REPORT
OF
EXAMINATION
OF THE

VAN ROI MINE

SILVERTON. B. C.

By, Chas. C. Starr,

May 22nd., 1929.

INTRODUCTION: A week was spent in making the examination, most of which was consumed in underground work. The guide was a former leaser on the property and was entirely familiar with the mine. Little sampling was done, as no ore was blocked out, and only a little ore of commercial width is exposed in the workings.

LOCATION: The Van Roi Mine, is situated about four miles east of Silverton, B. C., on the south side of Four Mile or Silverton Creek. It is in the Slocan Mining Division of the West Kootenay District.

PROPERTY: There are five full size crown granted claims as follows:- Napier, Mountain Boomer, Burr, Mackinaw and Vancouver No. 2, and eight crown granted fractional claims as follows:- Ricardo, Tramway, El Camino No. 2, Pelly, Silver Star, Moccasin, Vancouver and Van Roi. They are owned by the Cunningham Mines Limited, of Alamo, B. C., and at present under option to Wellington Beaton and associates of Vancouver, B.C.

TRANSPORTATION: No. 5 and No. 9 tunnels are connected with the mill by aerial tramways. From the mill, a fair wagon road leads to Silverton, a distance of about four miles, and connects with the Canadian Pacific Railway system at Silverton. There is also a road from the mill to the mine camp, and to the principal mine tunnels. Freight rates on ore shipped from Silverton to the smelter at Trail vary from $2.00 to $3.50 per ton, depending on the grade of ore.

POWER AND TIMBER: Water is taken by a flume approximately a mile and a half in length from a tributary of Silverton Creek, and is used under a head of 600 feet for driving the mill and air compressor. It is said that 250 horse power can be developed during times of low water, but it is probable that there is an occasional shortage in dry seasons. Water for milling and for domestic use is plentiful and conveniently located.

TIMBER: There is an ample supply of timber for all purposes near the property, which consists chiefly of hemlock, spruce and balsam.

TOPOGRAPHY: Silverton Creek flows through a narrow V shaped valley above which steep timbered slopes extend up to the ridges on either side. The slopes are steep but generally covered with soil and glacial gravel. The elevation at the mine camp is approximately 4000 feet, and the mill is about 1100 feet lower.

HISTORY, PRODUCTION, ETC: The mine was first operated by the Vancouver Mining Company who quit, supposing that it was worked out. It was later purchased by the Van Roi Mining Company, and operated as a subsidiary of the Le Roi No. 2 Mine, at Rossland, from whom it was purchased by the Cunningham Mines Limited, who operated it a year or two, it is reported, at a good profit. For the last few years it has been intermittently operated by small leasers who have made little better than wages.

There are no complete figures for the production that has been made, but it is reliably said that the

production has been slightly over two million dollars, gross.

The following data has been taken from the reports of the Manager of the Van Roi Mining Company to their London office, and covers a period from Sept. 30th., 1909, to Sept. 30th.,1912.

Milled 120,032 tons which contained 13.6 oz. silver, 3.5% lead, 7.1% zinc per ton. From this 5,890 tons of lead concentrates were made containing 147.8 oz. silver, 63.1% lead and 10.4% zinc per ton; and 6,710 tons of zinc concentrates containing 48.6 oz. silver, 2.9% lead, and 45.1% zinc.

The loss in tailings (over a two year period only) was 4.2 oz. silver, 0.7% lead, and 4.2% zinc per ton.

The calculated recoveries are 50% of the silver and 81% of the lead in the lead concentrates, and 20% of the silver and 35% of the zinc in the zinc concentrates. The development cost was $11.83 per foot, mining cost (probably stoping) $2.55 per ton and milling cost $1.02 per ton. The Mine as sampled in 1908 by the Van Roi Mining Company averaged 15.7 oz. silver, 4.5% lead and 10.1% zinc per ton. From 1915 to 1924 the mine produced 69,735 tons of a value of $701,222.

PRESENT CONDITION OF MINE: Except at a few scattered points, more particularly in the upper levels, no commercial ore is exposed in the mine. The ore that is expected must be predicted by observation of the old stopes, the maps, and the geological conditions. The mine levels are practically all open except for scattered local caves which could generally be opened up without difficulty. Some stopes are open and

and some are caved, but in general stope faces are inaccessible either through caving or lack of timber. Timbering throughout the mine workings is in part fairly good, but a considerable part is badly decayed and will have to be replaced within a year or two in order to keep the workings open. The equipment and buildings are in general useable, but require a certain amount of repairs to put them in good condition. The mill is obsolete, and should not be used as it stands. The building and some of the crushing machinery could be used in altering it to a modern flotation plant. The flume for water power is in rather poor condition, but might be used for a short time.

EQUIPMENT: There is the following equipment at the mine:- track, mine cars, three blacksmith shops (at the portals of No.1,No.2, and No. 5 tunnels), several timber-hoists, one Leyner, No.5 drill sharpener , 7 stoping drills, 2 drifters, and a limited amount of miscellaneous small tools.

At the mill there is the following equipment:- a 150 ton concentrator containing jaw crusher, rolls, jigs, and concentrating tables. Adjoining it is a machine shop with limited equipment, and an air compressor of the Corliss valve type of 750 foot capacity.

There is a 4500 foot Riblet tramway from No.5 tunnel to the mill, and a 3000 foot, 2 bucket tramway from No.9 tunnel to the mill; a 10,000 foot saw-mill is located about two miles from the mine. Air and water pipes are installed wherever necessary. The buildings adjoining the mill consist of a machine shop, and compressor house, boarding house, office

and two cottages. At the mine there is a boarding house and bunk house for about fifty men, an office, two cottages and a stable.

DEVELOPMENT: The principal mine development is as follows:-

Tunnel	Elevation	Length on Main Vein	Length on South Vein
A	4705	- Ft.	260 Ft.
I	4545	90	340
2	4430	I070	0
3	4320	I560	400
4	4085	I225	820
5	4000	2300	410
6	0	0	0
7	3800	2800	265
8	3730	250	0
9	3585	I4I0	680
		I0705	3I75

In the above tabulation the elevations are only approximate; all crosscuts, raises, etc., are omitted in the figures which are simply the overall lengths of the levels.

Tunnels A, I,2, 3 and 4, are situated on the west side of the hill, but tunnel #3 has an entrance on the eastern side also; #5 and all of the lower tunnels are driven from the east side of the hill, facing the mill.

GEOLOGY: The wall rocks of the Van Roi veins are slates of the Slocan Series which have been intruded by the granite of the Nelson Batholith, the main contact being about 650 feet south of the mine, and nearly parallel to the stratification of the slates. The Slocan slates are thin bedded argillites, limestones, and quartzites, which are generally impure giving argillaceous limestones, etc. In the vicinity of the mine, these beds strike from north 30° to 70° east and dip from 60° to 80° northwest. Major folds occur over the district

as a whole, and on these minor folds and crumples are superposed but, near the mine, the folding has been gentle. In some of the mines of the district the structure, as expressed in folding, has a considerable influence on the locus of ore bodies, but it is not definitely evident that such is the case at the Van Roi. Occasional narrow dykes of aplitic character occur at various points in the mine, but apparently have no effect on the location of the ore. Mineralization of the veins came from ore bearing solutions eminating from the granite, which rose through the vein fractures and deposited their metals. The chief minerals are galena, zinc blend, tetrahedrite (grey copper), pyrargyrite (ruby silver), and a little chalcopyrite, and pyrite. The gangue is chiefly crushed slate through which variable amounts of quartz, calcite, and occasionally siderite, have been deposited.

VEINS: There are two principal veins, known as the Main vein and the South vein, also several other partly mineralized fractures of uncertain extent and, so far as known, very low values. The Main vein strikes N. 70° E. and the South vein varies from N.50° E. at the west end, to N.70° E. at the east end; both of them dip 70° north. Both veins are mineralized fault fissures having a plane of greatest movement which is usually represented by a hanging wall gouge and which is paralleled by a zone of shearing. Both the Main vein and the South vein cut the bedding of the schists at a very acute angle, but occasionally run for a short distance in the bedding planes. It is generally thought that the Main vein is the same as that of the Hewitt Mine, although there is some faulting between.

FAULTING: There are two post mineral faults. The most important one occurs near the west end of the mine workings and cuts off the Glory Hole stope on the west. No ore has been found to the west of the fault, nor has the vein been definitely indentified there but vein matter has been found which may likely prove to be the vein proper. The fault is a broad zone of crushed rock and gouge and, on account of the limited amount of work which has been doneon it,its strike cannot be accurately determined. It appears at the west faces of No.7, No. 5 and No. 3 tunnels, and in the crosscuts of No. 2 and No. 4 tunnels. The gulch which passes through the portals of No. 2 and No. 3 tunnels probably marks the surface trace of the fault. The average of various conflicting measurements of the strike and dip give N. 10° W. for the strike and 65° west for the dip. The vein is bent and dragged southward by the fault, and there is little doubt that the faulting is to the left; there are indications that the horizontal component of the throw is about 160 feet.

The other fault shows best in A and No. 1 tunnels; it strikes N. 33° W. and dips 80° west. It cuts and throws the South vein about 50 feet to the right. It is not so evident, cutting the Main vein but is indentifiable in the upper levels.

ORE BODIES: All the developed ore bodies have been stoped. The stopes vary from six to eight feet in width and show a maximum width of about 20 feet. From the few points where ore is still visible, and from the description of leasers, it seems probable that the ore occurred in streaks and small lenses on either or both walls and was accompanied by considerable waste which broke with the ore. The stope walls are definite but are slabby,largely o/7

account of the veins crossing the strata at an acute angle. The stopes have irregular outlines and contain many pillars, not always indicated on the maps, which implies that the ore was erratic in value; this is borne out by leasers statements that in stoping they frequently had ore to-day and none tomorrow, and vice versa.

Four major ore bodies and a number of small ones have been stoped.

The Glory Hole stope. This stope is on the main vein on east side of the larger fault, and is cut off by it. It extends from No. 2 to No. 7 levels (680 feet vertically) for an average length of 300 feet; about one half of this area has been stoped. This ore body is the most definite and continuous in the mine.

The Pillar Stope. This stope is on the main vein, probably 150 feet east of the Glory Hole stope, and extends over a vertical height of 500 feet between levels No. 2 and No.5. It is 100 to 150 feet long except between levels No. 2 and No. 3 where it was stoped for over 500 feet.

Cave Stope. This stope is on the main vein, near the portal of No. 7 tunnel, and extends between No. 7 and No.9 levels. It shows a maximum length of 300 feet and a height of 220 feet. It is said to have caved before the stoping was completed and that considerable ore was thereby lost.

South Stope. This stope is on the South vein and extends from No. 3 midway between No. 5 and No. 7 levels, for a depth of 400 feet and for a length of 275 feet. There is also a small stope on this same ore body above No. 1 tunnel.

Other Stopes. It can be noted from the map that there are various other small stopes, especially in No. 5 and No. 7 tunnels and toward the west end of No.9 level.

The rake of the ore bodies seems to be approximately 70° westward.

DESCRIPTION OF LEVELS: MAIN VEIN. No. 1 Tunnel. the vein is only exposed for a very short distance and is narrow and barren.

No. 2 Tunnel. The drift follows the vein which is small and lean, except from 400 to 550 feet from the crosscut from the portal of the tunnel, where it is four to six feet in width and of promising appearance.

No.3 Tunnel. The accessible parts of this tunnel are between the west face, and 300 feet east of the portal crosscut; and for 150 feet at the crosscut to the South vein. West of the crosscut from the portal and above the Glory Hole stope the vein is strong, and appears very favorable although it contains no actual ore. The accessible part of the drift near the crosscut to the South vein shows quite a strong vein and good quartz, but weak metallic mineralization.

No. 4 Tunnel. The western half, only, of this tunnel is accessible and this is largely stoped, both above and below. The vein is generally lean and unpromising where not stoped.

No. 5 Tunnel. From the portal to within 600 feet of the west face the vein is small, unmineralized, and very unfavorable in appearance, excepting for 100 feet at the portal, short lengths adjacent to the small stopes, and at the first raise to the No. 4 level. In the last 600 feet the vein, between stopes, shows a good width, appears strong and shows some metallic mineralization.

North Vein

No.7 Tunnel. This tunnel is accessible up to within 280 feet of the face. In general it follows the vein, although it may have left it for short distances at several places. Adjacent to all stopes and raises, the vein is strong, shows some metallic mineralization, and is more or less favorable in appearance. At all other points it is weak, narrow and shows little quartz; in general however it appears better than on No. 5 level.

No. 9 Tunnel. The eastern half only is accessible. Parts of this tunnel are off the vein but in general it follows it. The accessible part is very poor, narrow, and unmineralized except where stoping has been done, even under the eastern two-thirds of the Caved stope. Under the west end of the Caved stope the vein is strong, wide, and shows fair metallic mineralization. A winze has been sunk 25 feet at this point; it is now full of water but is said to show a strong vein, with some milling ore, in the bottom. At the small narrow stope where the drift is caved, the vein is strong and shows three feet of milling ore going into the cave.

SOUTH VEIN. A Tunnel. This tunnel follows the vein for 180 feet from the portal, where it is faulted 60 feet to the southwest. The fault was then followed and the vein picked up and followed to the face. The vein averages about four feet in width, and in places, one half of that width is of milling grade ore. The fault shows dragged ore and possibly some primary mineralization also.

No.1 Tunnel. The vein is exposed in the western half of the west drift, the crosscut then follows the fault, picking up the

South vein -II-

vein on the east side, and follows it to the face of the drift. In the west drift the vein is generally small although fairly mineralized. Near the face the vein has been stoped over a length of 140 feet and height, of 90 feet; the ore is pinching in the top of the stope. Underneath this stope a winze has been sunk 37 feet, showing from eighteen inches to four feet of milling ore (see samples.)

No. 3 Tunnel. The vein is generally strong and shows some metallic sulphides, but no ore remains. In the back of the stope there is about a foot of ore still exposed. In general the area looks very favorable for the development of ore.

No. 4 Tunnel. The eastern part of the level is inaccessible on account of caving. From the west edge of the stopes the vein gradually gets weaker and more barren towards the face, and makes a quite unfavorable showing. There is a possibility that the west part of this drift is not on the main vein and crosscuts should be driven.

No. 5 Tunnel. This level has been practically all stoped out. The faces appear faidy good, but are probably at about the limit of the ore.

No.7 Tunnel. The vein is wide and strong but the mineralization is generally weak. In this level quartz occurs in definite stringers having sharp outlines, both with and across the general strike of the vein. As shown in the upper levels it is more normal for the stringers to strike with the vein, and their outlines are generally masked by replacement of the adjoining brecciated slates by quartz. There is some suggestion here that the ore shoot has been bottomed.

South Vein

No. 9 Tunnel. This tunnel follows the vein for 700 feet, the eastern 400 feet shows the vein to be small, unmineralized, and very unfavorable to ore. Stoping has been done between 415 and 465 feet, and from there to the face there is a gradual decrease in the quartz and in the size of the vein. A stringer of zinc blende, a fraction of an inch in width occurs at intervals throughout the whole drift, at one point extending for 75 feet.

SAMPLES: Four samples were taken in the South vein of the No. I tunnel, they merely indicate the relative quantity of metals to be expected in this area and represent the pay streak only.

#2177 east face of drift 0.8 feet wide.
18.I oz., silver, 10.7% lead, II.4% zinc.

#2178 east side of winze near face of east drift 2.6 feet wide.
30.2 oz., silver, 19.7% lead, 16.7% zinc.

#2179 west side of winze near face of east drift 2.I feet wide.
16.7 oz., silver, 8.8% lead, 12.7% zinc.

#2180 west end of stope near face east drift 1.4 feet wide.
19.0 oz., silver, 12.7% lead, 14.8% zinc.

FAVORABLE POINTS FOR DEVELOPMENT: Main Vein. Above the No. 3 tunnel, the appearance of the vein does not indicate the probability of any considerable tonnage of ore. Under No. 3, and just east of the Pillar stope, is an area that is fairly favorable and worth prospecting, also the unstoped block between No. 3 and No. 4 tunnels, within the limits of the Glory Hole are shoot. Between No. 5 and No. 7 tunnels the raise which has already been started under the Pillar stope should be continued to the level above to explore the area under the stope on No. 5 tunnel. Between levels No. 7 and No. 9 (as far as the end of the present No. 9), there are no particularly favorable appearing areas. Beyond the

face of No. 9 tunnel, the Glory Hole ore body should extend downward and should produce about 150 tons of ore per foot of depth. This should be explored by a winze. It would seem reasonable to hope for the development of between 10,000 and 30,000 tons of mill ore in the areas above mentioned. Indications seem fairly good for ore below the west end of the Caved stope on No. 9 level and possibly below the other smaller stopes.

The faulted continuation of the Main vein to the west of the fault should be prospected for. Development work now done shows what is probably the vein in the drift west from the "Humboldt crosscut" of No. 4 tunnel. On some of the old maps the east-west drift at the end of the south crosscut at the west end of No. 4 ore body is marked "vein" and is likely also on the Main vein immediately west of the fault. The large body of quartz exposed at the sharp bend at the end of the crosscut of No. 2 tunnel is probably also on this vein to the west of the fault, as its dip and strike are parallel to those of the Main vein. If it be proven that these three points are on the Main vein the horizontal component of the throw of the fault is 160 feet.

COSTS: The cost of prospecting and developing the favorable areas above mentioned to an additional depth of 100 feet below the present workings is estimated to be about as follows:-

Explore Main vein above lowest level, 500 ft. rz. at $20.	-	$10,000.00
" " " below lowest level, 200 ft. winzing at $35.	-	7,000.00
200 ft. drifting at $18.00		3,600.00
" " " west of fault, 400 ft. drifts & crosscuts at $16.	-	6,400.00
" South vein above No. 3 level, 650 ft. rz. at $20.	-	13,000.00
800 ft. drifting at $16.	-	12,800.00
" South vein below No. 7 level, 100 ft. winzing $35.	-	3,500.00
300 ft. drifting & crosscutting $18.	-	5,400.00
General Repairs	-	8,300.00
Total	-	$70,000.00
Mill reconstruction, etc.		35,000.00
Total		$105,000.00

CONCLUSION: The favorable features of the property are:-

1. The location is good.
2. A development campaign can be started at a minimum cost for preparation, and equipment.
3. The present workings allow access to the favorable areas without much dead development work.
4. The vein is strong and exceptionally persistent; the ore bodies are frequently of good size.
5. The ores of the Slocan region have recently been proven to go to very considerable depths in several mines which were formerly supposed to have been bottomed.

The unfavorable features are:-

1. A large production of ore has already been made and the ore bodies have been followed to a considerable depth.
2. No ore is at present developed and little ore is exposed in any of the working faces.
3. In mining, a large dilution of ore with waste must be expected.
4. Long tunnels (on the vein however) will be required to develop the now known ore bodies to a greater depth.
5. The somewhat discouraging appearance of the South vein

on the No. 7 level.

On the strength of observed conditions further development of the mine is justified to the extent of (say) $50,000.00. If that expenditure does not develop a commensurate amount of ore further work would hardly be justified.

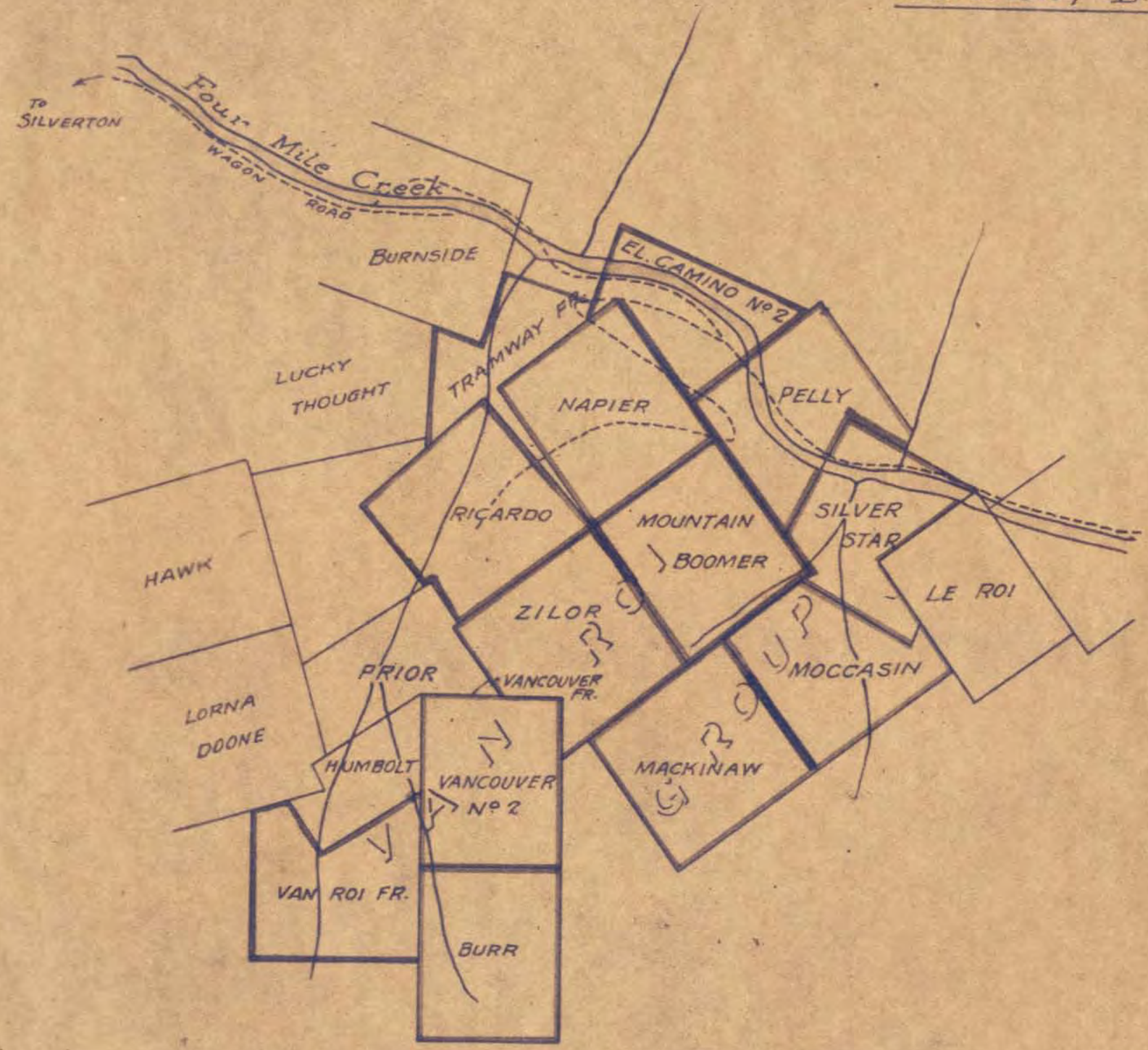
Unless development below the present lowest workings proves successful further work would merely be in the nature of a salvaging operation, and scarcely worth while. If deeper work is as successful as expected it means the making of a new mine, and recent development in the Slocan region lends strength to the belief that the present ore will go much deeper or that new ore bodies will be opened at depth. If the proper price and easy terms can be obtained, I recommend the property as a purely development proposition along the lines above submitted.

Respectfully submitted,

Chas. C. Starr

VAN-ROI MINE

Silverton, B.C.



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