ASSESSMENT REPORT

on the

SNOWBIRD PROPERTY

Fort Saint James B.C.
Omineca Mining Division

Latitude 54°28'N
Longitude 124°32'W

NTS: 93 K/7E-8W

For

X-Cal Resources Ltd.
P.O. Box 48479
Bentall Center
Vancouver, B.C. V7X 1A0

By

Derrick Strickland, P.Geo.
2-236 West 12th Ave
Vancouver, B.C.
V5N 2T7
April 22, 2003

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Metric Conversion Table

1 foot (ft)	=	0.3848 meters (m)
1 inch (i.)	=	2.54 centimeters (cm)
1 kilometer (k)	=	0.26137 miles (mi)

1 INTRODUCTION

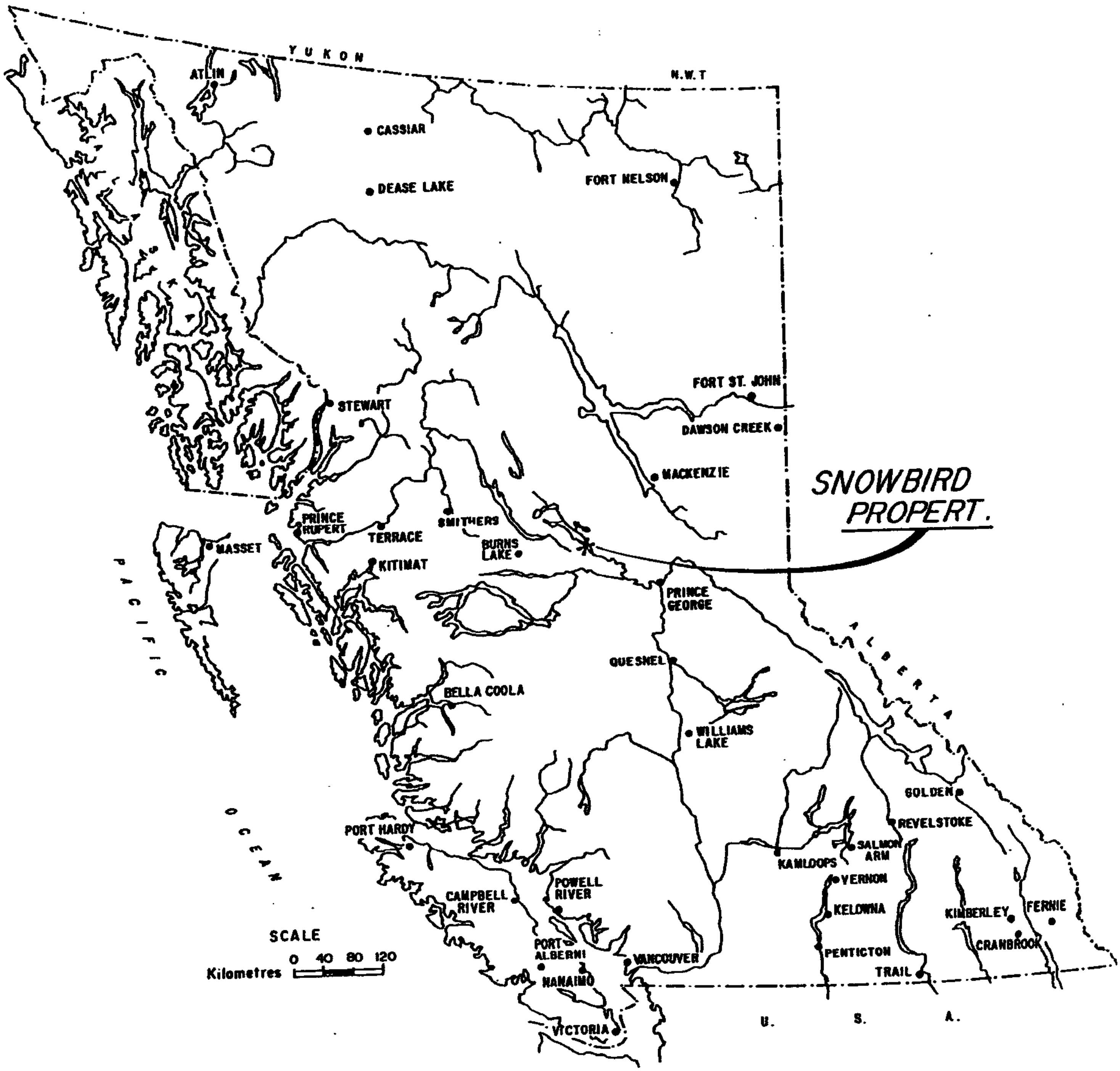
The Snowbird property, located adjacent to Kasann Bay near the southwest corner of Stuart Lake, British Columbia is a gold-stibnite prospect first discovered in 1928. This report summarizes the 2003 field program conducted on the property. The purpose of the field program was to reconfirm the presence of gold mineralization on the property. The field program consisted of geological mapping and sampling. The samples were gathered to add and enhance the geochemical database that was compiled in late 2002 by SRK Consulting of Vancouver. SRK was contracted by X-Cal Resources Limited to create a compilation of all data, create a compilation geology map, and determine the potential resources on the property based on this data. In early 2003, Rio Minerals Limited of Vancouver was contracted by X-Cal Resources Limited to undertake a geological mapping and sampling program, and delineate an area for future bulk sampling using the results of the SRK data.

2 PROPERTY LOCATION, ACCESS & PHYSIOGRAPHY

The Snowbird Property is located approximately twenty-four kilometers northwest of the rural community of Fort Saint James in central British Columbia (see figures 1 & 2). The claims occupy an area of approximately 1375 hectares. The property is characterized by low elevation (960 meters) and moderate relief (90 meters). The elevation of Stuart Lake is 865 meters. In the west there is a series of low peaks forming a northwest trending ridge system. To the east there is a broad depression dipping towards Stuart Lake.

The property is accessed by truck from Fort Saint James via a seventeen kilometer drive northwest along a public highway 27 to the Sowchea Campground, at which point a seven kilometer gravel road provides direct access to the main property workings. The property is accessed by 4x4 truck in the summer months and by skidoo in winter months.

Tree cover is comprised largely of birch, polar, and cottonwood. Mature stands of pine and spruce are typically found in the higher elevations.



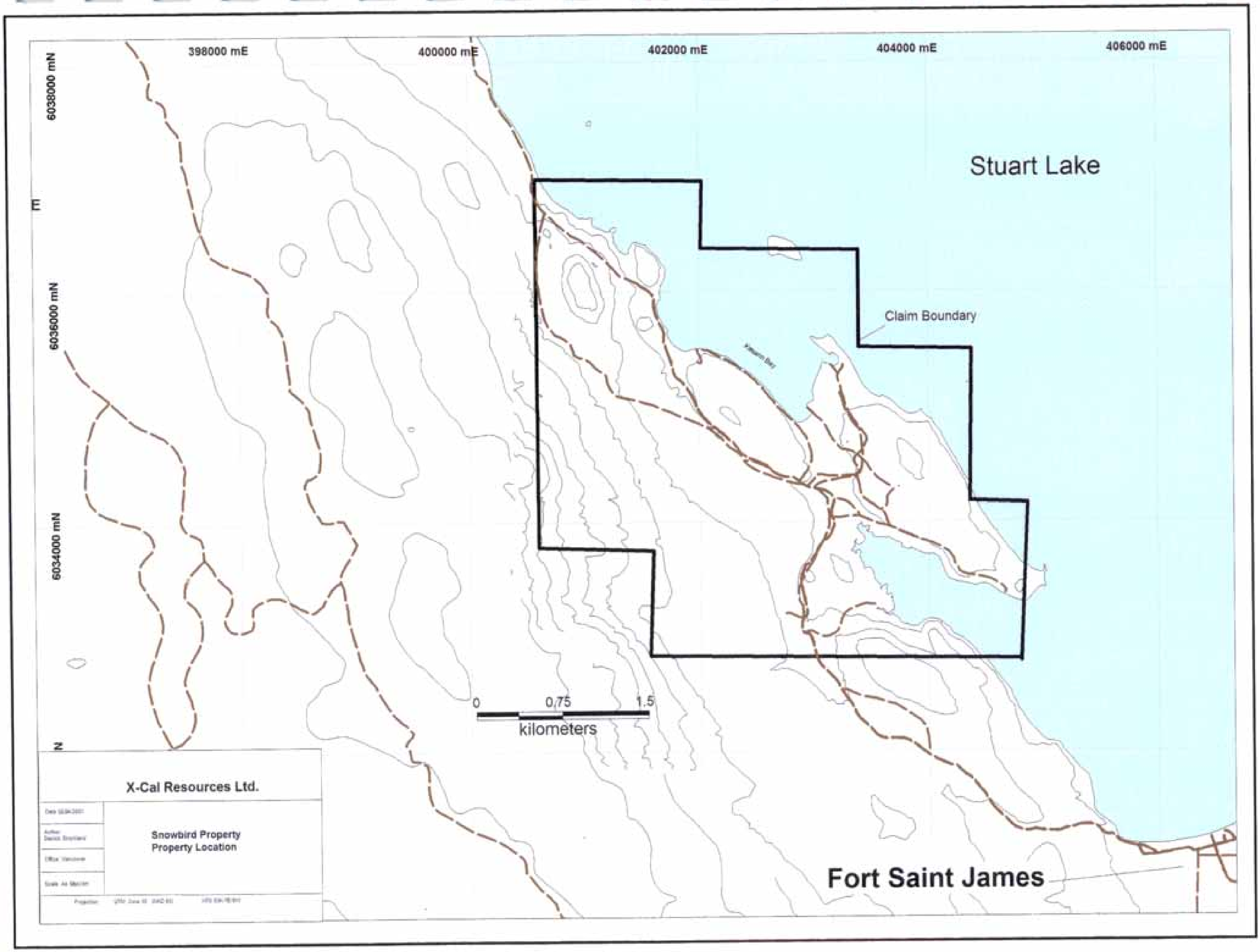
X-CAL RESOURCES LTD.

SNOWBIRD PROPERTY

KASAAN BAY, STUART LAKE, FORT ST. JAMES AREA

OMINECA MINING DIVISION, B.C.

LOCATION MAP


398000 mE
400000 mE
402000 mE
404000 mE
406000 mE
6038000 mN
6036000 mN
6034000 mN
Stuart Lake
Claim Boundary
0
0.75
1.5
kilometers
Fort Saint James
X-Cal Resources Ltd.
Snowbird Property
Property Location

3 PROPERTY AND OWNERSHIP

The property is comprised of six mineral claims totaling 55 units located on NTS map sheet numbers 93K/07E and 93K/08W. The claims are situated within the Omineca Mining District of British Columbia, Canada (Figure 3) and are owned 100% by X-Cal Resources Ltd.

Claim Name	Tenure Number	Number of Units	Expiry Date
Snowbird 1	239107	18	May 17, 2003
Snowbird 2	239108	09	May 17, 2003
Snowbird 3	239109	08	May 17, 2003
Snowbird 4	239110	06	May 17, 2003
Snowbird 8	240212	08	May 17, 2003
Boarchea	238304	06	May 17, 2003

4. EXPLORATION HISTORY

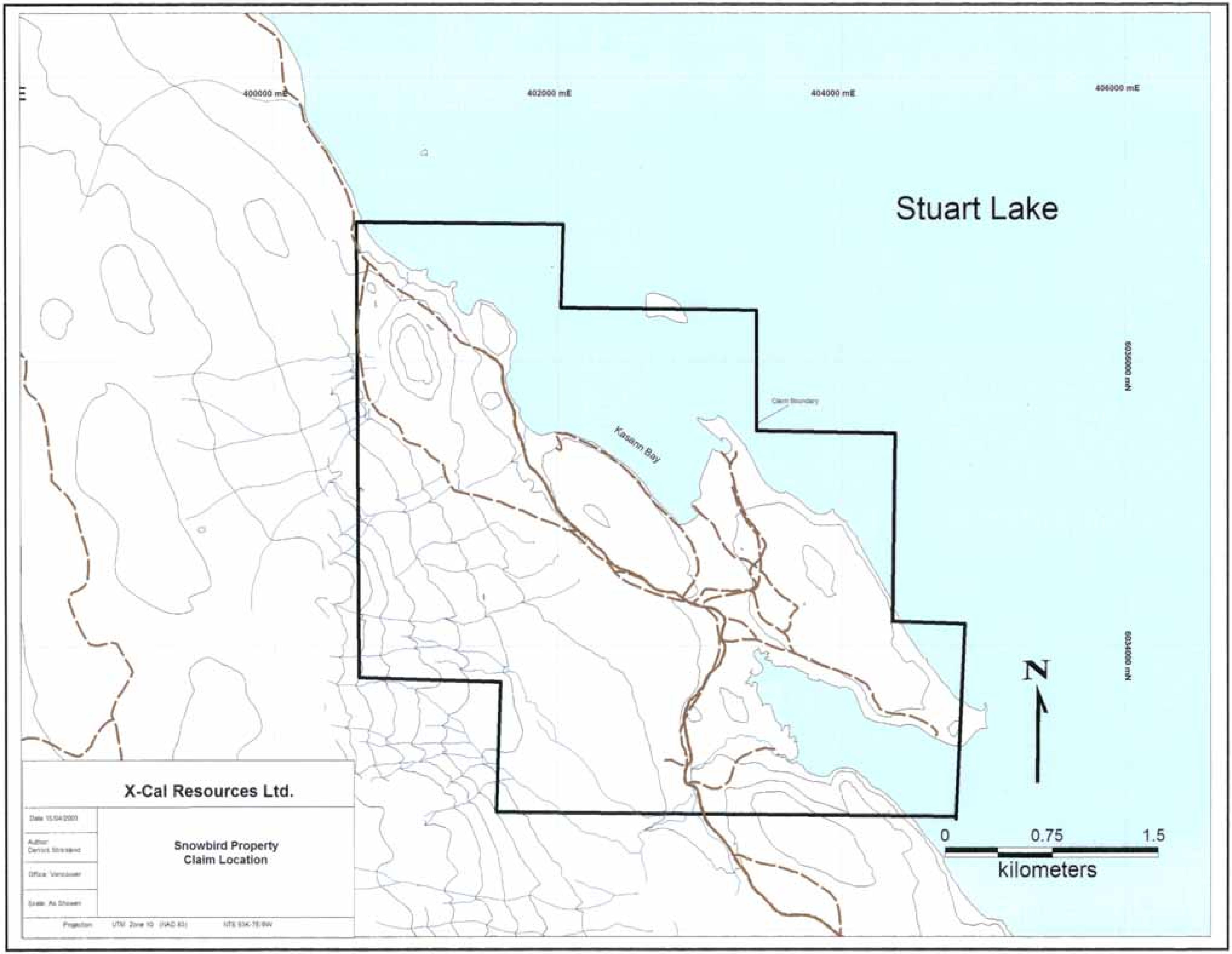
The Fort Saint James area first saw widespread placer gold mining activity during the 1860's-1870's, this activity continued until the 1940's. On the property itself placer mining was conducted in the Sowchea Bay area in the 1930's (Armstrong, 1949), and reportedly yielded 226 ounces of gold.

