




AXIOM GROUP

# Environmental Capabilities







We're an innovative team of technical experts, combining extensive industry knowledge with cutting-edge environmental and engineering solutions.

Providing professional services for environment, ESG, and Indigenous inclusion needs to help clients succeed in their projects.

Delivering leading-edge products and services across commercial, mining, and industrial sectors.

Championing economic development while prioritizing environmental protection and Traditional Knowledge.

Fostering meaningful, long-term relationships with both customers and Indigenous communities throughout Canada.



# Innovating Environmental Solutions

A collaboration of Indigenous knowledge and technical expertise delivering environmental services for mineral exploration and resource development in First Nations and other communities.

Our expertise spans:

- » Environmental Monitoring & Reporting
- » Environmental Impact Assessments (EIA)
- » Permitting & Regulatory Compliance
- » Reclamation & Restoration
- » Sustainability Strategies & Risk Management
- » Aquatic, Terrestrial & Hydrology Services
- » Heritage/Archaeological Studies
- » Community-Based Environmental Programs
- » ESG Strategies & Services



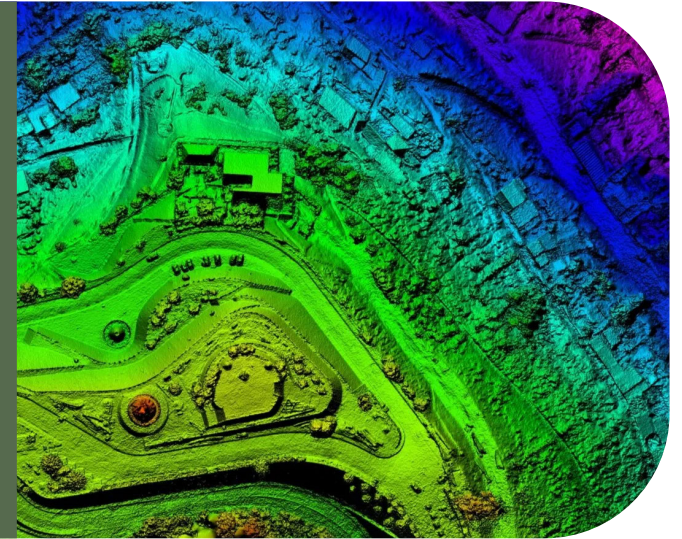
# Cutting-edge Environmental Technologies

Utilizing cutting-edge technologies and a dedicated team of environmental experts, we deliver innovative, sustainable solutions.



## Satellite & Spectral Analysis

Remote monitoring for vegetation, water, and land subsidence.



## EM-31 Electromagnetic Surveys

Ground conductivity mapping for environmental assessments, groundwater exploration, and contamination detection.







### **Loupe (TDEM)**

Advanced time-domain electromagnetic surveys for shallow subsurface conductivity mapping.



### **Ground Penetrating Radar (GPR)**

Non-invasive subsurface investigation for water resources, buried objects, and geological mapping.



### **Xcite<sup>TM</sup> TDEM**

Helicopter-borne time-domain electromagnetic (TDEM) system for high-resolution subsurface mapping. Ideal for aquifers, groundwater recharge, and environmental assessments.

