2013 Quarry Development Plan

Sabina Gold & Silver Corp.

Back River Property - Goose Project
Addendum to Quarry Management Plan

June 2013

1. INTRODUCTION

Sabina Gold & Silver Corp. (Sabina) is actively working in the Back River area under valid land use, mineral tenure and water permits.

A Quarry Management Plan has been established to outline development, operation and closure of approved borrow and rock quarry areas within the Goose and George properties. The purpose of this Plan is to ensure sound management of borrow and quarry material, explosives and water in order to minimize the impacts to the local environment during the life of a quarry. Implementing best management practices and working responsibly will ensure the protection of the environment and personnel safety.

The primary purpose of the borrow and rock quarries is to support development and operation of the all-weather airstrips, access roads and camp operations/enhancements at the Goose and George properties. The proposed borrow and rock quarry locations are located on Inuit Owned Lands as authorized by the Kitikmeot Inuit Association (KIA) with associated water management authorized by the Nunavut Water Board. The quarry areas are developed, inspected, maintained and closed by Sabina or contractors working under the direction of Sabina.

During the 2013 season (March 1 to May 15, 2013) approximately 40,000 m^3 of rock material was quarried from one area approximately 750 m west of Goose camp. The ROQ material was trucked over a winter road corridor from the quarry to crushing equipment located at the all-weather airstrip. The material was crushed 4 inch and ¾ inch aggregate. This material was used to build a pad and containment for bulk fuel tanks in Goose camp and to surface the all-weather airstrip and connecting road between the airstrip and Goose camp.

As an addendum to the Quarry Management Plan, this Quarry Development Plan has been developed to address:

- Geochemical and physical characterization of the proposed aggregate material sources;
- Surface drainage and water management procedures; and
- Closure and reclamation methods.

Figure 1Conceptual rock quarry outline as of January 4, 2013.

