

GEOLOGICAL AND GEOCHEMICAL REPORT

on

Root-1, Boot, Loot and Road

MINERAL CLAIMS

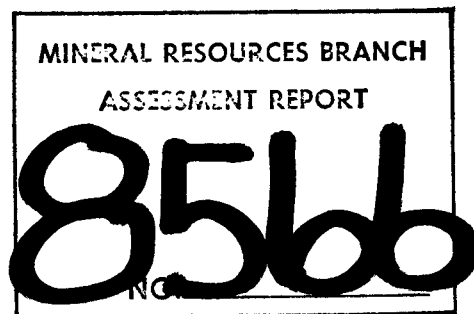
LIARD MINING DIVISION B.C.

Lat 59° 58'

Long 130° 25'

104  $\varnothing$  / 16 W

Owner/operator: Mosanda Exploration Co. Ltd.



R.G. MacArthur

September 12, 1980

LIST OF FIGURES

#1	Location Map	1:250,000	<i>following page 1 before page 2.</i>
#2	Claim Map	1:50,000	
#3	Geological Plan	1:5000	}
#4	Geochemical Soil Survey - Mo-W	Scale 1:5000	
#5	Geochemical Soil Survey Pb-Ag	Scale 1:5000	
#6	Geochemical Soil Survey Cu-Zn	Scale 1:5000	

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## INTRODUCTION

This report describes the results of work carried out on the Noranda Exploration Company Limited "Rancheria Property" during July and August 1980.

The program consisted of linecutting, a geochemical soil survey and geological mapping. The linecutting and soil sampling were carried out under contract by Ketz Enterprises of Ross River, Yukon Territory. The geological mapping and prospecting were carried out by G. Troop - Geologist and K. Lillie - Geological Technician, both Noranda Employees. The program was supervised by the author who is familiar with the property both from work carried out in 1979 and from field examinations done in 1980.

The work was planned to investigate occurrences of molybdenite, scheelite and powellite in skarn and hornfels adjacent to the Cassiar batholith.

## LOCATION AND ACCESS

The property is located approximately 3.5km south of the B.C. Yukon border and 40km east of Swift River, Yukon Territory.

A rough 4-wheel drive road from mile 701 Alaska Highway reaches to within 2km of the property.

Access for the 1980 program was by helicopter from Swift River and Rancheria. (Mile 710 Alaska Highway)

## CLAIMS AND OWNERSHIP

The property consists of the following claims acquired by staking.

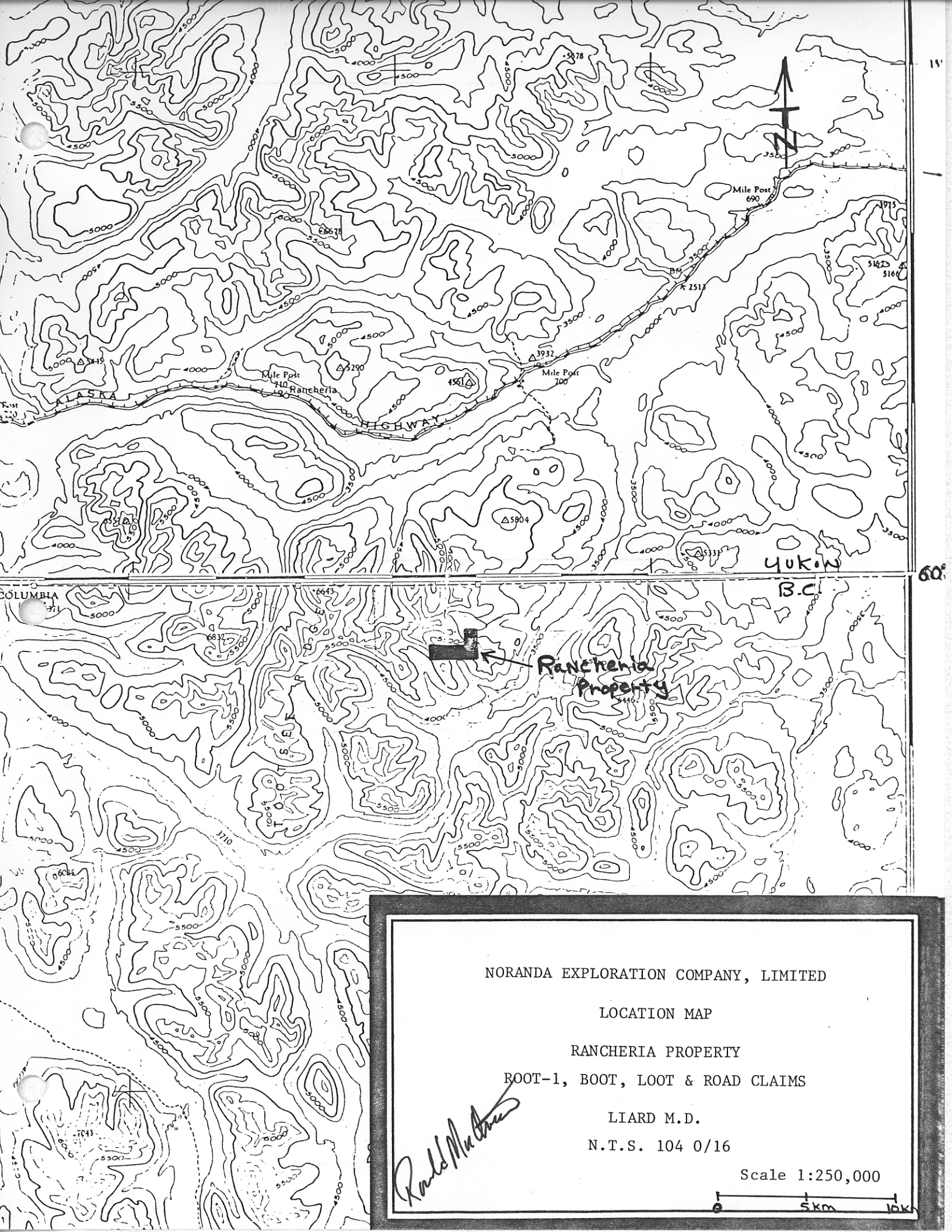
<u>CLAIM</u>	<u>UNITS</u>	<u>RECORD NO.</u>	<u>RECORD DATE</u>	<u>OWNER</u>
Root	6	716	November 8, 1978	NORANDA EXPLORATION
Road	12	971	September 13, 1979	COMPANY, LIMITED
Loot	20	972	September 13, 1979	(No Personal
Boot	20	973	September 13, 1979	Liability)

