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7/85

GEOLOGICAL REPORT ON THE

WHITEFISH AND GOODHOPE CLAIMS

Record No.'s 1837(6) and 1838(6)

FORT STEELE MINING DIVISION

NTS: 82F-9W

49° 34' ; 116° 25'

FOR

GROM RESOURCES INC.

BY

MICHAEL M. MAGRUM P.ENG

AND

GREGORY G. CROWE P.GEOL

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

Vancouver, British Columbia  
June 30, 1984

12,825

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## SUMMARY

At the request of Dr. T. Maxwell, President - Grom Resources Inc., the authors reviewed published information regarding the Goodhope / Whitefish Claim Group, carried out a detailed property examination (June 4 to June 20, 1984) and prepared the following evaluation report.

The Goodhope / Whitefish Claim Group consists of forty claim units located in the Fort Steele Mining Division near St. Mary's Lake, south eastern British Columbia. The property boasts a number of silver - copper - gold prospects (formerly referred to as the Whitefish, Goodhope, Evans, Evangeline and Faller Claims) which have received intermittent prospecting and development work since the early 1900's. Between 1900 and 1905, the Selkirk Mining Co. completed several hundred feet of tunnels, raises and open cuts on the various prospects. B.C. Department of Mines records indicate that in 1902, the owners made a small ore shipment from the Whitefish property. This shipment assayed 6 oz/ton silver and 6% copper. Samples collected from the Faller prospect by the B.C. Department of Mines (1901) assayed; silver 6 oz/ton, copper 3 to 26% and gold 0.1 to 0.2 oz/ton. Check samples collected by the authors from mineralization and dumps near the portal of the Faller and Evans adits assayed as high as; silver 9.76 oz/ton, copper 2.54% and lead 2.92% with trace amounts of gold and zinc.

Mineralization consists of sulfide bearing quartz and quartz - carbonate veins (1.0 to 2.0m in width) developed within dioritic intrusives near contacts with Aldridge Formation meta-sedimentary rocks. Sulfides occur both as disseminated grains and as narrow rich streaks within the veins and comprise chalcopyrite and pyrite with lesser amounts of galena, sphalerite and tetrahedrite.

Preliminary exploration carried out on the Whitefish / Goodhope property has identified a number of shear controlled, vein-type structures which host scattered, economic grade mineralization. Considering the dramatic escalation in precious metal prices since the mid 1970's the claims warrant continued evaluation. A two phase program of mineral exploration is recommended.

The first stage will be a follow-up program of detailed geophysics and geochemistry designed to test potential overburden covered projections of known mineralized occurrences. Stage 2, contingent on results of Stage 1, will comprise limited cat trenching and short-hole diamond drilling. Total estimated cost of these programs is:

Stage 1 - \$ 22,500.00

Stage 2 - \$ 44,000.00

## INTRODUCTION

This report is based on published B.C. Department of Mines records, previous operators technical data and results of detailed geologic mapping and sampling carried out by Ram Exploration Ltd. between June 4 and 20, 1984. Department of Mines records document limited underground development work on several silver - copper - gold prospects during the early 1900's. More recent technical data includes a report on limited geologic mapping and geochemical sampling carried out by G.V. Lloyd (1972) who recommended further exploration.

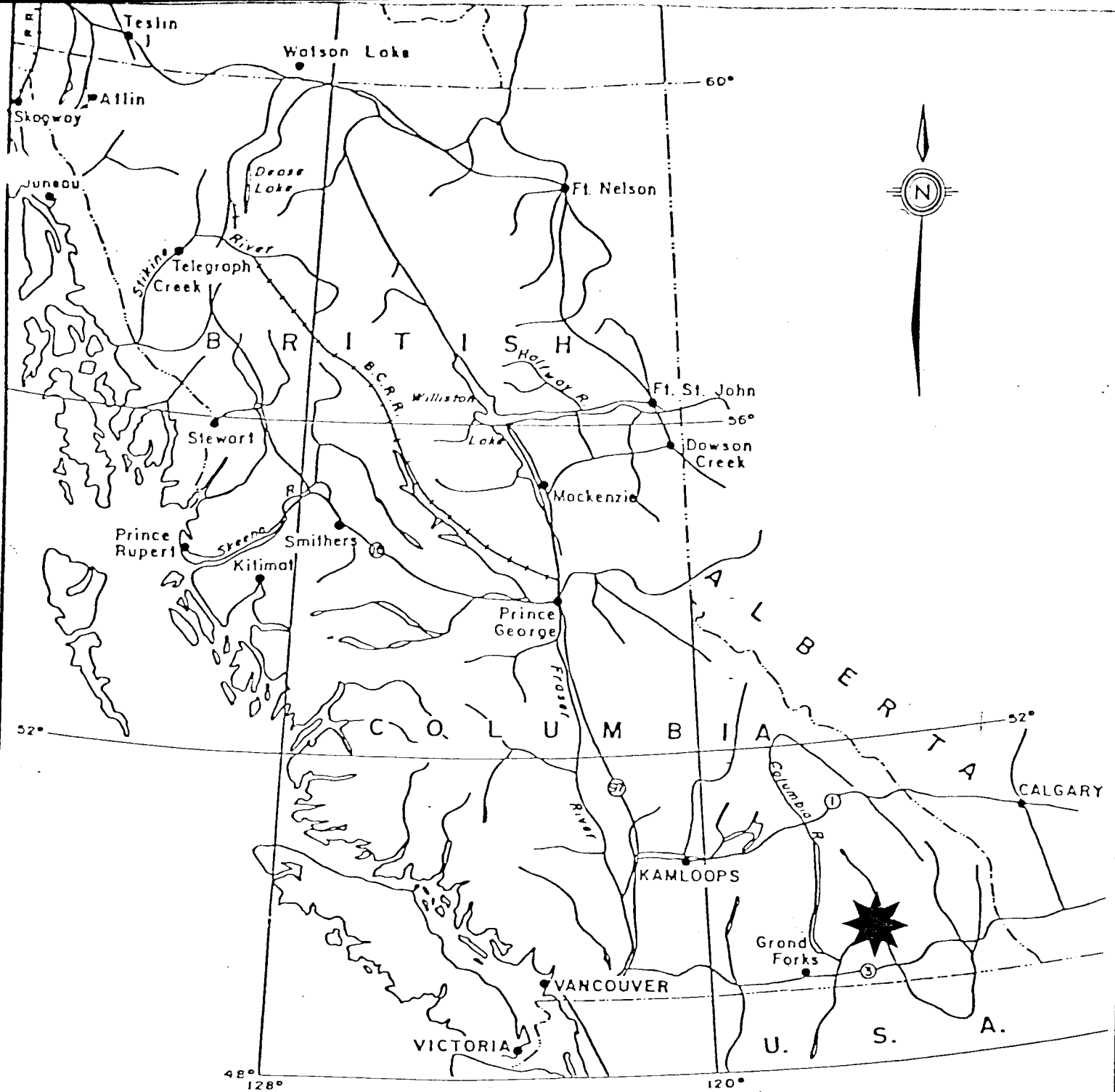
The current seasons exploration program established the location of the majority of reported underground workings and verified the presence of mineralized quartz and quartz-carbonate veins.

