BRITISH COLUMBIA

PROSPECTORS ASSISTANCE PROGRAM

MINISTRY OF ENERGY AND MINES

GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:	1999/2000
REPORT #:	PAP 99-20
NAME:	BRUCE HOLDEN

BRITISH COLUMBIA
PROSPECTORS ASSISTANCE PROGRAM
PROSPECTING REPORT FORM (continued)

B. TECHNICAL REPORT

- One technical report to be completed for each project area.
- **Refer to Program Requirements/Regulations 15 to 17, page 6.**
- If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the supporting data (see section 16) required with this TECHNICAL REPORT.

Name Bruce Holden Reference Number 99/2000 P 41

LOCATION/COMMODITIES

Project Area (as listed in Part A) Northern Lights MINFILE No. if applicable

Location of Project Area NTS 93 E.10 W, 93E11E Lat 54 35 42 Long 126 02 30

Description of Location and Access Whitesail mountains / Helicopter access from Tahtsa Reach Barge crossing / 99 Kilometers South of Houston BC.

Main Commodities Searched For Opal

Known Mineral Occurrences in Project Area Both metal potential and opal gems

WORK PERFORMED 38 person days

1. Conventional Prospecting (area) 20 sq. kilometers North + West around claims
2. Geological Mapping (hectares/scale)
3. Geochemical (type and no. of samples) 1 for mineral background (Northern Lights claim) / 5 for mineral potential (Cummins claim)
4. Geophysical (type and line km)
5. Physical Work (type and amount) 45 person days - trenching and sifting, sorting
6. Drilling (no. holes, size, depth in m, total m)
7. Other (specify)

SIGNIFICANT RESULTS

Commodities Mace Opal Claim Name Northern Lights

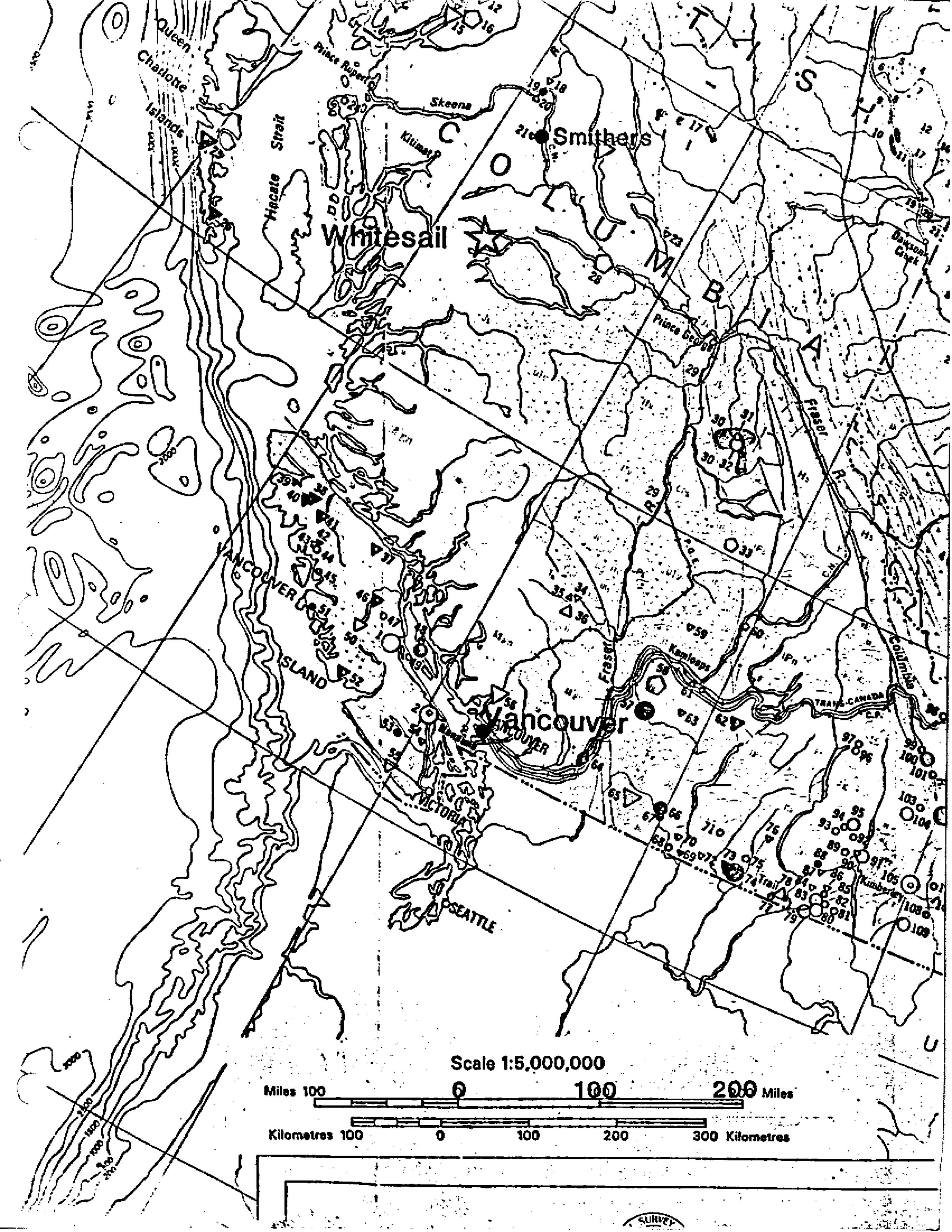
Location (show on map) Lat 54 35 42 Long 126 02 30 Elevation 5900'

Best assay/sample type

Description of mineralization, host rocks, anomalies We carried on sifting and trenching - We found several new showings and proved the continuation of our main dig site. Removed mace matrix material and retrieved opal nuggets from our sifting of weathered material.

Supporting data must be submitted with this TECHNICAL REPORT

Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act*.


Queen Charlotte Islands
Hecate Strait
Prince Rupert
Skeena
Kitimat
Smithers
Whitesail
COLUMBIA
Prince George
Fraser
Fraser R.
Dawson Creek
VANCOUVER ISLAND
Vancouver
Nanaimo
VICTORIA
SEATTLE
Kamloops
TRANS-CANADA
Columbia
Trail
Kimberley
Scale 1:5,000,000
Miles 100 0 100 200 Miles
Kilometres 100 0 100 200 300 Kilometres

PROSPECTING REPORT- NORTHERN LIGHTS MINERAL PROPERTY

WHITESAIL RANGE
93E10W,93E11E

54 35 42 126 02 30

1999 PROGRAM

FOR

PROSPECTORS ASSISTANCE PROGRAM

BY

BRUCE HOLDEN
RANDY LORD

1111 NORTH CENTRAL ROAD
DENMAN ISLAND, V0R 1T0
BRITISH COLUMBIA

Nov. 13, 1999

PROSPECTING REPORT- NORTHERN LIGHTS

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1999 FIELD SEASON PROSPECTING REPORT - NORTHERN LIGHTS

LOCATION AND ACCESS

The Northern Lights Opal claims are located in the Omineca Mining District in the Whitesail Mountain range approximately 90 km by air south from Houston. The Razorback claims and Cummins Creek claims are located nearby to the west. The NTS mapsheets which correspond are 93E/10W and 93E/11E. Copies of the current Mineral titles mapsheets and topographical map are attached as Appendix A. The claims, except for Cummins Creek, are well above treeline with the nearest road access 12 km away. Access to the area is by helicopter from a pick up point reached by vehicle at the HFP Tahtsa Reach barge crossing.

