

# HARDROCK PROJECT CONCEPTUAL ARCHAEOLOGY AND HERITAGE RESOURCES MANAGEMENT PLAN



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April 2017



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## **1.0 INTRODUCTION AND ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN OVERVIEW**

Greenstone Gold Mines (GGM) is committed to minimizing environmental effects through the implementation of mitigation measures, monitoring and adaptive management for the Hardrock Project (the Project) within Environment Management and Monitoring Plans (EMMPs) for construction and operation. Through the EMMPs, the Project's environmental risks and opportunities are addressed in a comprehensive, systematic, planned and documented manner to meet the following objectives:

- The Project is carried out in compliance with existing legislation, consistent with Federal and Provincial guidelines, best practices and GGM corporate policies;
- Measures to mitigate environmental effects are documented;
- Benefits from the Project are enhanced; and
- Reporting is structured to inform adaptive management and continual improvement.

The EMMPs guide environmental management for the Project and are progressively developed as the Project moves through the EIS/EA, permitting, and construction, and updated based on continual improvement during operations through adaptive management.

EMMP development begins during the EIS/EA stage with the preparation of Conceptual Environmental Management Plans. These EMMPs are broad in their level of detail, commitment-based and focused on the construction and operation phases of the Project. They include input received from consultation during the Draft EIS/EA stage. The closure phase is addressed in the Conceptual Closure Plan. The level of detail in the EMMPs advance as the Project moves through more detailed engineering and planning and as permit/regulatory requirements are available.

### **1.1 Environmental Management and Monitoring Plans**

The Project's Environmental Management System, includes a comprehensive set of management and monitoring plans collectively referred to as Environmental Management and Monitoring Plans (EMMPs). The EMMPs outline environmental protection measures to mitigate potential environmental effects.

The EMMPs include:

- Water Management and Monitoring Plan;
- Conceptual Waste Rock Management Plan;
- Conceptual Emergency Response Plan;
- Conceptual Waste Management Plan;
- Conceptual Erosion and Sediment Control Plan;
- Conceptual Greenhouse Gas Management and Monitoring Plan;
- Conceptual Air Quality Management and Monitoring Plan;
- Conceptual Spill Prevention and Response Plan;

- Conceptual Soil Management Plan;
- Conceptual Noise and Vibration Management and Monitoring Plan;
- Conceptual Explosives and Blasting Management Plan;
- Conceptual Aquatic Management and Monitoring Plan;
- Conceptual Biodiversity Management and Monitoring Plan; and
- Conceptual Archaeology and Heritage Resource Management Plan.

These Plans are considered “living” documents and will be updated as needed in support of environmental management activities during future permitting, development and operation phases.

## **2.0 PROJECT SUMMARY**

Mining of the Hardrock deposit has been designed as an open pit. The process plant will operate 365 days per year with a Life of Mine (LOM) of approximately 15 years. The mill throughput ranges from 24,000 tonnes per day (tpd) for approximately the first two years of operation (i.e., Mill Phase 1), increasing to 30,000 tpd for the balance of operation (i.e., Mill Phase 2). The overall Project development schedule will consist of the following main phases, during which various Project activities will be completed:

- Construction: Years -3 to -1 with early ore stockpiling commencing after the first year of construction.
- Operation: Years 1 to 15, with the first year representing a partial year as the Project transitions from construction to operation.
- Closure:
  - Active Closure: Years 16 to 20, corresponding to the period when primary decommissioning and rehabilitation activities are carried out.
  - Post-Closure: Years 21 to 36, corresponding to a semi-passive period when the Project is monitored and the open pit is allowed to fill with water creating a pit lake.

The key components of the Project are as follows:

- open pit
- waste rock storage areas (WRSAs) (designated as WRSA A, WRSA B, WRSA C and WRSA D)
- topsoil and overburden storage areas
- ore stockpile
- crushing plants and mill feed ore storage area
- process plant
- tailings management facility (TMF)
- water management facilities for contact water including collection ditches and ponds

- power plant and associated infrastructure
- liquefied natural gas plant
- explosives facility
- buildings and supporting infrastructure
- water supply and associated infrastructure
- sewage treatment plant
- effluent treatment plant
- lighting and security
- site roads and parking areas
- watercourse crossings and habitat compensation/offsets
- Goldfield Creek diversion
- onsite pipelines
- fuel and hazardous materials
- aggregate sources
- temporary camp

Project activities include the relocation of existing infrastructure currently located within the PDA, including a portion of Highway 11, a Ministry of Transportation (MTO) Patrol Yard, and Hydro One Networks Inc. (Hydro One) facilities.

