

680733

1040/16W

AN EVALUATION AND PRELIMINARY PROGRAMME RECOMMENDATION

ON THE

RANCHERIA AMY CLAIM GROUP

FOR

OREBANK LIMITED

Toronto, Ontario,  
15th March, 1967.

E. D. Black, M.Sc.,  
Consulting Geologist.

# AN EVALUATION AND A PRELIMINARY PROGRAMME RECOMMENDATION

On The

## RANCHERIA AMY CLAIM GROUP

---

### SUMMARY & CONCLUSIONS

Rancheria Mining Company Limited holds interest in three groups of mining claims in the Liard Mining Division of Northern British Columbia. These three claim groups are known as the Rancheria Amy Group, the Nancy Group and the Blue Light Group. The present report is concerned only with the Rancheria Amy Group and is a preliminary evaluation of this property. The Nancy and Blue Light Groups will be treated in separate reports at a later date.

Good grade silver-lead-zinc mineralization was first found in 1949 in the central part of what is now mining claim Amy 7. Since that time the property has been acquired by Rancheria Mining Company Limited and increased in size to its present total of 78 claims. The property has undergone systematic exploration to evaluate the original showing and to find additional zones of mineralization.

To date the exploration work on the Amy claims has amounted to 10,498 feet of surface diamond drilling, 835 feet of underground exploration, approximately 300,000 feet of geochemical and geophysical surveys and approximately 31,000 cubic feet of surface trenching.

The geochemical surveys have proved practical as a means of outlining areas containing high concentrations of silver, lead and zinc in the soils and by so doing have defined target areas for surface trenching and diamond drilling. Attempts to use E.M. and magnetometer surveys to pinpoint the mineralized structures responsible for the geochemical anomalies proved impractical. On the other hand, the magnetometer work proved useful as a means of outlining the sub-surface geology in a general way. Comparatively low mag-

netic readings were obtained over limestone, the significance being that the limestone is the primary host rock for the mineralization.

The mineralization is controlled by shear zones within the limestones. Although these shear zones are persistent along strike, heavy mineralization occurs only as localized replacement bodies within the more open and porous zones in these shears. The deposits of high grade mineralization seem to be confined to strike elongated lenses.

The surface diamond drilling has been successful in following the Camp Creek shear structures for a distance of some 2200 feet and to depths as great as 400 feet below the surface. The results of this work have indicated the presence of at least two parallel shears within which mineralization shoots have been found. These shoots have varying thickness and are more or less continuous over the length of the drilled area. While the drilling has been effective in establishing the general continuity of the mineralized structures, it has been less effective as a means of providing an accurate measure of their dimensions and grades.

The underground exploration on the Camp Creek showing has outlined and tested the number one mineralization shoot over a strike length of 140 feet, at a depth of approximately 80 feet below the surface. Based on the combined results of the underground work and local drill holes, the latter having cut similar mineralization as much as 370 feet down dip from the drift, it has been estimated that the Number 1 Shoot could contain a reserve of 24,000 tons of potential ore grading 24.5 ounces of silver, 6.4 per cent lead and 6.6 per cent zinc to a mining depth of 450 feet.

A comparison between the surface diamond drill results and the results of the underground exploration work in the Number 1 Shoot clearly indicates that the drilling is only moderately reliable as a practical means of evaluating the underground potential of the mineralized zones. This being the case, it is suggested that the drill results obtained in other mineralized zones along strike from the main showing are probably equally unreliable, and may only be partially indicative of the size and composition of these mineralized extensions. Underground exploration will be needed to fully test and properly evaluate the potentialities of all the newly discovered zones.

## RECOMMENDATIONS

In view of the encouragement experienced in the exploration work completed on the Amy Claim Group so far, the following programme recommendations are made:

1. I.P. surveys should be carried out over all of the major geochemical anomalies following successful I.P. trials over the Camp Creek showing.
2. Diamond drilling, using wireline equipment, should be carried out to explore coincidental geochemical and I.P. anomalies. If the I.P. surveys prove impractical, drill testing should be carried out on the main part of the high silver geochemical anomalies with the drill holes spotted on the basis of the geochemical targets alone.
3. Underground exploration should be reactivated at the present 4450 drift level and should be extended to explore the present indicated mineralization zones to the east and west of the Number 1 Shoot.