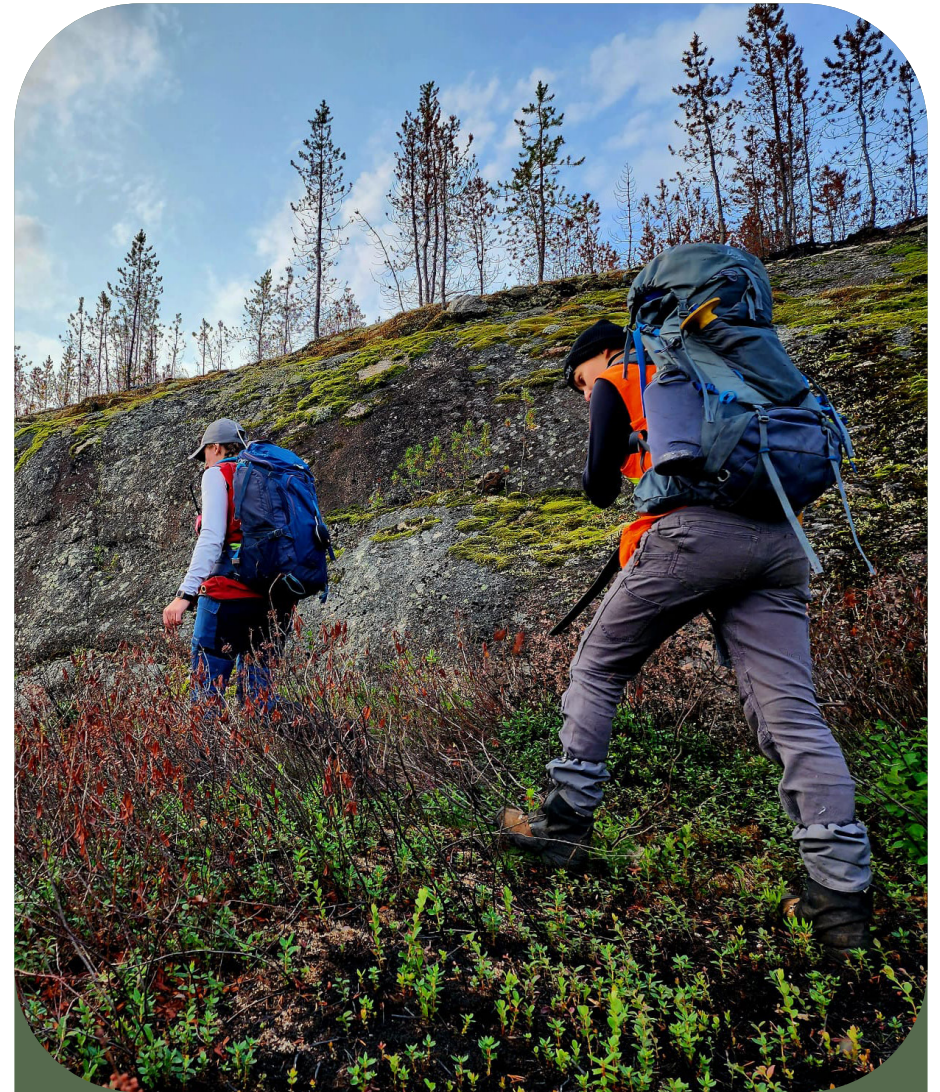




# Environmental Management & Reporting

Our multidisciplinary team ensures that your projects meet environmental, social, and economic sustainability standards through detailed scoping, analysis, and reporting services.

- » Comprehensive Reporting and Compliance Strategies
  - » Quarterly, Mid-year, Annual, Discharges and Discoveries
- » Permit Applications & Renewals
- » Regulatory Liaison & Compliance
- » Environmental Effects Monitoring
- » Emergency Response, Best Management Plan & Corrective Action Plans
- » Environmental Performance Monitoring & Reporting
- » Risk Assessment and Gap Analysis (Human Health, Ecological)
- » Environmental Protection & Mitigation Plan Development
- » Database Management, Geomatics Services & Biostatistical Services



See our Environmental Monitoring Program Case Study on **Page 10**



# Monitoring & Reclamation

Our reclamation services ensure a sustainable and eco-friendly return of lands to their natural states post-operation.

- » Reclamation Management
- » Air, Water, & Soil Quality Management
- » Sample Collection, Analysis, & Reporting
- » Environmental Site Evaluations
- » Pre-Disturbance Soil Surveys & Detailed Site Assessments
- » Habitat Classification & Assessment
- » Wetland Classification & Compensation Planning
- » Vegetation, Avian, and Rare Plant Surveys
- » Erosion Control & Reclamation Assessments
- » Environmental Monitoring Programs



See our Watershed Contingency Plan Case Study on **Page 11**

## Right of Way Monitoring

**Year:** 2022-2023 **Location:** Saskatchewan



CASE  
STUDY

### Scope:

We were engaged by an oil & gas client to identify invasive plant species on a portion of the client's pipeline right of way (ROW). The method used was the application of our proprietary Artificial Intelligence (AI) tool. The AI tool was trained to identify invasive species by combining multispectral imagery collected from a drone, identified invasive species using an invasive density score and species identification with precision GPS locations. The combination of multispectral data and field-collected identification trained the AI to deliver classified spectra, specific to invasive species at 5cm resolution.