## TOPOGRAPHY AND VEGETATION

The property lies within the Cassiar Mountains. Maximum elevation on the property is approximately 1845 meters A.S.L. Approximately 30% of the property is above tree line.

There are large areas of bare rock along the north end of the Loot and Boot claims and along the west side of the Root claim. Most of the Road claim is covered with a thin soil and till.

Vegetation in the valleys and lower slope consists of dense small spruce and willow. The gentle slopes above tree line are covered with alpine grasses, flowers and small bushes.



NORANDA EXPLORATION COMPANY, LIMITED

LOCATION MAP

RANCHERIA PROPERTY

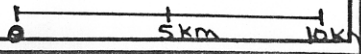
ROOT-1, BOOT, LOOT & ROAD CLAIMS

LIARD M.D.

N.T.S. 104 0/16

*Ronald MacArthur*

Scale 1:250,000

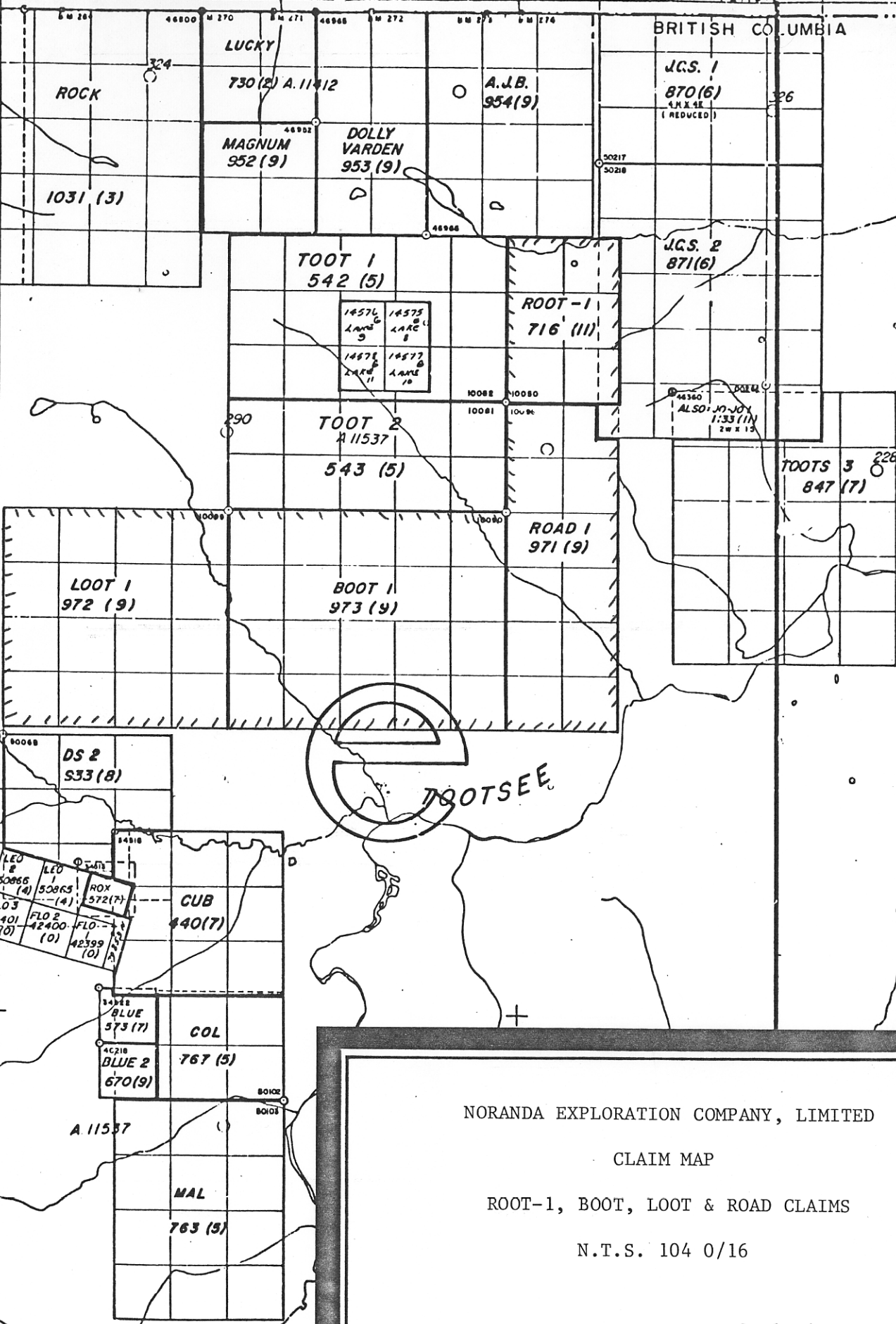


130°30'  
60°00'

M 1040/16W

YUKON

BRITISH COLUMBIA



NORANDA EXPLORATION COMPANY, LIMITED

CLAIM MAP

ROOT-1, BOOT, LOOT & ROAD CLAIMS

N.T.S. 104 0/16

Scale 1:50,000

0-15-E

## REGIONAL GEOLOGY

Regional mapping has been carried out in the area by the G.S.C. and their results are available as G.S.C. paper 68-55.

The claims lie near the east side of the Cassiar Batholith covering the north side of a large embayment in the intrusive. An extensive skarn-hornfels zone has developed in the sedimentary rocks along the edge of the intrusive.

## PREVIOUS WORK

A small programme of geological mapping and geochemical soil sampling was carried out on the Root-1 claim during 1979. The results of this work are described in a previous report - "GEOCHEMICAL AND GEOLOGICAL REPORT ON ROOT-1 MINERAL CLAIM, LIARD MINING DIVISION, B.C. Lat. 58°58' Long 130°25' by R.G. MacArthur, October 12, 1979."

No indication of any other previous exploration work was observed on the property.

## BASE MAP AND GRID PREPARATION

The topographic data used on the base maps was prepared by Pacific Survey Corp of Vancouver using B.C. Provincial Government air photographs.

A total of 23.6 km of grid was laid out on the property as shown in Figure #3. The base line (100N) was cut with chain saw and picketed at 25 m. intervals. All base line chainages were slope corrected. The grid lines were chained and marked with flagging and pickets, stations were established at 25 m. intervals. The grid line chainages were not slope corrected.

## GEOLOGICAL MAPPING

The results of geological mapping are shown in Figure #3.

The claims are largely underlain by a sequence of north-east striking, southeast dipping, sedimentary rocks including limestone, pelites and quartzites. These rocks have been intruded by the Cassiar Batholith (Unit 6 - Quartz Monzonite) which has produced a skarn-hornfels zone greater than 1 km. wide in places.

A number of north-east trending diabase dykes cut the sedimentary rocks.

The width of the skarn hornfels zone suggests that the contact of the intrusive dips east under the sedimentary rocks.

## Mineralization

As described in 1979 (see previous work) occurrences of Molybdenite, scheelite and powellite occur in the tremolite (Wollastonite) skarn (unit 3) on the Root-1 claim (L104+25E and 104+25N). This unit was traced southwest as shown in Figure 3. Extensive prospecting and ultraviolet light lamping revealed only minor occurrences of scheelite. The best mineralization now appears to be restricted to a small area around the original showings.

Extensive prospecting and lamping throughout the grid area located only minor occurrences of scheelite as shown in Figure 3.

Numerous occurrences of ferricrete and gossan indicated on Figure 3 are related to weathering of Fe minerals associated with the diabase dykes.

## SOIL GEOCHEMISTRY

### Sampling Method

A total of 776 soil samples were collected at 25 m. intervals on the grid described earlier. Samples were collected from the "B" soil horizon (where possible) by digging a hole with a small grubhoe. Samples were placed in "Hi" wet strength Kraft 3½ X 6 1/8" open end envelopes on which grid locations were marked. The samples were collected under contract by personnel of Ketz Enterprises of Ross River, Yukon Territories.

### Laboratory Determination Method

The samples were analysed for Zn-Pb-Ag-Cu-Mo at Noranda's geochem lab in Vancouver, B.C.. Selected samples (453) were analysed for tungsten by Rossbacher Laboratory Ltd., Vancouver, B.C. The following procedures were used during analysis:

The samples are first dried in a drying cabinet for a period of 24 - 48 hours. They are then screened and sifted to obtain a -80 mesh fraction.

To determine the amount of total extractable copper, molybdenum, lead, zinc and silver in each sample, the following procedure is employed:

A small amount of the -80 mesh material, 0.200 grams, is digested in 2 ml of HClO<sub>5</sub> and 0.5 ml of HNO<sub>3</sub> for approximately four hours. Following digestion, each sample is diluted to 5 ml with demineralized H<sub>2</sub>O. A Varian Techtron Model AA-5 atomic absorption spectrophotometer is used to ascertain the content, in parts per million, of each element.

To determine tungsten, the following method is used:

A 1.0 gr. sample is sintered with a carbon-

ate flux and then dissolved in demineralized water. This solution is left to settle overnight. A KCNS solution is used to form a complex with tungsten. The samples are then compared with chlorimetric standards.

The method is sensitive to 2ppm.

### Discussion of Results

The results of analysis for Mo and W are shown in Figure #4, for Pb-Ag in Figure #5, for Cu-Zn in Figure #6.

#### (i) Molybdenum (Figure #4)

There are two significant anomalies for molybdenum. One is on L 70 E centered on 103N with anomalous values up to 290ppm Mo. The second is in the area L66E-96N to L68E-97N, with anomalous values up to 58ppm Mo.

The cause of the above anomalies is unknown.

#### (ii) Tungsten (Figure #4)

There are numerous scattered values greater than 20ppm. There are two distinct anomalous areas. One area is from L76E to 78E centered on 103N. Values are up to 35ppm tungsten. This anomaly is on strike with a small showing of scheelite in Tremolite diopside-carbonate-skarn (Unit 3).

The second tungsten anomaly is from L102E to 106E near 106N. Values are up to 75ppm tungsten. This anomaly probably reflects scattered scheelite in lime-silicate horizons within the white quartzite (Unit 5).

#### (iii) Silver (Figure 5)

There are no significant anomalies for silver. Values are consistently low (0.2ppm to 1.6ppm).

#### (iv) Lead (Figure 5)

There are a number of scattered lead anomalies up to 1000ppm, most of these appear to occur near outcrops of diabase dykes.

#### (v) Zinc (Figure 6)

There is one prominent zinc anomaly with values up to 4000ppm. This occurs between L98E and 106E centered on base line 100N. The cause of this anomaly is unknown, but it does occur near a diabase dyke (Unit #7). There are a number of scattered anomalous zinc values  $\gt$  500ppm throughout the grid area.

#### (vi) Copper (Figure #6)

There are no significant copper anomalies. A few scattered values up to 140ppm occur but values are generally low.



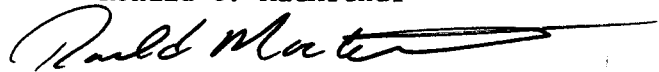
CONCLUSIONS AND RECOMMENDATIONS

The results of the work to date have failed to outline any significant occurrences of economic mineralization.

A number of soil geochem anomalies have been outlined as described earlier.

A brief examination to explain the cause of the various soil geochem anomalies is recommended. Further work would depend on the results of this examination.

Respectfully Submitted  
Ronald G. MacArthur

A handwritten signature in black ink, appearing to read "Ronald MacArthur", with a long horizontal flourish extending to the right.

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT RANCHERIA DATE September 1980  
TYPE OF REPORT Combined Geology and Geochem

a) Wages:

No. of Days 46  
Rate per Day \$ 85.0863  
Dates From: January 2, 1980 To September 13, 1980  
Total Wages 46 x \$ 85.0863 3,913.97

b) Food and Accomodation:

No of days 46  
Rate per day \$ 54.4441  
Dates From: January 2, 1980 To September 13, 1980  
Total Cost 46 x \$ 54.4441 2,504.43

c) Transportation:

No of days 46  
Rate per day \$ 109.166  
Dates From: January 2, 1980 To September 13, 1980  
Total Cost 46 X \$ 109.166 5,021.64

d) Instrument Rental:

Type of Instrument  
No of days  
Rate per day \$  
Dates From:  
Total Cost X \$

Type of Instrument  
No of days  
Rate per day \$  
Dates From:  
Total Cost X \$

f) Analysis			<u>2,866.75</u>
(See attached schedule)			
g) Cost of preparation of Report			
Author	3 Days at 101.11	303.33	
Drafting		197.54	
Typing		100.00	<u>600.87</u>
h) Other:			
<u>CONTRACTORS</u>			
Pacific Survey - Mapping		3,124.89	
Ketza Enterprises - Line Prep. & Silts		6,465.52	
Supplies. Transport for Contractor		150.82	
Expediting & Communications		999.51	
Supervision: D.E. Cross P. Eng. G.E. Dirom P. Eng. 2 Days @ 240.00		480.00	<u>11,220.74</u>
Total Cost			<u><u>26,128.40</u></u>

e) Unit costs for GEOLOGY			
No of days			
No of units	44 Employee Days		
Unit costs	\$286.3415 /E.D.		
Total Cost	44 x \$286.3415		<u>12,599.03</u>

UNIT COST FOR GEOCHEM

No. of Units			
Unit Cost			
Total Cost			<u>7,924.98</u>

Unit Cost for Line Preparation

No. of Units	23.6 km.		
Unit Cost:	\$237.4741		
Total Cost:	23.6 X \$237.4741		<u>5,604.39</u>
			<u><u>26,128.40</u></u>

NORANDA EXPLORATION COMPANY, LIMITED  
(WESTERN DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT: RANCHERIA

<u>ELEMENT</u>	<u>NO. OF DETERMINATIONS</u>	<u>COST PER DETERMINATION</u>	<u>TOTAL</u>
Cu	775	1.25	968.75
Zn	775	.60	465.00
Pb	775	.60	465.00
Mo	775	.60	465.00
Ag	775	.60	465.00

Pb )	2	19.00	38.00
Zn )			
Au )			
Ag )			

2,866.75

STATEMENT OF QUALIFICATIONS

I, Ronald G. MacArthur of the City of Vancouver, Province of British Columbia, do certify that:

- 1) I have been an employee of Noranda Exploration Company, Limited since May 1972.
- 2) I am a graduate of Dalhousie University with a Bachelor of Science Degree in Geology.
- 3) I am a member of the Canadian Institute of Mining and Metallurgy.
- 4) I am a member of the Geological Association of Canada.



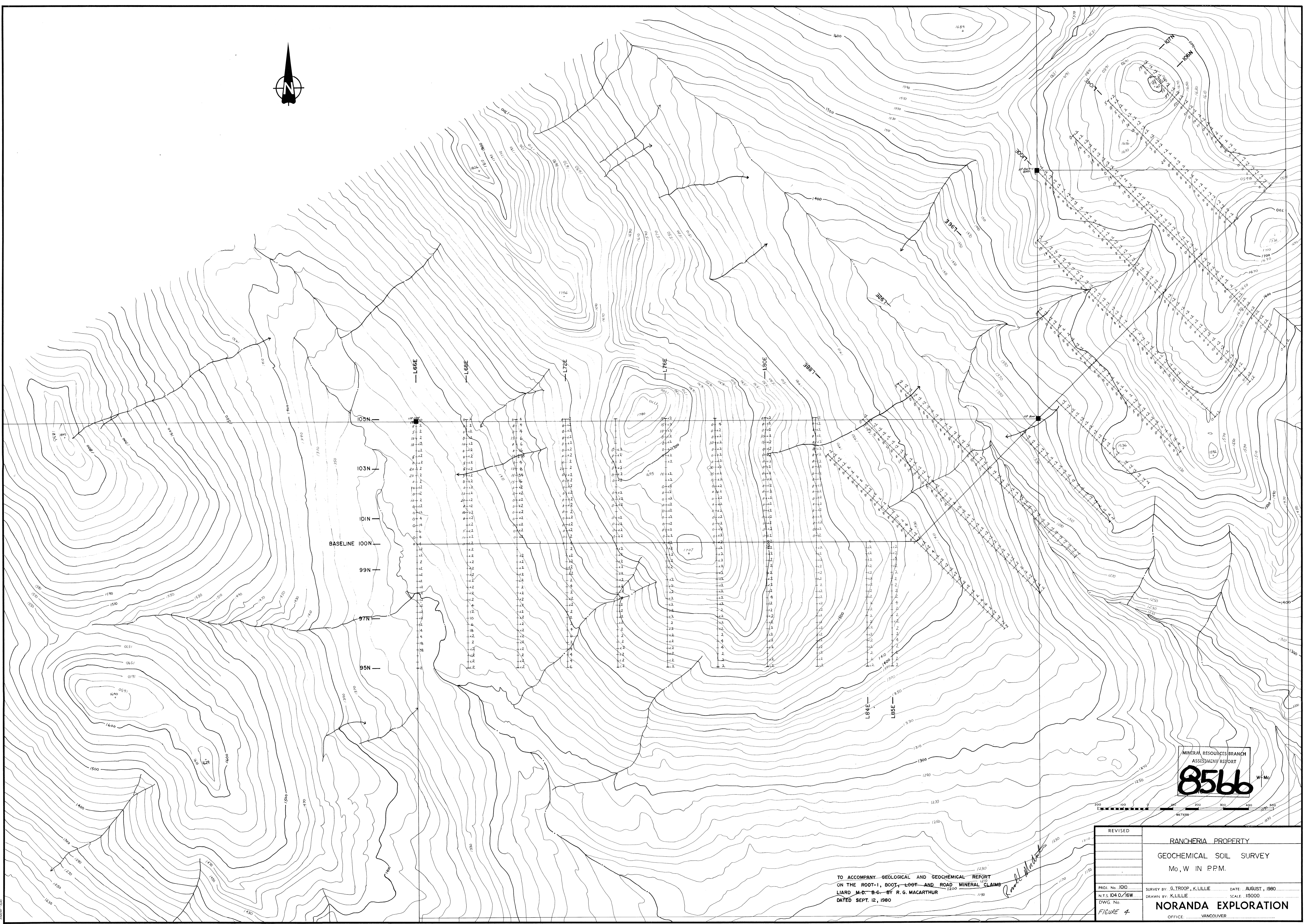
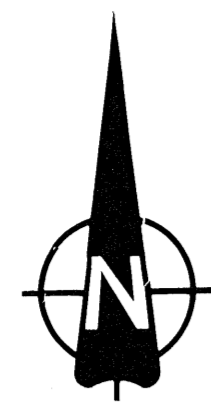
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R.G. MacArthur

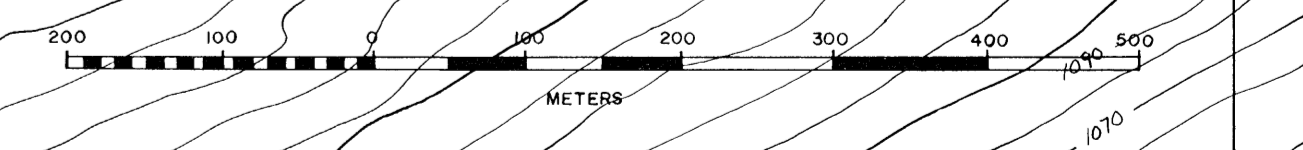
Geologist

Noranda Exploration Company, Limited  
(No Personal Liability)



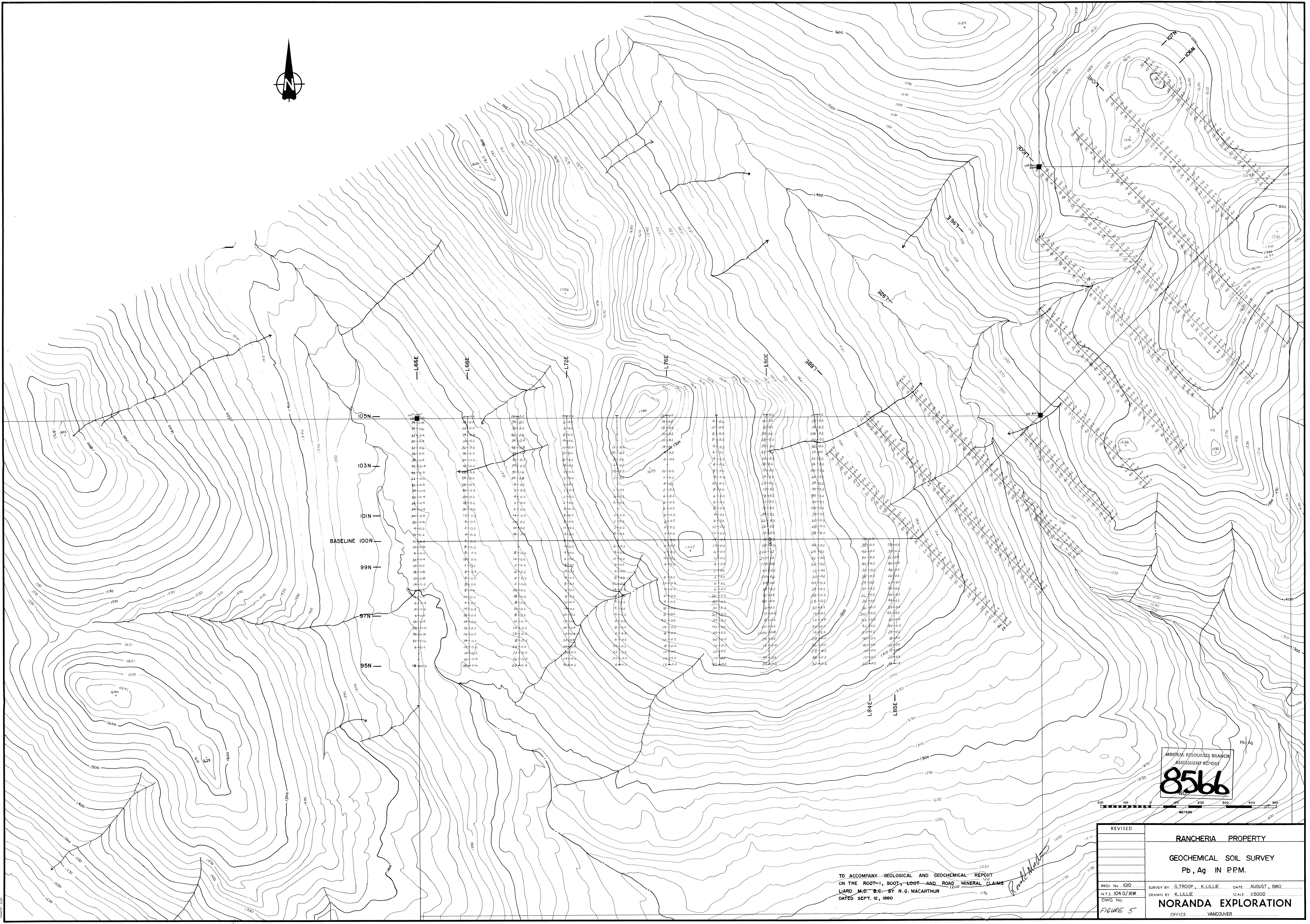
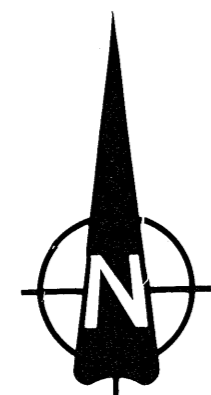


MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8566** W-Mo

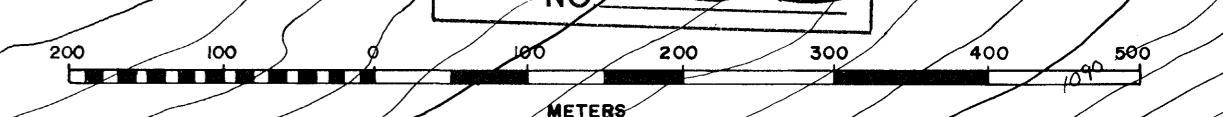


TO ACCOMPANY GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE ROOT-1, BOOT-LEOP-AND ROAD MINERAL CLAIMS  
LIARD M-6, B-6 BY R. G. MACARTHUR  
DATED SEPT. 12, 1980

REVISED	RANCHERIA PROPERTY	
	GEOCHEMICAL SOIL SURVEY	
	Mo, W IN PPM.	
PROJ. No. 1010	SURVEY BY: G. TROOP, K. LILLIE	DATE: AUGUST, 1980
N.T.S. 1040/16W	DRAWN BY: K. LILLIE	SCALE: 1:5000
DWG. No.	NORANDA EXPLORATION	
FIGURE 4	OFFICE: VANCOUVER	



MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8566**

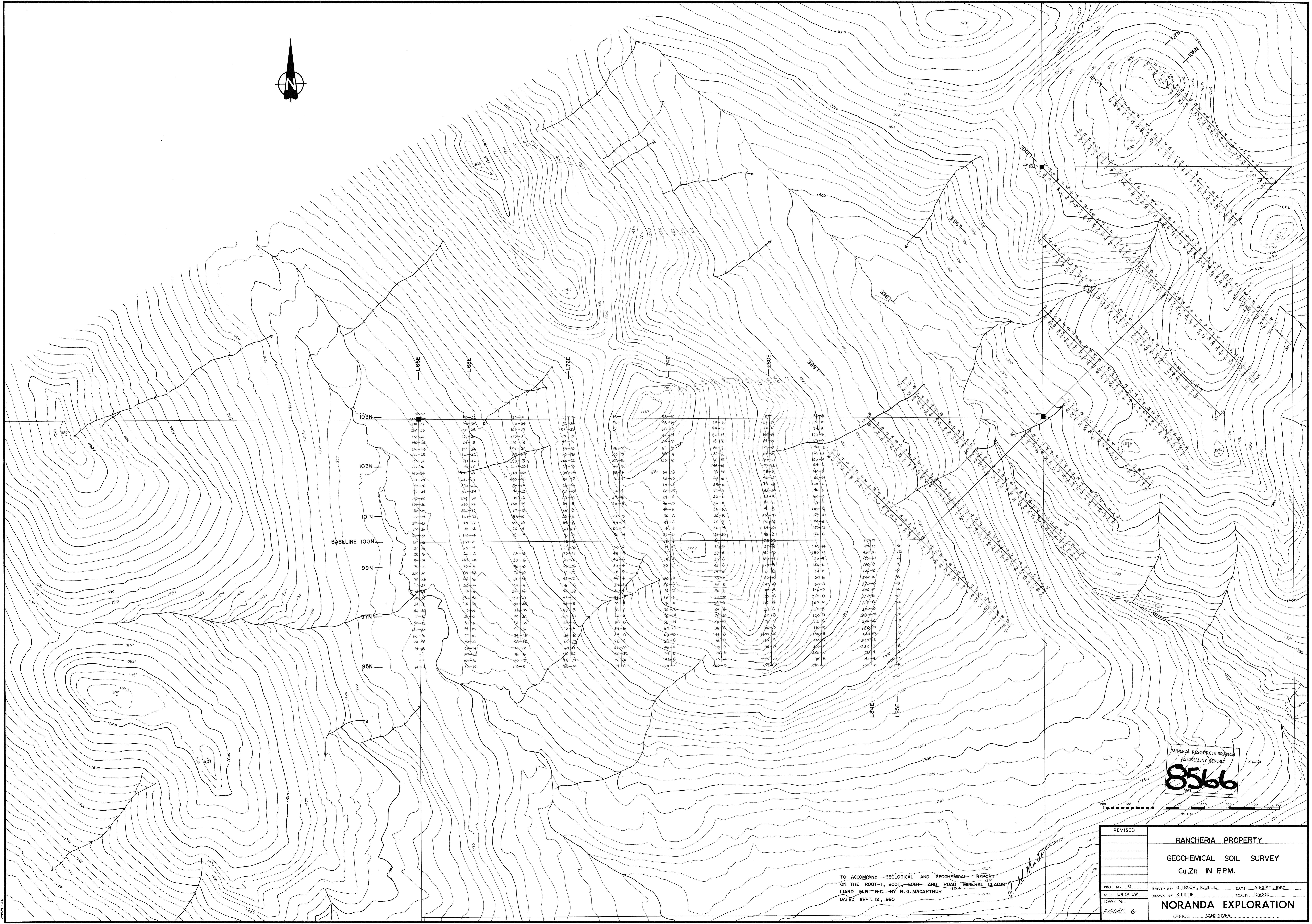
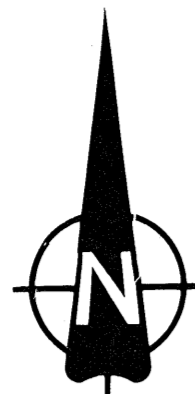


TO ACCOMPANY GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE ROOT-1, BOOT-LOOT AND ROAD MINERAL CLAIMS  
LIARD M.D. B.C. BY R.G. MACARTHUR  
DATED SEPT. 12, 1980

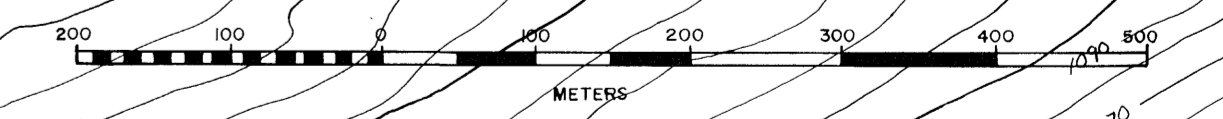
*R.G. MacArthur*

REVISED	RANCHERIA PROPERTY	
	GEOCHEMICAL SOIL SURVEY	
	Pb, Ag IN P.P.M.	
PROJ. No. 1010	SURVEY BY: G.TROOP, K.LILLIE	DATE: AUGUST, 1980
N.T.S. 1040/16W	DRAWN BY: K.LILLIE	SCALE: 1:5000
DWG. No.	<b>NORANDA EXPLORATION</b>	
FIGURE 5	OFFICE: VANCOUVER	





MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8566**  
NO.



TO ACCOMPANY GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE ROOT-1, BOOT-LOGG AND ROAD MINERAL CLAIMS  
LIARD M.B. B.C. BY R. G. MACARTHUR  
DATED SEPT. 12, 1980

REVISED	RANCHERIA PROPERTY	
	GEOCHEMICAL SOIL SURVEY	
	Cu,Zn IN PPM.	
PROJ. No. 10	SURVEY BY: G. TROOP, K. LILLIE	DATE: AUGUST, 1980
N.T.S. 104 OF 16W	DRAWN BY: K. LILLIE	SCALE: 1:5000
DWG. No.	<b>NORANDA EXPLORATION</b>	
FIGURE 6	OFFICE: VANCOUVER	