

060682

BOSWELL RIVER MINES LTD.
DAN 1-10 GROUP OF CLAIMS
105-B-3, 60°10'N, 131° 6'W

REPORT ON GEOPHYSICAL WORK
July 8-20, 1967

by
P.H. SEVENSMA, Ph.D., P. Eng.



Department of
Indian Affairs and
Northern Development

Resource and
Economic Development
Group

Ministère des
Affaires indiennes et
du Nord canadien

Bureau des ressources
et du développement
économique

RESTRICTED

Box 1767,
Whitehorse, Y.T.,
September 28, 1967.

MR. J. A. C. MCKENZIE
MINING RECORDER
WATSON LAKE, Y.T.

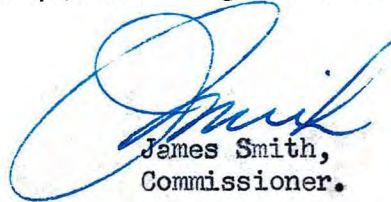
our file/notre dossier
your file/votre dossier
date

M.I. M-252

Report of Geophysical Work
DAN 1 - 10 Group of Claims
Boswell River Mines Ltd.
by P. H. Sevensma, Ph.D., P. Eng.

OCT - 21 1967

On the recommendation of the Resident Geologist and the Resident Mining Engineer I hereby authorize you to accept this report as representation work under Section 53 (4) of the Yukon Quartz Mining Act to the value of \$1,000.00.


James Smith,
Commissioner.

cc: Chief, Resource Management Division
Attention: Geological Evaluation Unit

Central Mining Records - Whitehorse

Resident Geologist

Y 13401
605-B-3



BOSWELL RIVER MINES LTD.

DAN 1-10 GROUP OF CLAIMS

105-B-3, 60°10'N, 131° 6'W.

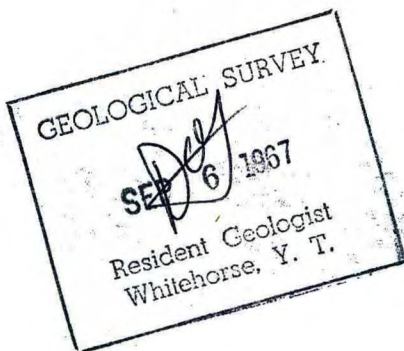
GEOPHYSICAL REPORT

JULY 8-20th, 1967

060682

by

P.H. SEVENSMA, Ph.D., P. Eng.



This report has been examined by
the Geological Evaluation Unit.
Approved as to technical worth by:

D. C. Finlay
RESIDENT GEOLOGIST

Approved as to cost in the amount
of: \$ 1000.00

P. G. Reardon
RESIDENT MINING ENGINEER

Accepted as representation work
under Section 53(4) Yukon Quartz
Mining Act.

[Signature]
COMMISSIONER OF YUKON

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BOSWELL RIVER MINES LTD.

DAN 1-10 GROUP OF CLAIMS

GEOPHYSICAL REPORT

July 8-20th, 1967

1. INTRODUCTION

The Dan Group of 10 claims was staked in July 1966 and recorded on July 27, 1966, to cover showings and float of zinc-silver-lead discovered in 1946 by Hudson Bay Mining & Smelting Company prospectors.

A Ronka EM-16 electromagnetic survey was conducted over the bulk of the group between July 8th and 20th, 1967 to assess the possible extent of the showings and the possible source of the float.

2. PROPERTY

The property consists of the following claims (Figure 4):

Dan 1 to 10 Grant nos. Y13401 - Y13410

The claims have been staked in accordance with the requirements of the Yukon Quartz Mining Act, as checked personally by the writer in the field.

The claims lie along the South bank of the Swift River, at Latitude N 60°10' and Longitude W. 131° 6' 30", elevation 4000', claim sheet 105-B-3.

3. ACCESS AND CLIMATE

The claim group is accessible by a good truck road running for 15 miles North and West from Mile 722 on the Alaska Highway. As the old bridge located 1½ miles West of the property

has been washed away, the river has at present, to be forded in this location with a 4-wheel drive vehicle.

A 30' timber bridge can easily be rebuilt across the Swift River at this point.

There is good timber in the area up to an elevation of about 4800'. Snowfall is medium, with about 4' of packed snow in spring.

There is abundant water year-round.

