NTS 82M/12W

a.k.a. FOGHORN CLAIMS

823897

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL AND DIAMOND DRILLING REPORT

ON

BARRIER - 2189 PROJECT

FOGHORN MEN.

Kamloops Mining Division
NTS: 82M/12W
Latitude 50°32'N By Longitude 119°53'W

by

C. C. EVERETT AND W.G. COOPER

Owner: Barrier Reef Resources Ltd.
904-675 West Hastings St.
Vancouver, B.C.
V6N 1N2

Operator: Esso Resources Canada Limited
600-1281 West Georgia St.
Vancouver, B.C.
V6E 3J7

April 1, 1984

TABLE OF CONTENTS

Page

Page

LIST OF TABLES/FIGURES

Page

Tables

Figures

LIST OF FIGURES (contd.)

Page

MAPS

Summary

The Barrier Project is located ~100 km north-northeast of the City of Kamloops and 11 km south of the Town of Clearwater, B.C.

This report documents a detailed geological, geochemical, geophysical and diamond drilling exploration program as follow-up exploration of a 1979 Craigmont Mines Ltd. and Barrier Reef Resources Ltd. airborne EM/magnetics survey. The exploration target is volcanogenic massive sulphides in Mississippian-Devonian Eagle Bay Formation meta-volcanics and Permo-Triassic Fennell Formation basic volcanics and sediments.

Field work completed in 1983 comprised 1:2500 scale geological mapping; soil, silt, heavy mineral and rock geochemistry; HLEM, proton magnetics, induced polarization and gravity surveying; diamond drilling and re-logging of all previous 1980-1981 drill holes.

Results indicate two volcanogenic massive sulphide showings in Eagle Bay Formation felsic volcanics and one possible shale-hosted lead-zinc occurence in Lower Fennell Formation argillites. The volcanogenic targets are pyrite rich bodies with low base and precious metal values. The shale hosted lead-zinc (?) showing has anomalous base and precious metal values and warrants diamond drilling.

Recommendations

B-1 Grid

- No further work.

B-2 Grid

- Diamond drilling of HLEM conductors 5, 12, 16-24 and 27-30 (Section 2.4) and coincident soil geochemical anomalies B and C (Section 2.3).

B-3 Grid

- No further work.

B-4 Grid

- No further work.

B-5 Grid

- Geological mapping and soil geochemical sampling proximal to the galena bearing breccia zone, soil anomaly K, along lines 26+00N-28+00N:35+00W-36+00W.

B-6 Grid

- Diamond drilling of semi-massive sulphide horizon to test for an increase in base and/or precious metal values down dip.

B-7 Grid

- Proton magnetics.

B-8 Grid

- No further work.

B-9 Grid

- No further work.

Conclusions

The following conclusions are related to the three massive sulphide occurrences located in the 1983 exploration program. Detailed geological, geochemical and geophysical conclusions precede each section of the report.

1. B-2 Grid

Geochemical anomalies B and C and HLEM conductors 5, 12, 16-24 and 27-30 are associated with a lower Fennell Formation black argillite horizon. The showing is characterized by high Pb, Zn, Ag and moderate Cu-Au soil geochemical results and bedded barite and K-feldspar rich volcanic breccia horizons. A probable shale hosted lead-zinc type target is presumed for this showing. Diamond drilling is recommended for 1984.

2. B-5 Grid

Conductor 79 and geochemical anomaly H are associated with a narrow, 1-3 metre lensoidal massive pyrite body located at the base of a cherty rhyolitic tuff horizon. The massive sulphides contain only trace amounts of base metals and gold, and only minor amounts (to 1.0 oz/t Ag) of silver. This showing has been adequately drilled and does not warrant further exploration.

3. B-6 Grid

The B-6 grid showing is a gentle northwest dipping 1-10 metre thick semi-massive pyrite horizon containing minor amounts of chalcopyrite, galena, sphalerite, silver and gold. This horizon was tested with 2 drill holes in 1983. Gold values from drill core are signficantly lower than those obtained from oxidized surface samples. All other metal values were low. This showing has no near surface exploration potential. Potential exists for an increase in base and/or precious metal values down dip.

1.0 Introduction

1.1 Location and Access

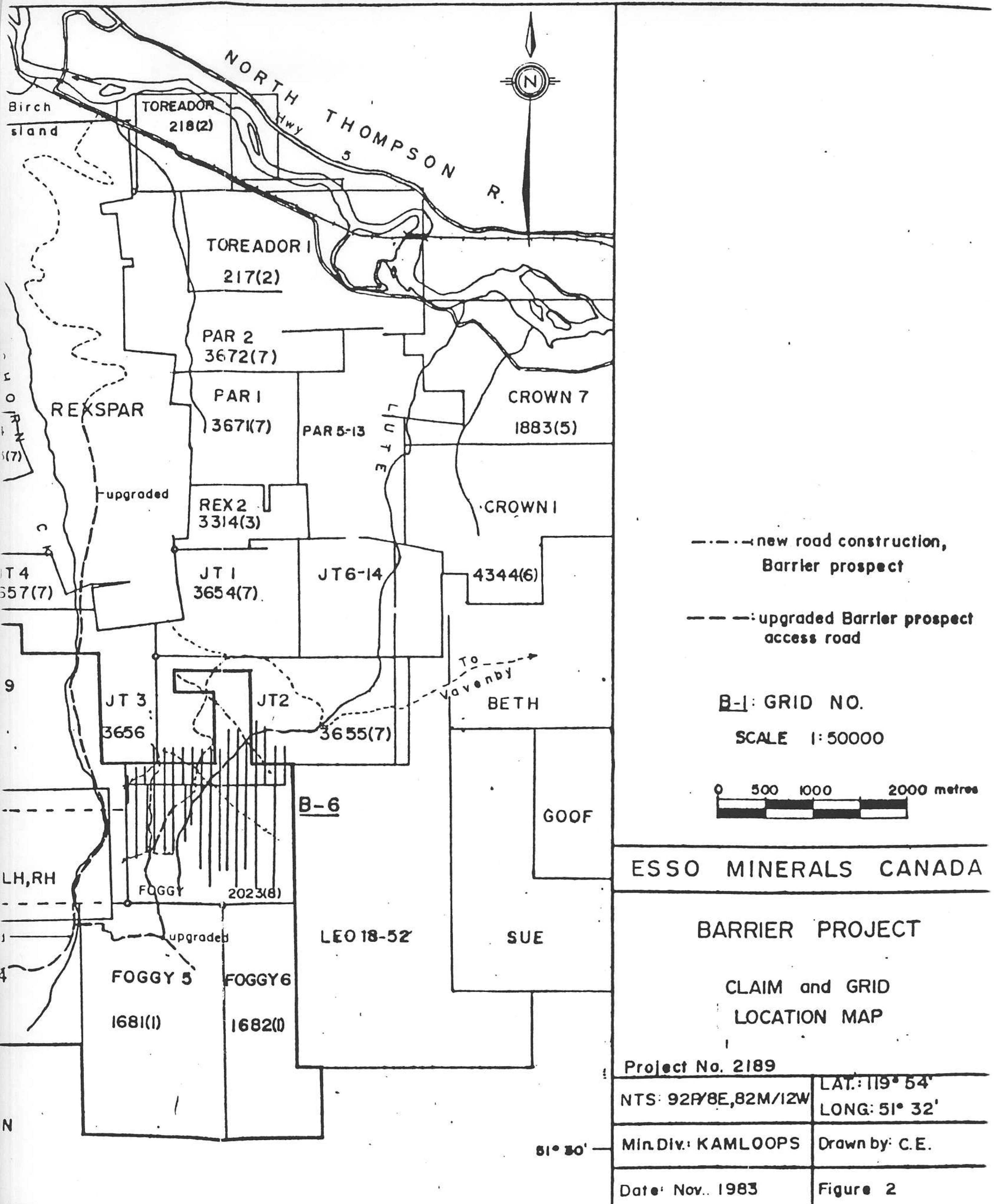
The Barrier prospect is located in south-central British Columbia ~100 km NNE of the city of Kamloops and 11 km south of the town of Clearwater. Approximate geographic center of the property is at $59^{0}32'$ north latitude and $119^{0}53'$ west longitude.

Access to the property is by four wheel drive vehicle: (a) 15 km east from Birch Island along the south side of the North Thompson River and thence 20 km south and west along the Jones Creek logging road, or (b) 20 km west and south from Clearwater along the south side of the North Thompson River and then 4 km northeast along a B.C. Hydro microwave tower access road, figure #2.

Terrain varies from steep heavily wooded slopes in the lower part of the claims to open alpine meadows at the highest topographic points. Elevations vary between 430 and 1980 metres.

1.2 Property

The Barrier Project land position is summarized below in Table #1. The property consists of 31 mineral claims aggregating 404 contiguous units. Years of assessment applied to each claim from exploration completed in 1983 are also listed.

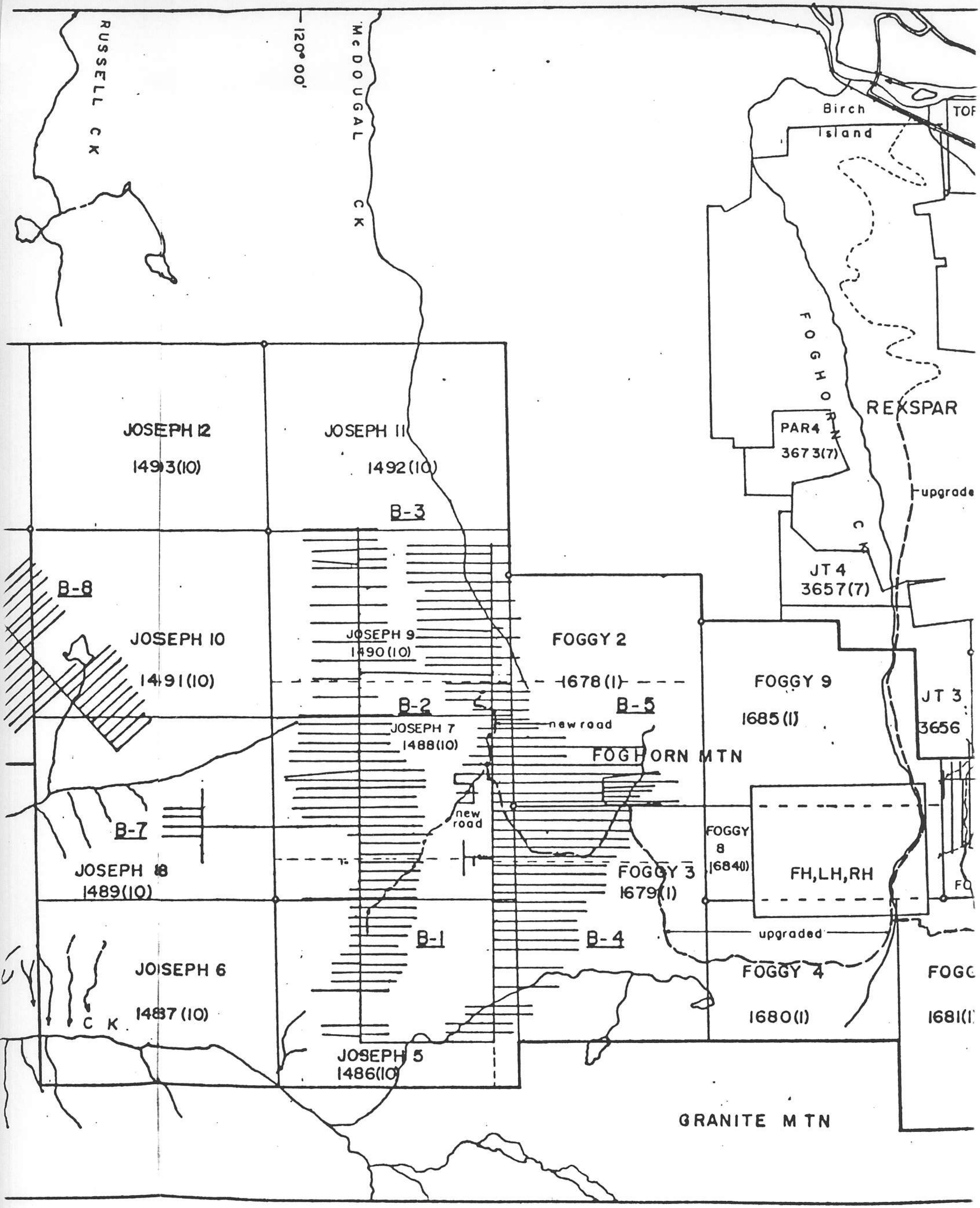


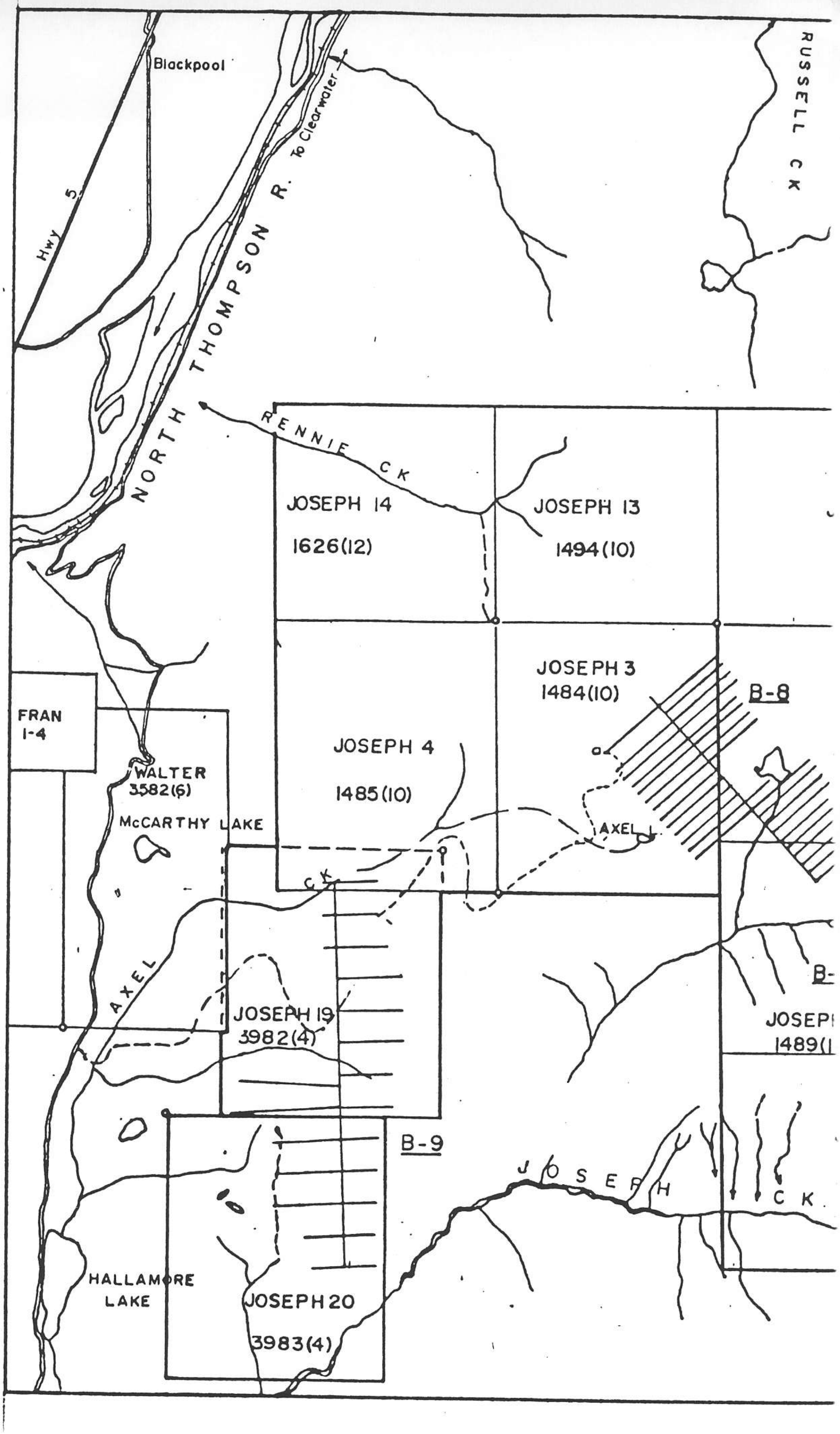
ESSO MINERALS CANADA

BARRIER PROJECT

CLAIM and GRID LOCATION MAP

Project No. 2189	
NTS: 92P/8E, 82M/12W	LAT.: 119° 54' LONG: 51° 32'
Min. Div.: KAMLOOPS	Drawn by: C.E.
Date: Nov. 1983	Figure 2


RUSSELL CK
120°00'
McDOUGAL CK
Birch Island
REXSPAR
FOGHORN CK
PAR4
3673(7)
upgrade
JT 4
3657(7)
JT 3
3656
JOSEPH 12
1493(10)
JOSEPH 11
1492(10)
B-3
B-8
JOSEPH 10
1491(10)
JOSEPH 9
1490(10)
FOGGY 2
1678(1)
FOGGY 9
1685(1)
B-2
B-5
JOSEPH 7
1488(10)
new road
FOGHORN MTN
B-7
new road
JOSEPH 18
1489(10)
FOGGY 8
1684(1)
FOGGY 3
1679(1)
FH, LH, RH
B-1
B-4
upgraded
JOSEPH 6
1487(10)
CK
FOGGY 4
1680(1)
JOSEPH 5
1486(10)
GRANITE MTN



Blackpool
To Clearwater
Hwy 5
NORTH THOMPSON R.
RUSSELL CK
RENNIE CK
JOSEPH 14
1626(12)
JOSEPH 13
1494(10)
JOSEPH 3
1484(10)
B-8
FRAN
1-4
JOSEPH 4
1485(10)
WALTER
3582(6)
McCARTHY LAKE
AXEL L.
CK
AXEL
JOSEPH 19
3982(4)
JOSEP
1489(1
B-9
JOSEPH CK.
HALLAMORE
LAKE
JOSEPH 20
3983(4)

(Table #1)

Land Record

Group	Claim	Units	Month of Record	Record #	Expiry Date	Assessment Years Appli·
A	Foggy 4	12	1	1680	Jan. 5, 1985	1
	Foggy 5	15	1	1681	Jan. 5, 1985	1
	Foggy 6	10	1	1682	Jan. 5, 1985	1
	Foggy 8	2	1	1684	Jan. 5, 1985	1
	Foggy 9	20	1	1685	Jan. 5, 1985	1
	Foggy 11	20	8	2023	Aug. 23, 1984	1
	Foggy 12	5	11	3071	Nov. 13, 1986	1
B	Foggy 2	20	1	1678	Jan. 5, 1987	2
	Foggy 3	20	11	1679	Jan. 5, 1987	2
	FH-1	1	11	3096	Nov. 20, 1987	3
	FH-2	1	11	3097	Nov. 20, 1987	3
	FH-3	1	11	3098	Nov. 20, 1987	3
	FH-4	1	11	3099	Nov. 20, 1987	3
	FH-5	1	11	3100	Nov. 20, 1987	3
	FH-6	1	11	3101	Nov. 20, 1987	3
	FH-7	1	11	3102	Nov. 20, 1987	3
	FH-8	1	11	3103	Nov. 20, 1987	3
C	Joseph 11	20	10	1492	Oct. 26, 1984	1
	Joseph 12	20	10	1493	Oct. 26, 1984	1
	Joseph 13	16	10	1494	Oct. 26, 1984	1
	Joseph 14	16	12	1626	Dec. 13, 1984	1
D	Joseph 3	20	10	1484	Oct. 26, 1984	1
	Joseph 4	20	10	1485	Oct. 26, 1984	1
	Joseph 9	20	10	1490	Oct. 26, 1984	1
	Joseph 10	20	10	1491	Oct. 26, 1984	1
E	Joseph 5	20	10	1486	Oct. 26, 1984	1
	Joseph 6	20	10	1487	Oct. 26, 1984	1
	Joseph 7	20	10	1488	Oct. 26, 1984	1
	Joseph 8	20	10	1489	Oct. 26, 1984	1
F	Joseph 19	20	4	3982	April 13, 1985	1
	Joseph 20	20	4	3983	April 13, 1985	1

1.3 History of Property

The Barrier prospect has received spurts of exploration activity since the early 1900's. In 1913 the Fennell family of Barriere drove a crosscut tunnel to intersect 4 narrow galena bearing quartz veins on the "Foghorn" showing. Additional development work in 1915 included a 200' crosscut adit, 40' vertical shaft, 40' drift and 2 open surface cuts. Three 6-12" wide fissures containing galena, sphalerite and pyrite were exposed. A representative sample assayed: gold trace, silver 16 oz, lead 16.7%, copper 6.6%, zinc 16.5% and iron 17.5%. Two carloads of ore, approximately 75 tons, were shipped in 1916, bringing a net return of ~$3500.00.

In 1958 the prospect was optioned to Rexspar Uranium and Metals Co. An 11.2 km access road was constructed from the Rexspar camp to Foghorn Mountain. Radiometric surveys were carried out over a wide area. Self potential, electromagnetic and soil geochemical surveys were conducted over the showing. The best anomalies were tested with extensive bulldozer trenching. Craigmont Mines Ltd. drilled one hole below the old underground workings in 1980. The veins received no further work until 1983.

Several other vein-type showings (Chingren Property) were discovered in 1924, 0.6 km north of the Foghorn showings. These veins have only been developed by a number of deep trenches.

The district east of the Foghorn vein system has also seen extensive exploration activity. The "Lydia" showing, a stratiform copper showing, has been explored by Imperial Oil Enterprises Limited, Noranda and Barrier Reef Resources Ltd. over the last 15 years. The earliest recorded work was the driving of 2 adits on the surface showings between 1915 and 1918.

The Rexspar deposit, approximately 4 km to the northwest, and the Harper Creek copper deposit, approximately 8 km to the east, are the most notable discoveries from the early 1950's to the late 1970's. The discovery of the Chu Chua Mountain massive suphide deposit (1978) to the southwest has re-focused exploration attention in the Clearwater-Barrier district.

In the spring of 1979, Dighem II airborne electromagnetic, resistivity and magnetics surveys by both Craigmont Mines Ltd. and Barrier Reef Resources Limited were flown over Foghorn Mountain. Several bands of conductors, magnetic highs and resistivity lows were delineated. In 1980 and 1981 Craigmont and Barrier Reef initiated ground follow-up geophysical and soil geochemical surveys to cover the airborne anomalies. The attractive exploration targets were drilled. Esso Resources Canada Limited optioned the entire property in 1982.

1.4 Regional Geology

The regional geology of the Barrier prospect is taken from Paper 1982-1, B.C.D.M. Geological Fieldwork 1981, Clearwater

BARRIER PROJECT
REGIONAL GEOLOGY MAP

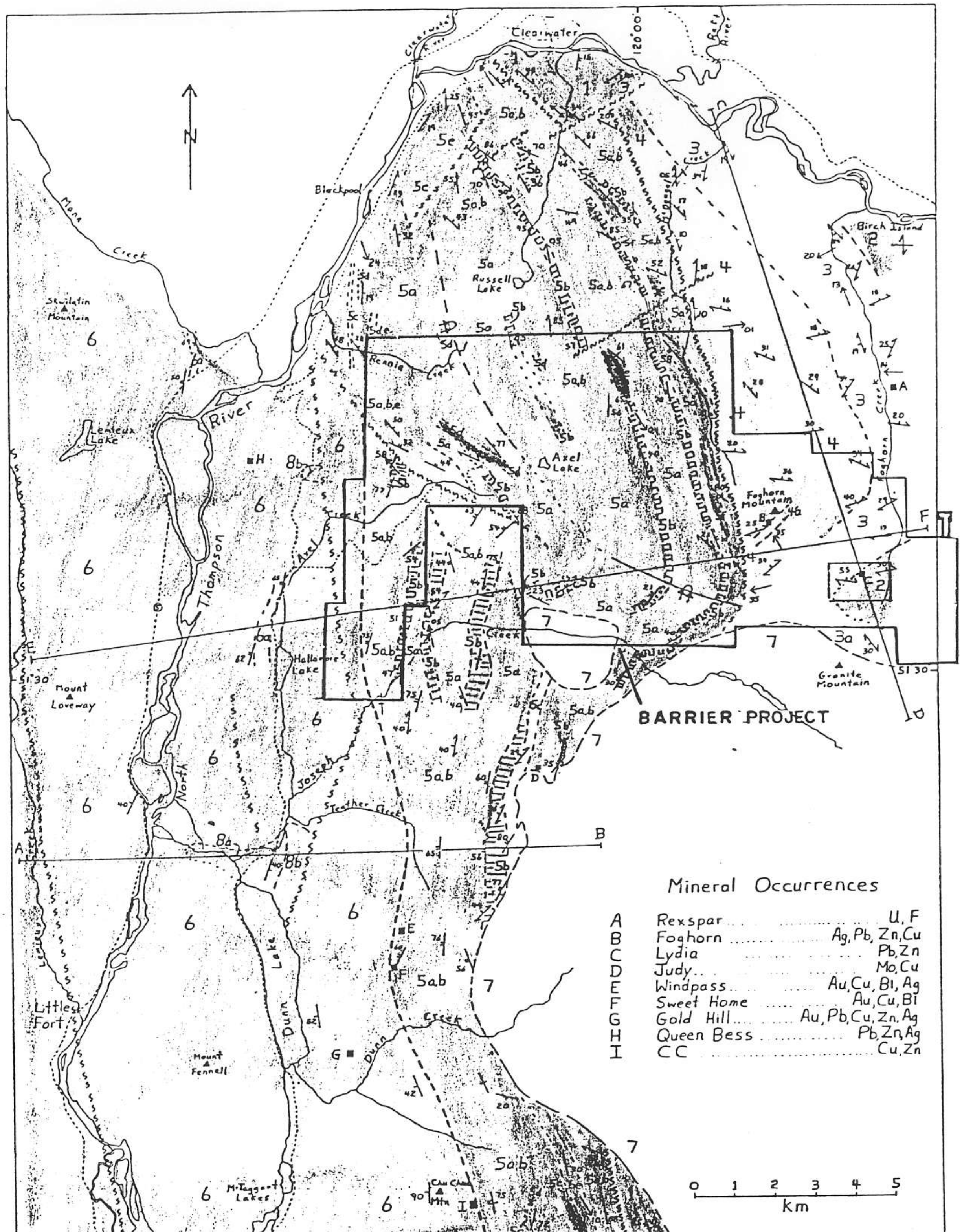


Figure 3. Generalized geological map of the Clearwater-Chu Chua area.

LEGEND (See figure 3)

EOCENE AND LATER (?)

8 (b) Skull Hill Formation: vesicular andesite

(a) Chu Chua Formation: conglomerate, sandstone, shale

CRETACEOUS

7 Biotite quartz monzonite of Baldy Batholith and Joseph Creek stock

UPPER PALEOZOIC

FENNELL FORMATION

PERMO-TRIASSIC

6 Upper Fennell Formation: pillowed and massive greenstone, minor chert

6a: bedded chert

5 Lower Fennell Formation

(f) limestone

(e) sandstone, argillite, phyllite

(d) conglomerate

(c) quartz feldspar porphyry

(b) bedded chert

(a) greenstone

FAULT CONTACT?∿∿∿?

Eagle Bay Formation

MISSISSIPPIAN

4 Rusty weathering, greenish grey, feldspathic chlorite-sericite schist

4a: quartzite

3 Quartz-sericite schist with interbedded dark grey phyllite; minor chlorite schist, platy sericitic quartzite, and trachyte

3a: biotite-quartz gneiss, amphibolite, pelitic hornfels

2 Chlorite schist, minor grey phyllite and limestone

1 Black phyllite with interbedded siltstone, sandstone, and grit

Symbols

Bedding: tops known, overturned; tops not known ....

Schistosity: inclined; horizontal ....

Early mesoscopic fold axis ....

Late mesoscopic fold axis ....

Inferred fault ....

Early synclinal axial trace, overturned ....

Geological contact ....

Mineral occurrence .... ■

Figure 4

Area, by P. Schiarizza. Figure 3 is a generalized geological map of the Clearwater-Chu Chua area. Vertical cross-sections to accompany figure #3 are shown on figure 5.

East of the Foghorn showings, the property is underlain by rusty weathering greenish-grey feldspathic chlorite schists, chlorite schists, sericite schists, quartz sericite schists and sericitic quartzites of the Eagle Bay Formation. These units comprise a relatively flat lying plate, occurring as a gentle north plunging synform.

West of the Foghorn showings the property is underlain by rocks of the Lower and Upper Fennell Formation. The Lower Fennell Formation consists of (5a) aphanitic to very coarse grained basalt with both extrusive and intrusive phases, (5b) chert and cherty mudstone, (5c) quartz-feldspar porphyry, (5d) conglomerate, (5e) sandstone, argillite and phyllite, and (5f) partly crystalline limestone. The Upper Fennell Formation consists mainly of aphanitic to fine grained pillowed basalts with minor discontinuous pods of chert.

Although it is not exposed, the contact between the Lower and Upper Fennell appears to be stratigraphic rather than tectonic.

Unit 7, the Middle Cretaceous Baldy Batholith occupies the southeast corner of the map area. Coarse grained biotite quartz monzonite comprises much of the batholith. A small body of similar rock ootcrops in the Joseph Creek valley to the northwest.

A westerly overturned syncline in the Lower Fennell Formation is the dominant structure between Joseph Creek and

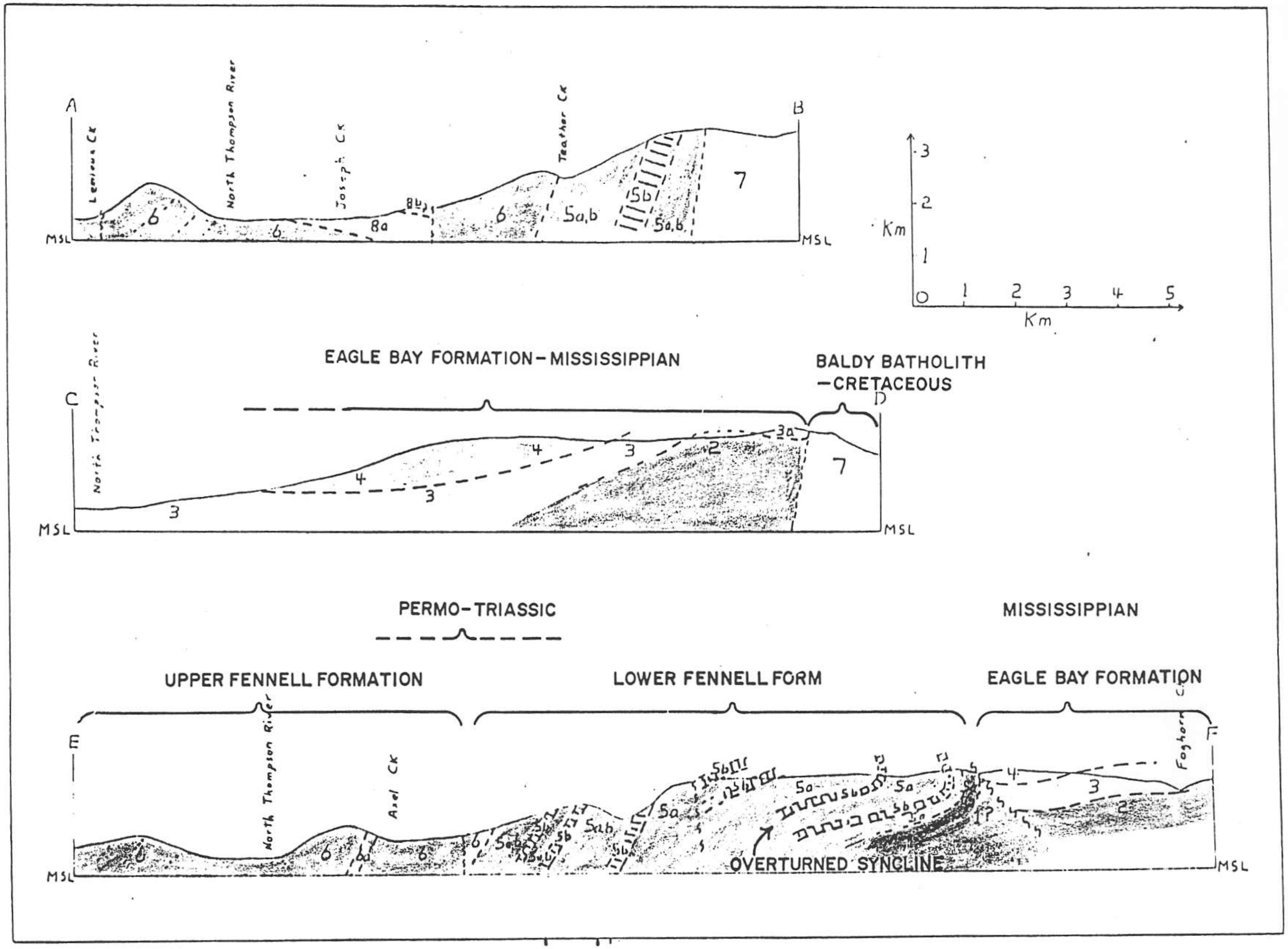


Figure . Vertical cross-sections to accompany Figure 5.

