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VANCOUVER, B.C.

**GEOLOGICAL REPORT**

on the

**RUFF Claims**

Atlin Mining Division  
British Columbia

N.T.S 104N11/104N12  
Latitude 59° 43' North  
Longitude 133° 30' West

by

Stephen Kenwood, P. Geo.

January 9, 2003

**GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

27,031

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**on the**

## **RUFF Claims**

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British Columbia**

**N.T.S 104N11/104N12  
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**January 9, 2003  
Revised June 20, 2003**

## **TABLE OF CONTENTS**

	<u>Page</u>
Summary	2
Location, Access, and Physiography	2
Claim Status	3
History	3
Regional Geology	5
Property Geology	6
Conclusions	7
Statement of Costs	8
Bibliography	9

### **List of Figures**

	<u>Page After</u>
Figure 1 - Location Map	2
Figure 2 - Claim Map	3
Figure 3 - Regional Geology	5
Figure 4 - Property Geology	6
Figure 5 - VLF Survey - Fraser Filtered Data	7

### **List of Appendices**

Appendix I - Statement of Qualifications
Appendix II - VLF Data

## **SUMMARY**

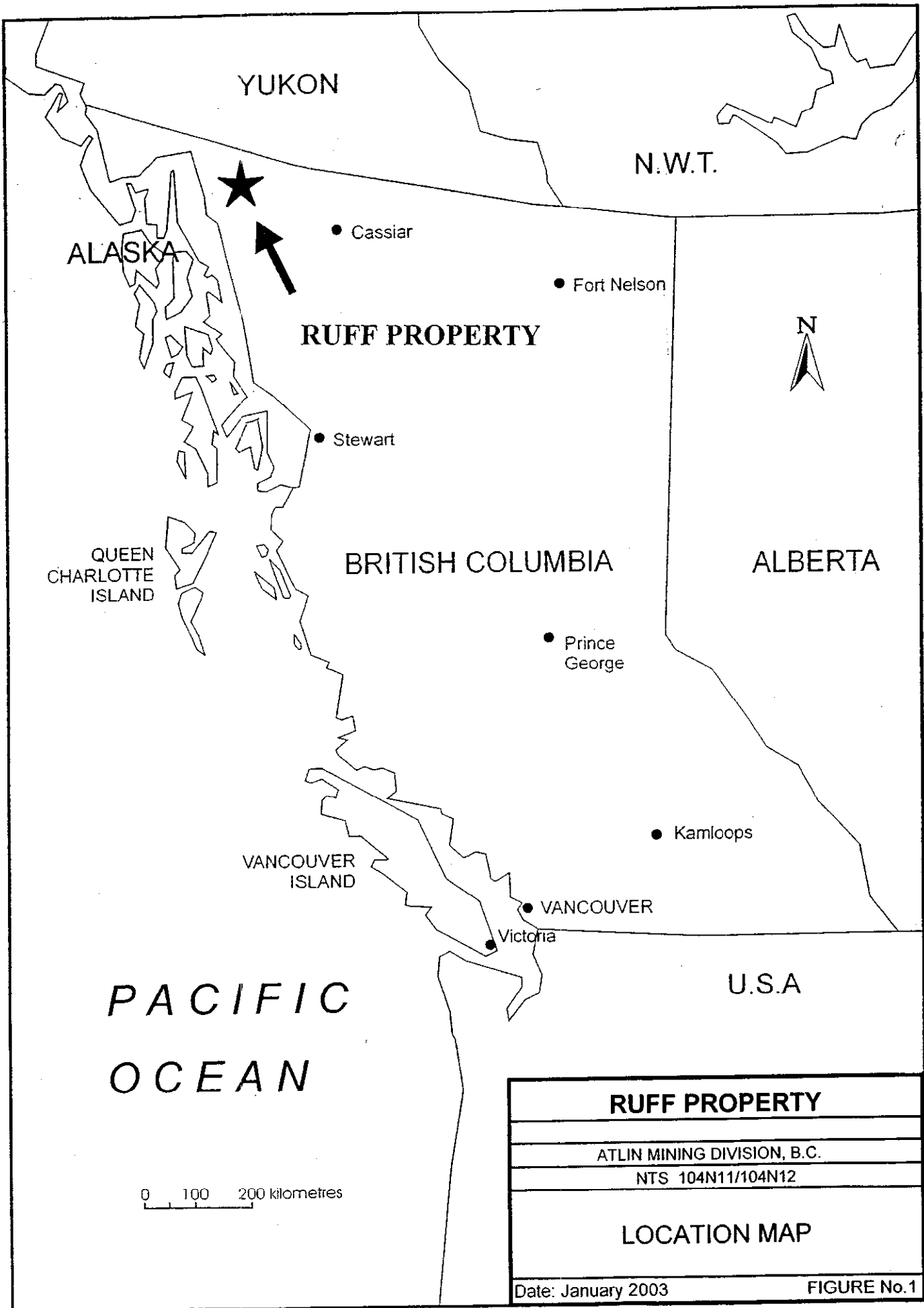
The Ruff claims are located approximately eighteen kilometres northeast of the town of Atlin, in the extreme northwest corner of the province of British Columbia. Silver-lead-zinc mineralization was discovered in the area in 1901. The Ruff property is a 20 unit claim owned by the author.

