CORPORATION FALCONBRIDGE COPPER

MEMORANDUM

827435

DATE: November 16, 1982

A TO: B. D. Simmons ✓

COPIES A COPIES TO: M. J. Knuckey

DE FROM: P. W. A. Severin

NTS 92C/16

SUJET SUBJECT: PROPOSED PARTICIPATION-IMPERIAL METALS, HASLAM CREEK MS PROSPECT, VANCOUVER ISLAND

SUMMARY

Imperial Metals Corporation of Vancouver has offered C.F.C. participation in their Haslam Creek massive sulphide prospect located within Sicker Group rocks approximately 23 Km along strike to the NW of the Twin J deposit on Vancouver Island. They have located at least 5 moderate to strong unexplained Input anomalies within their claim group. Preliminary geological investigations indicated that the area in the immediate vicinity of the EM conductors is underlain by flat-lying banded cherts (0-5% Py), argillites (no graphite observed) and gabbroic sill/dykes. Reconnaissance soil geochemical surveys gave a positive response (Zn:102-256 ppm) (Cu:120-320 ppm) in the immediate vicinity of at least two of the Input anomalies. The area warrants further investigation.

Terms of agreement are proposed and a $215,000 exploration program is recommended for 1983 which will earn C.F.C. at least 70% interest in the project.

I indicated to Imperial Metals that we would try to respond by December 15, 1982.

INTRODUCTION

Imperial Metals Corporation is a junior mining exploration company listed on the Vancouver stock exchange. Imperial was incorporated in 1981 as a result of the amalgamation of several smaller companies. One specific objective of this new company was to identify areas of British Columbia that exhibit potential for massive sulphide deposits. In order to achieve this they initiated a thorough study of all the available assessment data for Vancouver Island and some other areas of B.C. As a result of this work they acquired (by staking and option) several properties on Vancouver Island and in the Anyox area north of Prince Rupert. Questor Helicopter Input E.M. surveys were flown over all their properties during July of 1982.

Imperial has offered C.F.C. participation in their Haslam Creek property (Fig. 1) which is located within Sicker metavolcanics/metasediments approximately 23Km. along strike to the NW of the Twin J deposit. A meeting was held on November 8 with Stephen Quin (geologist) and Alan Savage (president) of Imperial Metals at which time their data was reviewed. A property visit was completed on November 9th. The results of this trip are briefly summarized in this memo and participation is proposed.

LOCATION AND ACCESS

The Haslam Creek property is located 26Km south of Nanaimo and has excellent accessibility with a 4-wheel drive vehicle via a network of logging roads. The elevation on the claim group varies from 400 to 1100 metres above sea level.

PROPERTY STATUS

The Haslam Creek property consists of 5 claim blocks containing a total of 78 (500 X 500 metre) units. One claim block (Imperial H) was recorded in April, 1982 and the remaining claims were staked since that time. Assessment work can (i.e. mapping, geophysics, soil geochem) be filed prior to April 1983 in order to ensure that the claims remain in good standing until April 1985. The claim blocks are named Imperial H, Imperial J, Imperial K, Imperial L, Imperial M and Imperial S.

The Crown Zellerbach lumbering company, which has previously "logged" the area, owns the surface rights. They have no objection to Imperial exploring in the area