Clearwater. It plunges shallowly towards the north-northwest. There appears to be a slight flexure in the axial trace from the northeast to the north.

West of the Baldy Batholith, the Fennell Formation comprises a west-dipping and facing homocline. The homocline may be an antiformal deflection of the western upright limb of the syncline.

The Eagle Bay Formation stratigraphy appears to be discordant with the adjacent Fennell Formation. The contact is presumed to be an east-dipping thrust fault that post-dates the Fennell Formation syncline.

1.5 Details of 1983 Program

Field work completed on the Barrier prospect in 1983 comprised 1:2500 scale geological mapping, soil/silt/heavy mineral and rock geochemistry, HLEM/proton magnetics/induced polarization and gravity surveying, diamond drilling and re-logging of previous 1980-1981 drill holes. Table #2 summarizes the field work as per B-1 to B-9 grids.

Results are plotted at a 1:2500 scale. Soil samples are taken at both 25 and 50 metre intervals, depending on underlying geology and expected target size. C horizon samples were taken over mineralized showings and where overburden was estimated to be in excess of 5-10 metres. Geochemical sampling methods are described in detail in Appendix D.

(Table #2)

1983 Work Summary

Grid	km Linecutting	Geological Mapping (km2)	Geochemistry	Diamond Drilling	HLEM	Proton Mag	I.P.	Gravity
B-1	3.5 km picket 13.7 flagged	2.0 km^2	82 soils 8 silts 5 rock	--	11.2 km	7.4 km	--	--
B-2	2.0 km picket 23.8 km flagged	3.6 km^2	214 soils 14 silts 1 heavy 8 rock 2 thin section	--	14.4 km	11.0 km	--	--
B-3	4.6 km picket 20.3 km flagged	3.9 km^2	214 soils 10 silts 2 heavies 4 rock 2 thin section	--	14.4 km	11.0 km	--	--
B-4	2.0 km picket 13.0 km flagged	1.8 km^2	246 soils 14 silts 5 heavies 8 rock 7 thin section	--	11.2 km	13.0 km	--	--
B-5	11.8 km picket 16.0 flagged	2.4 km^2	450 soils 16 silts 3 heavies 22 rock 11 assay 10 thin section	(1983) 224.0 m (1980-81) (relog) 1527.3 m	12.9 km	13.0 km	9.1 km	4.2 km

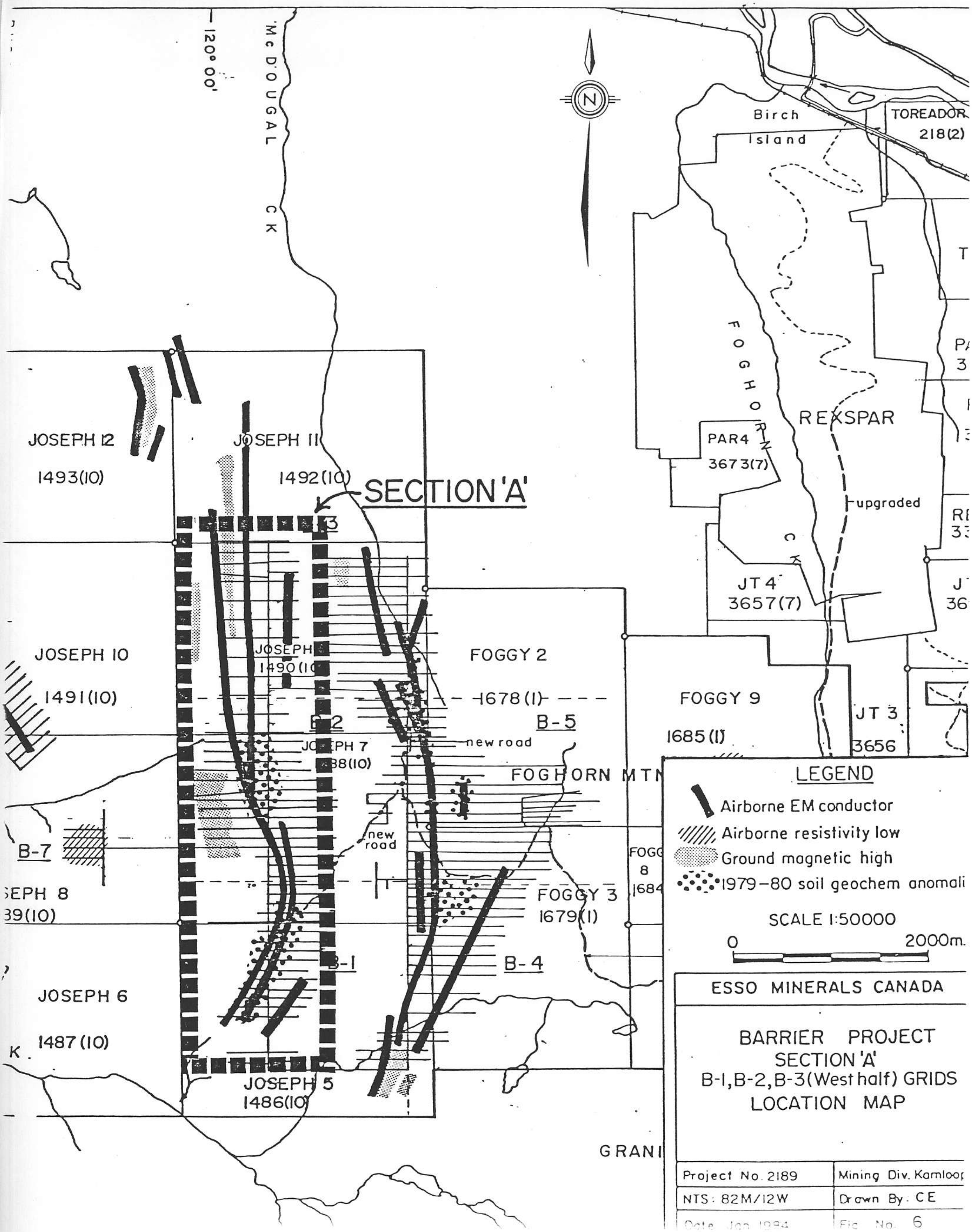
(Table #2 contd.)

1983 Work Summary

Grid	km Linecutting	Geological Mapping (km2)	Geochemistry	Diamond Drilling	HLEM	Proton Mag	I.P.	Gravity
B-6	10.6 km picket 11.0 km flagged	2.4 km^2	290 soils 25 silts 4 heavies 39 rock 6 thin section 2 polish. sect.	(1983) 267.1 m	17.7 km	11.7 km	8.9 km	--
B-7	2.1 km flagged	.15 km^2	28 soils 13 silts 1 heavy 1 rock	--	1.4 km	--	--	--
B-8	2.3 km picket 20.8 km flagged	2.4 km^2	142 soils 2 silts 7 rock	--	12.5 km	9.9 km	--	--
B-9	13.9 flagged	2.3 km^2	223 soils 5 silts 1 heavy	--	--	--	--	--
TOTAL	36.8 km picket 134.6 km flagged	21.0 km^2	1846 soils 107 silts 17 heavies 94 rock 11 assay 27 thin section 2 polish section	(1983) 491.1 m (1980-81 relog) 1527.3 m	95.7 km	80.6 km	18.0 km	4.2 km

The HLEM survey was carried out with a Scintrex SE88 Genie EM system, using a coil spacing of 100 metres and transmitting frequency ratios of 3037.5 HZ/112.5 HZ, 1012.5 HZ/112.5 HZ and 337.5 HZ/112.5 HZ. The magnetometer survey was carried out with a Geometrics G816 proton precession magnetometer. Induced polarization equipment comprised a Scintrex IPR-10A receiver and a Scintrex TSQ-2E transmitter using a 50 metre dipole-dipole array and t=2 seconds integration time. The gravity survey was completed with a Lacoste-Rhomberg gravity meter.

Access to the property was improved by 18.5 km of old road upgrading and 4.0 km of new road construction. Improved road sections are shown on figure #2.


120° 00'
McDOUGAL CK
N
Birch Island
TOREADOR
218(2)
FOGHORN CK
REXSPAR
PAR4
3673(7)
upgraded
JT 4
3657(7)
JOSEPH 12
1493(10)
JOSEPH 11
1492(10)
SECTION 'A'
B-3
JOSEPH 10
1491(10)
FOGGY 2
1678(1)
FOGGY 9
1685(1)
JT 3
3656
B-2
B-5
new road
FOGHORN MTN
B-7
new road
FOGGY 3
1679(1)
B-1
B-4
JOSEPH 6
1487(10)
JOSEPH 5
1486(10)
GRANI
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979–80 soil geochem anomali
SCALE 1:50000
0
2000m.
ESSO MINERALS CANADA
BARRIER PROJECT
SECTION 'A'
B-1, B-2, B-3 (West half) GRIDS
LOCATION MAP
Project No. 2189
Mining Div. Kamloop
NTS: 82M/12W
Drawn By: CE
Fig. No. 6

2.0 Section A: B-1, B-2, B-3 (West Half) Grids

2.1 Recommendations

(B-1 Grid)

- No further work

(B-2 Grid)

- Diamond drilling of the sedimentary horizon with coincident soil geochemical Anomaly B and HLEM conductors 5, 12 and 16-24. Proposed drill targets are as follows:

Hole	Horizon	Azimuth	Dip	Length
#1	28+10N:68+40W	090°	-45°	85 m
#2	30+05N:69+20W	090°	-45°	80 m
				165 m

(B-3 Grid: West Half)

- No further work.

2.2 Conclusions

- Soil geochemical anomalies A, B and C appear to be sourced by the same chert-argillite horizon. The sedimentary belt becomes enriched in base and precious metals from south to north, but decreases laterally from east to west as the horizon grades from argillite to predominantly chert.

- Lower Fennell Formation chert-argillite horizons have anomalously high Ag contents.

- Characteristics of the base and precious metal showing extending through the B-2 Grid suggest a similarity to shale hosted lead-zinc type deposits. However, the relationship of the K-feldspar rich volcanic breccias, copper and gold geochemical anomalies in soils, and extreme silicification/sericitization/pyritization of the surrounding basalts is not understood at this time.

- The B-2 grid base and precious metal showing appears stratabound.

- Previous drilling by Craigmont Mines Ltd. in 1980 did not adequately test the B-2 Grid showing.

- The true width of soil anomaly B is 50-100 metres. The exaggeration of the anomaly width appears to be caused by the hydromorphic dispersion of metals by groundwater.

- All of the HLEM conductors are graphite sourced. Conductors 5, 12, 16-24, and 27-30 also have base and precious metals associated.

- Anomalous magnetic features are caused by magnetite and pyrrhotite in basalt.

2.0 Section A: B-1, B-2 B-3 (West Half) Grids

2.3 Introduction

The 1983 property work is divided into 9 gridded areas to facilitate the presentation of data. Sections 2.0 and 3.0 cover more than one grid because of geological continuity from map sheet to map sheet.

This portion of the report covers the B-1, B-2 and B-3 (West Half) Grids. The objective of the exploration program was to follow up on a linear band of airborne EM and magnetics anomalies, figure #6. In 1979 Craigmont Mines Limited completed a reconnaissance soil geochemical survey in the area, outlining 3 areas with moderately anomalous Cu, Pb, Zn and Ag values. One of the anomalies (B-2 Grid) was tested with 3 short drill holes.

All previous exploration data has been compiled and relocated in the field. The 1983 soil geochemical survey covers all of the ground HLEM conductors and any geological units considered as favourable massive sulphide hosts.

2.4 Geology

The B-1, B-2 and B-3 grids are underlain by Permo-Triassic Lower Fennell Formation basalt, chert, cherty siltstone and argillite. The units are transected by two major 050-070^{o}

trending and presumed vertically dipping cross faults with both lateral and normal fault movement. Each segmented fault block has a slightly different stratigraphic section and structural control. The following sub-sections cover geology from:

Sub-Section 2.4.1	L0+00-3+00N
Sub-Section 2.4.2	L3+00N-36+00N
Sub-Section 2.4.3	L36+00N-56+00N

2.4.1 (L0+00N-3+00N)

Figure #7 is a vertical east-west cross-section along line 2+00N:74+00W-57+00W showing the geological section south of the #1 Cross Fault. This portion of the property is underlain by a gentle to moderate west dipping sequence (from west to east) of graphitic argillite, tan pyrrhotite bearing chert, light green basalt, porphyritic basalt, green chert, porphyritic basalt, aplitic basalt and chert-argillite. There appears to be a subtle flattening of dip to the west. Graded bedding attitudes from the green chert horizon, 63+50-62+00W, shows this section to be overturned. The HLEM conductors in this area are caused by graphitic argillite.

2.4.2 (L3+00N-36+00N)

Section 2.4.2 covers the area bounded by the #1 Cross Fault to the south and the #2 Cross Fault to the north. Figures 8-14

SECTION 2.0: B-1, B-2, B-3(West Half) GRIDS
VERTICAL EAST WEST CROSS SECTIONS

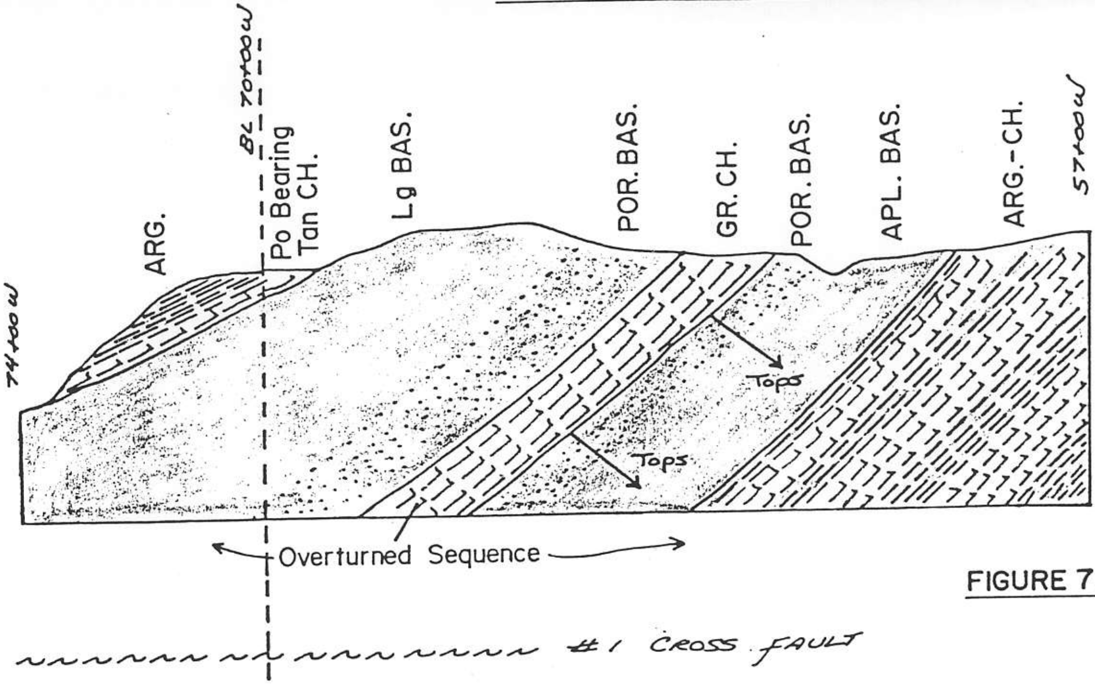


FIGURE 7: L2+00 N

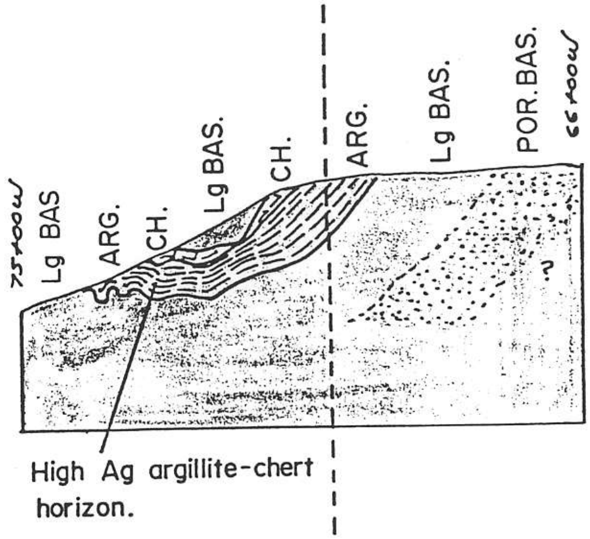


FIGURE 8: L6+00 N

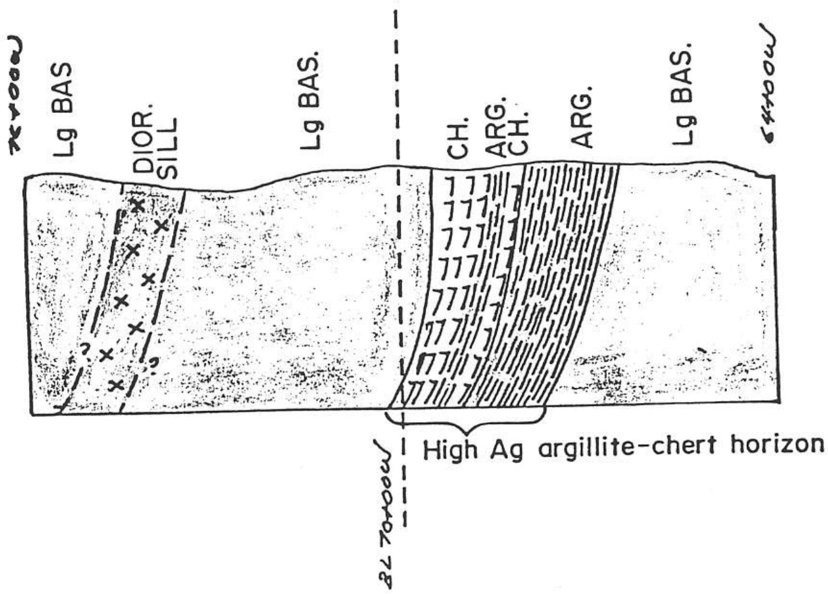


FIGURE 9: L16+00 N

are vertical east-west cross sections showing the variable attitude of the one prominent sedimentary horizon. Unit trends are extrapolated from both the geological and geophysical data.

This portion of the property is underlain by Lower Fennell Formation basic volcanics and sediments. Light green, structureless, aphanitic basalt make up most of the mapped area. An arcuate band of graphitic argillite and white-tan chert splits the basaltic horizon and is the source of the ground HLEM conductors and soil geochemical anomalies A, B and C; section 2.5, 2.6.

This horizon is considered of economic importance because of its tendency to increase in base and precious metal content to the north. Its natural recessive nature made it difficult to obtain good structural data in the field. General unit trends are extrapolated from the HLEM data. As shown on maps 29 and 30, the multiplicity and lack of continuity between conductors suggests that more complex folding and sedimentary facies changes are probable.

Along line 6+00N, figure #9, the sedimentary unit comprises black graphitic argillite capped by a thin 5-30 metre chert bed. Tight minor folding is common but the dominant structure appears to be a gentle northeast, 011^{o} plunging, syncline.

From line 6+00N-20+00N the apparent syncline is progressively deflected to the east, appearing subvertically dipping and bounded by light green basalt. There is thickening of the cherty sediments to this point; figures 9 and 10.

EAST-WEST CROSS SECTIONS

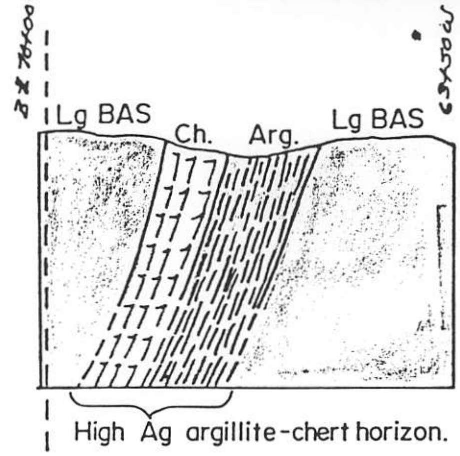


FIGURE 10: L20+00N

[*NOTE: Bedding tops are not known from L 3+00N to L56+00 N.]

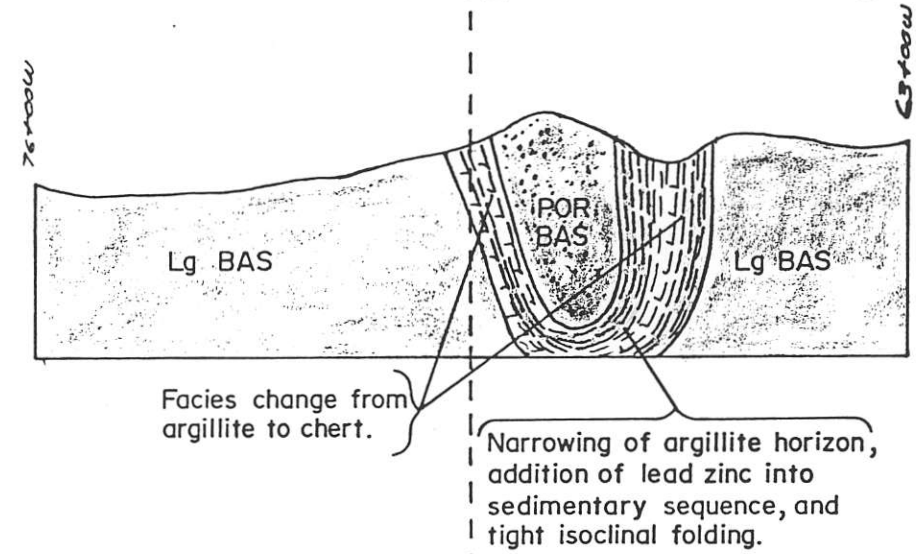


FIGURE 11: L24+00

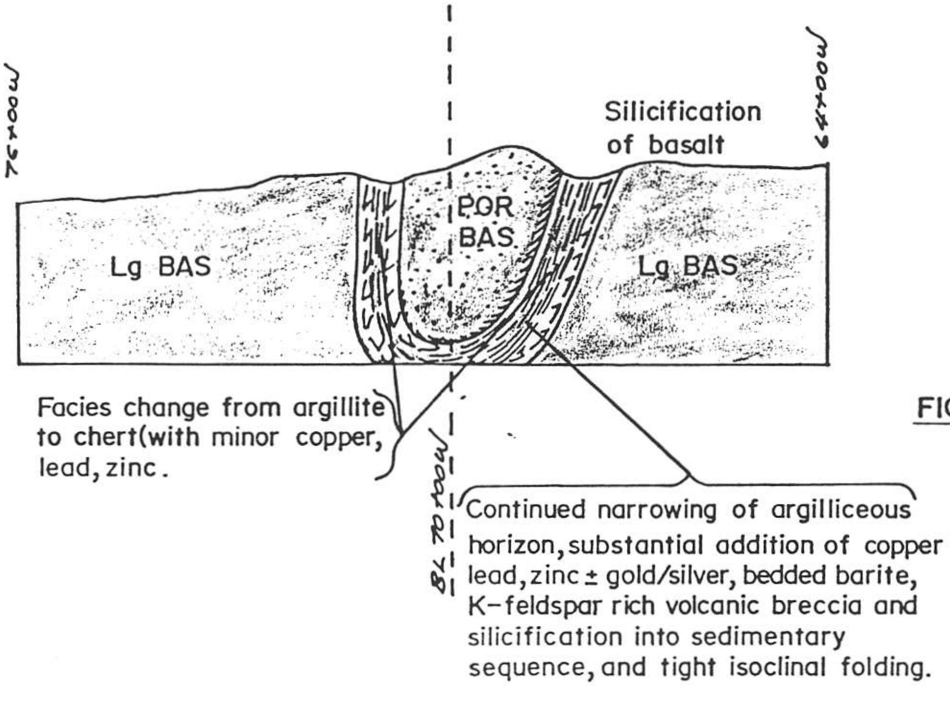


FIGURE 12: L28+00 N

0 200m

SECTION 2.0: B-1, B-2, and B-3 (West half) GRIDS

VERTICAL EAST-WEST CROSS SECTIONS

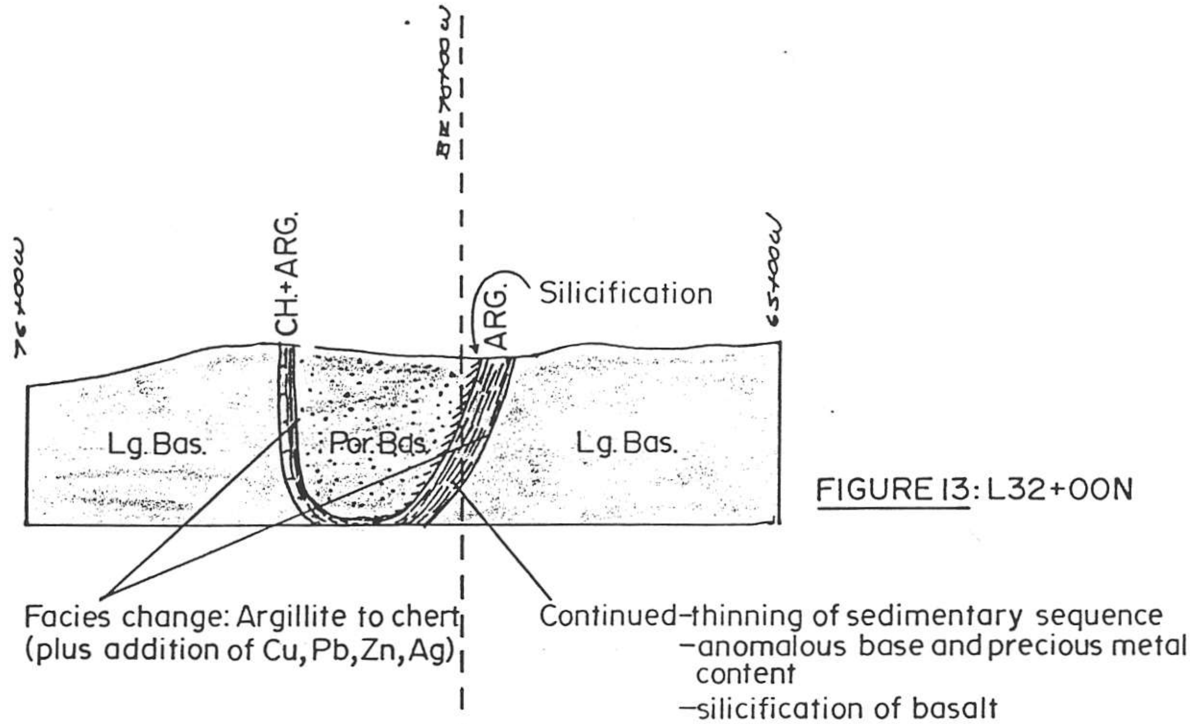


FIGURE 13: L32+00N

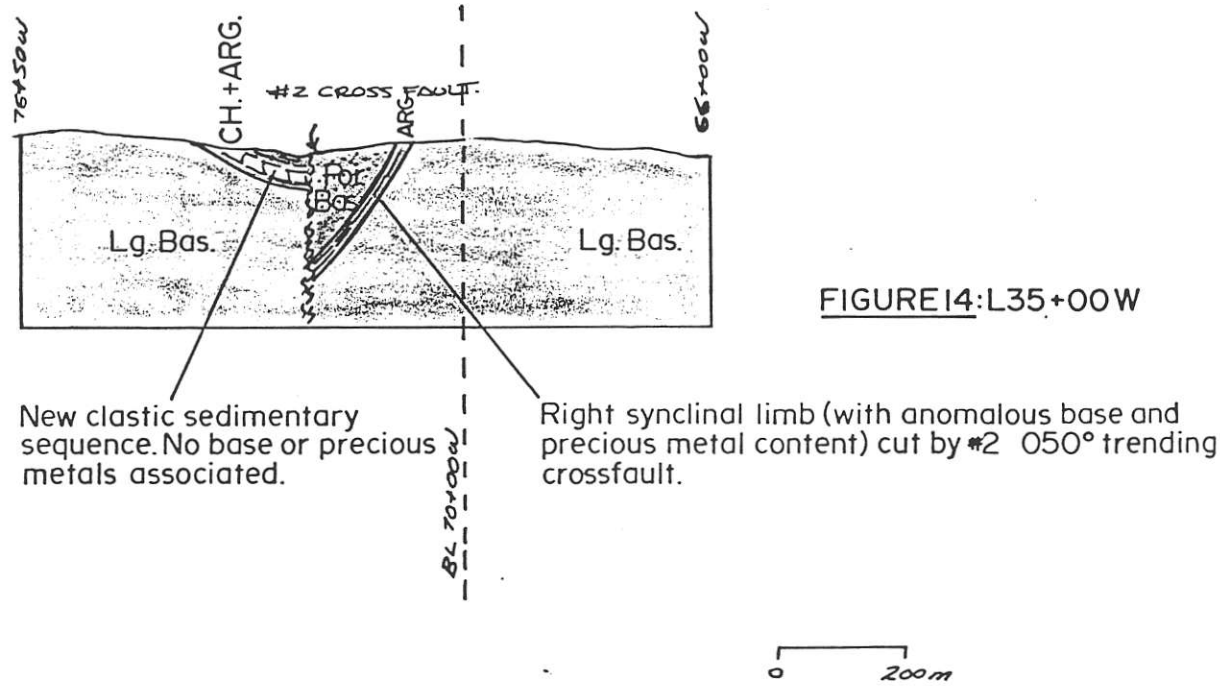


FIGURE 14: L35+00W

At line 24+00N the cherty sediments pinch out and the graphitic argillite band narrows until it is cut off by the #2 cross fault. The second parallel band, west of baseline 70+00W, is thought to be the left synclinal limb of the main argillite horizon, figures 11-13. From east to west the horizon thins, varying from predominantly graphitic argillite to chert with minor amounts of argillaceous material. Coarsely porphyritic, magnetite-pyrrhotite (1-10% combined) bearing basalt forms the core of the fold.

Soil geochemical values, from line 24+00N-35+00N, are highly anomalous in Cu, Pb, Zn, Ag and locally gold, along both limbs of the fold. Bedded barite and K-feldspar-rich volcanic breccia were discovered along line 28+00N. Alteration/ mineralization and soil geochemical results for this zone are discussed in sections 2.4.4 and 2.5.

2.4.3 (L36+00N-56+00N)

Two chert-argillite horizons were identified north of the #2 cross fault. They are dissimilar to the sediments mapped south of the fault and are not geochemically anomalous in rock or soil samples. Cherts mapped in the fault zone, grid location 34+93N:73+20W, are highly sheared, containing tr-3% disseminated pyrite and traces of galena and stibnite.

These sediments are folded into a gentle north 009^{o} plunging syncline. Minor synclinal, anticlinal and recumbent

SECTION 2.0: B-1, B-2, B-3 (West Half) GRIDS
VERTICAL EAST-WEST CROSS SECTIONS

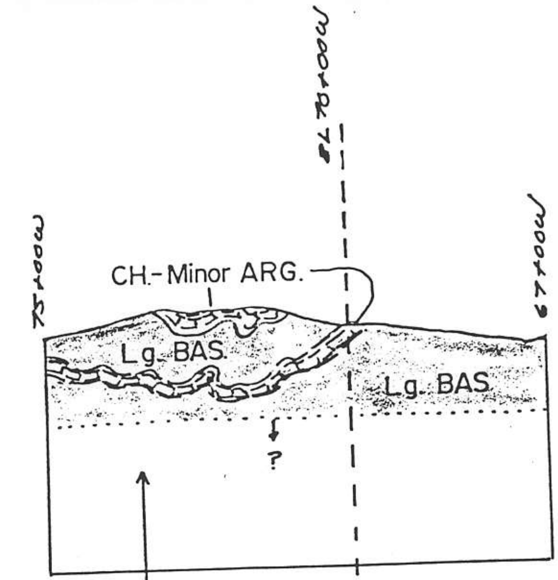


FIGURE 15: L 44+00 N

Gentle north 010° plunging syncline with small scale anticlinal, synclinal, and recumbant folding common.

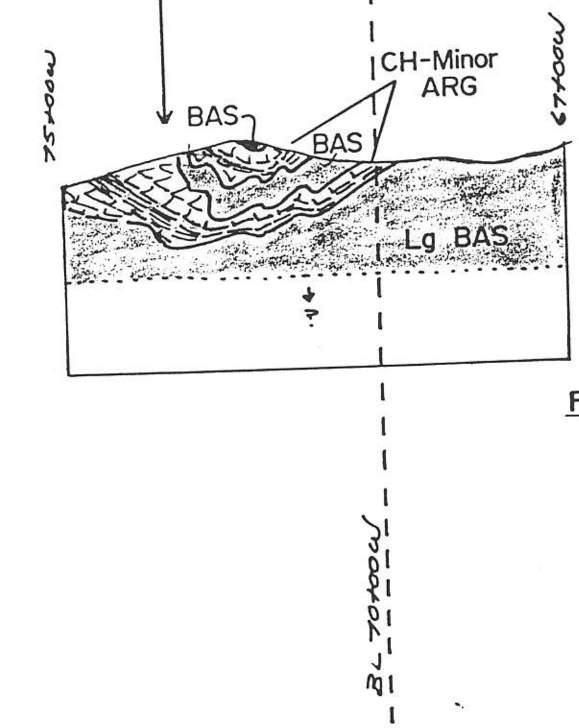


FIGURE 16: L 52+00 N

0 200m.

folding, figures 15-16, is common. The HLEM conductors in this area are graphite sourced.