McMullen first staked the Snowbird area as a stibnite prospect in 1928. Until the late 1940's, exploration/exploitation centered on the property's stibnite potential. Gold exploration has continued intermittently from 1974 to present day and is summarized in Table 1.

Table 1
Snowbird Property History

Period	Company/Lease	Production (Sb only)	Work Completed and Comments
1928	McMullen	---	N/A
1937-39	T.E. Nielson	50t	Taken from the Pegleg Vein
1939-41	Pioneer Gold Mines	36t	Sank Main Shaft to 45m on Main Vein. Drove adit on massive stibnite in cross-fault for 45m. F. Joubin involvement.
1942-43	Consolidated Mining and Smelting	---	Diamond drilling into the Snowbird zone. No success. Trenched Main Vein –210 ft 3.3ft @6.3% Sb, 0.12 oz/t Au
1947	Inland Mining Co.	56t	Stoped out stibnite x-vein 56t @ 59 % Sb
1974	Westwind Mines	---	280m diamond drilling in the Snowbird zone.
1980	Prism Resources	---	612m diamond drilling in the Snowbird zone.
1985	X-Cal Resources Ltd.	---	Optioned property - trenching.
Nov.-Dec. 1986	X-Cal Resources Ltd.	---	3062ft (933m) diamond drilling.
Feb-March 1987	X-Cal Resources Ltd.	---	8794 ft (2680m) diamond drilling.
Feb.-April 1987	X-Cal Resources	---	I.P., EM
Aug. 1987	X-Cal Resources Ltd.	---	Percussion drilling- MAZ
Jan.-Feb. 1988	X-Cal Resources Ltd.	---	5130 ft (1564m) diamond drilling- North Zone
Sept.-Nov. 1988	X-Cal Resources Ltd.	---	Trenching, percussion drilling
Jan.-Feb. 1989	X-Cal Resources Ltd.	---	5711ft (1740m) diamond drilling North Zone. Ground Mag. Soil Sampling
Late 1989	X-Cal Resources Ltd.	---	Approx 5000ft. diamond drilling at north zone.

Previous exploration undertaken by X-Cal Resources centered on defining the North and the Snowbird mineralization within the Mariposite Alteration zone



400000 mE
402000 mE
404000 mE
406000 mE
Stuart Lake
Kasann Bay
6036000 mN
6034000 mN
N
0
0.75
1.5
kilometers
X-Cal Resources Ltd.
Snowbird Property
Claim Location
Office: Vancouver
Scale: As Shown
Projection
UTM Zone 10 (NAD 83)

5. REGIONAL GEOLOGICAL SETTING

The Snowbird Property is part of the Cache Creek Terrain, which extends more than 1000 kilometers along the Canadian Cordillera (Figure 4). The Cache Creek Terrain is part of a composite super-terrain, accreted during the mid-late Jurassic when the westward North American plate collided with the Pacific Plate. To the east the Terrain is intensely metamorphosed and deformed, and intrudes into Omineca Crystalline Belt. In the west, the Coast Plutonic Complex was formed during the Cretaceous and Early Tertiary periods' subduction and accretion events

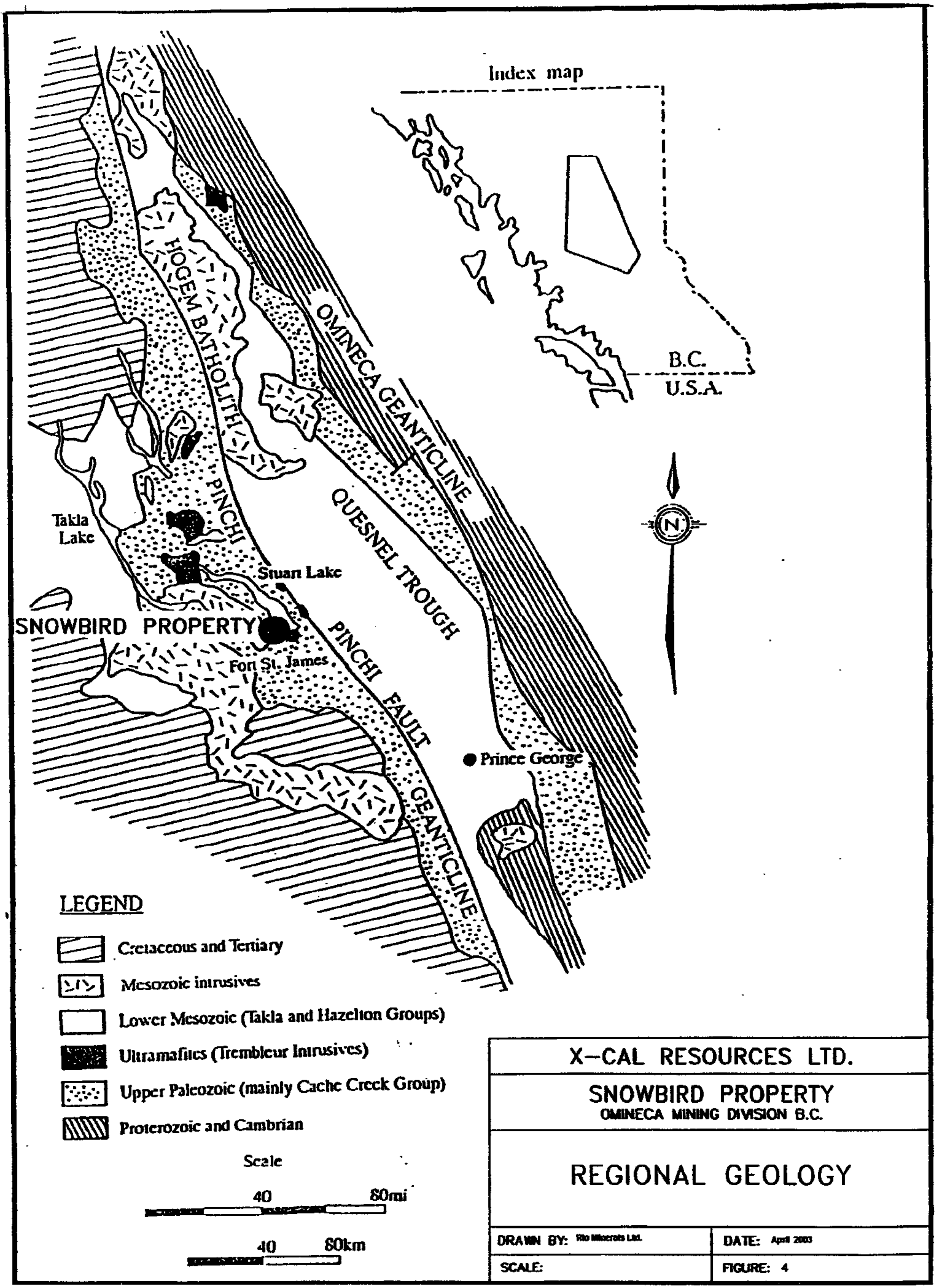
The Cache Creek group of rocks can be regionally divided into three main units.

1. Mélange unit composed of chert/argillite, blocks of limestone, chert, greenstone, and tuff.
2. Greenstone unit composed of basalt flows, pillow basalts, breccias and gabbroid.
3. The Marble Canyon Formation composed of limestone, radiolarian chert, tuff, argillite, and greenstone.

The above lithological package is typical of an oceanic basin assemblage with distal deposited sedimentary rock from a continental source.

During the Triassic period the entire region underwent two major periods of deformation: D1 and D2 (Maud 1988). D1 involved an east to northeast recumbent inclinal folding, while D2 formed the north trending sub-horizontal asymmetrical flexural slip folds with westerly dipping axial planes.

The regional Pinchi Fault and subsidiary, sub-parallel faults (Sowchea) formed coincident with D1 during the crustal accretion events while large quantities of hydrothermal fluids ascended through the fault systems generating intense carbonate alteration (+/- mariposite) that is characteristic of the region. The complex tectonic regime in the area has given rise to the emplacement of Alpine-type ultramafics.


Index map
B.C.
U.S.A.
OMINECA GEANTICLINE
HOGEM BATHOLITH
PINCHI
QUESNEL TROUGH
Takla Lake
Stuart Lake
SNOWBIRD PROPERTY
Fort St. James
PINCHI FAULT
Prince George
GEANTICLINE
N
LEGEND
Cretaceous and Tertiary
Mesozoic intrusives
Lower Mesozoic (Takla and Hazelton Groups)
Ultramafics (Trembleur Intrusives)
Upper Paleozoic (mainly Cache Creek Group)
Proterozoic and Cambrian
Scale
40
80mi
40
80km
X–CAL RESOURCES LTD.
SNOWBIRD PROPERTY
OMINECA MINING DIVISION B.C.
REGIONAL GEOLOGY
DRAWN BY: Rio Minerals Ltd.
DATE: April 2003
SCALE:
FIGURE: 4

6. PROPERTY GEOLOGY AND MINERALIZATION

Mineralization defined on the Snowbird Property is largely composed of gold-quartz-stibnite-arsenopyrite veins and stringer zones. These are localized within the northwest trending northeast dipping (up to 90 meters wide) brittle ductile shear zone, which is associated with a subsidiary structure (called the MAZ or Mariposite Alteration Zone by X-Cal Resources). Diamond drilling carried out by X-Cal Resources indicated that the hangingwall rock is comprised of graphitic/pyritic argillite and cherty argillite, while the footwall rock includes a significant proportion of andesitic volcanics. The visually distinctive red-orange weathering of the Listwanite alteration is well developed in/adjacent to the ultramafic (harzburgitic) rock within the host shear zone and consists of ferroan magnesite, ankerite, silica, fuchsite, and pyrite. Alteration occurred coincident with fault movement, which is evidenced by the repeated deposition disruption of alteration products. The increase in vein structure development in the hangingwall and in the footwall contact correlates to an increase in gold grades. This increase in gold grades can be seen in the Main Shaft and the Peg-leg vein. Mineralization on the property consists of pyrite, arsenopyrite and stibnite within quartz-carbonate veins and adjacent host rock. The gold is generally micron in size and intimately associated with arsenopyrite, pyrite, and stibnite.

Structurally, the property is dominated by the northwest/southeast striking Sowchea Shear Zone (D1) (Madu 1988). The Sowchea Shear Zone is of moderate to intense deformation controlling the spatial distribution of alteration and mineralization. The zone can be traced for more than 20 kilometers, (Armstrong, 1949) dips at 45° to the northeast, and has been interpreted as a subsidiary structure to the Pinchi Fault (Madu 1988). Subsequent field evidence suggests the Sowchea is not a shear but a fault zone formed at the brittle-ductile stage of deformation. The Sowchea Fault zone is cut by a series of north-south striking high angle dextral faults that progressively offset the zone inland (looking south).

Intense carbonate alteration is restricted to the Sowchea Fault Zone and occurs as two elongated zones (Mariposite and East) approximately 50m wide and greater than 1.6km in length. Alteration (listwanitization) is the most intense within the ultramafic units, with those units altered entirely to carbonate (80-95% ferroan magnesite and ankerite?) quartz and mariposite.

Alteration occurs coincident with fault movement as is evidenced by the repeated deposition-disruption of alteration products.

The exact timing of the gold deposition is not known though evidence suggests deposition occurred towards the waning stages of intense carbonatization and deformation. Gold deposition occurred prior to the introduction to stibnite. Stibnite deposits appear to have occurred late in the alteration/mineralization process as evidenced by the particular corrosion and replacement of quartz by stibnite (Maud et al 1989).

6.1. Snowbird and North Mineralization zones

Extensive diamond drilling has tested the Mariposite alteration zone (Figure 5). Targets tested included the Pegleg and Main Veins at Snowbird and the multiple loads within the north zone. Drill density averaged approximately 30x30m and tested both zones up to 150m below surface.

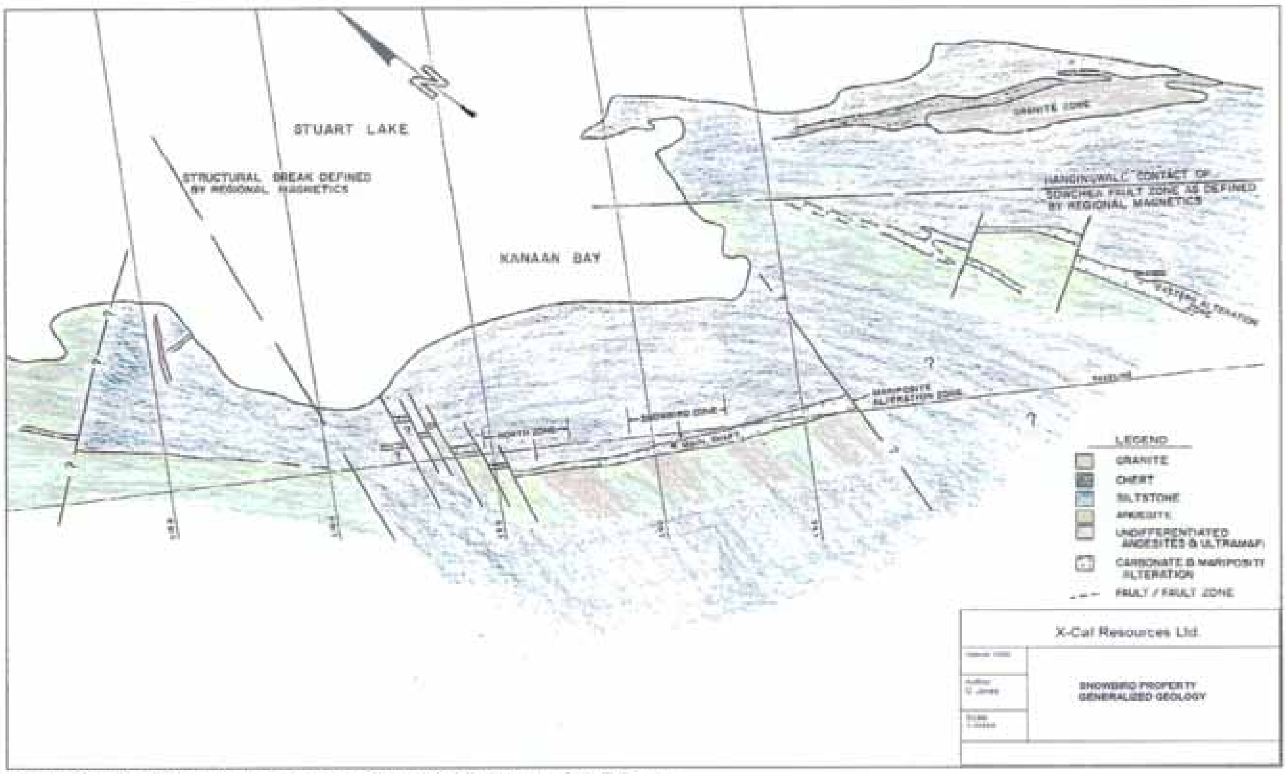


Figure 5 Local Mineralization Zone on Snowbird Property after G.Jones

6.1.1. North Zone

As part of the property analysis, the drill data and the data compilation created by SRK has led to the following observations of the North Zone:

1. Economic mineralization occurs in three discrete pods located at the hangingwall contact (the hangingwall surface) and at the center of the footwall.