4. HISTORY

- 1946 Discovered by prospectors working for Hudson Bay Mining & Smelting Company.
- 1952 Boliden type EM survey by Hudson Bay Mining & Smelting Company followed by drilling of strong anomalies in the valley, which were found to be related to graphite schists.
The showing was not drilled.
- 1962 Examined by the writer on behalf of Cominco Ltd.
- 1964 Trenching by W. McKinnon with a bulldozer.
- 1966 Restaked by Boswell River Mines Ltd. in association with one of the original discoverers, Mr. W. McKinnon of Teslin, Y.T. and re-examined by the writer.
- 1967 Ronka EM-16 survey conducted by T. Martin, Box 398, Whitehorse, geophysical operator and J. Sheldon of Teslin, assistant under supervision of P.E. Sevenama Consultants Ltd.
- 1951-1959 Areal mapping by W.H. Poole, J.E. Roddick and L.E. Green for the Geological Survey of Canada, Wolf Lake sheet, map 10-1960.
- 1961-1963 Airborne magnetic survey, June - September 1961, by Aero Surveys for the Department of Mines and Technical Surveys, published in 1963 (Map 1306G, 1" = 1 mile; Map 7001G, 1" = 4 miles).

5. GEOLOGY

(a) Areal

The claims overlie an area of Mississippian-Devonian sediments consisting of slates, quartzites, some limestone and chert overlying (?) typical Mississippian-Devonian volcanics. The presence of graphitic schists is typical for the formations of this age, which are part of the productive schist formations in the Yukon, containing the Klondike Gold fields and the Vangorda Creek massive base-metal bearing sulphide bodies (Figures 1 and 2).

In the area under consideration, the pronounced Swift River fault lies immediately North of the mineralized area. This major fault separates the schists from a dome of Precambrian intruded by a part of the Cassiar batholith (Figure 2).

The schists are characterized by the intrusion of the Sea Gull batholith and a highly saussuritized quartz-monzonite, the Ram Stock, both extremities of which (on the NW and the SE) terminate in diorite intrusives of apparent older age.

To the Southwest, similar diorite intrusives are associated with the Logjam stock and near and in these diorites there are cross-cutting veins with good silver-gold-lead-zinc values. A typical assay in this area is: 2' width carrying 0.2 oz/t Au, 30 oz/t Ag, 3% Pb, 7% Zn.

(b) Local

The showings and float on the Dan Group lie in a band of schists between the major fault and one of the small diorite intrusives generally associated with the mineralization in the area.

The main showing is a NW striking strata-bound pyrrhotite-sphalerite zone, dipping about 70° SW into the hill. The wall-rock is a slightly skarny (actinolite) and silicified thin-bedded argillite.

The exposure averages 8.0% Zn over a width of 5.7' and an exposed length of 40', as determined by the writer's sampling in June 1962 and in July 1966 (Figure 4).

Float 700' to the ESE consists of 4' blocks of massive pyrrhotite; an average assay of the samples taken by the writer gave 0.75 Ag, 0.25% Pb and 3.2% Zn.

In places there is minor visible chalcopyrite, but none of this showed up in any of the writer's samples, which were assayed by Whitehorse Assay Office.

The area around and between the showings and the float is covered by overburden estimated to be from 5 - 50' thick.

6. POTENTIAL

The area is structurally favorable with a major fault near a 15 mile long dome of Precambrian.

The associated dioritic intrusives are known to be associated with zinc-silver-lead mineralization with usually high silver-lead ratios, even if zinc predominates.

The Logjam occurrences are responding to development by Pure Silver Mines Ltd.

Stratigraphically, the Dan showings are interbedded in formations of the same age and lithological characteristics as the Vangorda Creek base-metal bodies; the massive pyrrhotite is fine-grained, as is typical of strata-bound occurrences.

It should be remembered that many, if not most, of the large sulphide bodies being mined on either the Precambrian Shield or in the Western Cordillera were discovered as a result of work on properties on which hindsight has revealed a relationship to geologically favorable environmental conditions such as are found here now, but did not have a surface expression of sufficient commercial value to encourage the larger mining organizations to participate in the original exploration.

The presence of strata-bound base-metal deposits in the Yukon has recently been established and much attention has been directed toward the location of these deposits by indirect techniques in areas adjacent to the major discoveries. A more fruitful approach

might be the detailed exploration of showings where a combination of favorable geological conditions and a sulphide-mineralized outcrop provide direct evidence of mineral deposition. The Dan Group is of this latter type and hence a situation having an above average chance of success.

Sphalerite-carrying float found on line 32E, 1150' N of the base line (Figures 5 and 6) confirms that the potential of this area may be much larger than hitherto assumed.

