

87-244-16046  
2/88

**GEOLOGICAL REPORT  
on the  
CENTRAL PROPERTY**

**Alberni Mining Division,  
Port Alberni, British Columbia  
NTS 92F/6W**

**FILMED**

**North Latitude 49°20'21"  
West Longitude 125°19'21"**

**Prepared for**

*Owner/Operator:*

**MURJOH RESOURCES INC.  
Suite 705, 543 Granville Street,  
Vancouver, British Columbia  
V6C 1X8**

**Prepared by**

**Boa Services Ltd.  
Suite 302, 119 West Pender Street,  
Vancouver, British Columbia  
V6B 1S5**

**16,046**

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**March 12, 1987**

**Paul P. L. Chung  
Consulting Geologist**

# GEOLOGICAL REPORT ON THE CENTRAL PROPERTY

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## **INTRODUCTION**

Murjoh Resources Inc. of Suite 705, 543 Granville Street, Vancouver, British Columbia owns the Central property situated on the south shore of Great Central Lake, in the Alberni Mining Division. This report on the Central property, prepared at the request of the directors of the company, describes the work program conducted on the claims, which consisted of linecutting in February 1986 and geological mapping in February 1987.

## **SUMMARY**

The Central property is comprised of two contiguous claim blocks, Central 1 and Central 2, which together total 40 units. The claims are located on the south shore of Great Central Lake, approximately 40 kilometers west/northwest of Port Alberni in the Alberni Mining Division, Vancouver Island, British Columbia. Their geographic coordinates are 49°20' north latitude by 125°19' west longitude.

Access to the property is possible via Highway 4 west, and taking the paved turnoff northwest to Great Central Lake. Once at the lake, a boat is needed to travel 25 kilometers down the lake to the property.

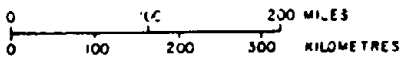
In 1984, mineralized float was discovered by Sam Craig in creek beds. Later that year, Royalon Petroleum Corp. conducted a limited exploration program on the property which included blasting of three trenches.

The results of the mapping and the analysis of the rock samples collected during the geological survey are encouraging. The property is in a favourable geologic setting for gold-bearing quartz veins, fissure zones, and the rock samples all returned anomalous gold or copper values. Further work is recommended to continue to test the potential of the property.



PROPERTY

Scale



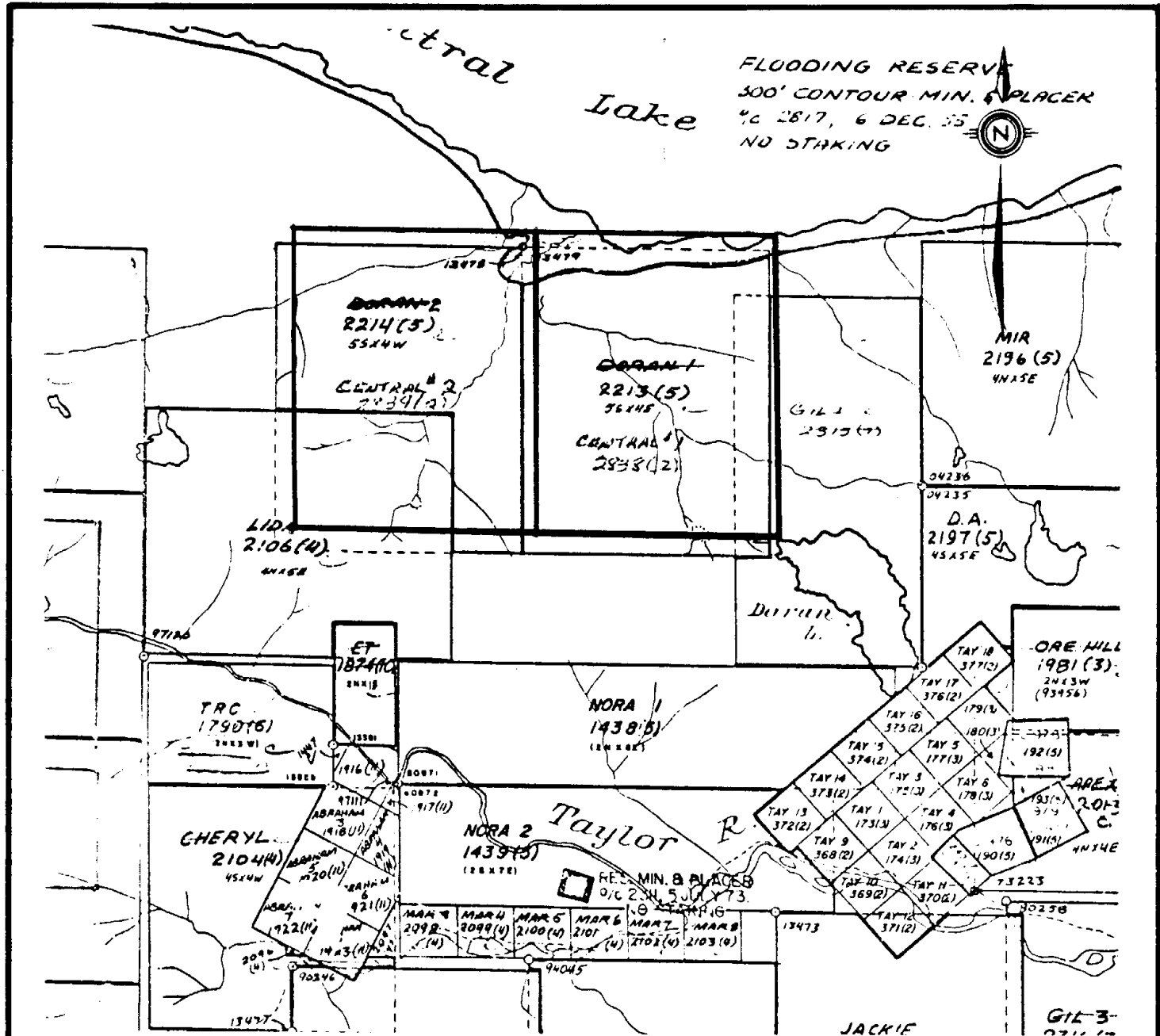
MURJOH RESOURCES INC.