As a preliminary estimate this programme is expected to take six months field time and will cost in the neighbourhood of \$150,000.00.

If encouragement is obtained in this initial exploration phase, preparations should be made for an escalated second stage programme involving underground development of the deposit by way of the lower adit level. The portal to the lower adit has already been prepared at elevation 4200 feet. This phased-up programme would be designed to prove mineable reserves and should include ore testing and a final feasibility study.

A provisional estimate of the time and cost involved in this final exploration phase includes a full year's work at a probable cost of \$500,000.00.

The above estimated costs are based on the following:

**EXPLORATION PROGRAMME AND PRELIMINARY  
COST ESTIMATES**

---

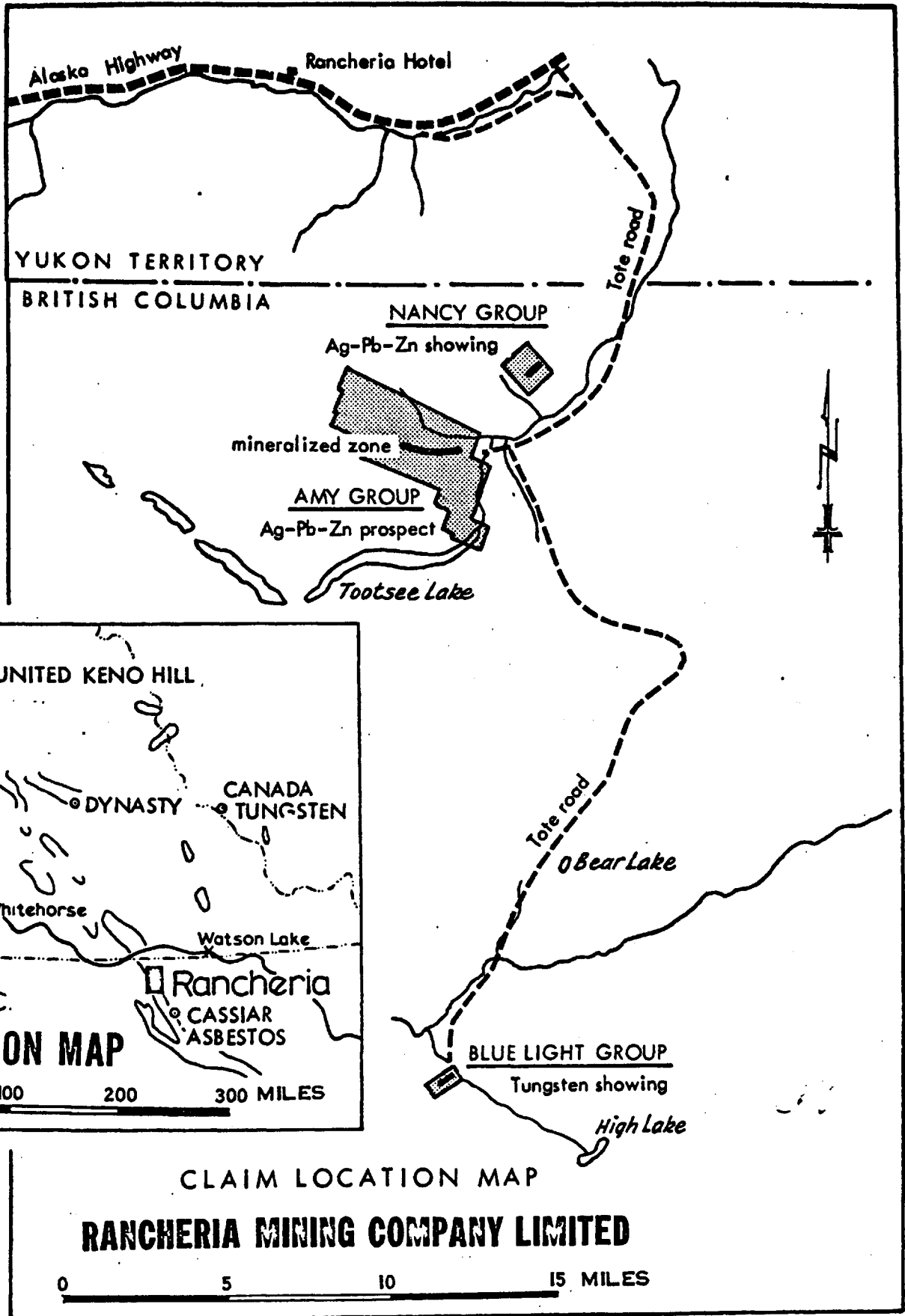
**PHASE I - (1967 Field Season)**

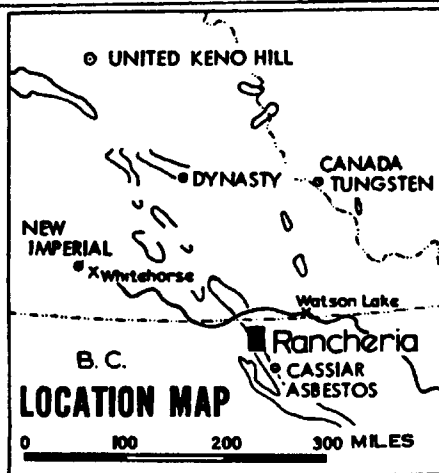
1. Geophysical I.P. Surveys		
10 line miles @ \$400.00 per mile	\$	4,000.00
2. Wireline Diamond Drilling		
3,000 feet @ \$10.00 per foot		30,000.00
3. Underground Exploration Drifting		
2,000 feet @ \$50.00 per foot		100,000.00
4. Analytical costs and Ore Testing (Estimated)		10,000.00
5. Consulting Fees and Administra- tive Overhead (Estimated)		<u>6,000.00</u>
		\$ 150,000.00

**PHASE II - (1968 Season)**

Provisional Estimate		<u>500,000.00</u>
TOTAL Estimated Exploration Cost		<u>\$ 650,000.00*</u>

\* This total exploration programme cost figure of \$650,000.00 does not include expenditures to date.





Values indicated in diamond drill holes

Underground workings

**ORE SECTION**

Length — 140 feet  
 Width — 4.9 feet  
 Silver — 29.7 ounces  