2.4.4 Alteration and Mineralization

(A) High Ag-Chert Argillite Horizon: Line 0+00-20+00N

The graphitic argillite-chert horizon, extending from line 0+00N to 20+00N on the B-1 Grid, has a high Ag and Ba content. Anomalous values are listed below.

Argillite	Chert
3.5-5.1 ppm Ag	3.1-12.7 ppm Ag
.30-1.46% Ba	.57-2.04% Ba
.001-.011 oz Au	107-193 ppm Cu
	.001-.02 oz Au

The high Ag results are also reflected in soil sampling along this horizon; Anomaly A; section 2.5.2. Although minor amounts of gold were detected in the samples, this is not considered significant enough to warrant further exploration.

(B) Massive Sulphide Target (?) L20+00N-L35+00N.

From L20+00N to L35+00N the chert-argillite horizon is highly anomalous in Pb, Zn and Ag and weakly anomalous in copper and gold. This is substantiated by high geochemical results in soils (Anomalies B and C: Section 2.5.2) in rock samples, and in a limited 3 hole diamond drill program by Craigmont Mines Ltd. in 1980.

Several characteristics of the showing suggest a possible shale hosted lead-zinc type environment for deposition of the sulphides and precious metals.

- black argillite host
- high lead-zinc-silver content
- high Ba content in sediments
- bedded barite
- occurs along a facies change from chert to argillite where the sedimentary sequence thins

Characteristics considered atypical of a shale hosted lead-zinc environment are as follows.

- presence of copper and gold in the system
- K-feldspar rich volcanic breccia (Plate I) interbedded with the sediments
- presence of chert in the sedimentary sequence
- extreme silicification, sericitization and pyritization of the basalts along the sediment-volcanic contact

Most of the horizon is blanketed by deep overburden and glacial debris. Rock samples were taken from the few float occurrences and outcrop along the Craigmont Mines Ltd. drill access road, L28+00N. Anomalous results are as follows.

Argillite	Chert
3.9 ppm Ag	3.9-28.3 ppm Ag
.002 oz/t Au	89-136 ppm As
103 ppm As	.04-.13% Pb
.65% Ba	.32-1.01% Ba

Barite Bed (1.5 m width)
2.7 ppm Ag
75 ppm As
.04% Zn
47.8% Ba

The rock sample results, though only weakly anomalous, are a poor test of this showing. Base metal results are low and are not representative of the high soil geochemical results for this zone.

In 1979, Craigmont Mines Ltd. located the soil anomaly and drilled a line of 3 AQ holes across the volcanic/sedimentary sequence. Figure #17 is a drill section for holes JC-1, JC-2 and JC-3. The data is taken from 1980 drill logs by N.B. Vollo. Drill core from the sedimentary sections was not located.

All 3 holes are drilled roughly down dip of the sediments and volcanics. The argillaceous intersections are lost as ground core. Due to the attitude of the holes only 40% of the true sedimentary section was tested. The K-feldspar rich volcanic breccia, barite bed, silicified-pyritized-sericitized basalt and area where galena was located in oxidized surface gravels were not cut by the drilling.

Only 3 samples were analyzed by Craigmont Mines Ltd. in JC-1 and JC-2. Results are listed below.

DDH	FROM	TO	WIDTH(m)	% Cu	% Zn	% Pb	Au oz/t	Ag oz/t
JC-1	10.0	27.0	17.0	.03	.09	.01	.030	.08
JC-2	15.0	16.0	1.0	.02	.27	.88	.001	.13
JC-2	17.7	21.0	3.3	.27	.25	3.06	.023	1.90

The high lead values are logged as being sourced in a "grey, siliceous tuffite" containing "2-5% patchy disseminated galena, 1-2% disseminated pyrite". The surface expression of this zone appears as an clay-sericite rich cherty sediment or

DRILL SECTION: JC-1, JC-2, JC-3

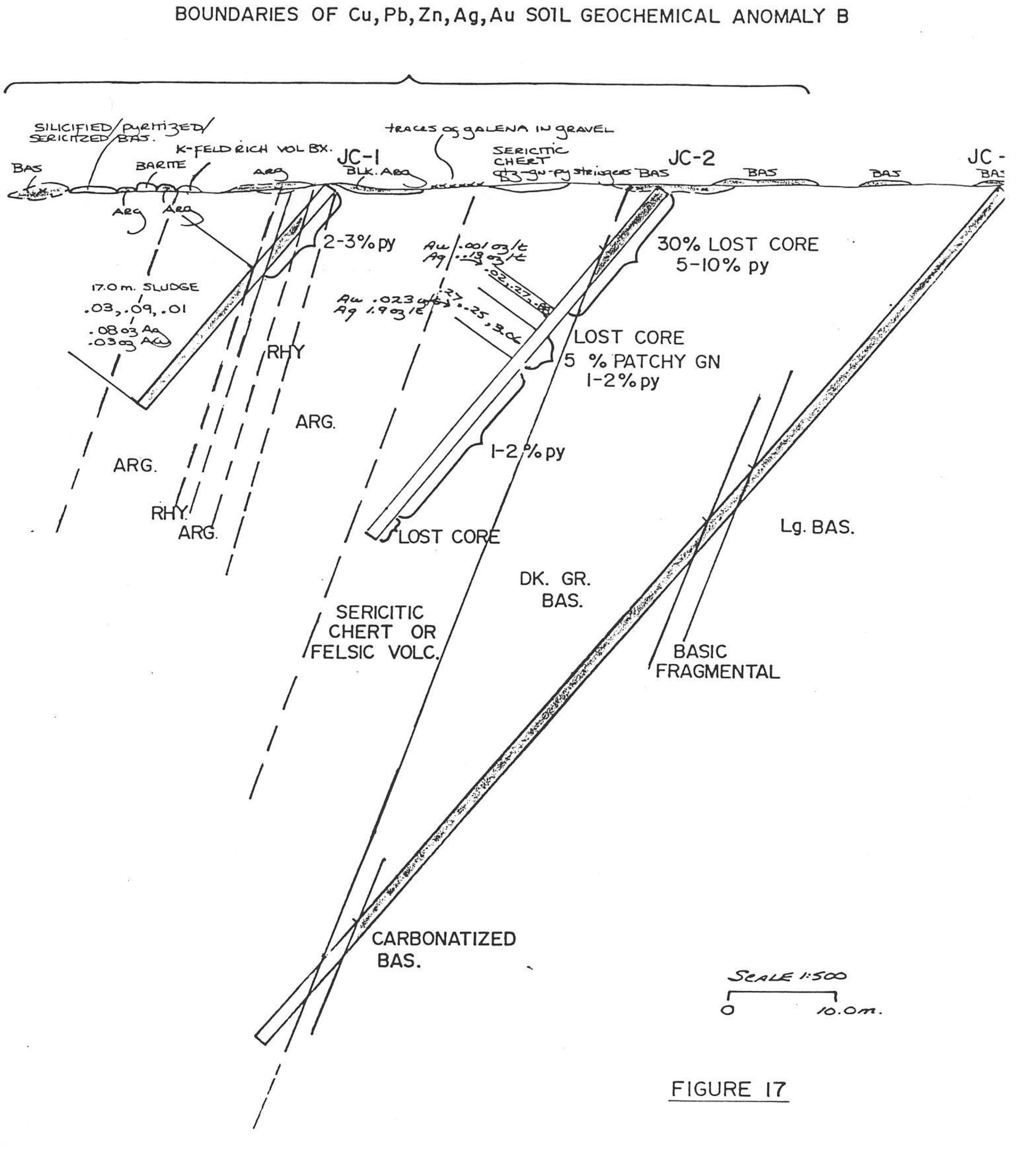


FIGURE 17

siliceous volcanic cut by a weakly developed quartz stringer stockwork, containing trace amounts of galena and chalcopyrite. Although base metals occur in the stringer zone, the sulphides appear to be stratigraphically controlled at the sedimentary units, HLEM conductors and soil geochemical anomalies along both limbs of the syncline are coincident along a 1.5 km strike length and 50-125 metre true width.

2.5 Geochemistry

Silt and stream heavy mineral samples were taken along all streams crossing the gridded areas. The sample density for silts was 300-500 metres. Heavy mineral samples were taken only in the main drainages.

Soil sampling covers only the HLEM conductors and any geological units considered as favourable hosts for base or precious metal mineralization. Soil profile samples, both B and C horizons (to a depth of 1.0 metre), were taken where overburden was estimated to be greater than 5 metres thick and as check samples for previously defined B-horizon anomalies.

Estimates of background and threshold values are visual estimates because of the generally small sample sets in each area and the tendency to sample only known mineralized horizons and unexplained conductors.

Background and threshold values have been averaged for areas underlain by both Fennell Formation and Eagle Bay Formation strata. Element ranges from the Fennell Formation are listed below.

Element	Background	Threshold
Cu	25-50 ppm	≥100 ppm
Pb	25-50 ppm	≥100 ppm
Zn	50-100 ppm	≥200 ppm
Ag	0.6-1.2 ppm	≥2.0 ppm
Au	5-10 ppb	≥20 ppb

2.5.1 Stream Geochemistry

Draining (A) High Ag: Chert-Argillite Horizon: L0+00-20+00N

- silt @ 9+20N:65+00W....23 ppb Au....unexplained
- silt @ 7+05N:66+70W....272 ppm Zn....possibly anomalous
- silt @ 6+00N:68+70W....2.0 ppm Ag....argillite-chert horizon

Draining (B) Massive Sulphide Target (?): L20+00N:L35+00N

(East synclinal limb) draining soil geochemical Anomaly B
- silt @ 33+10N:68+50W....2574 ppm Zn, 24 ppb Au
- silt @ 26+90N:71+80W....113 ppm Cu, 440 ppm Pb, 830 ppm Zn, 2.0 ppm Ag

(West synclinal limb) draining soil geochemical Anomaly C
- silt @ 24+00N:70+50W....535 ppm Zn, 2.0 ppm Ag
- silt @ 34+00N:72+80W....106 ppm Pb, 565 ppm Zn, 21 ppb Au
- silt @ 33+75N:74+30W....200 ppm Pb, 542 ppm Zn, 19 ppb Au
- silt @ 31+35N:71+80W....295 ppm Pb, 575 ppm Zn

Two silts and one heavy mineral sample were taken downstream from the showing, in the main creek paralleling the #2 cross fault. Anomalous results are as follows:

Silt (2)	Heavy Mineral
Pb 134 ppm	Cu 120 ppm
Zn 236-263 ppm	Pb 1270 ppm
Au 10-11 ppb	Zn 143 ppm
	Ag 25.0 ppm
	Au 75 ppb
	Sb 200 ppm
	Ba 3500 ppm
	As 45 ppm

The stream geochemical results identified anomalous Cu, Pb, Zn, Ag and Au values in the vicinity of soil geochemical anomalies B and C. Pb and Ag results appear to be greatly enhanced in the heavy mineral sample. Zn values are only high in the silt samples. Soil anomaly A, the high Ag bearing chert-argillite horizon in the B-1 grid, was not substantiated by stream geochemistry.

2.5.2 Soil Geochemistry

Anomaly A: B-1 Grid (maps 10-11)

Anomaly A is a 100-200 x 1400 metre silver anomaly associated with the north-south trending carbonaceous argillite-chert belt. Anomalous values are as follows.

Ag (B Horizon) 2.0-6.0 ppm
Ag (C Horizon) 2.0-8.7 ppm

Cu	108-282 ppm	
Pb	100-134 ppm	- isolated 1 sample highs
Zn	214-361 ppm	

Silver values generally increase with depth along L2+00N. Results tend to decrease with depth, from B horizon to C horizon, from L6+00N-14+00N. A surficial enrichment of silver is suggested for this area. Copper, lead and zinc values are erratic and only moderately anomalous. Anomaly A is coincident with conductors 7-12.

Anomaly B: B-2 Grid (maps 10-13)

The sedimentary belt sourcing Anomaly A gradually becomes enriched in base and precious metals from line 16+00N-36+00N. This horizon is isoclinally folded from 20+00N, with the sedimentary units on both limbs of the inferred synclinal fold being geochemically anomalous. Anomaly B is sourced by the sediments along the right fold limb.

An 1800 metre strike and 50-100 metre true width is estimated for this anomaly. The strongest geochemical results occur between lines 26+00N-31+00N. Extensive glacial cover to the north, >20 metres thick, appears to subdue copper, lead, silver and gold values. Anomalous values are listed below.

Cu	115-1085 ppm
Pb	147-1840 ppm (highs to 4900 ppm)
Zn	263-5500 ppm (highs to 9500 ppm)
Ag	2.0-6.9 ppm
Au	20-94 ppb

In the centre of the anomaly, geochemical values tend to increase within the C-horizon. B-horizon samples tend to be greater than the C horizon along the fringes. The exaggeration of the true anomaly width appears to be caused by the hydromorphic dispersion of base metals by groundwater.

Anomaly C: B-2 Grid (maps 12-13)

Anomaly C flanks the sediments along the east synclinal fold limb. It has an 1100 metre strike length and 30-75 metre true width. Anomalous copper, lead, zinc and silver values are as follows.

Cu	109-206 ppm
Pb	112-280 ppm (high of 2700 ppm)
Zn	210-1390 ppm
Ag	2.3-6.5 ppm

The erratic nature of the soil geochemical results and weak discontinuous character of coincident HLEM conductors 27-30 is attributed to a variable graphite content in the chert/argillite horizon and irregular pockets of thick glacial cover which would disrupt the depth penetration of the HLEM system.

2.6 Geophysics

The results of the HLEM survey are presented on maps 29, 30 and 31. The magnetometer survey data is on maps 37, 38 and 39.

The HLEM survey outlined 43 conductors. These are labelled 1 to 35 and 49 to 56. The majority of these features are caused by graphitic argillites, some of which are associated with soil geochemical anomalies. Table 3 lists the conductors along with the associated geochemical anomalies.

Conductors 13, 14 and 15 are unexplained. Conductor 13 is located within an area mapped as basalt. Conductors 14 and 15 are located in an extensively overburden covered area. The apparent dip of these features is to the east, which contradicts the regional geological trend (dip to the west). An increase in overburden thickness to the east could account for this discrepancy. There are no soil geochemical anomalies associated with these conductors.

The magnetometer survey outlined 23 anomalies. These are labelled M1 to M23. The majority of these anomalies are caused by magnetite- and/or pyrrhotite bearing basalts. Table 4 lists the anomalies along with their sources.

Anomalies M1 and M2 occur on the flank of HLEM conductor 14. The source for the EM conductor and that of the mag anomalies is unknown. Anomaly M3 is located within an extensively overburden covered area and the source of this anomaly is unknown.

(TABLE 3)

HLEM CONDUCTORS B1, B2, B3W GRIDS

Conductor	Grid(s)	Source	Geochem Anomaly #
1	B1, B2	graphite	B
2	B1, B2	"	B
3	B1	"	
4	B1	"	
5	B1	"	A
6	B1	"	A
7	B1	"	A
8	B1	"	A
9	B1	"	
10	B1	"	A
11	B1	"	A
12	B1	graphite	A
13	B1	?	
14	B1	?	
15	B1	?	
16	B2	graphite	B
17	B2	"	B
18	B2	"	B
19	B2	"	B
20	B2	"	B
21	B2	"	B
22	B2	"	B
23	B2	"	B
24	B2	"	B
25	B2	"	
26	B2	"	
27	B2	"	C
28	B2	"	C
29	B2	"	C
30	B2	"	C
31	B2, B3E	"	J
32	B2, B3E	"	J
33	B2	"	J
34	B2, B3E, B5	"	J
35	B2, B3E	"	J
49	B3W	"	
50	B3W	"	
51	B3W	"	
52	B3W	"	
53	B3W	"	
54	B3W	"	
55	B3W	"	
56	B3W	graphite	

(TABLE 4)

MAG B1 B2 B3W GRIDS

Anomaly	Grid	Source
M1	B1	?
M2	B1	?
M3	B1	?
M4	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M5	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M6	B2	?Magnetite-Pyrrhotite Porphyritic Basalt
M7	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M8	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M9	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M10	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M11	B2	?Magnetite-Pyrrhotite Porphyritic Basalt
M12	B2	Magnetite-Pyrrhotite Porphyritic Basalt
M13	B3W	?Magnetite-Pyrrhotite Basalt
M14	B3W	?Magnetite-Pyrrhotite Basalt
M15	B3W	Magnetite Basalt
M16	B3W	Magnetite Basalt
M17	B3W	?Magnetite Basalt
M18	B3W	Magnetite Basalt
M19	B3W	Magnetite Basalt
M20	B3W	Magnetite Basalt
M21	B3W	Pyrrhotite Basalt
M22	B3W	Magnetite Basalt
M23	B3W	Magnetite Basalt

3.0 Section B: B-3 (East Half), B-4, B-5 Grid

3.1 Recommendations

(B-3 Grid (east half))

- No further work

(B-4 Grid)

- No further work

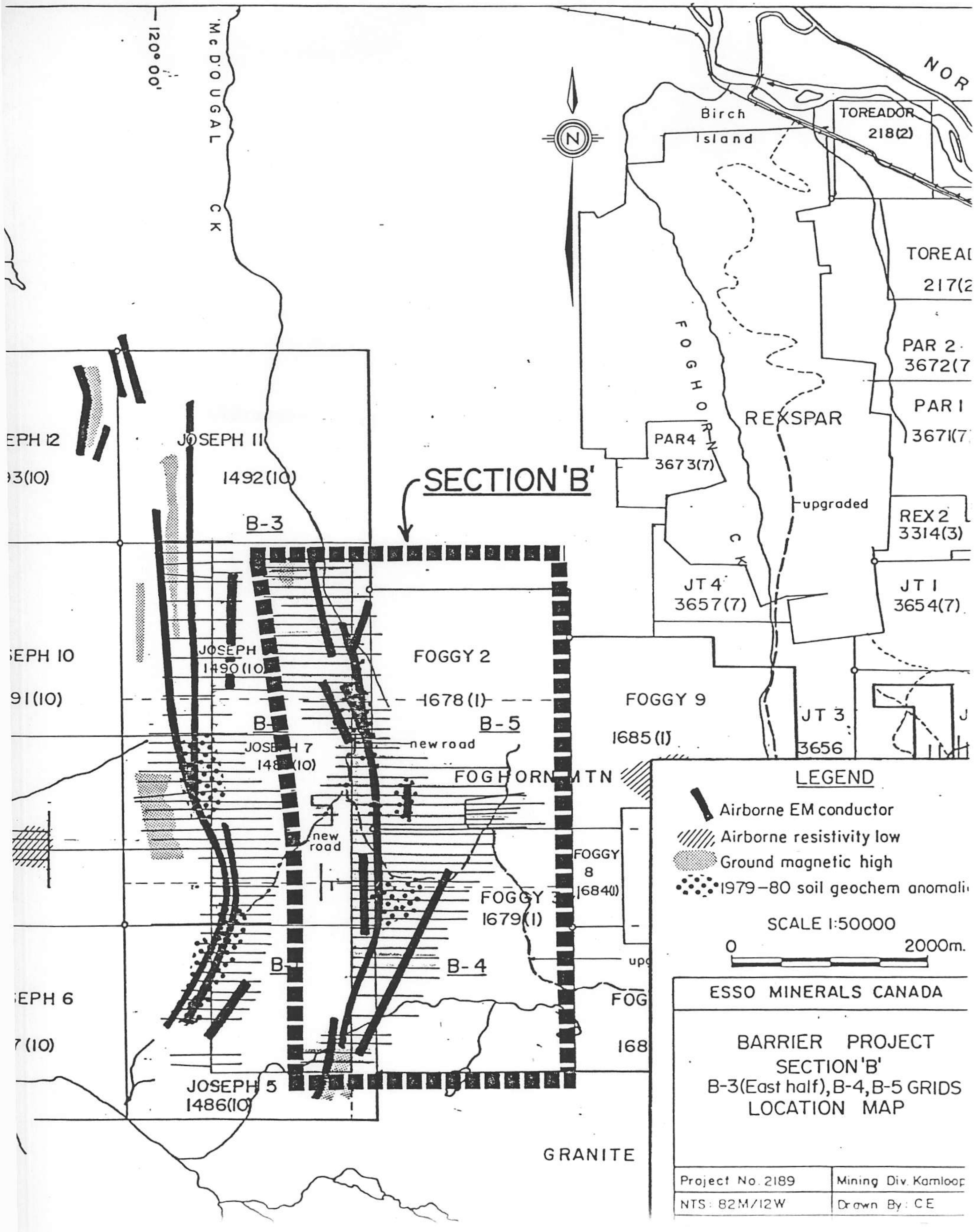
(B-5 Grid)

- Geological mapping and soil profiling of the mineralized breccia zone east of the #3 fault.

3.2 Conclusions

- The fault contact between Fennell Formation and Eagle Bay Formation strata is not the linear east dipping structure as suggested by (Schiariza, 1982). The fault contact is segmented by several subsidiary splays and cross faults. Dips vary from east to vertical to west.

- The sericite-chlorite schist horizon extending from L14+00N to L28+00N appears to be an intermediate flow occurring near the base of the Fennell Formation dominantly basaltic and clastic sedimentary sequence. Though sulphide-bearing, it is not considered a favourable massive



120° 00'
McDOUGAL CK
NOR
Birch Island
TOREADOR 218(2)
TOREA 217(2
PAR 2 3672(7
PAR 1 3671(7
PAR4 3673(7)
FOGHORN CK
REXSPAR
upgraded
REX 2 3314(3)
JT 4 3657(7)
JT 1 3654(7)
JT 3 3656
JOSEPH 12
JOSEPH 11 1492(10)
SECTION 'B'
B-3
JOSEPH 10
91(10)
JOSEPH 1490(10)
FOGGY 2 1678(1)
FOGGY 9 1685(1)
B-5
new road
JOSEPH 7
FOGHORN MTN
new road
FOGGY 8 1684(1)
FOGGY 3 1679(1)
B-4
JOSEPH 6
7(10)
JOSEPH 5 1486(10)
GRANITE
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979–80 soil geochem anomali
SCALE 1:50000
0 2000m.
ESSO MINERALS CANADA
BARRIER PROJECT
SECTION 'B'
B-3 (East half), B-4, B-5 GRIDS
LOCATION MAP
Project No. 2189
Mining Div. Kamloop
NTS: 82M/12W
Drawn By: CE

- The cherty rhyolitic tuffite horizon in the B-5 grid may be a felsic exhalitive. The narrow lensoidal massive pyrite occurrences along its basal contact with the intermediate tuffaceous sequence is base and precious metal deficient. This horizon has been adequately explored in the past and does not warrant further work.

- The Foghorn showings are a series of narrow vuggy quartz veins and discontinuous breccia zones rich in lead, zinc and silver. There is no massive sulphide potential in this area. Both veins and breccias have limited dimensions, too limited for a small scale lode type mining operation.

- The breccia zone occurring proximal to the basal contact of the cherty rhyolitic tuffite east of the #3 fault contains appreciable copper, lead, zinc and silver and has an excellent soil geochemical signature. This showing has not been adequately explored.

3.3. Introduction

This portion of the report documents the 1983 geological mapping, geochemical, geophysical and diamond drilling exploration program on the B-3 (East Half), B-4 and B-5 grids. All previous exploration data has been compiled and relocated in the field.

3.4 Geology

The fault contact between Fennell Formation and Eagle Bay Formation strata (Schiarizza 1982), straddles the B-4, B-5 and B-3 (East Half) grids. Schiarizza suggests the fault is a linear structure, trending NNE and dipping moderately to the east. Results from the 1983 mapping program show the fault to be segmented by several sub-parallel strike-slip and cross faults, with highly variable dips. As shown on maps 3-5, the intra-formational contact is marked by the #3 fault to 20+00N, the #6 fault to 28+00N, the #11 cross fault and thence the #6 and #9 faults to 54+00N. Graphitic fault gouge on the #3 fault shows the structure to be steep to moderately west dipping while the conductive gouge zone noted in DDH FH-1 shows the structure to be sub-vertical to steep easterly dipping.

Section B geology is highly complicated by faulting. Each fault block has different unit trends and dips. Outcrop exposure is poor, less than 5%, on most of the property.

Assumed geological contacts are extrapolated from linking float occurrences and the geophysical data.

Fennell Formation strata comprises argillite, sandstone, cherty siltstone, greywacke, limestone, dolomite, basalt and minor sericite schist. The porphyritic intermediate flow and sericite-chlorite schist horizon west of the #4 and #6 faults are possibly Eagle Bay Formation strata. These units are somewhat similar to the intermediate volcanics in the northern portion of the B-5 grid and do not seem to fit into the general clastic sedimentary sequence typical of the lower Fennell Formation. A gabbro-diorite sill, extending from 12+00N through 54+00N, transects the Fennell Formation rocks approximately 10^{o} north of the general unit attitudes.

Eagle Bay Formation strata comprises basic (andesitic-basaltic) tuffs/lapilli tuffs/lapilli crystal tuffs, intermediate porphyritic flows/tuffs/agglomerate and cherty felsic tuffite and flows. Although highly schistose, volcanic textures are generally preserved. These units are part of a thick sequence of basic to intermediate lithic crystal and lapilli tuff deposition with minor felsic volcanism associated.

Figure #18 is a cross section along line 11+00N showing Fennell Formation argillites and sandstone in fault contact with Eagle Bay Formation basic tuffs. The sediments west of the #4 fault trend to the north-northeast and dip steeply to the southeast. Those encased by the #3 and #4 faults dip

SECTION B: B-3 (East half), B-4, B-5 GRIDS

VERTICAL EAST-WEST CROSS-SECTIONS

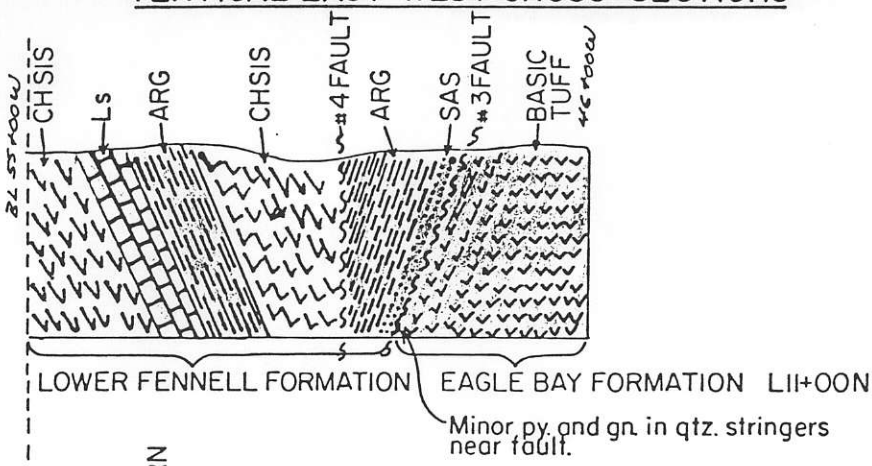


FIGURE 18

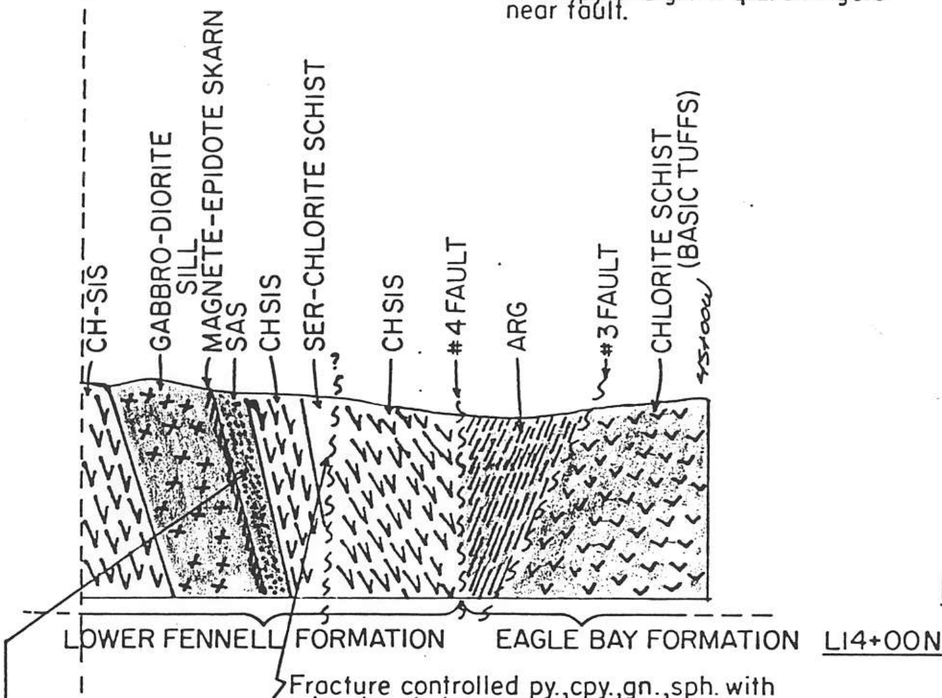


FIGURE 19

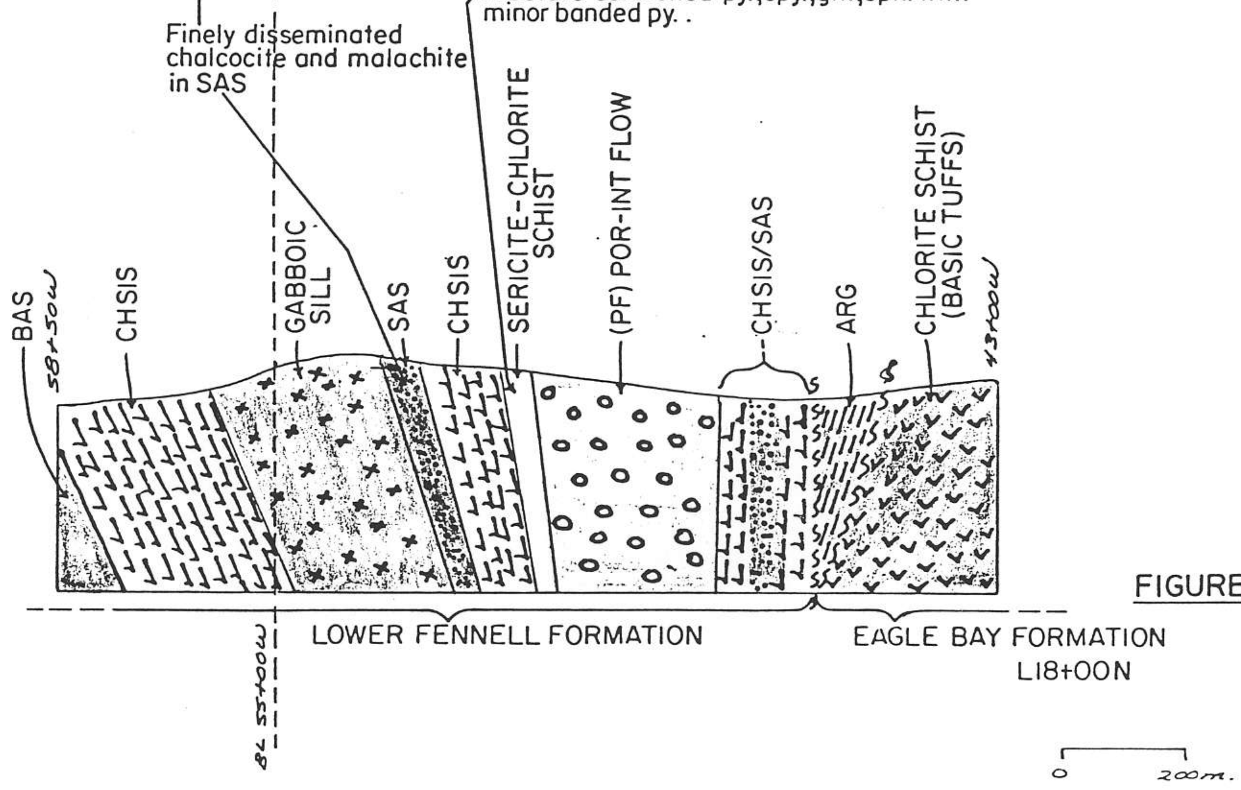


FIGURE 20

SECTION B: B-3(East half), B-4, B-5 GRIDS
VERTICAL EAST-WEST CROSS SECTIONS

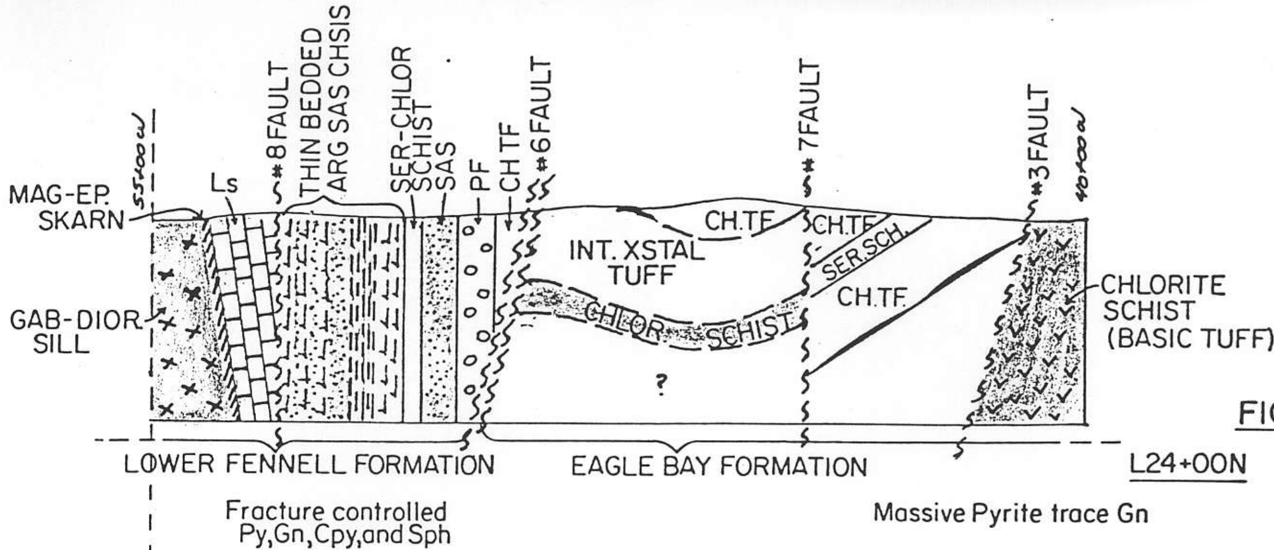


FIGURE 21

L24+00N

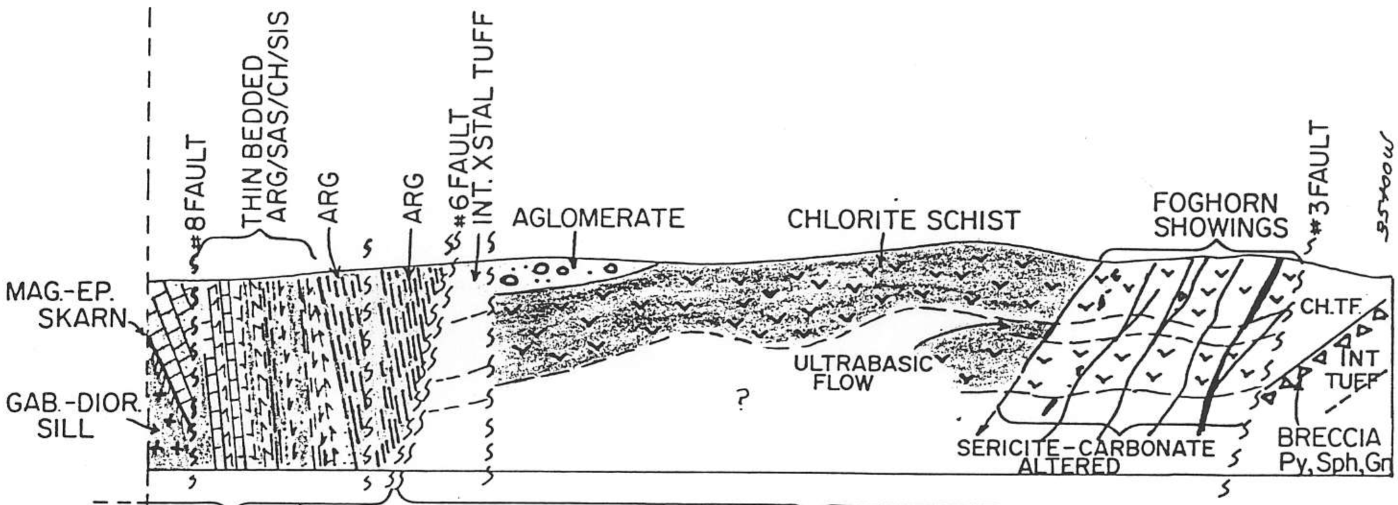


FIGURE 22

L28+00N

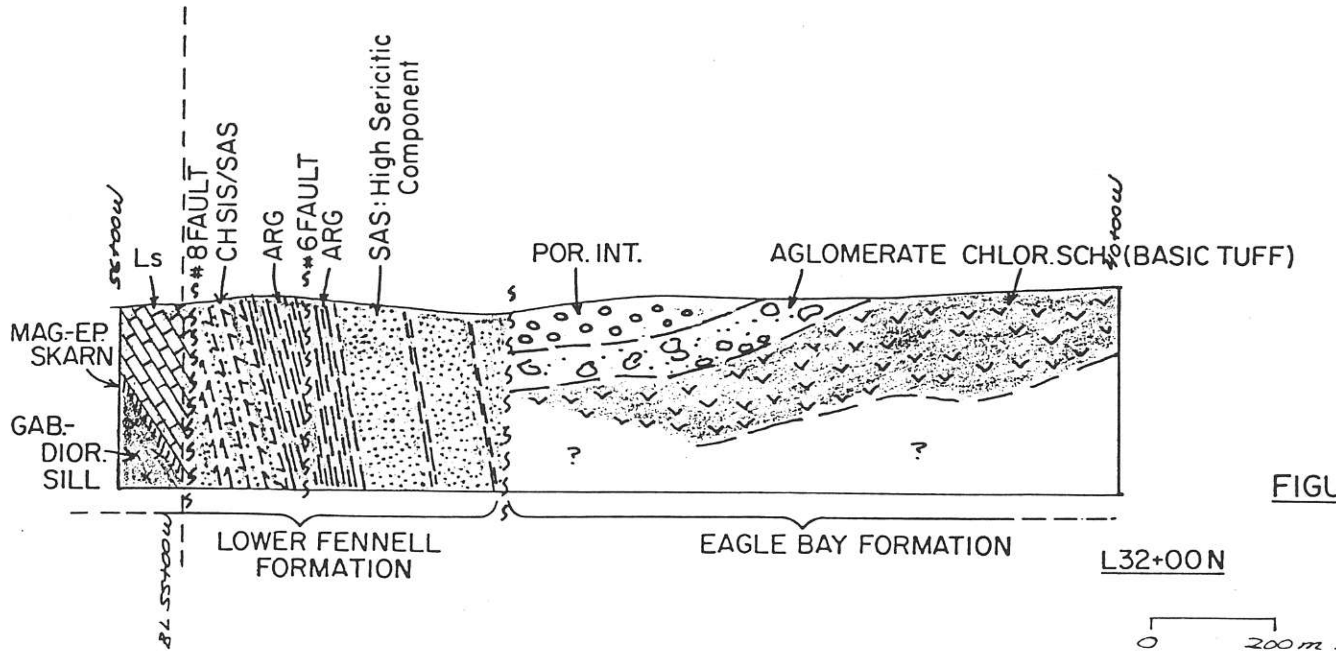


FIGURE 23

L32+00N

SECTION B: B-3(East half), B-4, B-5 GRIDS
VERTICAL EAST-WEST CROSS SECTIONS

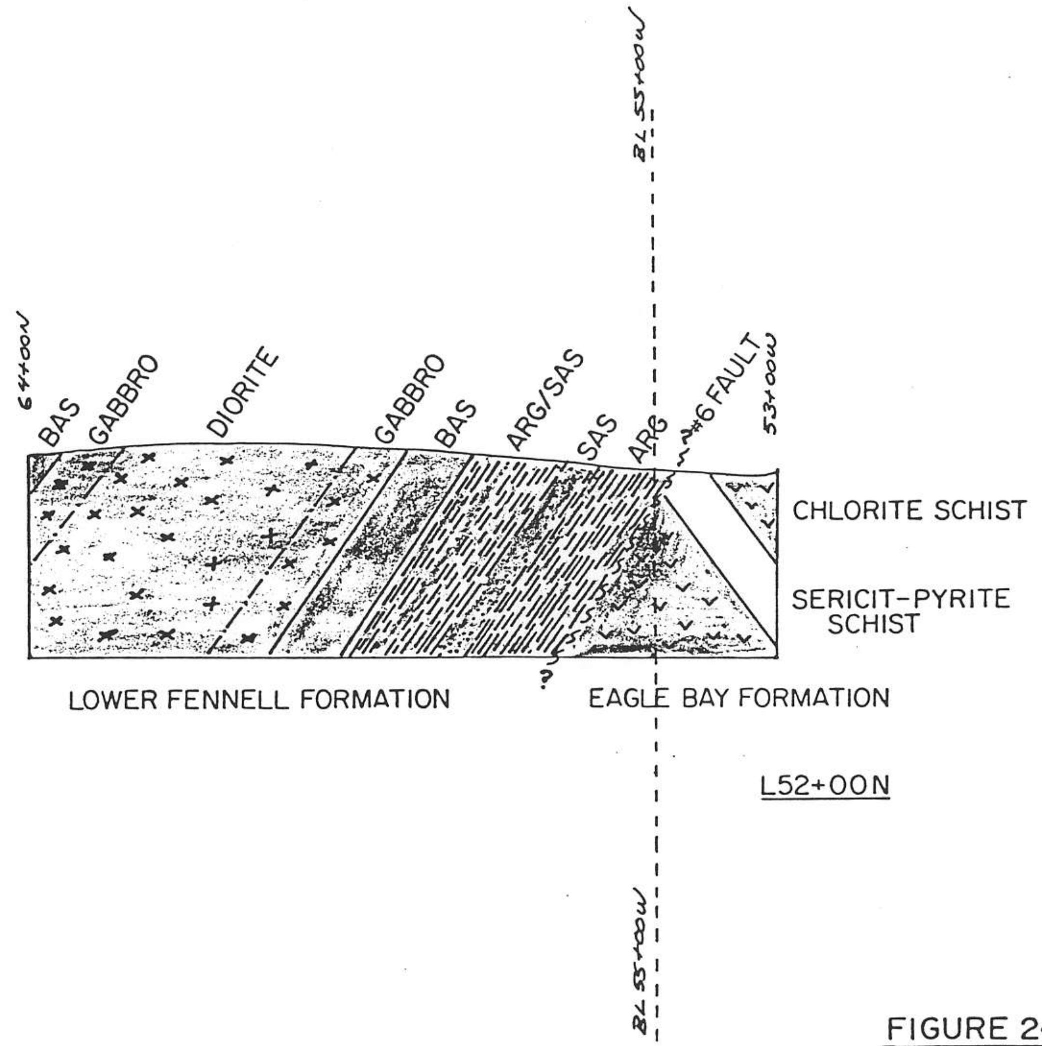


FIGURE 24

steeply to the west, sub-parallel to the Eagle Bay Formation basic tuffs.

Between lines 11 and 14+00N, figure 19, the sediments west of the #4 fault appear deflected to the southwest. This portion of the property has extensive overburden cover. Although no fault line is evident on surface, geological units and HLEM conductors are offset along the inferred #5 crossfault trace. This structure (?) may represent a subsidiary splay of the #4 fault.

Along line 18+00N, figure 20, units trend north-south with dips to the east and west on either side of the #4 fault. The narrow sericite-chlorite schist horizon is the only prominent sulphide carrier. Pyrite, 5-40%, may be banded or fracture controlled. Minor amounts of chalcopyrite, galena and sphalerite occur only in association with quartz stringers and fractures.

From line 20+00N to 54+00N the Fennell Formation units are deflected off to the north-northwest along the #6 fault. Although complicated by apparent strike-slip faulting, both the sediments and gabbro diorite sill dip steeply to the east. On the west side of the #6 fault, a large triangular block (bounded by the #3, #6 and #10 faults) of Eagle Bay Formation felsic and intermediate volcanics was identified. As shown on figure 21, these units appear as gentle east dipping to flat lying sheets. They commonly contain 1-10% disseminated pyrite. Locally, narrow lensoidal massive pyrite showings occur along the basal contact of the cherty (CHtf) rhyolite tuffite to the intermediate crystal tuffs.

Figure #22 shows the probable geological section along line 28+00N. West of the #6 fault there is a thinly bedded succession of cherty siltstone, sandstone and argillite. The narrow sericite-chlorite schist horizon identified from line 14+00N appears to be cut off by the #7 cross fault. Eagle Bay Formation strata east of the #6 fault is a thick sequence of intermediate volcanic agglomerate and basic tuffs, dipping gently to the north. On the east side of the #3 fault the cherty rhyolitic tuffite was discovered. There is approximately 500-700 metres of right lateral displacement along this structure.

The Fennell Formation clastic sedimentary sequence appears to thicken to the north (line 32+00N: figure 23). On the east side of the #8 fault the Eagle Bay Formation continues to dip gently to the north, with a pronounced thickening of the intermediate volcanic section.

From L28+00N to 54+00N there is a progressive change of dip from east to west in the Fennell Formation sediments and volcanics. The apparent widening of the gabbro-diorite sill to the north is attributed to this flattening of dip, figure 24. On the east side of the #6 fault a sericite-pyrite (1-10%) schist horizon occurs from 46+00N-54+00N. This unit was not explored in detail as it lies outside of the Joseph 9 claim boundary.

3.4.1 Alteration and Mineralization

Four base and/or precious metal showings were defined in the Section B area. Each occurrence was evaluated by soil and rock geochemistry, ground geophysics, and geological mapping. The Foghorn showings were tested with one drill hole. Rock geochemical results are in Appendix D. The diamond drill logs are in Appendix H. Induced polarization pseudosections and gravity profiles are in Appendices I and J.

(A) Sericite-Chlorite Schist Horizon: L14+00N-L28+00N

A linear band of sericite-chlorite schist, bounded by cherty siltstone, sandstone and a porphyritic intermediate flow extends from 14+00N-28+00N. The unit has a 25-50 metre true width and is presumed to be sub-vertically dipping. Typically, this unit is highly fractured with a variable sericite-chlorite content. Quartz stringer zones are common with chlorite often occurring as selvage type alteration.

Pockets of sulphide mineralization are common along the entire 1400 metre strike length. Pyrite content varies from 1-40% (generally 10%) and may be banded or disseminated. Chalcopyrite, galena and sphalerite occurs in trace amounts in association with quartz stringers or as paint along fractures. Anomalous rock geochemical results are as follows.

Cu	.07-.22%	As	122-602 ppm
Pb	.014-.03%	Sb	16-59 ppm
Zn	.01-.76%	Ag	.14-.53 oz/t
	Au	.003-.008 oz/t	

Conductors 66 and 77 and soil geochemical anomalies E and G are coincident with this horizon. Although bounded by sediments, graphitic argillite float was not located nearby. There is a possible sulphide source for these conductors.

Minor amounts of galena and sphalerite were located on the B-4 Grid, in pyritic cherts upslope of the schists. Any movement of base metals by groundwater could enhance the soil geochemical anomalies associated with the main sulhide bearing horizon. For the most part, rock and soil geochemical results (Section 3.5) are low. This showing does not warrant further exploration.

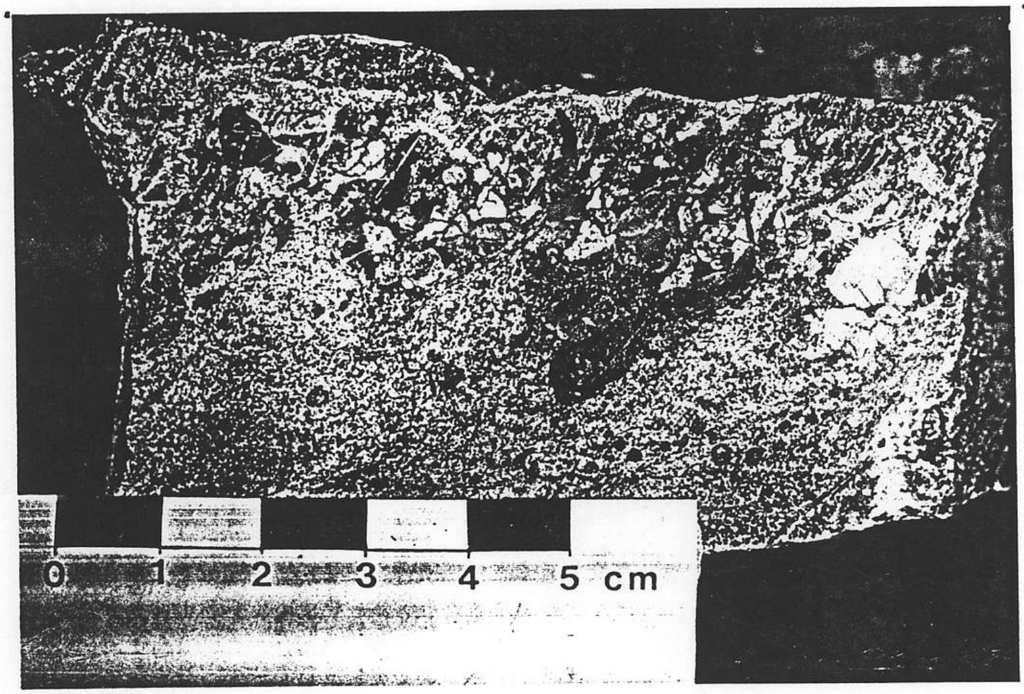
(B) <u>Cherty Rhyolitic Tuffite-Massive Sulphide (?) Horizon</u>

The triangular fault block of Eagle Bay Formation felsic-intermediate volcanics (bounded by the #3, #6 and #10 faults has been extensively explored. From 1979-1981, Craigmont Mines Ltd. completed geochemical and geophysical surveys and a diamond drilling program in this area;comprising 16 AQ and BQ holes. The objective of the Esso Minerals exploration program was to re-assess the old data and evaluate the felsic volcanics as a possible massive sulphide host. Field work consisted of detailed geological mapping, soil profiling, induced polarization/HLEM/magnetics and gravity surveying and re-logging of all previous drill holes.

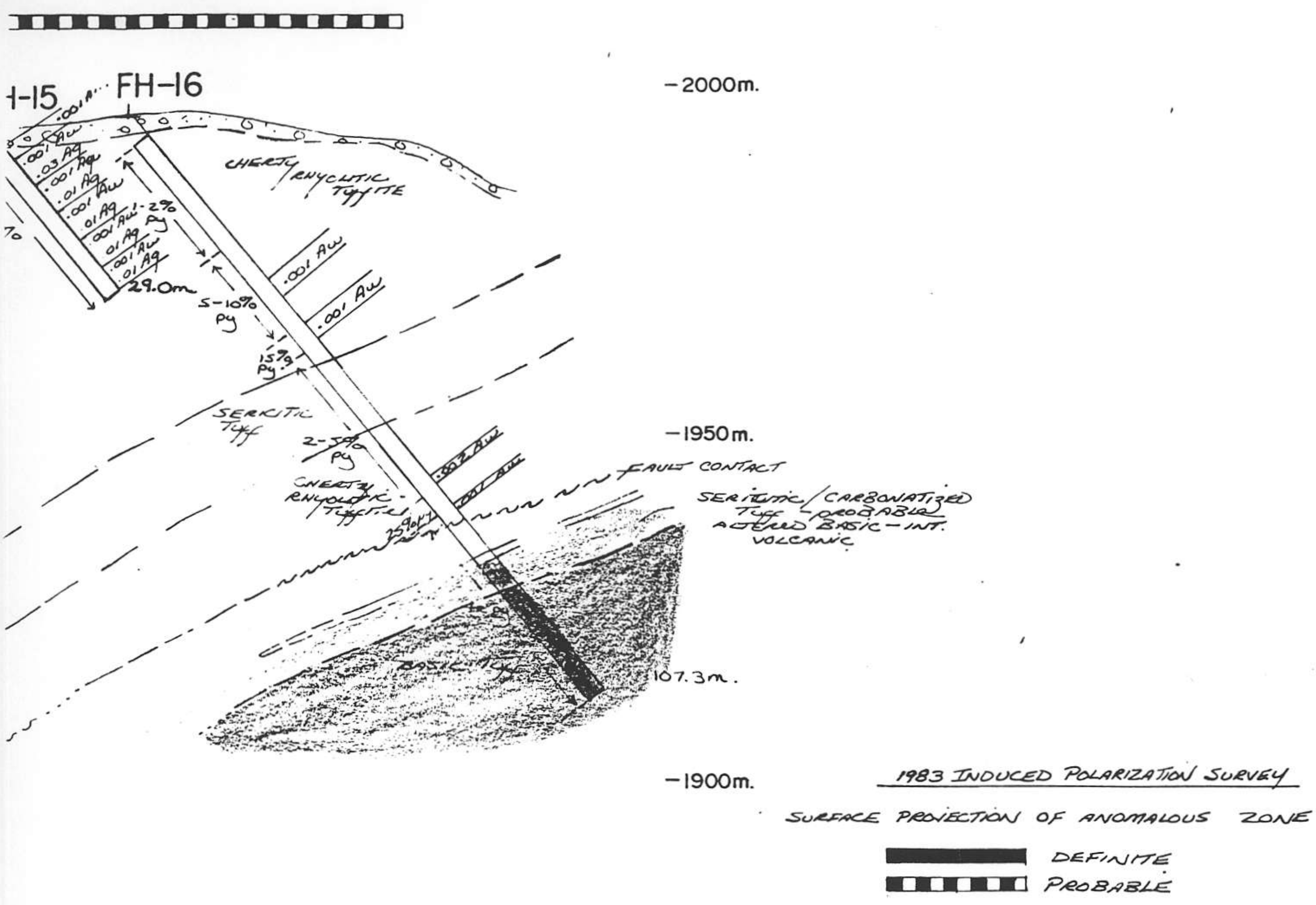
Figures 25 and 26 are drill sections showing 2 of the 4 drilled sections by Craigmont Mines Ltd. Much of the drilling is concentrated on the cherty rhyolitic tuffite. This unit has been previously described as a chert and as a siliceous exhalite. In drill core the unit may appear as a locally tuffaceous silica mass. Fragments comprise only trace-5% of the groundmass. This unit is believed to be a siliceous exhalite, conformable to the underlying intermediate crystal tuffs. Fragmental textures and sulphide content (1-15% pyrite) are more prominent along the base of the horizon. At least 2 separate felsic horizons have been identified.

The previous drilling by Craigmont, FH 1-8 and FH-8 (map #5), appears to be concentrated at the base of the cherty tuffite horizon in a gossanous ferricrete crusted swamp. The gossan is coincident with soil geochemical anomaly H (Section 3.5) and a probable I.P. anomaly. Seeps draining the swamp have a pH of 3.5. Results from soil profiling in this zone indicate a slight decrease in base metal content with depth. Lead values are anomalous while copper, zinc, silver and gold values occur as isolated one sample highs. Copper, zinc and silver are considered mobile elements and may be leached out of the soils by acidic groundwaters. Lead is a less mobile element and might remain in place, occurring with Fe-sulphates. The IP anomaly is attributed to pyrite in the underlying intermediate tuffs.

Cherty rhyolitic tuffite is considered the source for the ferricrete and the lead soil anomaly. As shown on figure 25



(PLATE I) K-feldspar rich volcanic breccia. Specimen stained with Na-cobaltinitrate.



FELSIC LAPILLI TUFF: Tan-yellow-green, containing ~5% sericitized feldspar phenocrysts and 2-5% .3-3cm. silica, pyrite and sericite—chlorite fragments.

—1850m.

BASIC TUFF: Pale to medium green, andesitic to basaltic in composition, contains 1-5% ≤1mm. chlorite fragments. Carbonate-hematite fracture fillings throughout.

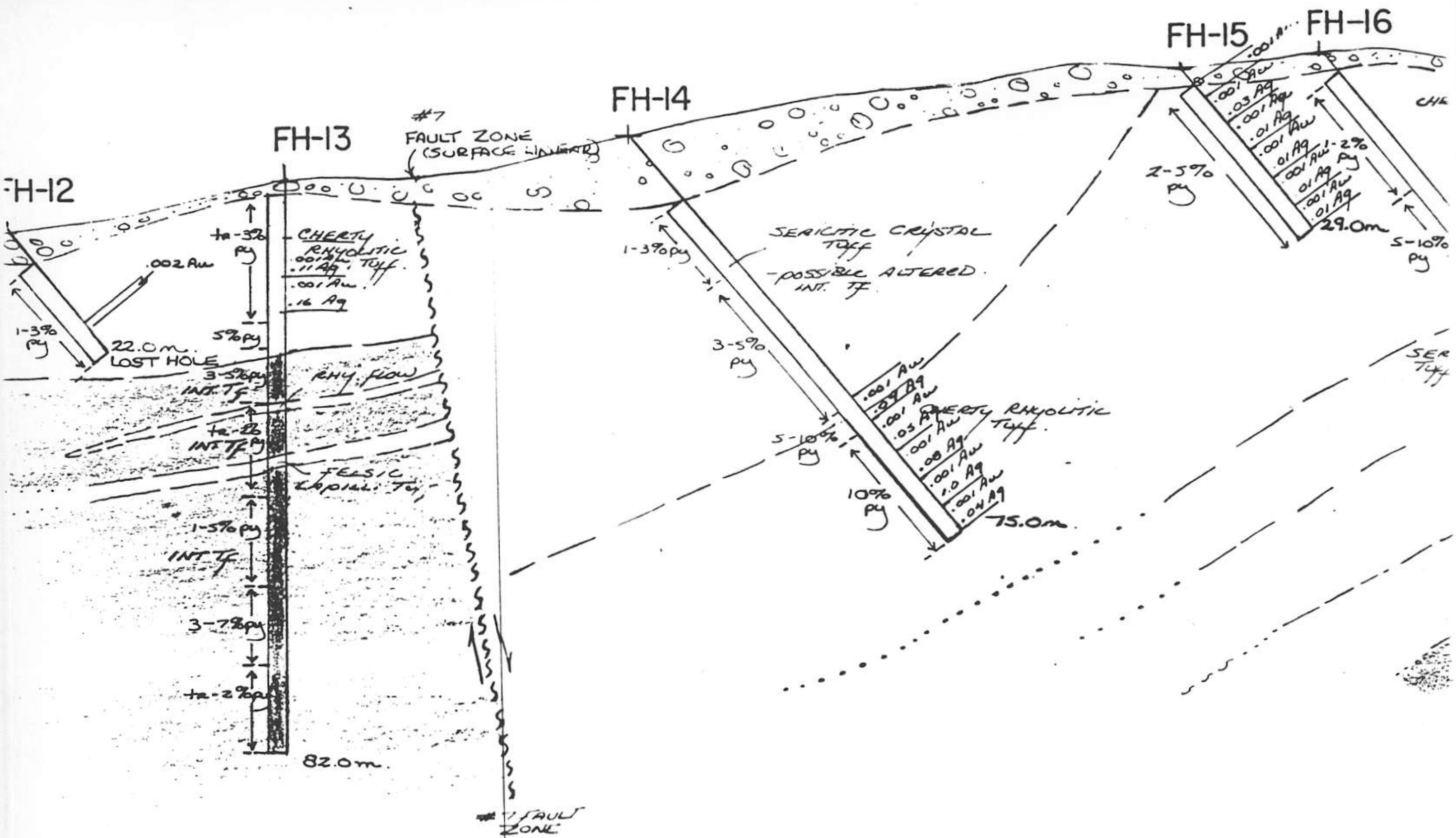
SERICITIC TECTONIC BRECCIA: Grey-pale yellow, intensely sericitic, contains ~60% sericitized volcanic fragments and 1% py-po fragments in a light grey silica-ankerite matrix. Often crackled and cut by qtz.-ankerite stringers.

—1800m.

43+00W— 42+50W—

Figure 25

ESSO MINERALS CANADA	
BARRIER-2189	
L24+00N: 42+50W-47+00W DRILL SECTION FH9,11,12,13,14,15,16	
SCALE: 1cm=10m.	DATE: Sept.83
Mining Div. Kamloops	NTS 82M/12W



GEOLOGICAL UNITS

INT TF — INTERMEDIATE TUFF: Pale grey-green, moderately siliceous, locally contains lapilli sized fragments.

INT LT — INTERMEDIATE LAPILLI TUFF: Mix of 10-30% 1-5cm. fragments of intermediate to basic volcanic composition in an aphanitic blue-grey moderately siliceous matrix

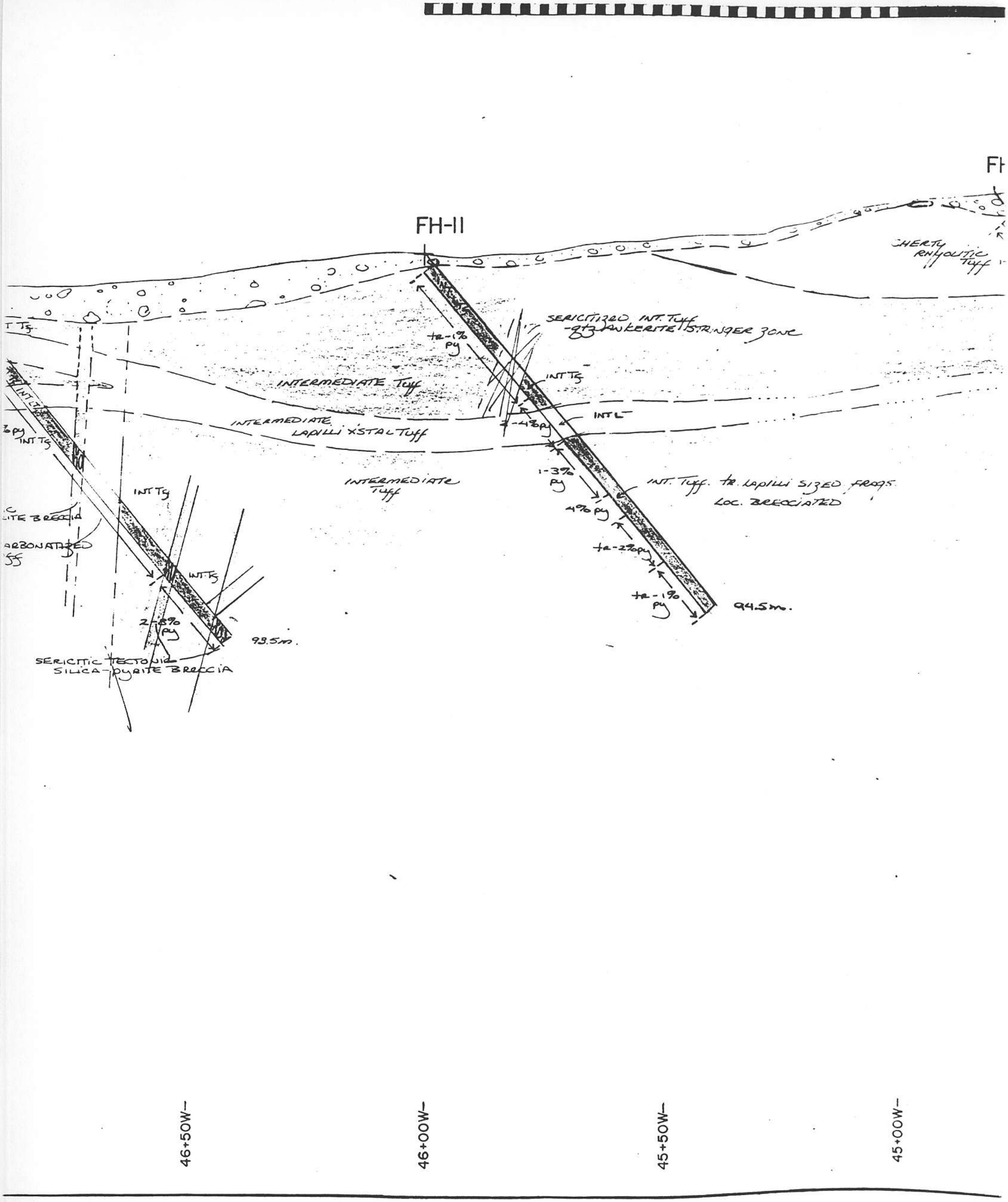
CH TF — CHERTY RHYOLITIC TUFFITE: Pale yellow-brown extremely siliceous. Locally brecciated texture contains 1-2% fine, rotated, felsic volcanic fragments. Pyrite content increases towards the base of each horizon.

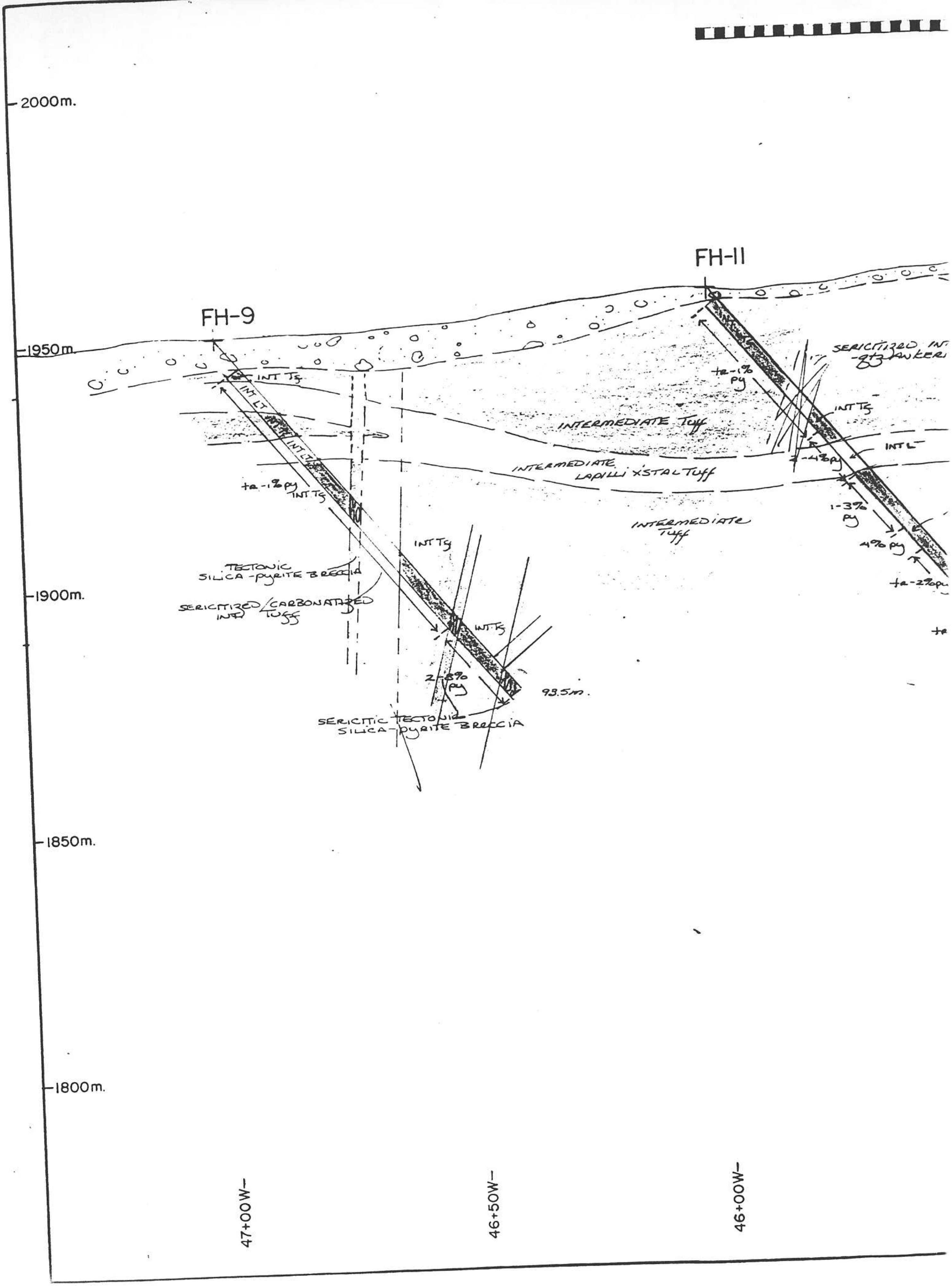
Fel LT — FELSIC LAPILLI
~5% ser
2-5% .3
chlorite f

Bas TF — BASIC TUFF: Pale
in compo
fragmen
fillings th

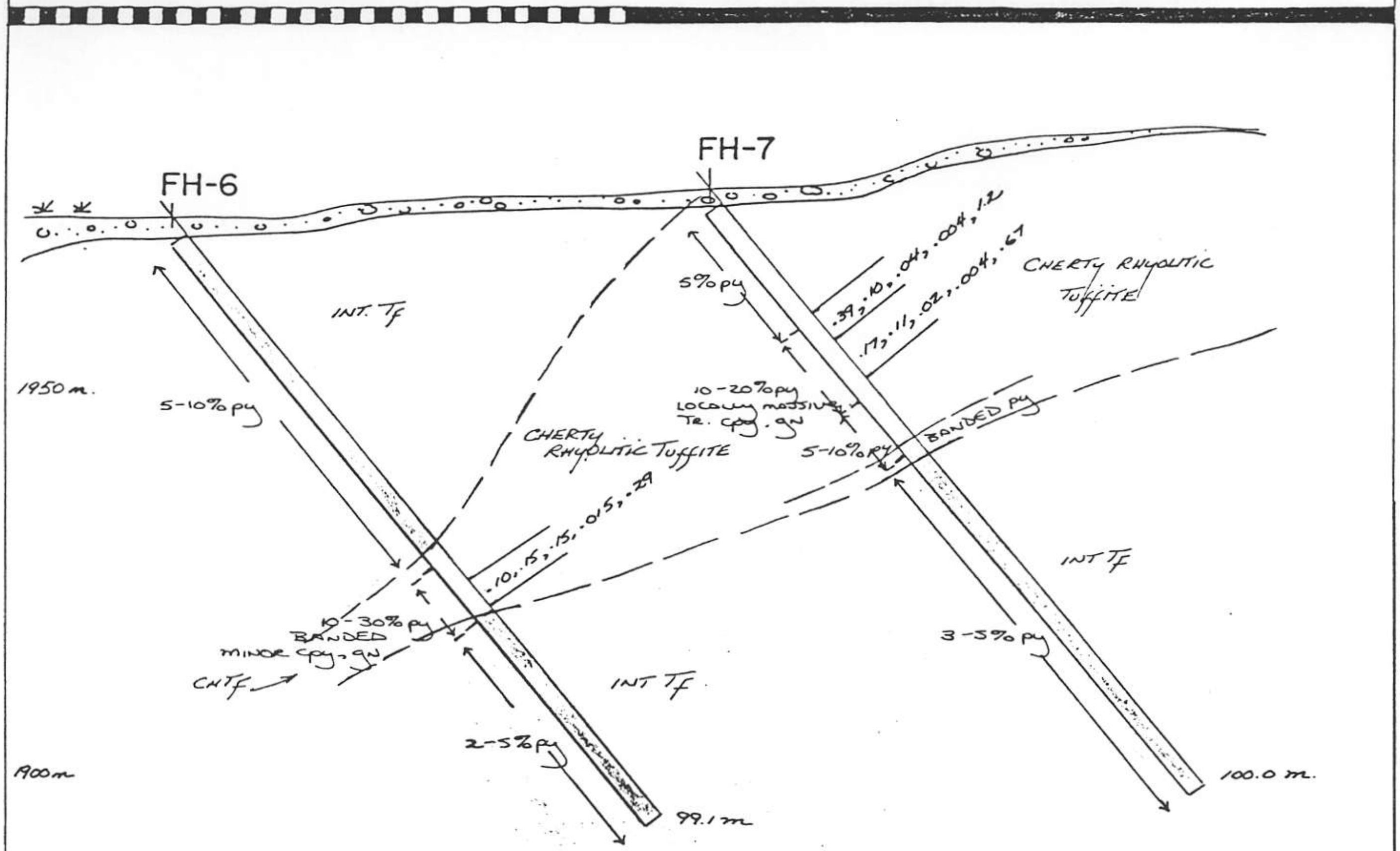
Bx — SERICITIC TECT
intensely
volcanic
in a light
crackled

44+50W- 44+00W- 43+50W- 43+00W-


FH-11
SERICITIZED INT. TUFF -QTZ ANKERITE STRINGER ZONE
tr-1% py
INT Tf
INTERMEDIATE TUFF
INTERMEDIATE LAPILLI XSTAL TUFF
INTERMEDIATE TUFF
INT. TUFF. tr. LAPILLI SIZED FRAGS. LOC. BRECCIATED
1-3% py
4% py
tr-2% py
tr-1% py
94.5m.
INT Tf
2-3% py
93.5m.
SERICITIC TECTONIC SILICA-PYRITE BRECCIA
CHERTY RHYOLITIC TUFF
46+50W
46+00W
45+50W
45+00W



2000m.
1950m.
1900m.
1850m.
1800m.
FH-9
FH-11
INT Tf
INT LT
tr-1% py
INT Tf
TECTONIC SILICA-PYRITE BRECCIA
SERICITIZED/CARBONATIZED INT TUFF
INT Tf
INT Tf
2-3% py
93.5m.
SERICITIC TECTONIC SILICA-PYRITE BRECCIA
INTERMEDIATE TUFF
INTERMEDIATE LAPILLI XSTAL TUFF
INTERMEDIATE TUFF
SERICITIZED IN -qtz ANKERI
tr-1% py
INT Tf
INT L
1-3% py
4% py
47+00W
46+50W
46+00W



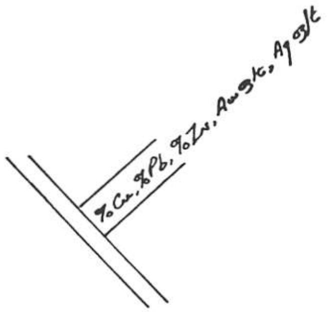
INT TF INTERMEDIATE TUFF: Light greenish grey, aphanitic, weakly foliated, moderately siliceous, occasional feldspar phenocrysts noted, contains 1–5% fine chloritic fragments.

CH TF CHERTY RHYOLITIC TUFFITE: Tan-grey, extremely siliceous, typically stockworked by bull quartz stringers, contains tr–1% fine rotated sericitic volcanic fragments. Becomes pyrite-rich near the base of the horizon. Banded pyrite (1mm.–1.0m.) may be present.

1850 m

1983 INDUCED POLARIZATION SURVEY
SURFACE PROJECTION OF ANOMALOUS ZONE

- DEFINITE
- PROBABLE



47+00W

46+00W

ESSO MINERALS CANADA	
BARRIER 2189 PROJECT	
DRILL SECTION FH-6,FH-7 L21+20 N	
SCALE 1:1000	NTS: 82 M/12 W
Drawn By: C.E.	Figure No. 26

and 26, this unit dips gently to and abuts against the gossanous marsh. Pyrite content increases towards the base of the felsic horizons. Locally banded massive pyrite (drill holes JC-6, JC-7, FH-5 and FH-18) up to 3 metres thick occurs along the contact to the intermediate crystal tuffs. Pyrite content may vary from 5-25%, and up to 60% in the more massive sections. Conductor 79 is attributed to this showing.

Fine traces and patches of galena and chalcopyrite occur within the more pyrite rich sections. Anomalous base and precious results received from drilling are as follows.

DDH	From To	Width (m)	Cu (%)	Pb (%)	Zn (%)	Au (oz/t)	Ag (oz/t)
FH-5	83.0-89.0	6.0	Not Taken			.001	.72
	89.0-94.0	5.0	Not Taken			.001	.37
	94.0-99.0	5.0	Not Taken			.001	.46
	99.0-103.0	4.0	Not Taken			.001	.25
	103.0-109.0	6.0	Not Taken			.001	.20
	109.0-113.0	4.0	Not Taken			.001	.21
JC-6	60.0-64.1	4.1	.10	.15	.15	.015	.29
JC-7	21.0-25.0	4.0	.39	.10	.04	.004	1.22
	25.0-31.5	6.5	.17	.11	.02	.004	0.67

Gold and base metal results are low. Silver values are only weakly anomalous. This showing has been over drilled in the past. The induced polarization, HLEM and soil geochemical anomalies have been explained. No further exploration is necessary in this area.

(C) Foghorn Showings

The Foghorn Showings are a series of narrow quartz veins and lensoidal breccia zones containing appreciable base metal and silver concentrations, figure 27. In the course of geological mapping in this area, several characteristics of the showings were considered atypical for fissure-type occurrences.

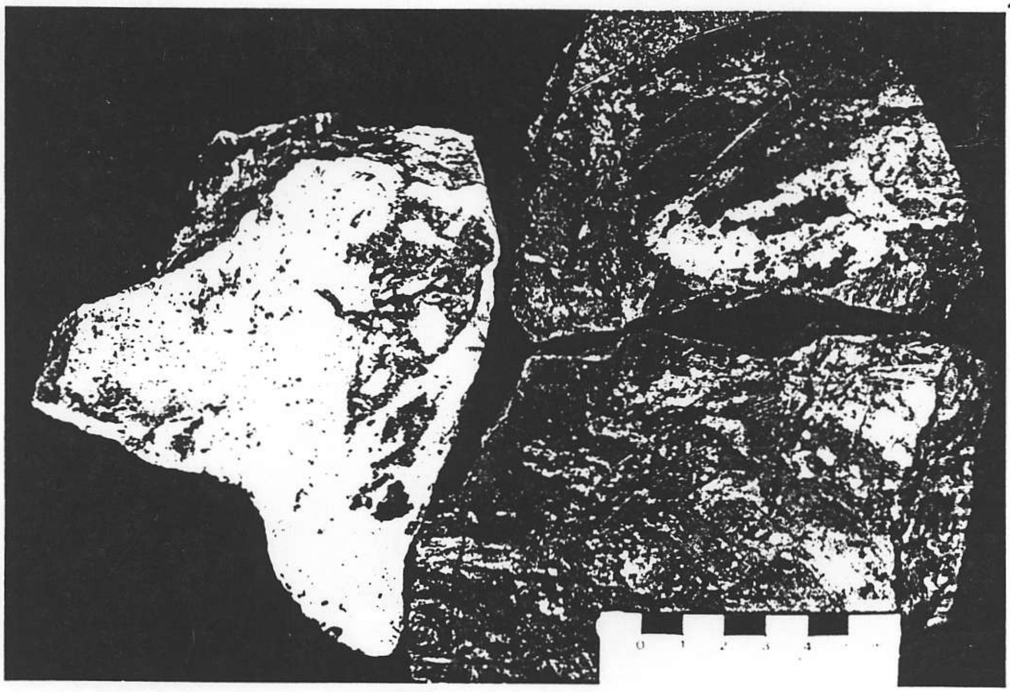
(i) the broad sericite-carbonate alteration zone, 300 x 700 metres, appeared too intense to be attributed to the few vein and breccia zones discovered on surface (figure #27).

(ii) the breccia zones often showed banding or ribbon textures in the sulphides and/or K-feldspar occurrences.

(iii) the broad coincident 200 x 500 metre lead-zinc $\pm$ copper-silver soil geochemical anomaly (section 3.5: Anomaly I) covered an area 100 metres east of where previous exploration had been concentrated.

From these observations it was decided to re-test the showings by rock geochemistry, induced polarization and gravity surveying. Assay results from mineralized vein and breccia zones are as follows.

(PLATE II) Foghorn vein showings: (Left) typical true vein width with crude f/g banding of galena, sphalerite, pyrite and chalcopyrite. (Right) Disseminated sphalerite, pyrite and tr galena with pockets of hydrothermal sericite in vein. Typical sericitized-carbonatized basic crystal tuff in wallrock.

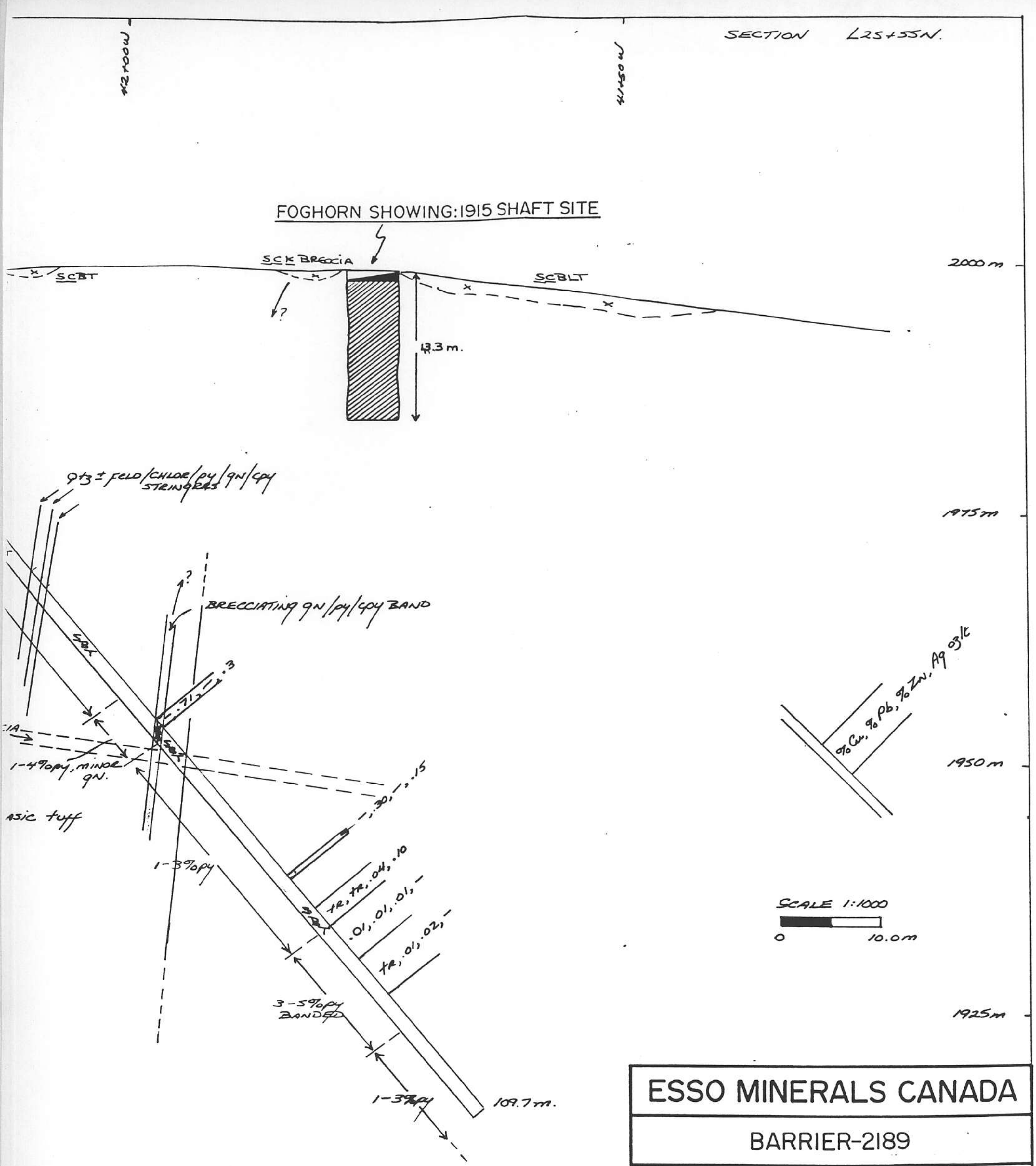


(PLATE III) Foghorn Breccia Zones: brecciating galena, sphalerite, pyrite, K-feldspar, silica-clay matrix in sericitized-carbonatized basic tuff. Sample in upper right stained by Na-cobaltinitrate.

Grid Location	Sample Description	% Cu	% Pb	% Zn	Ag oz/t	Au oz/t
26+10N:41+70W	.5 m min. fault	.024	.19	.33	.20	.001
26+15N:41+65W	.2 m Q.V. w gn,py,sph,cpy	.308	5.34	1.39	4.43	.001
26+20N:41+65W	.1 m Q.V. w gn, cpy	1.225	45.20	7.25	18.50	.004
25+92N:41+10W	.15 m Q.V. w gn,sph,py,cpy	.491	6.18	4.57	14.50	.002
26+30N:40+30W	.2 m Q.V. w gn	.039	8.40	.62	3.05	.001
25+50N:41+85W	Banded gn w tr cpy (Bx?)	.307	14.50	15.80	3.60	.008
25+40N:41+05W	Alt. tuff w banded py,tr gn	.002	.64	.82	.13	.002
28+20N:39+40W	Breccia w gn, sph,py,K-feld	.252	18.40	10.95	3.61	.023
28+15N:39+70W	Breccia w qtz-gn	.130	6.58	3.74	1.07	.002
25+50N:41+85W	Breccia w qtz-Kfeld,py,sph,cpy	.062	1.43	2.87	.41	.001

All of the results are highly anomalous in lead, zinc and silver. Silver values are related to the lead content in both vein and breccia zones. Copper results are only weakly anomalous. Gold results are negligible.

Results from the geophysical surveys indicated probable sulphide mineralization at depth. Probable I.P. anomalies occur on lines 26, 27 and 28+00N, with lower resistivities and higher metal factors on the N-4 separation. On lines 26+00N and 28+00N, a 3 gravity unit anomaly; at a probable depth of 75-125 metres, is coincident with the anomalous I.P. This zone was drilled (BBC 83-1: figure #28) in October 1983.

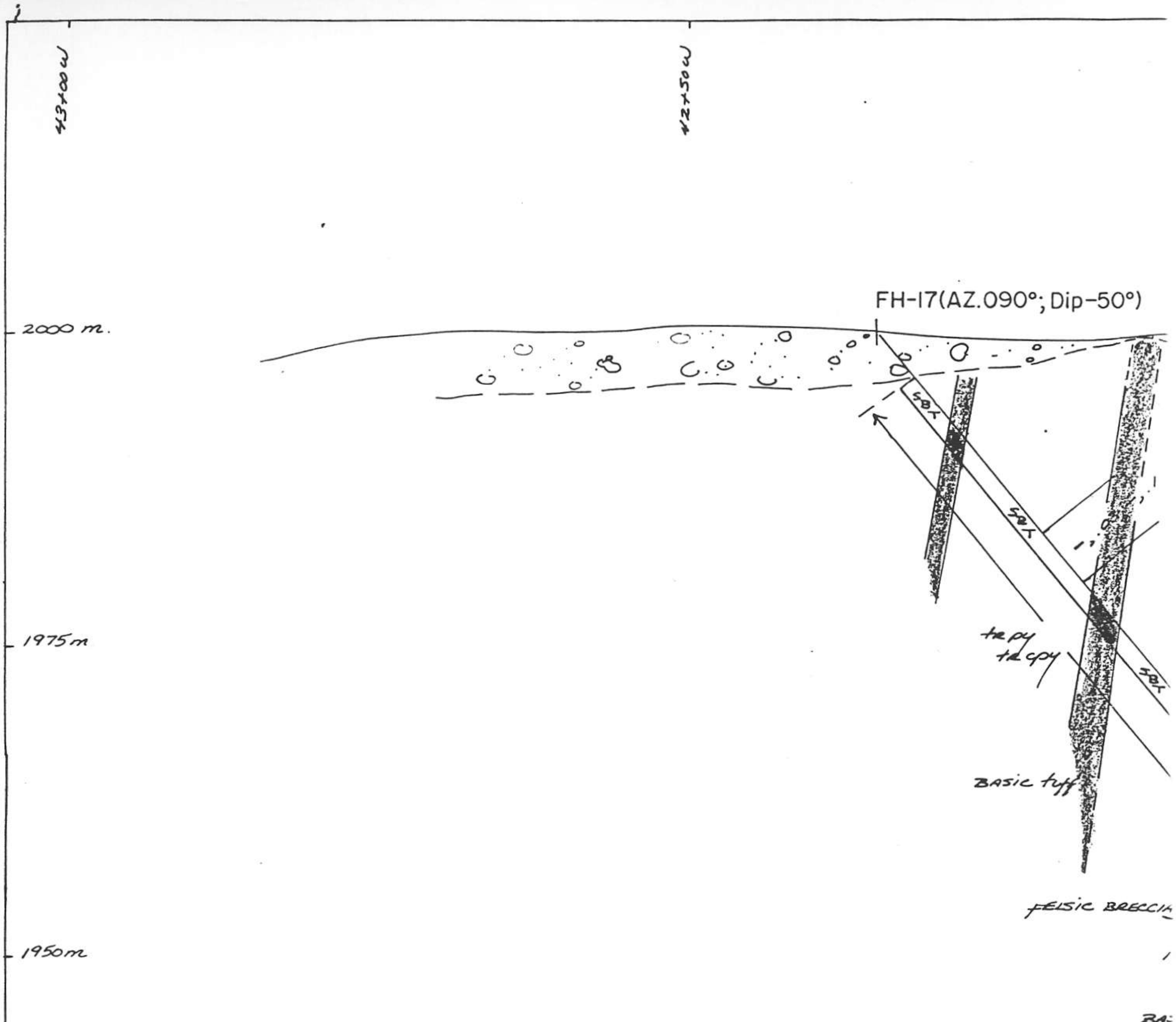


ESSO MINERALS CANADA

BARRIER-2189

DRILL SECTION FH-17

SCALE: 1cm.=10m.	Drawn By: C.E.
DATE: JAN. 1984	Figure No. 29



GEOLOGICAL UNITS

BT BASIC TUFF: Dark green-brown containing 1-10% feldspar phenocrysts and 5-10% 1-2mm. (locally lapilli sized) fragments.

FBx FELSIC BRECCIA: Yellow-grey, cherty silica-sericite matrix containg ~50% angular 1-5 cm. sericitized Basic Tuff fragments.

S SERICITIZATION (Hydrothermal alteration product)

1925m

1900 m.

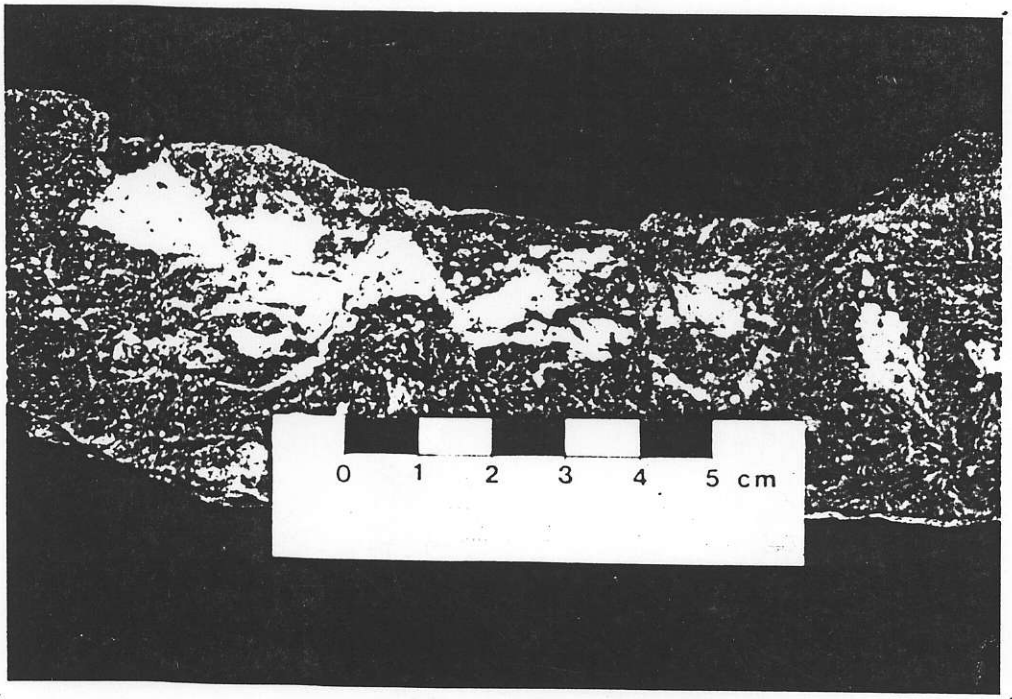
Six vein and associated sericite-carbonate alteration zones were intersected in BBC 83-1. All assays from the sections are low. The probable I.P. anomaly is attributed to pyrite (1-5%), crudely banded along the foliation. The volcanic sequence appears to be gently north dippig. Basic volcanic tuffs, breccia and agglomerate comprise most of the section. Two, 5-15 metre, ultrabasic flows or dykes split the basic volcanic section at a depth of 80 metres. Samples of the ultrabasic, the overlying altered tuffs and the underlying un-altered tuffs were sent to Min En Labs in North Vancouver for specific gravity estimates. SG results are as follows.

BBC 83-1 LOCATION	SG	UNIT
60.0 m	2.75	Altered Basic tuff
112.0 m	2.88	Ultrabasic flow
194.0 m	2.73	Un-altered basic tuff

If the ultrabasic is a sill-like body there is not enough variance in these figures to explain the gravity anomaly. A dyke-like structure, section 3.6, could explain the anomaly.

Figure #29 is the section for FH-17, drilled by Craigmont Mines Ltd. in 1979 to test mineralized breccia zones near the 1915 shaft site. A narrow 1.0 m breccia, grading .71% Pb and .33 oz Ag, was the only anomalous intersection in the hole.

Drill results indicate that narrow veins and discontinuous lensoidal breccias are the only base metal-silver carriers in the Foghorn alteration zone. No further work is warranted.



(PLATE V) Breccia Zone occurring near fault contact of cherty rhyolitic tuffite and basic lapilli tuffs. Approx. 5-10% disseminated sulphides: pyrite with 1-3% galena.

(D). Breccia Zone: (26+00N:37+00W)

On the east side of the #3 fault, a breccia zone (Plate V) containing disseminated pyrite, chalcopyrite, galena and sphalerite was discovered near the basal contact of the right lateral (#3 fault) displaced block of cherty rhyolitic tuffite, map #5. Soil geochemical results, Anomaly K: Section 3.5) suggests a minimum 300 metre strike and possible 30-50 metre width for the zone. Anomalous rock geochemical results are as follows.

Cu	.04-.72%
Pb	1.13-1.38%
Zn	.58-1.31%
Ag	.6-.7 oz/t
As	0-139 ppm
Sb	41-51 ppm

This showing was located at the end of the 1983 field and has not been evaluated in detail. Additional geological mapping and geochemical sampling is recommended for 1984.

3.5 Geochemistry

3.5.1 Stream Geochemistry

Draining (A) Argillaceous Sediments in #3 to #4 Fault Block

Stream silt and heavy mineral samples are only moderately anomalous in this area. The sulphide bearing sericite-chlorite schist horizon from L14+00N to L28+00N occurs to the west of these drainages and is considered too distal to be picked up by these streams. Anomalous results, from 5+50N to 19+00N are listed below.

- silt @ 6+00N:50+70W....386 ppm Zn
- silt @ 10+55N:50+10W....308 ppm Zn
- silt @ 15+30N:49+00W....113 ppm Cu, 102 ppm Pb, 900 ppm Zn
- silt @ 18+95N:45+70W....358 ppm Zn
- HM @ 5+50N:50+75W....260 ppm Cu, 245 ppm Pb, 680 ppm zn, 2.6 ppm Ag, 53 ppb Au
- HM @ 17+00N:48+50W....300 ppm Cu, 300 ppm Pb, 742 ppm Zn, 3.4 ppm Ag, 47 ppb Au

The minor amounts of Cu, Pb and Ag might be attributed to the Foghorn showings and pyritic cherty rhyolitic tuffite occurrences, located .5-1.0 km to the north.

Draining (B) Cherty Rhyolitic Tuffite-Massive Sulphide (?) Horizon (B-5 Grid)

Anomalous stream silt and heavy mineral results were obtained from the drainage, sourced in the ferricrete crust zone at the base of the cherty rhyolitic tuffite horizon. They are attributed to trace amounts of chalcopyrite, sphalerite and galena in the underlying felsic to intermediate volcanics.

- silt @ 23+40N:48+75W....125 ppm Cu, 445 ppm Pb, 403 ppm Zn
- silt @ 26+20N:49+50W....1050 ppm Pb, 526 ppm Zn
- silt @ 31+60N:48+80W....410 ppm Pb, 611 ppm Zn
- silt @ 34+00N:49+80W....250 ppm Pb, 345 ppm Zn
- HM @ 26+00N:49+50W....228 ppm Cu, 700 ppm Pb, 390 ppm Zn, 2.9 ppm Ag, 150 ppm Sb, 102 ppm As
- HM @ 33+75N:49+70W....284 ppm Cu, 720 ppm Pb, 1240 ppm Zn, 3.6 ppm Ag, 128 ppm Sb, 10800 ppm Ba

Draining (C) Foghorn Showings

Two silts were taken along the stream draining the Foghorn Showing to the north. Both samples are weakly anomalous in Pb and highly anomalous in Zn. No heavy mineral samples were taken.

- silt @ 26+30N:38+70W....112 ppm Pb, 1100 ppm Zn
- silt @ 29+25N:36+30W....122 ppm Pb, 1880 ppm Zn

3.5.2 Soil Geochemistry

Anomaly D: B-3 Grid (maps 14-15)

Reconnaissance soil lines were run east of baseline 55+00W: 48+00N-56+00N to test a north-south trending band of sericite-pyrite (1-15%) schists. Only the C horizon samples gave moderately anomalous results.

Copper	123-185 ppm
Lead	365-515 ppm
Zinc	392-575 ppm
Silver	3.1-3.9 ppm
Gold	38-49 ppb

The anomaly dimensions are a 200 metre strike and 25-75 metre width. Soil profile sampling was completed on only 2 grid lines. Additional sampling could enlarge the anomaly boundaries. There is no HLEM conductor or magnetic anomaly associated with this zone. This horizon was not explored in detail as it lies outside of the Joseph 9 claim boundary. Anomaly D does not warrant any further work.

Anomaly E: B-4 Grid (maps 16-17)

Anomaly G: B-5 Grid (maps 18-19)

Anomalies E and G are sourced by the sericite-chlorite schist horizon extending from L13+00N-17+00N and L20+00N-25+00N. The soil geochemical expression from this unit is treated as two anomalies because of a 300 m section with no anomalous values and the terrain differences in each area.

Anomaly E extends from line 13+00N-17+00N:50+50W-51+25W. The anomaly is located on a gentle east facing slope with shallow, 1-3 metre, till cover.

Copper	115-339 ppm
Lead	112-235 ppm (high of 1920 ppm)
Zinc	243-277 ppm
Silver	2.3-4.2 ppm
Gold	20-23 ppb

Angular pyritic chert, black argillite and banded chlorite-sericite-pyrite schist (probable intermediate flow) float occur within this zone. The associated HLEM conductors 67 and 75-77 are unexplained. The geochemical values are considered only weakly anomalous and not deserving of further work.

The chlorite-sericite schists sourcing Anomaly G contain isolated pockets of fracture controlled pyrite, chalcopyrite and galena. The associated soil geochemical anomaly has a pronounced copper signature and erratic lead, zinc and gold values. Anomalous results are as follows:

Copper	133-1520 ppm
Lead	123-173 ppm
Zinc	216-416 ppm
Gold	30-287 ppb (in C horizon only)

There is no HLEM conductor associated with this anomaly. Rock geochemical results are low. Anomaly G does not warrant further work.

Anomaly F: B-4 Grid (maps 16-17)

Anomaly F is a drainage anomaly parallel to conductors 72 and 73. A south-southwest draining tributary of Joseph Creek drains this area. Spotty, weakly anomalous copper, lead, zinc and silver values (in C horizon samples only) occur along the creek bank from line 14+00N to 18+00N.

Copper	108-125 ppm
Lead	114-186 ppm
Zinc	201-280 ppm
Silver	2.0-3.8 ppm

Anomalies H and I, located upstream in the B-5 Grid, are the likely source for the anomalous soils. The conductors are caused by the #3 and #4 fault graphitic gouge zones.

Anomaly H: B-5 Grid (maps 18-19)

Anomaly H is a crudely circular (300 x 400 metre) anomaly coincident with the ferricrete rich gossanous swamp west of the cherty rhyolitic tuffite horizon. Seeps draining the area are acidic, ph:3.5. Soil profile results indicate a decrease in base metal content with depth. Lead values appear to be anomalous while copper, zinc, silver and gold values occur as isolated one sample highs.

Copper	102-288 ppm
Lead	100-1470 ppm
Zinc	213-910 ppm
Silver	2.1-3.5 ppm
Gold	1 sample only:505 ppb - possible lab error?

Copper, zinc and silver are considered mobile elements and might be leached out of the soil by acidic groundwater. Lead is a less mobile element and might remain in place, occurring with Fe-sulphates. This zone has been over-adequately drilled by Craigmont Mines Ltd. in the past. No further work is warranted.

<u>Anomaly I: Foghorn Showings: B-5 Grid</u> (maps 18-19)

The Foghorn vein showings were tested with 4 soil lines as an orientation survey to illustrate the geochemical signature for narrow base metal bearing fissures. Anomalous lead and zinc values occur as a broad halo, 200 x 500 metres, to the veins while copper and silver values appear as erratic one sample highs.

Copper	102-306 ppm
Lead	114-880 ppm
Zinc	203-3450 ppm
Silver	2.1-3.3 ppm

<u>Anomaly J: B-5 Grid</u> (maps 18-19)

Anomaly J, as in Anomaly A, is a silver anomaly associated with Fennell Formation black argillites.

Anomalous values range between 2.3-6.3 ppm, occurring as erratic one sample anomalies between line 25+00N-41+00N. This horizon does not warrant any further work.

Anomaly K: B-5 Grid (maps 18-19)

Anomaly K is sourced by the silica-pyrite ± galena-sphalerite-chalcopyrite breccia zone proximal to the cherty rhyolitic tuffite horizon; east of the #3 fault. The anomaly has a minimum strike length of 300 metres and an apparent true width of 30-50 metres. Anomalous soil geochemical results are as follows.

Copper	107-125 ppm
Lead	200-5200 ppm
Zinc	442-1030 ppm
Silver	2.9-14.8 ppm

This zone has not been adequately explored. Geological mapping and geochemical sampling to the north and south are recommended for the 1984 field season.

3.6 Geophysics

The results of the HLEM survey are presented on maps 31, 32 and 33. Magnetometer survey results are on maps 39, 40 and 41. The induced polarization pseudosections are located in appendix I. The gravity survey profiles are in appendix J.

The HLEM survey outlined 49 conductors. These are labelled 36 to 48 and 57 to 92. The majority of these features are caused by graphitic argillites, some of which are associated with soil geochemical anomalies, table 5.

Conductors 47, 48, 62, 67, 74 and 77 are unexplained. Conductors 47 and 48 are located in an area with extensive marsh development and gabbro-diorite sill frost heave. These conductors could be attributed to either a graphite or sulphide bedrock source. The source of conductor 62 is unknown but could be due to either graphitic sediments or graphitic fault gouge. Conductors 67 and 77 are possibly associated with a chlorite-sericite-pyrite schist horizon. Argillite float was not noted near this unit, consequently the conductors could be caused by sulphides. Conductor 74 is located within an area mapped as porphyritic intermediate flow and glacial cover. It could possibly be sourced by sulphides.

The magnetometer survey outlined 12 anomalies. These are labelled M24 to M35. Anomalies M24, M25 and M33 are caused by magnetite and pyrrhotite in the gabbro-diorite sills. Anomalies M26 to M28 are attributed to pyrrhotite bearing chert horizons. The remaining anomalies are unexplained, but are probably due to magnetite bearing basalts.

(TABLE 5)

HLEM CONDUCTORS B3E, B4, B5 GRIDS

Conductor	Grid(s)	Source	Geochem Anomaly #
36	B3E	graphite	
37	B3E	"	
38	B3E	"	
39	B3E	"	
40	B3E	"	
41	B3E	"	
42	B3E	"	
43	B3E	"	
44	B3E	"	
45	B3E	"	
46	B3E	graphite	
47	B3E	?	
48	B3E	?	
57	B4	graphite	
58	B4	"	
59	B4	"	
60	B4	"	
61	B4	graphite	
62	B4	?	
63	B4	graphite	
64	B4	"	
65	B4	"	
66	B4	graphite	
67	B4	?	F
68	B4	graphite	E
69	B4	"	E
70	B4	"	E
71	B4	"	E
72	B4, B5	"	E
73	B4, B5	graphite	E
74	B4	?	
75	B4	graphite	
76	B4	graphite	
77	B4	?	F
78	B5	graphite	
79	B5	pyrite	H
80	B5	graphite	
81	B5	"	
82	B5	"	
83	B5	"	
84	B5	"	
85	B5	"	
86	B5	"	
87	B5	"	J
88	B5	"	J
89	B5	"	J
90	B5	"	J
91	B5	"	J
92	B5	graphite	J

The interpreted IP anomalies are indicated on each pseudosection (appendix I). A line by line analysis of the IP data is found in Table 6. The strongest responses are observed within the graphitic argillites.

The responses over the Foghorn showing, in comparison, are weaker. Drill hole 83-1 tested the strongest IP anomaly in this zone. Approximately 2-10% disseminated pyrite was located down hole. The remaining weaker anomalies probably reflect a similar type of mineralization in the basic tuffs.

The gravity data shows a positive anomalous feature at 3800N from 2600N to 22800N. This feature was also tested by drill hole 83-1. An ultrabasic sill or dyke (?) was encountered. Rock samples taken above, within and below this unit were measured for specific gravity. The measurements show that the background density is 2.74 g/cm^3 and the density of the ultrabasic is 2.88 g/cm^3. Computer modelling shows that the density contrast between the ultramafic and background (0.14 g/cm^3) can account for the gravity anomaly (figures 1 to 3). The modelling also suggests that the orientation of this unit is more vertical. Possibly the ultrabasic is a dyke-like body rather than a stratiform feature.

(TABLE 6)

IP B5 GRID

Line 20+00N

Location	Resistivity	Chargeability	Geology
5550W-5300W	≃1000 ohm-,	low	-gabbro-diorite
5300W-5100W	300-400 ohm-m	moderate	-argillite, sandstone
5100W-4950W	1000-2000 ohm-m	high	-porphyritic intermediate flow
4950W-4800W	<100 ohm-m	high	-graphitic argillite, fault gouge
4800W-4600W	100-500 ohm-m	high	-cherty rhyolite tuff 1-15% diss. py.
4600-4450W	<100 ohm-m	high	-graphitic fault gouge

Line 22+00N

Location	Resistivity	Chargeability	Geology
5450W-5350W	≃1000 ohm-m	moderate	-edge of gabbro diorite sill, minor limestone
5350W-5200W	600-1000 ohm-m	moderate	-sandstone, minor argillite
5200W-5100W	≃100 ohm-m	high	-argillite, chert
5100W-4950W	1000-2000 ohm-m	moderate	-chlorite sericite pyrite schist, sandstone, porphyritic intermediate flow
4950W-4800W	<100 ohm-m	high	-graphitic argillite, fault gouge
4800W-4600W	400-500 ohm-m	high	-pyritic intermediate tuff, cherty rhyolite tuff (5-15% py)
4600W-4350W	>10,000 ohm-m	moderate	-rhyolite (barren)
4350W-3950W	1000-3000 ohm-m	moderate	-basic tuff

Line 24+00N

Location	Resistivity	Chargeability	Geology
5450W-5250W	1000-2000 ohm-m	moderate	-limestone, sandstone
5250W-5100W	$\lesssim$100 ohm-m	very high	-graphitic argillite
5100W-4950W	1000-2000 ohm-m	moderate	-chlorite sericite pyrite schist, sandstone, porphyritic intermediate flow
4950W-4850W	100-200 ohm-m	high	graphitic argillite
4850W-4700W	400-800 ohm-m	high	-pyritic intermediate tuff
4700W-4600W	1000-2000 ohm-m	high	-intermediate tuff
4600W-4500W	500-1000 ohm-m	high	-flat-lying pyritic cherty rhyolite near surface, interm. tuff at depth (1-3% py)
4500W-4250W	2000-5000 ohm-m	high to moderate	-cherty rhyolite tuff (5-20% diss py at depth)
4250-4150W	400-1000 ohm-m	low	-fault zone
4150W-3950W	$\simeq$2000 ohm-m	moderate	-basic tuff

Line 26+00N

Location	Resistivity	Chargeability	Geology
5450W-5250W	1000-2000 ohm-m	moderate	-limestone, sandstone
5250W-4850W	30-400 ohm-m	high	graphitic argillite, minor sandstone, chlorite sericite schist
4850W-4700W	$\simeq$1000 ohm-m	high	- ?
4700W-4200W	2000 ohm-m	low	-basic tuff
4200W-3500W	600-1000 ohm-m	high 42W-37W low 37W-35W	-Foghhorn Showings, vein-carbonate-sericite-pyrite alteration zone (2-10% py)

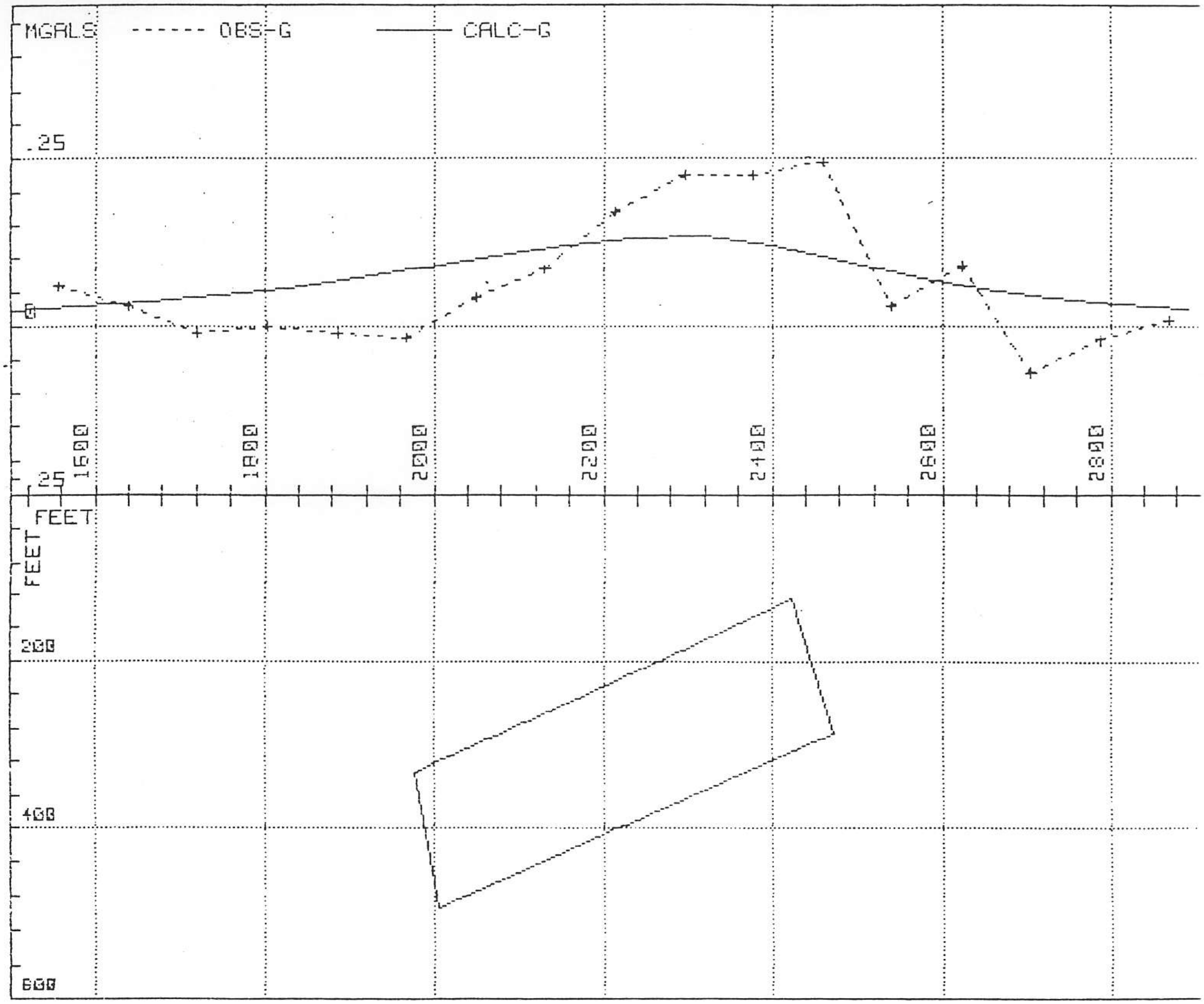
Line 27+00N

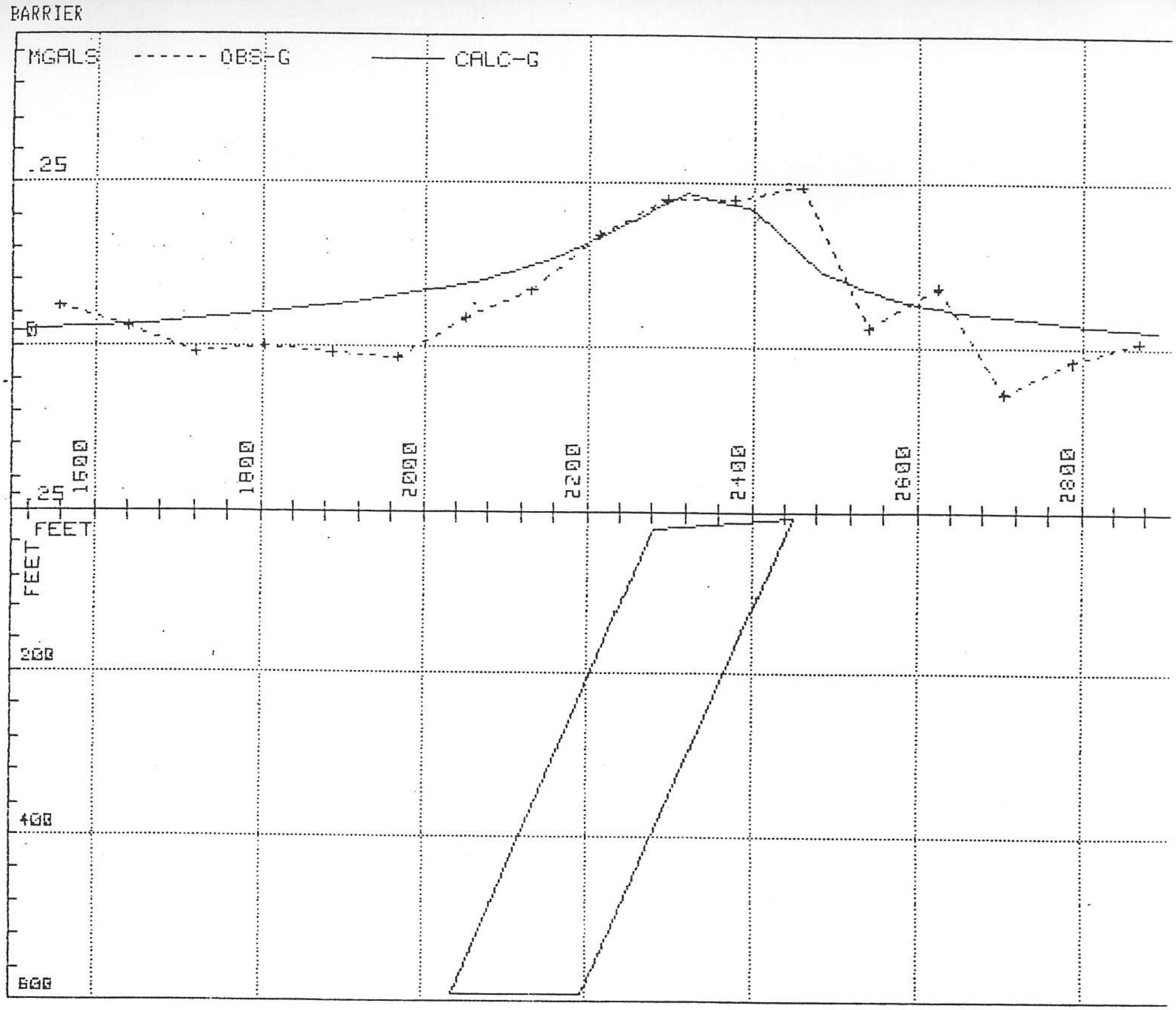
Location	Resistivity	Chargeability	Geology
4300W-4150W	2000-6000 ohm-m	low	-basic lapilli tuff
4150W-3950W	1000-2000 ohm-m	moderate	- ?
3950W-3850W	800-1000 ohm-m	high	-Foghorn Showings (1-10% py - usually banded)
3850W-3800W	1000-2000 ohm-m	low	-fault zone

Line 28+00N

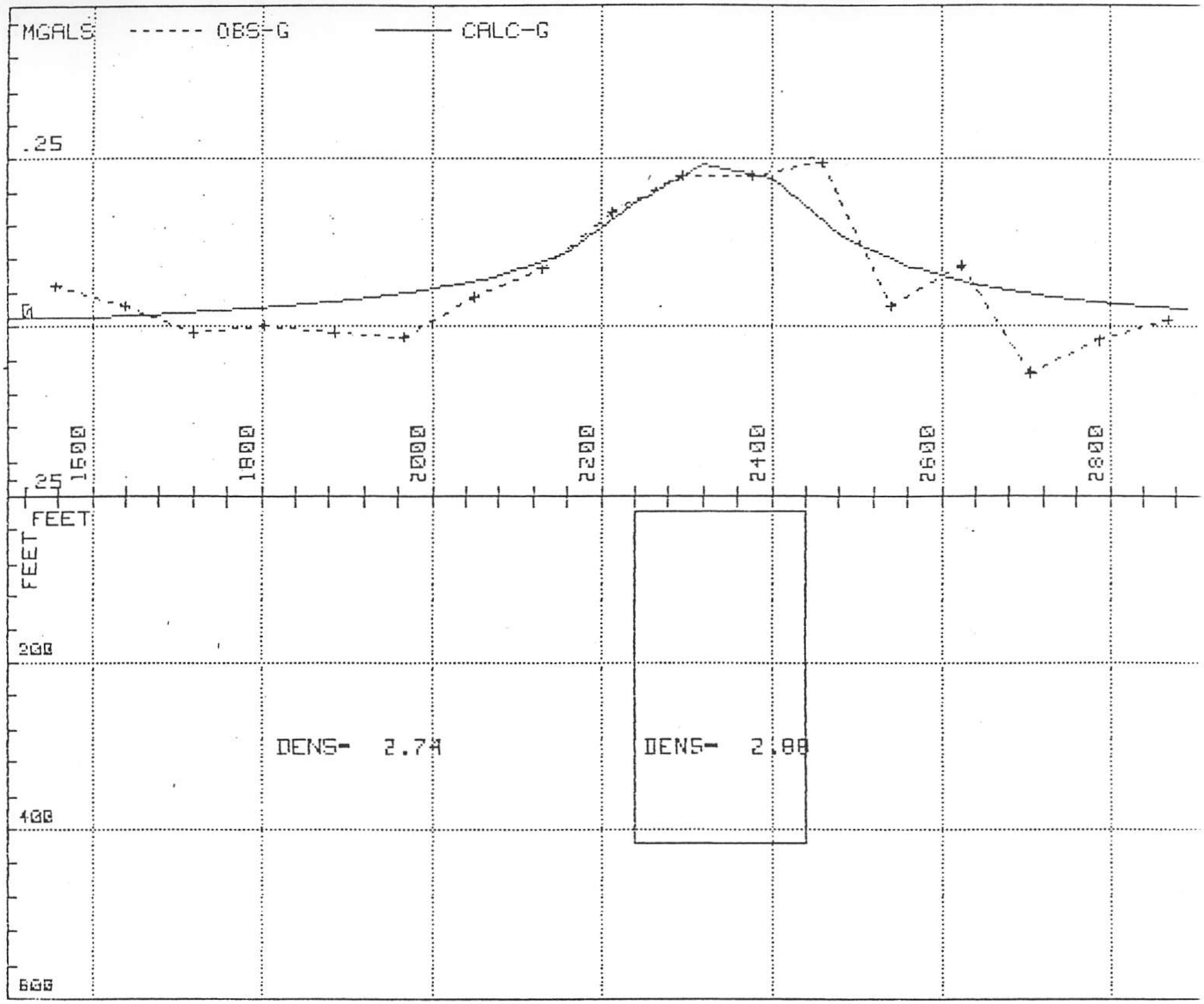
Location	Resistivity	Chargeability	Geology
5450W-5300W	1000-2000 ohm-m	moderate	-limestone, minor chert
5300W-5150W	300-500 ohm-m	high	-sandstone, minor graphitic argillite
5150W-5050W	$<$100 ohm-m	high	-graphitic argillite
5050W-4950W	100-500 ohm-m	low	-intersection point of 3 major faults, pyritic (3%) rhyolite float
4950W-4800W	1000-2000 ohm-m	low	-sandstone, minor intermediate flow
4800W-4650W	2000-3000 ohm-m	low	-intermediate flow
4650W-4450W	1000-2000 ohm-m	high	-basic tuff, intermediate flow
4450W-4100W	2000-3000 ohm-m	low	-basic tuff
4100W-3800W	1000-2000 ohm-m	moderate-high	-Foghorn vein alteration zone
3800W-3500W	800-1000 ohm-m	moderate	-cherty rhyolite, galena bearing breccia zone

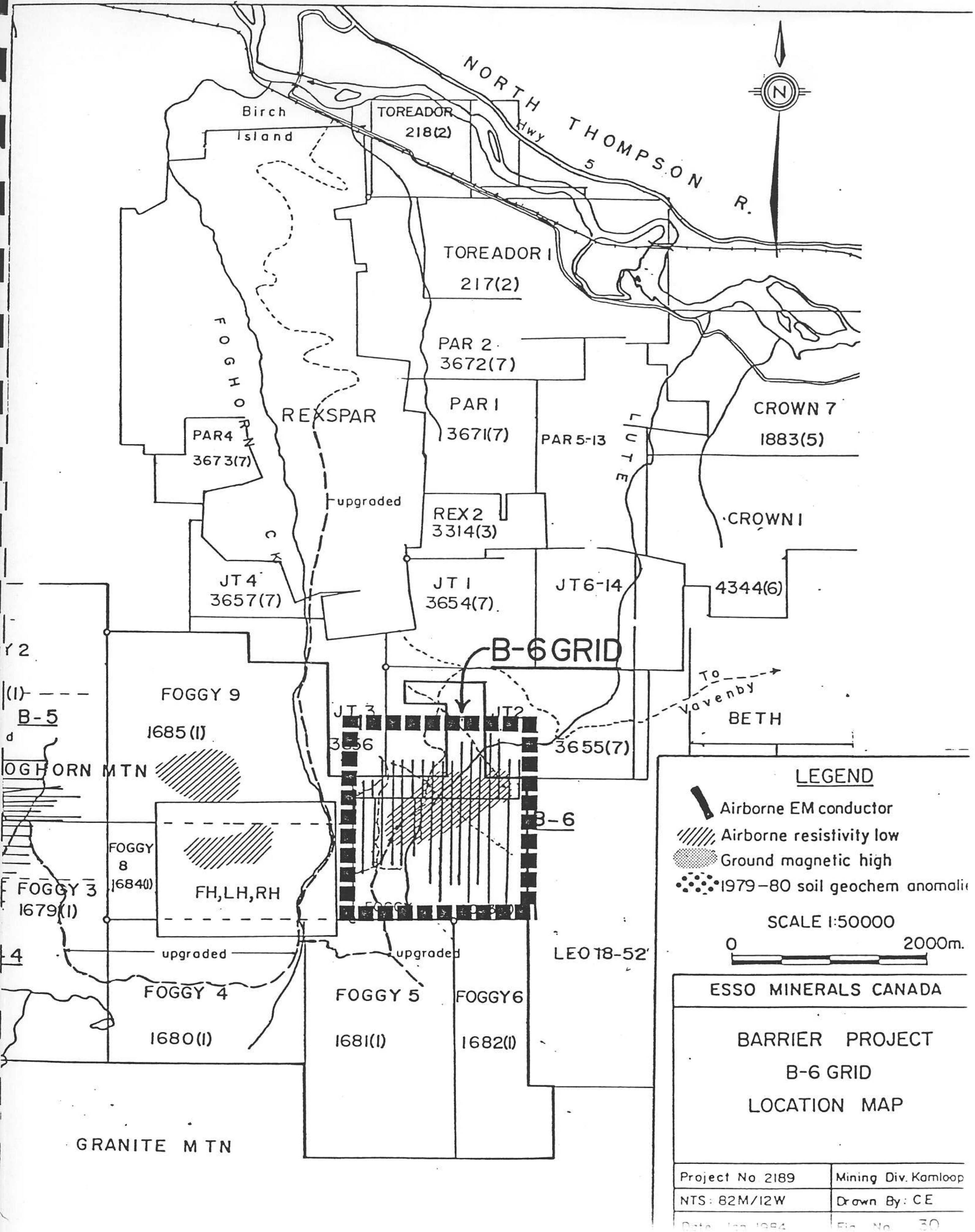
BARRIER


MGALS
OBS-G
CALC-G
.25
0
-.25
1600
1800
2000
2200
2400
2600
2800
FEET
FEET
200
400
600


BARRIER
MGALS
------ OBS-G
CALC-G
.25
0
.25
1600
1800
2000
2200
2400
2600
2800
FEET
FEET
200
400
600

BARRIER


MGALS
OBS-G
CALC-G
.25
0
-.25
1600
1800
2000
2200
2400
2600
2800
FEET
FEET
200
400
600
DENS- 2.74
DENS- 2.88


NORTH THOMPSON R.
Hwy 5
Birch Island
TOREADOR 218(2)
TOREADOR I 217(2)
PAR 2 3672(7)
PAR I 3671(7)
PAR 5-13
PAR4 3673(7)
REXSPAR
FOGHORN CK
LUTE
CROWN 7 1883(5)
CROWN I
REX 2 3314(3)
upgraded
JT 4 3657(7)
JT I 3654(7)
JT6-14
4344(6)
B-6 GRID
To Vavenby
BETH
3655(7)
B-5
FOGGY 9 1685(I)
OGHORN MTN
B-6
FOGGY 8 1684(I)
FH,LH,RH
FOGGY 3 1679(I)
upgraded
FOGGY 4 1680(I)
FOGGY 5 1681(I)
FOGGY6 1682(I)
LEO 18-52
GRANITE MTN
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979-80 soil geochem anomali
SCALE 1:50000
0 2000m.
ESSO MINERALS CANADA
BARRIER PROJECT
B-6 GRID
LOCATION MAP
Project No 2189
Mining Div. Kamloop
NTS: 82M/12W
Drawn By: CE

4.0 B-6 Grid

4.1 Recommendations

- Diamond drilling to test for an increase in base and/or precious metal values down dip of semi-massive sulpide horizon.

- Proposed drill site - 3+00W:20+75N Az. 150° Dip -75° Length 150 m.

4.2 Conclusions

- The semi-massive sulphide horizon on the B-6 Grid is a stratiform sulphide occurrence in Eagle Bay Formation meta-volcanics. The showing is considered a pyrite rich body with little potential as a base or precious metal carrier.

- Chlorite, in association with the banded sulphides, may be a hydrothermal alteration product associated with the deposition of sulphides.

- The sharp banded sericite schists, at the base of the semi-massive sulphide horizon, may represent a feeder zone to the overlying sulphides.

- The sulphide bearing zone dips gently, ~5-20°, to the northwest. This is roughly parallel to the slope of Foghorn Mountain, thus the exaggeration of the I.P. and soil geochemical anomalies for this zone.

- The main sulphide horizon does not conduct. Sulphides, though locally massive, are rimmed with silica and chlorite, and are best traced by Induced Polarization surveying.

- Anomalous gold values appear concentrated in the oxidized portion of the semi-massive sulphide horizon. Assays from diamond drilling are not comparable to those obtained from ~~diamond drilling~~. surface sampling.

4.3 Introduction

This portion of the report documents a detailed geological mapping, soil/silt/rock geochemical, HLEM/induced polarization/ proton magnetics surveying and diamond drilling program in Eagle Bay Formation meta-volcanics and sediments, figure #30. Field work was concentrated in the eastern portion of the property, along a semi-massive pyrite showing, discovered by Barrier Reef Resources in 1980. Outcrop are scarce in this area. The boundaries between rock units are made by linking float occurrences from line to line.

4.4 Geology

The B-6 grid is underlain by Eagle Bay Formation meta-volcanics and arenaceous sediments. All of the units are highly schistose and have been subjected to greenschist facies metamorphism. Original rock textures are rarely distinguishable. Predictions of original rock types are made from rock composition and the few identifiable textures observed in drill core and in the field.

Figures 31-34 show the B-6 grid stratigraphic section, unit trends, structural and predicted attitude of the chlorite schist-semi massive sulphide horizon. A description of rock types and expected depositional sequence is as follows.

B-6 GRID
VERTICAL "NORTH-SOUTH" SECTIONS

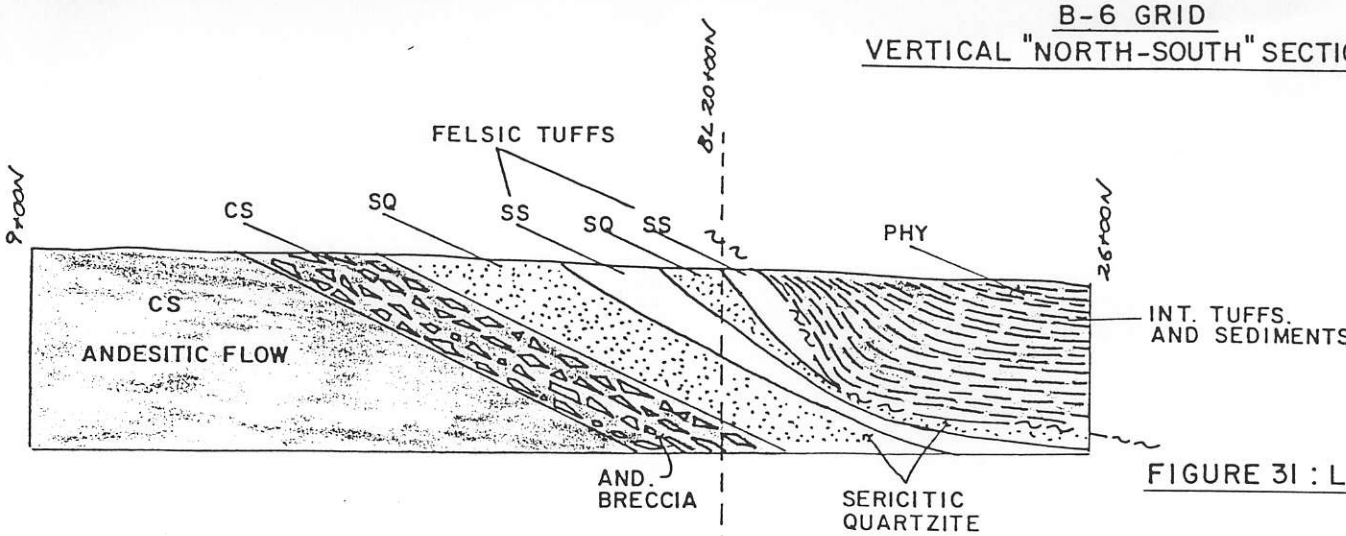


FIGURE 31 : L5+00E

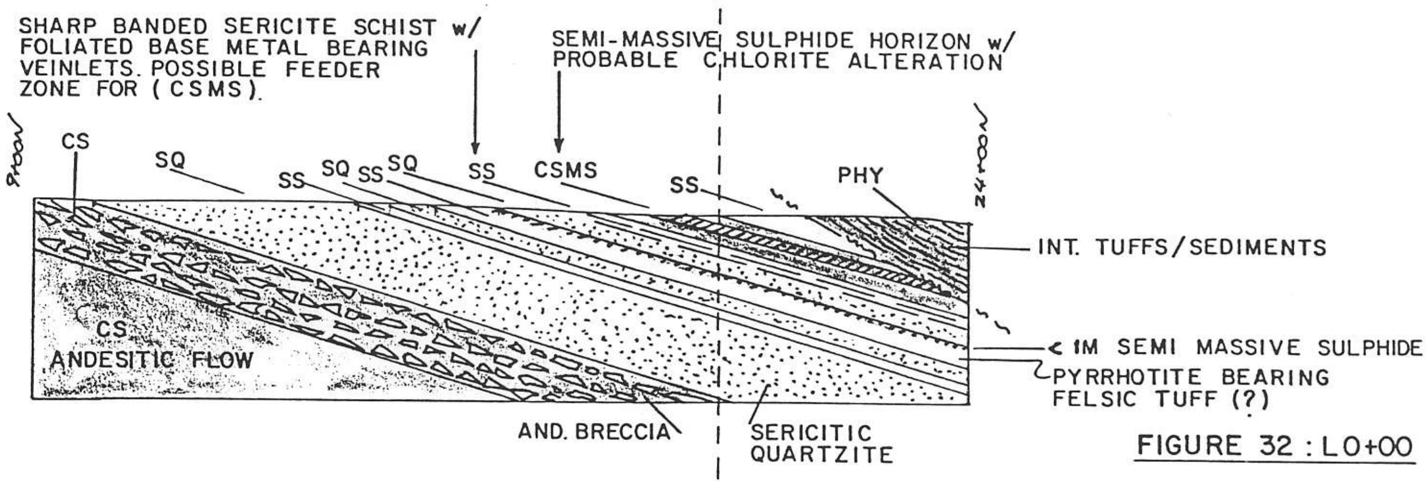


FIGURE 32 : L0+00

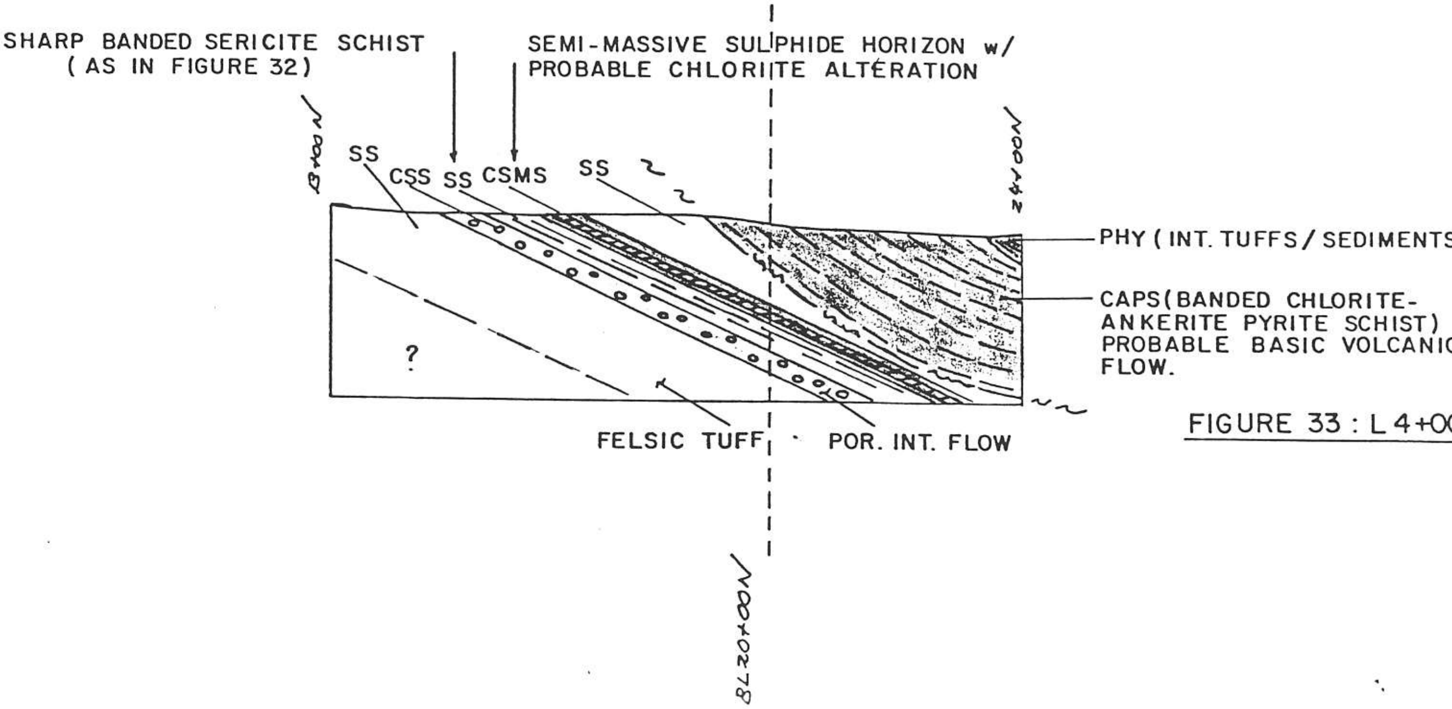


FIGURE 33 : L4+00W

(see figure 34)

(A) Basic volcanic deposition (CS). Predominantly basaltic flow capped by an andesitic to basaltic breccia.

(B) Clastic sedimentation (SQ) with minor felsic and intermediate volcanic flows associated. Estimated true thickness to base of lower sulphide horizon is 180 metres.

(C) Lower Sulphide Horizon (1.0-1.5 metre true thickness) chlorite schist and banded semi massive sulphides overlying a 5-10 metre felsic (pyrrhotite bearing) flow. Chlorite is a possible hydrothermal alteration product.

(D) Minor clastic sedimentation (SQ) 5-10 metres thick

(E) Upper Sulphide Horizon (3.0-10.0 metre true thickness) chlorite schist and banded semi massive sulhides. Unit overlies a 10-15 metre felsic volcanic flow (?) or base metal bearing feeder zone (?)

(F) Felsic flow deposition. 5-20 metres thick marking end of the felsic volcanic/sedimentary sequence.

(G) Basic volcanic flow (125 metres minimum thickness) and intermediate tuff and shale (minimum 100 metres) development.

(H) Deformation and regional metamorphism.

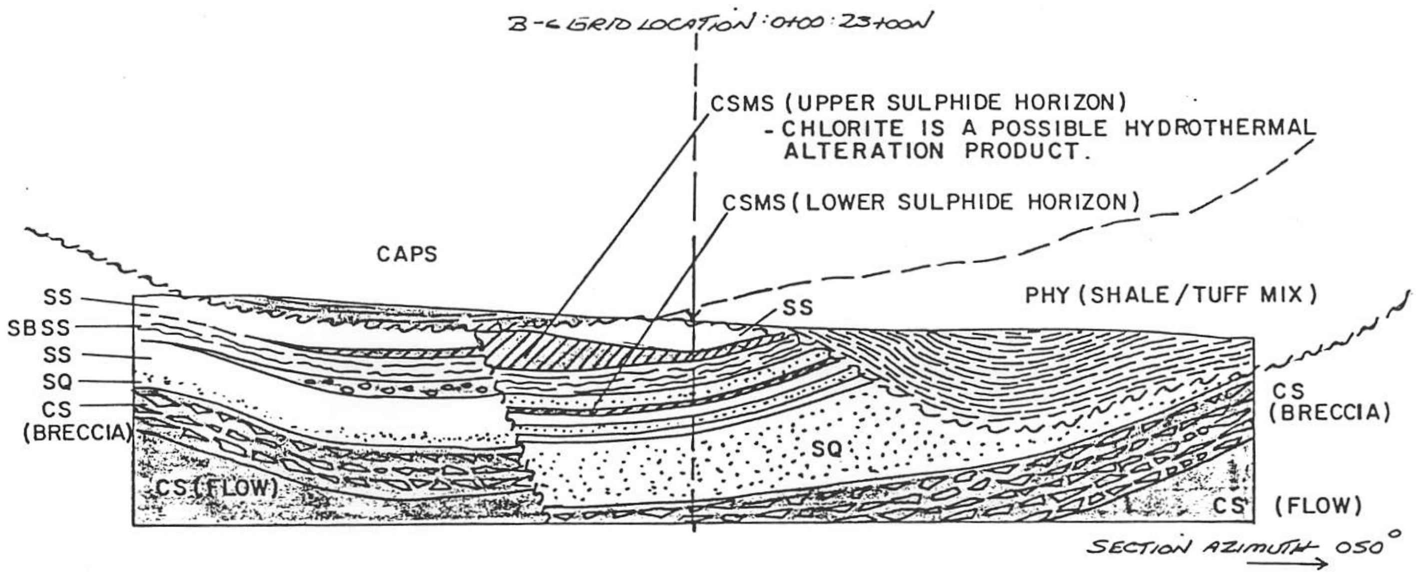
(I) Low angle thrusting of basic volcanic flows (caps) and intermediate tuff and shales (PHY) over felsic volcanic sequence.

(J) Regional greenschist facies metamorphism attributed to Middle Cretaceous Baldy Batholith, located 2 km to the south.

The dominant structure in this portion of the property is a gentle north 20^{o} plunging syncline, figure #34. All units appear to dip gently to the north-northwest with a subtle flexure along the limbs suggesting a regional synform. The fault contact between units (CAPS) and (PHY) is presumed to be 15-30^{o} north dipping with the overlying basic to intermediate schists tilted to the west.

B-6 GRID

CROSS SECTION (AZIMUTH 050°)



(CAPS) CHLORITE ANKERITE PYRITE SCHIST - ANDESITIC TO BASALTIC FLOW

(PHY) PHYLLITE - MIX OF GREY GREEN SHALE AND INTERMEDIATE TUFFS

FAULT CONTACT

(SS) SERICITE SCHIST - FELSIC VOLCANIC FLOW.

(CSMS) CHLORITE SCHIST - SEMI-MASSIVE SULPHIDE HORIZON
TRUE WIDTH : 3 - 10 METRES - UPPER ZONE
: 1 METRE - LOWER ZONE

(SBSS) SHARP BANDED SERICITE SCHIST - POSSIBLE HIGHLY FOLIATED STRINGER FEEDER ZONE FOR (CSMS)

(CSS) CHLORITE SERICITE SCHIST - INTERMEDIATE VOLCANIC FLOW.

(SQ) SERICITIC QUARTZITE

(CS) CHLORITIC SCHIST - BASIC VOLCANIC BRECCIA

(CS) CHLORITE SCHIST - BASIC VOLCANIC FLOW

0 200 m.
LATERAL SCALE ONLY

FIGURE #34

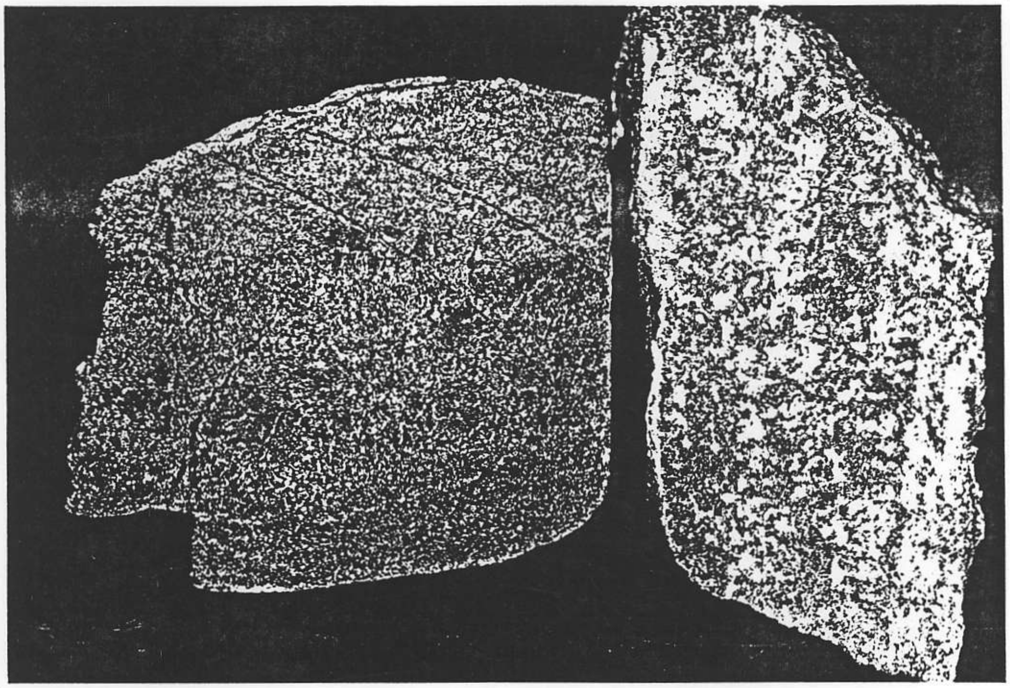
4.4.1 Alteration and Mineralization

A. Semi-Massive Sulphide Horizons

As shown on figure 34, two semi-massive sulphide horizons were discovered on the B-6 grid. They were outlined by geological mapping (map #6), soil geochemistry (maps 20-24; section 4.5)), trenching (figure 35), diamond drilling (figures 36 and 37) and by induced polarization surveying (Appendix I).

The sulphides, Plate VI, are usually well banded and spatially associated with chlorite schists near the top of 250 metre thick felsic volcanic/arenaceous sedimentary sequence. Pyrite is the dominant sulphide mineral comprising 95-100% of the total sulphide content. Only minor amounts of chalcopyrite and light red sphalerite were noted. Pyrrhotite, in trace amounts, is found below the lower sulphide horizon. Individual pyrite bands can vary from 5 mm to 1.0 metre in true width. The total sulphide content of the horizon usually varies between 15 and 90%, generally at 30%. Typically the pyrite is coarse and subhedral, encased by silica and/or chlorite. These zones are excellent I.P. anomalies but are not picked up by magnetics or HLEM.

The lower sulphide horizon, figures 34, 36 and 37 was discovered in drill holes BBC 83-2 and BBC 83-3. It has a 1-2 metre width and contains only trace amounts of sphalerite, chalcopyrite and pyrrhotite. Base and precious metal values from this zone are only weakly anomalous.



(PLATE VI) B-6 grid semi massive sulphides. Coarse disseminated pyrite with minor chalcopyrite and sphalerite banding. Sulphides are typically encased in silica and chlorite.

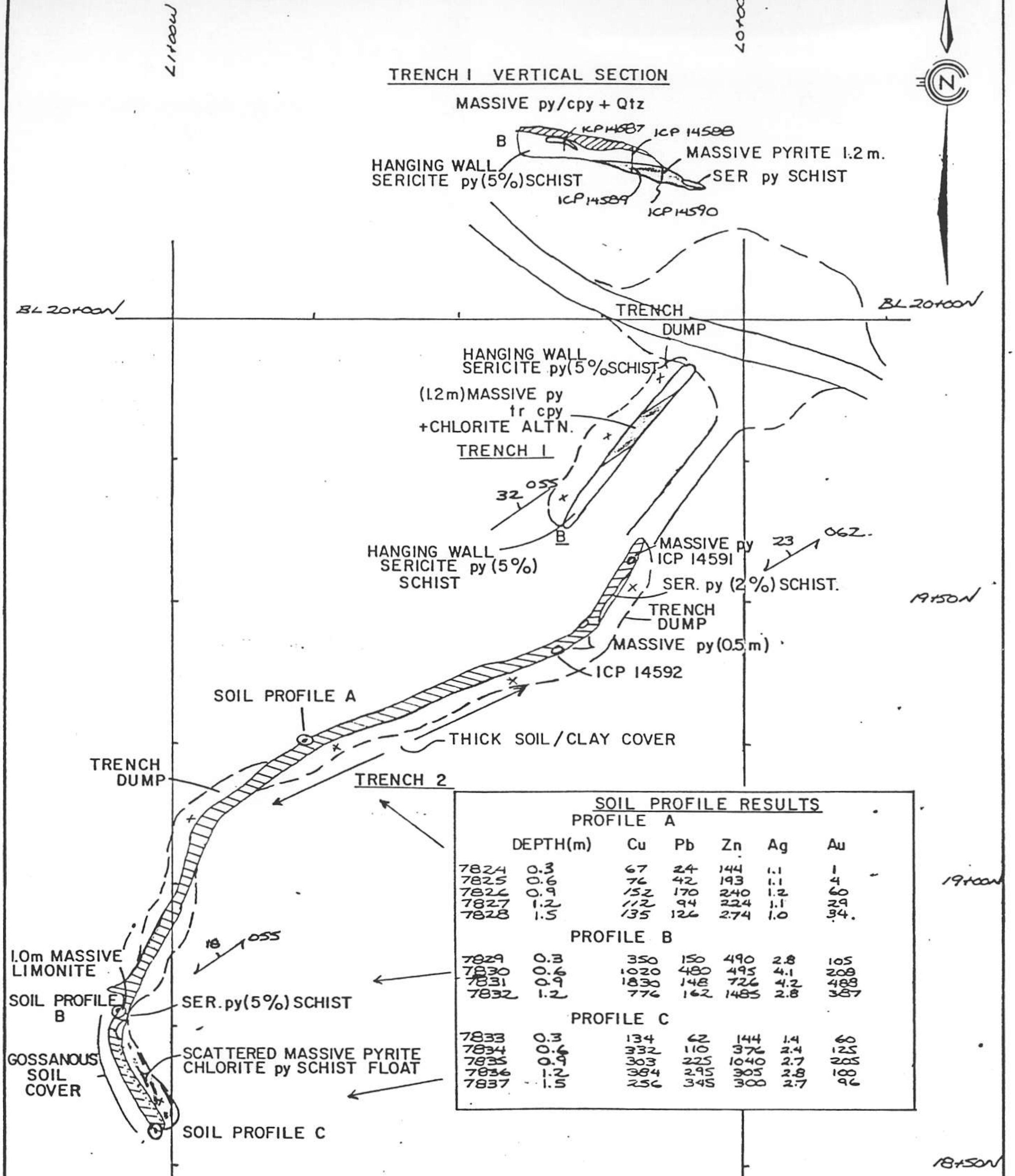
DDH	From	To	Width (m)	Cu (%)	Zn (%)	Ag (oz/t)	Au (oz/t)
83-2	72.3	73.7	1.4	.058	.045	.09	.003
83-2	73.7	74.6	0.9	.056	.012	.21	.010
83-3	64.0	65.1	1.1	.018	.190	.11	.002

The upper sulphide horizon has a variable width of 1.3 metres in BBC 83-2, and 8.5 metres in BBC 83-3. The style of mineralization is consistent from hole to hole. There is a thickening of the sulphide horizon to the west, figure #34, until it is cut off by a steep west dipping cross fault as shown on figure 36 and map #6. The semi-massive sulphide float located on the west side of the fault contains minor amounts of pyrrhotite and appears to be part of the lower sulphide horizon. Anomalous results from the drilling are as follows.

DDH	From	To	Width (m)	Cu (%)	Pb (%)	Zn (%)	Ag (oz/t)	Au (oz/t)
83-2	32.5	33.8	1.3	.081	.015	.029	.08	.007
83-2	33.8	35.2	1.4	.053	.053	.095	.11	.002
83-3	32.5	34.5	2.0	.035	.006	.047	.11	.001
83-3	34.5	35.6	1.1	1.20	.062	.065	.80	.017
83-3	35.6	37.1	1.5	.12	.011	.016	.10	.011
83-3	37.1	39.8	2.7	.054	.003	.008	.10	.002
83-3	39.8	41.0	1.2	.048	.004	.018	.10	.002

Except for a 1.1 metre intersection of 1.2% Cu and .017 oz/t Au in BBC 83-3, drill results are low. Results from the surface sampling (Appendix H) and soil profiling (figure 35) of the main sulphide horizon showed this zone to be anomalous in gold and silver. Anomalous precious metal results from the surface showing are listed below.

Ag	tr-.3 oz/t; highs of .8-1.4 oz/t
Au	.004-.078 oz/t; high of .172 oz/t



SOIL PROFILE RESULTS

PROFILE A

	DEPTH(m)	Cu	Pb	Zn	Ag	Au
7824	0.3	67	24	144	1.1	1
7825	0.6	76	42	193	1.1	4
7826	0.9	152	170	240	1.2	60
7827	1.2	112	94	224	1.1	29
7828	1.5	135	126	274	1.0	34.

PROFILE B

	DEPTH(m)	Cu	Pb	Zn	Ag	Au
7829	0.3	350	150	490	2.8	105
7830	0.6	1020	480	495	4.1	208
7831	0.9	1830	148	726	4.2	488
7832	1.2	776	162	1485	2.8	387

PROFILE C

	DEPTH(m)	Cu	Pb	Zn	Ag	Au
7833	0.3	134	62	144	1.4	60
7834	0.6	332	110	376	2.4	125
7835	0.9	303	225	1040	2.7	205
7836	1.2	384	295	305	2.8	100
7837	1.5	256	345	300	2.7	96

B-G GRID

TRENCH I AND TRENCH 2

LOCATION MAP

0 5 10 20 30 40 50

L0+00

L11+00W

Figure No. 35

All of the high gold and/or silver assays are from oxidized samples. There appears to be a surficial enrichment of precious metals in the oxidized portion of the horizon. The occasional sample with anomalous gold values (.012-.078 oz/t) were obtained from the sericite schists, sericitic quartzites and chlorite ankerite-pyrite schists. These units are generally barren of precious metals and have no exploration potential.

The upper sulphide zone overlies a sharp banded sericite schist horizon, characterized by 2-20 mm alternating bands of sericite; sericite-quartz ± pyrite; and quartz-feldspar-pyrite ± chalcopyrite-sphalerite-galena. The base metal bearing bands appear as quartz stringers, now stretched along the foliation. They may represent the original feeder zone for the upper sulphide horizon. Anomalous drill results from this horizon are as follows.

DDH	From	To	Width (m)	Cu (%)	Pb (%)	Zn (%)	Au (oz/t)	Ag (oz/t)
83-2	35.2	38.2	3.0	.015	.017	.067	.07	.002
83-2	38.2	41.2	3.0	.020	.029	.071	.10	.001
83-2	41.2	43.4	2.2	.015	.028	.100	.05	.002
83-2	43.4	46.3	2.9	.030	.016	.230	.10	.001
83-2	46.3	47.2	0.9	.008	.007	.033	.02	.001
83-2	47.2	48.5	1.3	.018	.023	.149	.03	.001
83-2	48.5	51.3	2.8	.045	.043	.230	.11	.005
83-3	41.0	43.0	2.0	.034	.050	.125	.23	.002
83-3	43.0	45.2	2.2	.062	.009	.340	.07	.001
83-3	45.2	47.1	1.9	.030	.004	.058	.03	.001
83-3	50.8	53.5	2.7	.017	.011	.081	.03	.001
83-3	59.3	60.9	1.6	.041	.460	.470	.32	.001
83-3	60.9	64.0	3.1	.011	.030	.044	.02	.001
83-3	64.0	65.1	1.1	.018	.042	.190	.11	.002

Zinc results tend to be greater and copper/silver/gold results lower in the banded sericite schists over those obtained from the semi-massive sulphide-chlorite schist intersections.

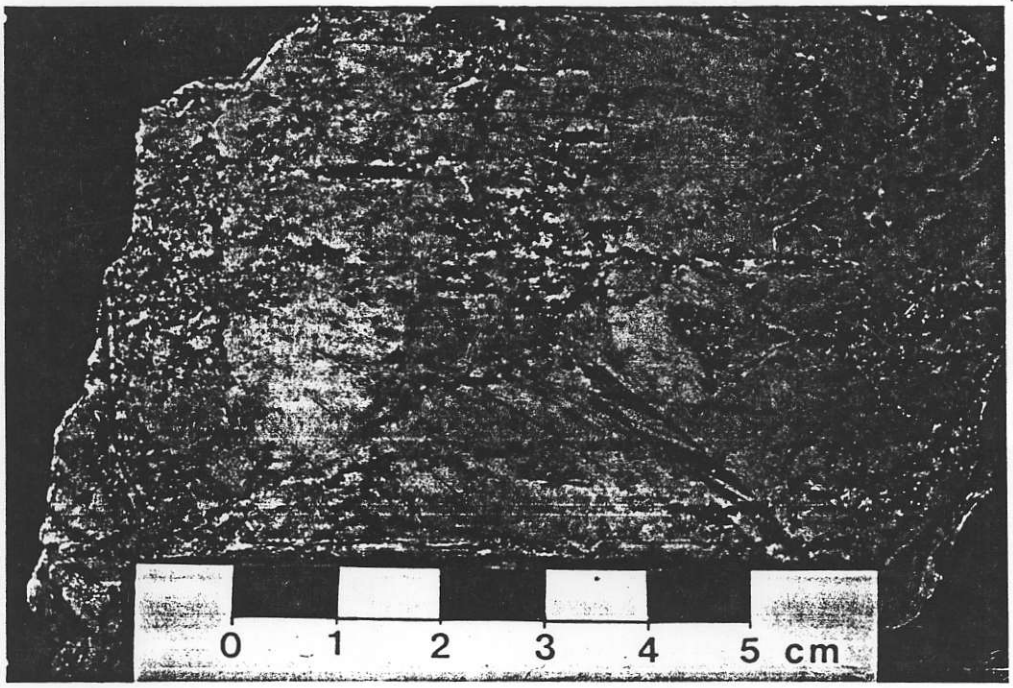
Results from the B-6 grid exploration program show the two narrow semi-massive sulphide horizons to be pyrite rich with only minor amounts of Cu, Pb, Zn, Ag and Au present. The soil geochemical (section 4.5) and induced polarization (section 4.6) anomalies have been explained. These showings may increase in base and precious metal content down dip. There is no near surface exploration potential.

(B) Silicified Carbonatized Zone; 20+75N:8+75W

A siliceous carbonate alteration zone with intense silica flooding and disseminated pyrite, chalcopyrite, galena and sphalerite (Plate VII) was discovered in a road cut in the extreme western portion of the grid. The showing occurs on the boundary of the Foghorn 11 claim with the FH claims (property of R. Hrkas, Vancouver B.C.). Anomalous assays from the zone are as follows.

Cu	.10%	Zn	.59%
Pb	.43%	Ag	.65 oz/t

The nature of the mineralization and only moderately anomalous base and precious metal results do not warrant any follow-up exploration.



(PLATE VII) Silica flooding-carbonatized zone. Disseminated pyrite, galena, sphalerite and chalcopyrite common. Total sulphide ~5%.

4.5 Geochemistry

4.5.1 Stream Geochemistry

Silt and heavy mineral samples taken from streams draining the upper sulphide horizon were anomalous of copper, lead, zinc, silver and gold.

Silts (Total samples taken = 12)

Element	Range	# Samples
Cu	111-177 ppm	8
Pb	77-124 ppm	4
Zn	202-516 ppm	6
Au	11-25 ppb	7

Heavy Mineral (Total samples taken = 3)

Element	Range	# Samples
Cu	790-1440 ppm	3
Pb	340-635 ppm	3
Zn	640-1040 ppm	3
Ag	4.7-9.2 ppm	3
Au	169-375 ppb	3
As	450-3120 ppm	3
Sb	147-164 ppm	3
Hg	190-700 ppm	2
F	850-1090 ppm	3

The results confirm the presence of base and precious metals in the mineralized system. The presumed massive sulphide indicator elements (As, Sb, Hg and F) are also weak to moderately anomalous.

4.5.2 Soil Geochemistry

Soil samples were taken at 25 metre intervals and 100 metre line spacings along the sericite dominated volcanic and sedimentary horizons and at 50 metre sample spacings for the rest of the grid. Selected samples, near sulphide bearing float occurrences and in areas with anomalous I.P., were analyzed for gold. Soil sample locations and results are shown on figure 35 and maps 20-24. Estimated background and threshold values for each element are listed below.

	Background	Threshold
Copper	20-50 ppm	≥120 ppm
Lead	15-40 ppm	≥100 ppm
Zinc	50-125 ppm	≥250 ppm
Silver	0.8-1.2 ppm	≥2.0 ppm
Gold	1-8 ppb	≥25 ppb

Anomaly L: Semi-massive Sulphide Horizon

Anomaly L has a proven 1200 metre strike and 25-250 metre width. It parallels the semi-massive pyrite-chlorite schist and base metal bearing sharp banded sericite schist horizon. Two lines (L1+00W and L2+00E) and trenches 1 and 2 (figure #35) were soil profiled. The profile results indicate a gradual increase in metals with depth. Values tend to decrease in the backhoe trenches below 1.2-1.5 metres, when the overburden becomes more clay rich. Both B and C horizon results tend to be higher in areas where soils have not been disturbed by recent logging operations. Anomalous results are listed below.

	Element	B Horizon	C Horizon
	Cu	115-256 ppm	115-780 ppm
Erratic	Pb	112-320 ppm	150-720 ppm
	Zn	202-1080 ppm	209-1610 ppm
Erratic	Ag	2.0-4.3 ppm	2.0-4.6 ppm
Erratic	Au	22-123 ppb	20-410 ppb

Anomaly M: (L3+00W:22+75N)

Soil samples were taken along lines 2+00W-4+00W, north of the semi-massive pyrite showing to test a weak, north dipping, one line conductor (#106). The estimated depth of the conductor is 50 metres. Soils testing this zone are moderately anomalous in base metals and Ag. Anomaly M has a 300 metre strike and 50 metre width.

Cu	102-246 ppm
Pb	147-325 ppm
Zn	216-428 ppm
Ag	2.7-7.3 ppm

Anomaly N: Silicified/Carbonatized Zone

Soils testing the silica flooded-quartz stockwork-cabonatized zone at grid location 8+00W-9+00W:19+00N-21+00N are moderately anomalous in Cu, Pb, and Zn and highly anomalous in Ag. The soil results reflect the chalcopyrite, galena and sphalerite mineralization identified in outcrop. Anomalous soil results are as follows.

Cu	132-236 ppm
Pb	102-260 ppm
Zn	328-340 ppm
Ag	2.0-10.4 ppm

4.6 Geophysics

The results of the HLEM survey are presented on map 34. Magnetometer survey results are on map 42. The induced polarization pseudosections are in appendix I.

The HLEM survey outlined a single weak conductor. This is labelled 106 on map 34. The interpreted depth to the top of the conductor is 50 m with a possible dip to the north. The conductor is associated with geochem anomaly M which occurs in grey-green Eagle Bay Formation phyllites. The source of this conductor is unknown.

The magnetometer data is featureless with the exception of a single line anomaly, labelled M43 on map 42. This anomaly occurs in the chlorite-ankerite-pyrite (2%) schists. The anomaly appars to be caused by a near surface feature, possibly a buried cable.

The interpreted IP anomalies are indicated on each pseudosection (appendix I). A line by line analysis of the data is found in Table 7. The survey outlined a broad anomalous zone from lines 6+00W to 8+00E around 1500N to 2100N. The strongest portion of this anomaly was tested by drill holes 83-2 and 83-3. Both holes encountered two narrow semi-massive pyrite (15-60%) horizons and sericite schists containing 5 to 8% pyrite. Minor amounts of chalcopyrite, galena and sphalerite were also located. The stronger responses reflect the semi-massive pyrite horizons while the weaker responses reflect the pyrite content within the surrounding rock.

TABLE 7

IP B6 GRID

Line 6+00W

Location	Resistivity	Chargeability	Geology
1350N-1550N	1000-2000 ohm-m	low	-weakly pyritic sericite schist
1550N-2400N	1000-2000 ohm-m	high	-banded chlorite-ankerite-pyrite (2-5%) schist

Line 4+00W

Location	Resistivity	Chargeability	Geology
1350N-1550N	1000-2000 ohm-m	low	-sericite schist, quartz-sericite schist, sericitic quartzite (tr-1% py)
1550N-1750N	1000-2000 ohm-m	moderate	-sericite-pyrite (1-10%) schist, and chlorite schist with associated lower semi-massive pyrite horizon
1750N-2050N	1000-2000 ohm-m	high	-chlorite-ankerite pyrite (2-10%) schist
2050N-2200N	1000-2000 ohm-m	moderate	-?
2200N-2400N	300-500 ohm-m	moderate-high	-?

Line 2+00N

Location	Resistivity	Chargeability	Geology
1350N-1650N	1000 ohm-m	low	-sericitic quartzite, quartz sericite schist (tr-1% py)
1650N-1750N	1000 ohm-m	moderate	-banded sericite-pyrite schist, minor Cpy, Gn, Sph (2-5% sulphides)

Line 2+00N

Location	Resistivity	Chargeability	Geology
1750N-1850N	500 ohm-m	very high	-semi massive pyrite with minor Cpy, Gn, Sph in chlorite schist
1850N-1950N	500 ohm-m	high	-semi massive pyrite with minor Cpy, Gn, Sph in chlorite schist
1950N-2250N	1000 ohm-m	low	-barren grey green phyllite
2250N-2400N	1000 ohm-m	moderate	-minor sericite-pyrite (tr-10%) schist

Line 0+00

Location	Resistivity	Chargeability	Geology
950N-1250N	500-800 ohm-m	low	-sericitic quartzite
1250N-1750N	1000-2000 ohm-m	moderate	-sericite schist, sericitic quartzite, both with 1-10% py
1750N-1850N	1000-2000 ohm-m	high	-chlorite schist, semi-massive sulphide horizon
1850N-2050N	500-800 ohm-m	very high	-semi-massive sulphide horizon
2050N-2100N	1000 ohm-m	moderate	-grey green phyllites, sericite pyrite (1-10%) schist
2100N-2250N	1000 ohm-m	low	-grey green phyllites
2250N-2400N	1000-2000 ohm-m	moderate	-grey green phyllites, sericite pyrite (1-10%) schist

Line 2+00E

Location	Resistivity	Chargeability	Geology
1350N-1500N	1000-2000 ohm-m	high	-sericite schist, sericitic quartzite, 1-10% py
1500N-1750N	1000-2000 ohm-m	moderate	-sericite schist, sericitic quartzite, 1-10% py
1750N-1950N	1000-2000 ohm-m	high	- no outcrop?
1950N-2100N	1000-2000 ohm-m	very high	- no outcrop?
2100N-2200N	1000-2000 ohm-m	high	-grey green phyllites
2200N-2300N	1000-2000 ohm-m	low	-grey green phyllites
2300N-2400N	1000 ohm-m	low	-grey green phyllites

Line 4+00E

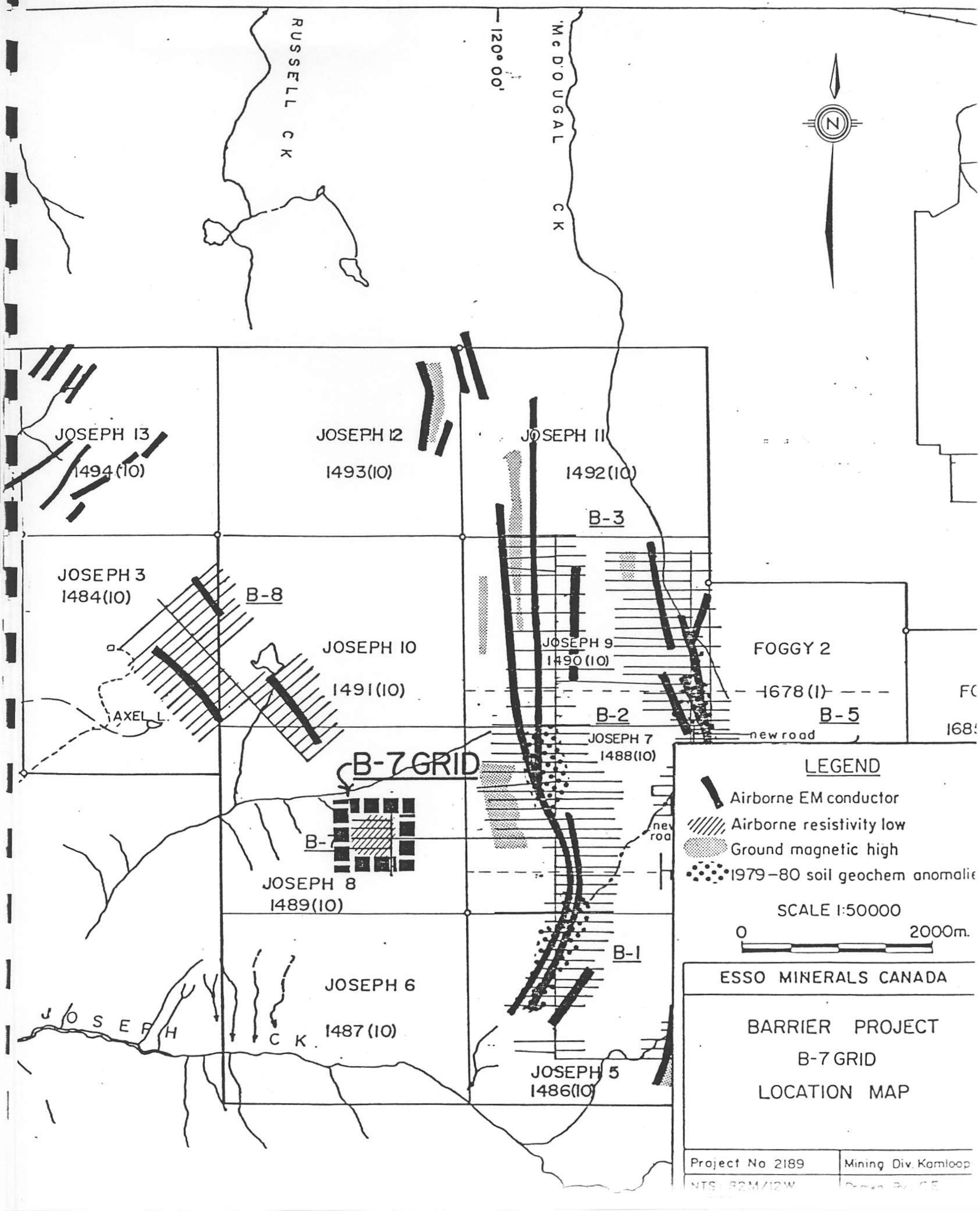
Location	Resistivity	Chargeability	Geology
1350N-1900N	1000-2000 ohm-m	moderate	-sericite schist, sericitic quartzite (1-2% py)
1900N-2050N	900 ohm-m	high	-sericite-pyrite (5%) schist
2050N-2350N	1000-2000 ohm-m	moderate	-grey-green phyllites

Line 6+00E

Location	Resistivity	Chargeability	Geology
1550N-1600N	1000-2000 ohm-m	low	-sericitic quartzite
1600N-2100N	1000-2000 ohm-m	moderate	-sericitic quartzite, sericite schist, 1-5% py
2100N-2300N	1000-2000 ohm-m	high	-grey green phyllites does not explain high chargeability - possible sulphide bearing horizon below phyllites
2300N-2550N	1000-2000 ohm	low	-grey green phyllites

Line 8+00E

Location	Resistivity	Chargeability	Geology
1950N-2250N	2000-3000 ohm-m	moderate	-sericitic quartzite
2250N-2450N	1000-2000 ohm-m	moderate	-grey green phyllites


RUSSELL CK
120° 00'
McDOUGAL CK
N
JOSEPH 13
1494(10)
JOSEPH 12
1493(10)
JOSEPH 11
1492(10)
B-3
JOSEPH 3
1484(10)
B-8
JOSEPH 10
1491(10)
JOSEPH 9
1490(10)
FOGGY 2
1678(1)
B-2
B-5
JOSEPH 7
1488(10)
new road
AXEL L.
B-7 GRID
B-7
JOSEPH 8
1489(10)
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979–80 soil geochem anomalie
SCALE 1:50000
0
2000m.
B-1
JOSEPH 6
1487(10)
JOSEPH CK
JOSEPH 5
1486(10)
ESSO MINERALS CANADA
BARRIER PROJECT
B-7 GRID
LOCATION MAP
Project No 2189
Mining Div. Kamloop

5.0 B-7 Grid

5.1 Recommendations

- Proton magnetics surveying of unexplained HLEM conductor.

5.2 Conclusions

- The B-7 Grid HLEM conductor is unexplained. It could be attributed to sulphide mineralization or graphitic sediments. Ground magnetics coverage is considered necessary follow-up exploration. A coincident magnetics high, as found 25 km to the south on the Chu-Chua Mountain massive sulphide deposit, would designate this conductive feature as a drill target.

5.3 Introduction

The objective of the B-7 Grid was to evaluate a previously untested one "dot" (one flight line) airborne EM conductor located 2.0 km west of baseline 70+00W:24+00N. Flag line 24+00N was extended from 76+00W to 91+00W. The Genie SE-88 system was used as a prospecting tool along the line extension. The conductor was located on the first pass at station 88+50W. A small four line grid was established, prospected, silted, soiled and tested by HLEM. All results are shown on figures 39-41.

5.4 Geology

The B-7 grid is underlain by lower Fennell Formation light green aphanitic, granular textured and microporphyritic basalt. Outcrop are limited due to extensive overburden cover; in excess of 5 metres. Estimates of local geology are made from mapping float occurrences.

A single outcrop of pyritic chert, stockworked with quartz-pyrite stringers, was discovered at grid location 22+85N: 88+25W. This unit occurs 25 metres east of the unexplained HLEM conductor.

The pyritic chert outcrop is the only sulphide occurrence located on the B-7 grid. West of the conductor, the basaltic float may be moderately silicified or epidote rich.

Argillaceous float was not identified along the surface trace of the conductor. The HLEM conductor is unexplained.

Conductors located on the B-8 Grid, (Section 6.0), located 1.5 km to the northwest, trend toward the B-7 Grid conductor. These features are attributed to lensoidal pods of graphitic argillite encased by basalt. A similar type conductive source is possible on the B-7 Grid.

5.5 Geochemistry

5.5.1 Stream Geochemistry

Three silt samples were taken along the stream paralleling the HLEM conductor. The silts were weakly anomalous in lead (100-118 ppm). All other elements gave low values.

5.5.2 Soil Geochemistry

Soil samples were taken along the projected surface trace of the HLEM conductor. A weak geochemical anomaly, with erratically distributed Pb, Zn, Ag and Au values occurs on lines 24+00N-25+00N, 25-50 metres west of the conductor. Anomalous results are as follows.

Pb	106-128 ppm
Zn	122-284 ppm
Ag	2.2 ppm
Au	18-20 ppb

The geochem results are only possibly anomalous and do not indicate any appreciable concentrations of base or precious metals near surface.

5.6 Geophysics

The results of the HLEM survey are presented on fig 34. The survey has outlined a single conductive feature (107). The interpretation of this feature is as follows:

Strike Length:	300 m
Depth:	30 m
Dip:	90 - 60°W
Quality:	good

The area is underlain by light green aphantic-aplitic basalt and microporphyritic basalt. The cause of this feature is not known.

6.0 B-8 Grid

6.1 Recommendatins

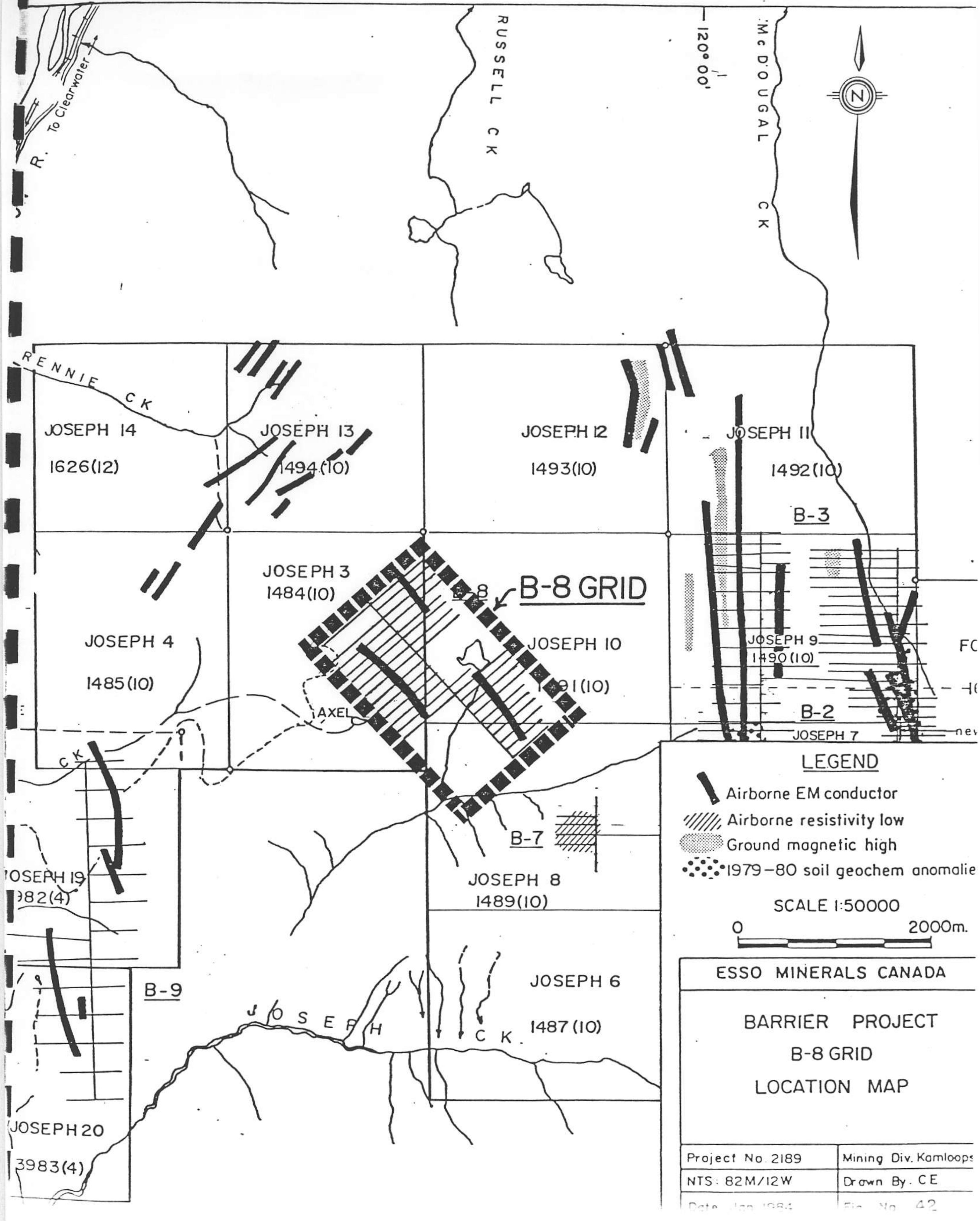
- No further work.

6.2 Conclusions

- The 1979 airborne HLEM conductors in this portion of the property are attributed to graphitic sediments and argillaceous sedimentary breccias.

- As in the B-1 to B-5 Grids, the Fennell Formation argillaceous sediments in the B-8 grid area contain above background copper, lead, zinc and silver values

- There is no massive sulphide potential in the B-8 Grid.


To Clearwater
R.
RUSSELL CK
120° 00'
McDOUGAL CK
N
RENNIE CK
JOSEPH 14
1626(12)
JOSEPH 13
1494(10)
JOSEPH 12
1493(10)
JOSEPH 11
1492(10)
B-3
JOSEPH 3
1484(10)
B-8
B-8 GRID
JOSEPH 4
1485(10)
JOSEPH 10
JOSEPH 9
1490(10)
AXEL
B-2
JOSEPH 7
CK
B-7
JOSEPH 19
JOSEPH 8
1489(10)
B-9
JOSEPH 6
1487(10)
JOSEPH CK.
JOSEPH 20
3983(4)
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979–80 soil geochem anomalie
SCALE 1:50000
0
2000m.
ESSO MINERALS CANADA
BARRIER PROJECT
B-8 GRID
LOCATION MAP
Project No. 2189
Mining Div. Kamloops
NTS: 82M/12W
Drawn By. CE
Fig. No. 42

6.3 Introduction

The objective of the B-8 Grid was to test three unexplained airborne EM anomalies in the Joseph 3, 8 and 11 mineral claims, figure #42. The grid was established from the B.C. Hydro microwave tower access road on the western flank of Foghorn Mountain.

All three conductors were sourced by graphitic sediments. They were followed along strike and geochemically sampled to test for any similarity with the metaliferrous sediments discovered on the B-2 Grid.

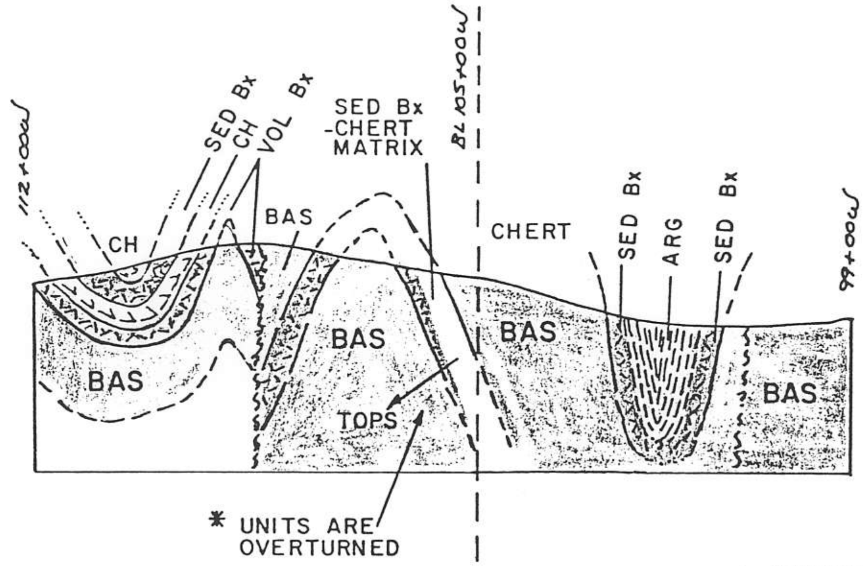
6.4 Geology

The B-8 Grid is underlain by Lower Fennell Formation basalt, chert, argillite, volcanic breccia (with both basic volcanic and sedimentary fragments) and sedimentary breccia (with both volcanic and sedimentary fragments). These units are overturned, crosscut by a parallel series of north-northeast trending faults and folded into the tight anticline-syncline sequence, as shown on figure #43. Stretched lineaments along cleavage planes show the entire volcanic-sedimentary succession to be plunging 15^{o} to the northwest.

Shiarizza (1982) has mapped a thick band of conglomerate in the vicinity of the B-8 Grid. The 1983 field mapping shows that the volcanic and sedimentary inclusions are rarely rounded. They are usually angular, constituting well developed

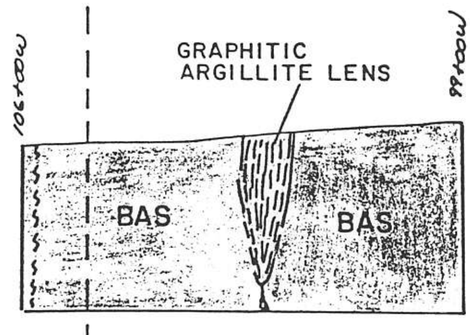
B-8 GRID

CROSS SECTIONS (AZIMUTH 045°)



L 47+00N Figure 43

AZIMUTH 045°



L 32+00N Figure 44

BL 105+00W

0 200m.
LATERAL SCALE ONLY

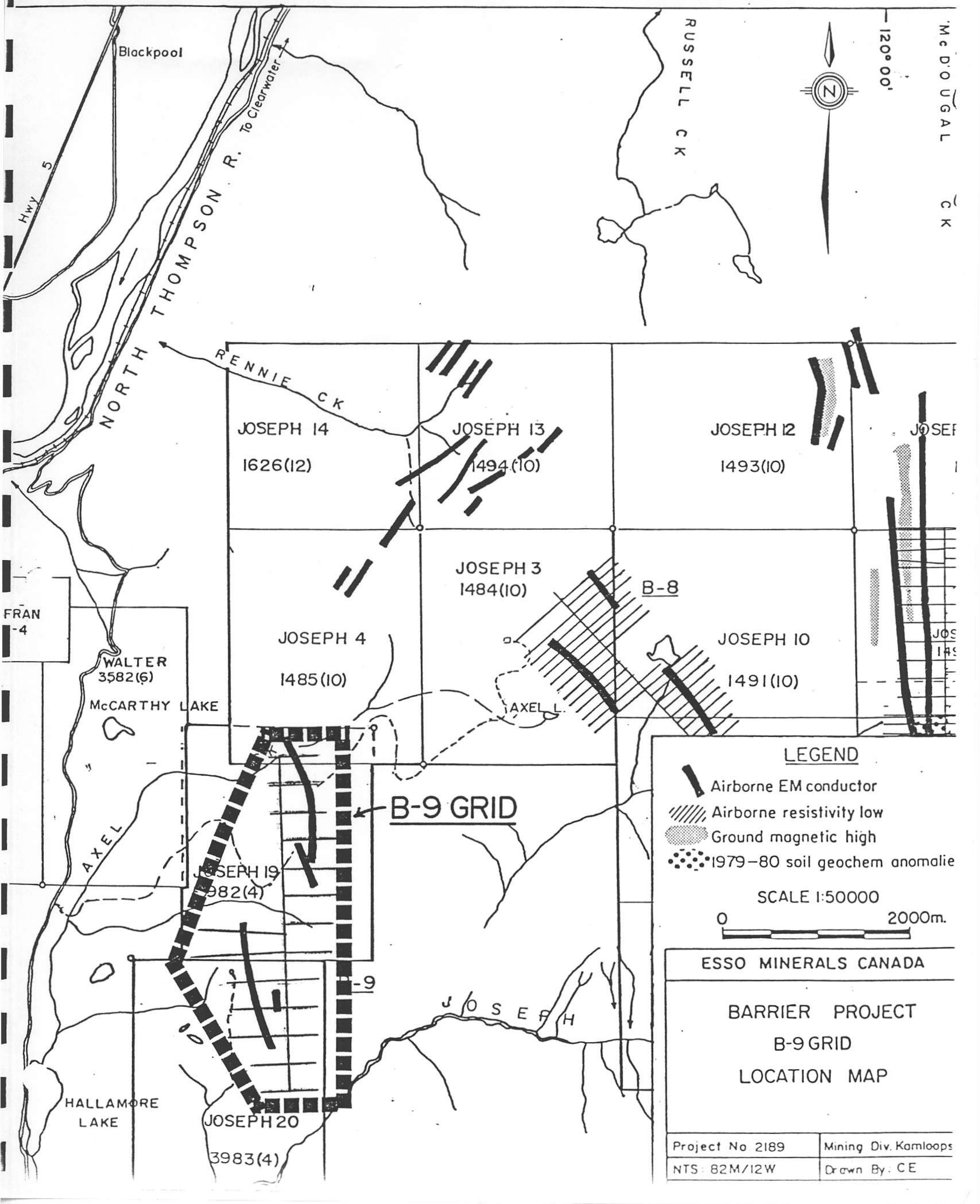
breccias. Brecciation appears related to a rapid depositional event. Each volcanic or sedimentary cycle is associated with some degree of turbidic or contact brecciation.

Sediments located on the northeast side of baseline 105+00W are generally graphitic argillite with minor amounts of sedimentary breccia along contacts to the basalt. The argillites appear to be squeezed into lenticular pods and engulfed by the more brittle competent basalts, figure #44.

The B-8 Grid HLEM conductors are sourced by graphitic sediments.

6.4.1 Alteration and Mineralization

Mineralization on the B-8 Grid is limited to minor amounts of disseminated pyrite in the basalts and to a 25 x 250 metre band of a silicified sericitic-pyritic basalt (?), extending from line 44+00N-45+00N:105+75W-106+00W. Pyrite content varies from 15-30%. There is no evidence of sulphide banding or base metals in this unit. Results from rock geochemistry indicate only minor amounts of siver (.05-.18 oz/t).


Blackpool
Hwy 5
NORTH THOMPSON R.
To Clearwater
RUSSELL CK
120° 00'
McDOUGAL CK
N
RENNIE CK
JOSEPH 14
1626(12)
JOSEPH 13
1494(10)
JOSEPH 12
1493(10)
JOSEPH 3
1484(10)
B-8
JOSEPH 4
1485(10)
JOSEPH 10
1491(10)
FRAN
WALTER
3582(6)
McCARTHY LAKE
AXEL L.
AXEL
B-9 GRID
JOSEPH 19
982(4)
JOSEPH
HALLAMORE LAKE
JOSEPH 20
3983(4)
LEGEND
Airborne EM conductor
Airborne resistivity low
Ground magnetic high
1979–80 soil geochem anomalie
SCALE 1:50000
0
2000m.
ESSO MINERALS CANADA
BARRIER PROJECT
B-9 GRID
LOCATION MAP
Project No 2189
Mining Div. Kamloops
NTS: 82M/12W
Drawn By: CE

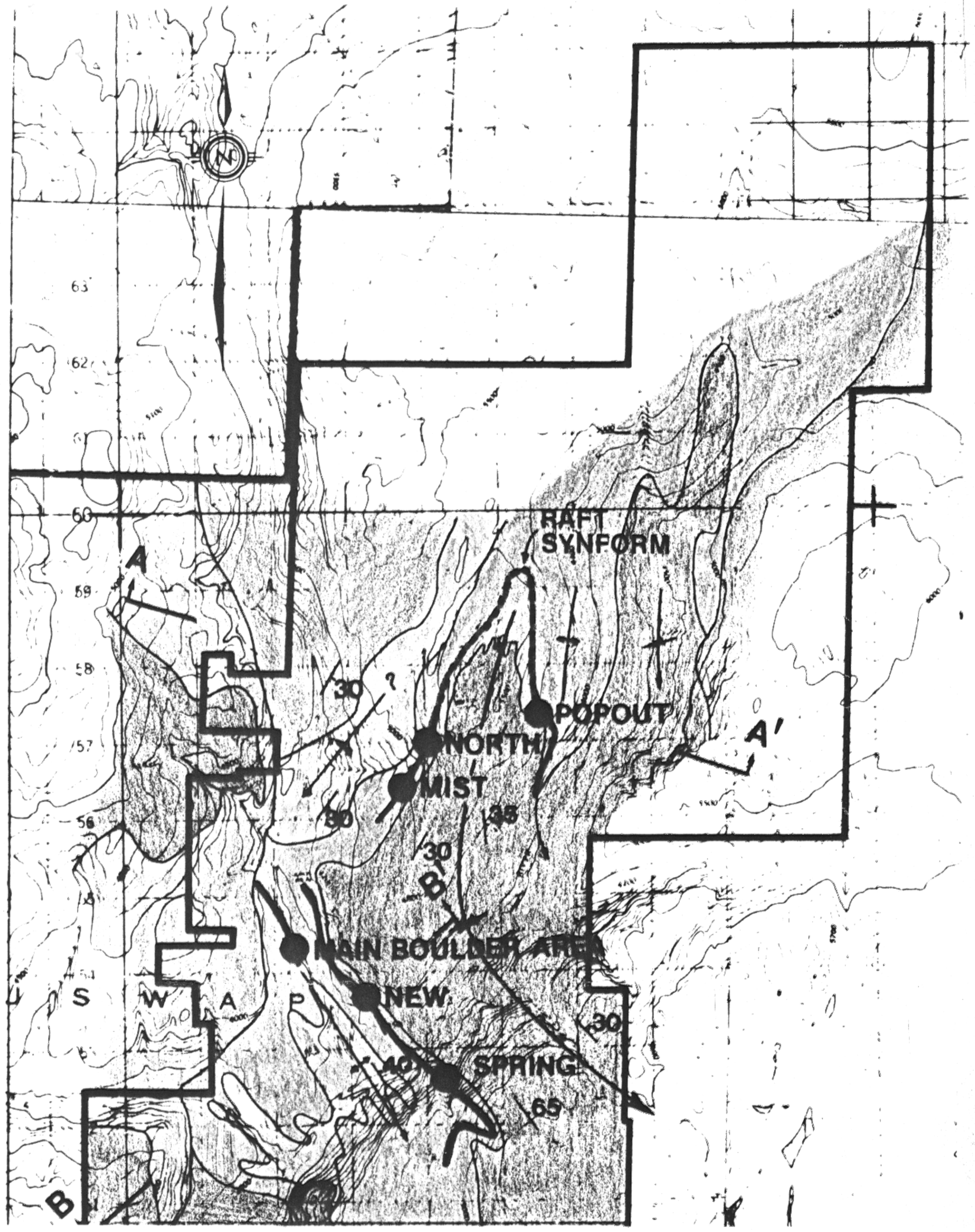
7.0 B-9 Grid

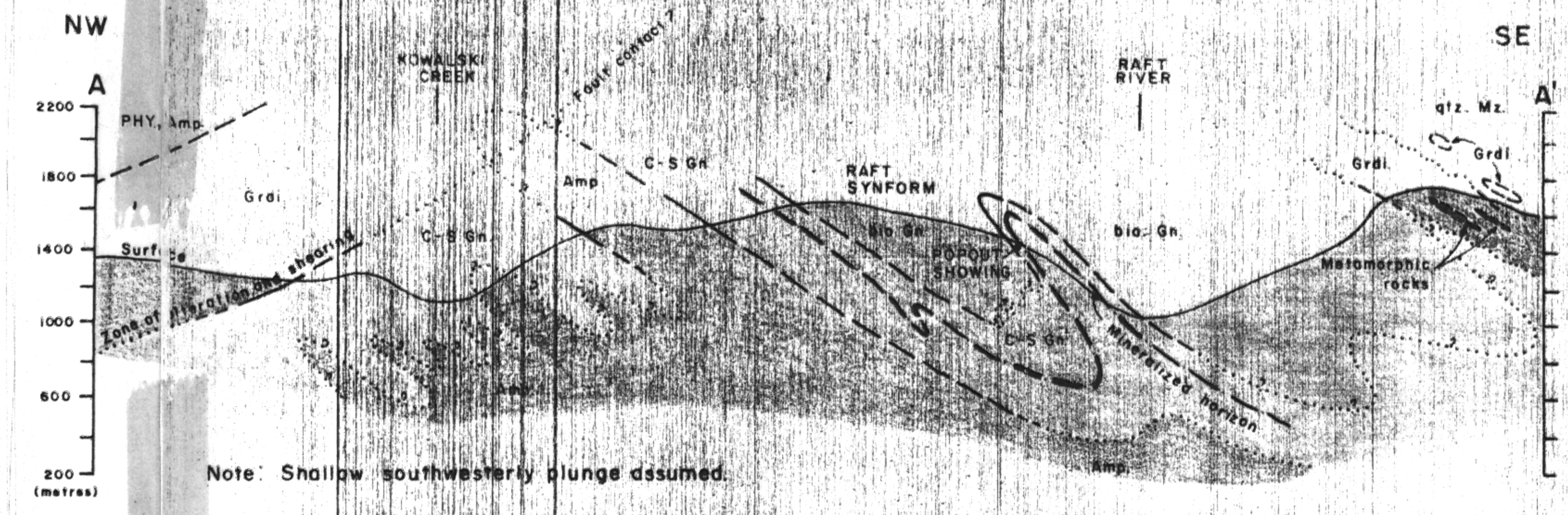
7.1 Recommendations

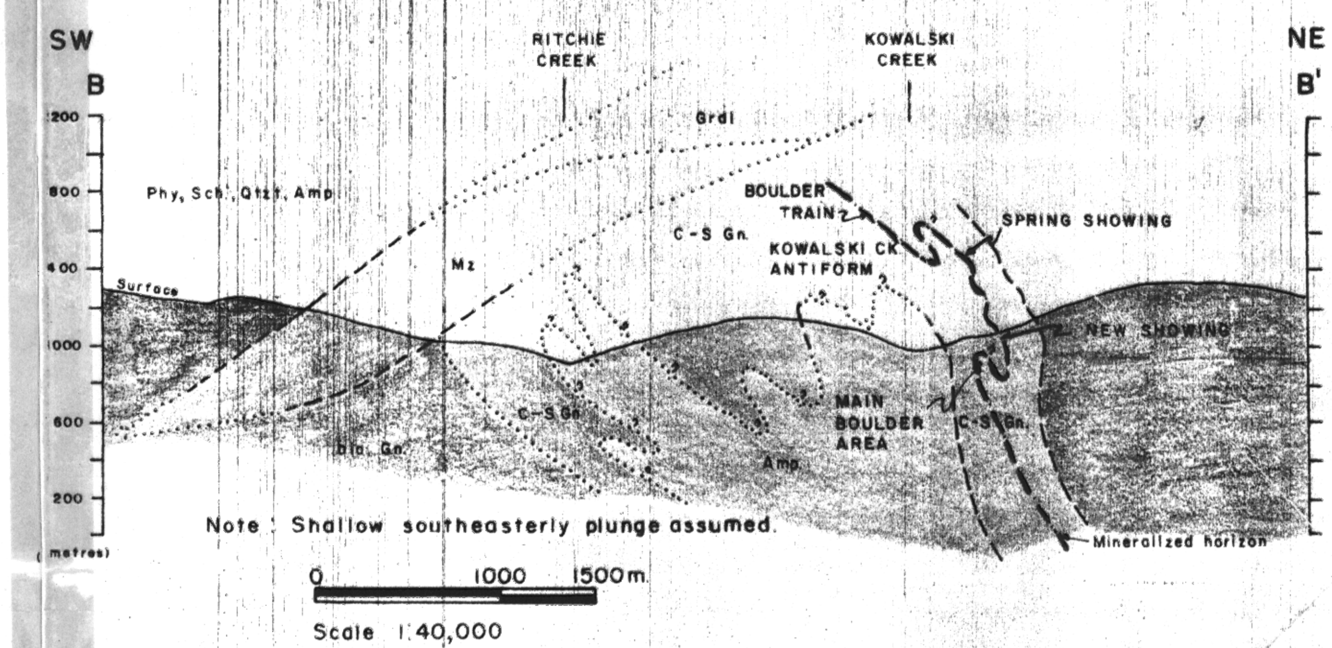
- No further work.

7.2 Conclusions

- The B-9 Grid is underlain by Lower Fennell Formation basic volcanics and sediments. Although no ground HLEM has been done in this area, the likely source of the airborne EM anomalies is graphitic sediments. No soil, silt or heavy mineral anomalies were found. There is no massive sulphide potential in this portion of the property.







Note: A great amount of interpretation of field data has been used to construct this map and sections. All are subject to revision.

LEGEND

SHUSWAP METAMORPHIC COMPLEX

- Pegmatite.
- Intrusive.
- Phyllite, quartzite.
- Biotite gneiss.
- Calc - silicate.
- Amphibolite.
- Zn - Pb mineralization.

NTS 82 M 13

CK PROPERTY		Cominco
Drawn by: GLB	Traced by: FJF	GEOLOGY
Scale: as indicated	Date: Nov. 7, 1979	Plate: CKA-4

210-0620