**LOCATION MAP**  
**CENTRAL CLAIMS**  
**ALBERNI MINING DIVISION**  
**PORT ALBERNI, B. C.**

MARCH 1987

FIG. 1

BOA SERVICES LTD.



Scale : 1 : 50,000

**MURJOH RESOURCES INC.**

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**CLAIM MAP**

**CENTRAL CLAIMS**

**ALBERNI MINING DIVISION**

**PORT ALBERNI, B. C.**

MARCH 1987 FIG. 2

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**BOA SERVICES LTD.**

To accompany report by P.P.L. Chung

## PROPERTY AND OWNERSHIP

The property is comprised of two 20-unit claim blocks, Central 1 and Central 2, which together total 40 units and cover 1000 hectares. The claims are situated in the Alberni Mining Division, British Columbia. The location and configuration of the claims are shown on Figures 1 and 2 respectively. The following table summarizes all pertinent claim data.

<u>Claim Name</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Record Date</u>	<u>Owner</u>
Central 1	2838	20	18 Feb '86	Murjoh Resources Inc.
Central 2	2839	20	18 Feb '86	Murjoh Resources Inc.

During the recent program, the writer, on behalf of the company, filed a "Notice to Group" for the Central 1 and Central 2 claims at the Mining Recorder's office in Port Alberni, Vancouver Island, British Columbia.

## LOCATION AND ACCESS

The property is located on the south shore of Great Central Lake in south-central Vancouver Island. It is approximately 40 kilometers west/northwest of the town of Port Alberni.

Access to the property is possible by travelling 13 kilometers west from Port Alberni along Highway 4, and then taking the paved turnoff northwest to Great Central Lake. Once at the lake, a boat is needed to travel approximately 25 kilometers down the lake to the northern boundaries of the property.

## PHYSIOGRAPHY

The terrain, which may become rugged in sections, is generally moderate. Elevations range from 83 meters above sea level at the lake level, to over 1000 meters at the peaks. Logging was effected to about the 200-meter elevation with all higher slopes being covered with tall timber. Obstructive vegetation beneath the virgin forest canopy is minimal.

The climate in this region is typical of Vancouver Island, with heavy annual rainfall and mild temperatures. Winters are characterized by heavy precipitation, with the summers being fairly hot. The lower reaches of the property may be worked quite late or early in the season.

## **HISTORY**

The property itself received no known exploration or development until 1984 when Sam Craig discovered mineralized float in the creek beds. He then staked the ground as the Doran Claims. In July of that year, Royalon Petroleum Corp. conducted a limited exploration program on the property, which consisted of silt and heavy sediment sampling of various creeks and the blasting of three trenches across a mineralized structure.

## **REGIONAL GEOLOGY**

The Central property lies in a simple geological setting. Only two different rock packages exist: Jurassic intrusives and Upper Triassic Karmutsen Formation (Figure 4). The only structural complications exist as northwesterly tear faults and northeasterly block faults.

Basaltic and andesitic pillow flows with interlava breccia, tuff, and minor sedimentary units constitute the Karmutsen Formation. Government geologists estimate the thickness of the formation to be at least 3000 meters in most localities. Most of the Karmutsen is weakly metamorphosed (green schist facies) although narrow, hornfelsed zones may be found adjacent to intrusive masses.