PROPERTY HISTORY

Surface showings of precious opal-bearing material were found in the Whitesail Range in the eighties and early nineties by Bruce Holden. In 1995 claims were staked. In 1996 a six week field season revealed further surface showings and in 1997 a five week field season resulted in more discoveries. The Northern Lights property was restaked in 1997 by the applicant with a four post twenty unit claim.

The 1998 field season summary consisted of 152 field days, 7 new claims staked and removal of an 800 lb sample for evaluation and market testing. A Prospectors Assistance Grant was recieved and Regional Geologist Paul Wojdak along with BCGS Industrial Mineral Geologist George Simandl visited the property in 1998.

In 1999 a 93 man day field season resulted in further precious opal discoveries on the properties however an unusually large snowpack delayed priority trenching with a mini excavator. Localized continuity of the deposit was indicated and another 800 lb sample of better grade material was recovered. Exploration and sampling at the Cummins Creek claims showed some mineralization present. The vuggy quartz veins produced a 200 lb sample of spectacular pineapple quartz crystals that have attracted considerable attention from collectors. A completed Notice of Work is attached as Appendix B.

REGIONAL/LOCAL GEOLOGY

The Northern Lights property is located in the west-central part of the Intermontaine belt of the B.C. cordillera along the southern margin of a major east northeast trending transverse tectonic belt known as the Skeena Arch. Rock units across the Intermontaine belt include uppper Paleozoic to Miocene volcanics, sediments and intrusive rocks. The

Hazelton group dominates the lithologies in this area. Volcanics of the upper cretaceous Kasalka and lower tertiary Ootsa Lake group were deposited in a series of basins across much of the area. This volcanic-tectonic episode is responsible for the development of most of the significant mineral deposits in west-central B.C.. Attached as Appendix C is a copy of a map of the geological setting and mineral deposits in the area.

Precious opal occurs at the Northern Lights property in debris flows hosted by the Ootsa Lake volcanics. Precious and common opal occur as open space fillings within fractures and vesicles in volcanic lahar and lapilli tuff units. Eocene-aged rhyolite and dacite flows, breccia, tuff, basalt and conglomerates also contain significant amounts of agate, common opal and zeolites. Hand trenching, drilling, cutting and sampling have exposed considerable distribution of the units. This deposit appears to have tonnage potential of some size as indicated by the continuity of units across the structure.

In the Cummins Creek area, numerous quartz veins are exposed in a northwest - southeast trending zone that follows the canyon. The veins are up to 2 meters in thickness, are exposed for lengths up to 100 meters and can be traced for distances up to three hundred meters. The best developed veins appear to strike generally northerly and dip vertically or at steep angles to the east. Grab samples and hand exposure of the veins indicate some mineralization and enrichment zones present however very steep and slippery conditions and limited access preclude thorough examination of all exposures.

The Whitesail area has many similarities with the Klinker deposit (Okanogan Opal) in terms of lithilogies, age of host rocks, mineralogy and the presence of zeoloites and celadonite. The deposition model of precious opal by surface or near surface silica-rich solutions appears valid as ICP analysis of opal bearing material from this property contain minimal metals. While hosted in volcanics, this model indicates a sedimentary process which could lead to improved recovery at depth and/or at contact with impermeable units.

WORK DONE

1999 Program Summary - July 29 - August 28 , 1999 (31 field days)

Personnel:

Bruce Holden	31 field days
Randy Lord	31 field days
Larry (Hoopy)Hamula	31 field days
total	93 field days

Prospecting work - 48 days - ground search on all properties and some nearby areas,

surface sampling, flagging all in -situ precious opal surface showings

Physical work - 33 days - hand and machine trenching priority areas, sorting and preparing specimens and samples in the field

Miscellaneous work- 12 days - camp related activities , reclamation work

Continued surface prospecting on the Northern Lights claims resulted in several discoveries of new areas containing precious opal. These discoveries generally extended or infilled previously known surface showings but added to our knowledge of the property significantly. By challenging conventional deposition targets and using close and thorough visual examination, agate and zeolite zones that had been previously dismissed as barren were found to often contain minor amounts of precious opal. The "halo" or zonation effect whereby agate grades to common opal to precious opal at the center was noted in areas and improved our surface prospecting success.

Significant snowcover delayed trenching in priority areas for 2 weeks however the use of a mini excavator resulted in the recovery of a 400 kg sample of potentially higher quality material. Matrix opal material appeared to continue on all sides and at the bottom of the trench where some of the best material was exposed. The weathering and frost affected zone appeared to lessen and the material became harder and stronger , a significant requirement for the production of jewelry grade material. A Cobra drill and gas powered cut off saw were used to obtain bulk samples after exposure by the mini-excavator and hand trenching. The material was inspected, hand cobbed then sorted at the face before packaging for transport. The mini-excavator/rickshaw combination used in exposing the unit called Ptarmigan proved very effective despite the considerable snowpack,inclement weather and mechanical problems. As tools for trenching in remote or poor access properties, they have proved their worth.

Surface prospecting nearby ridges in areas east and northeast did not result in any further precious opal discoveries. Blocks of common opal were found as described in G. Simandls 1998 report but none were found containing any play of fire. The material found was unattractive for gemstone or lapidary use and was written off as a target.

The Razorback properties to the West were examined in areas where exposure of the units has been noted and weathered opal float was found. Further flagging, trenching and sampling confirmed precious opal occurances and a large lens of common opal closely associated with a dyke structure noted. The large dyke was followed and examined where exposed as it was found to contain minor amounts of precious opal on the Northern Lights property and was the site of the original discovery of precious opal in the Whitesails. Close examination of this dyke on trend did not reveal more discoveries .

Surface sampling and prospecting on the Cummins Creek property staked in 1998 resulted in grab samples described in Assay Results attached as Appendix D. Examination of the swarm of quartz viens for enrichment and alteration zones did not yield significant results however their potential remains largely unexplored. Open vugs and cavities in a couple of 1 meter wide quartz viens yielded high quality and unusual habit quartz crystals that have attracted a lot of interest from collectors and museums. We describe them as pineapples as there are crystal overgrowths around each single crystal than lend it a sparkling and attractive look. A sample of approx 100 kg were recovered by helicopter at the end of the season for test marketing purposes.

LIST OF CLAIMS

Claim	Record No.	Type	Units	Owner	Recording date
Cummins #1	681805	2 post	1	B. Holden	August 27,1998
Cummins #2	681806	2 post	1	B. Holden	August 27,1998
Cummins #3	681807	2 post	1	B. Holden	August 27,1998
Razorback #1	658393	2 post	1	B. Holden	Sept 5 ,1998
Razorback #2	658354	2 post	1	B. Holden	Sept 5 ,1998
Razorback #3	658395	2 post	1	B. Holden	Sept 5 ,1998
Razorback #4	658396	2 post	1	B. Holden	Sept 5 ,1998
Northern Lights	360572	4 post	20	B. Holden	Nov 18, 1997

ASSAY RESULTS

The analysis and assay evaluation of precious opal bearing material has been an ongoing procedure which consists of sorting, cutting, coring and polishing precious opal bearing matrix material and solid opal nodules. In house production of matrix opal cabachons has shown a recovery of about 10% of the pieces cut from select slabbed material. Different stabilization treatments are continuing by leading edge professionals across North America and results are encouraging. Treatment to harden and enhance the matrix opal material may only be required for the surface and near surface material however at present it represents the bulk of our samples.

A professional opal cutter finished 6 small solid opals that exhibit good fire from last seasons nodule production. This season the production of opal nodules increased as efforts in obtaining this type were increased and we expect to have approximately another10 good solid stones from this cutter soon. Of special interest are some black opal nodules that show play of fire and may have significant value as gemstones. As well a prominent American carver has procured several matrix pieces to use in his work

and sphere makers are preparing spheres from our material. Solid stones as well as doublets and triplets produced for evaluation purposes have proven stable and durable but the large matrix opal pieces (up to 5 kg) have generated special interest from the industry as it is a rare commodity worldwide.

