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Seattle, Washington
November 16, 1938

Highland Surprise Mining Co.
Hall Building
Vancouver, British Columbia

Gentlemen:

HIGHLAND SURPRISE MINE

At the request of Mr. Joe Gallo I accompanied him to the Highland Surprise Mine and spent two days there during the first week of November, 1938. An examination of the surface and underground workings was made, and the mine was sampled by Mr. Alan N. Cushing, who assisted me in the examination.

GENERAL

TRANSPORTATION:

A fair mountain road has been improved and extended from Retallac, B. C. to a point at the foot of the hill below the mine. From here a skid road switches back and forth up the hill to the camp, which is located near the portal of the No. 2 Level. Trails lead from the camp to the No. 1 and No. Zero workings. A light jig back tram connects No. 2 level with No. Zero.

CAMP:

The camp consists of a log bunkhouse, frame dining hall, dry, and compressor house. The camp is adequate for a crew of about twenty men.

GEOLOGY

The Highland Surprise Mine is located in a mass of metamorphosed volcanics and sediments, near their contact with a large body of serpentine. The volcanics and sediments have a strike of N 40 W and the contact strikes N 10 W, so that they are feathering into the serpentine contact at a very acute angle. The sediments and volcanics have been invaded by a granitic dike which shows on the surface of the No. 1 Level and on No. 2 Level. The dike appears to be increasing in size at depth. A large mass of granitic material shows on the surface to the east of the workings.

The contact between the serpentine and the other formation is a fault having a N 10 W strike and a steep dip west. This fault can be followed on the surface for thousands of feet; it marks the east boundary of the steep sided valley which runs along the west side of the mine. Underground this fault is accompanied by a heavy talc gouge, which is practically impossible to hold. When crossed it must be timbered tightly.

ORE DEPOSITS

The ore occurs along a wide mineralized zone which, on the No. 1 Level, is following the foliation of the bedded formation. It is, therefore, striking into the fault at a very acute angle, which would mean that it is cut off going north. On the surface, however, the zone swings to the east and is diverging from the fault between the outcrop at Zero level and the last outcrop seen to the north.

On the No. 1 Level, a section of the vein appears to be replaced by the granitic dike from station 4 to the crosscut from the portal. It may be possible, however, that the vein is along the east side of the dike.

The No. 2 level did not develop the vein. The crosscut from the portal of the tunnel was driven too far west, crossed thru the dike, which is

PROPERTY FILE

ORE DEPOSITS

much larger on the No. 2 level, then parallels the dike on its west side. One ore shoot was opened and mined on the No. 2 level, but it is believed that this ore shoot is a branch of the main vein.

A high grade vein was stoped near station #4 on Level No. 1. This is a cross vein having an east strike. It cannot be followed out into the country rock, but appears to be a filling in a fault which displaced the main vein for about thirty feet.

Along the wall of the large N-S fault, is a zone of mineralization. It is low grade and because of the heavy gouge could not be mined.

Present development in the No. 1 level of the main vein indicates that the wide zone is too low grade to be mined at a profit. Samples taken on the No. 1 level gave an average width of eight feet and 0.04 oz. per ton. It must be noted, however, that this zone was not followed by the underground workings. It was tested, however, by several crosscuts.

Going north the vein shows more promise. At the time of the examination the No. Zero level was in good ore and was north of the faces on the other level. The vein assayed 0.93 oz. across 4.7'. It is quite possible that the vein will contain better values to the north as it gets further away from the granitic dike. Ore from the Zero level is being shipped.

Seven cars have been shipped from the mine and assayed as follows:

SHIPMENTS

DATE	WEIGHT TONS	GOLD OZ. TON	SILVER OZ. TON
Sept. 3	23.910	.645	0.7
Sept. 9	42.355	.887	0.7
Oct. 13	43.378	1.424	0.7
Oct. 18	39.533	1.004	0.6
Oct. 25	38.503	.736	0.6
Oct. 28	38.503	.733	0.6
Oct. 29	38.310	.911	0.6
<u>TOTAL</u>	264.492	.935	

This ore was mined selectively but was not closely sorted.

RECOMMENDATIONS

As the Zero Level contains the best ore and is producing the ore which is being shipped, the obvious development is to continue this level to the north. If the ore continues the No. 1 Level should be extended north to pick up the Zero Level ore.

It is quite possible that the cross vein which made the No. 1 Level stoped, can be picked up on the No. 2 Level by driving the crosscut (located 15' south of Station 7) to the east, to cut the vein, and then drifting south. This work would also test the main mineralized zone on the No. 2 Level.

It has been suggested that a lower level be driven. This work does not seem advisable at the present because, first, the better values appear to be to the north, second, the dike appears to be increasing in size at depth and replacing the vein and, third, the vein appears to be dipping into the fault and would be cut off at depth. Further development may disprove these statements, but at present the cheaper and better develop-

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RECOMMENDATIONS

ments are on the Zero, No. 1 and No. 2 Levels. If the vein is found to be east of the dike on the No. 2 Level and to be commercial, the No. 3 Level can be driven with some hope of finding ore. It should not be attempted until ore has been developed in the Zero, No. 1 and No. 2 Levels. A lower level might have to be driven many hundreds of feet before encountering ore. Further, there is plenty of room for developing a mine above the No. 2 Level and to the north of the present workings.

CONCLUSION

In conclusion, it is disappointing to learn that the large mineralized zone, as developed by the No. 1 Level, is too low grade to be commercial, however, this vein is becoming better grade going north on the Zero Level. It is possible, therefore, that additional work on the No. 1 and No. 2 Levels will show it to contain additional commercial ore bodies.

The property warrants further prospecting and certainly warrants the work outlined under "Recommendations".

The present transportation system is a bit awkward and conducive to high costs but until more ore is developed in the mine it will suffice.

This is a new district for gold mines; it is necessary, therefore, to develop carefully. The program now being followed is excellent for this mine and this district. Ore is being shipped from development work.

The property warrants a more extensive development campaign with the idea of opening ore on the No. 1 and No. 2 levels.

Very truly yours,

H. GRATTAN LYNCH

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