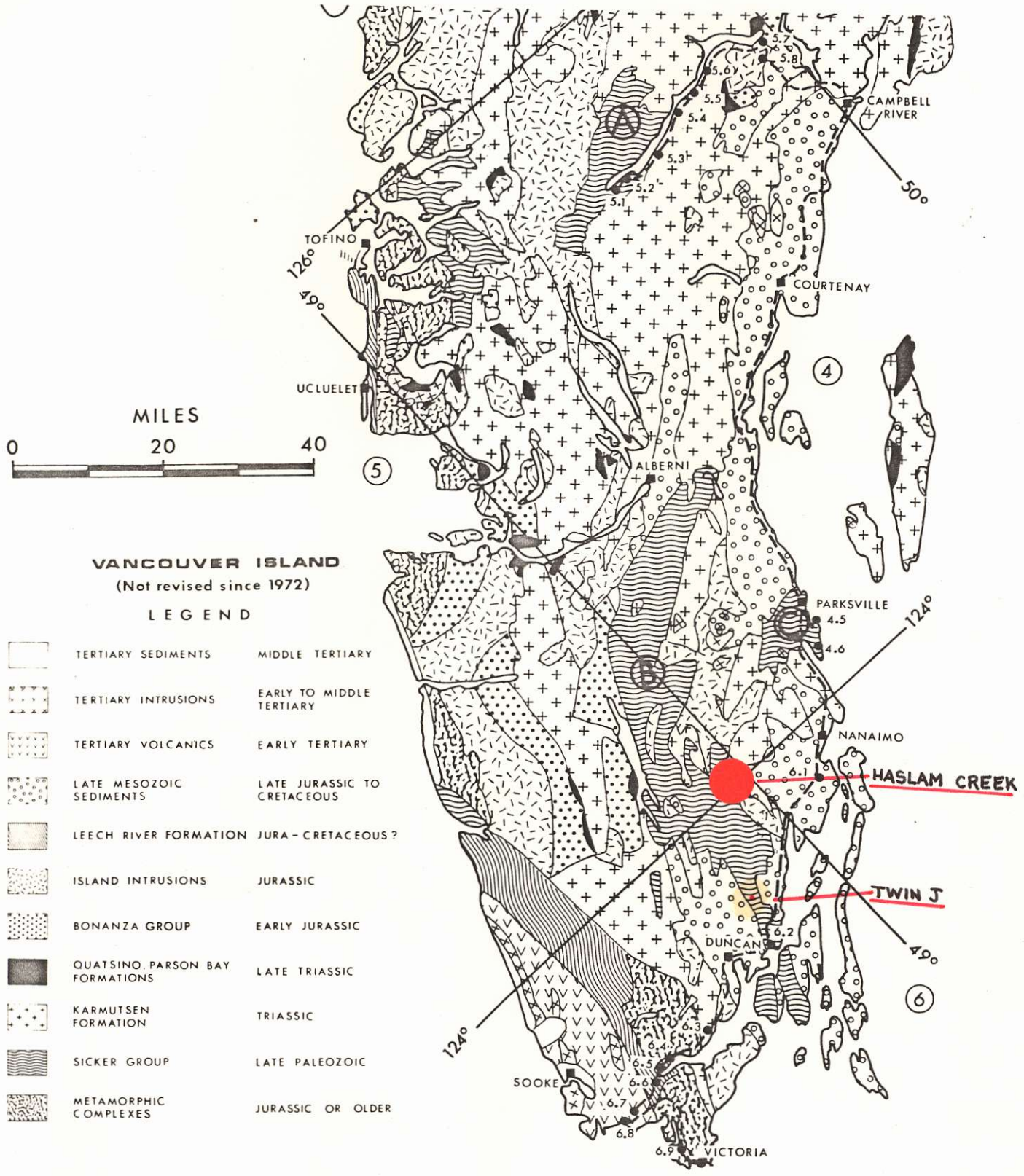


Figure Route and stops on Vancouver Island.

Fig.1

and using their roads as long as a ±$1000.00 bond is filed to ensure that any potential damage to the roads is repaired prior to the termination of the exploration program.

GENERAL GEOLOGY

The Sicker Group which hosts at least two massive sulphide deposits, encompasses the entire sequence of Paleozoic volcanic and sedimentary rocks of Vancouver Island. It is exposed in three allochthonous blocks: The Buttle Lake Uplift (which hosts the Westmin deposits), The Cowichan-Horne Lake Uplift (which hosts the Twin J deposits) and the Nanoose Uplift. The Sicker Group is composed mainly of basic and acidic volcanic rocks and less abundant clastic and carbonate rocks. The reader is referred to G.S.C. Paper 79-30 by Muller (1980) for more detailed descriptions of the Sicker rocks.

This report refers to a small area within the Cowichan-Horne Lake Uplift.

