January 14, 2009

Mr. Tom Last, Planning Director
City of Grass Valley
125 E Main St.
Grass Valley, CA. 95945
(also sent via email)

Re: Idaho-Maryland Mine Project DEIR

Dear Mr. Last:

My Comments on IMMC DEIR Section 4.5, "Geology, Soils and Seismicity" are in this letter.

The "Technical Memorandum" prepared in 2008 by Geosolutions in Cedar Ridge, and included in the DEIR as Appendix E, raises a number of concerns and makes a number of recommendations which should properly be addressed in Section 4.5, but which are minimized and not adequately addressed there.

The technical memorandum raises three "Issues of Concern":

1) A need was identified for additional investigations of subsurface characteristics, to guide the "compatible development of the project."

Recommendations to address this concern:

a) Prior to issuance of grading permits, a detailed geotechnical subsurface investigation will be needed. The methods and information required in this investigation are described in detail on pp. 22-23, and include consideration of proposed septic systems.

b) An erosion control plan for each of the sites to the city and county, prior to issuing grading permits. The plan should include the stabilizing of unprotected areas during the rainy season and perhaps National Pollutant Discharge Elimination System (NPDES) Construction Activities.

c) Earlier in the Memorandum, it was also recommended that a soils engineering report be completed as part of designing the project grading plan, "to ensure that project designs are compatible with the engineering characteristics of underlying soils." (p. 11)

2) "Driving over existing dirt roads, trenching, grading, and other excavations could expose zones of asbestos-containing rock and possibly cause airborne release of fibrous minerals." Earlier in the report (p. 5), it was stated that "Both forms of asbestos are found in the serpentine rock common in the Sierra Nevada foothills, and specifically found around the Idaho-Maryland and Round Hole shaft sites." It also stated that ***"Amphibole schist is the primary rock type in which most of the Idaho Maryland ore body resides..." and that this type of asbestos, "...when disturbed, emits needle-like fibers that can be inhaled into lungs....[and] is more friable (easily crumbled or pulverized; fragile)" than the chrysotile type.***

Recommendations to address this concern:

a) Determing if asbestiform materials are present, and if so, submitting an Asbestos Hazard Dust Mitigation Plan to the County Public Works and Health Departments. Various mitigations re the minimization of the production of asbestos dust are listed, including: wetting the areas; minimizing vehicle access and speed; covering potentially toxic areas and materials with non-asbestos material; and upwind air monitoring; and

b) Cap serpentine road base with "Oil and Chip" or asphalt, prior to grading and construction.

3) "Development of the project would include minor grading over large areas of land that could result in ground instability and soil erosion."

Recommendations to address this concern:

The two recommendations for Issue of Concern #1 were reinforced, and a third regarding the need for a detailed investigation by an engineering geologist regarding the need for, and type of, actions to prevent subsidence in the area over the tunnel, if development is intended on the surface.

Other issues and recommendations in the memorandum include:

4) "Detailed analyses of materials to be backfilled underground should be performed by a qualified geochemist to ensure regulatory compliance of guidelines such as those outlined in CCR Title 23, Chapter 15, for discharging waste to lands."

The materials include both the mine tailings directly from the mine and the remnants of the materials that have been through the ore extraction process, which may include "chemical additives used in the milling/flotation processes," in a "waste stream" that will consist of "sand with minor rock fragments, minor concentrations of sulfides, and chemicals that may not be completely washed from the circuit." (p. 4)

The report also notes that "a complete characterization of these backfill materials will be required by the Central Valley Regional Water Quality Control Board (CVRWQCB) as a part of the implementation of the mine reclamation plan ***to prevent those materials from impacting the naturally occurring quality of area ground water."***

5) At the Idaho-Maryland site, the area where the proposed ceramics plant would be built has piles of waste rock up to 10 feet high, a slope of 25%, and is crossed by a ditch (p. 7). It also has cut slopes on the east side up to 30 feet high, some of which are nearly vertical.

The leaching and puddling that has occurred, and continue to occur on these piles of tailings, and the water draining from them is moving into the surrounding soil and nearby creek.

IMMC's plan to encapsulate these piles and build on them should be considered in relation to issue of concern #3.

According to the report, similar piles exist at the New Brunswick site, which is in a "valley created by the South Fork Wolf Creek drainage system," (p.9) and the Round Hole site which has slopes from 15 to 25%.

6) While the memorandum indicates that, although the "threat of damage to future improvements due to liquifaction," (soil getting saturated and shifting) appears to be minimal directly beneath the project

because the soils mostly lack the characteristics required for this to occur, they note that "Soils within the main drainage channels of Wolf Creek and South Fork Wolf Creek and its tributaries may be liquifiable given adequate seismic loading." So, this means that **any liquifaction that might occur would be in the creeks.** This a serious issue in terms of the impact on the creeks, as is the addition of the water from the mining and ceramics plant operation that will be pumped into the creek. How will that impact the stability of these creek beds, which are in "established floodplain areas" already?

7) The technical memorandum notes the presence of a tunnel that runs SE from the Old Brunswick shaft toward an area that included a deep ravine along the north side of Bennett Street. After explaining its reasoning, the memorandum warns that the area between the ravine and this old tunnel may be as little as 20 feet, and therefore "subsidence" (the sinking or shifting of the ground surface resulting from collapse of an underground mine) is possible, "particularly if structures will be located over this shaft or if the shaft is to be enlarged." It strongly recommends that "an engineering geologist should conduct a detailed investigation to determine the need for and type of appropriate actions..." This connects back to Issue of Concern #3 that was identified in the memorandum.

In other parts of the mine, the report indicates that subsidence should not be a problem if the excavated areas are backfilled right away. This raises the issue of developing, maintaining, and monitoring the schedule/rhythm of backfill activities.

8) On page 14, the memorandum states that "The 1975 Oroville earthquake on the Cleveland Hill faults suggests that faults within the Foothills Fault system may be active," although it has not been included in the Alquist-Priolo Earthquake Fault Zoning Act. The Morehouse Fault, one of the faults of this system, crosses under South Fork Wolf Creek. Other faults east of Grass Valley -- the Dog Valley Fault and the Northern and Western segments of the Tahoe Fault -- have experienced earthquakes measuring around 5.5 on the Richter scale. Both the Foothills Failt Zone and the Melones Fault Zone (north of Auburn), as well as three other faults located east of the Melones Fault Zone, are considered capable of generating a 6.5 magnitude earthquake. The report concludes by stating that "the site should be considered as being in a region with faults that are capable of producing maximum credible earthquakes up to a magnitude of 6.5 ..." and that "it is possible that a seismic event capable of shaking the ground surface may occur sometime during the expected life of the project."

Comments on matters which *are* directly addressed in Section 4.5:

On page 4.5-5, the statement is made "...significant amounts of gold exist at depth...along some sections of the vein system that were previously unexplored due to past economic reasons or access issues." This is an oversimplified and overly positive interpretation of the designation of the area as an MRZ-2b Mineral Resource Zone (MRZ) according to SMARA. The assignment of this designation means that "...significant **inferred** resources are present." This is different than MRZ-2a, that means … “in which significant measured or indicated resources are present.” So, IMMC has a MRZ-2b designation, but this line from this section seems to imply that its designation is the more favorable MRZ-2a.

The Nevada County General Plan Objective 17.1 balances the protection of "valuable mineral deposits" from land use that will impede or preclude extraction with the minimization of the impact of mining on "neighboring activities and the environment in general." (p. 4.5-14) Policies17.2 and 17.3 present the parameters regarding mining exploration, and imply that a Conditional Use Permit (CUP) is required for exploration related to the IM Mine, as well as a reclamation plan. It does not say

whether this project is compatible or incompatible with the county general plan, but those mines that are incompatible and receive a conditional use permit are not allowed to de-water or discharge water. Policy 17.24 indicates that all subsurface mines need a CUP. Policy 17.26 indicates that a mine with extensive surface plants (such as IMM would) will be treated by the County as a large surface mine.

The City of Grass Valley General Plan requires the city to develop a mine-related hazards program. Is this program in place?

The city also has a policy (Policy 6) that states, "Already existing development -- commercial, residential, and community -- as well as undeveloped private lands, should be protected from adverse environmental effects caused by mining through enforced use permit conditions and mitigation measures, or denial of projects."

Action 10 in the plan states, "The city shall require satisfactory and credible forms of accessible security from all mining projects to cover all damages which may occur from the project."

Impacts and Mitigations:

Significance criteria regarding geologic impacts are from CEQA and relate to the project's impact, not the impact on the project from geologic events that would subsequently impact the environment or people/structures. Therefore, many potential negative impacts were dismissed in the "Initial Study," and therefore considered to be too insignificant to address in the DEIR. It does note that soil erosion issues related to dewatering and discharge into Wolf Creek are addressed in 4.7.

p. 4.5.19 -- The assertion is made that the activities proposed in the Reclamation Plan to be implemented when the project is over, will improve the sites in terms of making them less susceptible to danger from geologic activity for the commercial or industrial uses for which it is identified.

Two "impacts" are identified:

1) Subsidence resulting from dewatering and mining activity could lead to surface-level cave-ins in more shallow mine workings; and

2) A combination of fill materials unsuitable to support structures and surface soils with low "bearing strength" could contribute to surface-level cave-ins or differential settling of buildings or other structures.

The first impact was found to be insignificant with mitigation; the second insignificant without mitigation.

Regarding the first impact, the Reclamation Plan proposes to cap the sites with concrete and backfill with "paste", which the DEIR report seems to imply will largely address the issue. The mitigation they propose is that:

a) IMM identify workings less that 70 feet deep;
b) IMM retain a licensed geotechnical engineer (per approval by the city) to perform a 3rd party evaluation of these places prior to the beginning of the project;
c) For places where this review determines that a subsidence hazard exists, IMM and the engineer will 1) develop corrective measures and 2) ensure that they are taken before project construction begins.

d) IMM submits a report to the City verifying that these measures have been successfully completed.

Recommendation:

The studies and reports and analyses referred to above shall all be completed and included in a revised DEIR which must then be recirculated for public review and comment. Without performing these studies the DEIR is deficient. It is not possible at the present time for city officials nor for the public to fully understand the impact of the project on the environment. If the applicant feels that performing these studies is not feasible then it should be explained why it is not feasible to perform these studies at this point in time.

Thank you for the chance to comment.

Barbara Messer
Nevada City, CA.