 Lead — 6.4%  
 Zinc — 7.6%

**RANCHERIA MINING COMPANY LIMITED**  
 JENNINGS RIVER AREA, B.C.

**SOIL GEOCHEMICAL MAP**  
 AMY CLAIM GROUP

0 1/4 1/2 MILE

**LEGEND**

- SOIL ANOMALY**
- Above average silver
  - Very high silver
  - Property boundary

BLUE LIGHT CLAIM GROUP



## PROPERTY AND LOCATION

The Rancheria Amy Group includes 78 mining claims and encompasses an area of approximately 3,600 acres, located some 12 miles south of Mileage 701 in the Alaska Highway. The property can be reached by tote road from the highway or by chartered float plane from Watson Lake. Landings can be made on Tootsee Lake which lies within a few miles of the main part of the property.

All of the presently held mining claims are in good standing at least until August 8, 1969, when the first expiry dates come due. The record shows that these claims are subject to Mechanic's Lien No. 28 in favour of Watson Lake Construction Limited. The claims are more fully described as follows:

TABLE I

### Record of Property Holdings

June, 1966

<u>Claim No.</u>	<u>Record No.</u>	<u>Expiry Date</u>
AMY 1	11649	August 8, 1969
AMY 2	11650	August 8, 1980
AMY 3	11419	January 4, 1970
AMY 4	11420	January 4, 1981
AMY 5	11421	January 4, 1970
AMY 6	11422	January 4, 1971
AMY 7	11423	January 4, 1970
AMY 8	11424	January 4, 1971
AMY 9	11425	January 4, 1970
AMY 10	11426	January 4, 1972
AMY 11-16	11651-56	August 8, 1970
AMY 17-20	11657-60	August 8, 1969
AMY 21-28	11661-68	August 8, 1969
AMY 41	11681	August 8, 1969
AMY 42	11682	August 8, 1980
AMY 43-44	11683-84	August 8, 1969
AMY 45-50	11685-90	August 8, 1980
AMY 51	116891	August 8, 1969
AMY 52	116892	August 8, 1980
AMY 69-70	11709-10	August 8, 1980