7. GEOPHYSICAL SURVEY

(a) Ronka EM-16 Method

This instrument is an electromagnetic receiver capable of detecting the signal of remote stations operating in the 15 to 25 kcs. range.

For each station, a specific crystal is inserted, the operating frequencies of which correspond to those of transmitters located at various points in the Northern hemisphere, which transmitters are used in the detection of submarine vessels.

The instrument has been found to be sensitive and to detect conducting zones lying at several hundred feet depth.

Where isolated conductive zones occur in a non-conductive medium, very sharp and localized deflections of the primary field can be detected and their cause pinpointed very accurately.

When the rock environment is variously conductive, complex deflections are generally found which will provide an overall strike of the formations, but which require further interpretation by trenching or other means of examining the formations giving rise to these complex patterns.

Deep clay-bearing overburden diminishes the sensitivity of the instrument and where steep topographical slopes occur an additional tilt of the field is usually present.

A Ronka EM-16 survey gives the best results when a conductor points towards the transmitting station, so as to lie at right angles to the field.

On the Dan Group, the angle between the strike and the direction to the showing is about 30° , which provides a quite satisfactory coupling.

(b) Dan Group Survey

This survey was carried out after cutting open and rechainning old existing lines and cutting and chaining new lines where required.

The survey revealed a complex pattern of conductive formations, suggesting the presence of both moderately and strongly conductive rocks. In the first category are chloritic and sericitic schists and hornfelses; in the second are graphitic schists, schistose rocks carrying various amounts of disseminated pyrrhotite and massive pyrrhotite zones.

In general, the pattern suggests a moderate tilt to the field of perhaps some 10%.

Overburden effects are noticeable on a significant area South of the base line, where the in-phase and quadrature are generally of opposite signs. Conductivity in this area suggests broad zones of medium conductivity.

Along the North quarter of the surveyed area, i.e. down-slope, more highly conductive formations occur with both in-phase and quadrature having generally the same sign, with low quadrature values.

The transition zone between these two areas is marked by strong in-phase deflections, which can be followed throughout the profiles.

One limited zone, on 24+OOE and 28+OOE, between 7+OON and 8+OON, is a limited near-surface conductor, still reflected weakly on lines 20 and 32. This area warrants investigation, as this type of conductor is suggestive of sulphides.

The trench showing is located at the edge of a broad profile, suggesting a deeper source of conductivity.

This zone can be quite clearly traced to the SE, although it is weaker on lines 28+OO and 32+OO.

In summary, the area is believed to be underlain by variously conductive formations, with significant indications that some of these are associated with sulphides. The zone associated with the trenchad showing lies along the edge of a conductive zone with a current concentration about 300'-400' deep, which could reflect the presence of a deeper lying pyrrhotite body.

(c) Summary

A complex zone of this type, associated with a showing and with float of a highly conductive type, i.e. massive pyrrhotite, requires trenching along selected lines, in conjunction with geological mapping and soil sampling for lead and zinc with particular attention being paid to the formations underlying each type of conductor.

8. SUMMARY AND RECOMMENDATIONS

Structurally and lithologically, the Dan showing lies in a favorable environment, where, whenever lead is encountered, silver ratios are high, and where large strata-bound deposits may be present.

The electromagnetic survey indicates the presence of variously conductive formations, some of which may be sulphide-zones or -bodies.

It is strongly recommended to trench a line every 800', i.e. one half the lines, or about 4 line miles, in conjunction with soil sampling and geological mapping on all lines to assess the extent of the mineralization along the indicated NW-SE conductor directions.

This work will undoubtedly lead to pinpointing other drill targets besides the existing showing. The survey suggests that the latter may well increase in size and conductivity at a depth of several hundred feet.

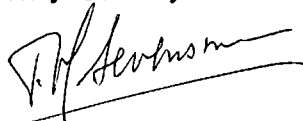
9. COST OF PROGRAM

The cost of the proposed program is summarized as follows:

Road improvement	\$ 2,500
Stripping and trenching	2,500
Geological mapping	2,000
Soil sampling, 200 samples @ \$5.00	1,000
Prospecting, 3 man-months	2,500
Supervision, Engineering	2,500
Drilling, 1500' @ \$10.00	15,000
Camp Costs	<u>2,000</u>
	\$30,000
Contingencies, 20%	<u>6,000</u>
Total	<u>\$36,000</u>

In case of success, considerable more drilling may be justified.

Respectfully submitted,



P.R. Sevenma, Ph.D., P. Eng.