### **3.0 MANAGEMENT AND MONITORING PLAN PURPOSE**

#### **3.1 Purpose**

The purpose of the GGM Hardrock Project Conceptual Archaeology and Heritage Resource Management Plan is to ensure the protection of archaeological and cultural heritage resources that could potentially be affected by the project and where necessary, appropriate documentation, salvage and commemoration

#### **3.2 Performance Objectives**

Objectives and targets are established to drive continuous improvement in environmental performance and are consistent with the overall strategic goals of the Project. Objectives are measurable (where possible), monitored, communicated, and updated as appropriate.

In support of GGM's overarching environmental objective (to work to prevent or mitigate any environmental impacts, meet or exceed regulatory requirements and strive to continually improve our environmental practices and performance), GGM has established the following performance objectives for the Conceptual Archaeology and Heritage Resource Management Plan that considers key Project interactions and compliance obligations:

- Assess existing conditions for resource potential prior to development

- Compliance with applicable regulatory, permit and other archaeological and cultural resource management obligations;
- Implement buffer zones around documented/known archaeological and cultural resources as possible, and where these resources are affected/lost, complete appropriate documentation, salvage and commemoration
- Implement a 'chance find' procedure for undocumented/unknown archaeological and/or cultural heritage resources; and
- Provide appropriate respect and commemoration in coordination with Aboriginal communities and community stakeholders.

#### **4.0 SCOPE**

The scope of the Conceptual Archaeology and Heritage Resource Management Plan applies to the area of the Project that will undergo changes through construction and/or operation to accommodate the advancement of Project and associated monitoring. The Conceptual Archaeology and Heritage Resource Management Plan applies to the construction and operation phases of the Project with closure phase included in the Conceptual Closure Plan.

The Conceptual Archaeology and Heritage Resource Management Plan applies to individuals working for or on behalf of GGM, including employees and contractors, which have a role and/or accountability for the development, implementation and maintenance of this EMMP.

GGM will make reasonable efforts that suitably qualified (licenced where applicable) contractors are used for the transport of materials, supplies and waste materials, and that contractors have appropriate controls and management plans in place to reduce the likelihood of incidents during transport. Similarly, Project components under the management and maintenance by third parties are outside the scope of this EMMP. The scope of the Conceptual Archaeology and Heritage Resource Management Plan applies to Project infrastructure and management under the care and maintenance of GGM.

#### **5.0 PLANNING**

##### **5.1 Organizational Roles and Responsibilities**

All persons working for or on behalf of GGM, including employees and contractors, have a role in the successful implementation and maintenance of the Conceptual Archaeology and Heritage Resource Management Plan. Table 5-1 outlines roles and responsibilities for activities under this Plan:

**Table 5-1. Conceptual Roles and Responsibilities**

Role	Responsibility
Construction Manager (during Construction) / Mine Manager (all other Project phases)	Stop work and secure discovery areas should suspected historical, archaeological and cultural heritage resources be identified.
Site Environmental Manager	<p>Ensures discovery area remains protected until cleared. Reports to Construction Manager or General Manager to coordinate 'stop work'.</p> <p>Will contact Lead Field Archaeologist to make arrangements for further investigations. Maintains record of archaeological / cultural heritage resources which may be affected by Project development.</p> <p>Will contact Aboriginal Relations Manager and determine if additional external communication is needed</p> <p>In the case of finding remains/bones, the Site Environment Manager will contact the Coroner's office and OPP.</p>
Lead Field Archaeologist	<p>Primary responder to address archaeological and forensic concerns.</p> <p>Develops training for field crew to identify potential chance finds</p>
Assistant Field Archaeologist	Alternate responder to address archaeological and forensic concerns.
Aboriginal Relations Manager	<p>Maintains list of Aboriginal communities and contact person</p> <p>Contacts community representative(s) as determined by Site Environmental Manager in accordance with community communication protocols.</p>
Workers / Supervisors	Immediately report suspected historical, archaeological and cultural heritage resources to Site Environmental Manager

## 5.2 Compliance Obligations

The Conceptual Archaeology and Heritage Resource Management Plan is developed and implemented to comply with applicable legislative, regulatory, permit and other relevant obligations, outlined in the following sections.