2. Ore continuity appears reasonable between intersections although structurally complex (e.g. fault blanks).

3. Quoted drill result intercepts consisted of thin, high grade mineralization enveloped by low grade mineralization. The continuity of the higher grades zones is unknown.

4. Drilling has blocked out an area of economic mineralization. Strike potential to the north is limited by a major north-south dextral fault zone that eventually offsets the Mariposite alteration zone under Stuart Lake. The south potential was confirmed by drilling in late 1989 which indicated a rapid thickening of the alteration zone at depth. Thick low grade and sporadic intersections above 0.1 oz/tonne were recorded.

6.1.2. Snowbird Zone

The Snowbird Zone has undergone drilling, trenching, and shaft sinking (Figure 5), which outlined small tonnage/moderate grade mineralization on the Main and Pegleg veins. Drilling failed to intersect economic mineralization on the Pegleg structure below the surface sample, suggesting that mineralization is possibly at surface. This area needs more work to understand the nature of the mineralization located within this zone.

6.1.3. Eastern Alteration Zone

Exploration has outlined an anomalous zone of intense carbonate alteration similar in its characteristics to the Mariposite alteration zone (Figure 5). The zone appears more structurally complex, striking at 340° with an apparent dip to the southwest. The zone may represent the southern faulted continuation of the Mariposite alteration zone or a separate hangingwall zone.

Trenching and drilling in this area failed to intersect significant mineralization. This zone requires further investigation to better understand the nature of the mineralization seen to date.

6.1.4. Granite Zone

Soil sampling and trenching over a granite stock in the hangingwall of the Sowchea Fault Zone outlined a linear gold anomaly (up to 0.2 oz/tonne or 6.8 ppm) within the center of the stock. Follow -up percussion drilling failed to intersect significant gold values or explain the nature of the anomaly. It is likely that the gold may be associated with the thin, discrete, discontinuous quartz stringers cut in trenching. This may represent leakage, and further investigation is required to fully understand the nature of the gold values in the area.

6.1.5. Other Areas of Interest

Reconnaissance mapping and soil and rock chip sampling completed outside areas of known alteration/mineralization delineated two areas of intense carbonate alteration and anomalous gold (up to 295 ppb), 800-1000 meters north of the North Zone (Heshka and Game 1989). This area may represent the northern continuation of the Mariposite alteration zone and requires follow-up exploration. This reconnaissance work highlights the significant and as yet untested grass-roots potential of the property.

7. QUATERNARY GEOLOGY AND DRIFT COVER

The Quaternary cover in the area is comprised of glacial sediment deposited during the last glacial event. The predominant direction of ice advancement was from the east, followed by typical ice retreat which created glacial lakes. The Snowbird property has several different types of glacial deposits which include boulder till, lacustrine clays, and fluvial sediments. Percussion drilling on the east part of the property intersected lacustrine clays in excess of 55 meters thick that are underlain by basal diamicton till. The clay rich till (possibly glacial lake sediments) is typically impermeable to groundwater which has limited the dispersion of metallic ions essential for geochemical exploration.

8. SUMMARY OF WORK 2003

In early 2003, Rio Minerals Limited of Vancouver, BC, was contracted by X-Cal Resources Limited of Vancouver, BC., to review and make use of the data compiled by SRK Consulting of Vancouver, BC. After reviewing the data compilation, Rio Minerals Limited undertook a field program consisting of geological mapping, sampling, ground truthing, and the delineation of an area for a potential 10,000 tonne bulk sample. The primary focus of the field program was to reconfirm the presence of gold in the Snowbird property, as the property had not been systematically explored since the late 1980's, and provide X-Cal Resources Limited with an up to date compilation of the property.

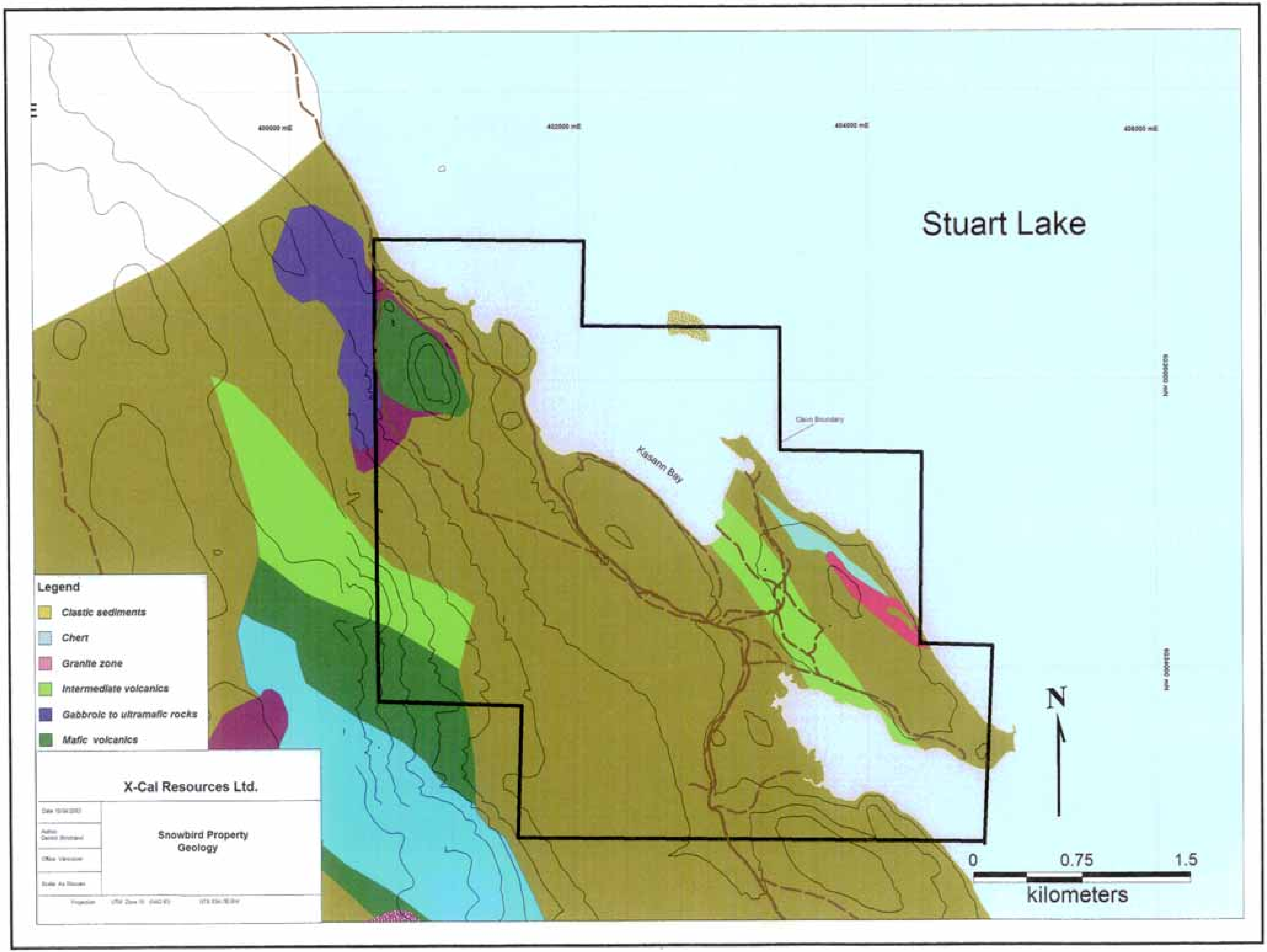
8.1. SRK Consulting Compilation Data

In late 2002, X-Cal Resources Limited commissioned a data compilation project wherein all information from 1975 to present was re-mastered digitally. The re-mastering data consisted of creating compilation geology maps, re-interpreting the raw geophysical data, and compiling previous drill assay data. The analog data was transferred in several digital formats compatible with MapInfo, Gemcom, and Excel. The compiled data was used by Rio Minerals Limited during the field program and in the writing of this report.

8.1.1. Compilation Maps, Geology and Geophysics

In an effort to develop an improved understanding of the Snowbird property's geology and mineralization, X-Cal Resources Limited had SRK create a compilation geology map from previously generated reports and drill hole data (Figure 6). The geology compilation created by SRK was used by Rio Mineral Limited in their field program as a document to ground truth lithology.

The reinterpreted geophysical data provided by SRK (see Appendix A) shows a geophysical high associated with the Carbonate-Mariposite Alteration Zone in the Snowbird Zone. The nature of the geophysical anomaly has not been completely explained and is possibly the result of mineralization in the Carbonate-Mariposite Alteration Zone.


Stuart Lake
Kasann Bay
Legend
Clastic sediments
Chert
Granite zone
Intermediate volcanics
Gabbroic to ultramafic rocks
Mafic volcanics
X-Cal Resources Ltd.
Snowbird Property
Geology
0
0.75
1.5
kilometers
N

8.1.2. Drill Log Review

SRK undertook a detailed review of all drill hole data (Figure 7 for drill hole locations). All available drill data was transferred in formats compatible with the Gemcom software package. With the data in Gemcom, SRK was able to commence a detailed resource analysis. SRK's preliminary interpretation of the drill hole intersections indicates the high grade zone is approximately 1.5 million cubic meters with approximately 4 million tons of ore capable of being extracted. Using an assumed grade of 1 gram per tonne, the ore body could potentially contain 120,000 ounces of gold (Figure 8).

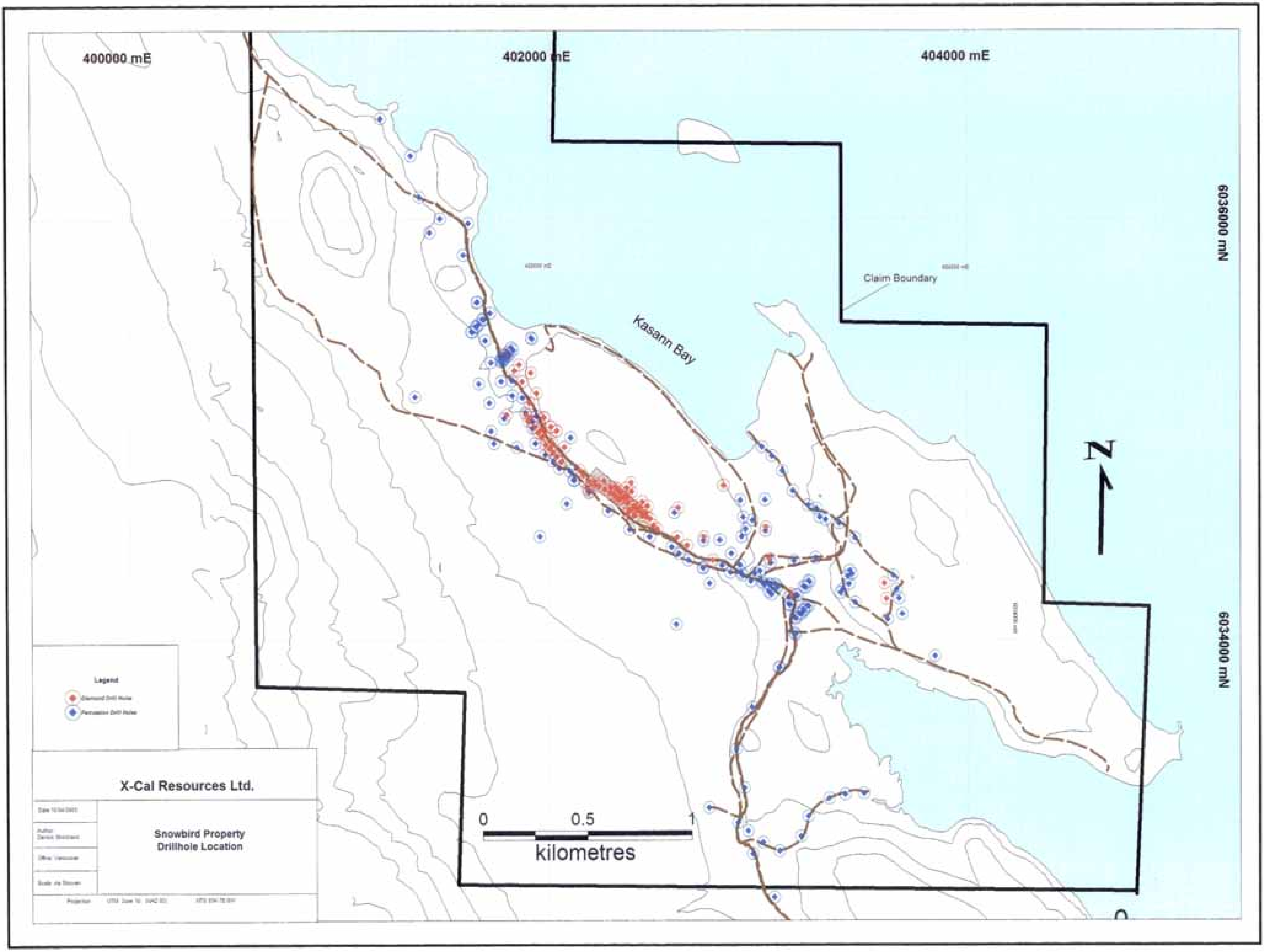
SRK's data review has lead to the identification of a potential resource on the Snowbird Property, more specifically in the area of Main and Pegleg Zones. In an effort to truly understand the potential of this resource, a 10,000 tonne bulk exploration should be undertaken in these zones.

In 1989, Dr. A. Farkas was contracted by X-Cal Resource to undertake a detailed analysis of the drill core on the property (Appendix B). Dr. A. Farkas reviewed and reloged in excess of 5000 feet of drill core He stated that the Snowbird property's best mineralization lies within the Mariposite zone. He also stated "the Main Vein indicates apparent gold mineralization.... of economic grade." Dr. Farkas' analysis demonstrates the untapped potential of the Snowbird property and that more work must be done full exploit the property's mineral resources.