Ongoing marketing efforts have included ; attendance at the 1999 Tuscon Gem and Mineral Show, the 1999 Cordilleran Roundup, the 1999 BC Gem and Mineral Show along with continued networking with rockhound and lapidary clubs throughout the Lower Mainland, Vancouver Island and the United States. We arranged for the first large sale of specimen material through the Pacific Mineral Museum downtown Vancouver and are continuing direct sales of specimen and finished material to select dealers. The preparation of the quartz pineapple crystals for marketing has continued using a unique oaxalic acid bubble bath system and continued interest from collectors and museums indicate these are very desirable specimens.

Mineralized grab samples from the Cummins Creek quartz viens were assayed in a Vancouver lab by FA/AAS and ICP and while results are encouraging they were for the most part insignificant. Alteration zones around the viens were noted but were not extensive where exposed. Restrictions in sampling ability due to the steepness of the canyon and inclement weather may have limited these results and further examination of nearby ridges and cliffs are required. In the assay results in Appendix D please note that the sample designated NA#1 was not from this property.

SUMMARY AND CONCLUSIONS

We are again extremely encouraged by the results from the Northern Lights this season. Our goal of examining material below the frost zone and establishing limited local continuity were met. It was obvious this season that the short alpine weather window requires us to maximize our efforts at exploration and trenching. The mini excavator and rickshaw combination proved to be very efficient and useful tools and enabled us to remove a 400 kilo sample in a short period of time.

This discovery and the surrounding areas require more detailed evaluation and interpretation with continued trenching, surface sampling, flagging and mapping needed to establish trends, continuity and control elements. As it is not possible to detect precious opal other than with close visual inspection, the need for thorough, up close and detailed examination of all exposed units is required. In addition to surface prospecting and sampling we plan to continue to use a Cobra drill and gas saws to assist us in the trenching and exposure of units in areas showing the greatest potential. We are continuing to develop several innovative hand tools and plan to continue next season with a cyclone type separator for concentrating opal chips and nodules from weathered zones.

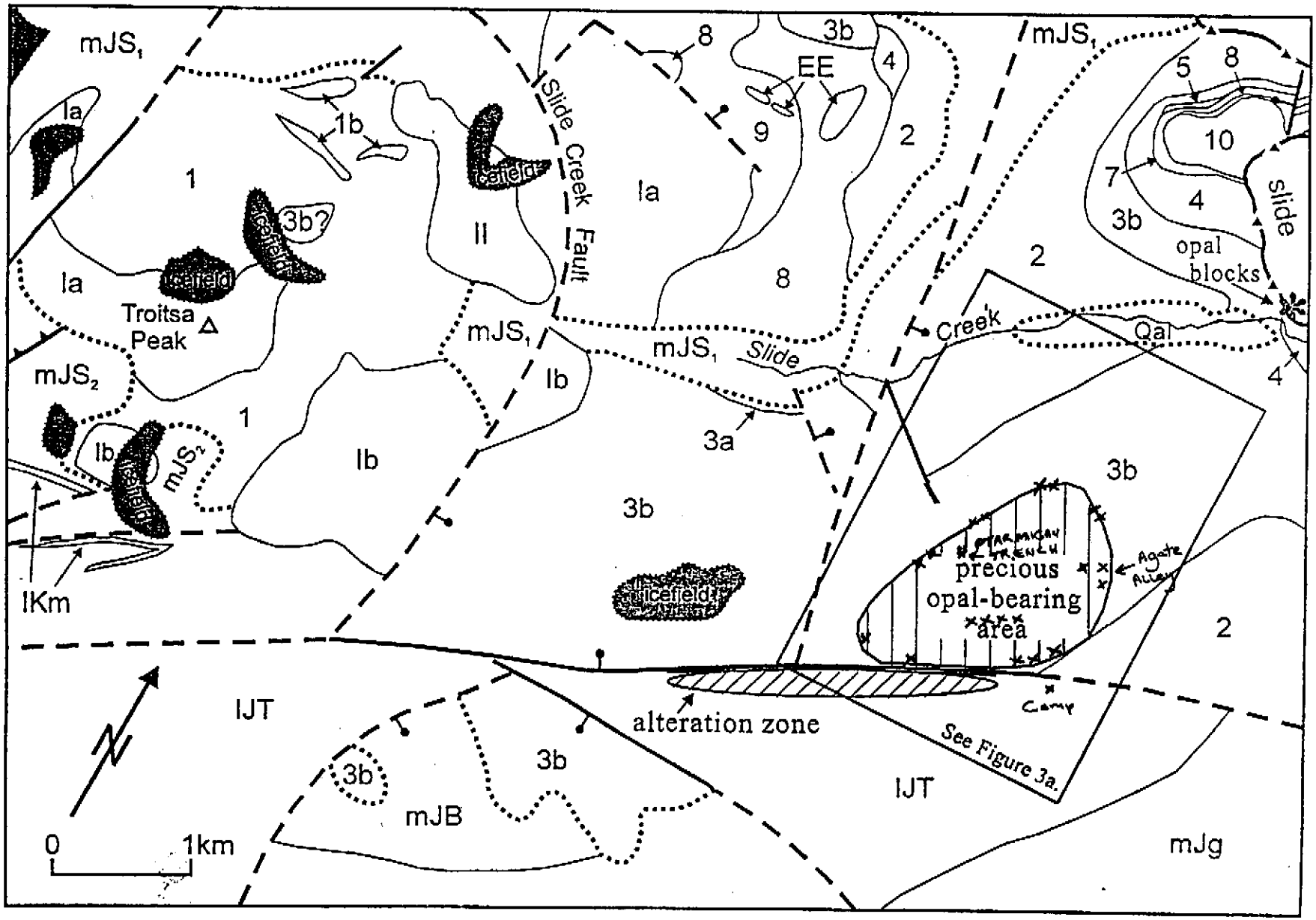


Figure 2. Geological setting of precious opal occurrences in the Whitesail Range (modified from Diakow and Mihalynuk, 1987a,b and Drobe, 1991).

Ptarmigan Trench – site of 99 work with Slager.
Agate Alley – worked through weathering for loose nodules.

Test marketing the matrix opal material as cutting, carving and jewellery grade product is continuing and feedback has been promising. The Honduran source for treated matrix opal material has suffered a serious setback due to last years flooding and debris flows and as such the worlds primary source of supply has dried up. This drop in supply enhances our goal to produce and market high value-added matrix opal material through established channels as soon as possible. It is unfortunate that the Nothern Lights property is under snow for most of the year and methods to extend our field season may be required.

It is clear that gemstone exploration presents greater risks to prospectors as well as requiring extensive market testing and evaluation prior to production. Higher risks in assessing ore reseve potential, costly labour intensive extraction and refining methods, greater lead time prior to production and general geographic remoteness make gemstone exploration a high cost exercise. However the global market has set a premium price for precious opal that makes its potential very promising. We recognize that we have only scratched the surface of an important new BC mineral resource and further exploration and interest will result in significant gemstone discoveries. The skills, tools and techniques we use in prospecting for precious opal are not generally known by the exploration community and we hope to continue our efforts at educating interested parties. We are very thankful to the Ministry of Employment and Investment for their financial support through the Prospectors Assistance Program without which this high cost/high risk property would likely remain largely unexplored. Our experiences with Ministry staff have been friendly and positive and we are gratefull for their high caliber of conduct and interest.

