



PITEAU ASSOCIATES

GEOTECHNICAL AND
HYDROGEOLOGICAL CONSULTANTS

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Our file: 1388

February 26, 1995

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Mr. Richard Arndt, P.Eng.
Chief Engineer
Anvil Range Mining Corporation
P.O. Bag 2000
Faro, Y.T.
Y0B 1K0

Dear Mr. Arndt:

Re: Geotechnical Assessments for Grum Pit

As per our telephone conversation, Piteau Associates Engineering Ltd. would be pleased to assist Anvil Range Mining Corporation with geotechnical assessments related to slope design for the Grum Pit. Piteau Associates' involvement with the Grum Pit extends back to 1987, when we were asked to comment on existing data and on proposed geotechnical, hydrogeological and hydrological programs that were being considered at the time. Since then, and up until 1992, our involvement with geotechnical aspects of this pit has focused on occasional reviews of proposed mining plans. No detailed geotechnical investigations or assessments have been conducted. As you are aware, we also provided geotechnical assistance to the previous mine operators (i.e. Curragh and Cyprus Anvil) with pit slope design and operating guidelines for both the Faro and Vangorda Pits,

Based on our conversation, it is understood that there are presently about four or five benches exposed in bedrock on the north side of the pit and about three or four benches excavated in bedrock on the east side of the pit. It is also understood that the pit plan that you are presently utilizing is essentially the same as that proposed by Mr. I. Vintila in 1988, which incorporates a phased approach to mining the pit, wherein the initial pit walls are interim walls, with the ultimate slopes being developed during later stages of pit development. While the ultimate aim of geotechnical studies would be to develop slope design recommendations based on rational pit slope design criteria that are derived from geologic structural and other considerations, it is our understanding that the aim of the initial studies would be to develop a working plan based on which more detailed studies would be conducted.

PROPOSED SCOPE OF WORK

The initial work would be conducted in two parts. The first portion would consist of a brief site visit to review available information and meet with mine personnel. In this regard, Mr. A. Stewart would visit the site for two to three days to review the geology in the exposed interim pit walls and to review available geologic maps, cross-sections, level plans, etc. The exposed benches would also be documented to evaluate their performance to date and the proposed mine plan, which is understood to involve at least three phases or pushbacks, would be reviewed. Discussions would be held with mine personnel concerning all of these aspects, the object being to arrive at preliminary conclusions regarding the present level of geological/geotechnical knowledge that exists and to develop a plan for carrying out a more detailed slope stability assessment of the Grum Pit.



Mr. Richard Arndt, P.Eng.
 Chief Engineer
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The second part of the work would be completed in our offices in Vancouver and would involve summarizing the results of the field visit in a brief report. Recommendations as to geotechnical studies required to conduct a more in depth slope stability and design assessment would also be summarized in the report.

Prior to the site visit, it would be of considerable assistance if Dave Tenney could prepare a geologic map of the exposed pit walls. Of particular interest at this stage would be such aspects as lithology, orientation of S2 foliation, and the location and orientation of any fault zones, particularly those that would appear to be of a length that could extend over a number of benches. It would also be helpful if copies of all geologic cross-sections, level plans, proposed mine plans, etc. could be made.

SCHEDULE AND COST ESTIMATE


As discussed, I would suggest that the initial site visit and review described above be carried out in late April or early May, with a report being completed about one to two weeks following the site visit.

I estimate that the time to complete the initial work would be about 50 to 60 hours, including travel. At a charge out rate of \$100/hr, this would amount to \$5,000 to \$6,000 plus direct costs. Airfare and miscellaneous costs are estimated to be about \$1,100 to \$1,200. As was arranged for Andy Holmes of our office when he visited the mine in December, it is assumed that rental of a truck in Whitehorse and accommodation in Faro would be provided by Anvil Range. All fees and direct costs are subject to GST and all direct costs are charged at cost without markup.

I trust the above is sufficient for your needs at this time and look forward to working with you on this project. If you have any questions, please contact me.

Yours very truly,

PITEAU ASSOCIATES ENGINEERING LTD.

Then what?

 Alan F. Stewart, P.Eng.

AFS/ef