8.2. Field Work

In April of 2003 a Rio Minerals Limited crew conducted a field program on the Snowbird property. The field work consisted of geological mapping, rock sampling, and ground truthing[1]. Eight rock samples were taken and seven ground truthing sites were noted (see Appendix C for detailed field notes). The work centered around areas of known mineralization, which included the Snowbird Zone, the Granite Zone, and the North Zone.

1 Ground Truthing consisted of taking rock descriptions and structural readings at the location. These sites were used to reconfirm lithologies and major feature locations with previously generated reports.


400000 mE
402000 mE
404000 mE
6036000 mN
6034000 mN
Claim Boundary
Kasann Bay
N
Legend
X-Cal Resources Ltd.
Snowbird Property
Drillhole Location
0
0.5
1
kilometres

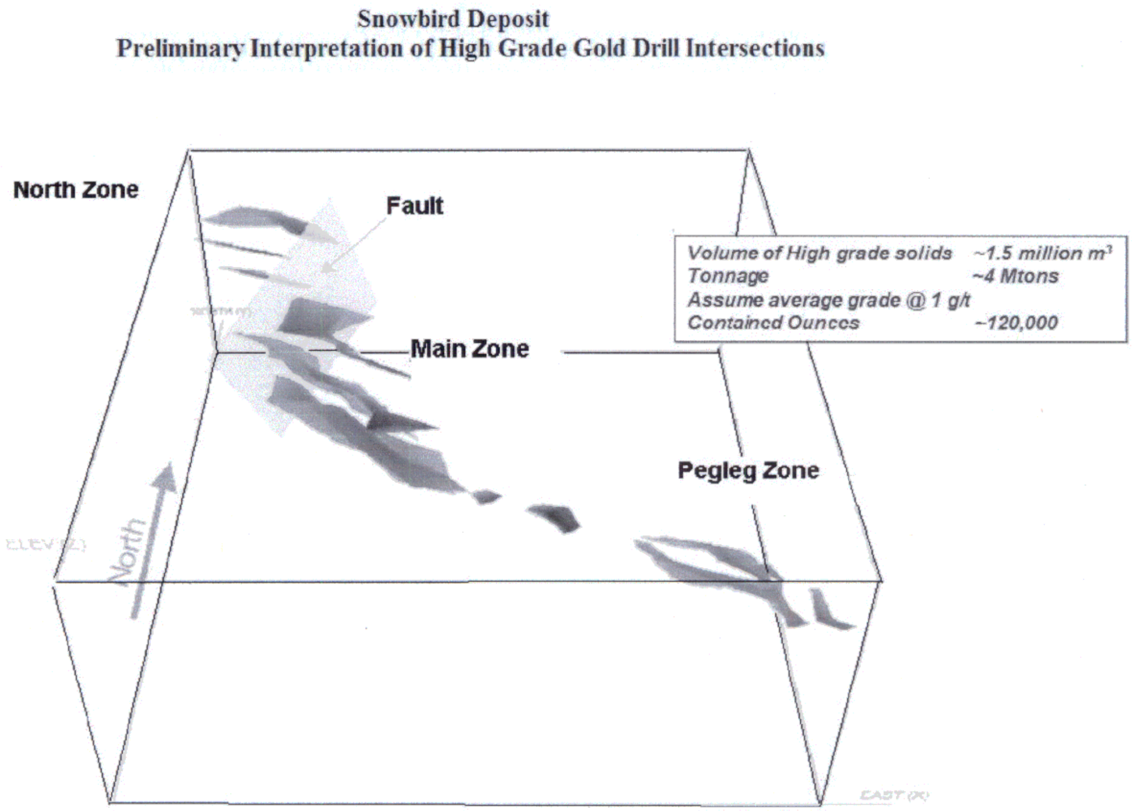


Figure 8: Preliminary Interpretation of Snowbird Property ore body - SRK

8.2.1. Snowbird Zone

Work on the Snowbird Zone consisted of taking five rock samples from two adits. (see Appendix B for locations and Appendix C for Field Notes).

Snowbird Zone	Sample No.	Sb Ppm	Ba ppm	Au ppb	Ag ppm	Ni ppm	Co ppm	Mn ppm	As ppm	Sr ppm
Mariposite Alteration Zone	SB-03-01	1155	121	916	3.9	18	5	629	284	95
Main Shaft	SB-03-02	>2000	17	3671	2.8	203	3	134	< 2	59
Pegleg	SB-03-03	185	117	42	0.7	583	38	964	458	266
Trench sample	SB-03-05	61	42	46	11.6	288	43	606	593	1844
Carbonate Mariposite Listwanite Alteration zone	SB-03-06	47	81	5	< .3	2640	142	571	22	87

Ground truthing was undertaken on the Mariposite Alteration Zone adit, the Pegleg adit, and the Main Shaft. The reasoning behind ground truthing in this area of the property was to correctly locate and re-identify the lithologies and previous work in order to correlate it with the compilation data created by SRK. The precise location of the lithologies and previous work on the Snowbird Zone is essential for future understanding the nature of the mineralization, to this end; each location was located using a handheld Global Positioning System (GPS) unit, Figure 9. As it stands, the Snowbird Zone has the greatest potential for economic mineralization and requires large tonnage sample clarify the potential mineral resource.

8.2.2. Granite Zone

Work on the Granite Zone comprised of taking three rock samples in an attempt to reproduce previously encountered results. (see Appendix C for field notes and Appendix D for sample locations).

Zone	Sample No.	Sb ppm	Ba ppm	Ti %	Au ppb	Ag ppm	Ni ppm	Co ppm	Mn ppm	As ppm	Sr ppm
Granite Zone	SB-03-04	232	85	< .01	27	< .3	9	6	575	24	20
Granite Zone	SB-03-AR-1	10	314	< .01	7	< .3	61	7	1708	61	365
Granite Zone	SB-03-AR-2	24	14	< .01	< 2	< .3	850	58	258	17	46

8.2.3. North Zone

An attempt was made to sample the North Zone but due to snow cover the author was unable to collect any samples or structural readings.

8.3. Sample Results

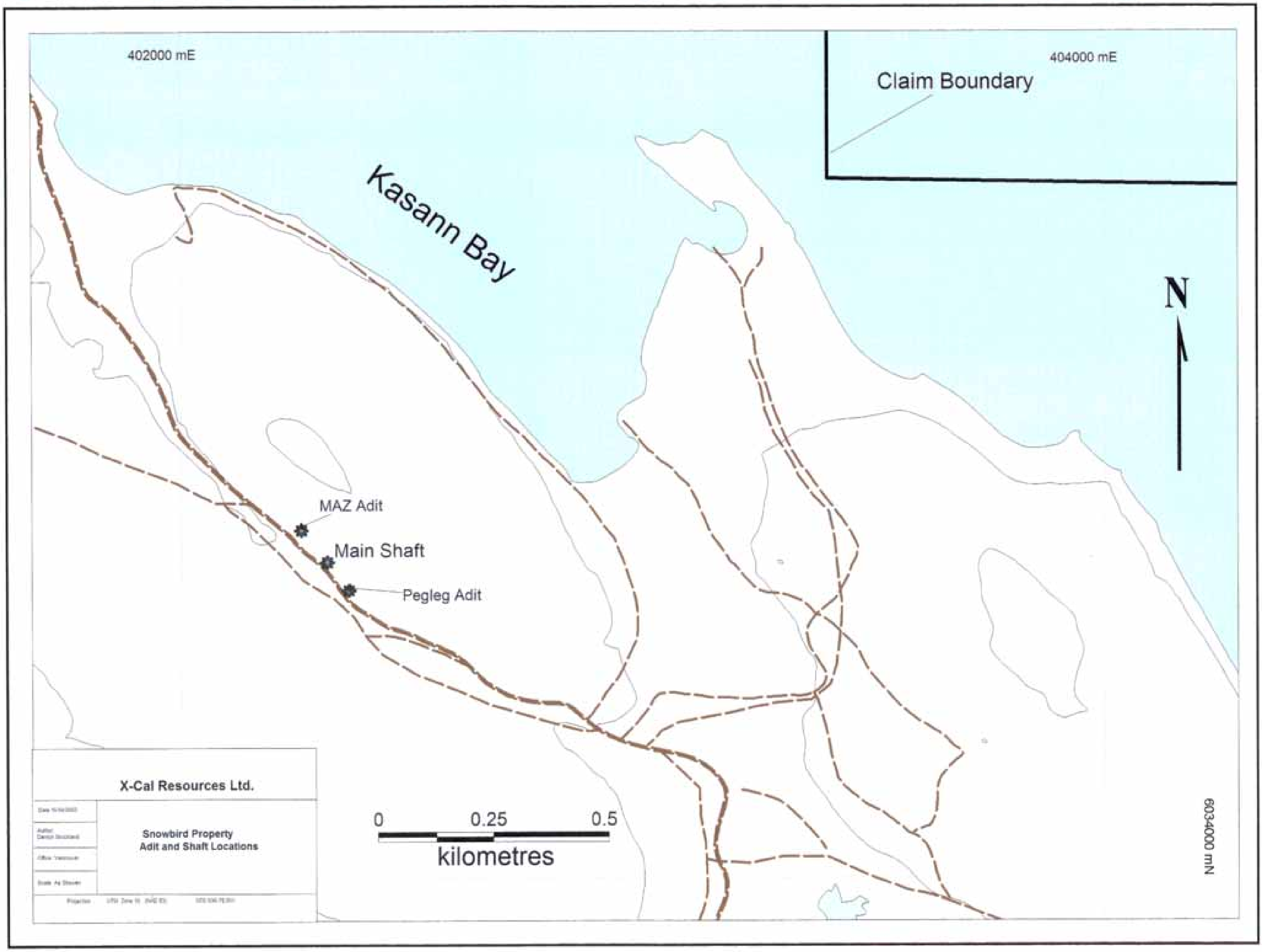
Eight rock samples were analysed for gold plus 30 element ICP. Analytical results are included in table 2 below.

Table 2

ELEMENT SAMPLES	Mo ppm	Cu Ppm	Pb ppm	Zn Ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm
SB-03-01	3	60	25	66	3.9	18	5	629	1.98	284	< 8	< 2	< 2	95	< .5
SB-03-02	< 1	5	< 3	5	2.8	203	3	134	0.51	< 2	< 8	3	< 2	59	0.6
SB-03-03	< 1	9	< 3	39	0.7	583	38	964	4.82	458	< 8	< 2	< 2	266	< .5
SB-03-04	4	31	6	50	< .3	9	6	575	2.12	24	< 8	< 2	< 2	20	< .5
SB-03-05	< 1	182	4	36	11.6	288	43	606	3.3	593	< 8	< 2	< 2	1844	< .5
SB-03-06	1	61	< 3	34	< .3	2640	142	571	3.88	22	< 8	< 2	< 2	87	< .5
SB-03-AR-1	3	19	4	32	< .3	61	7	1708	2.15	61	< 8	< 2	< 2	365	< .5
SB-03-AR-2	< 1	34	3	11	< .3	850	58	258	2.69	17	< 8	< 2	< 2	46	< .5

ELEMENT SAMPLES	Sb ppm	Bi Ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au ppb
SB-03-01	1155	3	5	3.26	0.12	2	18	1.15	121	< .01	7	0.4	0	0.1	5	916
SB-03-02	>2000	< 3	< 1	0.43	0	1	13	0.98	17	< .01	< 3	0.1	< .01	0	< 2	3671
SB-03-03	185	< 3	39	4.47	0.03	4	171	8.5	117	< .01	12	0.5	0	0.1	2	42
SB-03-04	232	< 3	9	0.41	0.06	5	7	0.13	85	< .01	< 3	0.5	0.1	0.1	2	27
SB-03-05	61	< 3	2	7.93	0.01	1	87	8.04	42	< .01	< 3	0	0	0	3	46
SB-03-06	47	< 3	19	2.04	0.01	1	1057	8.17	81	< .01	5	0.6	0	0	3	5
SB-03-AR-1	10	3	12	10.1	0.02	2	17	4.71	314	< .01	< 3	0.3	0	0.1	2	7
SB-03-AR-2	24	3	2	0.51	0.01	1	963	7.51	14	< .01	< 3	0.3	< .01	< .01	< 2	< 2

Samples SB-03-01 and SB-03-02 gave high gold values of 3671ppb and 916ppb respectively. These samples were taken from the Snowbird Zone which includes the Mariposite Alteration Zone, Main Shaft, and the Pepleg zone. These recent assay values highlight the potential for mineral resources present on the Snowbird property.


402000 mE
404000 mE
Claim Boundary
Kasann Bay
N
MAZ Adit
Main Shaft
Pegleg Adit
0
0.25
0.5
kilometres
6034000 mN
X-Cal Resources Ltd.
Snowbird Property
Adit and Shaft Locations
Scale As Shown
Projection

9. CONCLUSIONS AND RECOMMENDATIONS

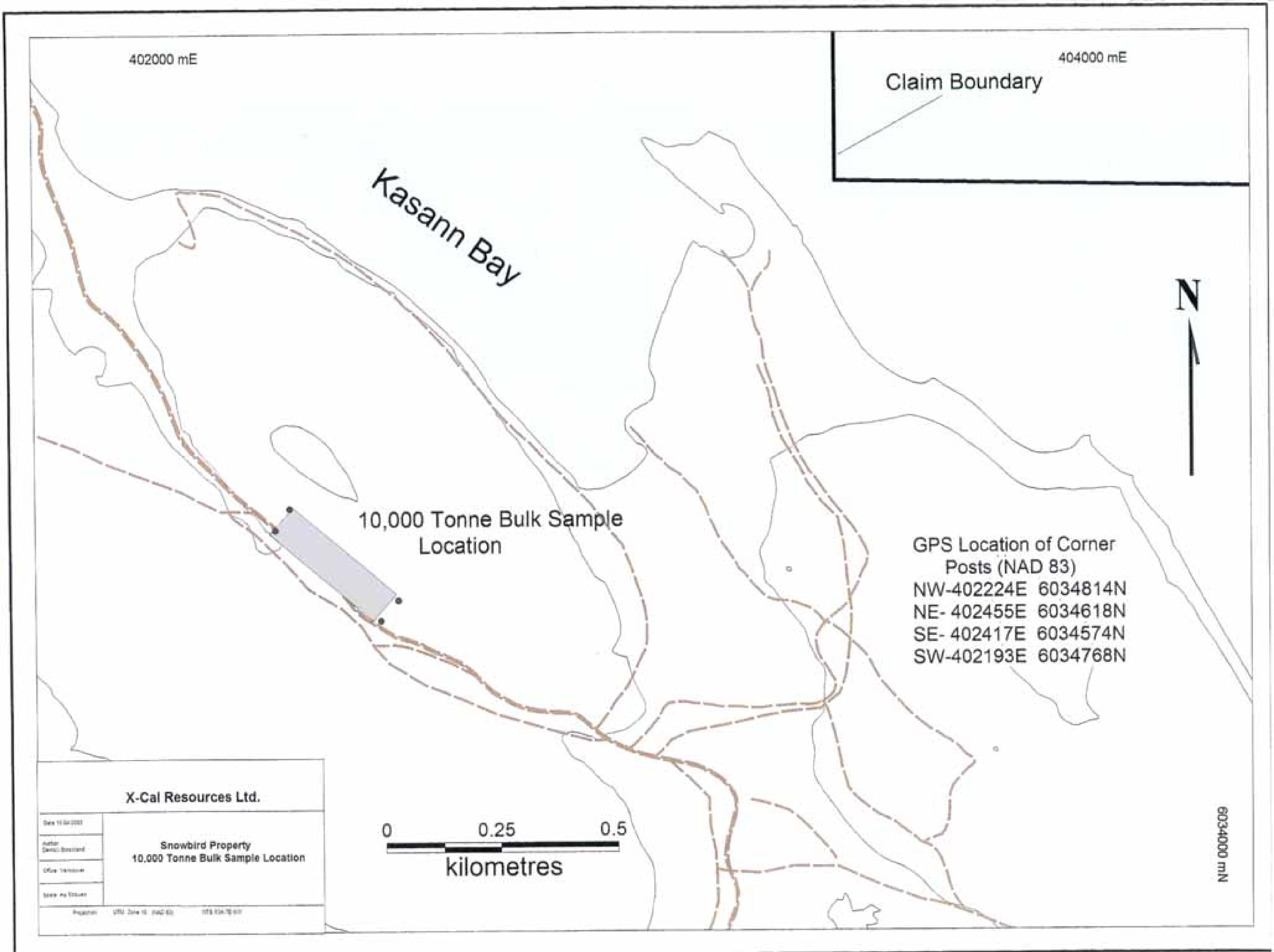
Based on the current understanding of the Snowbird property and the nature of the mineralization the following recommendations are submitted:

1. Re-establish the grid on the Main Zone, North Zone, and Granite Zone.

2. A bulk sample of 10,000 tonnes should be taken on the Main Zone to better understand the nature of the gold distribution in the Carbonate Mariposite Alteration Zone. The bulk sample should be taken in the area outlined by Rio Minerals Limited personnel. (Figure 10 for location. Samples SB-03-01 and SB-03-02 are located within the area outlined for bulk sample.

3. In the North Zone, more closely spaced drilling along the down-dip extension. Trenching should be attempted in the North Zone with the aim of exposing the vein. Further trenching should be undertaken in the East Zone. Trenching is proposed along the southern extension of this structure. The quartz-ankerite outcrops suggest the East Zone strikes about 330°-340° Az. Trenching east of the Peg Leg vein should also be considered as trenching in this area would have two purposes:

    a. Locate the faulted-off portion of the Main Vein.
    b. Test the high-receptivity area indicated by the previously completed IP survey


402000 mE
404000 mE
Claim Boundary
Kasann Bay
N
10,000 Tonne Bulk Sample Location
GPS Location of Corner Posts (NAD 83)
NW-402224E 6034814N
NE- 402455E 6034618N
SE- 402417E 6034574N
SW-402193E 6034768N
0 0.25 0.5
kilometres
6034000 mN
X-Cal Resources Ltd.
Snowbird Property
10,000 Tonne Bulk Sample Location

10. STATEMENT OF QUALIFICATIONS

I: Derrick Strickland, of 2-236 West 12 Ave, Vancouver, B.C. do hereby certify that:

1. I am a graduate of Concordia University and hold a B.Sc. degree in Geology (1993).

2. I have been employed in the mineral exploration industry since 1986 in British Columbia, Alberta, Northwest Territories, Manitoba, Ontario, Quebec, and New Brunswick and have practiced my profession since graduation.

3. The observations, conclusions, and recommendations within this report are based on work conducted on the property. Some of the observations in this report are those of others, based on their work on the property.

4. I have not received, nor do I expect to receive, any interest, direct or indirect in the properties or securities of X-Cal Resources Limited.

5. I am a consulting geologist, and a registered member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.

Dated at Vancouver, British Columbia, this 24th day of April, 2003

Derrick Strickland. P.Geo, B.Sc, MBA.

PROFESSIONAL
PROVINCE OF
D. A. STRICKLAND
#27879
BRITISH COLUMBIA
GEOSCIENTIST

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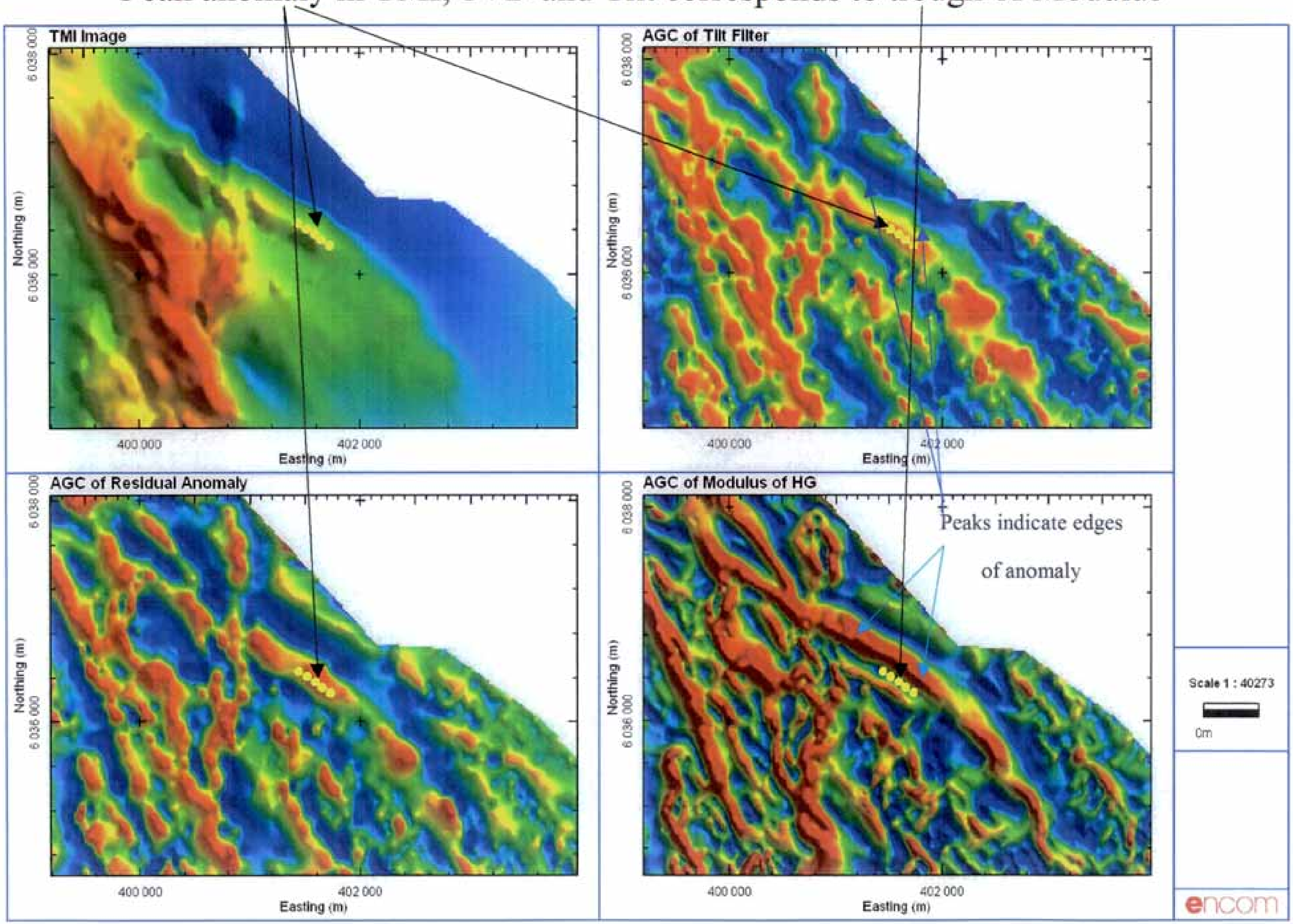
APPENDIX A

GEOPHYSICAL MAP

Peak anomaly in TMI, 1VD and Tilt corresponds to trough of Modulus



APPENDIX B

DRILL LOG REPORT – A. FARAKS

Review of Diamond Drilling

on the

Snowbird Gold Deposit, Fort St. James, B.C.

Omineca Mining District
N.T.S. 93K / 7E - 8W

for

X-Cal Resources Ltd.

Arpad Farkas, Ph.D., Consulting Geologist

Toronto, Ontario
March 1989

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86-5	87-10	88-14	89-10
86-6	87-12	88-15	
86-7	87-14		
86-8	87-15		
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	87-17		
	87-19		
	87-22		

CERTIFICATE OF QUALIFICATION

I, Arpad Farkas of the City of Toronto, in the Province of Ontario, Canada, hereby certify:

1. That I am a consulting geologist and have been engaged in my profession for approximately eleven years full-time and five years part-time;

2. That I am a graduate of the Eotvos Lorand University, Budapest, Hungary, with a B.Sc. degree in geology (1968); of the University of Alberta, with an M.Sc. degree in geology (1973); and of the University of Toronto, with a Ph.D. degree in geology (1980);

3. That my knowledge of the property described was acquired during visits to the property in 1988 and from the study of thè publications and reports cited in the present document;

4. That I have no interest, either direct or indirect, nor do I expect to receive any interest, in the properties or securities of X-Cal Resources Ltd.;

5. That I hereby consent to the use of this report by X-Cal Resources Ltd. for its corporate purposes.

Dated at Toronto this 30th day of March 1989.

Arpad Farkas

Arpad Farkas

INTRODUCTION

This report describes the results of a review of diamond drill core from the Snowbird property of X-Cal Resources Ltd. The report was requested by Mr. Shawn Kennedy, president of X-Cal Resources Ltd. Diamond drill core from previous exploration programs was examined by the writer between 18 January and 14 February 1989.

Drill core from 26 drill holes, totalling 10,675 feet, was described. The data was plotted on drill hole sections and evaluated. The geology and the gold mineralization is described. Suggestions for further exploration are made.

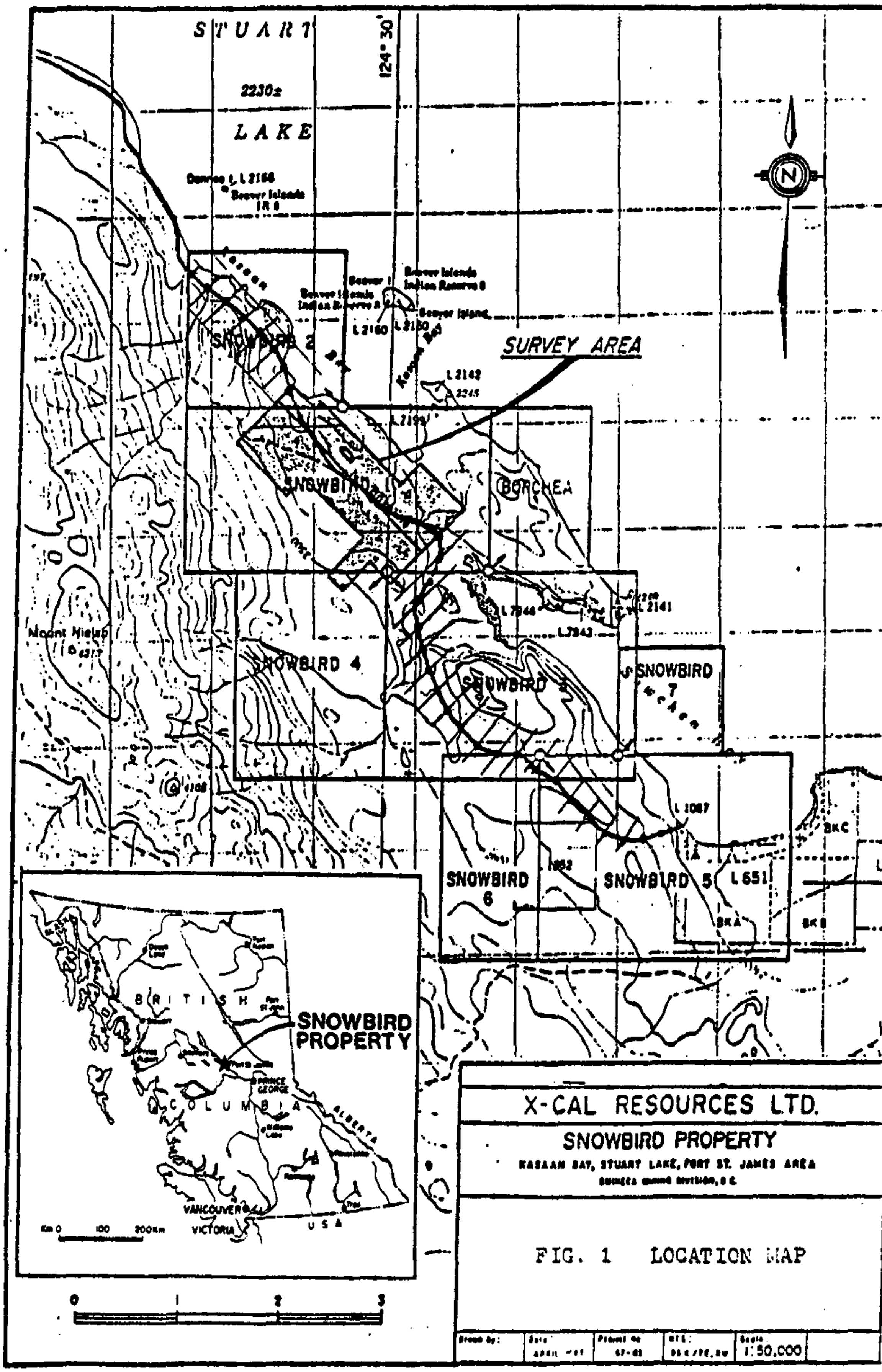


FIG. 1 LOCATION MAP

LOCATION, ACCESS, AND TOPOGRAPHY

The Snowbird group of mineral claims is located adjacent to Kasaan Bay, near the southwest end of Stewart Lake, in the Omineca Mining Division of British Columbia. The location map is given in Figure 1.

The property is 16 km west of Fort St. James. An all-weather road, which connects to the main highways leading to prince George, extends as far as the southeast end of X-Cal's landholding. From this point through the Sowchea Bay public campground a 7 km long dirt road leads to the centre of the property. All the mineralized zones are accessible via good quality drill roads. An electric power line runs near the southeast end of the property in the vicinity of the Sowchea Bay public campground. Supplies, labour, and heavy machinery are available in Fort St. James.