Geology of Whitesail Lake

O.F. 708

1 : 250,000

CRETACEOUS (?) AND TERTIARY

OOTSA LAKE GROUP (Er and uKEv)

EOCENE (?)

Er — Rhyolite, quartz-feldspar porphyry plugs and domes

MAESTRICHTIAN (?) TO EOCENE

uKEv — Rhyolite and dacite flows, breccia, and tuff; minor andesite, basalt, and conglomerate

CRETACEOUS

UPPER CRETACEOUS (?)

uKv — Dacitic to basaltic volcanics undivided; mainly greenish amygdaloidal flows, basalt, and intermediate tuff and breccias; minor bladed-feldspar porphyry. May in part or entirely be equivalent to uKEv and uKK

UPPER CRETACEOUS

KASALKA GROUP

uKK — Rhyolite to andesite flows, breccia, tuff, and lahar; minor red conglomerate and sandstone at base

MIDDLE ALBIAN (mainly or entirely)

SKEENA GROUP

lKs — Micaceous sandstone, siltstone, and shale; minor conglomerate

HAUTERIVIAN (?)

GAMBIER GROUP (lKG)

lKG — Thick bedded andesite to rhyolite flows, tuff, and breccia; minor conglomerate, sandstone, and siltstone

JURASSIC

UPPER BATHONIAN TO LOWER CALLOVIAN

mJA — ASHMAN FORMATION: Thin bedded shale, siltstone, sandstone, greywacke, tuffy shale; minor chert-pebble conglomerate and tuff

LOWER AND MIDDLE JURASSIC

HAZELTON GROUP (lJTo to mJs)

MIDDLE BAJOCIAN

mJs — SMITHERS FORMATION: feldspathic volcanic sandstone, greywacke, tuff, breccia, tuffaceous sediments; minor conglomerate, limestone, and flow

UPPER TOARCIAN TO LOWER BAJOCIAN

mJw — WHITESAIL FORMATION: cream coloured, reddish, and dark grey rhyolite flows, breccia, and tuffs; minor siltstone, sandstone

TOARCIAN (?)

lJR — RED TUFF MEMBER (of Whitesail Formation): brick-red, maroon, purplish, and green fine-grained breccia and tuff

SINEMURIAN (?)

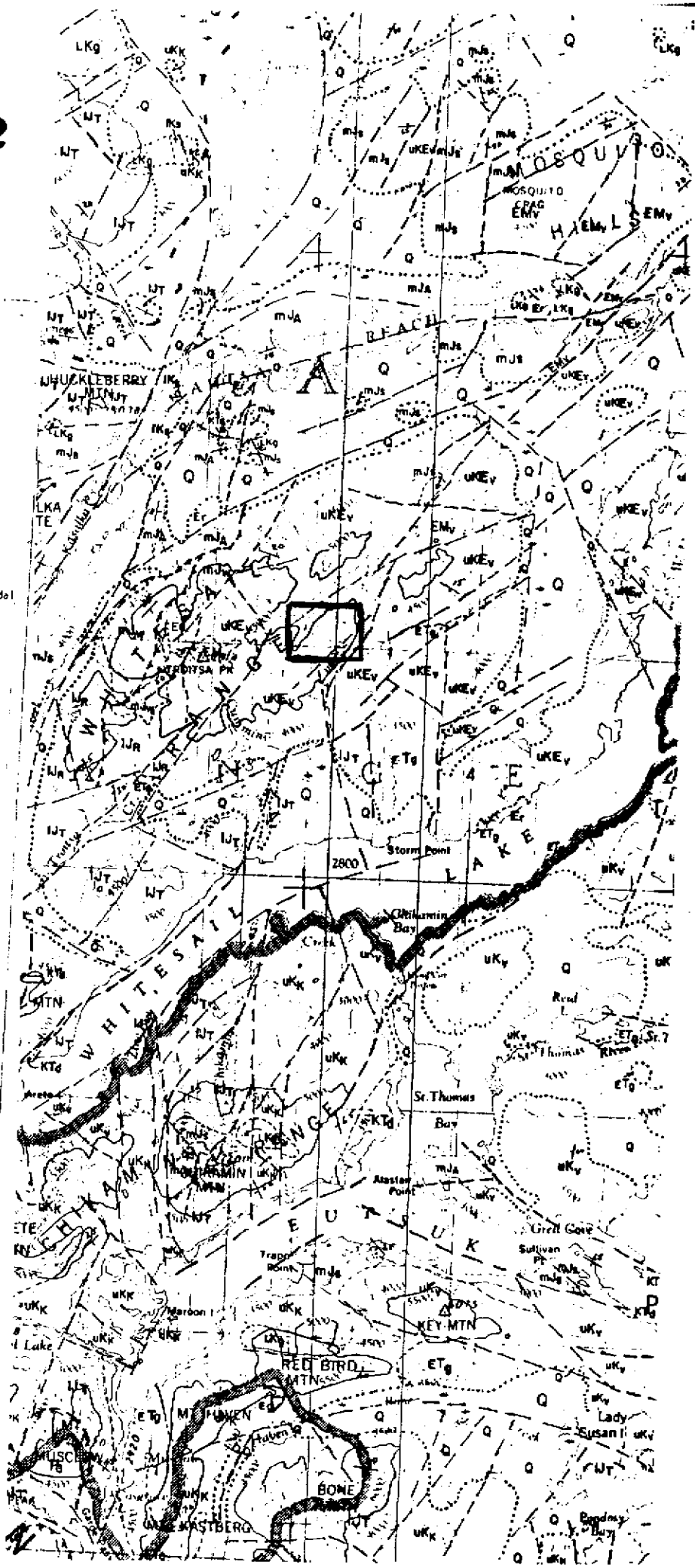
[illegible] — TELKWA FORMATION (in part): variegated red, maroon, grey, green tuff, breccia, and flows of basaltic to rhyolitic composition; lesser volcanic conglomerate, red mudstone, red siltstone, argillite

lJTo — TELKWA FORMATION (in part): light coloured rhyolitic to dacitic breccia and tuffs; minor coarse conglomerate