<u>Claim No.</u>	<u>Record No.</u>	<u>Expiry Date</u>
AMY 71	11711	August 8, 1969
AMY 72-80	11712-20	August 8, 1980
AMY 81-82	11721-22	August 8, 1970
AMY 83-86	11723-26	August 8, 1971
AMY 103-04	11743-44	August 8, 1980
AMY 105-07	11745-47	August 8, 1969
AMY 108	11748	August 8, 1980
AMY 109	11749	August 8, 1969
AMY 110-114	11750-54	August 8, 1980
AMY 115-20	11755-59	August 8, 1970
AMY 137-38	11777-78	August 8, 1980

### TOPOGRAPHY, CLIMATE AND RESOURCES

The property is on the north facing slope of a mountain valley tributary to the valley of Tootsee Creek, on the eastern flank of the Rocky Mountain Range. The local relief is generally two to three thousand feet and local elevations reach 5,000 to 6,000 feet above sea level.

Precipitation is not excessive and extended periods of good weather are common during the mid-summer and mid-winter months. Winter frost remains in the ground on the northern slopes until mid July but no permafrost problem exists.

A good supply of timber suitable for mining purposes exists throughout the valleys, and good road-building gravels are abundantly available in most parts of the area including the property area itself.

Potable water is available in the numerous springs and creeks during most of the year and an excellent major source of water is available in the form of Tootsee Lake.

There are no power plant developments in the area and therefore local electrical power needs would have to depend on diesel plant generation.

The nearest permanent community of size is Watson Lake, located 100 miles east of the property on the Alaska Highway. Good communication and transportation facilities are available from this major staging point.

## REGIONAL GEOLOGICAL SETTING

Although the Geological Survey of Canada had field parties in the Jennings River area during the 1965 field season, there are no government geological maps available as yet for the area.

Mr. J. H. Shepherd, Field Engineer for Rancheria Mining Company Limited during 1965, prepared a provisional regional map of the property area based on available government information at the time.

The property is considered to be situated on the eastern flank of the Cassiar Batholith where young plutonic granitoid rocks intrude and lie in irregular contact with clastic Paleozoic sediments considered to be of Lower Cambrian age.

The granite sedimentary rock contact in the immediate vicinity of the main mineralization showing strikes east-west, whereas the regional strike is generally north-south. This change in strike occurs as a result of a local embayment of remnant sedimentary rocks which reflect cross folding or local faulting. The known mineralization appears to be fault controlled in that it occurs in shear structures along bedding planes at the contacts or within a discontinuous limestone member.

## LOCAL GEOLOGY

The local geological picture developed from the surface and underground exploration work of the past three years has been described by Shepherd in his report to the Company dated January 25, 1966. Shepherd describes the geology in the following manner:

"The rocks are basically schists, quartzite and limestone with a lesser amount of greenstone and a few narrow granitic dykes reaching out from the nearby large granite intrusive. These rocks in the area where work was concentrated strike approximately east-west parallel to the granite contact and dip from 60° to 75° to the south.

"The mineralized horizon is essentially a strike fault mainly in limestone at the contact of the limestone and schist or quartzite, but also sometimes as much as 20 feet in the limestone."

The mineralization appears to be controlled by formational contacts or interformational shears. Minerals identified to date in these shear zones include galena, sphalerite, pyrite and freibergite-tetrahedrite. It appears likely that the silver occurs in solid solution with galena and freibergite-tetrahedrite. Siderite is a common gauge mineral.

## WORK CARRIED OUT AND RESULTS OBTAINED

### Historical Summary

In 1948 silver-lead-zinc and gold mineralization was discovered by prospectors near Camp Creek on what is now claim Amy 7 of the present mining claim group.

In 1949 Hudson Bay Mining and Smelting Company Limited drilled a total of 2375 feet in eight holes along a strike length of 775 feet. Four of these holes intersected silver-bearing lead and zinc mineralization at depths of approximately 350 feet below the surface. The remaining four holes failed to intersect the mineralized zone, either because of their erroneous location or attitude relative to the mineralized zone.

In 1962 the ground containing the original showing was acquired by W. S. Kennedy of Toronto, and in 1963 the claim group was expanded to its present size and all the claims were transferred to Rancheria Mining Company Limited.

An exploration and development programme in 1963 established the vein-like character of the mineral deposit and paved the way for a programme of soil sampling, trenching and underground exploration during 1964.

Encouragement in the underground exploration work in 1964 lead to a more extensive exploration programme in 1965, including geochemical and geophysical surveys, surface diamond drilling, extensive bulldozer trenching and further underground development and exploration.

### Underground Exploration

The underground work, which comprised 202 feet of adit crosscut and 633 feet of drifting at the 4450 foot level, encountered 140 feet of highly mineralized vein ma-

terial in an easterly direction from the adit crosscut. Sampling in this No. 1 Shoot averaged 29.7 ounces of silver, 6.4 per cent lead and 7.6 per cent zinc across 4.9 feet. This compares with an average of 11.2 ounces of silver, 3.6 per cent lead and 11.1 per cent zinc over a horizontal width of approximately five feet in drill holes Nos. 29, 28 and 9, drilled to guide the underground development. The down dip extension of the No. 1 Shoot was cut at approximately 300 feet below the drift by surface diamond drill holes Nos. 17, 23 and 26. Recovered core from these holes returned an average grade of 6.5 ounces of silver, 3.7 per cent lead and 17.0 per cent zinc over an approximate horizontal width of 5 feet. Because of the coring difficulties and the erratic nature of the mineralization, it is not known how representative these drilling results really are. However, they do provide some reference as to the possible grade and minimum width for the depth extension of the mineralized vein.

Beyond the No. 1 Shoot, to the east, the drift followed a strong shear zone in the limestone for an additional 256 feet. This shear zone contained poorly mineralized siderite and appears to be all that was left of the main shoot in this direction. However, earlier surface and drilling indications urge that the main structure forks in the vicinity of drift survey station No. 9, approximately 400 feet east of the adit crosscut, and it now seems evident that the 180 feet or more of eastward drift completed beyond this point followed the least mineralized northern branch of the forked vein. At the surface, in bulldozer trench BT 3E, two mineralized zones were encountered in this part of the zone—a 7.5 foot wide northern zone of rusty siderite, samples of which gave only trace amounts of silver, and a 4.4 foot wide southern zone which contained typical sulphides mineralization that assayed 35.9 ounces of silver (no lead or zinc determinations were made on these trench samples). Also, in the same zone, surface diamond drill hole No. 5, drilled in 1949 by Hudson Bay Mining and Smelting Company, returned mineralization over a core length of 12.2 feet, 5.2 feet of which ran 8.99 ounces of silver, 5.17 per cent lead and trace amounts of zinc and gold, and the remaining 7.0 feet returned 1.15 ounces of silver, 0.20 per cent lead, 1.50 per cent zinc and trace amounts of gold.

Moreover, mineralization was intersected in H.B.C. hole No. 6, 200 feet east of H.B.C. hole No. 5, which returned 3 feet of 1.52 silver, traces of lead and 7.4 per cent zinc. Four feet of core was lost above and 2.5 feet of core was lost below this mineralized section. Therefore, the

possibility that this shoot extends for a strike length of at least two hundred feet remains open to testing.

Underground development to the west of the adit crosscut showed that the vein narrowed and was somewhat lower in grade at the drift level in this direction. This westward drifting was terminated in vein material after 52 feet of development, when a large open sink-hole was encountered. Average grade of the 20 foot sampled portion of this 52-foot section proved to be 7.2 ounces of silver, 2.2 per cent lead and 7.2 per cent zinc over an average width of 4.0 feet. While this part of the vein is considerably lower in grade and narrower in width than its counterpart in the No. 1 Shoot, records suggest that the full vein width was not tested over the 20-foot drift length. Furthermore, it seems significant to note that both the width and silver grade of the vein tend to pick up in the last 20 feet of this westward drifting. For example, in the last face-sample values of 7.8 ounces of silver, 0.3 per cent lead and 8.1 per cent zinc are encountered over a width of six feet, compared to 6.8 ounces silver, 4.8 per cent lead and 13.0 per cent zinc over 1.5 feet in the first face sample of this 20-foot section of drift.

Finally, it should be pointed out that the westward drift development was stopped 80 to 85 feet short of Camp Creek where surface exposures, discovered and tested by Campbell and Black in 1963, gave values of 6.6 ounces of silver, 6.1 per cent lead, 1.85 per cent zinc and traces of gold over 5.0 feet of sampled width.

### Surface Trenching and Diamond Drilling

Mineralized vein material encountered in surface pits, bulldozer trenches, and diamond drill holes completed along strike from the main showing, has confirmed the westward extension of this mineralized zone for a minimum of 250 feet and a maximum of 1500 feet.