The property is characterized by low elevation and moderate relief. The elevation of Stewart lake in 2230'. The highest ground elevation in the vicinity of the mineralized zones is between 2500' and 2600'. These elevations are 200' to 300' above a broad valley floor.

REGIONAL GEOLOGY AND MINERALIZATION

A brief description of the regional geology based on the papers of Monger (1982) and Madu (1988) is given below.

The area is underlain by Upper Paleozoic Cache Creek Group rocks which form the allochthonous Cache Creek terrane. The Cache Creek terrane, which was accreted to North America during Jurassic time, extends over 1000 km between latitudes 50° and 60°.

Near Fort St. James, the Cache Creek Group rocks include bedded radiolarian cherts, argillite, greywacke, carbonate rocks, and greenstones. Triassic ultramafic rocks and granite, granodiorite, and diorite intrude the Cache Creek Group rocks.

The regional scale Pinchi Fault system, which may be up to 450 km in length, separates the Carboniferous and Late Triassic Cache Creek Group from the Lower Mezozoic Takla Group. The Pinchi Fault is about 10 miles northeast from the Snowbird property. Mercury deposits which are located along the Pinchi Fault were mined at the Bralorne-Takla and Pinchi Lake Mines.

The northwest-striking Sowchea Shear Zone which crosses the Snowbird property is about parallel to the Pinchi Fault. The Sowchea Shear is also a large-scale structure; Armstrong (1949) traced it as far as 19 km southeast near Tasha Creek. Aeromagnetic data indicates that the Sowchea Shear also extends at least the same distance to the northwest.

The Au-Sb mineralization on the Snowbird property is controlled by the Sowchea Shear Zone. Along the shear zone, serpentinized ultramafics as well as sedimentary and volcanic rocks have been hydrothermally altered to ankerite-quartz-mariposite rock. In general, the ultramafic rocks were thought to be emplaced either (Madu, 1988)

(a) by overthrusting, or

(b) as near-vertical fault-bounded blocks emplaced into low-pressure zones.

The hydrothermal quartz-carbonate alteration of the serpentinized ultramafics is thought to be contemporaneous with movement along major faults. Late fracturing and quartz veining of the quartz-carbonate altered rocks was accompanied by the deposition of antimony and gold.

The aeromagnetic data presented in Figure 2 (following page) is compiled from aeromagnetic maps published by the Geological Survey of Canada (map numbers 1581G and 1591G). The map presented in Figure 2 covers the mineralized area around Sowchea Bay as well as a 10-mile length of the Sowchea Shear. (The shear zone is indicated by the NW-SE trending structure which separates magnetic high and magnetic low rocks. The magnetic high anomaly, with values around 5000 gamma, is probably due to a stock of ultramafic intrusive.)

The E-W striking structures in Figure 2 are due to cross faults which postdate the Sowchea Shear.

FIG. 2 AEROMAGNETIC MAP WITH STRUCTURAL INTERPRETATION

Scale: One Inch to One Mile = $\frac{1}{63,360}$

Miles

1 1/2 0 1 2 3

PROPEKTY GEOLOGY

In 1971 the property was mapped on a 1" = 1320' scale (Heshka 1971). Argillite chert and andesite are the most common rock types on the property. The bedding strikes NW and has a moderate to steep dip to the SW. Dykes and stocks of diorite and small bodies of serpentinite are common. At the north end of the Main Vein, which is exposed by trenching, an E-W striking diorite dyke is present for a strike length of 300'. In general, diorite dykes were emplaced along cross faults which may offset the mineralized zone. The cross faults are assumed to have, by and large, an E-W strike. An earlier generation of diorite dykes, which are intensively chloritized, may predate the mineralization. Serpentinite occurs as lens-like bodies within fault or shear zones. In addition, there are small, partially serpentinized peridotite plugs.

The main Au-Sb mineralized zone strikes Az 300° and dips 45° to the NE. A "cross vein", which strikes about due north and dips 45° to the west, contains a narrow width of massive stibnite.

RESULTS OF PREVIOUS EXPLORATION

A more comprehensive review of previous exploration can be found in reports by Roberts (1971), and Sampson and Game (1988). Only a brief summary is given below.

Pincer Gold Mines Ltd. explored the north-striking stibnite cross vein by an adit in 1941; drifting on the vein for 90' revealed an 8-10" wide massive stibnite vein. During the war years a total of about 250 tons of stibnite ore was mined.

In 1942 Consolidated Mining and Smelting Ltd. (a predecessor company to Cominco Ltd.) explored the northwest-trending Au-Sb mineralized structure by diamond drilling and trenching. Trenching and sampling of the Main Vein gave the result:

Length	Av. width	oz/t Au	% Sb
210'	3.3'	0.12	6.3

Of the 37 samples taken from this trench, 12 samples (i.e., about 33%) assayed less than 0.05 oz/t Au. Around the north central part of the exposed vein a shaft inclined 45° was sunk. Both the west and east walls of the shaft were sampled along a 100' length down the dip of the vein. The result of this sampling was:

Location	Length	Av. width	oz/t Au	% Sb
West wall	100'	3.0'	0.38	5.48
East wall	100'	3.6'	0.11	2.25

The samples along the west wall had remarkably consistent gold values: out of the 18 samples taken, the lowest gold content was found to be 0.114 oz/t. The east wall of the shaft had a more erratic gold distribution: out of the 18 samples taken, four samples had 0.01 - 0.06 oz/t Au.

Six diamond drill holes completed by CMS intersected the Main Vein along a 500' strike length. Assay results ranged from 0.13 to 0.52 oz/t Au over an average length of 5 feet.

In 1980 Prism Resources Ltd. completed 10 shallow drill holes on the Snowbird property (Dewonck, 1980). Out of 8 drill holes completed on the Main Vein, three holes cut significant Au mineralization. The assay results are as follows:

Hole #	Interval	Footage	oz/t Au
P-6	135-138	3	0.698
P-7	131-139	8	0.539
P-10	280-283	3	0.167

From 1986 to 1988 X-Cal Resources Ltd. completed diamond drilling programs. Several mineralized intersections on the Main Vein assayed 0.02 to 0.12 oz/t Au. Only a few drill holes were characterized by significant ore-grade intersections (e.g., drill hole 86-2, which was completed in the vicinity of the inclined shaft, assayed 0.27 oz/t Au over 13.9'). The low-grade intersections in the same area where CMS and Prism Ltd. obtained ore-grade values suggests an erratic distribution of gold. As was previously mentioned, sampling of the Main Vein on the surface would suggest that over the same ore shoot every third drill hole can be expected to assay less than

0.05 oz/t Au. Furthermore, drill hole intersections of this kind may prove to be ore-grade material when bulk samples from underground are taken. Based on many years of experience at the Dome Mine, Rogers (1982) established that, despite the rather predictable nature of the ankeritic gold veins, economic gold values are seldom obtained from diamond drilling. Nevertheless, these veins were later found to constitute ore and were eventually mined.

DESCRIPTIONS OF DRILL CORE

A total of 26 drill holes with a combined footage of 10,675' were examined and described. The drill hole logs are presented in the appendices. Thirty-five samples were taken from various drill holes and assayed for gold. Fifteen samples were collected for whole rock analysis. The assay results and the results of chemical analysis are presented in the appendices. The lithology of the drill core is summarized below.

In many drill holes sandstones and siltstones are the most common sedimentary rocks. Argillite, chert, and cherty argillite are equally abundant in some drill holes.

In general, bedding is not recognisable. If bedding is present it is invariably disrupted, broken up by slumping. Chaotic mixtures of sandstone, siltstone, mudstone, and argillite are common. Slumping resulted in the formation of siltstone-sandstone breccias. The light grey to dark grey sandstone or siltstone fragments occur in a black argillite or mudstone matrix. The slump breccias pass into extremely unsorted sediments which were deposited from submarine debris flows. The debris flow deposits are characterized by pebbly argillites, mudstones, and siltstones. A few conglomeratic mudstones/siltstones are also present. The pebbles and boulders within the argillites and mudstones are commonly derived from andesites and basalts. Pebbles and cobbles of chert and siltstone appear to be less common. The fine to medium-grained sandstones are often fairly soft due to the 10-30% clay matrix; therefore these sandstones can be properly termed wackes. The detrital constituents of wackes and sandstones include andesite or basalt, chert, possibly siltstone and quartz. Due to the abundance of mafic volcanic fragment and clay matrix, some of these sandstones can be classified as greywackes. There are also some hard black sandstones which are predominantly composed of chert fragments.

Some siltstones and sandstones are calcareous. They contain 10% to 20% calcite cement and detrital grains derived from limestones. A few of the calcareous pebbly siltstones contain pebbles of black fine-grained limestone. A black calcareous siltstone or impure carbonate rock is a relatively rare rock type in the area investigated. This rock is characterized by 30% or more well-crystalline black dolomite.

Two types of argillite were described:

(a) black, carbonaceous, fairly soft; and

(b) black, cherty, quite hard.

The cherts are massive, black or dark grey, rarely banded. Slump breccias characterized by chert fragments and disrupted beds of chert in argillite matrix are very common. The chert often shows soft sediment deformation.

Volcanic rocks are particularly common in the southeast part of the area investigated. In this area andesite or basalt tuffs and agglomerates, many of them reworked by debris flows and slumps, are the most common rock types. Fine-grained, massive or amygdaloidal flow rocks are much less frequent. The tuffs and agglomerates do not show any sign of bedding. The contacts with argillites, mudstones, and siltstones are often disrupted. The overlying mudstone or argillite contains rip up clasts derived from the volcanics.

About 10% of fragmental volcanic rocks show evidence for deposition of submarine debris flows. These rocks are characterized by 10-30% argillite or mudstone matrix and 70-90% volcanic fragments. As opposed to pebbly and conglomeratic mudstones or argillites, these rocks are framework supported.

The tuffs and agglomerates vary in colour from buff to pale or dark green. The green-coloured rocks are chloritized to various degrees. The buff colour is due to disseminated ankerite alteration.

Rarely, medium to dark grey, very fine-grained, more siliceous-looking volcanic rocks were noted. These are either dacites or high-silica andesites.

The chaotic facies of detrital sedimentary rocks, which include slumps and debris deposits, are commonly found at the base of submarine slopes and within inner channels of submarine fans. Many submarine debris flow deposits are associated with turbidity current deposits and may pass upwards into graded beds (Blatt, Middleton, & Murray, 1980, p. 188). Finely bedded to laminated slaty argillite alternating with graded beds of sandstone were seen by the writer on drill core from hole DDH 89-12 (not described in this report). These rocks are definitely turbidites.

The lack of marker beds and the presence of slumps and debris flow deposits in the area of Main Zone and North Zone makes the correlation of units between drill cores very difficult.

The commonest types of intrusive rock are diorite dykes and altered ultramafics. The fine to medium-grained equigranular diorites are often intensively chloritized. Less commonly, the diorite dykes are serpentinized along their margins or along narrow shears. The ultramafics are altered to serpentine or talc. A few narrow serpentinite bodies are of dubious origin: they may have been derived from diorite or from mafic volcanics.

Intermediate dykes with feldspar phenocrysts are interpreted to be andesite dykes. A thin quartz-feldspar porphyritic felsic dyke was seen on one drill hole. Clay altered, bleached, light grey dykes, which are somewhat more common, are perhaps also felsic in composition.

Fresh, equigranular, medium-grained granodiorite was intersected by one drill hole (DDH 88-1).

RESULTS OF SAMPLING AND ASSAYING

A total of 35 drill core samples were split and assayed. The best results are presented below.

Sample No.	Drill Hole	Interval	oz/t Au
49774	87-8	105.0-106.0m	0.053
49778	87-9	97.2-98.4m	0.058

The mineralized sample in hole 87-8 is a sheared, quartz-ankerite altered argillite without noticeable veining. There is no significant arsenic anomaly associated with the gold. The intersection in hole 87-8 is immediately above a previously sampled interval which assayed 0.123 oz/t Au over 1 metre.

In hole 87-9 the mineralized interval encompasses a 0.5m length of fault gauged, broken siltstone and argillite with a 5cm wide quartz vein. The quartz vein contains minor pyrite. Anomalous concentrations of arsenic accompany the gold (745 ppm As). This intersection is about 5m above the quartz-ankerite zone. Previous sampling detected only traces of Au about 2m above the quartz-ankerite alteration.

RESULTS OF WHOLE ROCK ANALYSIS

Samples 49790 to 49793 inclusive (Appendix) were volcanic rocks taken from drill holes 87-16, 88-13, 86-2 and 86-7 respectively. Two samples appear to be chloritized and are characterized by partial to nearly complete leaching of alkalis (samples 49790 and 49793). The low silica content of these rocks suggests that they are basalts rather than andesites. Sample 49791 was taken from a mineralized horizon (drill hole 88-13 from 110.9m depth). This agglomerate is characterized by buff-coloured ankerite alteration. The very low silica content suggests a lack of silicification. Sodium is almost completely leached from the rock. The elevated potassium content indicates a sericitic alteration (2.7% potassium oxide).

One sample of unaltered dacite or high-silica andesite is characterized by quite high sodium content (sample 49792 with 7.7% sodium oxide content). The low titanium oxide content excludes the possibility that the rock is silicified basalt or andesite rather than a dacite.

Two samples of tuffs or tuffaceous sandstones were analysed (samples 49796 and 49797). Their composition is similar to that of intensively chloritized basalts.

As expected, most of the altered ultramafic rocks contain only a minor amount of alumina. One exception is sample 49798, a serpentinite from a narrow shear zone which cuts andesite tuff. The high alumina content and the lack of alkalis suggest that the sample is a mixture of chlorite and serpentinite. Without doubt, this was derived from an andesite.

A quartz-ankerite-mariposite rock (sample 49795) contains about 50% carbonate and 50% quartz (silica content is 46%) and only a minor amount of mariposite (low alumina and potassium values). The low CaO value and the very high MgO content (2.3% versus 18.7%) of the quartz-carbonate rock suggests that magnesite is a more abundant constituent than ankerite. The high magnesite content is due either to extensive Mg-metasomatism or to alteration of an ultramafic parent rock.

Sample 53551 is a fresh equigranular granodiorite from drill hole 88-1. The chemical data indicates a relatively sodium-rich rock with only a minor amount of potassium feldspar (5.4% sodium oxide and 0.6% potassium oxide). The rock is either a plagioclase-rich granodiorite or a trondhjemite.

ALTERATION AND MINERALIZATION

Apart from the talc and serpentine alteration of the ultramafic rocks, the following types of hydrothermal alteration were noted:

1. quartz-ankerite ± mariposite;
2. ankerite-sericite or mariposite;
3. silicification;
4. chloritization.

Type 1 is the most important alteration which is spatially associated with the gold mineralization. As was previously suggested, in some cases magnesite instead of ankerite is the commonest carbonate mineral. Quartz and ankerite form replacement bodies and disseminations within sedimentary rocks and ultramafics. The alteration is controlled by ductile shearing, fracturing, and brecciation. Late veins and stringers of quartz, and less commonly quartz and ankerite or magnesite, cut the massive or disseminated quartz-carbonate zones.

Except for the lack of quartz, type 1 and type 2 hydrothermal alterations are similar in nature. The lack of quartz may simply be a reflection of the mineralogical composition of the parent rock (e.g., altered basalt or andesite agglomerates). Some of the ankerite altered siltstones and argillites also lack silicification.

When late quartz stringers and disseminated pyrite and arsenopyrite are present, the ankerite-sericite altered rocks can also be gold-bearing (e.g., drill hole 88-13). Silicification is a minor but significant type of alteration from the point of view of gold deposition. The silicification develops around narrow breccia zones within or some distance above or below the quartz-ankerite zone. The silicification is manifested as quartz-flooding in a 0.5-2m wide zone around the brecciated country rock. The quartz-flooded zone is repeatedly fractured with the introduction of narrow quartz veins.

Intensive chloritization of volcanic rocks and diorite, which results in leaching of alkalis via destruction of feldspar, appears to form above and below the quartz-ankerite zone. More whole rock chemical analysis would be needed to prove this point. By increasing the size of the target, the chloritic alteration halo would help in locating other areas with quartz-ankerite alteration.

Two types of gold mineralization can be seen along the same structures which developed within the quartz-ankerite altered rocks. It appears that in both cases the gold mineralization postdates the replacement type quartz-ankerite alteration.

1. Mineralized quartz veins. In some cases gold mineralization also extends into the wallrock adjacent to the quartz; in this case wallrock contains disseminated pyrite and arsenopyrite.

2. Sulfide enriched fracture zones with or without quartz stringers or quartz ankerite, quartz-magnesite stringers. The sulfide-enriched zones are characterized by 2-5% fine-grained, disseminated pyrite and arsenopyrite; rarely, the sulfide content may be 10% or more

over a 10-30cm length; a minor amount of stibnite is locally present; a few-cm-wide fault gauge may occur at the margin or within the mineralized zone.

Observations made on closely spaced drill holes within the north zone suggest that quartz veins may pass laterally into pyrite-arsenopyrite zones with gold mineralization: i.e., the gold mineralization is more persistent than quartz veining.

Most of the stibnite is concentrated in quartz veins. In the Main Vein stibnite appears to fill fractures in the vein quartz. Petrographic data, however, indicates that some of the stibnite is contemporaneous with the vein quartz (Madu, 1988). Stibnite appears to be more common in the Main Zone than in the North Zone. Part of a quartz vein within the North Zone (see drill hole data in the appendices) appears to be ribboned: 0.5mm-wide stibnite-rich bands alternate with barren-looking quartz. The deposition of stibnite is interpreted to be contemporaneous with that of the quartz.

Quartz veins within the North Zone often contain up to 20cm diameter wallrock fragments. Most of the sulfides are concentrated in the wallrock fragments rather than in the vein itself.

In general, there is only a trace amount of silver (1-2 ppm) associated with the gold. Acicular crystals of ruby silver formed on a fracture surface of vein quartz was seen by the writer on core from drill hole 89-11. A 1m length of the quartz vein from this hole (155.28-156.28m) assayed 77 ppm silver and 0.127 oz/t gold.

STRUCTURAL OBSERVATIONS MADE ON DRILL CORE

The following types of structure were noted:

1. Fault or shear zones with a mixture of soft carbonaceous argillite and serpentinite.

2. Ductile shearing indicated by tightly-spaced foliation surfaces within quartz-ankerite altered sediments. In some cases two periods of shearing can be seen. The core angle of foliation suggests either a near-vertical or a fairly shallow dipping shear. The core angles of foliation were plotted on the drill hole sections assuming a steeply dipping shear. It is not clear what is the relationship between the ductile shearing and the gold mineralization, which is assumed to dip about 45°.

3. Brittle shearing (i.e., brecciation) and fracturing. Quartz flooded breccia zones cut by late quartz stringers or narrow veins of quartz. These structures may contain gold mineralization.

   Quartz stringers within quartz-ankerite-mariposite or ankerite-sericite (± mariposite) altered zones. The quartz stringers developed as a result of fracturing of the previously altered rocks. Disseminated pyrite, arsenopyrite, and gold may occur adjacent to the stringers.

4. Late faulting. Numerous examples were seen of unconsolidated fault gauges bounded by fractured, broken drill core. One type deserves a special mention: it develops around narrow quartz veins (5-20cm wide). The vein itself is broken up, fragmented. Either the vein alone or both the vein and the wallrock may contain gold mineralization. The fault gauge is either clayey or consists of a soft black carbonaceous argillite. The fact that these veins are consistently broken up, brecciated by late faulting, suggests that they lie within the planes along which the late faulting developed. These late faults my be cross faults which form at an oblique to right angle to the quartz-ankerite alteration zone. These broken-up mineralized veins can occur both within and above the quartz-ankerite zone. So far there are no field observations which would support the hypothesis that cross faults can also contain gold mineralization, not only stibnite.

EVALUATION OF DRILL HOLE SECTIONS

Drill holes along a 200m strikelength of the main zone between grid coordinates 0+32S and 2+36S were logged. The data is presented in the ten drill hole sections drawn normal to the strike of the ore zone (Maps Nos. 2 to 11). The drill hole locations and the surface geology of the area are plotted in Map No. 1. The drill hole data is also plotted on a longitudinal section (Map No. 12).

The following conclusions can be drawn from the data:

1. The southern limit of the Main Vein is at about 1+20S. At this point the vein is offset by a NE to E-striking cross fault. The fault strikes about Az70°. It runs between the Peg Leg Vein and the Main Vein. The following observations support this interpretation:

   a. Drill holes located NW of the inferred fault mostly intersected sandstone, siltstone, and argillite slump breccias and debris flows. SE of the inferred fault a large proportion of the rocks are volcanics. This occurs even though the drilling was done along the strike of the formations. This change in lithology is not expected along strike.

   b. SE of the inferred fault nearly every drill hole cut significant widths of serpentinite or talc $\pm$ carbonate altered buff-coloured ultramafic rocks. Practically no serpentinite was encountered NW of the inferred fault.

The vertical projection of serpentinites and the inferred fault is plotted in Map No. 1.

2. The alteration zone which envelops the Peg Leg Vein is developed in the footwall side of a shallow dipping fault along which the serpentinite was emplaced. There are two alteration zones, one above and one below the pinching and swelling serpentine sheet.

Geophysical data also supports the presence of a cross fault. The IP survey indicates a marked change in chargeability and resistivity NW and SE of the inferred fault. The direction of horizontal displacement of the Main Vein along the cross fault is perhaps towards the NE. The pattern of apparent chargeability highs obtained from the IP survey may be interpreted in this manner. Trenching, sampling, and a more detailed magnetic survey may help to answer this question.

The Main Vein itself is also cut by cross faults which result in up to 20m vertical displacement and an unknown length of horizontal displacement (Maps Nos. 2 to 5 and Map No. 12). About 30-40m downdip from the surface the Main Vein has about 40° to 50° dip toward the east. Below this point, the dip either becomes steeper (up to 60°) or the vein is downfaulted by a few metres (Maps Nos. 3 and 4).

In some drill hole sections two separate closely spaced gold mineralized sections were interpreted to be present. This is due either to a branching of the Main Vein or to the presence of a separate oreshoot which pinches out downdip. Drill hole No. 6 of Prism Resources Ltd. and CMS drill hole No. 1 intersected this upper oreshoot and stopped short in alteration (Maps Nos. 3 and 4). (A few of the X-Cal Resources drill holes also stopped short; these are noted at the end of the drill hole logs.)

Along the best mineralized sections the Main Vein was traced 50-78m downdip from the surface. (It is still open to depth.) See drill hole 0+67S, 0+58S, and 0+17S (the last of these is not described in this report). Therefore the cross fault at about 0+70S which was noted near the end of the inclined shaft about 30m downdip from the surface (Dr. F. Joubin, personal communication) probably displaces the Main Vein by only a few metres.

The apparent lack in the continuity of ore grade drill hole intersections is due to the erratic distribution of gold. The alteration zone itself is wide and continuous and is interpreted to reflect a large-scale hydrothermal system that deposited the gold. It appears that in this area only bulk sampling could reliably establish the grade of gold mineralization.

The downdip extension of the vein should be further tested by diamond drilling between 0+17S and 0+67S. Along strike, the best part of the mineralization probably extends from about 1+00N to 1+20S: i.e., about 220m strike length. The alteration zone itself is continuous up to and beyond the North Zone (beyond 8+00N it is still open to the north).

As mentioned previously, the Peg Leg Vein was formed in the footwall of a shallow dipping fault along which ultramafic rocks were emplaced. The fault dips about 30° to 45° to the SE. The alteration envelope of the Peg Leg Vein is subparallel to the fault. On the surface the Peg Leg Vein is characterized by high-grade gold mineralization. The 66 channel samples which were taken along a 216' strike length assayed 0.38 oz/t Au over a 2.5' average width. With one exception, every sample had more than 0.1 oz/t Au. In general, the drill hole intersections were of lower grade. The mineralization is more continuous along strike than along the dip. The very high grade intersection in drill hole 86-6 (248 oz/t Au over 0.5') is within the alteration envelope of the Peg Leg Vein. This would suggest that it is part of the Peg Leg Vein. Nevertheless, it is quite possible that the very high grade gold intersection is localized along a cross fault (Dr. F. Joubin, personal communication). The vein with the high assay result occurs in a gauged, organic-rich (or graphitic?) argillite. On surface, the Peg Leg Vein is quite carbonate-rich and quartz-poor (Madu, 1988). In this regard it is not a well-defined vein within the alteration zone. The alteration zone is thinner along the Peg Leg Vein than along the Main Vein or along the North Zone. The Peg Leg Vein likely formed along a less permeable horizon.

The alteration and mineralization above the serpentinite sheet must be very flat-lying, just like the fault (Maps Nos. 7 to 11). Since the serpentinite pinches and swells, locally the mineralization occurs within the serpentinite (drill hole 86-7). A strong, persistent vein cannot be expected in an incompetent rock like serpentinite. At least in the area studied, this zone is considered to be less favourable than the Peg Leg Vein.

The drill hole data is also plotted on a longitudinal section (Map No. 12). Since much of the data is projected into the plane of the longitudinal section from a fair distance away, the projection amplifies the elevation differences of mineralized zones due to the differences in dips observed along individual cross sections; therefore the elevation differences of ore horizons shown on the longitudinal section are larger than the true differences, which may be due to cross faulting.

Data from selected rill holes within the North Zone is plotted in Maps Nos. 13 to 18. A dip ranging from 30° to 55° would be obtained by simply connecting the mineralized intersections in various drill holes within the North Zone. Just as in the case of the Main Vein, the dip is towards the NE. By analogy with the Main Zone a dip of 45° to 50° would be likely. The apparent shallow dip of 30° is interpreted to be the result of cross faulting. The cross faults must have a vertical component of displacement. In the best mineralized part of the Main Zone the alteration zone is up to 40m wide. In many drill holes two closely spaced mineralized horizons are present. These are interpreted to be the result of branching of a single vein. When drill hole sections 4+59N and 3+73N are compared, the ore is at approximately the same elevation; however in the intervening drill hole section 4+07N the mineralization is 10m to 16m lower. At the same time, the andesite/argillite contact, as well as the top surface of the alteration, is at a lower elevation along section 4+07N (Maps Nos. 14 and 18). This suggests that down-faulting must have taken place. The mineralized zone along section 3+49N is also downfaulted (Map No. 18). This section correlates less well with the more northerly sections. The mineralization appears to be not only at a deeper level but also much closer to the boundary of the alteration zone. Possibly this is another, deeper mineralized horizon (Map No. 18). In all these interpretations a simple planar structure was assumed. With more detailed drilling a different situation may be revealed.

In drill hole sections along the North Zone (Maps Nos. 13 to 15) it is tempting to connect the andesite agglomerate/argillite contact. This, however, would result in a very unexpected strike and dip (contact would be subparallel to the mineralization). Trenching in this area may supply better information for the dip of the strata as well as for the attitude of the mineralization.

APPENDIX C

SNOWBIRD PROPERTY FIELD NOTES - 2003

Snowbird Property Field Notes April 2003

Sample No.	NAD 83		Description	Description	Rock Sample	Structure	
RS-01	402199E	6034763E	Outcrop site, Gray-black Argillite, with a colour index of 70-75, aphanitic, brown on the weathered surface, massive, trace medium grained pyrite, local foliation.	Sample taken on road side, north west of stibnite adit	No		
RS-02	402279E	6084735E	Outcrop site, Same as RS-02 except with a colour index of 60-65. Numerous quartz stringers giving a globular appearance.	Sample taken on road side, structure in the area appears very complex (needs more work!!!!) Ro	No		
RS-03	402318E	6034650E	Outcrop site, Carbonate Mariposite Listwanite alteration zone. The rock is composed of medium to fine grained quartz 35-50%, Mariposite 10-20%, carbonate 15-15%. The rock is light brown and apple green on the weathered surface. The mineral contacts appears wispy in nature (ductile deformation?)	Road side sample, along the same structural trend as SB-03-02 50 m south east.	No		
RS-04	403416E	6034523E	Outcrop site, Gray-black Argillite with colour index of 60-70. Weakly foliated with a slightly graphic feel (graphitic argillite)	Possibly an old trench.	No		
SB-03-01	402254E	6034757E	Adit Sample (MAZ), currently ~15m deep, Quartz vein length of adit, sampled adit at deepest part. Quartz vein 15-25 cm thick with banding. Black 1-5 cm thick layer?, Quartz up to 7 cm thick, and a rust brown alteration layer up 4 cm thick	The sample crumbles when collected, bottom of adit has rusty brown argillite (same as RS-01). Adit is dark, poor lighting. Adit on road side	Yes	Quartz Vein	208Az/ 54 NW
SB-03-02	402310E	6034688E	Main Shaft sample, currently ~ 10m deep. Massive Stibnite sample taken. The rock is aphanitic steel gray in colour with a metallic lustre. The rock has a sulphide smell. The rock alters purplish on the weather surface. Adit is in Carbonate Mariposite Alteration Zone.	The o/c around the adit alter to a apple green, yellow, and purplish. The adit has quartz vein same as SB-03-01. There is an association of quartz and stibnite veining which appears part of the main alteration zone in the area.	Yes	Alteration zone	306Az/ 38NE
SB-03-03	402357E	6034627E	Adit Sample (Pegleg), currently ~3m deep. Sample taken from brown alteration zone 20-25 cm wide. The rock is light brown in colour, composed of quartz, light brown material alteration product, greyish black stibnite. Adit is in Carbonate Mariposite alteration zone.	Road side sample, alteration unconsolidated zone is found in adit. Rocks smell of sulphide when breaking. This is very similar to SB-03-02 but lacks Green staining, also a decrease in massive stibnite. Country rock is argillite and in phyllitic in nature.	Yes	Alteration zone	318Az/ 69NNE

Snowbird Property Field Notes April 2003

Sample No.	NAD 83		Description	Description	Rock Sample	Structure	
SB-03-04	403847E	6034625E	Outcrop Sample, Granite Zone. The rock is massive, brownish pink on the weathered surface and pinkish red on the fresh. It is holocrystalline, hypidiomorphic and is medium grained, composed of white quartz 40-50%, feldspar 30-40%, and plagioclase? 10-15%, trace euhedral pyrite up to 4x4mm.	Sample is sub-crop, proxmial, the area has 2-3 ft of snow cover, poor out crop exposure, Sample site looks like it has been sampled previously.	Yes		
SB-03-05	402708E	6034277E	Outcrop Sample, Trench, Carbonate-Mariposite Alteration zone, Rock is brown green on the weather surface and greyish white on the fresh. Is composed of numerous quartz vein and vienlets 40-50%, black aphanitic mineral 30-40% with a wispy appearance, light greenish Mariposite? 20-25%, rock alters yellow along fractures,	Quartz vein is 20 cm thick, possibly associated with the north zone. No structure seen except in Quartz vein.	Yes	Quartz Vein Alteration	309Az/ 62NE
SB-03-06	402404E	6034597E	Outcrop Sample, Listwanite? The rock is rusty brown to apple green on the weathered surface and dark olive green (Mariposite?) on the fresh surface. The rock is fine to medium grained, with quartz and mafic mineral and trace pyrite. Distinct banding appearance between quartz and mafic mineral	The rock is part of the Carbonate quartz Mariposite alteration zone. Sample taken 100 m east of SB-03-03. Road side sample.	Yes		
SB-03-AR-1	403380E	6034610E	Outcrop Sample, Quartz calcite vein, the rock is brown on the weathered surface, and white on the fresh surface. Composed of quartz 20-30%, chert (opal) 50-60%, altered? Carbonate 15-25%.	Sample taken in trench, the weathered surface has an vuggy appearance. Old trench @50deg NE with o/c	Yes	Foliation?	130Az/ 75SW
SB-03-AR-2	403380E	6034610E	Outcrop Sample, Listwanite? slightly foliated, The rock is dark brown on the weathered surface and greyish white on the fresh. Composed fine grained quartz 90-95%, aphanitic mafic mineral 3-5%, pyrite 2-3%	Sample taken in trench 4m east of SB-03-AR-01, the weathered surface has an vuggy appearance. Old trench @50deg NE with o/c	Yes	Foliation?	155Az/ 78SW

APPENDIX D

STATEMENT OF WORK

Rio Minerals Limited

Mineral Exploration and Development

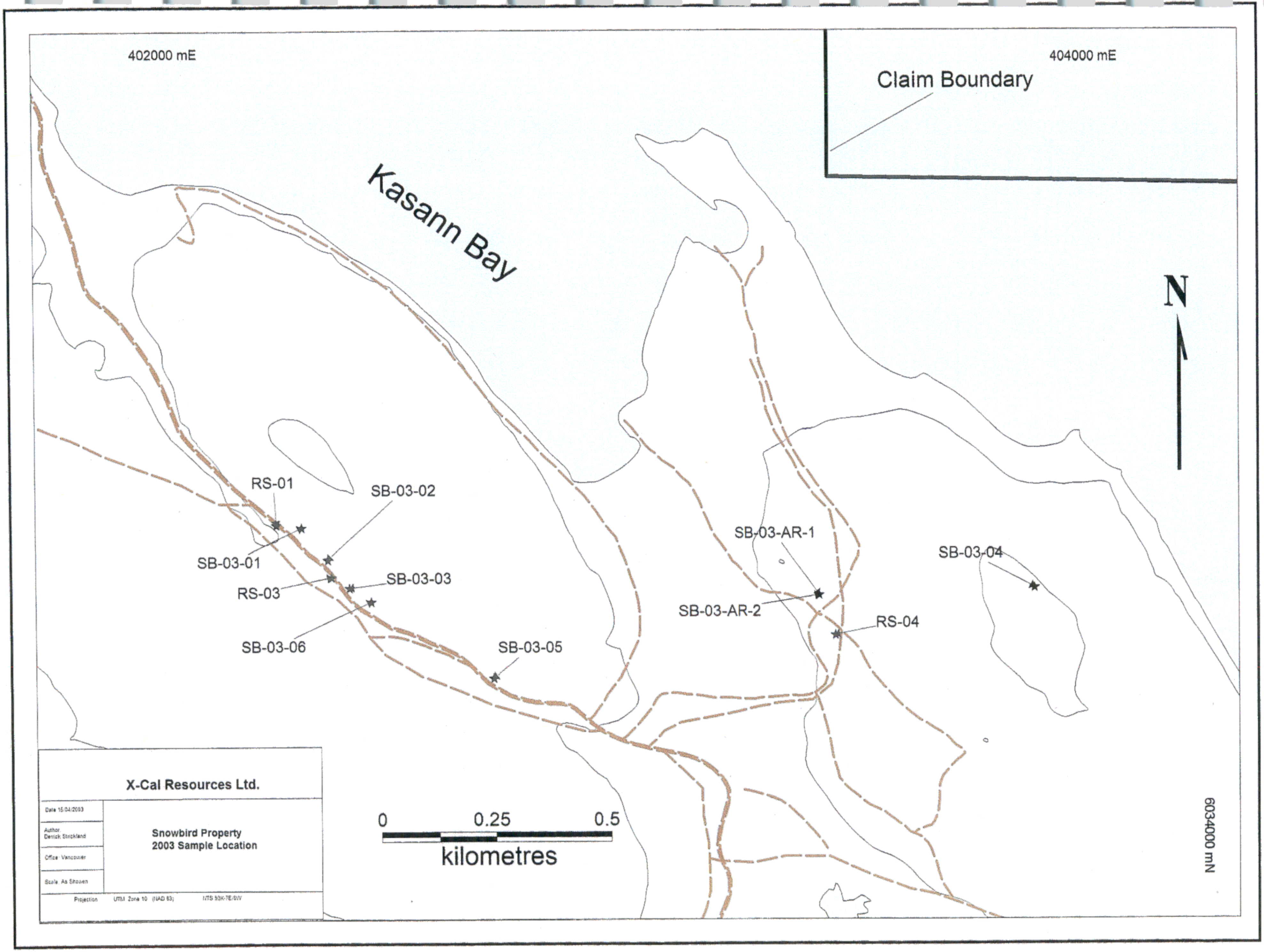
209-475 Howe Street
Vancouver, British Columbia
Canada. V6C 2B3
email: info@riominerals.com
Telephone: (604) 671-2245
Fax: (604) 689-3609

Statement of Costs
Snowbird Project

Item	Description	Billing Method	Cost per	Mandays/km	Total
Grid Survey	Delineate 1500 sq. meter area for bulk sample	-	$ 862.27	-	$ 862.27
Geology	Geological work.	Per day	$ 400.00	06 mandays	$ 2400.00
Geological Assistant	Fieldwork with geologist.	Per day	$ 250.00	06 mandays	$ 1500.00
Labour	Field personnel	Per day	$ 225.00	06 mandays	$ 1350.00
Report	Geological	Per report	$5290.00	-	$ 5290.00
Truck Rental	1 – 4x4 trucks	Per day	$ 75.00	06 days	$ 450.00
Snowmobile	-	Per week	$ 572.50	-	$ 572.50
Assays	08 rock samples	-	-	-	$ 179.76
Food/Accom.	-	Per day	$ 90.00	18 mandays	$ 1620.00
Travel @ 20%	Less food & accom.	-	-	-	$ 2520.91
Subtotal	-	-	-	-	$16745.44
Management	Project management/ misc. costs.	Percentage	5%	-	$ 837.27
TOTAL	-	-	-	-	$ 17582.71

APPENDIX E

2003 SAMPLE LOCATIONS


402000 mE
404000 mE
Claim Boundary
Kasann Bay
N
RS-01
SB-03-02
SB-03-01
RS-03
SB-03-03
SB-03-06
SB-03-05
SB-03-AR-1
SB-03-AR-2
SB-03-04
RS-04
0
0.25
0.5
kilometres
6034000 mN
X-Cal Resources Ltd.
Date 15/04/2003
Author
Derrick Strickland
Office Vancouver
Scale As Shown
Snowbird Property
2003 Sample Location
Projection
UTM Zone 10 (NAD 83)
NTS 93K-7E/6W

APPENDIX F

ANALYTICAL METHODS AND RESULTS

Analytical Method and Results

MDFA30/50/60 : SOIL, SILICATE AND ORE ANALYSIS OF GOLD BY FIRE ASSAY FUSION/AAS ANALYSIS

SCOPE:

This method begins with fire assay fusion using lead as the collecting medium, followed by the delineation of the silver bead within the defined analytical ranges where the limitations of (ASFA, NSFA, and BLST) Au are acceptable. The final gold analysis is conducted by the AAS.

PRINCIPLE:

This method consists of a reducing fusion followed by an oxidizing fusion. Fusing with a litharge-based flux reduces the samples. This will form a complex liquid borosilicate slag and a liquid lead phase. The molten lead collects the precious metals and the gangue elements are separated into the slag. The difference in relative density between the lead and the slag allow easy separation after solidification. The resultant lead button is then cupelled in the furnace (oxidizing fusion). The molten lead containing the gold or silver is oxidized to lead oxide and absorbed into a porous vessel called a cupel. This leaves the precious metal bead separated for analysis by dissolution and AAS.

APPLICABLE ANALYTE RANGES FOR NSFA AU:

Element Code	Unit	Method Detection Limit	Upper Limit
Au	ppb	1	10000
Au10	ppb	5	10000
Au15	G/T	0.01	10.00
Au20	ppb	5	10000
Au30	ppb	5	10000
Au40	ppb	5	10000
Au50	ppb	5	10000
Au60	ppb	5	10000

Higher levels require additional silver for parting.

APPLICABLE ANALYTE RANGES FOR ASFA AU:

ElementCode	Unit	Method Detection Limit	Upper Limit
Au	ppm	0.03	10.00
Au16	ppm	0.005	10.000
Au20	ppm	0.005	10.000
Au30	ppb	5	10 000
Au40	ppm	0.005	10.000
Au50	ppm	0.005	10.000
Au60	ppm	0.005	10.000
AuM1	ppm	0.03	10.000

APPLICABLE ANALYTE RANGES FOR BLST AU:

Element Code	Unit	Method Detection Limit	Upper Limit
AuB1	ppm	0.03	10000

REAGENTS:

1.1 General Requirements - unless otherwise specified, all reagents shall be of analytical grade, and deionized or nanopure water shall be used.
1.2 Hydrochloric Acid 10 mol/L (S.G 1.16g/ml)
1.3 Nitric Acid 15.7mol/L (S.G 1.42g/mL)
1.4 1% Hydrochloric Acid and 300ppm of Magnesium Oxide Solution
1.5 Silica, silicon dioxide, technical
1.6 Flour, plain
1.7 Silver nitrate, AR crystals or Silver Wire, AR
1.8 Iron nails
1.9 Potassium nitrate, technical
1.10 Copper Wire.
1.11 Pre-Mixed Fire Assay Flux

PRECISION:

The tolerance criteria for variation of analytical data results from all stages of the analysis and are subjected to the matrix and the specific technique used.

Expected tolerance criteria at various concentrations for this method are as follows:

ASFA Au, NSFA Au, BLST Au	Standard Value	Tolerance
Au - Flame Atomic Absorption Spectroscopy	Method Detection Limit (MDL)	+/- 100%
Measurement	2xMDL to 4xMDL	+/- 50%
(ppb)	5xMDL to 10xMDL	+/-25%
	11xMDL to 20xMDL	+/-20%
	>20xMDL	+/-15%

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Bic Minerals Inc. Canada File # A301080
205 - 475 Howe St., Vancouver BC V6C 2B3 Submitted by: Andrew Molnar

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm
SB-03-01	3	60	25	66	3.9	18	5	629	1.98	284	<8	<2	<2	95	<.5
SB-03-02	<1	5	<3	5	2.8	203	3	134	.51	<2	<8	3	<2	59	.6
SB-03-03	<1	9	<3	39	.7	583	38	964	4.82	458	<8	<2	<2	266	<.5
SB-03-04	4	31	6	50	<.3	9	6	575	2.12	24	<8	<2	<2	20	<.5
SB-03-05	<1	182	4	36	11.6	288	43	606	3.30	593	<8	<2	<2	1844	<.5
SB-03-06	1	61	<3	34	<.3	2640	142	571	3.88	22	<8	<2	<2	87	<.5
SB-03-AR-1	3	19	4	32	<.3	61	7	1708	2.15	61	<8	<2	<2	365	<.5
SB-03-AR-2	<1	34	3	11	<.3	850	58	258	2.69	17	<8	<2	<2	46	<.5
STANDARD DS4/AU-R	6	132	29	155	<.3	38	12	826	3.16	24	10	<2	3	29	5.1

SAMPLE#	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
SB-03-01	1155	3	5	3.26	.118	2	18	1.15	121	<.01	7	.40	.01	.08	5	916
SB-03-02	>2000	<3	<1	.43	.001	1	13	.98	17	<.01	<3	.06	<.01	.03	<2	3671
SB-03-03	185	<3	39	4.47	.033	4	171	8.50	117	<.01	12	.52	.01	.13	2	42
SB-03-04	232	<3	9	.41	.058	5	7	.13	85	<.01	<3	.53	.07	.13	2	27
SB-03-05	61	<3	2	7.93	.806	1	87	8.04	42	<.01	<3	.04	.01	.02	3	46
SB-03-06	47	<3	19	2.04	.007	1	1057	8.17	81	<.01	5	.64	.01	.03	3	5
SB-03-AR-1	10	3	12	10.06	.017	2	17	4.71	314	<.01	<3	.28	.03	.09	2	7
SB-03-AR-2	24	3	2	.51	.007	1	963	7.51	14	<.01	<3	.34	<.01	<.01	<2	<2
STANDARD DS4/AU-R	5	6	74	.55	.091	17	165	.61	143	.09	5	1.79	.04	.16	6	492

GROUP 1D - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK R150 60C AU** GROUP 3B - 30.00 GM SAMPLE ANALYSIS BY FA/ICP.

DATE RECEIVED: APR 10 2003 **DATE REPORT MAILED:** April 16/03 **SIGNED BY** C.L......... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA