WHITING MINING SERVICES INTERNATIONAL LTD.

REPORT ON VLF-EM AND MAGNETOMETER SURVEYS, LINE-CUTTING and TOPOGRAPHIC SURVEY.

RICHFIELD #1,#2, #3 and #4 , and CDF #1-#4 MINERAL CLAIMS, OMINECA M.D.

Latitude: 54°34'N; Longitude 126°14'W.
NTS 93 L / 9W & 9E.

Work Program Carried out by Whiting Mining Services International Ltd.

Work Done For: Cobre Exploration Ltd.

Author: F.B. Whiting, Geological Engineer, Ph.D., P.Eng.

Date of Work: September 21,1979 to February 16,1980.
Date of Report: February 16, 1980.

CLAIMS: Richfield #1: Record # 1780
Richfield #2: Record # 1781
Richfield #3: Record # 2050
Richfield #4: Record # 2051
CDF #1: Record # 1727
CDF #2: Record # 1728
CDF #3: Record # 1729
CDF #4: Record # 1730.

TABLE OF CONTENTS

ILLUSTRATIONS

A. INTRODUCTION

PROPERTY & LOCATION:

The Richfield #1, #2,#3,#4, and the CDF #1-#4 claims are situated 11 km north of Topley, B.C., in the Omineca Mining Division, NTS maps 93 L 9 E and 9 W, at coordinates 54°34' N Latitude, 126° 14-16' W Longitude. Access is by paved highway 10 km north from Topley, B.C. on the Topley-Granisle road, thence 3 km east-northeast by dirt road to the claims. The main showings are at an elevation of 1000 - 1100 metres.

HISTORY:

The above-enumerated claims cover an extensive area over and surrounding the old Topley Richfield gold-silver-zinc deposit, which was discovered in 1926-27 and explored by underground work on the 100- and 200-foot levels in the period 1927 - 1929. Further work was done in 1934-35. In 1954-57 the claims were optioned to Silver Standard Mines Ltd., which did surface and underground drilling, de-watered the workings, and re-sampled them. An E.M. survey is reported to have been made in 1967-68 by Seemar Mines Ltd. The property was optioned in 1975 by Canadian Superior Explorations Ltd., which had an Induced Polarization survey made, and drilled four drillholes. The ground was re-staked in early 1979 by F.B. Whiting. A working option was granted to Cobre Exploration Ltd., which provided funds for carrying out a variety of geophysical surveys in the period September-November, 1979.

WORK DONE:

Field work was carried out under the supervision of Whiting Mining Services International Ltd. Portions of the 1979 geophysical surveys were made by personnel of Whiting Mining Services International Ltd.

Work done in September-November 1979 consisted of a topographic survey by a B.C. Land Surveyor to establish a true-north Base Line 2,500 m long, tied in to the Legal Corner Post of the Richfield #1 & #2 M.Cs.; a magnetometer survey and a VLF-EM survey by personnel of Whiting Mining Services International Ltd and MIN-EX Services Ltd; and line-cutting on an extensive grid by the same two companies and by G. Auger Contracting.