Diamond drill hole No. 18 (Section 996), approximately 150 feet west of Camp Creek, intersected mineralization at a depth of 200 feet below the surface that graded 11.5 ounces of silver, 0.1 per cent lead and 2.1 per cent zinc. Surface material sampled within a trench on the same section as the drill hole returned 13.5 ounces of silver, 8.8 percent lead and 17.2 per cent zinc over an unrecorded width.

Drill hole No. 16 (Section 995), another 100 feet west of hole No. 18, returned 13.0 ounces of silver, 1.3 per

cent lead and 1.6 per cent zinc over a true width of 2.6 feet at an approximate depth of 200 feet. Unsampled silver, lead and zinc mineralization was also observed in a surface trench on this section as well.

Diamond drill hole No. 19 (Section 997), located between hole No. 18 and Camp Creek, encountered a narrow zone of mineralization in the schists at shallower depths. This is considered to be a separate and structurally higher vein and has been correlated with similar pyrite and pyrrhotite quartz vein material observed at surface 75 feet south of the main vein showing in Camp Creek.

In drill holes Nos. 21 and 27 on Section 982, approximately 1500 feet west of Camp Creek and 1200 feet west of drill hole No. 16 (Section 995), mineralization was intersected in what appears to be two parallel, narrow veins separated by about 75 feet of typical schists, quartzites and limestone rocks. This zone was designated Shoot No. 2 by Shepherd in his 1965 report. Values up to 13.6 ounces of silver, 12.6 per cent lead and 9.9 per cent zinc were cut over a width of 3.0 feet in the upper vein and 13.9 ounces of silver, 15.3 per cent lead and 18.3 per cent zinc over 1.0 feet in the lower vein, both at depths of 200 feet below the surface. Trench samples over the extension of the lower of these two veins corresponded well with drill results, returning values of 11.4 ounces silver, 10.5 per cent lead, 13.5 per cent zinc. Trench samples over the upper vein, on section with drill hole No. 22 (Section 983), and 100 feet closer to Camp Creek ran 150.5 ounces silver, 47.7 per cent lead and 1.9 per cent zinc. However, no mineralization was seen in the drill core of hole No. 22. Also, no mineralization was observed in drill holes Nos. 14 and 31, located on Sections 991 and 992 about half way between Camp Creek and the No. 2 Shoot.

In general, the drilling has been useful as a means of locating depth extensions of the veins but appears to have been less reliable in establishing grade and width of the vein material. Shepherd, in his 1965 report, clearly states the shortcomings of the standard AXT drilling used in the vicinity of the drift and in the exploration drilling west of the main showing. He points out that wireline AXL drilling with a second machine "gave excellent ore recovery", but no accurate record of the recovery in the mineralized zones is established on the logs and there is no distinction made between holes drilled with standard and holes drilled with wireline equipment. The accuracy of the drill results are, therefore, questionable, and can only be treated as a semi-quantitative means of evaluating the depth characteristics of the mineralization.

TABLE II

SURFACE DIAMOND DRILL HOLE RESULTS

<u>Grid Location</u>	<u>Hole Number</u>	<u>Vertical Depth of Intersection (ft)</u>	<u>True Width (ft)</u>	<u>Ag (Ounces)</u>	<u>Pb (%)</u>	<u>Zn (%)</u>	<u>Remarks</u>
1. Diamond Drill Holes in the vicinity of the Underground Workings on Shoot No. 1.							
999+00	15	4320					Hole lost vugs
999+30	29	4440	10.0	16.4	3.7	6.1	
	12		-	-	-	-	Lost not completed
	13	4385	2.0	1.8	0.5	6.6	2.5' lost core in v
1000+00	28	4440	5.0	12.8	6.9	10.6	
	9	4480	3.9	3.0	0.4	23.6	
1001+00	10	4470	-	0.38	-	-	Chip only no core
1002+00	11		-	-	-	-	Hole lost vugs
2. Diamond Drill Hole intersections 200-400 feet down dip from the Underground Workings on Shoot No.							
999+00	23	4230	3.0	4.2	Tr	26.6	
1000+00	17	4210	1.3	13.3	15.1	3.1	
1000+50	26	4225	4.0	15.0	3.3	5.5	
1001+00	20		-	-	-	-	Hole lost
1002+00	24	4225	-	-	-	-	Structure barren
3. Diamond Drill Holes drilled along the projected strike of the Camp Creek showing to the west							
997+00	19	4375	-	Tr	-	-	Trace silver only
996+00	18	4310	1.2	11.5	0.1	2.1	
995+00	16	4315	2.6	13.0	1.3	1.6	
992+00	31	-	-	-	-	-	No values
991+00	14	-	-	-	-	-	No values
983+00	22	-	-	-	-	-	No values
982+00	30	-	-	-	-	-	No values
	27	4370	3.0	13.6	12.6	9.9	
		4215	0.8	0.4	Tr	3.2	Parallel structures
	21	4350	1.0	13.9	15.3	18.3	
981+00	25	-	-	-	-	-	No values
4. Diamond Drill Holes drilled along the projected strike of the Camp Creek showing to the East							
1015+00	32	-	-	-	-	-	Not completed

## GEOCHEMICAL SURVEYS

Reconnaissance soil sampling in 1964 was followed during the same season by a detailed geochemical survey over the central part of the Amy claim group. This work outlined numerous base metal anomalies. The most important of these was a series of three roughly aligned geochemical anomalies that extended over a total strike length of 4,600 feet, to the east and west of the main silver-lead-zinc mineralization showing at Camp Creek.

The central anomaly (Anomaly No. 1) reflects the main silver-lead-zinc mineralization just east of Camp Creek where the bulk of the surface and underground exploration work was carried out. The strike length of the geochemical anomaly in this zone is approximately 1,000 feet.

Along strike, 1,500 feet to the east of the central anomaly, a similar but stronger geochemical anomaly (Anomaly No. 3) was outlined for a strike length of approximately 1,000 feet. Surface diamond drill hole No. 32, drilled at the end of 1965, was abandoned before reaching the down dip extension of the mineralization causing this anomaly.

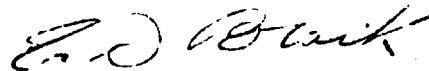
Approximately 1,500 feet to the west of the central anomaly another geochemical anomaly (Anomaly No. 2) of similar magnitude and dimensions was outlined and tested by surface diamond drilling. Two parallel zones of mineralization were intersected by drill holes Nos. 27 and 21 and, as previously noted, the zone subsequently became known as Shoot No. 2. Because of the uncertainty of the drilling results, it is urged that the drilling is inconclusive and, therefore, Shoot No. 2 remains to be tested fully by future underground exploration work.

In 1965 the detailed geochemical survey was extended to the northeast where soil sampling and analyses for silver outlined a complex anomaly (Anomaly No. 4), larger and more intense than any anomaly previously located in the area. The length of this anomaly is 2,200 feet, or roughly twice as long as each of the other anomalies outlined along strike from the main showing. No bedrock is exposed and no trenching or subsurface exploration has been carried out over this zone; therefore nothing is known about the type of mineralization or structural control that exists in the underlying rocks. This large anomaly may be caused by a single, long and wide mineralized



structure or several narrow, parallel or enechelon veins.  
This anomaly remains a prime target for future exploration  
work.

Respectfully submitted,



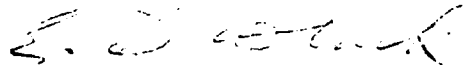
---

E. D. Black, B.Sc.

Toronto, Ontario,  
15th March, 1967.

I, E. D. Black, residing at 31 Windridge Drive,  
Markham, Ontario, certify that:

1. I am a graduate of McGill University of Montreal,  
and hold a degree of Master of Science in Geology.
2. I am a fellow of the Geological Association of Canada.
3. I have been practising my profession for eleven years.
4. I have based my summary and recommendations of this  
property on my experience and from knowledge gained  
during 1963 when I acted as consulting geologist for  
Rancheria Mining Company Limited, and from the re-  
sults obtained in exploration programmes since that  
time and reported by competent, qualified geologists  
and engineers.
5. I hold no interest directly or indirectly in the  
securities or properties of Rancheria Mining Company  
Limited nor do I expect to receive any such interest  
directly or indirectly in the securities or property  
of the Company.



---

E. D. Black, M.Sc.

Toronto, Ontario,  
15th March, 1967.