### Key Deliverables:

- Collection of multispectral data.
- Identification and GPS marking of invasive species.
- Georeferenced orthophoto with 10 spectral bands.
- Machine learning classified spectra of invasive species for the ROW.

### Challenges Overcome:

- Identifying and accurately GPS marking invasive species in the field to get a precise size of the patch of invasive species.
- Creating a method of invasive species identification that can be integrated into an AI tool and is scalable for large scale linear projects.

### Outcome:

Our approach delivered machine learning classified spectra that can be used for the identification of invasive species. This tool helped the client engage with landowners, government, and maintain their vegetation control along their ROW.



# Aquatic & Terrestrial Environmental Services

We specialize in comprehensive aquatic and terrestrial environmental services, ensuring minimal environmental impacts on natural habitats.

## Aquatic Services Include:

- » Environmental Effects Monitoring (EEM) Programs
- » Limnological & Water Quality Monitoring
- » Sediment Quality Monitoring
- » Fish Health & Habitat Assessments
- » Aquatic Vegetation Mapping & Toxicological Studies
- » Fish Spawning Studies & Fish Relocation
- » Hydrogeological Source Aquifer Studies

## Terrestrial Services Include:

- » Habitat Classification & Wetland Compensation Planning
- » Avian, Amphibian, & Reptile Surveys
- » Species-at-Risk & Migratory Birds Expertise
- » Vegetation & Rare Plant Surveys
- » Environmental Site Evaluations & Monitoring
- » Wildlife Protection Plans



See our Moose Protection  
Plan Case Study on **Page 15**





# Hydrology & Risk Assessment

Our hydrology and risk assessment services provide essential support for environmental sustainability and risk management for both aquatic and terrestrial environments.

## Hydrology Services:

- » Stream Flow Analysis & Hydrometric Monitoring
- » Bathymetric Mapping & Plume Delineation Studies
- » Groundwater Monitoring & Stream Surveys
- » Predictive Water Quality Modelling

## Risk Assessment:

- » Human Health & Ecological Risk Assessments
- » Risk Communication & Stakeholder Engagement
- » Contaminated Sites & Brownfield Redevelopment
- » Development of Environmental Quality Guidelines
- » Expertise in Toxicity (Metals, PFAS, Radionuclides, etc.)



# Environmental Monitoring Program



CASE  
STUDY

**Year:** 2023-2024   **Location:** Northern Saskatchewan

## Scope:

We were engaged by a mining client to manage their environmental monitoring program (EMP). Their operation is currently in “care and maintenance,” and they are required to adhere to their approval to operate, set out by the Saskatchewan Ministry of Environment (SMOE). The EMP includes surface water and effluent sampling on a regulated schedule, creating and updating site governance documents quarterly reporting to the applicable regulatory agencies.

## Key Deliverables:

- Surface water and effluent monitoring adhering to the approval to operate and all applicable regulations (i.e., Metals and Diamond Mining Effluent Regulations, SEQG).
- Reporting findings to our client, federal and provincial governments on the required schedule.
- Creating and updating site governance documents.

## Challenges Overcome:

- The effluent is based on meltwater and precipitation and requires weekly, monthly, and quarterly tests. Scheduling with site personnel, laboratories, and field staff is a logistical challenge we mitigate to ensure compliance.
- Coordinating other technical and professional services to integrate into overall permit and regulatory compliance.

## Outcome:

The environmental monitoring program and proper permit management allows our mining client to maintain their status and good standing with the regulatory bodies. Our approach ensured that all required deliverables were submitted on time, that all aspects within the permit were obtained within the correct timeframes, our client is in good standing with regulatory agencies.







# Watershed Contingency Plan

**Year:** 2022 **Location:** British Columbia



CASE  
STUDY

## Scope:

We were engaged by a mining client to develop a comprehensive watershed contingency plan for an Exploration Project located near a sensitive watershed, near Burton, British Columbia. The scope included creating best management practices (BMPs) for water resource management, sediment and erosion control, and implementing a water quality and quantity monitoring plan for exploration activities.