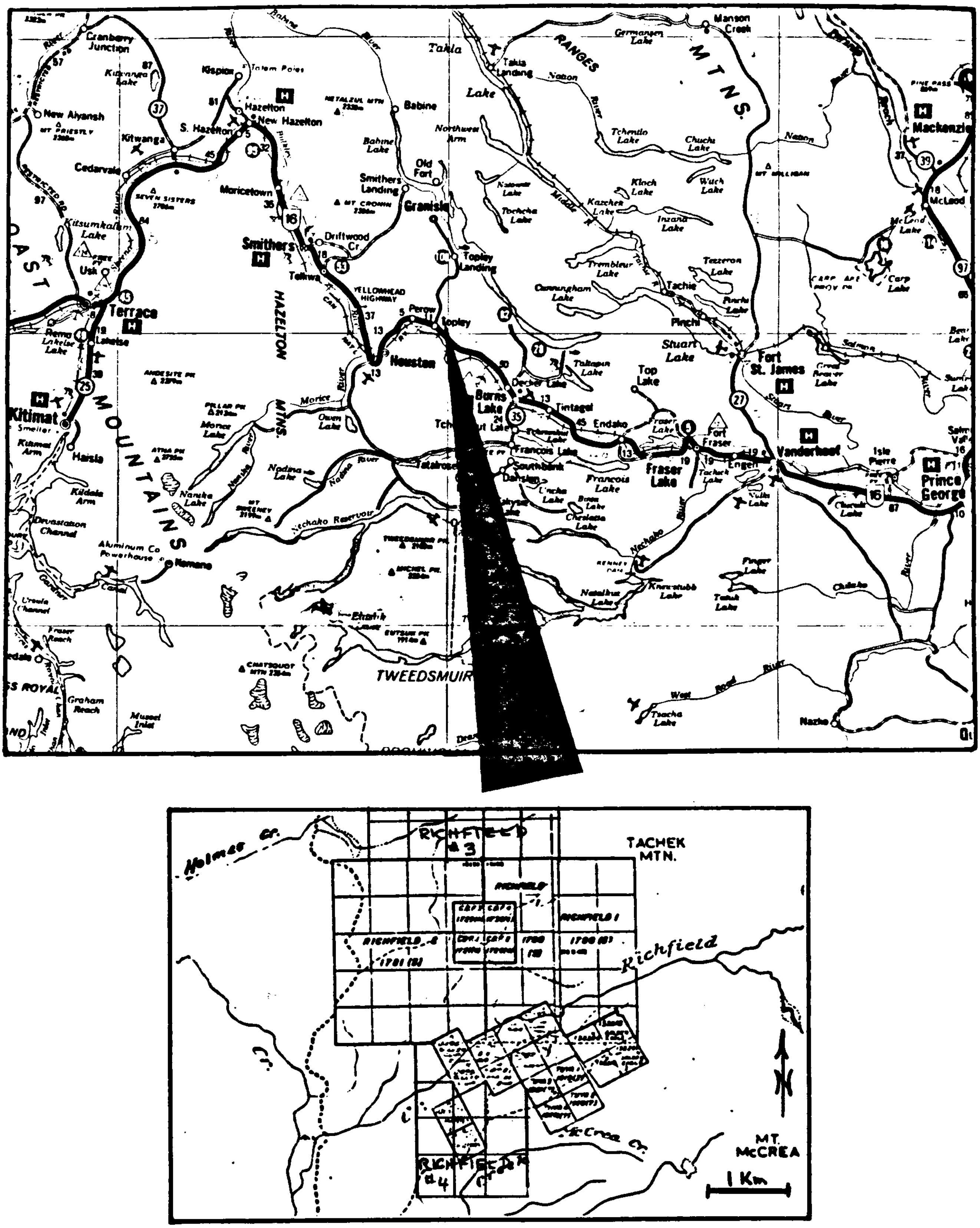
Work Summary: Work done from September 21 to November 8, 1979 in the field and office work followed intermittently to Feb.16/80.

a) Line-cutting, flagging, picketting..... 26.8 km.
b) Topographic survey by B.C.L.S. 2.5 km
c) Magnetometer survey 7.75 km
d) VLF-EM Survey 4.36 km

The work was done on the CDF #1,#2, #3, #4 M.C.s and on the Richfield #1 & Richfield #2 claims The CDF #2 claim has been grouped with the CDF#4 and the Richfield #1 & #3 claims as the Richfield "A" Group. The CDF #1 claim has been grouped with the CDF #3 and the Richfield #2 and #4 claims as the Richfield "B" Group. The amount of work done on each is given in the Cost Breakdown.

Economic Assessment:

The old mine workings contain a reserve of some 15,000 s.tons of ore grading about 0.2 oz. Gold / t., and 10 oz. Silver / t. Geophysical surveys indicate that the mineralized zone can be expected to extend north and south under covered areas for a strike length of at least 1500 m., offering the chance for finding larger reserves. A deep conductive mass 1050 m long, lying west of the old workings, may represent a large buried ore-body with gold, silver, zinc, and possibly copper and lead. Drilling has been recommended.



COBRE EXPLORATION
RICHFIELD PROPERTY
LOCATION AND CLAIMS MAP

Glen E. White
geophysical consulting
services Ltd.

FIG. 1

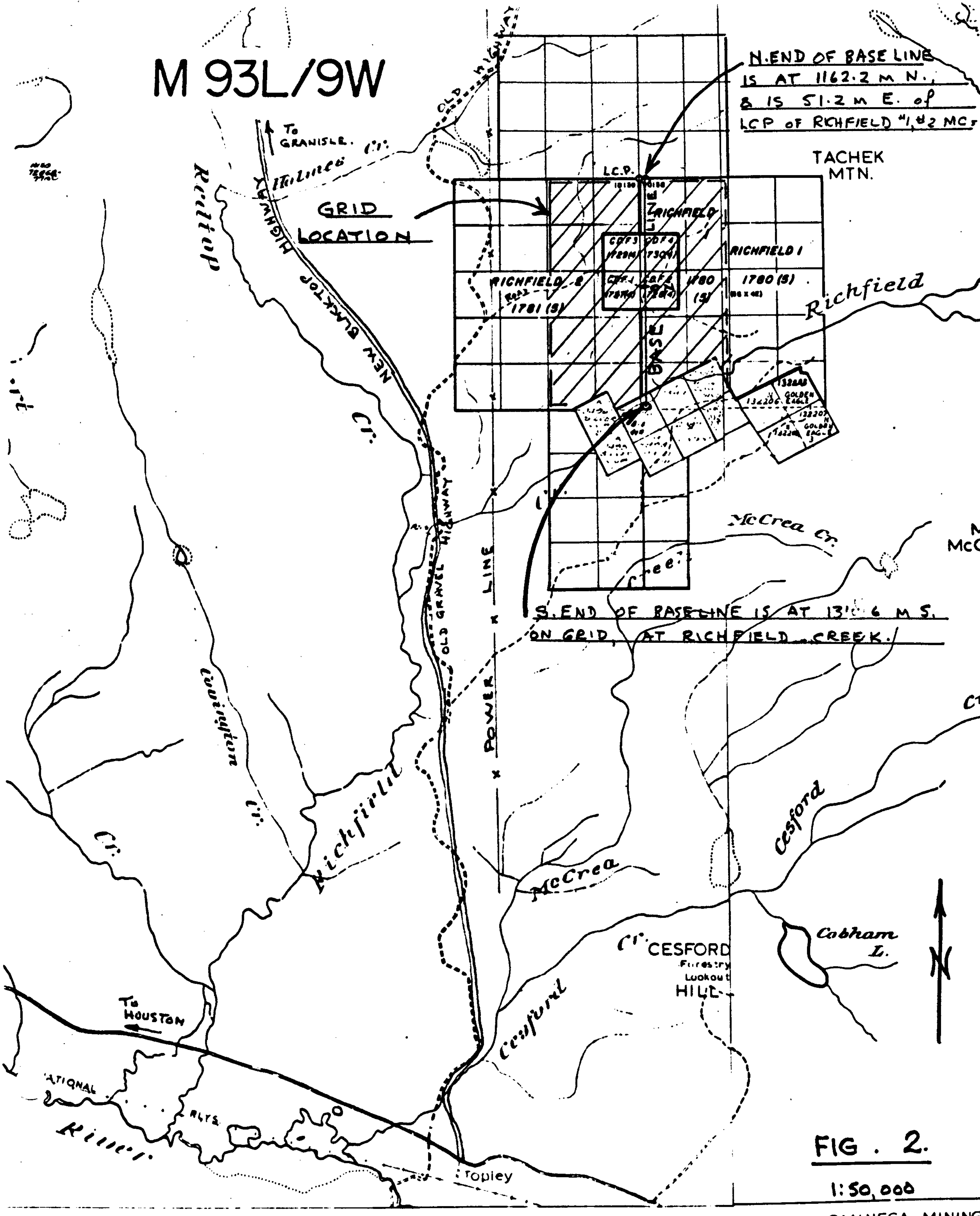

M 93L/9W
N. END OF BASE LINE IS AT 1162.2 M N., & IS 51.2 M E. of LCP OF RICHFIELD #1, #2 MCs
TACHEK MTN.
To GRANISLE.
Holmes Cr.
Redtop
GRID LOCATION
L.C.P.
OLD HIGHWAY
RICHFIELD
RICHFIELD 1
RICHFIELD 2
1781 (S)
1780
1780 (S)
Richfield
BASE LINE
GOLDEN EAGLE
NEW BLACKTOP HIGHWAY
Cr.
McCrea Cr.
Creek
POWER LINE
S. END OF BASE LINE IS AT 13'6 M S. ON GRID, AT RICHFIELD CREEK.
OLD GRAVEL HIGHWAY
Covington Cr.
Cr.
Richfield
McCrea
Cesford
CESFORD Forestry Lookout HILL
Cesford
Cobham L.
N
To HOUSTON
NATIONAL RLYS.
River
Topley

FIG. 2.