Intruding the volcanics are large Jurassic intrusive bodies, or "Island Intrusions". Contacts are usually sharp and steeply dipping. Plutons around Great Central Lake belong to the larger Bedwell batholith to the west, which is characterized by porphyritic quartz diorites and granodiorites with prominent quartz "eyes". Two K-Ar age determinations, 162 and 166 m.y., have been obtained for the batholith.

92.FBW

SUB-RECORDER  
 RECEIVED  
 FEB 23 1986  
 M.R. # 233478E S20000  
 VANCOUVER, B.C.

Great Central lake



JUL 02 '87 08:58 GOV'T AGENT PORT ALBERTA

1CP

cut, blazed  
 flagged &  
 marked survey lines

Central 2

Central

1000

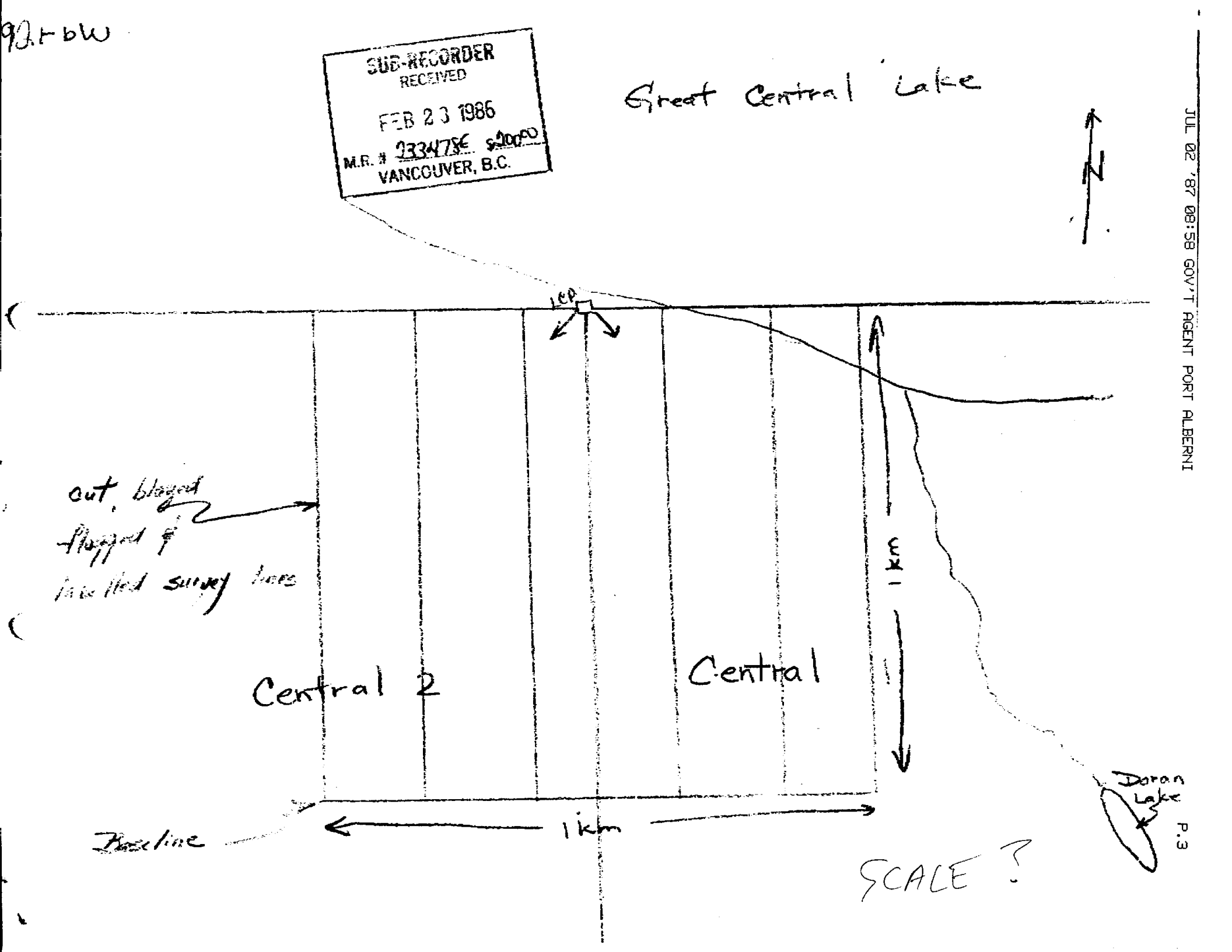
Baseline

1km

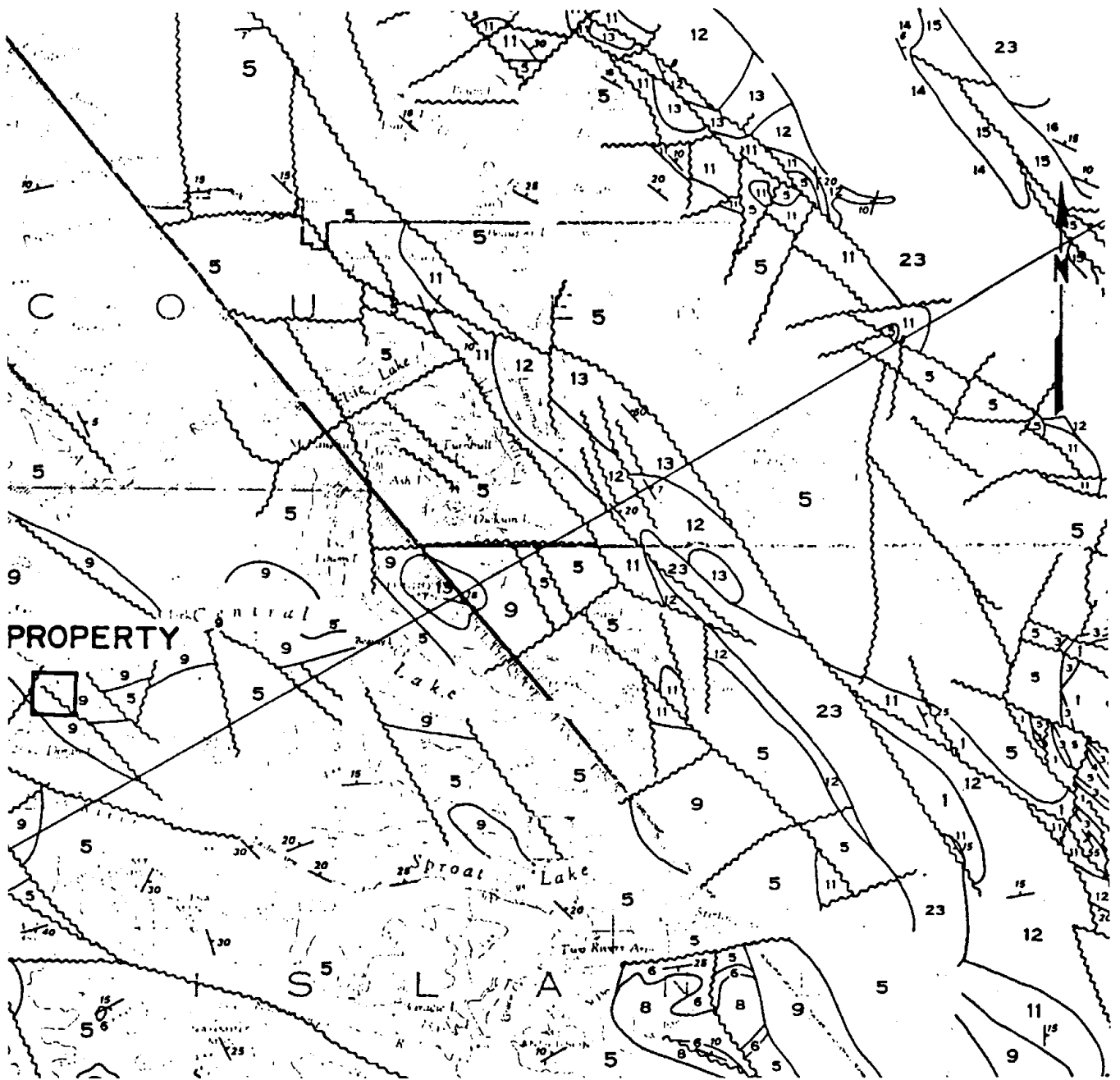
Doran  
 Lake

P.3

SCALE ?







MURJOH RESOURCES INC.  
**REGIONAL GEOLOGY**  
**CENTRAL CLAIMS**  
**ALBERNI MINING DIVISION**  
**PORT ALBERNI, B. C.**  
 MARCH 1987 FIG. 3  
BOA SERVICES LTD.

To accompany report by P.P.L. Chung

JURASSIC

MIDDLE TO UPPER JURASSIC

9 ISLAND INTRUSIONS: biotite-hornblende granodiorite, quartz diorite

TRIASSIC AND JURASSIC

LOWER JURASSIC(?)

