CEMMATS GROUP LTD

MINE RECLAMATION AND CLOSURE PLAN (MRCP)

Prepared for

NIMINI MINING LIMITED

VOLUME 3 OF 4

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1.0 INTRODUCTION

1.1 Project Background

The Mine Reclamation and Closure Plan (MRCP) is an essential component of the Environmental and Social Impact Assessment for the mining of gold within the Nimini Mining Ltd. concession area.

To implement any mining activity, it is incumbent on the company, according to legislations and regulations of Sierra Leone, to carry out an Environmental and Social Impact Assessment in order to be granted permission to implement the project. It is explicitly stated in the Environment Protection Agency Act 2008 that any company intending to carry out any project as listed in the first schedule of the Act (this is a list that includes mining), should apply for a licence; if however the Agency decides that an impact assessment is necessary for such a project, then the licence would only be issued on approval of an impact assessment report by the Environment Protection Agency. It is for this reason that Nimini Mining Ltd contracted the expertise of CEMMATS Group Ltd.

This document constitutes the MRCP for the proposed mining activities in the Nimini Mining Ltd concession area acquired by Nimini Mining Ltd in two chiefdoms in Kono District in Sierra Leone, namely Njaiama Nimikoro and Njaiama Nimiyama.

1.2 Company Background

Nimini Mining Ltd is a private Sierra Leone company, which is a wholly-owned subsidiary of Nimini Holdings Ltd (BVI) which in turn is owned 90% by Polo Resources Ltd, an AIM and TSX listed company and 10% by Plinian Guernsey Ltd Nimini Mining Ltd concentrates on finding and developing mines in Sierra Leone.

The Nimini Mining Ltd. roject area is located in the Nimini West concession within the Nimini Hills in the Nimikoro and Nimiyama Chiefdoms, Kono District in the Eastern Province of Sierra Leone. Nimini

East and West licenses are located approximately 330 km or 6 hours' drive east of Freetown, the capital city of Sierra Leone.

1.3 Reclamation and Closure Plan

This report documents the Mine Reclamation and Closure Plan (MRCP) developed to outline the general closure and reclamation programmes for Nimini Mining Ltd.

Mine closure is an ongoing programme designed to restore physical, chemical and biological quality of areas disturbed by the mining to a level acceptable to all concerned. It must aim at leaving the area in such a way that rehabilitation does not become a burden to the society after the mining operation is over. It must also aim to create a self-sustained ecosystem. Mine closure comprises a continuous series of activities starting from the initiation of a mining project.

In planning for closure, there are four key objectives that must be considered:

(i) protect public health and safety;

(ii) alleviate environmental damage;

(iii) achieve a productive use of the land, or a return to close to its original condition or an acceptable alternative; and,

(iv) to the extent achievable, provide for sustainability of social and economic benefits resulting from mine development and operations.

Impacts that change conditions affecting these objectives are often considered under four groupings:

1. **Physical stability** - buildings, structures, workings, slopes, underground openings etc. must be stable so as to eliminate any hazard to the public health and safety or material erosion to the

terrestrial or aquatic receiving environment at concentrations that are harmful. Engineered structures must not deteriorate and fail.

2. **Geochemical stability** - minerals, metals and 'other' contaminants must be stable, that is, must not leach and/or migrate into the receiving environment at concentrations that are harmful. Weathering, oxidation and leaching processes must not transport contaminants, in excessive concentrations, into the environment. Surface waters and groundwater must be protected against adverse environmental impacts resulting from mining and processing activities.

3. **Land use** - the closed mine site should be rehabilitated to conditions that are compatible with the surrounding lands or achieve an agreed alternative productive land use. Generally the former requires the land to be aesthetically similar to the surroundings and capable of supporting a self-sustaining ecosystem typical of the area.

4. **Sustainable development** - elements of mine development that contribute to the sustainability of social and economic benefit, post mining, should be maintained and transferred to succeeding custodians.

In order to minimize the various impacts, risks and liabilities, it is necessary to anticipate, as early in the process as possible, potential future liabilities and risks, and to plan for their elimination or minimization. It is necessary to cover the cost of plan implementation, long term operations, monitoring and, to the extent which may be required, maintenance of the site post closure.

This plan includes descriptions of surface preparation, soil material placement, seeding and planting, soil amendments, and monitoring of revegetation success. Closure activities will be performed to stabilize the site. Closure of the mine will include efforts required to chemically stabilize the site, as well as physically stabilize ponds created, tailings dams, and removal of above ground structures (other than those which may be required by the community, such as offices), including processing facilities. Reclamation activities will be implemented to re-establish, where possible, a beneficial post-mining land use, which will consist primarily of agricultural lands. Reclamation activities will include regrading disturbed areas to provide topographic relief that blends with the surrounding areas and will include applying soil amendments, seed bed preparation, planting and performance monitoring. Where practical, closure and

reclamation activities will be performed concurrently with mining activities. Concurrent closure and reclamation will reduce reclamation costs at the end of the project as well as develop and improve reclamation techniques that can be continually improved over the life of the project to maximize revegetation success and productivity. Pressure on land resources and available farmland is often acute and leads to over utilization and degradation of the resource base in the area. Agricultural development is one of the main areas of investment under Nimini's Community Development Action Plan.

There are several other reports that allude to socio-economic development issues in the mining area that are important to the closure plan. It is recognised that these elements of mine development that contribute to the sustainability of social and economic benefit, post mining, should be maintained and transferred to succeeding custodians.

1.4 Objectives

The mine reclamation and closure program has as a major objective the conversion of mined lands to an income-generating end use. Following cessation of mine operations, disturbed areas will be stabilized and reclaimed to a number of alternative land uses that will provide income opportunities for local communities. These alternative land uses will include the establishment of trees or cash crops as is practical. The final land uses will be determined based on the agro-economic potential of the area and through public consultation programs. Post-mining land uses will draw from the investment in the Community Development Action Plan for agricultural intensification programs.

The MRCP is based on the following general objectives:

(i) Limit the area of land disturbance;
(ii) Progressively reclaim disturbed land when no longer needed to support the project;
(iii) Conduct project activities in ways aimed to reduce post-closure maintenance and monitoring;
(iv) Salvage buildings, equipment or materials for which an end use after closure of the mine has been identified and to remove those that have no valuable end use;
(v) Consult with local stakeholders to identify reclamation options which present opportunities for improved agricultural and natural resource values;

(vi) Where practical and possible restore disturbed land to conditions of similar agricultural value than before the project; and

(vii) Develop sustainable community development and income diversification programs during operations to mitigate the potential social and economic effects of the mine closure.

As the project advances, the plan will be revisited and refined to reflect changes in mine development, operating plans, environmental conditions, and public inputs. It is the responsibility of the appointed Safety, Health Environmental and Community Officer/Manager to oversee the effective implementation of reclamation programs, to evaluate the performance of the various reclamation initiatives, to improve reclamation procedures over time with an aim toward increased productivity, and to provide the required updates to the MRCP.

2.0 ENVIRONMENTAL AND SOCIAL ACTION PLAN

The Environmental and Social Action Plan (ESAP) defines the mitigation, management, monitoring, and institutional measures to eliminate, offset, or reduce the environmental and social impacts to acceptable levels. It defines specific actions that the mine will undertake to implement these measures and to document environmental and social performance of these measures. The MRCP, which is the subject of this report is intertwined with the other plans mentioned. A well implemented CDAP goes a long way to addressing many of the issues that will augur well for the community even after mining ceases.

3.0 NIMINI'S APPROACH TO ADDRESSING RECLAMATION AND CLOSURE ISSUES

Mine reclamation and closure issues need to be addressed continuously throughout the life of the mine. Nimini will address many of the socio-economic issues through its Community Development Action Plan. Such plans are not sacrosanct and would regularly need to be reviewed and revised accordingly. Nimini will review its CDAP to ensure that programmes undertaken will continue to benefit the community post mining. Ninimi will conduct its operations and design its facilities and closure plans in accordance with international industry best practice.

3.1 Community Development Action Plan

Nimini recognizes that a community development program is essential in ensuring that local communities do not become dependent on the mining economy, but rather have a sustainable economy following mine closure. Nimini will invest into improving infrastructure, education, health care, and other economic programs to promote sustainability. The CDAP presents the actions that will be undertaken to further community development opportunities in the area. An effective public consultation program is a key component to the CDAP. The CDAP identifies program initiatives, and considers key stakeholders as members of a steering committee to prioritize and implement those initiatives.

The CDAP also contains economic development and diversification initiatives. Mining inherently will take some agricultural land out of beneficial use that local residents currently use for agricultural purposes. Population growth is rapid in this region so even without Nimini, the growing population alone results in increasing competition for and pressure on the available agricultural land in the area. The land demands for the mining project therefore exacerbate an already significant land pressure issue and therefore this issue demands rigorous mitigation efforts in order to assure that the residual project impacts are reduced to acceptable levels.

3.2 Managing Economic Repercussions of closure of mine and manpower retrenchments

Manpower retrenchment and socio-economic repercussions of mine closure will be carefully considered in the closure plan. Due cognizance will be given to the following issues:

- Local residents employed in the mine and their reverting to alternative forms of employment;
- A fair and defensible severance package policy;
- The potential application of skills learned and applied during mining operations by employees and service providers in the local community to alternative uses after closure;
- Engagement of employees in the rehabilitation of the mining lease area and any other remnant activities; and
- Expectations of the community due to closure of mine.

Nimini will carry out consultations with local communities, local governance structures and Government on these issues.

3.3 Closure and reclamation methods

General closure and reclamation activities relevant to the Nimini Project are discussed in this section.

3.3.1 Facility Salvage, Demolition and Disposal

Buildings, equipment and infrastructure will be managed for closure after the mine closes down. The company clinic will be left in place and handed over to a competent local or government authority to manage. Offices and other such useful structures that are not moveable will be left in place for community use. Stakeholder input will be used to determine the final disposition of mine facilities.

Closure of the site will include the decommissioning, demolition and disposal of the plants and ancillary facilities. The process plant will be completely demolished and removed at the end of mining operations. In the case that the plant is not demolished, responsibility for its upkeep will be passed from Nimini to another party. This determination will be accomplished through stakeholder participation. Salvaging of equipment and facilities will be encouraged. Disposal of various plant components will follow the guidelines of the Waste Management Plan. Following disposal of the plant, the entire area will be ripped, graded to blend with the surrounding topography, and vegetated.

Following salvage, demolition and disposal activities, the area will be graded to create a natural final topographic relief. The only material to be included in regrading the mine facilities will be inert material such as concrete, stone, and brick used for foundations. Other materials will be taken to either to a Domestic Waste or Hazardous Waste Facility in accordance with the Waste Management Plan. Compacted surfaces will be ripped to relieve compaction and reduce surface run-off and sediment transport.

During facility closure, confirmation sampling and testing of the soils will be completed as needed to verify that areas have not been impacted by hydrocarbons or other potentially hazardous substances. In the case where hazardous substances are identified, the contaminated areas will be remediated in accordance with the Emergency Response and Contingency Plan.

3.3.2 Mined Areas and Other Areas Excavated

The mining operations will create water reservoirs. The process plant tailings dam and run-off ponds will be designed by the appropriate consultants in accordance with international industry best practice together with operating and closure codes of practice, conformance to which will be monitored by periodic audits. Once its operational life is complete, the tailings dam will be covered with plant growth medium. .

Mine waste dumps, by their nature, do not generally lend themselves to reclamation for agricultural use. They will be designed to the same standard as the tailings dams and sited such that, where possible, they blend with the local topography and allow for soil covering to establish a plant growth medium. The steep slopes of the tailings piles may present several revegetation challenges. Several specialized revegetation techniques may be required for these dumps.

3.3.3 Dam Safety

Water storage and other dams will again be constructed, operated and closed in accordance with international industry best practice. Nimini will be responsible for accomplishing dam safety inspections during operations, but must plan ahead for the period after mine closure.

3.3.4 Roads

The project will reclaim roads and trails as necessary having first consulted with the various stakeholders who may wish some of that access to remain. There are numerous roads throughout the mine area that allow access to mine operations and to local villages. Some essential roads will be repaired. However, existing roads that will not be needed can be reclaimed. The community's views will be sought on this issue. Many of the roads may be considered useful. Roads requiring closure will be ripped to remove compaction. Once ripped, roads will be regraded to blend with the local topography, limit erosion, and promote natural drainage. Culverts will be removed where necessary and the disturbed area regraded to allow for unobstructed drainage. Water bars, or small berms, will be built as needed along regraded road surfaces to reduce overland flow. The water bars will also allow flow away from the water bar toward a natural draw or channel.

3.3.5 Domestic and Hazardous Waste Facilities

The Domestic Waste Facility will include putrescible materials and non-degradable wastes generated throughout the area. These wastes may include paper, cardboard, plastic, rubber, and food refuse. The Domestic Waste Facility will include a compacted soil cover as part of final closure. The final closure of the Hazardous Waste Facility will also require a soil cover that will be vegetated and shaped to promote drainage of surface run-off. It is noted that the containment for hazardous waste will be within impermeable "vaults". These will be fully described in the Waste Management Plan.

3.3.6 Surface grading

Long-term site stability and limiting erosion potential can be achieved through site grading. Site grading will also reduce visual impacts of past mining activities by blending, to the extent practical,and possible the affected topography with the surrounding landscape. During grading, additional disturbance will be limited to the maximum extent practical. Sediment and erosion control measures will be implemented as part of the site grading work. In general, areas will be regraded to slope in the direction of the natural drainage. Slopes will be no steeper than 2.0H to 1.0V to reduce erosion potential and to maintain slope stability. Slopes will also be regraded to prevent ponding of water. Prevention of ponded water will be important to limiting potential mosquito breeding areas.

3.3.7 Sediment and erosion control

Limiting sediment contributions to downstream receiving waters, and establishment of site-wide erosion and sedimentation rates that are consistent with development of vegetation cover can be achieved by sediment and erosion control. At the Project site, both short-term and long-term sediment control techniques will be employed. Short-term sediment control will include implementation of a number of control techniques such as surface roughening, mulching, and installation of silt fences and rock filter barriers. The implementation of these practices will reduce erosion and sedimentation rates during vegetation establishment. These sediment control structures will require regular inspection and maintenance until vegetation becomes adequately established.

Long-term sediment control plans will establish drainage and flood control techniques that will be employed to prevent croplands from becoming inundated with water during the wet season. Where possible and practical, areas will be regraded to blend with existing topography, promote natural drainage, and reduce overland flow velocities. Diversion channels will be constructed to divert water around areas susceptible to erosion. Storm water controls that may be implemented for roads include water bars, slope reduction, and armoring areas susceptible to erosion.

3.3.8 Soil salvage and redistribution

Topsoil from areas such as borrow pits, spoil areas, and dam sites will be removed and stockpiled for later use in reclamation efforts. Nimini will develop a plan for topsoil recovery if the post mining plan will result in exposed tailings material. Several general guidelines will be followed for stockpiling soils. The height of stockpiles will be limited to the extent possible to reduce compaction and to maintain the integrity of soils. Soil material will be placed in vertical lifts to limit handling and degradation of soil structure. Soil handling should be limited to the extent practical when it is either too wet or too dry.

3.3.9 Domestic and Hazardous Waste Facilities

A soil cover will be used in the closure of the Domestic Waste and Hazardous Water Facilities. The cover helps limit water infiltration into these facilities. The Domestic and Hazardous Waste Facilities will include hydrologic control structures that mitigate the potential for erosion due to
stormwater run-on and run-off.

3.3.10 Seed Mixtures

The goal of the reclamation program is, where practical and possible, to reestablish disturbed lands to a productive, income generating post mining land use. As such, seed mixes will comprise domestic food items and cash crops based on stakeholder preferences. The use of native species in revegetation projects is generally preferred. Non-native species may also out-compete native species and thus inhibit the reestablishment of native plant communities.