A program consisting of grid geophysics and reconnaissance prospecting and mapping took place on the property between August 15 and September 25 in an effort to explore for extensions to the known silver-lead-zinc Vulcan and Ruff veins and a secondary, possibly more significant porphyry style target. Porphyry style alteration and mineralization has been identified in the southeast portion of the Atlin Ruffner crown grants immediately north of the Ruff property.

## **LOCATION, ACCESS, AND PHYSIOGRAPHY**

The property is located on the southwestern slopes of Mount Vaughn, approximately eighteen kilometres northeast of the town of Atlin in the extreme northwest corner of British Columbia (Figure 1). The property can be accessed by a good all weather gravel road off the Atlin-Whitehorse highway. Numerous trails and roads on the property provide excellent access.

The property is almost entirely above treeline, with elevations ranging from 1,350 metres to 2,000 metres. The bulk of the showings and workings are found in the grass-covered uplands; thick talus cover obscures fresh rock exposure on the upper slopes of Mount Vaughn. Frozen overburden covers a large portion of the property and is comprised of glacial ablation till which ranges in thickness from one to ten metres. Permafrost occurs above the 1,650 metre elevation.



YUKON

N.W.T.

ALASKA

• Cassiar

• Fort Nelson

**RUFF PROPERTY**

• Stewart



QUEEN CHARLOTTE ISLAND

BRITISH COLUMBIA

ALBERTA

• Prince George

VANCOUVER ISLAND

• Kamloops

• VANCOUVER

• Victoria

PACIFIC OCEAN

U.S.A

0 100 200 kilometres

<b>RUFF PROPERTY</b>
ATLIN MINING DIVISION, B.C.
NTS 104N11/104N12
<b>LOCATION MAP</b>
Date: January 2003
FIGURE No.1

## CLAIM STATUS

The RUFF property (Figure 2) is comprised of 20 units in the Atlin Mining Division.

The following is the pertinent claim information:

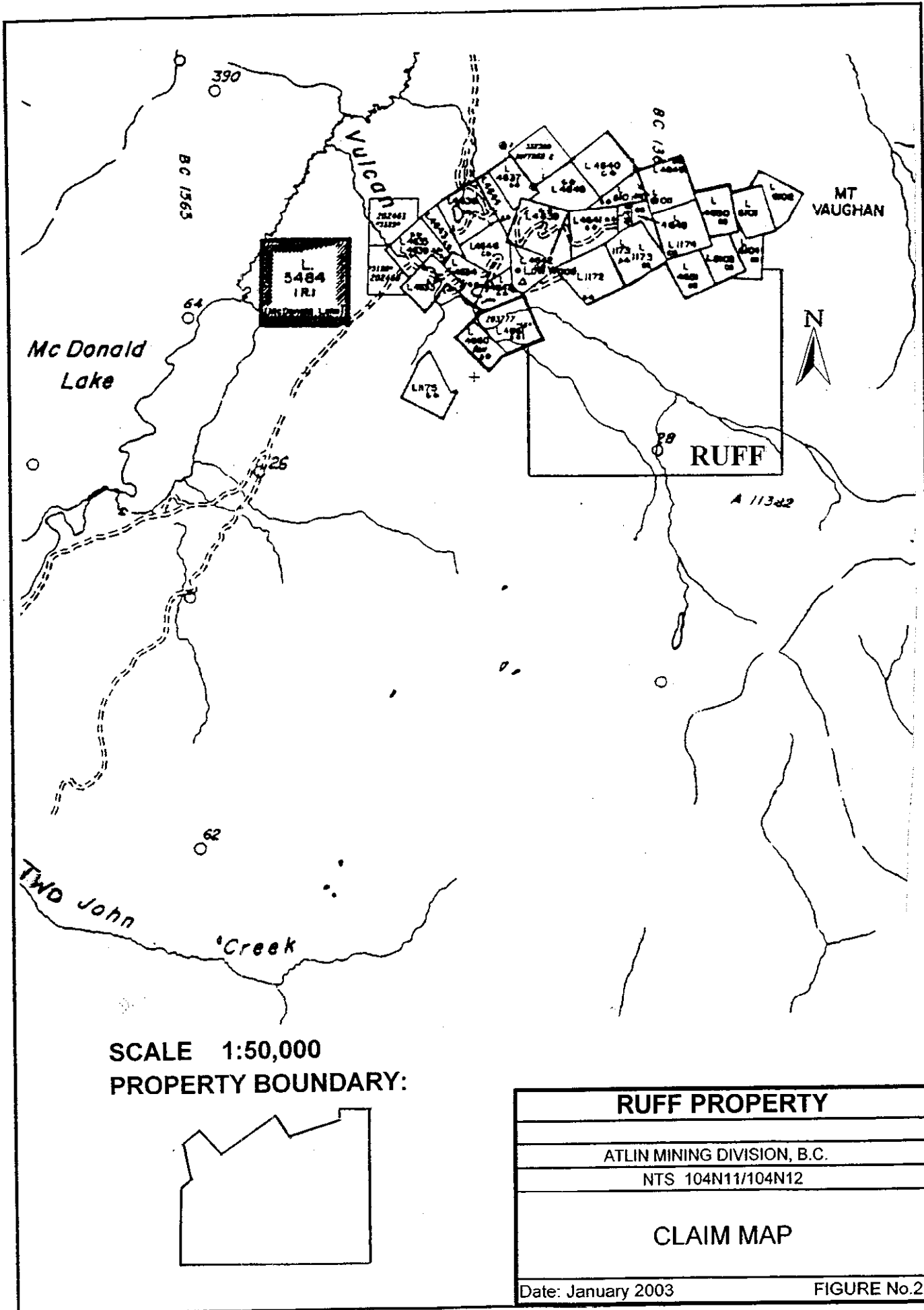
<u>Claim</u>	<u>Units</u>	<u>Record Number</u>	<u>Expiry</u>	<u>Owner</u>
Ruff	20	372574	October 5, 2003	Stephen Kenwood