### 5.2.1 Environmental Assessment Process Requirements

#### 5.2.1.1 Provincial Terms of Reference

As described in the Approved Terms of Reference, the EA includes a variety of environmental protection and management measures to guide the planning, design, construction, operation and closure of the Project (section 4.1.4) and identification of a monitoring framework related to compliance and effects monitoring (section 8.2).

### **5.2.1.2 Federal Environmental Impact Statement Guidelines**

The EIS Guidelines for the Hardrock Project include development and implementation of follow-up and monitoring programs (section 8.0). The follow-up program verifies the accuracy of the effects assessment and the effectiveness of the measures implemented to mitigate the adverse effects of the Project. The goal of a monitoring program is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of the Project and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety.

### **5.2.1.3 Draft EIS/EA Report**

Section 24 of the Draft EIS/EA includes a listing of proposed Follow-up Monitoring and Environmental Management Plans, which included a commitment to produce a Conceptual Archaeology and Resource Management Plan to outline the process of documentation concerning the unexpected discovery of additional archaeological resources or the unanticipated effect of historical/architectural resources.

Subsequent to the draft EIS/EA submission, comments were raised by several parties requesting additional clarification on the training to be provided to personnel, 'chance find' procedures, and consultation and involvement of Aboriginal communities in the documentation, salvage and commemorative measures. Available information has been incorporated to develop this Conceptual Archaeology and Heritage Resource Management.

## **5.2.2 Regulatory Requirements**

### **5.2.2.1 Federal Regulatory Requirements**

There are no applicable Federal regulations, however, guidance is provided by: Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under the *Canadian Environmental Assessment Act*, 2012 (CEA Agency, 2015)

### **5.2.2.2 Provincial Regulatory Requirements**

The *Ontario Heritage Act* and the 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011) apply for the management of archaeological resources. Further, the *Cemeteries Act* provides for measures associated with a burial site or artifacts associated with human remains.

Mitigation strategies are developed using the MTCS Ontario Heritage Tool Kit (Government of Ontario 2006).

### **5.2.2.3 Municipal Regulatory Requirements**

There are also municipal requirements outlined in the Municipality of Greenstone Official Plan and Cultural Plan. However, both the Official Plan and the Cultural Plan are informed by the existing Provincial frameworks listed in section 5.2.2.2.

## **6.0 SUPPORT**

### **6.1 Identification/Inventory of Resources**

Investigations carried out to date have identified several cultural heritage resources on properties that may be affected by the Project. These areas are typically associated with the McLeod and Hardrock townsites and, in general, are structures and landscapes more than 40 years old. The use of the forty-year threshold is generally accepted by both the federal and provincial authorities as a preliminary screening measure for cultural heritage value or interest (CHVI). This practice does not imply that all buildings and structures more than 40 years of age are inherently of CHVI, nor does it exclude exceptional examples constructed within the past 40 years. Aboriginal and Euro-Canadian resources were considered, and visible structures and landscapes were documented accordingly.

It is nonetheless possible that chance finds or deeply buried archaeological resources could be uncovered during the construction phase. If archaeological resources are encountered the responsive action is outlined in “chance find” procedure for notification of appropriate site personnel and securing the site.

Since all areas of archaeological potential in the PDA have been investigated prior to the construction phase and any additional archaeological resources (if they exist) will be documented during construction activities, it is not anticipated that any archaeological resources will be affected during the operation or closure phases.

### **6.2 Competence, Training and Awareness**

GGM requires that persons working under its management, including employees and contractors, have the knowledge, understanding, skills and abilities to complete work in a manner that protects the environment. The following actions will be established to provide worker competency, training and awareness.

#### **6.2.1 Identification of Archaeological Resources**

Archaeological resources are:

- objects, sites or the locations of a traditional societal practice that are of historical, cultural or archaeological significance to the Province of Ontario, a community or an Aboriginal people, including: locations containing, or with the potential to contain, the physical remains of past human activity;
- certain landscape features; and
- sites that contain evidence that an Aboriginal people have historically utilized an area.

These resources include but are not limited to: burial sites/graves, camp sites, sites of spiritual significance, and archaeological sites, along with aboriginal artifacts. To date, no archaeological resources have been identified that will be affected by the Project.

In order to be able to identify any potential archaeological resources in the course of Project activities, key construction and operations staff will be trained in:

- recognition of basic archaeological artifacts such as Aboriginal material culture (e.g., clay ceramics, lithic artifacts, and faunal remains);

- recognition of Euro-Canadian material culture (e.g., refined ceramics, glassware, construction debris, and personal effects);
- recognition of in-situ archaeological features such as tent rings or other camp site features; and
- overview of the history of potential and documented historical use and occupation of the area.

GGM will develop a training module to support the recognition of these items.

### **6.2.2 Identification of Cultural Heritage Resources**

As built heritage resources have been identified during the initial baseline study phase of the project, there is currently no specific training proposed for these features. The 'no work' buffer needed to protect the known resources would be included in training and awareness for key personnel.

## **6.3 Communication**

### **6.3.1 External Communication and Notification for Unexpected Archaeology Resources**

If a 'chance find' is determined to be human remains, the Field Archaeologist is required under *The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* first to notify the local police or coroner to rule out foul play. The Field Archaeologist will then contact the MTCS Registrar of Cemeteries to report the find. The Registrar of Cemeteries may choose to issue an Investigation Order (equivalent to a Stage 3 Site-Specific Archaeological Assessment) so that he/she can make a Declaration of the burial type and, in consultation with authorities determine whether the remains can be moved to a secure nearby location or should be left *in situ* and protected. Human remains that are discovered during the Project will at all times be treated with dignity and respect. Aboriginal communities will be kept informed and involved throughout the process should human remains be found.

The Site Environmental Manager (or Aboriginal Relations Manager or designate) will communicate with appropriate Aboriginal communities regarding unanticipated discoveries.

## **7.0 IMPLEMENTATION OF MITIGATION MEASURES**

### **7.1 General Approach**

Mitigation measures which are possible in accordance with the *Ontario Heritage Act* include:

- Avoidance of the area and establishment of an agreed upon buffer area; or
- Removal of the artifact(s) utilizing necessary scientific techniques by a qualified individual after appropriate investigation, with artifacts and site records appropriately protected.

Artifacts that require removal will be transferred to an appropriate facility identified in consultation with MTCS and local Aboriginal communities.

Mitigation strategies are actions that are taken to avoid or reduce impacts to archaeological or heritage resources of value or interest and includes:

- Avoidance and Buffer zones;
- Documentation and salvage; and
- Commemoration.

## **7.2 Avoidance and Buffer Zone**

### **7.2.1 Archeological Resources**

If an archaeological resource is discovered during the construction phase, construction will cease within a 20 m radius of the archaeological resource. Similarly, although it is anticipated that no archaeological resources will be uncovered during the operation phase (e.g., in areas of resource extraction or areas of tailings management), if archaeological resources are discovered, all operations will cease within a 20 m radius of the location.

If work needs to continue in the general area, barriers will be placed to cordon off the location of the potential heritage resource (unless physically constrained from doing so, by topography or infrastructure for example) using available materials (such as temporary fencing). Appropriate signage including person to contact for further information, will also be placed to prevent further disturbance until notification and further identification can be made.

GGM will contact MTCS prior to the implementation of procedures and mitigation as required under the OHA and the 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). A licensed archaeologist will be retained by GGM and a Stage 2 archaeological assessment will be conducted with the involvement of Aboriginal communities. Follow-up Stage 3 or Stage 4 archaeological investigations will be conducted as required by the OHA and the 2011 *Standards and Guidelines for Consultant Archaeologists*, as necessary. Construction will proceed once the archaeological or heritage resources of CHVI have been mitigated through the accepted option. If the item is found not to be an archaeological resource, barriers will be removed and proposed Project activities will continue with appropriate documentation of activities completed.

If human remains are encountered, GGM will stop work immediately and contact the police or coroner, Registrar or Deputy Registrar of the Cemeteries Regulation section of the Ontario Ministry of Government and Consumer Services, as well as the Archaeology Program Unit of the MTCS.

### **7.2.2 Architectural and/or Cultural Heritage Resources**

One identified architectural and/or historical resource, CHR 1 (the property located at 495 Hardrock Road) is owned by GGM and will remain in-situ. A buffer zone of 60 m will be implemented to isolate CHR 1 from Project activities during construction and operation to reduce the potential of disturbance. The 60 m construction buffer at CHR 1 will be noted on construction plans and communicated to the construction team leads. Site plan controls, such as flagging, will be used to prevent Project activity from occurring within the 60 m buffer zone.

If Project activities need to encroach upon the 60 m buffer zone, GGM will consult a qualified engineer prior to the recommencement of Project activities.

### 7.2.3 “Chance Find” Burial Sites

Since all areas of archaeological potential in the PDA will have been investigated prior to the construction phase and any chance finds or deeply buried archaeological resources (if they exist) will be documented during construction activities, it is not anticipated that any archaeological resources will be affected during the operation or closure phases.

With specific reference to burial sites/graves, GGM is committed to the preservation or otherwise management of any discovered burial sites in a respectful manner and in accordance with *Ontario Heritage Act* requirements:

*It is an offence under Sections 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been file in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 in the Ontario Heritage Act.*

*Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork in compliance with Section 48(1) of the Ontario Heritage Act.*

*The Cemeteries Act, R.S.O. 1990 c. C.4 and the Funeral, Burial and Cremation Services Act 2002, S.O. 2002, c.33 (when proclaimed in force) require that any persons discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.*

Bones discovered during construction and operation periods of the Project, will be assumed to be human and represent a human burial site, and will be afforded protection until determined to be otherwise (e.g. by a biologist). While a human skull is readily recognizable, other bones may need to be identified by an expert. Since skulls and long bones can be crushed and shattered by frost heaves or soil subsidence, it may not be possible to recognize even these more obvious human remains without expert assistance.

Work in the vicinity will stop immediately and the location will be cordoned off from further disturbance until investigations are completed. Where possible and to confer the appropriate level of respect, the location and nature of the find will be held in confidence by GGM personnel involved with the discovery, including Project staff and management.

### **7.3 Documentation and Salvage**

The salvage and preservation of any artifacts discovered during the construction, operation, decommissioning and post-closure periods of the Project will be in accordance with *Ontario Heritage Act* requirements.

#### **7.3.1 Archaeological Resources**

To date, no archaeological resources have been identified that will be affected by the Project. However, in the event of a “chance find”, any archaeological resources that require removal from the place where they are discovered will be transferred to a public institution selected through consultation with local Aboriginal communities, in consultation with the Ministry of Tourism, Culture and Sport. A Ministry of Tourism, Culture and Sport collection transfer form will be completed by the surrendering licensee and the institution accepting the materials. Collection shall be curated to current standards.

#### **7.3.2 Cultural Heritage Resources**

Detailed documentation and salvage will be undertaken where retention or relocation is not feasible, as is the case with Aboriginal and Euro-Canadian architectural and/or historical resources. Documentation creates a public record of the structure or structures, which provides researchers and the general public with a land use history, construction details, and photographic record of the resource. Through the selective salvage of identified heritage attributes and other materials, some of the CHVI of each property will be retained. The appropriate Aboriginal community to be contacted will be the community which identified the architectural and/or historical resource as reviewed in this VC chapter.

Documentation activities will be performed by a heritage professional with experience in historical documentation. A heritage professional familiar with Aboriginal historical background, material culture, and traditional knowledge, will document identified Aboriginal resources of cultural heritage value or interest. This person could be an MTCS-licensed archaeologist, a member of the Canadian Association of Heritage Professionals, or traditional knowledge facilitator, or an individual with a combination of the aforementioned qualifications. A heritage professional familiar with Euro-Canadian historical background and material culture will document identified Euro-Canadian resources of cultural heritage value or interest. This person will preferably be a member of the Canadian Association of Heritage Professionals.

Documentation will involve, as appropriate, creating photographic documentation, basic floor plans, and a site-specific history to make a historical record of the architectural and/or historical resources. The site-specific history may include the discussion of architectural styles and designs used in early 20<sup>th</sup> century mining communities, the relationship of the structure to a larger cultural heritage landscape, or the importance of the cultural heritage landscape within a larger context, dependent upon the nature of the architectural and/or historical resource being documented.

Any salvage of architectural and/or historical resources will be undertaken by a reputable salvage company. The determination of viable salvage materials will be made by the salvage company or selected charity. A record of salvage activities will be maintained and appended to the historical record.

#### **7.4 Commemoration**

Commemoration will be undertaken in order to create a record of past occupation and past mining activity, involving the associated architectural and/or historical resources. Any previously conducted documentation and salvage mitigation will form the basis for commemoration, potentially for either Aboriginal or Euro-Canadian resources.

All identified architectural and/or historical resources will be considered for commemoration, dependent upon Project-specific mitigation measures. GGM has signed a letter of intent developed with the Municipality to support their future plans with respect to these facilities. GGM also encourages the participation of interested Aboriginal communities and stakeholders during these discussions.

#### **7.5 Closure**

Mitigation and monitoring activities associated with decommissioning, reclamation and rehabilitation during the closure phase is presented in the Conceptual Closure Plan, however, no archaeology and heritage resources are anticipated during this phase.

### **8.0 MONITORING, EVALUATION AND REPORTING**

#### **8.1 Monitoring, Measurement, Analysis and Evaluation**

The purpose of the monitoring program is to evaluate and document if the Conceptual Archaeology and Heritage Resource Management Plan successfully achieves its performance objectives of appropriate protection of cultural heritage resources.

As archaeological and built heritage resources are fixed in location and were identified early in the environmental baseline investigation phase of the Project, there are not any anticipated ongoing follow-up monitoring requirements. It is expected that this Plan would be implemented on an as-needed basis should any previously unidentified archaeological or cultural heritage resources be discovered. Follow up monitoring associated with vibration effects and heritage resource stability is included in the Conceptual Noise and Vibration Management and Monitoring Plan.

#### **8.2 Reporting**

The form and frequency of follow-up reporting will be determined as the Project progresses through EA and permitting, however, it is anticipated that those elements relevant to the Conceptual Archaeology and Heritage Resource Management Plan will be assembled into a formal summary report and provided to interested parties on an annual basis during construction and operation and during closure in years when monitoring is carried out. The reporting will be used to inform adaptive management reviews. Receiving, documenting and responding to communication from external interested parties, including complaints, will also form part of reporting under this Plan.

### **8.3 Continual Improvement**

Adaptive management is a planned and systematic process for continuously improving environmental management practices by learning from their outcomes. Adaptive management provides the flexibility to address/accommodate new circumstances, to adjust monitoring, implement new mitigation measures or modify existing measures.

GGM will identify and correct incidents with appropriate and lasting measures aimed to prevent reoccurrence and/or similar occurrences. The Adaptive Management Framework (Figure 8-1), provides a formalized approach to:

- formally track and monitor activities;
- report and as needed investigate incidents, including non-conformance and non-compliance events;
- develop and implement corrective and preventive actions; and
- continue monitoring and update relevant EMMPs.

Corrective actions will be assigned as appropriate, including actions to prevent their reoccurrence. Corrective actions will vary according to the results of incident investigation and in consideration of other incidents related to the archaeology and heritage resources.

GGM is committed to the continual improvement of its environmental management and performance. As part of the GGM Adaptive Management Framework, the Conceptual Archaeology and Heritage Resource Management Plan will be assessed annually to verify implementation and the continued suitability, adequacy and effectiveness of the Plan. The review will identify elements of this EMMP in need of revision, and evaluate performance against established performance objectives.

Figure 8-2 presents the overall approach to developing and advancing the EMMPs from the final EIS/EA to the construction Phase of the Project. The first stage of EMMP development begins with preparation of Conceptual Environmental Management Plans as part of the final EA/EIS. These Conceptual EMMPs are commitment-based and broad in their level of detail. The EMMPs guide environmental management for the Project and are progressively developed as the Project moves through the EA/EIS, permitting, and construction, and updated based on continual improvement during operations through adaptive management.

## **9.0 REFERENCES**

*Ontario Heritage Act* and the 2011 Standards and Guidelines for Consultant Archaeologists  
(Government of Ontario 2011) - <https://www.ontario.ca/laws/statute/90o18>

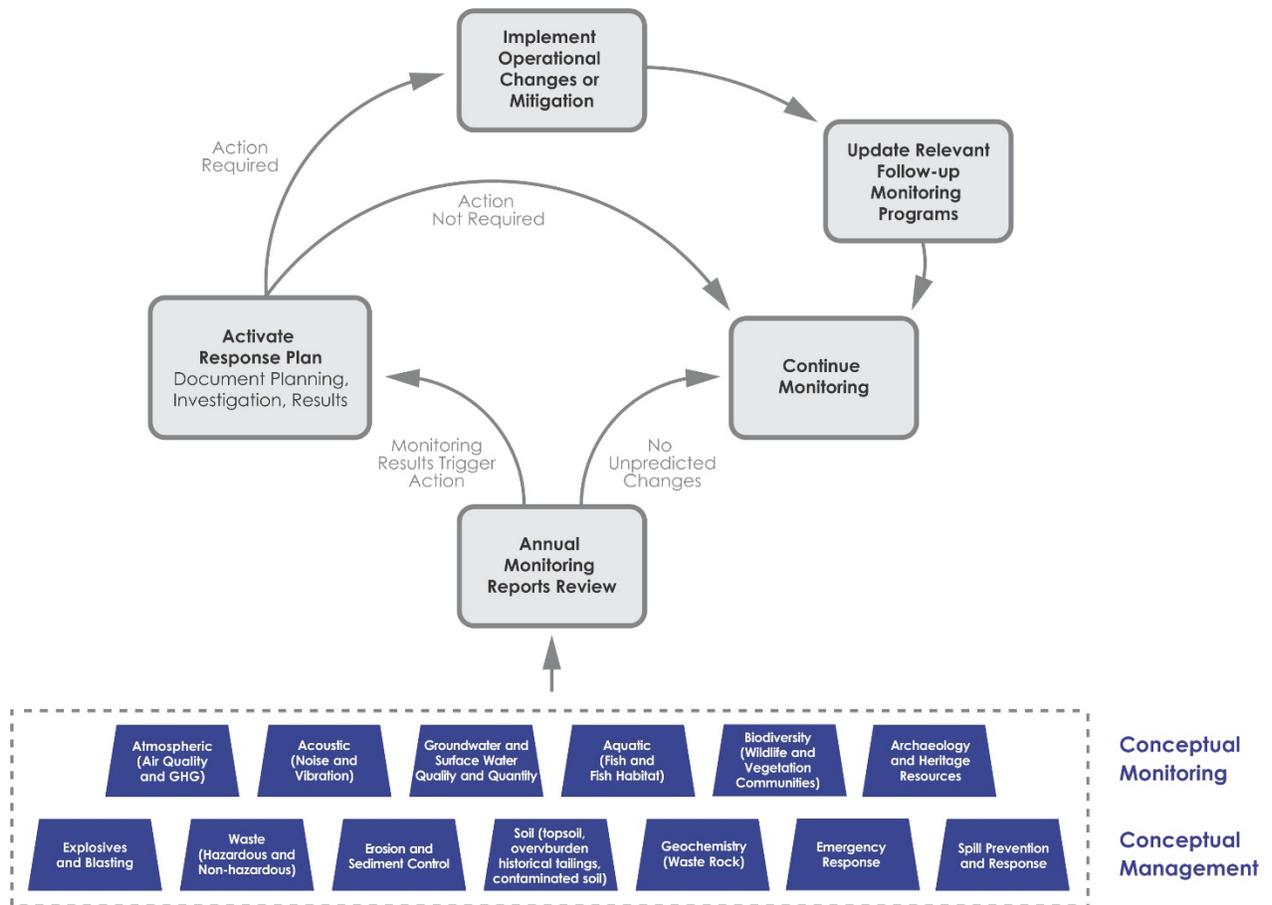
MTCS Ontario Heritage Tool Kit (Government of Ontario 2006). -  
[http://www.mtc.gov.on.ca/en/heritage/heritage\\_toolkit.shtml](http://www.mtc.gov.on.ca/en/heritage/heritage_toolkit.shtml)

**10.0 FIGURES**

Greenstone Gold Mines  
Hardrock Project

Conceptual Archaeology and Heritage Resource Management Plan

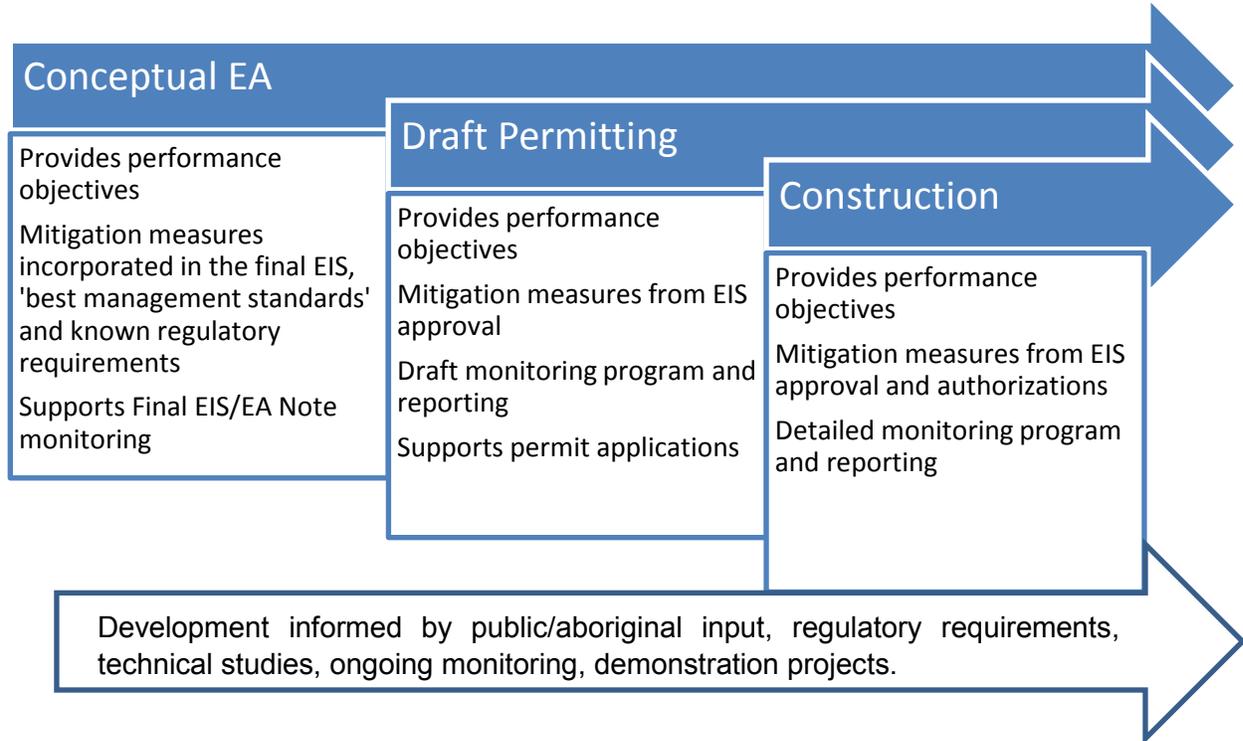
**Figure 8-1: Hardrock Project Adaptive Management Framework**



Greenstone Gold Mines  
Hardrock Project

Conceptual Archaeology and Heritage Resource Management Plan

**Figure 8-2: Environmental Management and Monitoring Plan Development EA to Construction**



Greenstone Gold Mines  
Hardrock Project

Conceptual Archaeology and Heritage Resource Management Plan