PREVIOUS WORK

All available assessment information pertaining to the Haslam Creek area has been compiled by Imperial. The only data in the assessment files was some limited geophysical work that Esso completed during the mid to late seventies (year ?) (Imperial is to send us the assessment report). Apparently Esso previously held a portion of the extreme eastern part of the current Imperial ground and conducted an EM-16 survey. An anomaly was located; drilling was recommended but never initiated. The ground was dropped. Imperial Metals was attracted to the area primarily because of this unexplored geophysical anomaly that lies within Sicker Group rocks.

During 1982, I.M.C. staked the "Esso Anomaly", flew the area with Questor Helicopter Input (both magnetometer and E.M. (using a horizontal coil and a vertical coil)), staked additional ground to cover new anomalies and completed 2-3 weeks of reconnaissance mapping and reconnaissance soil geochemistry. They are anxious to drill the anomalies but lack the necessary funds.

RECONNAISSANCE GEOLOGY AND SOIL GEOCHEMISTRY

The property is traversed by numerous logging roads which provide an excellent access network and good control. The outcrop exposure in the area is very poor and where exposed, is largely a result of road building. Available outcrop on roads, using an airphoto base, has therefore been mapped and several lines of soil geochemistry have been "run" over the Input anomalies. The geological map is currently being plotted by Imperial and will be forwarded to us when completed.

Property Geology

The southwestern quarter of the property is underlain by a stock of gabbro that is probably a feeder to the numerous dykes and sills that occur elsewhere on the property and could conceivably be the feeder to the gabbroic dykes/sills observed on the Twin J property. This gabbroic plug, which was well delineated by the airborne magnetometer survey, appears to truncate a number of EM Input anomalies that trend in a NNE direction immediately north of the gabbro. Muller is of the opinion that the gabbroic intrusions may ultimately have been feeders to the younger (Triassic) Karmutsen basalts.

The remainder of the property, which contains six weak to strong Input anomalies (including the previous Esso anomaly) appears to be underlain by bedded cherts (0-5% pyrite as specks, layers, fine disseminations) and lesser argillites that have been complicated by the intrusion of numerous dykes/sills of gabbro. The cherts are flat lying (15-35^{o}) with variable strikes and directions of dip indicating deformation due to folding. It must be stressed that outcrop exposure is very poor and therefore the geology is not at all well understood at this stage. A detailed grid mapping program (including a lot of scrounging around) is required.

Some of the more interesting chert outcrops were not seen during my recent visit due to a foot of snow cover at the higher elevations of the property.

Soil Geochemistry

A total of five reconnaissance lines of soil geochemistry were conducted over a number of the Input anomalies. This initial soil geochemical test program was encouraging. A positive geochemical correlation was indicated on the west side

of at least two of the Input anomalies (anomaly 1 and 5):

eg	"Background" Values	Anomalous Values
Zn	50 - 80 ppm	102 - 256 ppm
Cu	50 - 82 ppm	120 - 320 ppm

There appears to be a less well defined response with Au and Ag. I wonder what Ba would indicate.

This preliminary geochemical work is encouraging but one must be cautious in interpreting this type of data since the distribution of the gabbro in relation to the volcanics/sediments is largely unknown (ie. is 100 - 300 ppm Cu, Zn truely anomalous for this area? - I expect it is, but who knows?).