1:50,000

B. TECHNICAL DATA & INTERPRETATION

1. The magnetometer survey was carried out from October 26 to November 2, using a Phoenix Geophysics Fluxgate MV-1 magnetometer, which measures the vertical component of the earth's field. The instrument was set at a local Base Station, 0+00 N on the Base Line, to a value of + 40 gammas, so that all readings obtained are relative to that station. Repeated readings were taken at 50- and 100- m stations along the North-South Base Line in order to establish reliable values for the sub-basestations along that line. Certain fluctuations were observed, which appear to have been caused by magnetic storms. When any east-west line was to be run, the instrument was first read at the Base Station to determine the variation that day from the initial Base Value of + 40 gammas at that point. Proceeding along the Base Line to the grid line to be run, the value of the sub-basestation where the grid line crossed the Base Line was read. The line was then run east or west, after which the sub-basestation was read again; the instrument was then taken to the original Base Station for a final reading. Corrections for the diurnal changes were then applied to the daily readings.

The first magnetometer line was run taking readings every 6 or 12 metres, to determine the normal degrees of variation in the local field from point to point. It became apparent that readings at 25-m intervals were quite adequate to mark the boundaries of zones with contrasting magnetic intensity, and that spacing was used thereafter, except where unusually sharp differences were found between one station and the next, in which case an intermediate station at 12-m or 6-m spacing was read to confirm the change. Occasionally the magnetometer would show variations of 10-30 gammas while the reading was being taken - notes were made of such variable readings wherever they occurred.

Interpretation of Magnetic Data:

Control lines were run across areas of known sub-surface geology. This disclosed that the quartz-ankerite alteration zone within the Jurassic andesites had a notably low magnetic response, in the range of 0 to 100 gammas with the instrument set to a local base level. Over outcrops of andesite to the east, the local field increases to 200 - 500 gammas, and the edge of the alteration zone is clearly distinguishable. On running the other cross grid lines to the north and south, it was found that the magnetic low extends for a strike length of at least 1500 m; presumably, the alteration zone that hosts the gold-silver mineralization also extends for this length.

On the westward extensions of the grid lines, a western boundary for the alteration zone is marked by a definite, sharp rise in the magnetic intensity, which reaches to a level of 800 - 1100 gammas - the underlying rocks are probably somewhat more basis volcanics than those to the east.

One region of widely-varying magnetic intensity was located, from 550 - 825m W on Line 10+00 S. There, strong variations occur over short distances, with the readings going from +200 to -400 gammas in as little as 12 m horizontally. Exposures in a steep gully provide the explanation for these effects, as it was found that this area is underlain by flat-lying, recent volcanic flows. Such rocks typically show extreme magnetic variations from point to point.

2. The VLF-EM Survey was made using a Ronka EM-16 VLF-EM instrument, an electromagnetometer, using the Seattle transmitting station. Readings were taken on a selection of east-west grid lines, commonly at 12.5-metre separations. The In-phase data, Fraser-filtered by a 75 m window, is displayed on the accompanying plan.

Interpretation of EM-16 Survey:

The initial grid lines tested were chosen so as to cross areas where the sub-surface geology was known, being explored by the old mine workings on two underground levels and by several drillholes, as well as by stripping and winzing, in order to determine what geophysical response would be obtained over the known veins and ore-breccia layers.

It was found that most commonly a significant E.M.16 response was detectable over the narrow quartz-sulphide veins in the eastern portion of the claims, where such veins occur in flat-lying andesites, and are at or close to the present ground surface. Over the ore-breccia layers enclosed within the "topleyite" rock, actually a quartz-ankeritic replacement of the Jurassic andesites, the E.M.16 response was weak and diffuse.

The grid lines over the western portion of the claims, where drilling has shown the overburden to range in thickness up to over 30 metres, give indications of broad areas with no significant response, but within which there are, at sharply-defined localities, moderately-strong E.M.16 anomalies: these are probably caused by veins or faults, and each of them merits testing to identify its cause, particularly since the bedrock is interpreted to be covered by relatively thick overburden - hence any anomaly could indicate the presence of a potentially-important vein. Drilling is recommended to determine the cause of each such anomaly.

C. CONCLUSIONS & RECOMMENDATIONS

Conclusions reached from the magnetometer and VLF-EM surveys are :

1. The magnetic data indicate a definite "low" over the quartz-ankerite alteration zone that hosts the best-grade silver-gold-zinc mineralization. This low is indicated to extend north and south for a distance of at least 1500 m, and to have a width of 200 - 600 metres. At least eight holes should be drilled to explore the north and south extensions of the zone, with the holes angled down towards the east at angles of -50-65°. Suggested collar locations are at 250W on Line 250 N, 400W on Line 500N, 100W on Line 200S, At B.L. on Line 500S; with the remaining holes to be selected in accordance with results from those listed.

2. The VLF-EM data indicate that veins may occur under covered areas. Within the relatively small area covered by this initial E.M.16 survey, the one target that merits being identified is shown by strong anomalies at 300W-400W on Lines 50S-200S. At least one drillhole is recommended, headed east at -55° from a collar location at 350W on Line 150S.

3. The magnetometer grid should be extended at least 1000 m to the north, and 300 m to the south. Intermediate lines 100S, 200S, 300S, 400S, 600S, 700S should be run.

4. An extensive VLF-EM survey is recommended to cover the entire area of the claims, as a reconnaissance tool to discover targets under covered areas.

5. Where the targets appear to occur in areas where the over-burden is less than 4 m thick, trenching with a back-hoe is recommended. With deeper overburden, drilling is needed.

The foregoing report is respectfully submitted by:

Whiting Mining Services International Ltd.

F.B. Whiting P.Eng.
Geological Engineer.

D . COST BREAKDOWN

1. Topographic Survey By F.J. Howett, B.C. Land Surveyor

Item	Period Sept.24- Dec.21/79	Amount
Professional Services	Sept.24-Oct.4 @$75/d.	$ 350.00
Labour G. Williams, H.Wandt	" " @$50/d.	1582.50
Transportation		102.00
Misc. field expenses, power saw, stakes		17.50
Office calculation & plotting -	Dec. 10-15/79	503.00
Drafting	Dec. 16-20/79	50.00
Printing & Misc. clerical work	Dec. 21/79	22.00
TOTAL (Invoice dated Jan.9/80)...		$ 2627.00 *

2. Line-cutting by G.Auger Contracting

Contract Work, 18 line-km Oct.26-Nov.2/79
Invoice of Nov.2/79.....$ 4400.00 *

3. Mine-Ex Services Linecutting, VLF-EM Survey

M.J. Fitzgerald, P.Eng (Geologist)
7.75 days @ $ 180/day, Sept.24-30 & Oct.1/79 $ 1395.00

Expenses:	Air fare Smithers-Vancouver	75.00
	Meals & Accomodation Sept.24-Oct.1	278.75
TOTAL (Invoice dated Oct.14/79)...		$ 1748.75 *

4. Whiting Mining Services International Ltd: Linecutting, Supervision , VLF-EM Survey

F.B. Whiting P.Eng (Geol. Eng.) Sept.21-Oct.11/79: 17 days @ $180/day	$ 3060.00
Rental of Field Equipment,9days @$5.00/d.	45.00
Invoice of Oct.15: Sub-total	$ 3105.00 *
Vehicle rental 2124 mi. @ 30¢/ mi.	637.20
Office supplies, map copies	136.79
Equipment ; purchased & repairs to chain saw	159.28
Meals & Accomodation	639.59
Linecutters- contract - 4 persons K. Critch, K. Lemp, P. Dhountal,K.Logan 13 days total @$54/day	700.00
Expense Acct. of Oct.16/79 Sub-total..	$ 2272.86 *

SUB-TOTAL, This Page.....$ 14153.61
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COST BREAKDOWN Continued

	Amount
Sub-total from Previous Page.....	$ 14,153.61 *

5. Whiting Mining Services International Ltd. Magnetometer Survey & Supervision of Vector Pulse E.M. Survey

F.B. Whiting. P.Eng , Geol.Engr. Oct.21-Nov.15/79 16 days @ $180/day	$ 2,880.00
Rental of Field Equipment, 9 days @$5.00/d.	45.00
Invoice of Nov.16/79..Sub-total.....	$ 2,925.00 *
Vehicle rental Oct.21-Nov.6 2236 mi.@ 30¢	$ 670.80
Xeroxing , report binder, misc. office costs	215.32
Flagging	89.07
Meals and accomodation Oct.21-Nov.6	689.80
Expense Acct. of Nov.17 Sub-total.....	$ 1,664.99 *

6. Whiting Mining Services International Ltd. Preparation of Technical Report and Assessment Reports

F.B. Whiting P.Eng. Geol. Engr. Nov.22-30/79 and February 9-16/80 18 days @ $180.day	$ 3,240.00
Western Technical Supply: Map prints	226.45
Total.....	$ 3,466.45 *

OVERALL TOTAL.....$ 22,210.05

DISTRIBUTION OF WORK:

Of the above total , the amount spent on the RICHFIELD "A" Group was....$ 11,700.00 ; and the amount spent on the RICHFIELD "B" Group was.....$ 10,510.05 .

CERTIFIED CORRECT:

F.B. Whiting, P.Eng.

E. STATEMENT OF QUALIFICATIONS

NAME: WHITING, Francis B., P.Eng.

PROFESSION: Geological Engineer.

EDUCATION: B. App. Sci. in Geological Engineering, University of British Columbia.
M.Sc. in Geology, McGill University.
Ph.D. in Geology and Economics, Massachusetts Institute of Technology.

PROFESSIONAL ASSOCIATIONS:
Registered Professional Engineer, Province of British Columbia.
Registered Professional Engineer, Yukon Terr.
Member, Society of Economic Geologists.

EXPERIENCE:
Pre-graduate experience in Geology with Geological Survey of Canada and International Mining Corporation.
One and One-half years Field Geologist for Hedley Mascot Gold Mines, Placer Development, and New Jersey Zinc Explorations, in B.C.
Three years as Mine Geologist, Missouri, for St. Joseph Lead Co.
Six years as Chief Geologist, Aguilar Mine, for Compania Minera Aguilar, S.A., Argentina.
Seven years as Exploration Chief in Argentina for Compania Minera Aguilar S.A.
Five years as Exploration Manager, later General Manager, for Arrow Inter-America Corporation, in western and eastern Canada.
Three years as Regional Manager for Western North America for Brascan Resources Limited.
Three years as Consulting Geologist, as President of Whiting Mining Services International Ltd.
Active experience in Canada, U.S.A., Mexico, Honduras, Brazil, Chile, Peru, Argentina, Australia, Bolivia.

500 W | 400 W | 300 W | 200 W | 100 W | LEGAL CORNER POST at 1200N | BASE LINE | 100 E | 200 E | 300 E | 400 E

LINE 700 N

RICHFIELD Nº.2
4 UNITS WEST

RICHFIELD Nº. 1
4 UNITS EAST

LINE 600 N

LINE 500 N
to 1000 WEST

LINE 500 N
to 700 E

CDF #3 M.C.

CDF #4 M.C.

LINE 400 N

LINE 300 N

LINE 250 N

LINE 200 N

LINE 150 N

LINE 100 N
to 1000 WEST

LINE 100 N
to 1000 EAST

LINE 51 N

LINE 00 N

LINE 00 N
LINE 50S

LINE 100 S

LINE 150 S

LINE 200S

LINE 250 S

CDF #1

CDF #2

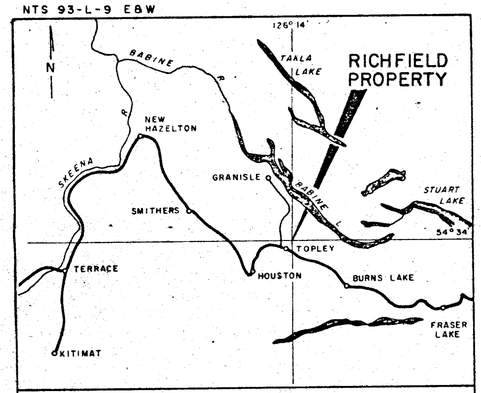
TRUE NORTH

MAG NORTH

26°

INSTRUMENT : RONKA EM-16
TRANSMISSION STATION : SEATTLE
READING TAKEN : FACING WEST
FRASER FILTER : 75 METRE AVERAGING WINDOW
FILTERED WEST to EAST

NTS 93-L-9 E&W



LOCATION MAP
SCALE 1:250,000

0 | 100 | 200 | 300
METRES

COBRE EXPLORATION LTD.
RICHFIELD PROPERTY
OMENICA MINING DIVISION

INPHASE – FRASER FILTERED (%)
C.I. = 20 %

INTERPRETED BY :	F.B.W.
DRAWN BY :	F.B.W.
CHECKED BY :	-
DATE :	Nov. 12 1979
FIG. No :	6

500 W | 400 W | 300 W | 200 W | 100 W | LEGAL CORNER POST at 1200N | BASE LINE | 100 E | 200 E | 300 E | 400 E

RICHFIELD Nº. 2 4 UNITS WEST

RICHFIELD Nº. 1 4 UNITS EAST

LINE 700 N

LINE 600 N

CDF #3 M.C.

CDF #4 M.C.

LINE 500 N to 1000 WEST

LINE 500 N to 700 E

PROBABLY TOPLEYITE

LINE 400 N

LINE 300 N

LINE 250 N

LINE 200 N

TOPLEYITE

LINE 150 N

LINE 100 N to 1000 EAST

LINE 100 N to 1000 WEST

LINE 51 N

LINE 00 N

BASE STATION SET AT 400 GAMMAS

LINE 00 N
LINE 50S

LINE 100 S

LINE 150 S

LINE 200S

CDF #1 M.C.

CDF #2 M.C.

LINE 250S

LINE 300 S

MAGNETIC LOW

LINE 400 S

LINE 500S to 2000 EAST

LINE 500S to 750 W

LINE 600S

LINE 700S

LINE 800S

LINE 900S

PROBABLY TOPLEYITE

JURASSIC VOLCANICS

LINE 1000 S to 1000 W

LINE 1000 S to 2000 EAST

MIOCENE VOLCANICS

LINE 1100 S

RICHFIELD Nº. 2 4 UNITS WEST

RICHFIELD Nº. 1 4 UNITS EAST

LINE 1300 S

500 W | 400 W | 300 W | 200 W | 100 W | BASE LINE | 100 E | 200 E | 300 E | 400 E

TRUE NORTH

MAG NORTH

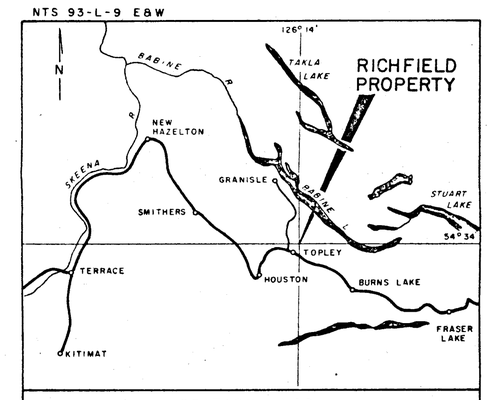
26°

+15 00
+10 00
+ 5.00
0
-5 00
-10 00
-15 00

MAGNETIC INTENSITY (GAMMAS)

INSTRUMENT: PHOENIX FLUXGATE MV-1
READINGS TAKEN FACING WEST

NTS 93-L-9 E&W



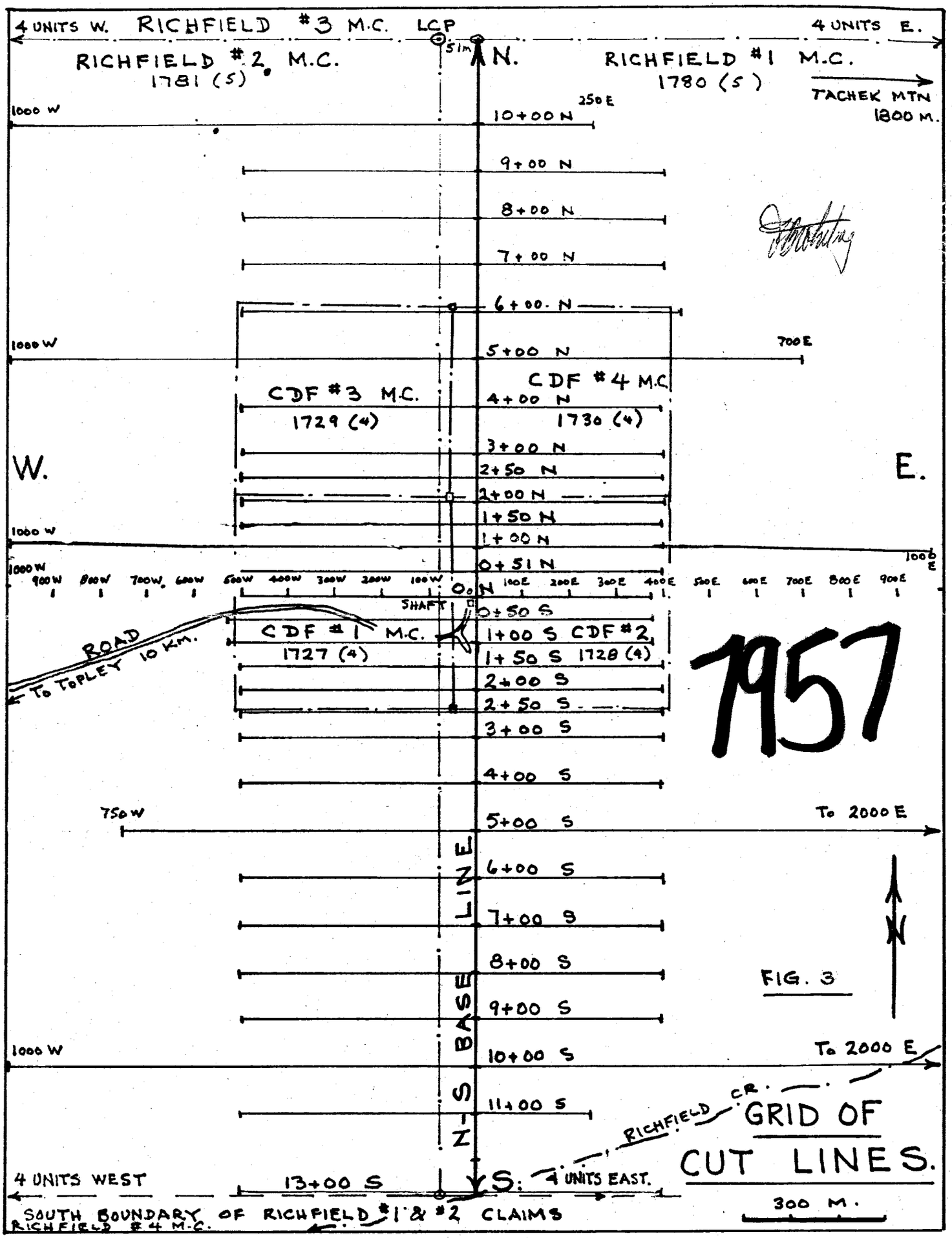
LOCATION MAP
SCALE 1:250,000

0 100 200 300
METRES

COBRE EXPLORATION LTD.
RICHFIELD PROPERTY
OMENICA MINING DIVISION

VERTICAL MAGNETIC INTENSITY (GAMMAS)

INTERPRETED BY:	F.G.W.
DRAWN BY:	F.G.W.
CHECKED BY:	-
DATE:	Nov. 15 1979.
FIG. No:	4.



1957

FIG. 3

GRID OF CUT LINES.

500 W | 400 W | 300 W | 200 W | 100 W | LEGAL CORNER POST at 1200N | BASE LINE | 100 E | 200 E | 300 E | 400E

RICHFIELD Nº.2 4 UNITS WEST

RICHFIELD Nº. 1 4 UNITS EAST

LINE 700 N

LINE 600 N

LINE 500 N to 700 E

LINE 400 N

LINE 300 N

LINE 250 N

LINE 200 N

LINE 150 N

LINE 100 N to 1000 WEST

LINE 100 N to 7000 EAST

LINE 51 N

LINE 00 N

LINE 00 N
LINE 50S

LINE 100

LINE 150 S

LINE 200S

LINE 250 S

CDF #3 M.C.

CDF #4

CDF #1

CDF #2

L.P. L.P.

F.P. F.P.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7957

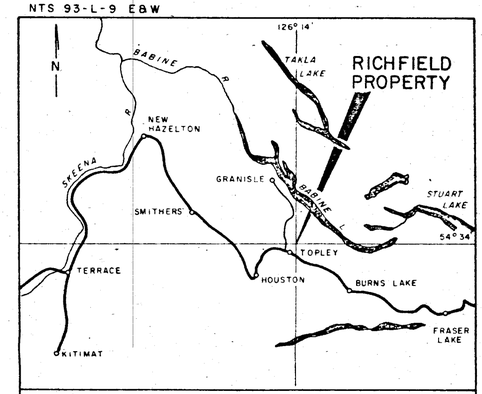
x——x——x INPHASE FRASER FILTER
·——·——· INPHASE
o---o---o QUADRATURE

INSTRUMENT RONKA EM-16
TRANSMISSION STATION: SEATTLE
READING TAKEN: FACING WEST
FRASER FILTER 75 METRE AVERAGING WINDOW
FILTERED WEST to EAST

TRUE NORTH
MAG NORTH
26°

+60%
+40
+20
0
-20
-40
-60%

NTS 93-L-9 E&W



LOCATION MAP
SCALE 1:250,000

0 100 200 300
METRES

COBRE EXPLORATION LTD.
RICHFIELD PROPERTY
OMENICA MINING DIVISION

VLF-EM PROFILES
INPHASE, QUADRATURE,
INPHASE (FRASER FILTERED)
(%)

INTERPRETED BY:	F.B.W.
DRAWN BY:	F.B.W.
CHECKED BY:	-
DATE:	Nov. 8 1979
FIG No:	5.