FHS/lz

July 26, 1967

APPENDIX A

LIST OF INDIVIDUALS ENGAGED IN GEOPHYSICAL WORK ON THE
DAN 1-10 MINERAL CLAIMS FOR BOSWELL RIVER MINES LTD.
JULY, 1967

Supervision

P.H. Sevensma Consultants Ltd.,
P.O. Box 738,
Whitehorse, Y.T.

Geophysical Operator

T. Martin,
P.O. Box 398,
Whitehorse, Y.T.

Assistant

J. Sheldon,
Teslin, Y.T.

Date of field work:

July 8th - 20th, 1967

Cost of survey:

8.33 line miles @ \$140

\$1,166.20

AFFIDAVIT

I, PETER H. SEVENSMA, of 715-850 West Hastings Street,
Vancouver, Province of British Columbia, HEREBY MAKE OATH AND SAY
AS FOLLOWS:

That attached hereto to this my Affidavit, marked
Appendix A, is a list of individuals engaged in work on the Dan 1-10
claims for Boswell River Mines, as well as a statement of expenditure
which I certify to be accurate.

SWORN BEFORE ME at the City)
of Vancouver, Province of)
British Columbia, this 7)
day of August, A.D. 1967)

M. L. A. [Signature])
A Notary Public in and for the)
Province of British Columbia)

P. H. Sevensma
Peter Sevensma

**BOSWELL RIVER MINES LTD.
STAR-FOX-DAN**

**BIG SALMON LAKE SCHIST BELT
WHITEHORSE M.D. Y.T. 105-SW**

P. H. SEVENSMA CONSULTANT

VANCOUVER, B.C.















June 1967

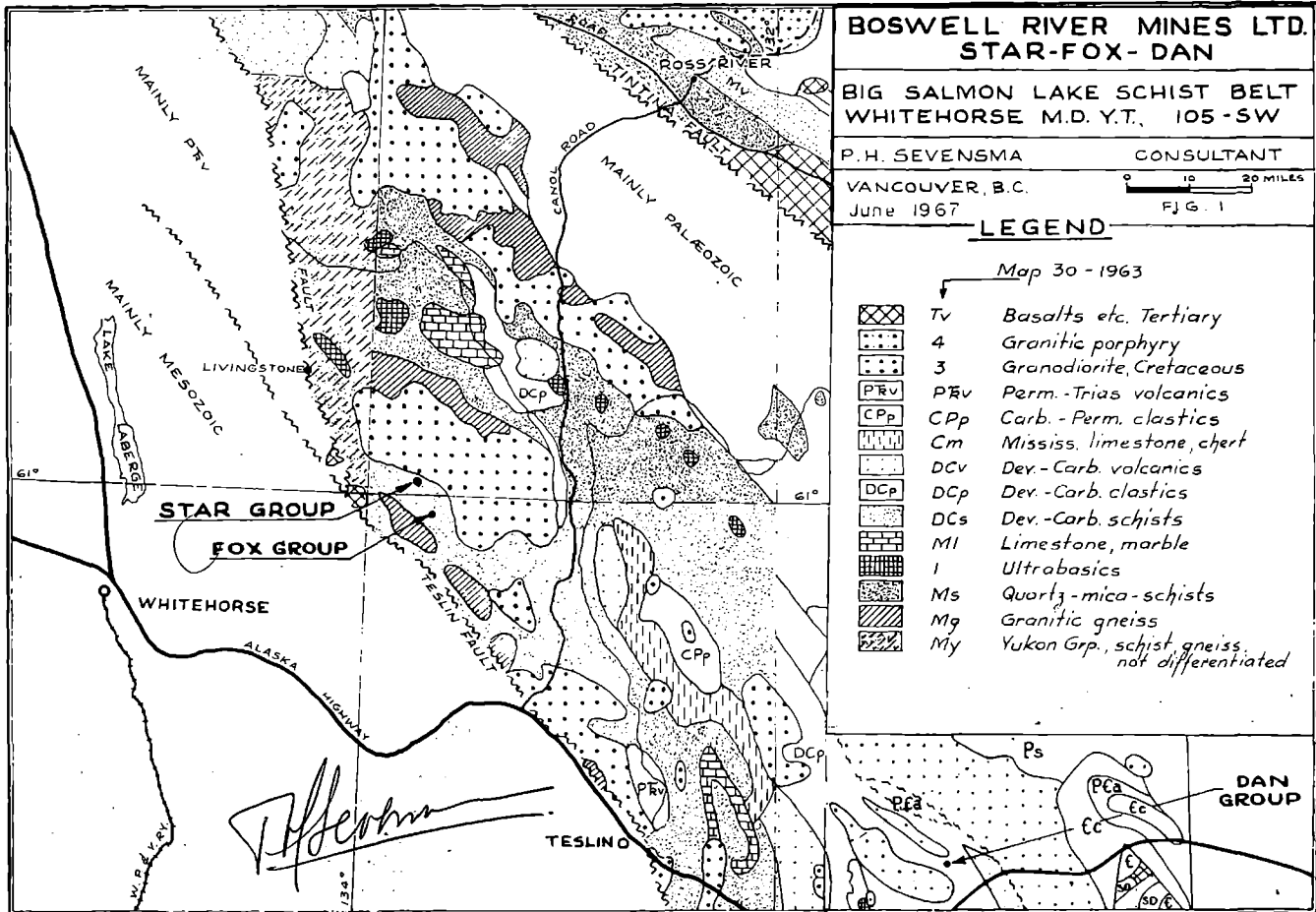
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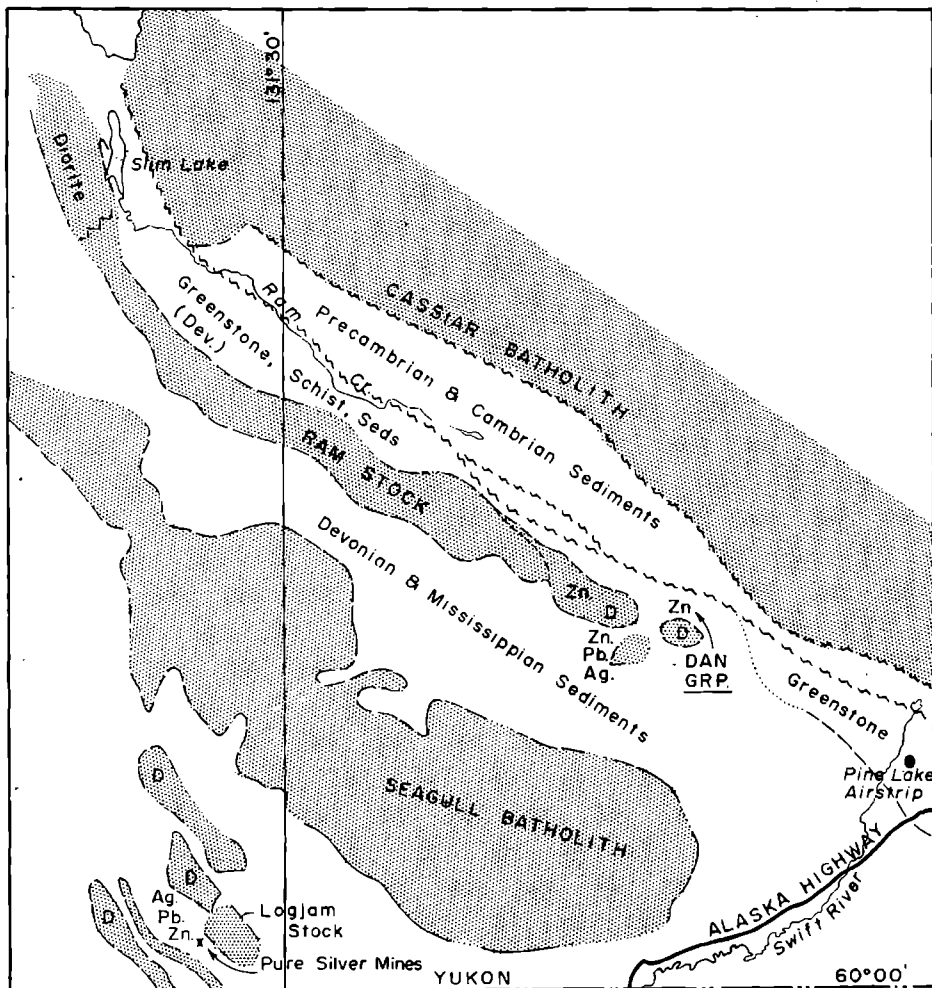
FJ G. 1

LEGEND

Map 30 - 1963

- | | | |
|--|-----|--|
|  | Tv | Basalts etc. Tertiary |
|  | 4 | Granitic porphyry |
|  | 3 | Granodiorite, Cretaceous |
|  | PRV | Perm.-Trias volcanics |
|  | CPp | Carb. - Perm. clastics |
|  | Cm | Mississ. limestone, chert |
|  | DCv | Dev.-Carb. volcanics |
|  | DCp | Dev.-Carb. clastics |
|  | DCs | Dev.-Carb. schists |
|  | Ml | Limestone, marble |
|  | I | Ultrabasics |
|  | Ms | Quartz-mica-schists |
|  | Mg | Granitic gneiss |
|  | Miy | Yukon Grp., schist gneiss,
not differentiated |





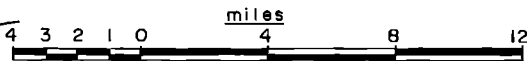
Ref: G.S.C. Map 10-1960

B.C.

D = Diorite

INTRUSIVE ROCKS 

J. H. Sevensma



BOSWELL RIVER MINES LTD.

DAN GROUP

Watson Lake M.D.

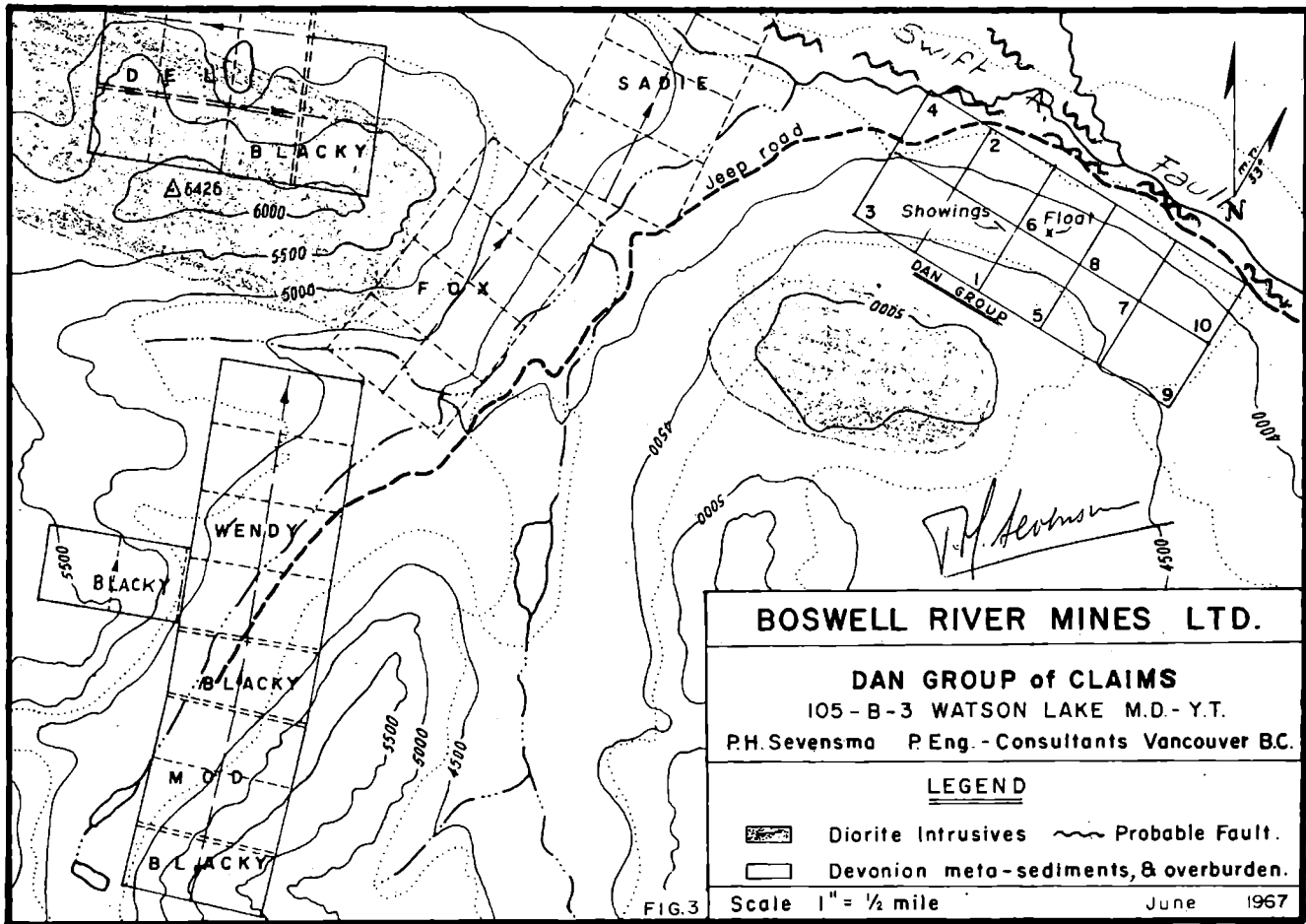
105 B-3

P. H. SEVENSMA CONSULTANTS LTD.

FIG 2

VANCOUVER, B.C.