## LOCATION AND ACCESS

The property of Grom Resources Inc. is located in south eastern B.C. approximately 25 km southwest of Kimberly (Sullivan Minesite). The claims cover the west slope of Fiddler Creek Valley and parts of the north and south slopes of Meacham Creek Valley. The claims are traversed on their western edge by a four wheel drive track which joins a well maintained gravel logging road on the south side of Meacham Creek.

## PROPERTY

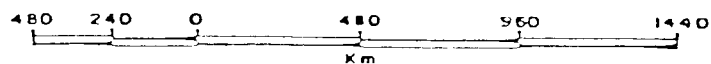
The property consists of the Whitefish and Goodhope Mineral Claim Blocks each comprising twenty units recorded in the Fort Steele Mining Division on map sheet 82F9W. The LCP's for the claims are located at: Goodhope - latitude 49 33' 50" N and longitude 116 20' 15" W; Whitefish - latitude 49 35' 15" and longitude 116 18' 55" W.



GROM RESOURCES INC.

## LOCATION MAP

— GOODHOPE / WHITEFISH CLAIMS —



Claim Name	No. of Units	Record No.	Registered Owner	Expiry
Goodhope	20	1837(6)	N. Markovina*	June 5, 1985
Whitefish	20	1838(6)	N. Markovina*	June 6, 1985

\*Note: Since time of writing all interest in the above noted claims has been transferred to Grom Resources Inc.

## HISTORY

The present Whitefish / Goodhope Claim Group covers a number of former Crown Granted mineral claims referred to as the Faller, Goodhope, Evans, Evangeline, Whitefish and Curfew Claims. These prospects received considerable development work in the early 1900's, results of which are outlined in the following chronologic table.

**1900:** District geologist reports development work totalling 500' of tunnelling from two adits on the Faller Claim. The "ledge" is reported to be 3 to 8' in width with values as follows: - silver, 6 oz/ton, copper, 3 to 26% and gold 0.1 to 0.2 oz/ton. This report also describes development work on the Evangeline Claim which consisted of a 60' shaft reportedly in ore for its entire length.

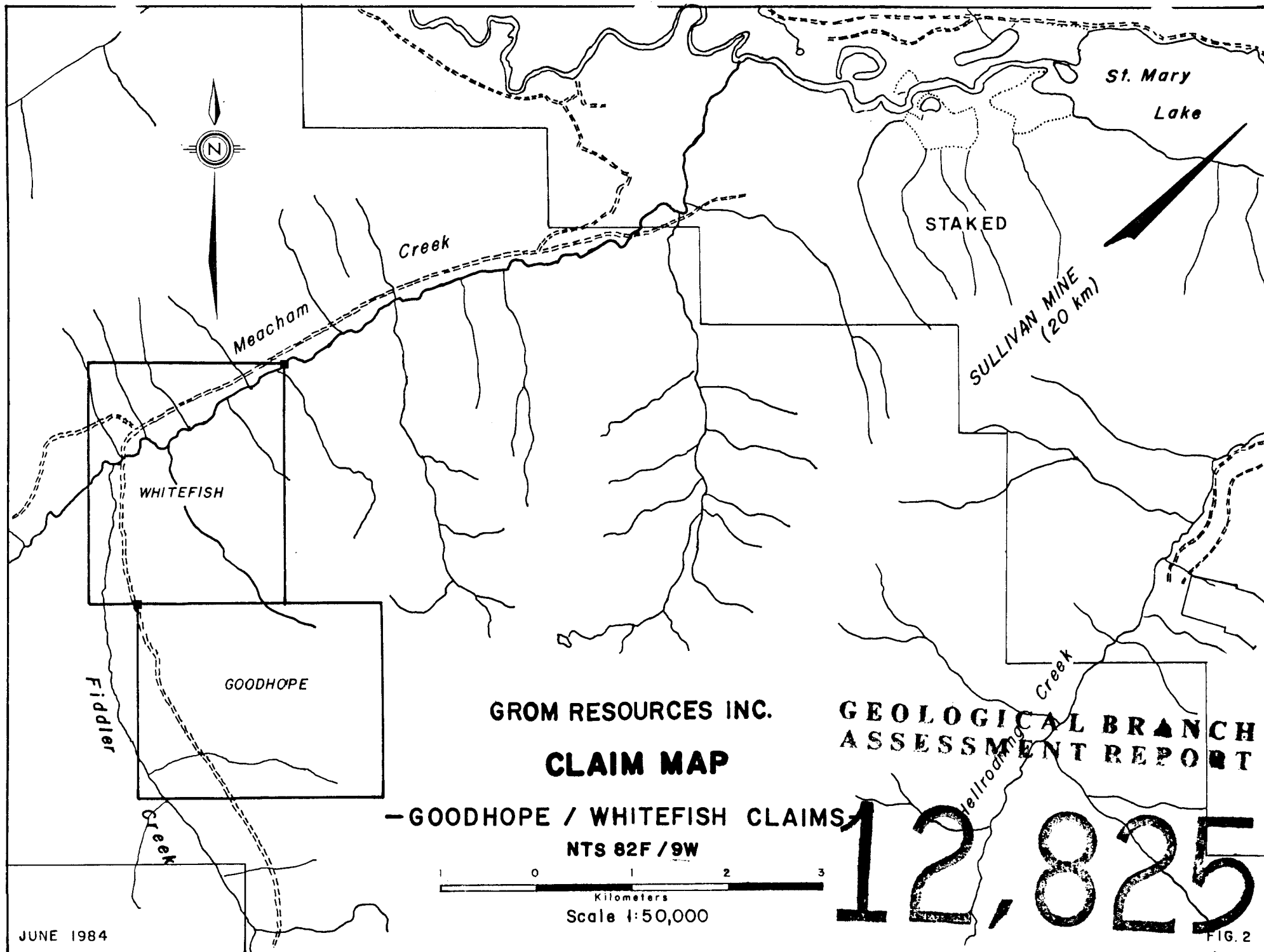
**1902:** Development work on the Faller and Evangeline Claims continued along the lines of the earlier report. Tunneling on the Whitefish Claim produced a small ore shipment which assayed; silver, 6 oz/ton and copper, 6%.

**1915:** District geologist reports on a number of properties in the Meacham and Fiddler Creek areas where development work was carried out. Mineralized veins returned assays in the: - silver, 5 oz/ton, copper, 4% and gold, 0.12 oz/ton range.

**1921:** Development work totalling 170' of tunnelling and sinking was carried out on the Whitefish Claim. District geologist comments that "in the side of a 20' winze the ore shows a width of about 3'".

Most recent exploration consisted of a limited geologic and geochemical exploration program carried out by G.V. Lloyd (1972 - Assessment report No. 4235). Results showed anomalous copper, lead and zinc values in soils in the vicinity of known occurrences. Sampling of some of the old workings returned assays as high as: - silver, 2.5 oz/ton and copper, 5.9%. Gold concentrations were not determined.





## REGIONAL GEOLOGY

The Whitefish / Goodhope claims are situated in a complex geologic environment comprised of folded Proterozoic meta-sedimentary and intrusive rocks cut by steep, north trending faults.

The oldest rocks are Proterozoic quartzites and argillaceous quartzites of the Middle Aldridge Formation. Intruding these are Upper Proterozoic, gabbro and diorite sills referred to as the Moyie Intrusives. This sequence was folded along a northwest trending axis and later faulted on north and east trending axes.

Details regarding local geology are illustrated in the accompanying geologic map (Figure 3.). (After Leech 1957 - GSC Map No. 1957 - 15).

## ECONOMIC GEOLOGY

According to Leech (1957), mineral deposits in this district comprise three major types. These include the massive stratiform type mineralization found at the Sullivan Mine (located some 25 km northwest of the Whitefish / Goodhope property), lode and replacement deposits not restricted to a particular formation and lode deposits associated with the Moyie Intrusions.

The latter are of particular interest in the current study and comprise shear controlled quartz-carbonate lenses and veins in diorite which host abundant copper and iron sulfides with lesser amounts of galena, sphalerite and tetrahedrite.

An examination of the former Faller, Whitefish and Evans prospects showed that the veins occur in well developed shear zones within Moyie Intrusions. Observed sulfide mineralization comprised disseminated chalcopyrite, pyrite, galena and sphalerite in a gangue of quartz and carbonate.

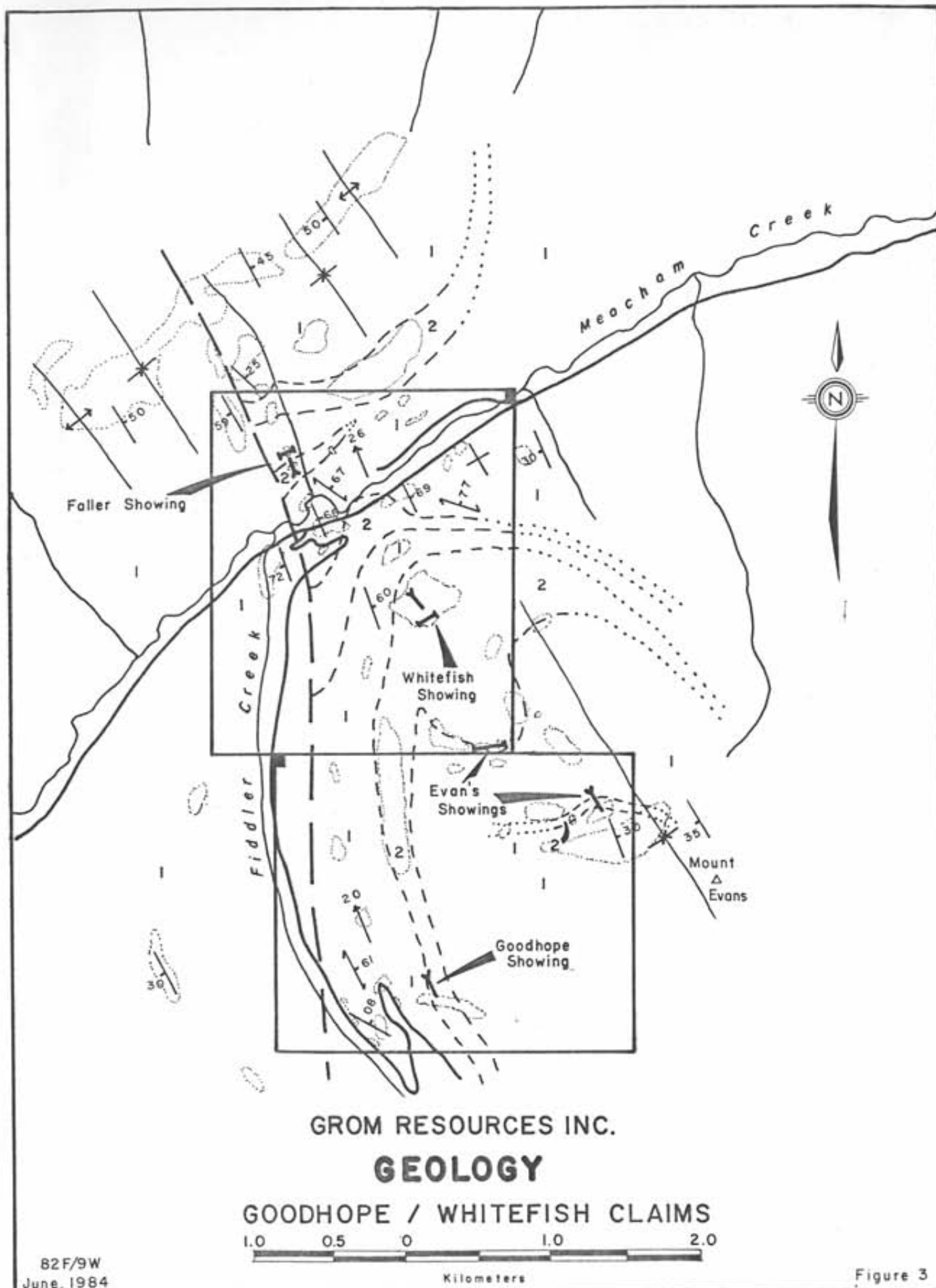


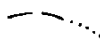









Table 1.

Legend to accompany Geologic Map (Figure 3)

PROTEROZOIC

- |   |  |
|---|--|
| <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">2</div> | <b>Moyie Intrusions:</b> meta-diorite - gabbro and meta-quartz diorite   |
| <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> | <b>Aldridge Formation:</b> Middle Division: grey weathering massive grey quartzite, argillaceous quartzite, siltstone and argillite. |

SYMBOLS

- |   |   |
|---|---|
|  | Geologic Contact (approximate, assumed) |
|  | Bedding (horizontal, inclined)          |
|  | Schistosity                             |
|  | Lineation                               |
|  | Fault                                   |
|  | Syncline                                |
|  | Anticline                               |
|  | Outcrop outline (approximate)           |
|  | Adit (Orientation as indicated)         |
|  | Open cut (Orientation as indicated)     |

## 1984 EXPLORATION PROGRAM

On behalf of Grom Resources Inc., Ram Exploration Ltd. carried out a limited exploration program on the Whitefish / Goodhope Property between June 4 and 20, 1984. The survey included detailed geologic mapping and sampling of reported occurrences as well as reconnaissance mapping and prospecting.

A total of 27 rock samples (channel, float and grab) were collected from mineralized sections of underground workings and open cuts. In addition to locating reported occurrences, prospecting located a muck pile near the portal of a snow covered adit in a basin on the west side of Evans Mountain well above any of the known occurrences.

Samples were assayed by ACME Analytical Laboratories (Vancouver) for gold, silver, copper, lead and zinc. Samples were pulverized to -100 mesh and a 1.0 gram split was digested in an aqua-regia solution which was then assayed by ICP. Gold concentrations were determined by standard fire assay methods.

## DESCRIPTIONS OF SHOWINGS

### Whitefish Showing

This showing (location indicated on Figure 3.) consists of an ESE trending vertical shear zone (1.5 to 3.0m wide) which hosts variably developed sulfide and related oxide mineralization. Narrow quartz and quartz-carbonate veins occur as discontinuous lenses within this zone and host the best developed sulfide mineralization.

Previous work on the showing, carried out in the early 1900's, consists of a number of open cuts and adits (see Figure 4.) which trace the zone over a strike length of 150m and a vertical extent of approximately 100m. Although mineralization is scattered, selected samples returned assays as high as; silver - 5.76 oz/ton, copper - 2.82%, lead - 1.76% and zinc - 0.72% with trace amounts of gold.

A detailed examination of the old workings showed that the shear zone occurs within Moyie diorite - gabbro which displays moderate to intense chlorite - sericite - epidote alteration immediately adjacent to the shear zone. Sulfide mineralization, principally pyrite, chalcopyrite and malachite with lesser amounts of galena, sphalerite and tetrahedrite, occurs disseminated throughout the zone and as scattered rich streaks in vein material.

Details regarding sample location, assay results, etc. are indicated in Table 2 and Figure 4.

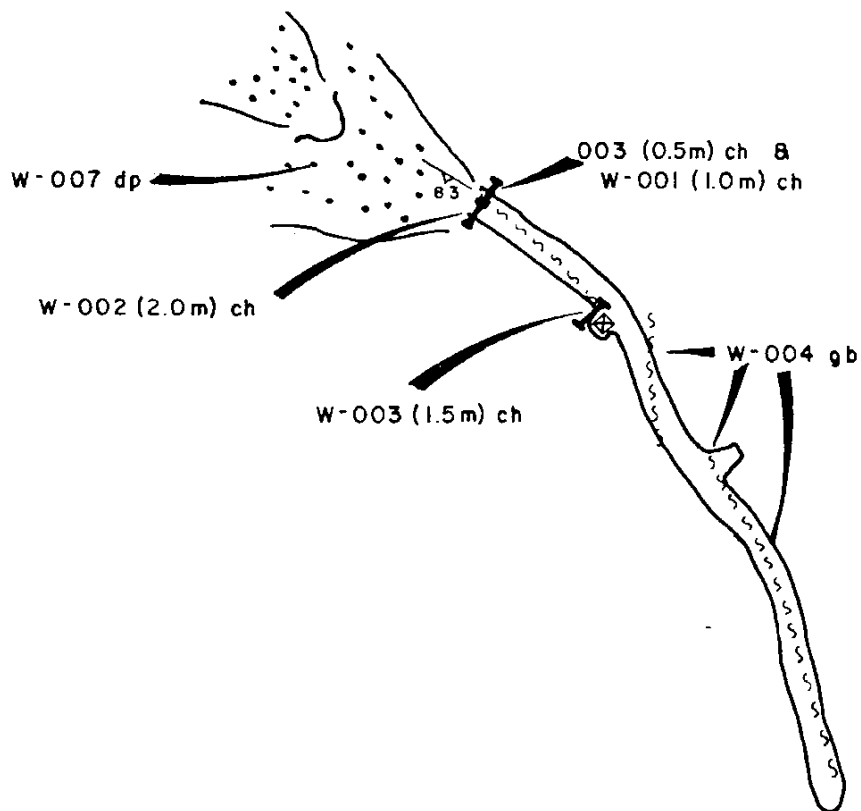
### **Faller Showing**

The Faller showing, located just north of Meacham Creek, consists of a shear zone developed in Moyie diorite which displays mineralization of similar character to that observed at the Whitefish Showing. Previous reports indicated that several adits, open cuts and a shallow shaft had been excavated however, only two short adits were examined. The longer adit (believed to be some 400' in length) and the shaft were collapsed.

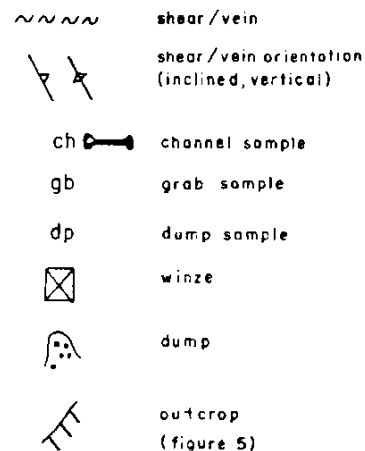
Mineralization, principally pyrite, chalcopyrite and malachite, occurs as fracture coatings or disseminated grains within an ESE trending shear zone (1.0 to 2.0m wide). Old workings trace the shear over a horizontal and vertical range of 100m and 60m respectively. Projections of this zone dip below overburden or talus on the NE and SW ends. Detailed plans and sections are attached as Figure 4.

Sampling of the best material at these workings returned assays in the 1.0 to 2.5 oz/ton silver and 2 to 4% copper range. Lead contents were slightly lower than at the Whitefish Showing (0.1 to 1.0%) and gold concentrations, though anomalous, were below 500 ppb.

# Whitefish Adit

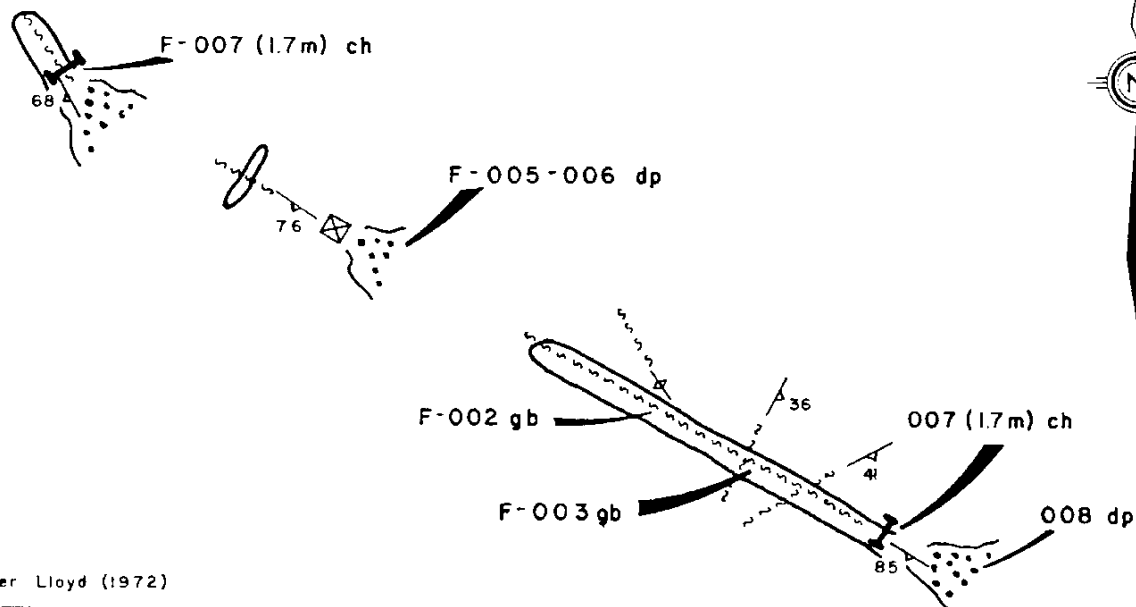


## LEGEND



see Table 2 for assay results

# Faller Showings



modified after Lloyd (1972)

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## PLAN VIEW OF MAJOR SHOWINGS

GOODHOPE / WHITEFISH CLAIMS

82F/9W  
June, 1984

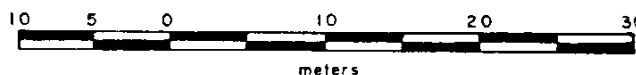
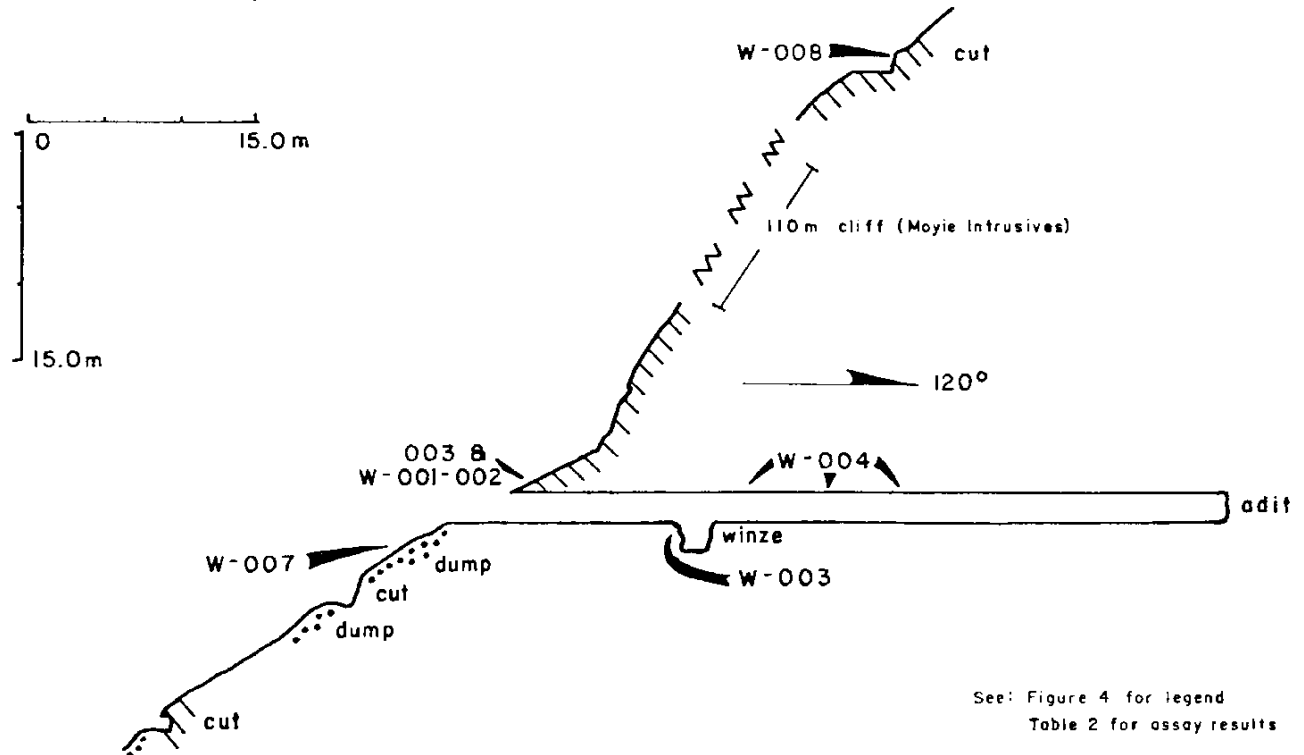
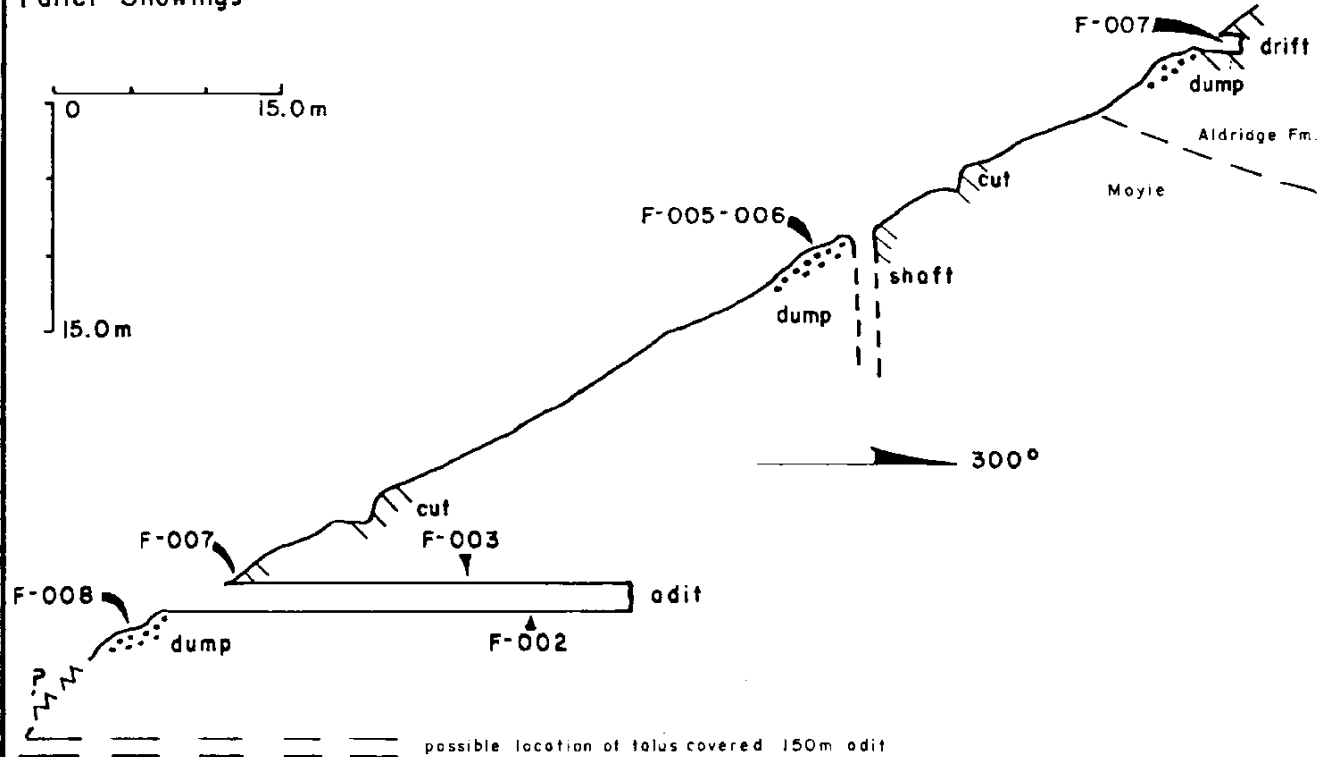


Figure 4

## Whitefish Showings



## Faller Showings



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## SECTIONS OF MAJOR SHOWINGS GOODHOPE / WHITEFISH CLAIMS

82 F/9W  
June, 1984

Figure 5



Table 2.  
Rock Sample Descriptions.

Whitefish Showing

Sample No.	Assay Results		Cu%	Pb%	Zn%	Description
	Ag (oz/t)	Au (oz/t)				
W-001	0.10	-	3.59	-	0.02	main adit (1.0m) - shear zone w/ mal., cpy. and py.
W-002	-	-	0.32	-	0.01	main adit (2.0m) - vein / shear zone w/ py. and minor cpy.
W-003	0.25	-	2.66	-	0.01	winze (1.5m) - vein / shear zone w/ abundant py. and minor cpy., mal.
W-004	-	-	0.26	0.01	-	main adit - composite of lightly mineralized quartz-carbonate veins
W-007	0.25	-	1.44	-	0.01	dump sample - quartz-carbonate veins w/ pyrite, chalcopryrite, malachite
W-008	5.74	0.01	2.82	1.76	0.72	open cut (0.5m) - quartz-carbonate vein w/ pyrite, malachite and ga.
U03	0.28	0.01	3.40	nd	nd	main adit (0.5m) - shear zone w/ abundant cpy., mal. and py.

Evans Showing (adit inaccessible due to snow - dump samples only)

Sample No.	Assay Results		Cu%	Pb%	Zn%	Description
	Ag (oz/t)	Au (oz/t)				
E-001	1.20	0.02	3.19	0.04	0.06	quartz-carbonate veins w/ abundant py.
E-002	9.76	0.01	2.54	2.93	0.12	quartz vein w/ ga., sph. and py.
E-003	3.75	-	0.38	1.58	0.04	quartz vein w/ abundant py., minor ga., cpy.
E-004	2.70	0.01	0.50	1.33	-	quartz-carbonate vein w/ py., minor ga.

Faller Showing

Sample No.	Assay Results		Cu%	Pb%	Zn%	Description
	Ag (oz/t)	Au (oz/t)				
F-002	0.25	-	0.94	-	0.02	main adit - grab
F-003	0.30	-	0.87	-	0.03	main adit - grab
F-005	2.30	-	1.79	0.70	0.06	main adit - grab sample with abundant cpy, mal., py and minor ga.
F-006	1.20	-	2.41	0.06	0.05	main adit - grab sample with cpy., mal., py.
F-007	0.95	-	2.82	0.78	0.08	main adit - grab sample with cpy., py., ga.
007	0.10	0.01	0.49	nd	nd	main adit (1.70m) - shear / quartz vein w/ mal., cpy and py.
008	1.26	0.01	3.96	nd	nd	dump at main adit - grab sample w/ abundant mal.

Key to Abbreviations

cpy. - chalcopryrite  
ga. - galena  
mal. - malachite  
py. - pyrite  
sph. - sphalerite  
(1.0m) - denotes width of channel sample

### Evans Showing

This prospect was originally described as an extensive open cut in the Moyie Intrusive which explored low grade copper mineralization thought to be of cumulate origin. While snow cover precluded an examination, earlier reports suggest that mineralization is of too low grade to be of economic significance.

Of considerably more interest are float samples which were collected from a muck pile or dump near the base of a snow covered adit located several hundred meters southeast of the Evans trench. Mineralization is of similar character to that at other showings however, one sample returned; silver - 9.76 oz/ton, copper - 2.54%, lead - 2.93% and zinc - 0.12%.

Although inaccessible at the time of the property examination, this prospect warrants a detailed examination.

## CONCLUSIONS AND RECOMMENDATIONS

B.C. Department of Mines records document extensive prospecting and development work on silver - copper - gold (lead - zinc) prospects now covered by the Whitefish and Goodhope mineral claims. Recent check sampling of these workings verified the presence of previously reported mineralization and returned assays as high as 9.76 oz/ton silver with combined base metal contents of up to 6%.

Considering the dramatic increase in precious metal prices since the last recorded development work, the property warrants a re-evaluation. A two stage program of mineral exploration estimated at \$66,500.00 is recommended. The first phase should comprise a detailed geophysical and geochemical evaluation of known mineral occurrences to test the potential for overburden covered or down-dip extensions of mineralization, at a cost of \$22,500.00. If results warrant, Phase 2 will comprise follow-up geophysical, trenching and short hole diamond drill testing of possible mineralized extensions, at a cost of \$44,000.00.

Dated this 30th Day of June, 1984 at Vancouver, British Columbia.



Respectfully Submitted,

*M. Magrum*

Michael M. Magrum  
Geological Engineer

*Gregory G. Crowe*

Gregory G. Crowe  
Consulting Geologist

## STATEMENT OF COSTS

### Engineering

M. Magrum (2 days @ 375.00)	\$ 750.00
Travel	680.00

### Geologic Mapping and Prospecting

G. Crowe (12 days @ 275.00 / day)	3,300.00
J. Weick (12 days @ 175.00 / day)	1,800.00
D. Richards (14 days @ 150.00 / day)	2,100.00

### Mobilization / Accomodation

Vehicle (2 wks. @ 275.00 / wk.)	550.00
Accomodation / meals (38 man days @ 60.00)	2,280.00
Fuel / Miscellaneous	800.00

### Assays

Rock samples (30 @ 13.00)	390.00
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### Reports

Drafting	600.00
Report	2,600.00
Printing	250.00

<b>Total</b>	<b>\$14,400.00</b>
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## COST ESTIMATE

### Phase I

Mobilization	\$ 2,500.00
Geologic Mapping and underground sampling	4,000.00
Linecutting / Geophysics (Shootback EM - 12 line km)	8,000.00
Geochemical Surveys (300 samples @ 10.00)	3,000.00
Assays	1,000.00
Report	3,000.00
Contingency	1,000.00
<b>Total</b>	<b>\$ 22,500.00</b>

### Phase II

Mobilization	4,000.00
Helicopter Support	5,000.00
Diamond Drilling (250 m @ 90.00/m)	22,500.00
Supervision / Reports	7,500.00
Contingency	5,000.00
<b>Total</b>	<b>44,000.00</b>

Total estimated cost of Phase I and II is \$66,500.00

## REFERENCES

The following maps and publications were used in the preparation of this report.

- 1.0 BCDM MMAR, 1900 - p799; 1901 - p1006; 1902 - p1132; 1906 - p251; 1915 - p111; 1921 - p118.
- 2.0 Lloyd, G.V., 1972. Geologic and Geochemical Report on the Jag Group. Assessment Report No.4235.
- 3.0 Leech, G.B., 1951-52. Geology of the St. Mary Lake Area. GSC Map No.1957-15.

## CERTIFICATE

I, MICHAEL M. MAGRUM of the City of Yellowknife in the Northwest Territories, certify that:

1. My address is Box. 2045, Yellowknife, Northwest Territories, Canada, X1A 2N3 and that my occupation is that of a Geological Engineer.
2. I am a graduate of the University of Alaska in Geological Engineering, 1976, with a degree of BSc.
3. I have been a practicing engineer since 1976 and I am a member of the Association of Professional Engineers, Geologists and Geophysicists of the N.W.T.
4. I have no interest either directly nor indirectly, nor do I expect to receive any interest, in the property covered in this report or in the shares of Grom Resources Inc.
5. The accompanying report is based on published B.C. Department of Mines Reports and on information acquired by a visit to the property on June 4, 1984.
6. This report may be used by Grom Resources Inc. for inclusion in a Prospectus to be filed by the Company with the Superintendent of Brokers in the Province of British Columbia.

Dated this 30th day of June, 1984 at Vancouver, British Columbia.



*M. Magrum*  
Michael M. Magrum  
Geological Engineer

## CERTIFICATE

I, GREGORY G. CROWE, of the city of Vancouver, British Columbia hereby certify that:

- 1) I am a consulting geologist with offices at 404-850 West Hastings Street, Vancouver, B.C.
- 2) I hold a degree of Master of Science in Geology from the University of Calgary, November 1981 and a Bachelor of Science in Geology from Carleton University in Ottawa, June, 1977.
- 3) I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
- 4) I have been employed in my profession for the past 9 years.
- 5) I have no interest either directly or indirectly, nor do I expect to receive any interest in the property covered in this report or in the shares of Grom Resources Inc.
- 6) This report is based on field examinations made by myself between June 4 and June 20, 1984 and on a detailed evaluation of previous operators technical data.

Dated this 30th day of June, 1984 at Vancouver, B.C.

A handwritten signature in black ink, appearing to read 'Gregory G. Crowe', written in a cursive style.

Gregory G. Crowe, M.Sc., P. Geol.  
Consulting Geologist