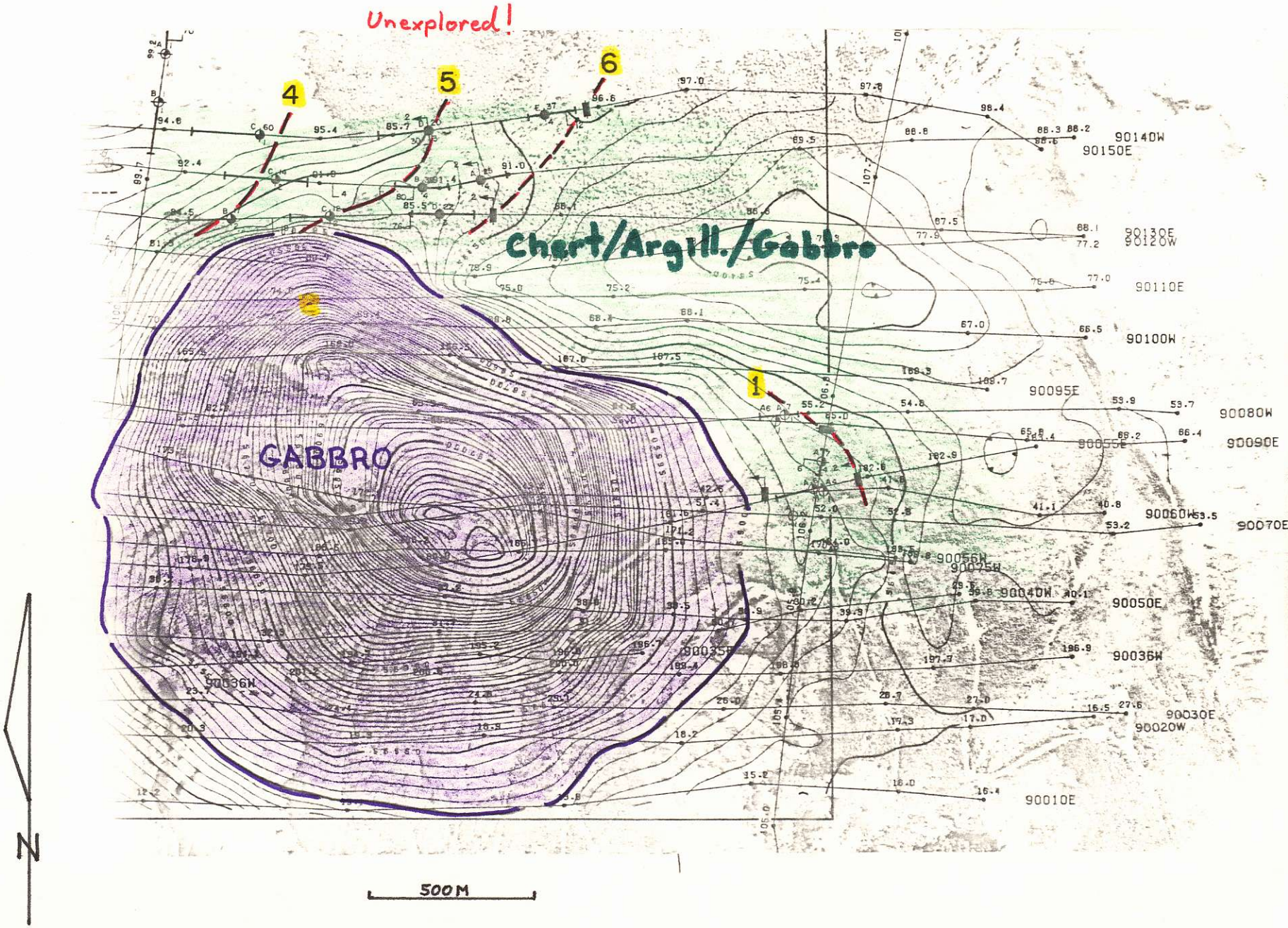
GEOPHYSICAL SURVEY

Forty-two line kilometres of helicopter MK VI INPUT were flown on July 10, 1982. The lines were flown in an east-west direction at a spacing of 150 metres with the bird an average of 45 metres above the ground.

The entire claim block was flown using a horizontal receiving coil. Since a horizontal conductor will not provide maximum coupling with a horizontal receiving coil, the more interesting areas were re-flown using a vertical receiving coil. A stronger response was obtained using the vertical coil and suggested that the source conductors have relatively flat dips. This has been confirmed by the reconnaissance geology survey.

Six EM conductive zones have been identified (Fig. 2):

Zone	Comments	Channels	Conductivity Thickness	Mag. Value
1	- The old Esso anomaly - 400 metres long - 30-60° dip to west - soil geochem. "anomaly"	4	7 siemens	4 - 6 ɣ
2	- extremely weak - likely conductive overburden - over/within the gabbro	2	Not calculated	-
3	- extreme NW corner - likely flight lines running parallel to conductor - bedrock source suspected - ground work required	5	30 siemens	-


Unexplored!
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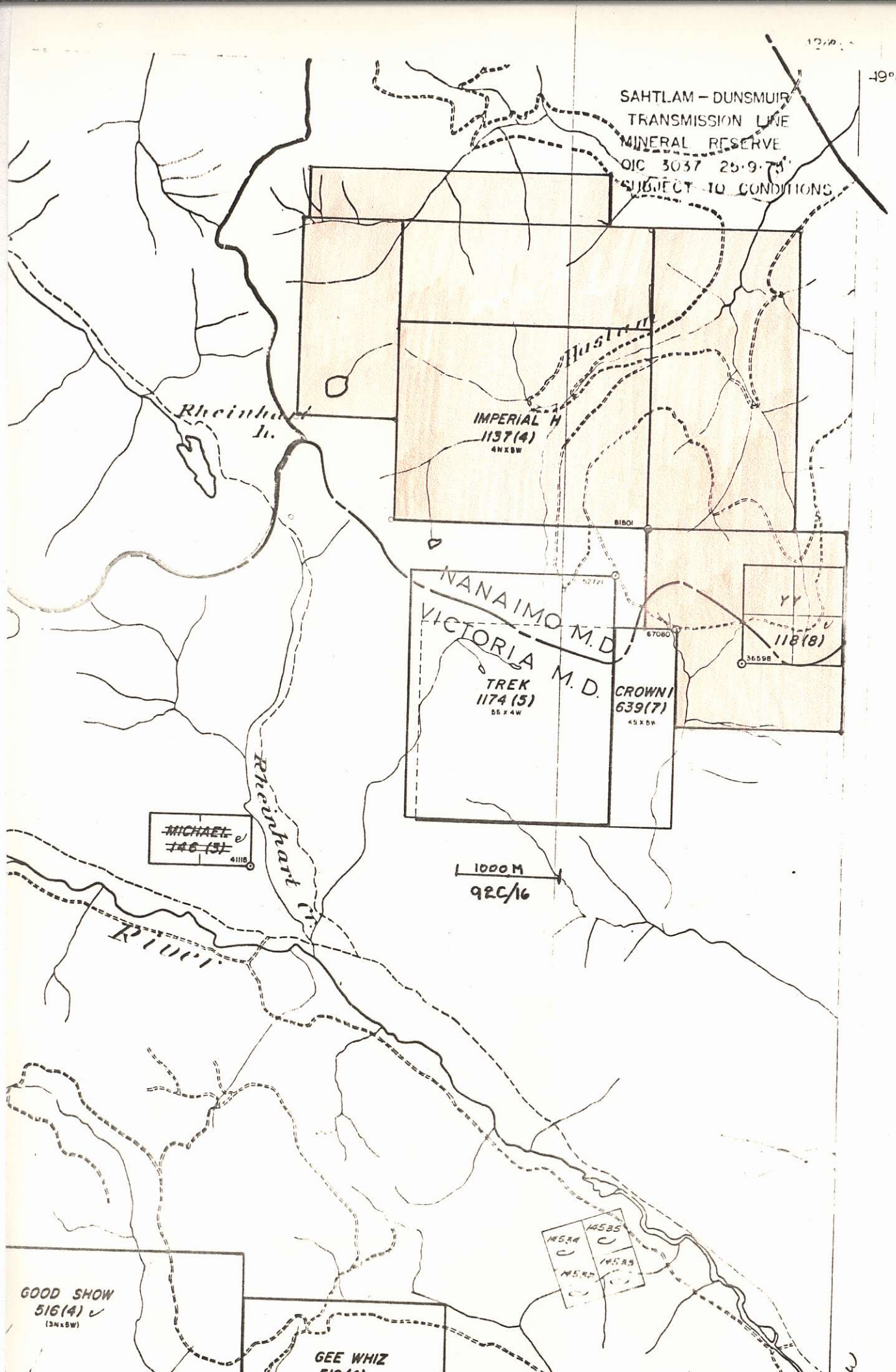
Horizontal Coil
Fig.2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14584
14585
14586
14587

Fig. 3

4,5,6	- 3 sub-parallel zones 150 to 250 metres - all three conductors display exceptionally good conductivity with only #5 having a weak mag. correlation - #5 also has corresponding soil geochem. response	6	40 - 100	2 - 3

The magnetometer survey was conducted with a Sonotek P.M.H. 5010 proton magnetometer with a sensitivity of 1 gamma. A Geometrics G-806 ground magnetic station was used for recording the daily diurnal changes.

A large spherical magnetic feature was located in the south central area of the claim block. This is thought to reflect the presence of a gabbroic "stock". The northeasterly trending EM anomalies that occur to the north appear to be truncated by this body.

CONCLUSIONS

Imperial Metals Corporation have located at least 5 moderate to strong unexplained Input anomalies within the Sicker Group rocks approximately 23 Km along strike to the northwest of the Twin J deposit. Preliminary geological investigations indicated that the area in the immediate vicinity of the EM conductors is underlain by flat-lying banded cherts (0 - 5% Py), argillites (no graphite recognized) and gabbroic sill/dykes. The outcrop exposure is very poor and the geophysical anomalies remain unexplained.

RECOMMENDATIONS

1. Pursue an agreement with Imperial Metals Corporation.
2. Establish a grid over the eastern and northern portions of the claim group.
3. Complete geology, soil geochem/lithogeochem., Max Min and Mag. surveys over the grid.
4. Complete reconnaissance geology over remaining area of property.
5. Budget 1500 metres of diamond drilling.
6. Geophysical anomalies are open to the north and should be pursued. Additional ground acquisition will be necessary.

PROPOSED TERMS OF AGREEMENT

1. Imperial Metals Corporation has expended approximately $50,000 - 60,000 to date.
2. Imperial Metals would like a large working interest in the property but they are quite open to various proposals.

Proposed Terms Submitted for Discussion:

1. C.F.C. to be operator.

2. C.F.C. to spend $140,000.00 to earn 70% interest in the property within the period 1983 - 1984 incl.

3. When C.F.C. has achieved a 70% interest, a joint venture shall be formed. C.F.C. shall be operator. Participating interests shall be C.F.C. 70%, Imperial Metals 30%.

4. Imperial Metals may elect not to participate. Its interest shall then be diluted as per the following equation:

$$\% \text{ interest} = \frac{\text{total expenditures by Imperial}}{\text{total expenditures on project}} \times 100$$

When its working interest has been diluted to 5%, it will convert to a 5% net proceeds of production royalty calculated after C.F.C. recoupment.

5. All other customary legal provisions shall be included in the formal agreement.

PROPOSED EXPLORATION BUDGET - 1983

Establish grid	90 Km @ $200/Km	$ 18,000
Max Min survey	82 Km @ $180/Km	$ 15,000
Magnetometer	82 Km @ $160/Km	$ 13,000
Geology/Geochemistry	1 Mo @ $20,000/Mo	$ 20,000
Diamond Drilling	1500 M @ $82/m ($25/ft)	$123,000
PEM		$ 6,000
		$195,000
Regional Office		$ 20,000
		$215,000

C.F.C. contribution:	$140,000	to earn 70% interest
:	$ 52,500	70% of $75,000.00
Imperials contrib. :	$ 22,500	30% of $75,000.00
Total	$215,000	

C.F.C. total 1983 budget: $192,500

Paul Severin

Paul W. A. Severin

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REFERENCES

1. de Carle, R. J., 1982. Helicopter Input E.M. Survey-Imperial Metals Corp.-Haslam Creek Area, Vancouver Island, a private report by Questor to Imperial Metals, September.

2. Muller, J. E., 1980. The Paleozoic Sicker Group of Vancouver Island, British Columbia, G.S.C. Paper 79-30.

3. Severin, P. W. A., 1982. Preliminary assessment/progress report, massive sulphide compilation project, British Columbia, Internal C.F.C. report, October.