VANCOUVER GROUP (5-8)

BONANZA SUBGROUP (7, 8)

8 VOLCANIC DIVISION: andesitic to latitic breccia, tuff and lava; minor greywacke, argillite and siltstone

UPPER TRIASSIC AND LOWER JURASSIC

7 SEDIMENTARY DIVISION: limestone and argillite, thin bedded, silty carbonaceous

UPPER TRIASSIC

6 QUATSINO FORMATION: limestone, mainly massive to thick bedded, minor thin bedded limestone

UPPER TRIASSIC AND OLDER

5 KARMUTSEN FORMATION: pillow-basalt and pillow-breccia, massive basalt flows; minor tuff volcanic breccia. Jasperoid tuff, breccia and conglomerate at base

TRIASSIC OR PERMIAN

4 Gabbro, peridotite, diabase

PENNSYLVANIAN, PERMIAN AND OLDER

LOWER PERMIAN

SICKER GROUP (1-3)

3 BUTTLE LAKE FORMATION: limestone, chert

MIDDLE PENNSYLVANIAN

2 Argillite, greywacke, conglomerate; minor limestone; tuff

PENNSYLVANIAN AND OLDER

1 Volcanic breccia, tuff, argillite; greenstone, greenschist; dykes and sills of andesite-porphry

PALEOZOIC

'WESTCOAST CRYSTALLINE COMPLEX' (A-D)  
'BASIC ROCKS'

D Gabbro, peridotite

'TOFINO INLET PLUTON'

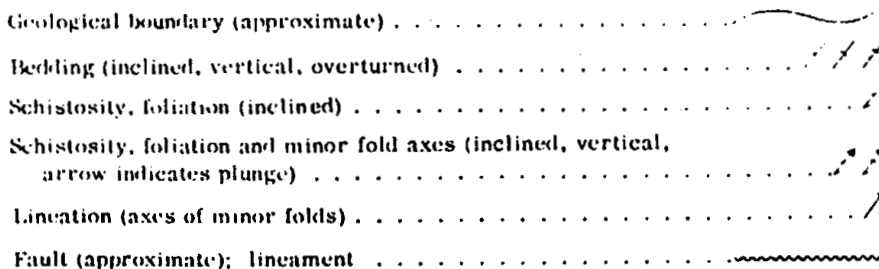
C Hornblende-biotite quartz diorite, granodiorite

'WESTCOAST DIORITES'

B Hybrid hornblende diorite, quartz diorite, agmatite; includes masses of hornfelsic volcanic rocks

'WESTCOAST GNEISS COMPLEX'

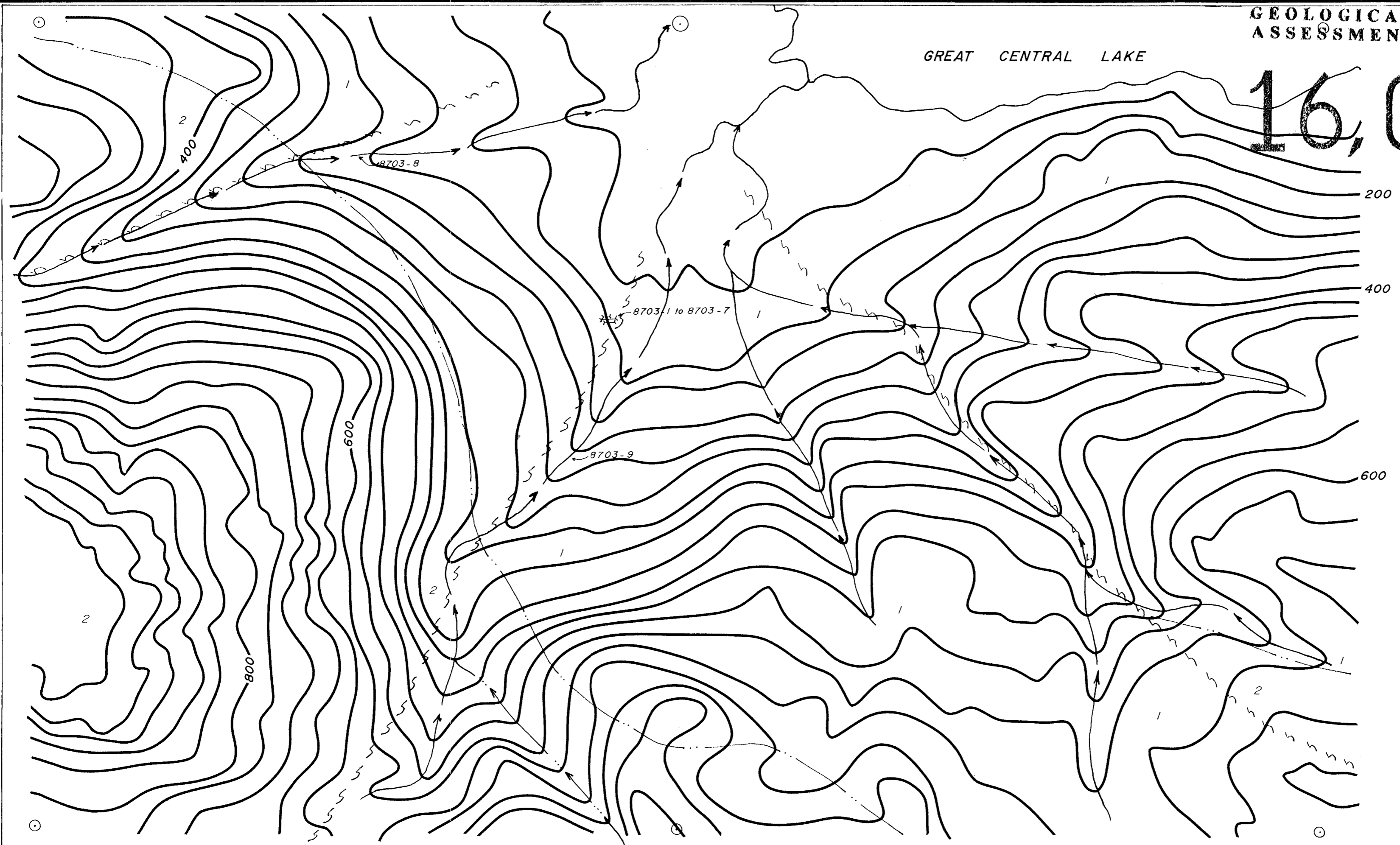
A Hornblende-plagioclase gneiss, amphibolite, hornfels



**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

GREAT CENTRAL LAKE

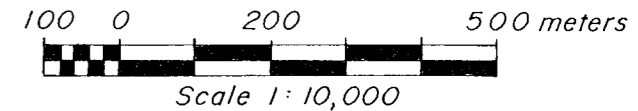
**16,046**



**LEGEND**

- JURASSIC**
- [1] Quartz diorite, Bedwell Formation
- TRIASSIC**
- [2] Andesite, Karmutsen Formation
- Geologic contact
- ~ Fault
- - - Trench
- 8703-1 Rock sample location
- ⊙ Claim posts (LCP, corner post)
- Stream

Contour interval is 40 meters. Topographic control from enlarged 1:50,000 scale topographic map.



MURJOH RESOURCES INC.

**GEOLOGICAL PLAN**

CENTRAL PROPERTY  
ALBERNI MINING DIVISION

92F6W  
March, 1987

BOA SERVICES LTD.

FIG. 4

## **SURVEY CONTROL GRID**

During February 1986, a control grid was established using belt chains and compasses. All lines were flagged, blazed and slashed out using a brush axe. Tyvek tags were used to label sample stations which were established every 25 meters.

From the two south claim posts of both Central 1 and Central 2 claims, an east/west baseline was cut 500 meters into the Central 1, and 500 meters into the Central 2 claim. North-bearing grid lines were established from the baseline at intervals of 200 meters.

A total of seven kilometers of control grid was established, including a one-kilometer baseline and six grid lines each one-kilometer in length.

## **GEOLOGICAL SURVEY**

During February 1987, the writer spent a total of two days on the property examining the old trenches and conducted a reconnaissance mapping survey on the property. Due to time constraints and adverse weather conditions, most of the work was concentrated near the north-central portion of the property.

The property is underlain by two different formations: a Middle to Upper Jurassic aged quartz diorite, belonging to the Island Intrusions; and an Upper Triassic aged, massive, green volcanic of the Karmutsen Formation.

The quartz diorite consists of quartz (35%), plagioclase (60%), and hornblende/biotite (5%). The unit has undergone weak propylitic alteration, with the mafic grains being altered to chlorite and epidote. The three trenches which were put in during 1984 exposed quartz veining in an apparent shear zone hosted in the quartz diorite. The zone strikes east/west and dips 55° to 60° to the south. Seven rock samples were collected from the trench and sent to Acme Labs for a 30-element ICP, and gold by atomic absorption analysis. The samples were well-mineralized with pyrite, which constituted more than 95% of the sulphide, and minor amounts of chalcopyrite and galena. The analysis returned

some encouraging results with a high of 3945 ppb gold (approximately 0.115 ounces per ton).

The Karmutsen volcanics occupy mainly the southwestern portion of the claim area. Time constraints and adverse weather conditions made it difficult to examine in detail the rocks in this relatively steep portion of the property. Thus, Figure 4 and descriptions of this unit is based on compilation of published literature and limited examination on this unit of the property.

The volcanic is green, medium-grained and massive, and appears to be of andesitic composition. Alteration minerals include quartz calcite and chlorite which would suggest a low metamorphic grade, probably in the sub greenschist pumpellyite facies. Sulphide mineralization includes pyrite, chalcopyrite, and malachite. Two mineralized float samples were collected and sent to Acme Labs for 30-element ICP and gold by atomic absorption analysis, which returned a value of 2398 ppm copper.

The sample locations of the rocks collected and the property geology are plotted on Figure 4. The descriptions of the rock samples are included in this report as Appendix II.

## **DISCUSSION**

The recent discoveries in Kennedy Lake and Taylor Arm areas has generated great interest in the Alberni Mining Division for gold-bearing quartz veins. The general characteristics of this type of deposit are: they are spatially related to granitic intrusions, especially Tertiary aged intrusions; their association to arsenic; and their mineralogy which includes pyrite, sphalerite, arsenopyrite, galena, and minor chalcopyrite, pyrrhotite, and marcosite. Though the veins are generally quite similar, they do, however, occur in extremely varied host rocks, including those of the Sicker Group, Karmutsen Formation, Bonanza Formation, Nanaimo Group, skarn, gneisses and Tertiary and older granitic intrusions (Muller, 1968).

The Central property is situated in a favourable geologic setting for gold-bearing quartz veins, fissure zones, and lies just north of the "Tay Gold" property where a "drill indicated potential of about 115,000 short tons" has been outlined. The mineralized zone on the property which was trenched in 1984 and returned anomalous gold values from samples collected this year, strikes east-west, similar to the productive veins from the Tay Gold property.

### **CONCLUSIONS**

The Central claims are favourably situated just north of the Tay Gold deposit, and initial investigation has indicated a similar geologic setting. The samples collected from the east-west striking shear zone returned values anomalous in gold and arsenic, and assay values from the samples of the andesite has produced a high of 2398 ppm copper. On the basis of these results, further exploration of the Central property is warranted.

### **RECOMMENDATIONS**

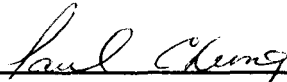
After analysis of the results, the following program is recommended for further exploration of this property:

- (1) detailed mapping and prospecting, with emphasis in the area underlain by volcanic units; and
- (2) reconnaissance geochemical soil survey lines should be run over the property and analyzed for copper, lead, zinc, gold, silver and arsenic.

**COST ESTIMATES**

Mapping and Prospecting	\$1,700
Collection and Analysis of 300 soil samples and 25 rock samples	4,000
Field Support Expenses lodging, board, vehicle expenses	1,500
Report and Map Preparation	1,500
Contingency (approximately 10%)	800
Estimated Cost of Program	<u>\$9,500</u>

Submitted by

  
\_\_\_\_\_  
Paul P. L. Chung, B.Sc.  
Consulting Geologist

Vancouver, British Columbia  
March 12, 1987

**STATEMENT OF COST**

**Establishment of seven kilometers of cut, blazed and flagged lines;  
 Reconnaissance mapping and rock sample collection;  
 Collation, plotting, drafting, interpretation and documentation of data.**


**FIELD EXPENSES****Personnel**

P. Chung, Geologist		
4 days @ \$200/day	\$	800.00
J. Robinson, Linecutter		
9 days @ \$180/day		1,620.00
Todoruk, Linecutter		
9 days @ \$180/day		1,620.00
Lodging		371.29
Food		725.82
Vehicle		
13 days @ \$35/day		455.00
1740 kilometers @ 35¢/kilometer		609.00
Boat Rental		
11 days @ \$40/day		440.00
Gasoline		14.25
Filing and Grouping Fees		210.00
Miscellaneous		
(flagging, Tyvek tags, BC ferry, hip chain thread)		202.72
		<u>\$ 7,068.08</u>

**REPORT EXPENSES**

P. Chung, Geologist		
4 days @ \$200/day	\$	800.00
Acme Analytical Labs		
9 X 30-element ICP and Au by AA		122.00
Reproduction & Printing		100.00
Typing		150.00
		<u>1,172.00</u>
		<u><u>\$ 8,240.08</u></u>

Submitted by

  
 \_\_\_\_\_  
 Paul P. L. Chung, B.Sc.  
 Consulting Geologist

Vancouver, British Columbia  
 March 12, 1987



**REFERENCES**

Geological Survey of Canada, Open File 463: Geology of Vancouver Island.


Muller, J. E. and Carson, D. J. T. (1969): Geology and Mineral Deposits of Alberni Map-Area; Geological Survey of Canada, Paper 68-50.

## STATEMENT OF QUALIFICATIONS

I, PAUL P. L. CHUNG, of the City of Richmond, Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a consulting geologist with business address office at Suite 302, 119 West Pender Street, Vancouver, British Columbia V6B 1S5 and that I am President of Boa Services Ltd.
2. I am a graduate in geology with a Bachelor of Science (major: Geology) degree from the University of British Columbia in 1981.
3. I have practised my profession for the past six years:
  - o pre-graduate experience in Geology, Geochemistry, Geophysics in British Columbia and the Yukon (1979 - 1980);
  - o two (2) years as Exploration Geologist with Sulpetro Minerals Limited conducting geological and geophysical programs in British Columbia, the Yukon, Ontario, Quebec and Nova Scotia (1981 - 1982);
  - o four (4) years as Consulting Geologist with Boa Services Ltd.
4. I conducted the reconnaissance mapping on the Central 1 and 2 claims during February 1987.
5. I own no direct, indirect or contingent interest in the property, nor shares in or securities of Murjoh Resources Inc.

DATED at Vancouver, British Columbia, this 12<sup>th</sup> day of March, 1987.

  
\_\_\_\_\_  
Paul P. L. Chung, B.Sc.  
Consulting Geologist

**APPENDIX I**

**CERTIFICATE OF ANALYSIS**

ACME ANALYTICAL LABORATORIES LTD.

852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6

PHONE 253-3158

DATA LINE 251-1011

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 SAMPLE TYPE: ROCK CHIPS AU ANALYSIS BY AA FROM 10 GRAM SAMPLE.

DATE RECEIVED: FEB 18 1987 DATE REPORT MAILED: *July 23/87* ASSAYER: *D. Toye* DEAN TOYE. CERTIFIED B.C. ASSAYER.

MURJOH RESOURCES PROJECT - B8703 FILE # B7-0378

PAGE 1

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au#
	PPM	PPH	PPH	PPH	PPH	PPH	PPH	PPH	%	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	%	%	PPH	PPH	%	PPH	%	%	%	%	%	PPH	PPB
B703-1	3	190	4	5	.7	3	9	30	2.48	66	5	2	1	2	1	2	2	1	.03	.005	2	8	.01	2	.01	2	.05	.01	.01	1	1620
B703-2	1	251	2	5	.9	3	10	36	2.32	105	5	3	1	2	1	2	2	1	.02	.005	2	9	.01	3	.01	2	.03	.01	.01	1	3945
B703-3	3	141	5	6	.8	3	7	40	2.66	91	5	2	1	2	1	2	3	1	.02	.004	2	5	.01	2	.01	2	.03	.01	.01	1	1920
B703-4	2	285	3	6	.2	5	11	52	2.57	77	5	ND	1	2	1	2	2	1	.03	.007	2	4	.01	4	.01	2	.06	.01	.02	1	925
B703-5	12	276	7	10	.3	9	13	77	1.57	32	5	ND	1	7	1	2	2	6	1.11	.010	2	6	.13	4	.01	2	.18	.01	.03	1	640
B703-6	5	277	6	22	.2	8	12	232	1.95	28	5	ND	3	12	1	2	2	15	5.48	.010	2	9	.32	6	.01	2	.42	.01	.03	1	710
B703-7	4	1031	5	21	.5	15	7	55	3.82	83	5	ND	1	2	1	2	2	1	.06	.005	2	4	.04	2	.01	2	.07	.01	.01	1	1420
B703-8	1	351	2	11	.1	11	17	187	1.51	3	5	ND	1	162	1	2	2	32	4.07	.009	2	7	.14	1	.14	4	1.95	.01	.01	1	10
B703-9	1	2398	6	36	.2	38	19	308	2.74	11	5	ND	1	52	1	2	2	60	4.20	.024	2	21	.69	2	.10	11	2.55	.03	.01	1	18
STD C/AU-R	21	63	41	140	7.0	68	31	1054	3.97	40	15	8	34	50	18	16	20	66	.48	.105	38	60	.88	189	.09	36	1.72	.08	.15	13	51

**APPENDIX II**

**ROCK SAMPLE DESCRIPTIONS**

## APPENDIX II

### ROCK DESCRIPTION

<u>Sample</u>	<u>Description</u>
8703-1	Quartz vein material. Limonitic quartz with approximately 5% pyrite which occurs as euhedral cubes and as fine disseminations.
8703-2	Limonitic quartz vein material with about 7% pyrite and minor chalcopyrite. The sulphides occur mostly as disseminations throughout the rock.
8703-3	Limonitic quartz vein material with less than 5% pyrite disseminated throughout, along with minor chalcopyrite.
8703-4	Quartz vein material with about 15% sulphides finely disseminated throughout. Pyrite constitutes about 95% of the sulphide present, with minor amounts of chalcopyrite, azurite and galena.
8703-5	Silica flooded quartz diorite showing propylitic alteration, with mafic grains being altered to chlorite and epidote. The sample contains less than 2% pyrite, with very minor amounts of chalcopyrite.
8703-6	Siliceous quartz diorite, containing less than 1% pyrite and chalcopyrite.
8703-7	Siliceous quartz diorite. Propylitic, and contains about 5% combined pyrite and chalcopyrite.
8703-8	Light to dark green, massive volcanic float, with less than 2% pyrite and chalcopyrite.
8703-9	Dark green, massive volcanic float, with about 5% disseminated pyrite and chalcopyrite.