TRIASSIC

UPPER TRIASSIC

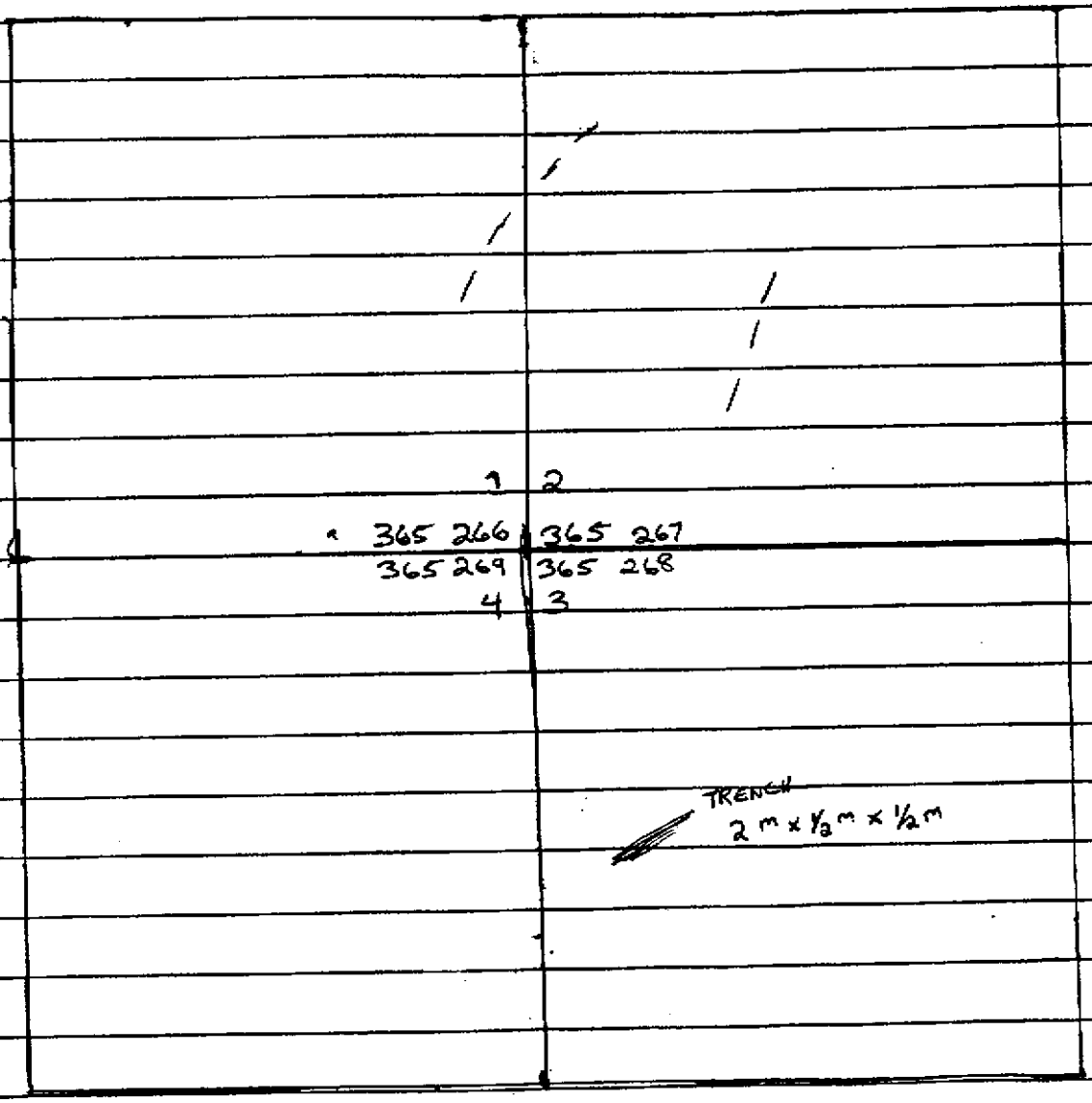
uRv — Green, grey breccia, and red tuff of basaltic to andesitic composition and with porphyritic [illegible] or volcanic [illegible]



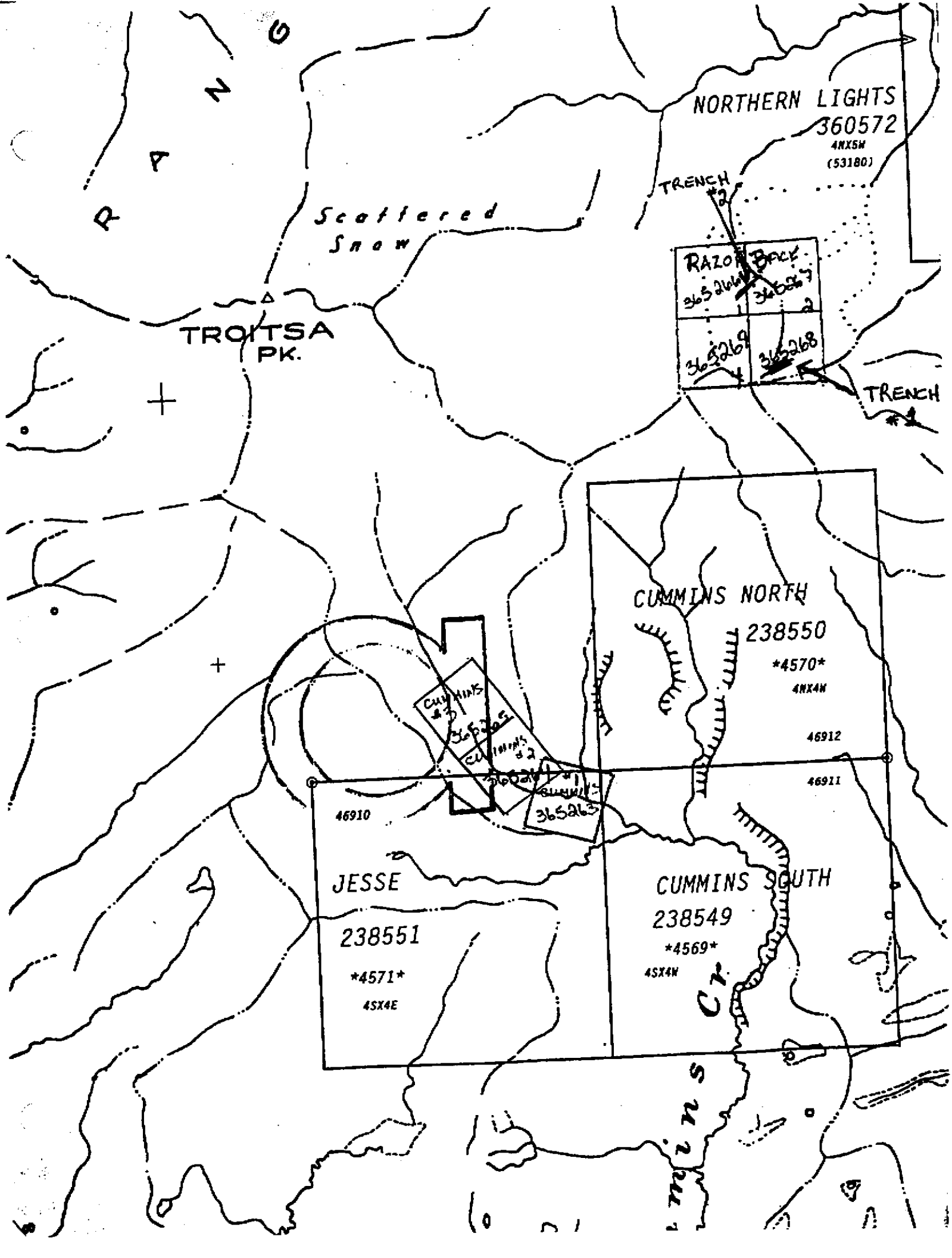
We trenched on Razorback 3
prospected and sample all four claims

2 persons for 2 days = 800
Helicopter = 400 = 1200

Razorback Claims



flagged + sampled shootings - - - -
trench ——


RANGE
Scattered Snow
TROITSA PK.
NORTHERN LIGHTS
360572
4NX5H
(5318O)
TRENCH #2
RAZOR BACK
365266
365267
365269
365268
TRENCH #1
CUMMINS NORTH
238550
4570
4NX4W
46912
46911
46910
CUMMINS #3
365265
CUMMINS #2
365264
CUMMINS #1
365263
JESSE
238551
4571
4SX4E
CUMMINS SOUTH
238549
4569
4SX4W
Cr.
Smith

PROSPECTING REPORT - 1999

CUMMINS CREEK MINERAL PROPERTIES

Cummins #1	Record Number 681805
Cummins #2	Record Number 681806
Cummins #3	Record Number 681807

Omineca Mining District
Whitesail Range
93E11E
54 35 42 126 02 30

Owner: Bruce Holden
1111 North Central Road
Denman Island , B.C.
V0R 1T0

Authors: Bruce Holden
Randy Lord

October11, 1999

Prospecting Report
Cummins Creek Mineral Properties -1999

TABLE OF CONTENTS

PROSPECTING REPORT - CUMMINS CREEK - 1999

INTRODUCTION

Two prospectors examined the property for three days in the 1999 field season. Quartz veins were exposed and examined for enrichment and alteration zones and samples taken. Several hundred pounds of high quality quartz crystal specimens were recovered at the end of the season by helicopter.

LOCATION AND ACCESS

The Cummins Creek claims are located in the Omineca Mining District on the south flank of the Whitesail Mountain range some 95 km south of Houston, B.C. Copies of the current mineral titles reference maps and topographical map are attatched as Appendix A. The claims are located at approximately 3,000 feet in elevation with snow cover from mid-September until July. Access to the area is by helecopter only from a pick up point reached by vehicle at the Tahtsa Reach barge crossing. The claims are in the steep canyons and mountainside along Cummins Creek.

PROPERTY HISTORY

In 1998 Bruce Holden staked three claims in the Cummins Creek area to cover a set of large quartz viens that had proven anomalous in earlier samples. Union Carbide and Canamax had explored the area briefly in the early 80's in a quest for epithermal gold deposits. The Cummins claims cover three units as follows:

Claim	Record No.	Type	Units	Owner	Recording date
Cummins #1	681805	2 post	1	B. Holden	August 27,1998
Cummins #2	681806	2 post	1	B. Holden	August 27,1998
Cummins #3	681807	2 post	1	B. Holden	August 27,1998

In 1998 grab samples were taken from a series of quartz veins and results although not dramatic indicated further assessment work was needed. In 1999 a three day field season resulted in further grab samples and several hundred pounds of specimen quartz crystal pieces. A copy of completed Notice of Work form is included as Appendix B.

REGIONAL/LOCAL GEOLOGY

The Cummins Creek properties are located in the west-central part of the Intermontaine belt of the B.C. cordillera along the southern margin of a major east northeast trending transverse tectonic belt known as the Skeena Arch. Rock units across the Intermontaine belt include uppper Paleozoic to Miocene volcanics, sediments and intrusive rocks. The Hazelton group dominates the lithologies in this area. Volcanics of the upper cretaceous Kasalka and lower tertiary Ootsa Lake group were deposited in a series of basins across much of the area. This volcanic-tectonic episode is responsible for the development of many significant mineral deposits in west-central B.C.. Attached as Appendix C is a copy of a map of the mineral deposits/showings in the area.

On the Cummins claims numerous quartz veins in a northwest-southeast trending zone are exposed in the creekbed and along the canyons until they disappear into the mountain terrain. The veins are up to three meters in thickness, are exposed for lengths up to 100 meters and can be traced for distances up to three hundred meters. The best developed veins appear to strike generally northerly and dip vertically or at steep angles to the east. A map showing quartz viens and sample locations is attached as Appendix D

WORK DONE

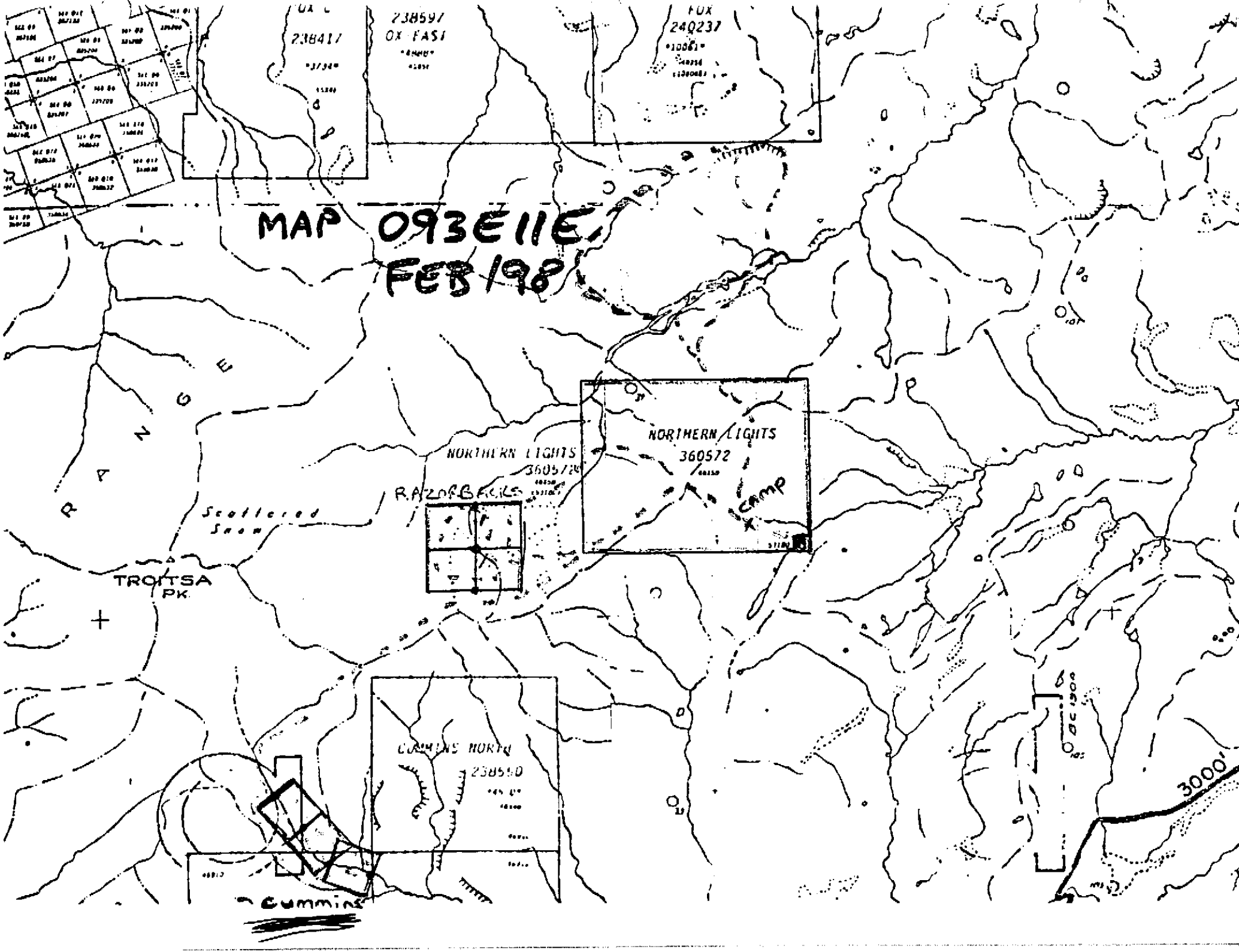
Prospectors Randy Lord and Bruce Holden spent three days each from August 13 to 15 collecting samples and mapping veins. Access to the property this season came via a traverse from our main camp and surface exposures along route were examined. A topographical map showing these traverses is included in Appendix A. Prospecting in the Cummins Creek drainage upstream from the property yielded minor float specimens. No quartz veins were noted. The next day the quartz veins on each of the claims were examined and sampled as required.

Veins were examined for enrichment with hand exposure wherever possible however very wet and slippery conditions precluded thorough examination of the steeper areas. The work this year was to take rock samples of quartz veins and country rock alteration zones where breccia quartz flooding was noted. The weather conditions were very poor but surface prospecting down the canyon and up slope was accomplished where safely possible.

This led to the discovery of crystaline quartz in several veins. A large amount of unusual specimen material was extracted and left beside the vein as no method was available to remove the pieces from the location they were in. Choice specimens were taken by backpack and at the end of our field season we recovered the extracted specimens by helicopter. Interest from collectors and museums has prompted us to clean and prepare specimens for display and sale. An itemized cost statement is included as Appendix E and the authors qualifications as Appendix F.

CONCLUSIONS

The results from ICP and fire assay analysis of the grab samples recovered this season, attached as Appendix G, are encouraging and indicate further assessment work is needed on these largely unexplored properties. The discovery of high quality and unusual quartz cyrstals has attracted considerable interest however due to the remoteness of the area they are likely to remain rare as well. An accelerated road building program by Houston Forests Product to respond to bug kill in the Whitesails could result in road access into the nearby area in the next several years allowing easier access for mineral exploration. We thank the Ministry of Employment and Investment for their financial support through the 1999 Prospectors Assistance Program and plan to continue to evaluate this interesting property .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238597
OX EAST
240237
NORTHERN LIGHTS
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360572
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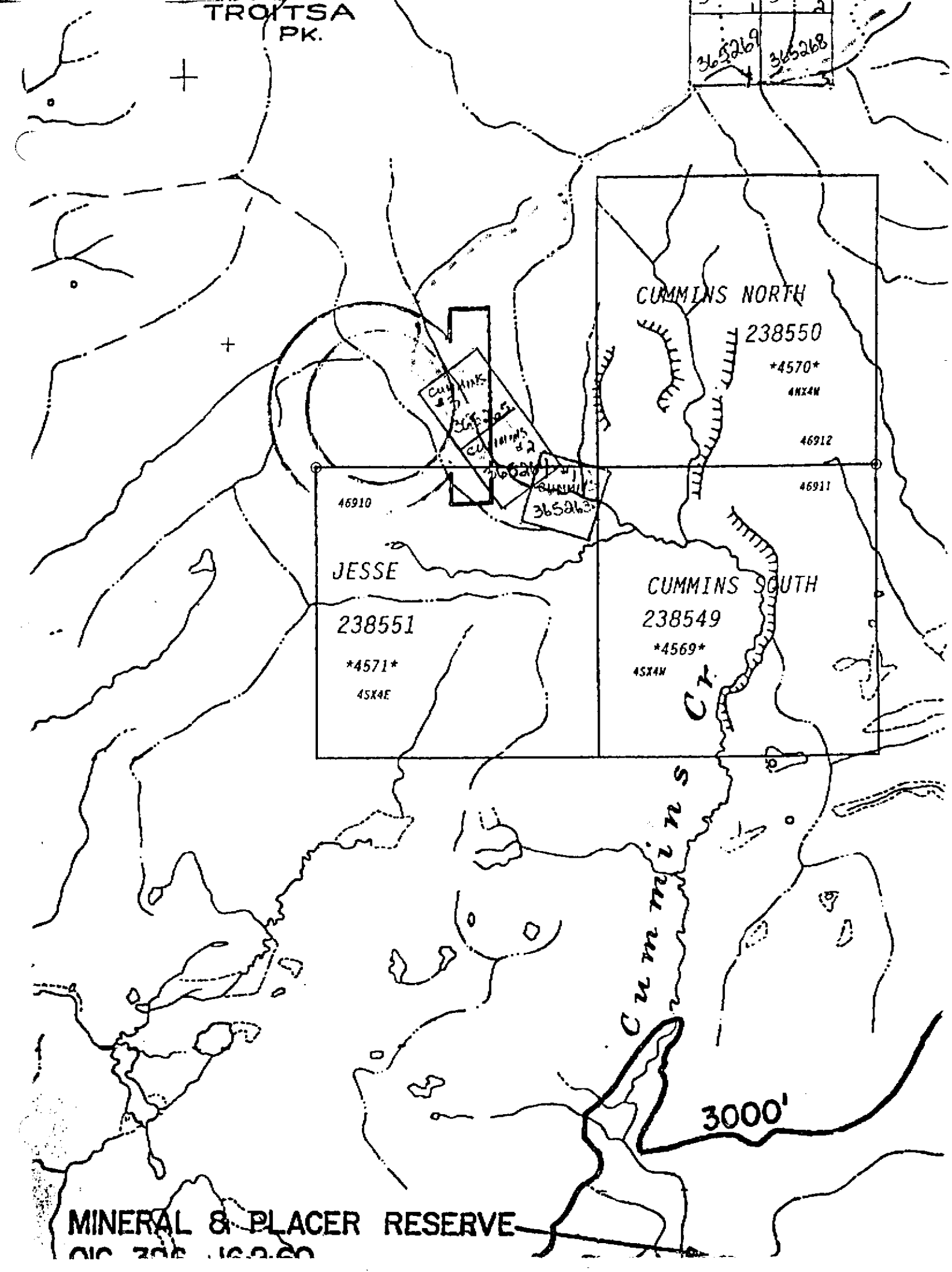
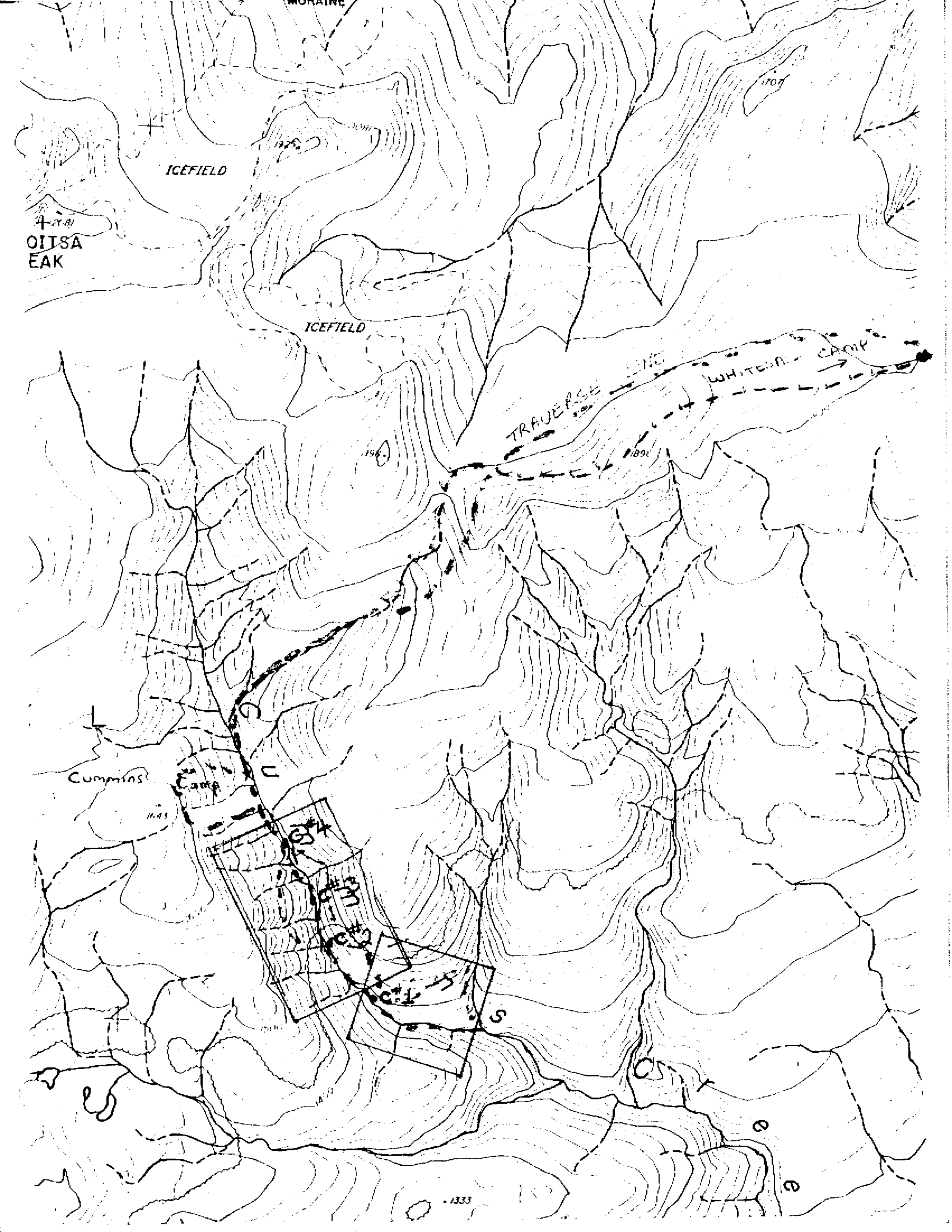
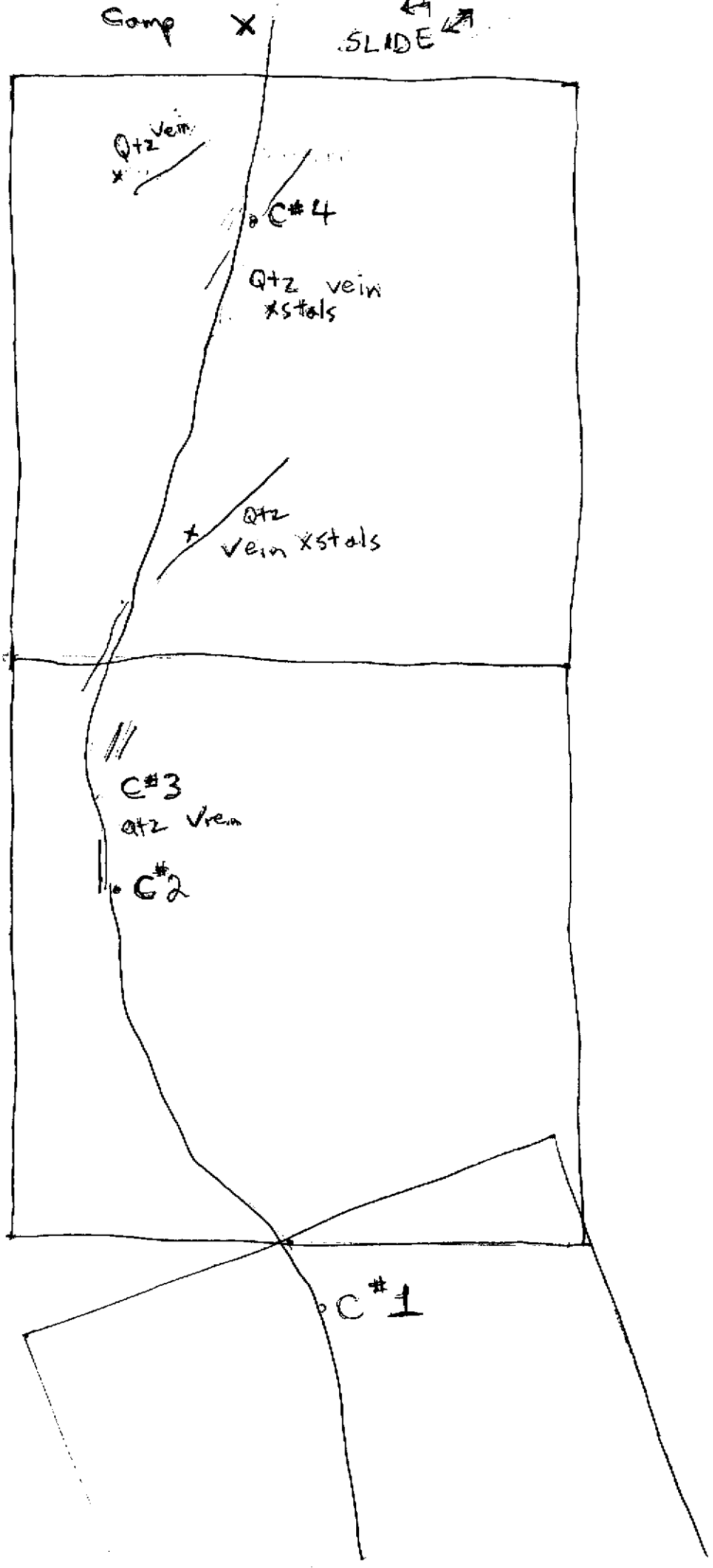
CUMMINS NORTH
238540
3000'


TROITSA
PK.
365269
365268
CUMMINS NORTH
238550
4570
4NX4W
46912
46911
46910
365263
JESSE
238551
4571
4SX4E
CUMMINS SOUTH
238549
4569
4SX4W
Cummins Cr.
3000'
MINERAL & PLACER RESERVE


MORAINE
1707
1925
ICEFIELD
OITSA
EAK
ICEFIELD
TRAVERSE
CAMP
1891
Cummins' Camp
C#4
C#3
C#2
C#1
1333


Camp
SLIDE
Qtz vein
C#4
Qtz vein xstals
Qtz vein xstals
C#3
qtz vein
C#2
C#1

Personnel Biographies:

Bruce Holden

Completed advanced prospectors course in 1981. Has worked throughout the Northwest including the Toodoggone and Iskut regions. Involved in prospecting and staking for minerals and metals as a main occupation for 19 years. Co-founded Atna Resources with Tom Richards and has performed extensive field work. Presently resides on Denman Island, B.C. and while exploring independently and supplying mineral and fossil specimens to the wholesale trade remains dedicated to the exploration industry.

Randy Lord

Has worked in petroleum exploration and development in over 8 counties around the world and holds 2 Magna Cum Laude diplomas from BCIT. Started collecting rocks and minerals 39 years ago and learned lapidary skills at the largest Vancouver based club 25 years ago. Has extensive knowledge of BC locations and currently resides in Burnaby , B.C.

Certificate#: 99J0958
Client: Northern Lights
Project: None Given
No. of Samples: 7
Date In: Oct 04, 1999
Date Out: Oct 06, 1999

Sample Name	SampleType	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
C#1	Rock	<2	0.8	216	21	47
C#2	Rock	4480	11.2	52	15	132
C#3	Rock	750	38.6	28	49	34
C#4	Rock	27	0.8	10	21	65
Lights	Rock	<2	0.2	24	9	51
NA#1	Rock	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
BH#5	Pulp	180	N/A	N/A	N/A	N/A
Minimum detection		2	0.1	1	2	1
Maximum detection		10000	100	20000	20000	20000
Method		FA/AAS	ICP	ICP	ICP	ICP

As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm
6	<5	<3	7	<10	<2	<0.1	10	33
431	<5	<3	17	<10	<2	<0.1	32	94
86	13	<3	838	<10	<2	<0.1	12	30
92	<5	<3	139	<10	<2	<0.1	2	6
<5	<5	<3	13	<10	<2	<0.1	10	17
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	5	3	1	10	2	0.1	1	1
10000	1000	10000	1000	1000	10000	100	10000	10000
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm
11	<5	163	60	1042	5	39	13	3
8	<5	157	48	338	<2	20	3	2
39	<5	177	21	246	5	10	2	1
44	<5	103	4	173	9	5	3	<1
208	<5	187	86	375	29	148	2	4
11	<5	136	29	3593	<2	21	6	1
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	5	1	2	1	2	1	1	1
10000	1000	10000	10000	10000	10000	10000	10000	10000
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Ti	Al	Ca	Fe	Mg	K	Na	P
%	%	%	%	%	%	%	%
0.01	1.12	2.57	8.97	0.45	0.05	0.02	0.04
<0.01	1.15	1.57	6.64	1.31	0.01	0.01	0.01
<0.01	0.62	0.28	2.43	0.36	0.11	0.01	0.08
<0.01	0.56	0.16	2.16	0.15	0.16	0.01	0.06
0.17	1.39	1.01	2.84	0.56	0.14	0.21	0.14
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1	10	10	10	10	10	5	5
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP