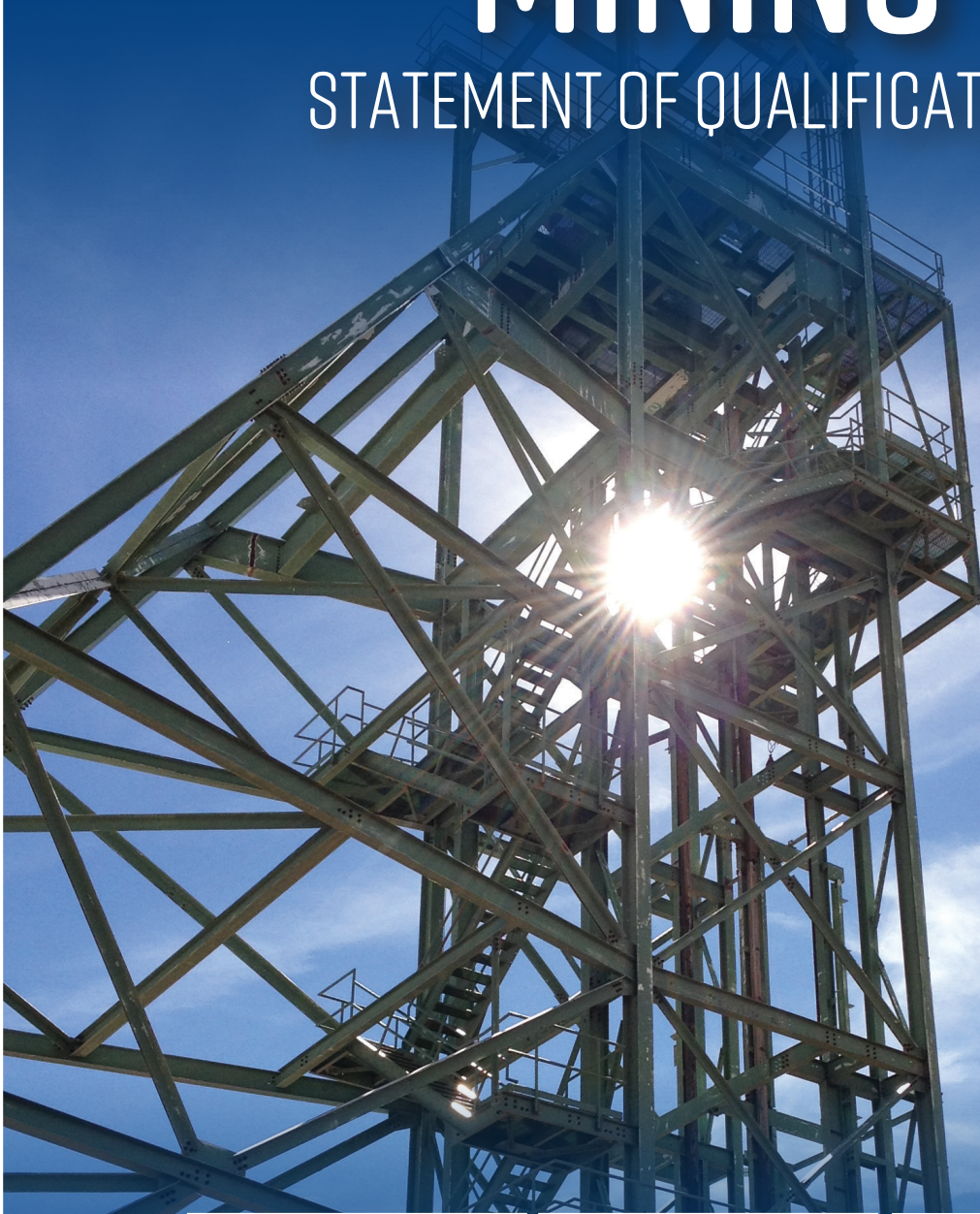


Geosyntec[®]
consultants

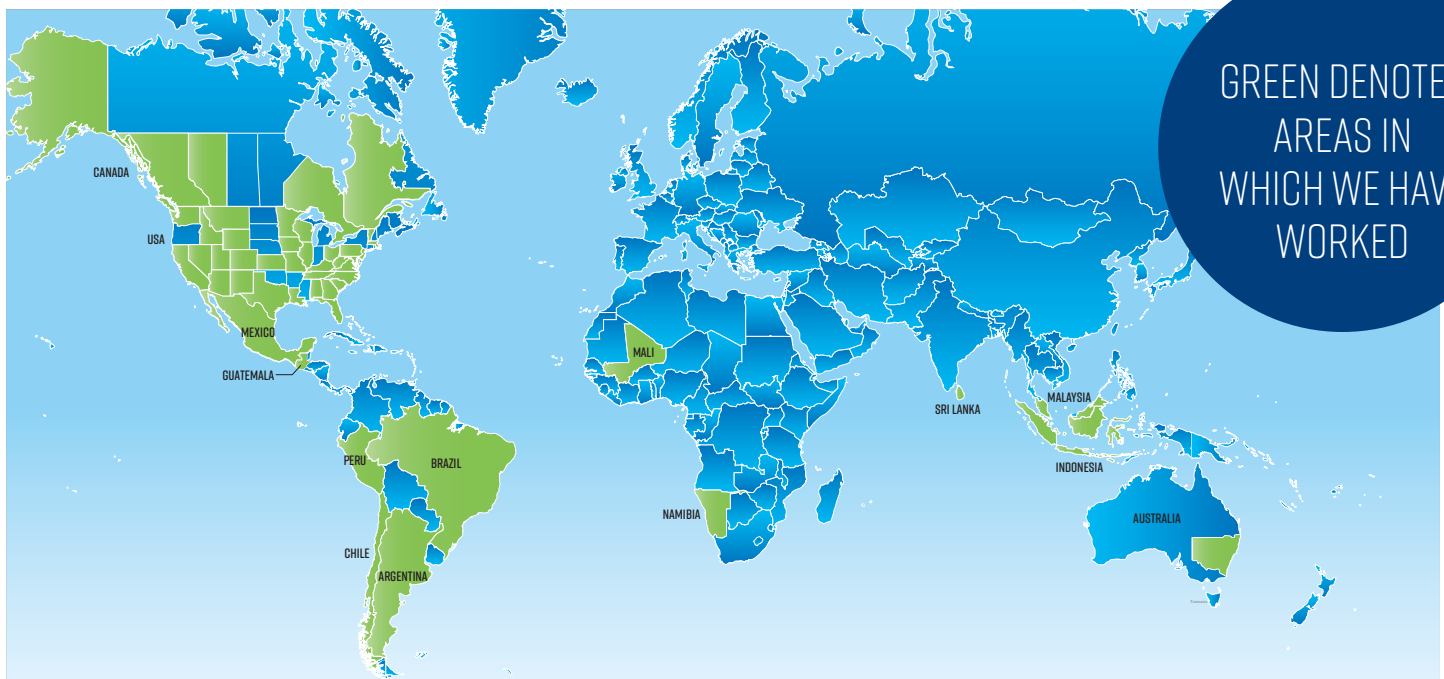
MINING

STATEMENT OF QUALIFICATIONS

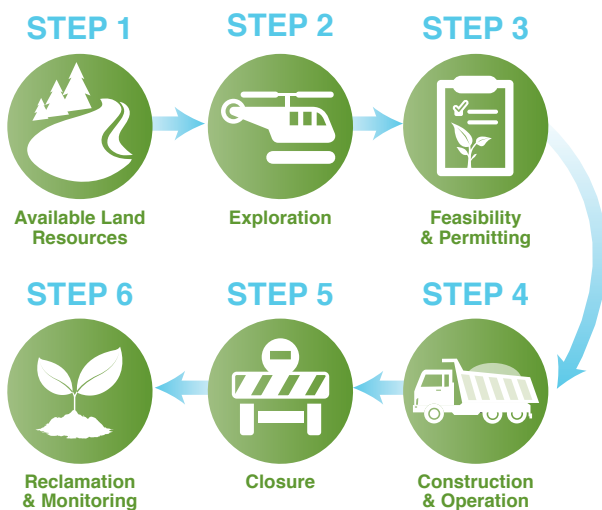


WHO IS GEOSYNTEC?

Geosyntec's consulting and engineering family of companies has more than 1,500 professionals in 80+ offices throughout North America, Asia, Australia, and Europe. We've brought high-value services, first-to-field deployment of emerging technologies, and innovative solutions to our private and public sector clients since 1983.



Stages of a Mine Development



Geosyntec has provided technical services to the mining industry for decades. We are familiar with the unique challenges faced by the extractive industry and understand the critical decisions associated with addressing environmental and engineering issues throughout a mine's life cycle stages.

Our Mining Services Team includes sustainability, geotechnical, water resource, and mining engineers and scientists, including geologists, biologists, geochemists, permitting specialists, hydrodynamic modellers, and more. We have the technical specialties required to meet your project needs each step of the way. We assist our mining clients to solve complex environmental and engineering challenges, that ultimately reduce life-cycle cost, improve environmental performance, reduce long-term environmental liability, simplify mine closure efforts, and maximise post-mine land use and conversion. We understand the complex market drivers associated with the mining industry, including market value, government regulations, the need for innovative technology advances, and the importance of Corporate Social Responsibility and Social Governance.

GEOSYNTEC IN MINING

Exploration, Feasibility, Risk Assessment, and Cost Estimating

Using nationwide and local experience and resources, and in collaboration with our clients, we deliver strategic solutions.

Exploration

Services include:

- Geological mapping
- Geophysical surveys
- Geochemical sampling
- Integration, visualization, and interpretation of data sets
- Drill testing, sampling, and assaying
- 3D modeling & resource estimation engineering studies
- Preliminary economic assessments and environmental impact statements

Scoping Studies

Scoping studies are the initial step in evaluating the viability of a mining project. Geosyntec will develop conceptual designs for mining, processing, and associated infrastructure to estimate a project's value and potential to carry forward.



Feasibility Studies

The feasibility study includes further refinement of the technical approach, environmental issues and mitigation strategies, including cost estimates and schedule development.

Geosyntec offers the following services throughout the feasibility process:

- Environmental and social impact assessments
- Conceptual through detailed engineering
- Infrastructure (rail, access roads, ports, loadouts)
- Power production and distribution
- Tailings and water management
- Project scheduling
- Order-of-Magnitude cost estimation
- CAPEX & OPEX estimation



Pre-feasibility Studies

Pre-feasibility studies are the intermediate step in evaluating a given resource and project development. The study is primarily focused on the mining and milling extraction methods, process, environmental and permitting requirements, and estimated capital/operating costs and schedule associated with an expansion, green-field, and/or brownfield development project. During this phase of the feasibility evaluation, geotechnical engineering design evaluations for overburden storage, mine design, tailings storage facilities, and associated infrastructure is included.





Environmental Assessment, Investigation, Monitoring, and Permitting

Our engineers and scientists provide regulatory compliance and permitting for development, operation, closure, reclamation, and conversion for our mining clients. Services include:

- Water quality regulatory support and permit negotiation, specializing in metals compliance and evaluations
- Environmental compliance, health, safety and sustainability management systems
- Air quality management, permitting, and pollution Control
- Non-hazardous mining waste injection permitting & industrial wastewater injection and discharge permitting
- Hazard ranking and agency support under varying jurisdictions
- State and federal mine operation and reclamation permitting



We collaborate with our mining clients to develop permitting strategies, time frames, and information requirements necessary for development, operation and post-closure planning. We recognize the constantly changing environment in which our mining clients operate, from changes in regulatory requirements to the social and political issues affecting mine operations and exploration. We've successfully obtained permits in unique and challenging situations, all in part to our relationships with permitting agencies, their requirements, and meeting expectations with relevant and appropriate supporting documentation.

Our other services include the following key areas of environmental policy compliance:

- Permitting
- Biophysical and social baseline surveys
- Environmental Assessment
- Environmental Impact Study
- Health and social impact assessments
- Cultural heritage advice
- Field Investigation (Drilling, Test Pit, CPT's)
- Geophysics Investigation
- Surface/groundwater investigations
- Instrumentation Installation

- Air quality assessment and dust mitigation
- Migratory Bird Assessment
- Noise/acoustics analyses
- Acid rock drainage and metal leaching studies
- Tailings and waste rock storage and management
- Water balance and water management/treatment
- Environmental monitoring
- Community and stakeholder involvement
- Corporate social responsibility and sustainability
- Environmental Impact Study
- Health and social impact assessments
- Cultural heritage advice
- Field Investigation (Drilling, Test Pit, CPT's)
- Geophysics Investigation
- Surface/groundwater investigations
- Instrumentation Installation
- Air quality assessment and dust mitigation
- Migratory Bird Assessment
- Noise/acoustics analyses
- Acid rock drainage and metal leaching studies
- Tailings and waste rock storage and management
- Water balance and water management/treatment
- Environmental monitoring
- Community and stakeholder involvement
- Corporate social responsibility and sustainability

ESG/Sustainability

We will work with our mining clients to evaluate their capabilities, and operations and help create a positive economic, social, and environmental impact for long term profitable growth. To do so, we offer the following services:

- Environmental social governance
- Materiality assessments
- Sustainability planning and reporting



Engineering Design

Facilities

A typical project generally includes the following:

- General Arrangement Planning
- Process Flow Diagrams
- P&I Diagrams
- Equipment Specifications
- Concrete and Structural Design
- Electrical Design
- Mechanical Design

Infrastructure

Infrastructure is a major cost component of any mining project. Mine site facilities must be carefully planned and designed, incorporating operational sustainability to achieve a return on capital throughout the project life cycle. Geosyntec has experience in the following areas:

- Haul Road & Roadway Design
- Rail Lines and Spurs
- Overland Conveyance Systems
- Shipping Facilities
- Air Strips

Water and Waste Water

One of the critical challenges facing the mining industry is the need for sustainable water development and management. Our approach in addressing these challenges focuses on providing our mining clients cost-effective solutions, while utilizing the technologies to maximize production and safety. Our services include:

- Groundwater, surface water, and water balance modelling
- Water Management
- Water Sustainability Reviews & Pre-design Optimization Studies
- Compliance and Permitting
- Mine process design and water treatment strategies
- Water Quality Evaluation & Analysis
- Water treatment and innovative solutions (biological and physicochemical treatment)
- In-house treatability testing
- Groundwater Quality Evaluation & Assessment
- Water Supply Investigations & Design
- Watershed Hydrology Analysis
- Stormwater / Surface Water Erosion Control, Conveyance, & Diversion Design
- Flood & Breach Analysis
- Inundation Studies and Hazard Potential Classification
- Tailing Delivery System Design
- Decant Pump-back Design
- Pipeline Design and Analysis
- Leach Irrigation Design



Geotechnical and Geological

Geosyntec provides a full range of geotechnical services. Our team members provide project specific services including:

- Soil/Mine Waste Characterization
- Mine Planning
- Pit-slope Stability
- Tailing Storage Facility Design
- Heap Leach & Waste Rock Pile Design
- Geohazard studies and mitigation design
- Probabilistic Seismic Hazard Analysis
- Site Response and Liquefaction Triggering
- Deformation Analysis
- Seepage Analysis
- Groundwater Flow
- Slope and Highwall Stability Evaluation
- Settlement/Consolidation Analysis
- Geosynthetic Design and Analysis
- Column Testing
- Foundation Design
- Threshold Analysis
- Emergency Action Plan
- Operations & Maintenance Plan
- Dam safety reviews (in accordance to CDA/MAC guidelines)





Operations, Construction, Procurement, Oversight, and Management

Geosyntec provides the technical support and resources needed for infrastructure planning, engineering, and construction services.



Material Handling

Material handling is an important aspect of mining. Our services include:

- Ore Receiving
- Concentrate Dewatering
- Conveyance Systems
- Train Loading/Unloading
- Ports and Shipping Facilities
- Concentrate Slurry Pipelines
- Concentrate Storage and Loadout
- Truck and Shovel Transportation
- Shipping and Barges
- Port Infrastructure
- Reagent & Materials Handling

Construction

While most of the work we do is related to Construction Quality Assurance and Quality Control, we are sometimes asked to perform Construction Management activities for our mining clients. Such services are most often performed on a direct-hire basis or within the framework of a construction management contract, and may include:

- Procurement/Logistics
- Construction Management
- Construction Oversight
- Owner's Representative
- Construction QA/QC
- Safety/Task Training and Supervision
- Field Planning and Scheduling
- Contract Administration
- Cost Control
- Commissioning, start-up, and testing





Mine Closure Planning, Decommissioning, and Reclamation

Geosyntec offers post-closure planning, construction closure, decommissioning, and reclamation. Services for a successful closure include:

- Containment design and implementation
- Stormwater & mine water management
- Social responsibility and sustainable development
- Regulatory compliance and permitting support
- Natural resource management and restoration
- Mine closure planning and cost estimate



Demolition

As part of mine closure, mine facilities and equipment are decommissioned and/or removed during the demolition process. Geosyntec aims to provide safe, expeditious, clean, and economical methods of demolition, decommissioning and removal of facilities and equipment.

- Asset recovery
- Asbestos abatement
- Waste management
- Dismantling
- Construction management
- Decontamination
- Radiological surveys
- Landfill construction
- Decommissioning

WE UNDERSTAND THE CRITICAL DECISIONS ASSOCIATED WITH ADDRESSING ENVIRONMENTAL AND ENGINEERING ISSUES THROUGHOUT A MINE'S LIFE CYCLE STAGES.

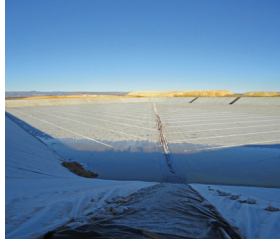
Closure and Reclamation

Geosyntec's approach to closure and reclamation is to develop solutions that apply best practices. This includes baseline characterization through reclamation planning, and site reclamation through complete bond release.

We work with our mining clients to develop and implement environmentally sound and economically feasible plans for closure. The services we perform include:

- Baseline Characterization
- Reclamation Planning
- Environmental Auditing
- Water/Wastewater Management
- Mine Dewatering
- Closure Design
- Waste Storage Facility Management
- Landfill/Repository Design
- Cover/liner design for containment and ground improvement (Clay/Geosynthetic)
- Vegetation/Revegetation
- Treatability Studies
- Biotreatment
- Reclamation Construction Oversight

We are
engineers, scientists
and innovators.



Geosyntec Consultants is a consulting firm with engineers, geologists, environmental scientists, and other technical and project staff based in offices throughout North America, and at select locations in Australia, Ireland and the United Kingdom. We address new ventures and complex problems involving our environment, natural resources, and civil infrastructure.

Geosyntec 
consultants

engineers | scientists | innovators

Offices in North America and Select International Locations

geosyntec.com