## Key Deliverables:

- Developed a Watershed Contingency Plan compliant with BC's Health, Safety, and Reclamation Code.
- Created BMPs for sediment control, reclamation, hazardous materials management, and spill response.
- Designed and executed a tiered water monitoring plan, including baseline data collection and tiered contingency responses for water quality exceedances.

## Challenges Overcome:

- Managed exploration activities within a sensitive watershed while adhering to strict environmental regulations.
- Established a detailed response plan for potential water contamination or sediment migration, ensuring minimal impact on local water resources.

## Outcome:

The implementation of a comprehensive watershed contingency plan allowed our mining client to proceed with exploration in the watershed area while safeguarding local water sources and ensuring compliance with environmental standards. This comprehensive approach minimized risks to the watershed and provided a framework for continued monitoring and mitigation throughout the project.



# Heritage & Archaeological Services

Supporting sustainable development while preserving cultural heritage is at the core of our services, particularly for Indigenous communities.

Heritage/Archaeological Services:

- » Heritage Resource Impact Assessments (HRIA)
- » Mitigation & Monitoring of Cultural Resources
- » Traditional Land-Use Studies & Community Archaeology Programs
- » Cemetery Studies & Archival Research
- » Indigenous Knowledge Collection
- » Residential school anomaly identification



# Geomatics & Mapping Services

We provide high-quality geomatics and mapping services to support environmental and project management needs.

Services Include:

- » High-Quality Map Production using Industry-Standard Software
- » Spatial Data Creation & Analysis
- » Multispectral Imagery & Remote Sensing Analysis
- » Permit Application Support
- » Habitat Modelling & Bathymetric Mapping
- » Desktop Environmental Screening







# Community-Based Programs

We ensure that local communities are actively involved in environmental protection efforts, fostering long-term relationships and two-way capacity building.

Community Services Include:

- » Community-Based Environmental Monitoring Programs
- » Asset-based Community Research Development
- » Traditional Knowledge (TK) Studies
- » Socio-Economic Baseline Studies & Impact Assessments
- » Integration of Indigenous Knowledge with western science in community/environment and utilization of PAR methodologies
- » Environment Training for Indigenous Communities
- » Facilitating conversations between industry and community for mutual economic benefits
- » Development of plain-language communication materials

# Building Bridges for a Sustainable Tomorrow

We understand the critical role of Environmental, Social, and Governance (ESG) in exploration and mining. We simplify ESG initiatives, ensuring all stakeholders' needs are met and exceeded.

## What We Offer:

- » Materiality Assessments: Identify key ESG factors to prioritize impactful strategies.
- » Corporate Strategy Development: Create clear plans for governance, CSR, sustainability, and communication.
- » GHG Inventory, Tracking & Assessment: Manage Scope 1, 2, and 3 emissions with effective mitigation strategies.
- » ESG Platform Access: Real-time tracking and transparent reporting to enhance compliance.
- » Local Economy & Skill Development: Promote job creation and training programs to empower communities
- » Industry Indigenous awareness training

## Moose Protection Plan

**Year:** 2023-2024    **Location:** Manitoba



CASE  
STUDY

### Scope:

We were engaged by a mining client to develop a Moose Protection Plan near a Provincial Park in Manitoba. The plan addressed concerns from a local First Nation regarding moose populations in traditional hunting grounds and ensured regulatory compliance.

### Key Deliverables:

- Developed a comprehensive Moose Protection Plan with strategies to minimize project impact on moose habitat and traditional land use.
- Mapped 45 potential drill holes and created access plans to reduce environmental disturbance within the Boreal Shield Ecozone.
- Mitigation included minimizing habitat fragmentation, managing moose-vehicle collision risks, and seasonal deactivation of drill pads and access roads.

### Challenges Overcome:

- Addressed First Nation concerns about moose populations and hunting grounds.
- Navigated complex winter operations in sensitive wildlife areas while complying with federal and provincial regulations
- Minimized habitat disruption through coordination with local Indigenous communities.

### Outcome:

The Moose Protection Plan enabled exploration while mitigating environmental risks and addressing First Nation concerns. We ensured sustainable exploration practices that respected local wildlife and traditional knowledge.





Axiom Group  
Suite 101, 3239 Faithfull Ave  
Saskatoon, SK S7K 8H4

306-986-5716  
**axiomex.com**