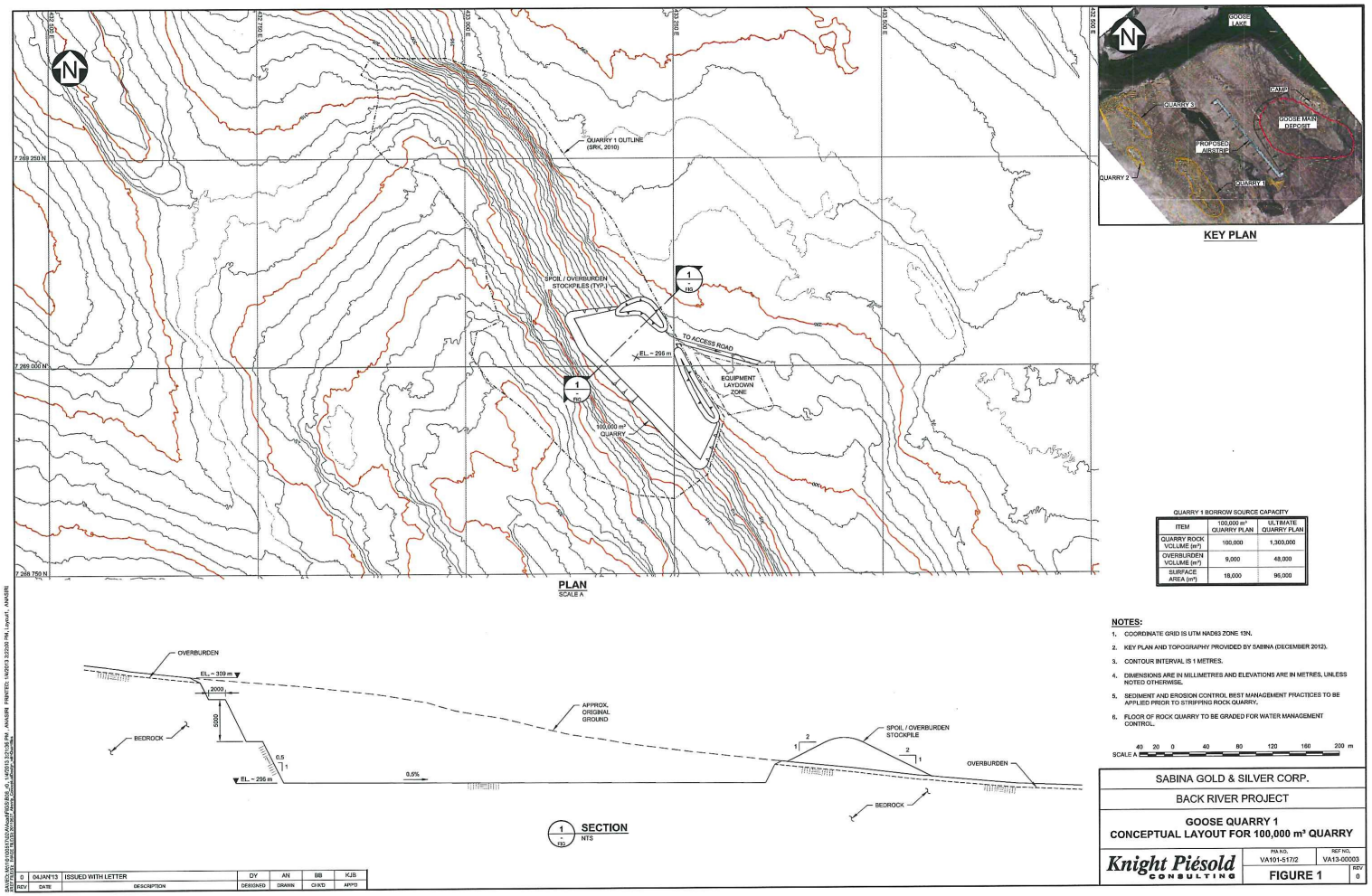

Figure 2a Location of the 2013 rock quarry as of May 15, 2013.

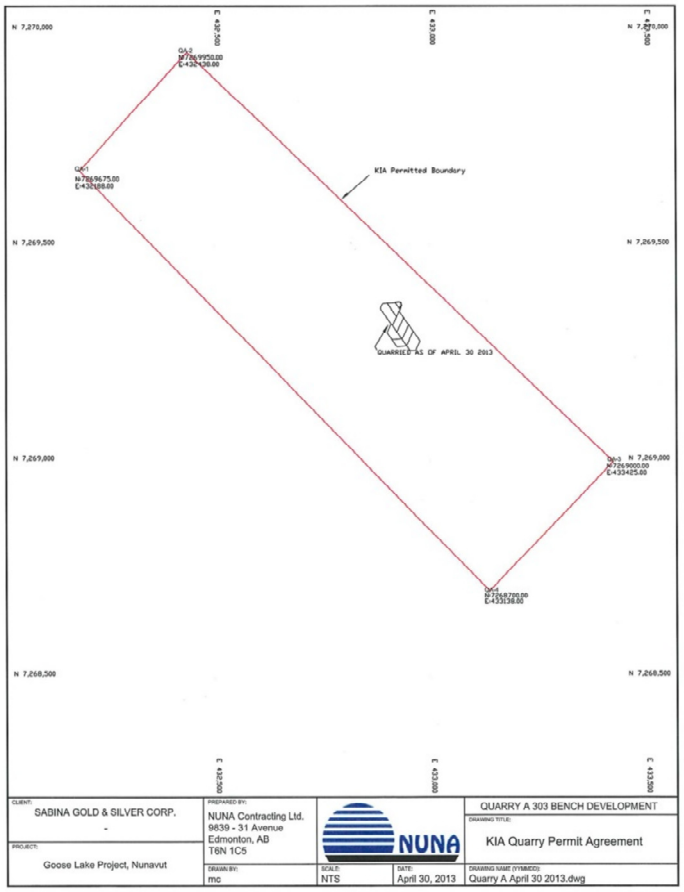

Figure 2b Photo of 2013 rock quarry (looking north to south) as of June 3, 2013

2. GEOCHEMICAL CHARACTERIZATION

Sabina has one quarry site at the Goose Project to support construction of the airstrip, connecting all weather road and camp pads. Geochemical and physical characterization for the Goose Project quarry was conducted by Rescan in 2011 and summarized in the following.

Based on MEND(2009) prediction manual, commonly applied Acid Base Accounting (ABA) screening criteria are:

SNPR <1: acid generating potential (PAG)
SNPR ≥ 1 and ≤ 2: uncertain acid generating potential (uPAG)
SNPR ≥ 2: no acid generating potential (nPAG)

The results of the ML/ARD 2011 characterization program indicate that the gabbro material is predominately nPAG and can be used as construction material. The greywacke unit has two samples (out of 22 samples) that indicate aPAG potential with the mean SNPR value for all the samples as being 15.8. This material would be suitable to use as construction material in conjunction with the gabbro as an incidental ARD generated by the greywacke could be neutralized by the gabbro.

Materials extracted during the 2013 quarry operations are predominantly sedimentary greywacke and intrusive gabbro with minor amounts of felsic dykes and iron formation. This material was not specifically sampled for inclusion in characterization programs, however, water quality monitoring as per Part J of the current water license and associated amendments, will be revised to incorporate stations to assess long term chemical stability of the construction material.

3. SURFACE DRAINAGE AND WATER MANAGEMENT

Surface drainage and water management procedures are implemented at the Goose Quarry. A vegetative buffer zone is established between the quarry operation, stockpile and construction areas and any local water bodies. Buffers are surveyed before any work can proceed.

The primary purposes of vegetative buffer zones are to:

- Reduce runoff by increasing stormwater infiltration into soil. Less runoff means less nutrients and other contaminants entering the water - excess nutrients are the primary cause of algal blooms and increased aquatic plant growth;
- Stabilize soils with plant root systems;
- Reduce channel bank erosion due to increase water velocity within the natural drainage systems; and
- Purify water with aquatic vegetation.

Additional management includes the grubbing of materials to expose rock surface for quarrying purposes. The principle concerns associated with grubbing and disposal of related debris are:

- Potential effects on water quality caused by erosion and sedimentation;
- Disturbance of the permafrost leading to ground failure (slumping and erosion).

All grubbing and disposal of related debris near watercourses comply with approvals from respective regulators. At a minimum, measures to be undertaken to minimize effects on aquatic habitat and resources are as follows:

- Grubbing of the organic vegetation mat and/or the upper soil horizons will be minimized, and left in place where possible due to the sensitivity of arctic soils;
- If needed, the organic vegetation mat and upper soil horizon material, which has been grubbed, will be spread in a manner that attempts to cover exposed areas. Any surplus of such material is stored or stockpiled for site rehabilitation and re-vegetation purposes elsewhere in the project area. Topsoil will be stockpiled separately from the overburden. The location of the stockpiles will be recorded and accessible for future rehabilitation purposes;
- During grubbing, care will be taken to ensure that grubbed material will not be pushed into areas which are to be left undisturbed.

Till stripped from the quarries is placed in an area close to the quarry that is unlikely to erode into any water bodies during spring thaw. Till can be used for building a berm around quarry as a means to prevent runoffs and snow melts into nearby natural drainage systems. If seepage through a berm wall is occurring, sediment control mats will be laid the foot of the berm wall to minimize transportation of fines into water courses.

The final quarry configuration will consist of a flat surface graded at approximately 1% in the down slope direction, adjoining a steeper angle rock surface that forms the transition to natural ground on the ridge above. Storm and snow melts water will be diverted away from the quarry by a small 0.5 m berm on the upslope edges of the excavation.

4. ABANDONMENT AND RECLAMATION

In the current Abandonment & Reclamation (A&R) Plan, final abandonment of the rock quarries is outlined under section 5.1.10.3 and states:

"5.1.10.3 Rock Quarries

The rock quarries, accessed to provide construction and maintenance material for the airstrip and connecting road, will be cleared of any debris and inspected for contamination. If contamination is evident, then procedures outlined in the Spill Contingency Plan will be applied to reclaim the impacted area. The application of peat/fertilizer to encourage revegetation may also be implemented in limited areas of the rock quarries."

When operations are complete, the overall reclamation objective for the quarry areas is to return the site to a natural condition that blends in with the existing topography and surrounding landscape. This objective is incorporated into the on-going review of the Goose Project Final A&R Plan. On-going operations and seasonal closure of quarry areas will focus on progressive reclamation measures to ensure the site:

- is secure to protect employees, the public and wildlife;
- has drainage and erosion control measures to minimize runoff to local waterways;
- is cleared of all material, equipment, debris, and hazardous/contaminated materials.

Sabina will continue a program of progressive reclamation at Back River Project and will include any quarry areas. Progressive restoration will be ongoing during exploration program thereby reducing the need for a full-scale restoration program at the closure of each exploration phase.

4.1 Progressive/temporary closure

Because the rock quarry areas are accessed on a seasonal, as-needed basis, operations will cease for a period time each year. In this case temporary closure activities will include:

- Removal of all garbage and debris;
- Removal of all temporary storages/structures/equipment; and
- Reclamation of access/winter road to ensure free flow of water during melt;
- Block access (if required) and flag boundaries.

These activities would be built into on-going exploration workplans and budgets and completed during normal camp operations. Also included in the annual closure of the quarry area will be monitoring of the following as outlined in the Quarry Management Plan:

- Water management and quality;
- Pit wall stability;
- Extent of permafrost or ground-ice.

4.2 Final closure

Final reclamation and closure of the quarry areas will be incorporated into the overall A&R Plan for the Goose Project with activities at the quarry locations including (but not limited to):

- Removal of all garbage and debris;
- Removal of all temporary storages/structures/equipment;
- Overburden replacement for site grading and re-contouring;
- Reclamation of natural drainage;
- Slope reconstruction;
- Reclamation of access road and block access (if required); and
- Replacement of all salvaged topsoil (if required).