July 26, 1967






BOSWELL RIVER MINES LTD.

DAN GROUP of CLAIMS

105 - B - 3 WATSON LAKE M.D. - Y.T.

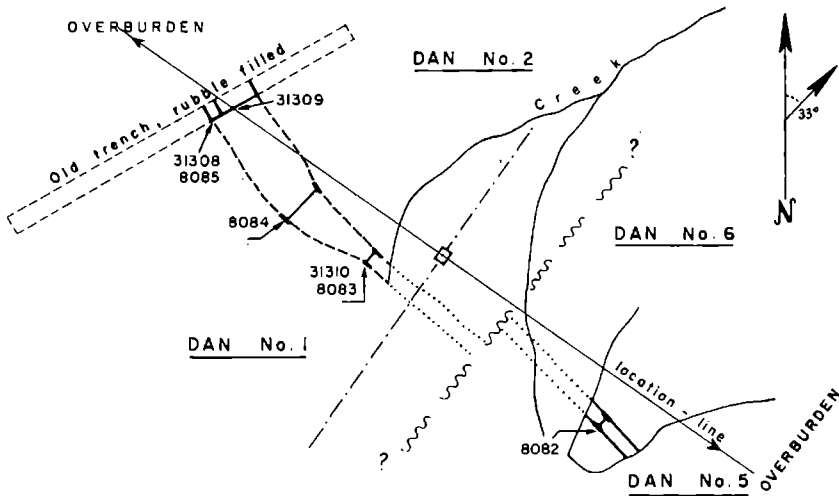
P.H. Sevensma P. Eng. - Consultants Vancouver B.C.

LEGEND

-  Diorite Intrusives
-  Probable Fault.
-  Devonian meta-sediments, & overburden.

Scale 1" = 1/2 mile

June 1967



		Width	Ag	Pb	Zn	Cu	
8082	Main showing	2'	Tr.	Tr.	Tr.	Tr.	
8083		2'	Tr.	Tr.	8.8	Tr.	
31310		20"	.12	nil	3.0	nil	
8084		7'	.20	Tr.	10.0	Tr.	
8085		2'	Tr.	Tr.	6.1	Tr.	
31308		2'	.08	nil	1.6	nil	
31309		6'	.54	nil	6.1	nil	
8086	Trench 4	Float?	Tr.	Tr.	3.6	Tr.	
31311		Float?	1.50	0.5	2.8	nil	

* Trench 4 is about 700' due East from the Main showing.

31308 - 311 Samples taken JUNE 24, 1962
 8082 - 8086 " " JULY 22, 1966

BOSWELL RIVER MINES LTD.

DAN GROUP of CLAIMS.

105-B-3 WATSON LAKE M.D. Y.T.

LOCATION OF SAMPLES TAKEN BY P.M. SEVENSMA
 JUNE 24, 1962 and JULY 22, 1966

1" = 20' June 1967

P.M. SEVENSMA — CONSULTANTS LTD. — VANCOUVER, B.C.

FIG. 4

P. H. SEVENSMA CONSULTANTS LTD.

CONSULTING GEOLOGISTS
EXPLORATION & MINING

BOX 738
WHITENORSE, Y. T.
PHONE: 667-2906

INVOICE TO:

DATE:

**Boswell River Mines Ltd.
Sunset Beach,
Horseshoe Bay, B.C.**

July 26, 1967

**Contract Ronka EM-16 survey, 8.33 line-miles,
including linecutting and chaining, maps
and report, @ \$140 per line mile**