## HISTORY

During the Klondike gold rush of the late 1890's, placer gold was discovered in the Atlin area. This activity resulted in the discovery of silver-lead deposits on the slopes of Mount Vaughn and Mount Leonard.

M.J. Ruffner later optioned and staked the Atlin Ruffner crown grants, which are contiguous with the RUFF claims to the north, in 1918. Surface prospecting revealed four vein zones on the present property with the bulk of all subsequent work being performed on the No. 2 and No. 4 veins. Underground work began in 1921 on the number four vein at the 4975 level and later drifting was done on the number two vein at the 4300 level. Small shipments of sorted lead-silver ore were made in 1923 and 1927.

After Ruffner's death, the C.V. Bob Group acquired control in 1928 and continued to develop the underground workings, driving the 3900 level crosscut for a length of about 2650 feet. This crosscut intersected the No. 2 vein at 1450 feet and continued toward the No. 4 vein for another 1200 feet. Diamond drilling of four holes from the end of this level intersected the No. 4 vein but recoveries were poor (Morgan, 1981). Work on the 4100 and 4300 levels was also accomplished by this group but failed to provide sufficient encouragement to warrant further work and they dropped their option in 1934.



Mc Donald Lake

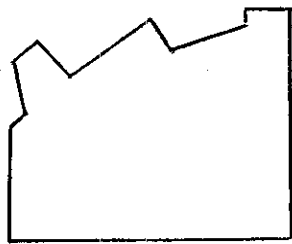
MT VAUGHAN



RUFF

Two John Creek

SCALE 1:50,000  
PROPERTY BOUNDARY:



<b>RUFF PROPERTY</b>	
ATLIN MINING DIVISION, B.C.	
NTS 104N11/104N12	
<b>CLAIM MAP</b>	
Date: January 2003	FIGURE No.2

Bobjo Mines Ltd. acquired the property in 1934 and continued underground exploration on the 5150 (4E drift) and 4300 (2X drift) levels, advancing them 640 and 580 feet respectively.

In 1951 Atlin Ruffner Mines reopened the workings and produced a shipment of 44 tons of ore grossing 7 ounces gold, 5,343 ounces silver, 36,197 pounds lead, and 5,824 pounds of zinc. Their surface work included bulldozer trenching and drilling of about 4,000 feet of AX core on the Vulcan vein, which lies on the current Ruff claims, and the Big Canyon vein, which lies immediately west of the Ruff claims.

Interprovincial Silver Mines Ltd. optioned the Vulcan Property in 1966, part of which is covered by the Ruff claims, and drilled 9,120 feet of AX core on the veins that parallel the mineralized structures on the Atlin-Ruffner claims. The company optioned the Atlin-Ruffner claims in 1967 and work that year included construction of ten miles of access roads that improve access to the Ruff property.

Cyclone Development Ltd. controlled 5 mineral claims totalling 35 units and 2 crown grants from 1979 to 1982 during which time a hand trenching and 1,500 feet of NQ diameter core drilling program was undertaken on the Ruff and Vulcan silver-lead-zinc+/-gold-molybdenite veins.

The most recent work in the immediate area was performed by Pacific Harbour Resources Inc. That company performed an extensive grid geochemical survey, and geophysical surveys between 1996 and 1997 on 28 Atlin Ruffner crown grants to the north of the Ruff property. Of particular interest is an altered and mineralized quartz diorite unit, which was noted to possibly be associated with another phase of the batholith (Church, 1998). A multi-element soil geochemical anomaly measuring approximately 200 by 400 metres and is coincident with similar shaped anomalies from geophysical surveys. This coincident anomaly is open to the east and to the south, on ground covered by the Ruff claims. There is very little outcrop exposure in the area but the only piece of



subcrop sampled from this area was noted to be a silica-flooded quartz diorite that returned 0.96% copper and 48.7 g/t silver.

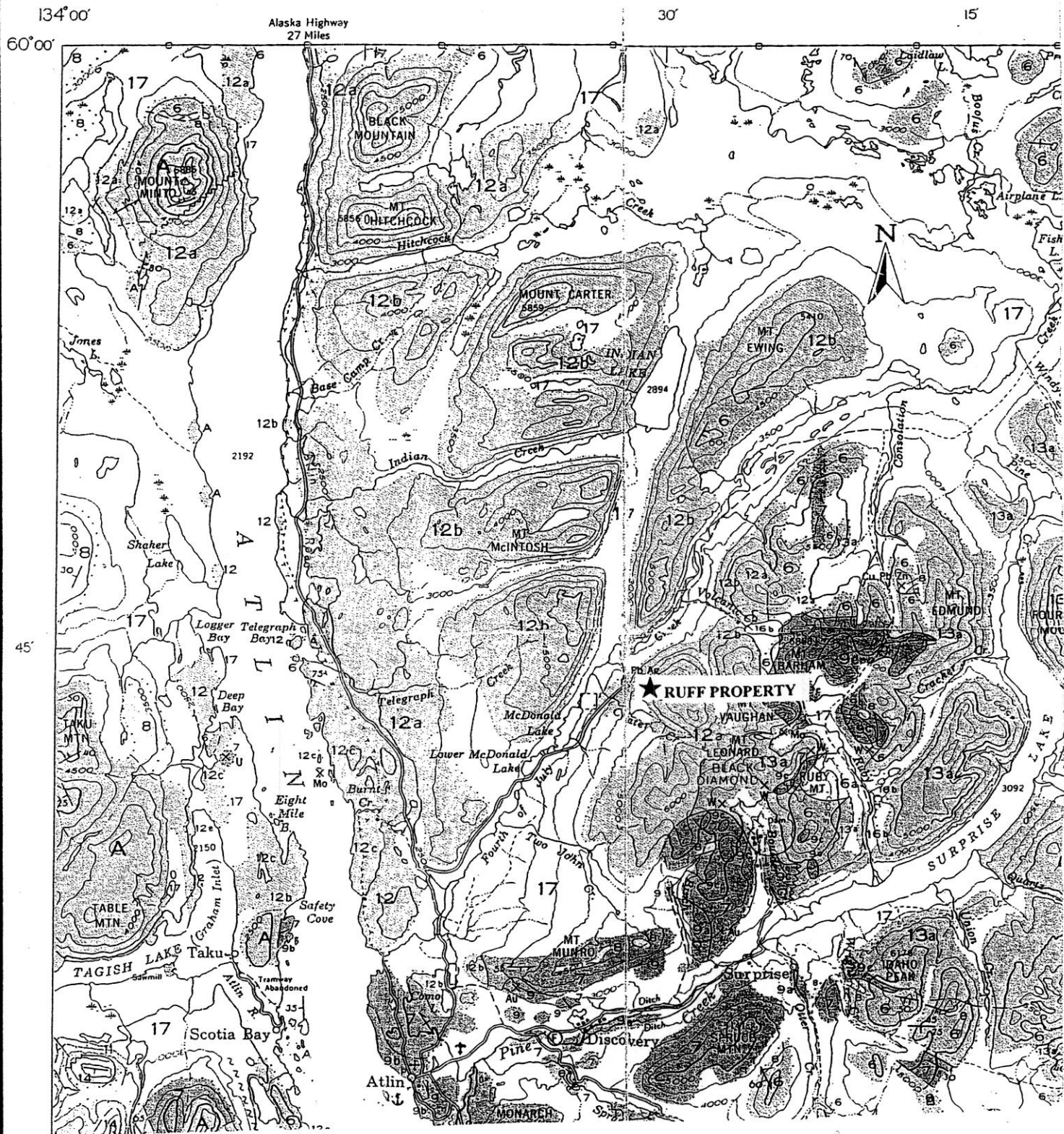
## **REGIONAL GEOLOGY**

The Atlin district lies east of the eastern fringe of the Coast Range batholith and at the western margin of an 80 kilometre wide belt of Upper Mississippian to Upper Triassic of the Cache Creek Group, referred to locally as the Atlin Terrane (Figure 3). The main lithologies in the Atlin Terrane are a basal unit of Mississippian to Pennsylvanian basalt that is overlain by cherts and argillaceous sediments with minor carbonates and volcanics. These rocks extend for 300 kilometres to the southeast and for over 100 kilometres to the northwest. The first of several intrusive events in the area are the Permian aged Atlin Intrusions; mafic and ultramafic rocks, mainly serpentinized peridotite and minor dunite and gabbro that are found east and south of the Ruff property.

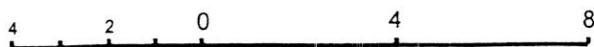
The many mineral occurrences in the area lie within and around the fringe of a Cretaceous aged intrusive stock of complexly zoned granitic rocks that lie east of the north end of Atlin Lake, extending eastward 80 kilometres to Teslin Lake.

The inner zone of the Cretaceous aged batholith varies from biotite hornblende diorite to granodiorite and is referred to as the Fourth of July Creek batholith. Potassium argon ages range from 73.3 +/- 2.6 Ma to 110 +/- 4 Ma from biotite and hornblende, respectively (Christopher and Pinsent, 1979). The eastern limit of the batholith is north and east of the property. This unit is characterized by late stage emplacement of lamprophyre dykes. These dykes are host to or adjacent to mineralization found on the adjacent Atlin Ruffner property.

The Surprise Lake Batholith is also locally of economic significance with the Adanac molybdenum porphyry five kilometres to the southeast of the Ruff claims. This deposit is reported to contain 104 million tons grading 0.096% Molybdenum (Morgan, 1981).



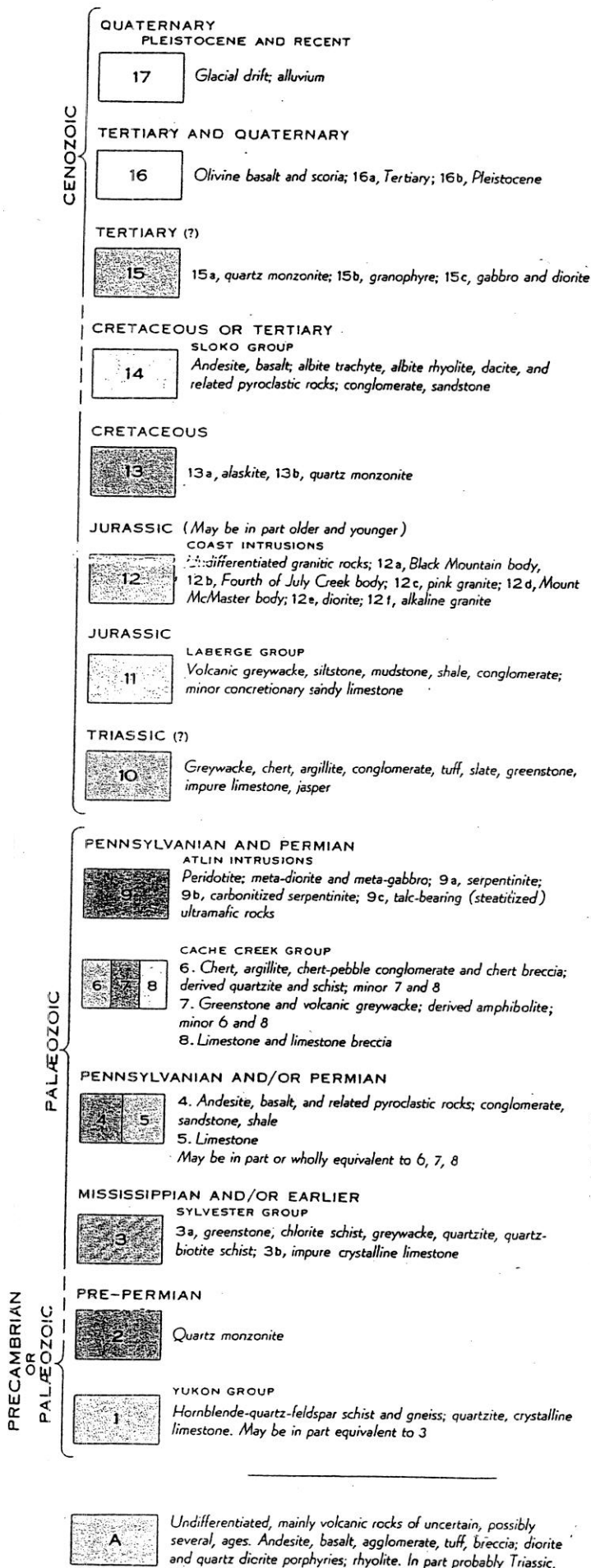
Scale: One Inch to Four Miles =  $\frac{1}{253,440}$   
Miles



(After Aitken 1959)

<b>RUFF PROPERTY</b>	
ATLIN MINING DIVISION, B.C.	
NTS 104N11/104N12	
<b>REGIONAL GEOLOGY</b>	
Date: January 2003	FIGURE No.3

# LEGEND



## PROPERTY GEOLOGY

The entire property is underlain by multiphase intrusions of the Fourth of July batholith, which was correlated by Aitken (1959) as belonging to the Coast intrusions. The majority of the property is underlain by medium to coarse-grained quartz monzonite with the extreme eastern portion underlain by quartz diorite, which is believed to be a product of magmatic differentiation.

A series of east trending faults dipping 60 to 80 degrees north represent the main structural features on the property and acted as conduits for mineralization (Figure 4). This trend is consistent with the structural trends of mineralized lode gold deposits in the area that occur along the Pine Creek, Adera, and Union Mountain faults.

The presence of relatively high grade silver-lead-zinc vein mineralization on the property has been well documented in the past and there is evidence of trenching and some small diameter surface drilling of the Vulcan vein on the property, dating back to programs in 1967 and 1981.

The Vulcan vein is similar to most vein structures in the area in that it trends east-west and dips steeply to the north. It appears that the surface trace of the structure is more east-northeast toward the east, lending credence to the idea that the Vulcan, the Ruff, and the No. 4 vein on the Atlin Ruffner crown grants could possibly intersect along strike or at depth (Morgan, 1982). This possible intersection could also be manifested in the coincident geochemical and geophysical anomalies that were found during the 1996 and 1997 programs on the Atlin Ruffner crown grants. It was thought that the anomalies could possibly represent the existence of porphyry style copper mineralization.

The relatively finer grained quartz diorite found in the northeast portion of the property exhibits various degrees of argillic alteration. The characteristic white clay is a weathering rind, though the porphyry has been altered by chalcedony and quartz veining.

584500 E

North



Ruff Claim Boundary

6622000 N

1996 Float Sample  
0.96% Cu, 34 g/t Ag



80°N

Ruff Vein  
fractured, mineralized  
lamprophyre dyke

85°N

Vulcan Vein

fractured, mineralized  
lamprophyre dyke

Vulcan Creek

2000 Granodiorite Sample  
3,723 ppm Cu

old trenches  
(filled in)

Si-altered granodiorite

**RUFF PROPERTY**

ATLIN MINING DIVISION, B.C.

NTS 104N11/104N12

**PROPERTY GEOLOGY**

Scale 1:5,000

Date: June 2003

FIGURE No.4

Mafic content varies, although it could be generalized that mafic content is highest in this area of finer grained quartz diorite; further south and west the porphyry is more coarse and can be classified more as a quartz monzonite.

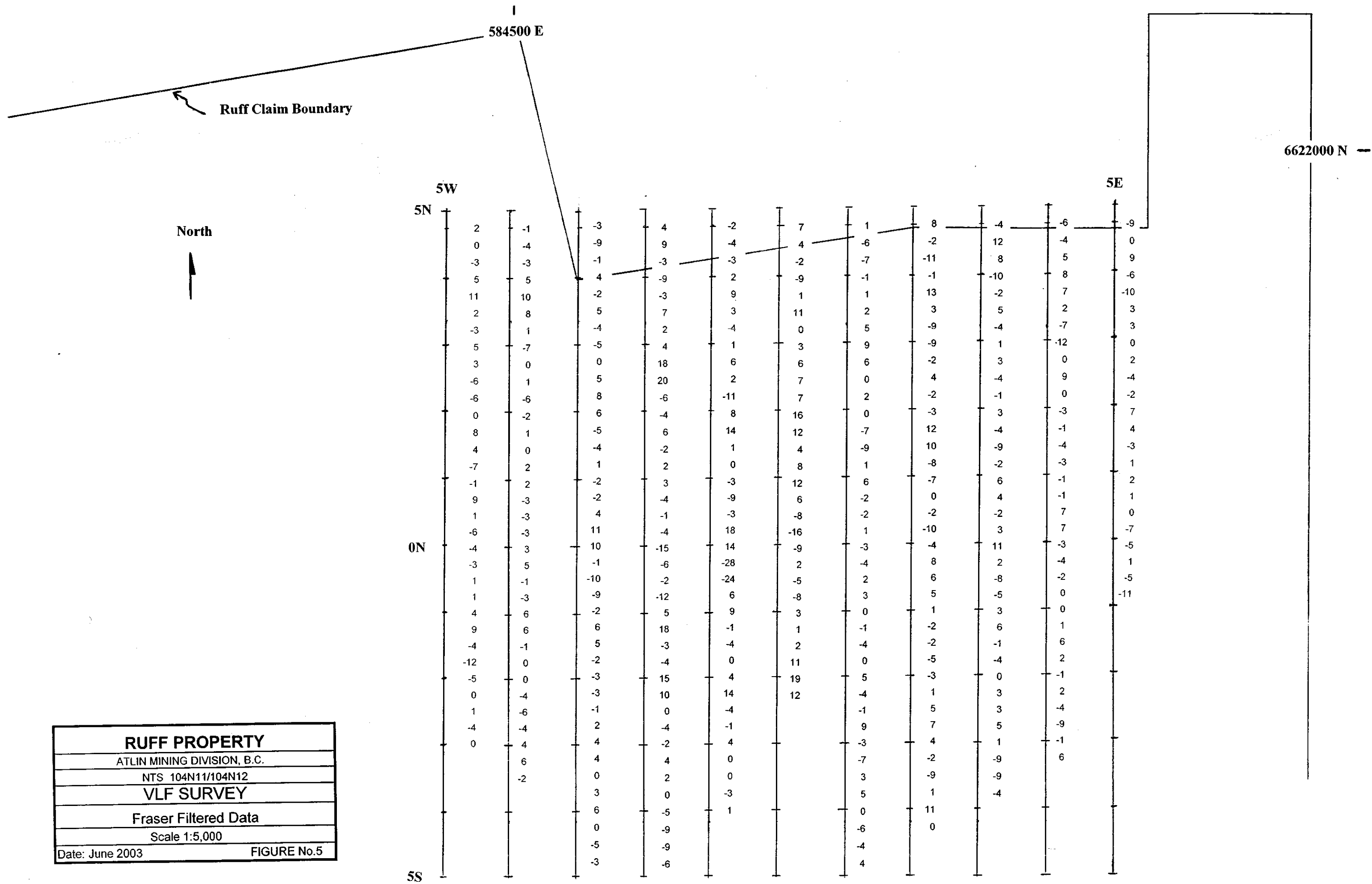
A total of 11 field days between August 15 and September 25 were spent performing a grid geophysical survey and additional mapping and prospecting of the property. A VLF-EM geophysical survey was completed over the northeast portion of the claim. Readings were taken with a Sabre Model 27 unit at 25 metre intervals along 100 metre spaced North-South crosslines and measured field distortion of the signal originating from the Anchorage Alaska transmitter. The VLF-EM data was Fraser filtered in an attempt to better define the zones of mineralization.

The raw VLF-EM data shows a long conductor axis trending east to west over the entire grid, extending from Line 500E Station 425N across the length of the grid to Line 500W Station 375N (Figure 5). This conductor probably corresponds with the Ruff and/or the Vulcan vein systems. Several small 100 to 400 metre conductor axes occur to the south of the main vein trace and may represent small splays off the main shear zone.

### CONCLUSIONS

The Ruff property has potential for the presence of an altered and mineralized porphyry system in the northeast portion of the property as well as medium to high grade silver veins in the northwest portion of the property. In general, the hillside has very poor outcrop exposure, making it difficult to determine the origin of the multi-element geochemical anomaly found in the 1996 soil survey on the Atlin Ruffner crown grants to the north. The semi-circular anomaly is open to the east and to the south (Church, 1998), onto ground covered by the Ruff claims.

With any kind of increased budget, further work on the property should focus on the potential porphyry target on the northern boundary of the property. Work should include attempting to locate portions of the 1996 grid on the Atlin Ruffner crown grants and



<b>RUFF PROPERTY</b>
ATLIN MINING DIVISION, B.C.
NTS 104N11/104N12
<b>VLF SURVEY</b>
Fraser Filtered Data
Scale 1:5,000
Date: June 2003
FIGURE No.5

attempting to locate portions of the 1996 grid on the Atlin Ruffner crown grants and extending the eastern lines onto the Ruff property. Trenching in the area might help expose altered quartz diorite that was found in one subcrop sample taken in 1996 to return an assay of 0.96% copper and 46.7 g/t silver. Float samples of altered intrusive taken in 2000 from the Ruff claims returned copper values of up to 3,723 ppm in the same relative vicinity (Figure 4).

The VLF survey was successful in identifying the trace of the Vulcan/Ruff vein structures over a strike length of approximately one kilometre but did not outline the porphyry target in the northeast corner of the claim.

The east-west trending Vulcan and Ruff vein structures are interesting in that they demonstrate extensive and consistently mineralization where they have been previously sampled. Historical sampling indicates that these structures are not as well mineralized as the similar parallel structures on the Atlin Ruffner crown grants to the north. Any work performed in expanding the above mentioned porphyry target, such as soil geochemistry or trenching, will be done for the benefit of expanding the eastern extent of both of these known structures so there is no need to recommend any other work on these structures.



**STATEMENT OF COSTS**

Geologist -	Field Work: 11 days @ \$350	\$3,850
	Travel: 4 days @ \$250	1,000
Expenses -		
- Truck, Equipment Rental - 15 days @ \$150		2,250
- Fuel, Food, Accommodation @ \$125 per day		1,750
Report -	4 days @ \$350	<u>1,400</u>
	<b>Total:</b>	<b>\$10,250</b>



## **BIBLIOGRAPHY**

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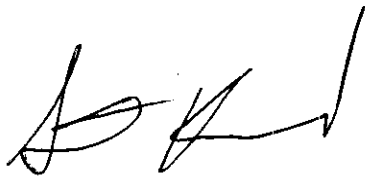
## APPENDIX I

### Statement of Qualifications

I, Stephen Patrick Kenwood, hereby certify that:

1. I am a Consulting Geologist with an office at 13629 Marine Drive, White Rock, British Columbia, Canada, V4B 1A3.
2. I am a graduate of the University of British Columbia with a Bachelor of Sciences Degree in Geology (1987).
3. I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia (#20447).
4. I have practiced my profession since 1987 working as an employee and consultant for International Mining Companies and Junior Resource Companies.
5. The work described in this prospecting report was carried out under my supervision.

Dated at White Rock, British Columbia, this 9th day of January, 2003.

A handwritten signature in black ink, appearing to read 'S. Kenwood', written in a cursive style.

Stephen Kenwood, P. Geo.

**APPENDIX 2 – VLF DATA**

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	0+50S	1	-5		0+50S	0	-2		0+50S	-2	-8
	0+75S	0	-11		0+75S	1	0		0+75S	2	-5
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	2+25S				2+25S	0	2		2+25S	2	3
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	2+75S				2+75S	-1	-9		2+75S	0	5
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	3+25S				3+25S	3	6		3+25S	-4	-9
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	5+00S				5+00S	2			5+00S		

Line	Station	Null	Filter	Line	Station	Null	Filter	Line	Station	Null	Filter
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	4+75N	0	-2		4+75N	7	4		4+75N	2	-3
	4+50N	4	-4		4+50N	2	9		4+50N	-2	-9
	4+25N	3	-3		4+25N	0	-3		4+25N	7	-1
	4+00N	5	2		4+00N	0	-9		4+00N	2	4
	3+75N	5	9		3+75N	5	-3		3+75N	4	-2
	3+50N	1	3		3+50N	4	1		3+50N	1	-5
	3+25N	0	-4		3+25N	4	2		3+25N	7	-4
	3+00N	3	1		3+00N	4	4		3+00N	3	-5
	2+75N	2	6		2+75N	2	18		2+75N	9	0
	2+50N	0	2		2+50N	2	20		2+50N	6	5
	2+25N	8	-11		2+25N	-14	-6		2+25N	6	8
	2+00N	9	8		2+00N	-2	-4		2+00N	4	6
	1+75N	10	14		1+75N	-4	6		1+75N	0	-5
	1+50N	-1	1		1+50N	-8	-2		1+50N	4	-4
	1+25N	6	0		1+25N	-4	2		1+25N	5	1
	1+00N	2	-3		1+00N	-6	3		1+00N	3	-2
	0+75N	3	-9		0+75N	-8	-4		0+75N	5	-2
	0+50N	8	-3		0+50N	-5	-1		0+50N	5	4
	0+25N	6	18		0+25N	-5	-4		0+25N	5	11
	0+00N	8	14		0+00N	-7	-15		0+00N	1	10
	0+25S	-12	-28		0+25S	1	-6		0+25S	-2	-1
	0+50S	12	-24		0+50S	2	-2		0+50S	-2	-10
	0+75S	12	6		0+75S	-2	-12		0+75S	2	-9
	1+00S	12	9		1+00S	7	5		1+00S	4	-2
	1+25S	6	-1		1+25S	5	18		1+25S	5	6
	1+50S	9	-4		1+50S	-5	-3		1+50S	3	5
	1+75S	10	0		1+75S	-1	-4		1+75S	0	-2
	2+00S	9	4		2+00S	4	15		2+00S	3	-3
	2+25S	10	14		2+25S	-6	10		2+25S	2	-3
	2+50S	5	-4		2+50S	-6	0		2+50S	4	-1
	2+75S	4	-1		2+75S	-6	-4		2+75S	4	2
	3+00S	4	4		3+00S	-6	-2		3+00S	3	4
	3+25S	0	0		3+25S	-2	4		3+25S	3	4
	3+50S	4	0		3+50S	-8	2		3+50S	0	0
	3+75S	0	-3		3+75S	-4	0		3+75S	2	3
	4+00S	4	1		4+00S	-8	-5		4+00S	1	6
	4+25S	3			4+25S	-4	-9		4+25S	-2	0
	4+50S				4+50S	-3	-9		4+50S	-1	-5
	4+75S				4+75S	0	-6		4+75S	0	-3
	5+00S				5+00S	2			5+00S	2	

Line	Station	Null	Filter	Line	Station	Null	Filter
4+00W	5+00N	5		5+00W	5+00N	2	
	4+75N	1	-1		4+75N	4	2
	4+50N	4	-4		4+50N	2	0
	4+25N	3	-3		4+25N	2	-3
	4+00N	6	5		4+00N	4	5
	3+75N	4	10		3+75N	3	11
	3+50N	0	8		3+50N	-2	2
	3+25N	0	1		3+25N	-2	-3
	3+00N	-4	-7		3+00N	1	5
	2+75N	3	0		2+75N	-2	3
	2+50N	0	1		2+50N	-4	-6
	2+25N	-1	-6		2+25N	0	-6
	2+00N	3	-2		2+00N	0	0
	1+75N	2	1		1+75N	2	8
	1+50N	2	0		1+50N	-2	4
	1+25N	2	2		1+25N	-4	-7
	1+00N	2	2		1+00N	0	-1
	0+75N	0	-3		0+75N	1	9
	0+50N	2	-3		0+50N	-4	1
	0+25N	2	-3		0+25N	-4	-6
	0+00N	3	3		0+00N	0	-4
	0+25S	2	5		0+25S	-2	-3
	0+50S	0	-1		0+50S	2	1
	0+75S	0	-3		0+75S	-1	1
	1+00S	3	6		1+00S	0	4
	1+25S	0	6		1+25S	0	9
	1+50S	-3	-1		1+50S	-5	-4
	1+75S	0	0		1+75S	-4	-12
	2+00S	-2	0		2+00S	3	-5
	2+25S	-1	-4		2+25S	0	0
	2+50S	-1	-6		2+50S	4	1
	2+75S	2	-4		2+75S	-1	-4
	3+00S	2	4		3+00S	4	0
	3+25S	3	6		3+25S	3	
	3+50S	-3	-2		3+50S		
	3+75S	2			3+75S		
	4+00S				4+00S		
	4+25S				4+25S		
	4+50S				4+50S		
	4+75S				4+75S		
	5+00S				5+00S		