3.3.11 Application of Fertilizers

Mineral fertilizers leach readily from soils and can inhibit the establishment of native plants and germination of leguminous species. Consequently, organic fertilizers will be used where possible in the place of mineral fertilizers. A number of organic fertilizers are available for soil amendment. Compost and manure can be used as organic fertilizer amendments. A composting program will be implemented as part of the Waste Management Plan. Compost is an excellent organic fertilizer that will be used to amend soils with poor nutrient quality. Numerous commercial organic fertilizer products are also now available and represent viable alternatives to using mineral fertilizers. Nimini will evaluate the results of the soil tests to determine the most suitable fertilizer treatments. Care will be taken so that areas are not over-fertilized because high rates of fertilizer application are expensive and encourage establishment of weedy species.

The Community Development Plan includes an alignment with national institutions to develop the abilities to test for the agronomic capability of soils and identify appropriate fertilizers for soil amendment.

4.0 MONITORING

The progress of the closure/reclamation effort will be monitored through a programme of closure and post-closure monitoring. The elements of the closure and post-closure monitoring programs will include the following:

- Confirm the long-term stability of reclaimed surfaces, highwalls and embankments;
- Evaluate the success of revegetated areas using ground cover, species diversity, and productivity (in reclaimed areas) as measurement tools;
- Assess the adequacy and performance of drainage structures and sediment control systems; and
- Demonstrate that water quality objectives are met.

Closure and post-closure monitoring and control programs will be conducted twice per year (dry and wet seasons) for a period of two years after closure has been completed. In the event that deficiencies in vegetation establishment are identified, appropriate mitigation measures will be taken to correct these deficiencies. Monitoring will include field reconnaissance during the first growing season to evaluate revegetation success. Monitoring will also be used to identify areas that may require supplemental irrigation or nutrients.

5.0 IMPLEMENTATION SCHEDULE AND COSTS

5.1 Reclamation Schedule

In general, reclamation will be carried out in tandem with the mining operation. As areas are no longer required to support the mine operations, they will be reclaimed. Concurrent reclamation will continue throughout the life of the project, as areas are no longer needed. Once mining operations are completed in an area, final closure and reclamation activities will begin. Upon completion of final closure and reclamation, areas will also be monitored for a two-year period to evaluate program performance.

5.2 Reclamation Costs

It should be noted that since Mine Reclamation and Closure is a progressive process throughout the life of the mine, many of the environmental, reclamation and social costs would be already integrated into the operating cost of the mine, especially for the Environmental and Community Development Department. It is also assumed that provision will be made for final severance payments.

6.0 UPDATE OF MINE RECLAMATION AND CLOSURE PLAN

The MRCP will be updated from time to time to reflect the current status of the reclamation programs and to better detail the plans and actions that are anticipated. The budget for the MRCP will be modified from time to time by the SHEC Officer.

7.0 PUBLIC INVOLVEMENT AND TRANSPARENCY

The public consultation process will provide local communities with an opportunity to become involved in the various stages of reclamation planning. Local communities will be consulted to determine post-mining land uses and will provide input on preferred crop species and training required to manage reclaimed areas over both the short- and long-term. Transparency of the environmental and social aspects of the Nimini Project is important in maintaining public confidence. The environmental management and social programmes should properly monitor and document activities and condition to determine how these activities are affecting employees, local communities, and the receiving environment. Nimini will proactively solicit input from local communities and other interested stakeholders through the effective implementation of its public consultation program. The Chief Operating Officer, in coordination with the SHEC Officer, is responsible for assessing the effectiveness of the overall environmental management and social programs.

The Public Consultation and Disclosure Plan (PCDP) is an important tool for disseminating information and demonstrating transparency to project stakeholders. The Plan defines how Nimini will collect and disseminate information with people who are interested and/or affected by the project. The PCDP establishes the basis for how Nimini will conduct its business with the community, and, if implemented as presented, will assure transparency in project activities as they may affect the health, safety, environmental, and social conditions. In addition, Nimini will prepare an annual report summarizing the results of its social and environmental programmes over the past year, and will present their tentative plans in these areas for the coming year. The report will disclose significant environmental and social incidents that occurred during the reporting period and will reconcile the performance of monitoring programs, compliance issues, and anything that may be considered important to understanding the activities and performance of these programs. This report will be distributed to government agencies,, and interested stakeholders. The general information contained in the annual report will also be articulated to the public through its annual public consultation meeting and its more frequent local village consultation program.