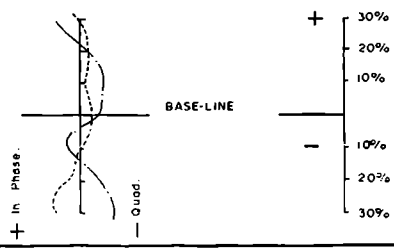
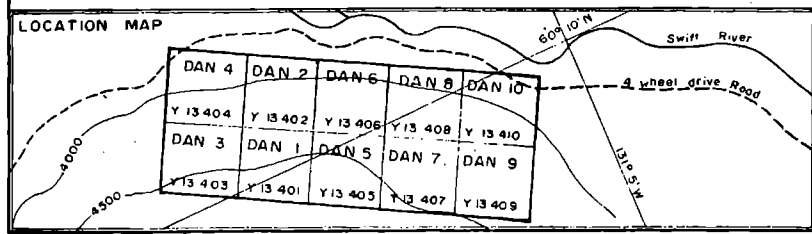
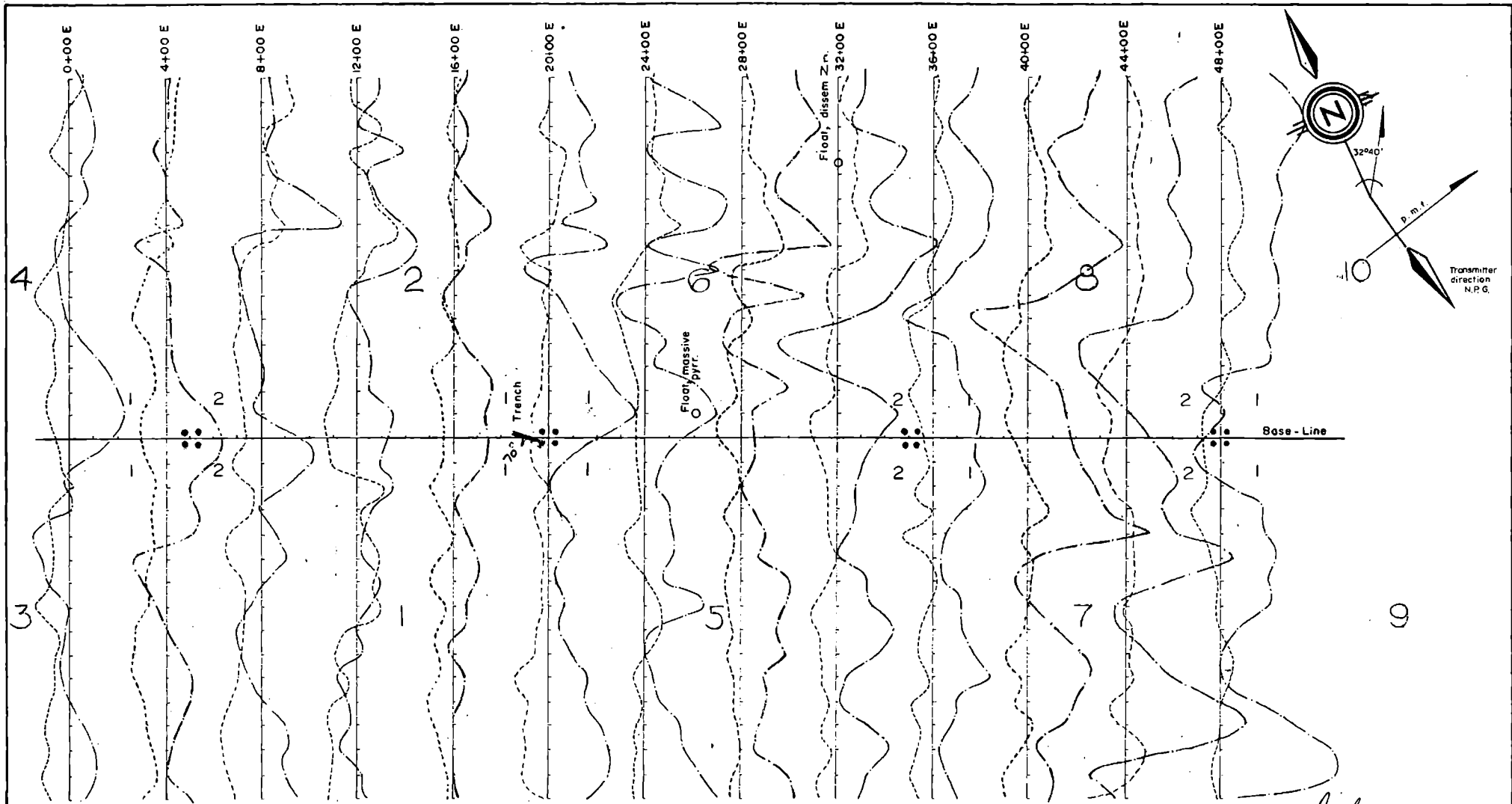
\$ 1,166.20

Deposit received July 10th, 1967

1,000.00

Balance

\$ 166.20



P. H. Sevensma

BOSWELL RIVER MINES LTD.	
-RONKA EM 16 SURVEY	
Watson Lake M.D.	DAN GROUP
P. H. Sevensma Consultants Ltd - Vancouver B.C.	
July 24, 1967	105-B-3

SCALE 400'

FIG. 6

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