WHITING MINING SERVICES INTERNATIONAL LTD.

1035 GREENWOOD PLACE, WEST VANCOUVER, B.C. CANADA. V7S-1Y2

(604) 926-5270

Office: 922-6717

Tom Schroeter

Topley-Richfield
888904
93L/9W
93L-018

THE

RICHFIELD

SILVER - GOLD - ZINC

PROPERTY

Topley Area

B.C.

C.

F.B. Whiting

1979.

TABLE OF CONTENTS

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LIST OF ILLUSTRATIONS

A. SUMMARY

The Richfield property, situated 10 kilometers north of Topley, B.C., covers a known deposit of silver, gold, and zinc (with a little lead and copper). The geological characteristics of this deposit are identical in almost every detail to those of many of the principal gold mines of Northern Ontario. The distinctive ankeritic alteration of the host volcanic rocks, the repeated sequences of quartz-carbonate-sulphides-precious metals alternating with fracturing and re-fracturing, the brecciated appearance of the ore, and the form of the one known ore-shoot, all are duplicates of the features displayed at such mines as Cochenour Willans, Campbell Red Lake, Dickenson, Kerr-Addison, and in some of the ore types in the Porcupine district.

The principal differences between those mines and the Richfield are that the Richfield deposit is in Jurassic andesites, rather than early Precambrian volcanics, and that it carries rich silver as well as good gold values.

The original discovery was opened up on two levels to a vertical depth of 200 feet, developing an ore shoot that for a strike length of 120 feet has an average thickness of 2.7 feet and contains 0.465 oz. gold per ton and 17.6 oz. silver per ton. Even if diluted to a five-foot mining width, at present metal prices of $U.S. 475 for gold and $US 22 for silver those assays represent over $US 325 per ton ($ Can 380 / t.) in gross contained metal values. This ore shoot is open down the dip, with an intersection of ore grade and width in the deepest drillhole. Many more rich ore-bodies can be expected to occur within and along the long, wide zone of intense ankeritic alteration that runs north through the center of this large block of claims.

Ore deposits on the property consist of two distinct types:

1. Layers of replacement gold-silver ore with small amounts of zinc and copper, striking north and dipping moderately to the west, and occurring within a wide zone of extreme alteration of the andesites to quartz-carbonate rock;

2. North-striking sub-vertical veins of quartz, carbonate, sphalerite, galena, chalcopyrite, arsenopyrite, also with good gold and silver contents, hosted by relatively unaltered andesite. late-stage?

The main alteration zone that hosts the ore layers of Type 1 above is indicated by geophysics to extend north-south through the property for a length of at least 1,500 m , and is open both to the north and to the south. The width of this alteration zone is at least 100 m as shown by drilling and the underground workings, and geophysics suggest it is likely to vary from 200 to 600 m. The Metal Factor plot of an I.P. survey done in 1975 shows a weak, narrow high that correlates with the known mineralization at the site of the underground workings, and also shows a persistent wider anomaly parallel to the first, but on the western side of the resistivity low that seems to outline the main alteration zone. There is a definite possibility that this western anomaly results from a large, long, wide gold-silver-zinc ore zone which does not crop out, being covered by a flat layer of glacial drift.

Although proved reserves are of limited tonnage (though very high grade), the property has exceptional potential

for the discovery of multiple ore layers and veins, and, by the nature of the mineralization, very possibly for large-tonnage bodies that might be mined by open pit, or by bulk underground methods.

This deposit could well fall within the general group referred to as " volcanogenic ", by reason of :

:- its occurrence within andesites

:- the ratios between the metals Au/Ag/Cu/Pb/Zn which is typical of the ratios in other volcanogenic ores, modified by " higher-than-normal " amounts of gold and silver

:- the association with strongly carbonatized zones

:- the tendency to form layers rather than just veins

:- the reported occurrence underground of such rocks as tuffs, volcanic breccia, quartz porphyry; and the outcrops of rhyolite nearby in the Tachek Group.

This property merits an intensified geophysical study and extensive drilling, to test the numerous targets already located.

B. CLAIMS, LOCATION & ACCESS

Figure 1 shows the location of the property. It is situated 11 km almost due north of Topley, B.C. in the Omineca Mining Division, with the center of the claim block at 54° 35' N. Lat., 126° 16' W. Long. It is shown on claim map 93 L 9 W, and overlaps slightly onto map 93 L 9 E. The claims are 3 km east of the paved Topley-Granisle highway, and are reached by 1.5 km of gravel road and 1.5 km of narrow dirt road. Elevations on the claims range from 3400 ft in the flat southwestern portion to some 5100 ft on the slopes of Tachek Mtn in the northeast corner of the claims.

The surface is largely covered by glacial drift of variable thickness, of 0 to 20 feet in the eastern half, and 50 - 100 ft and possibly more in the western half.

The ground is lightly timbered with pine and spruce up to 2 ft in diameter. Underbrush is moderate. Water is abundant. A main electric power line crosses the western edge of the claims. The C.N.R. railway goes through Topley, where meals, lodging, and supplies are available.

The population of the area accepts mining, as many local people work at the mines of Endako and Granisle.

The climate is moderate, with dry summers and cold winters. Snowfall is light, generally not more than 1.5 to 2 m accumulating.

There are the remains of four camp buildings near the Main Workings. One of these is in good enough condition that it could be used as an office or mess-hall/cookhouse by doing minor repairs to floors, doors, and windows.

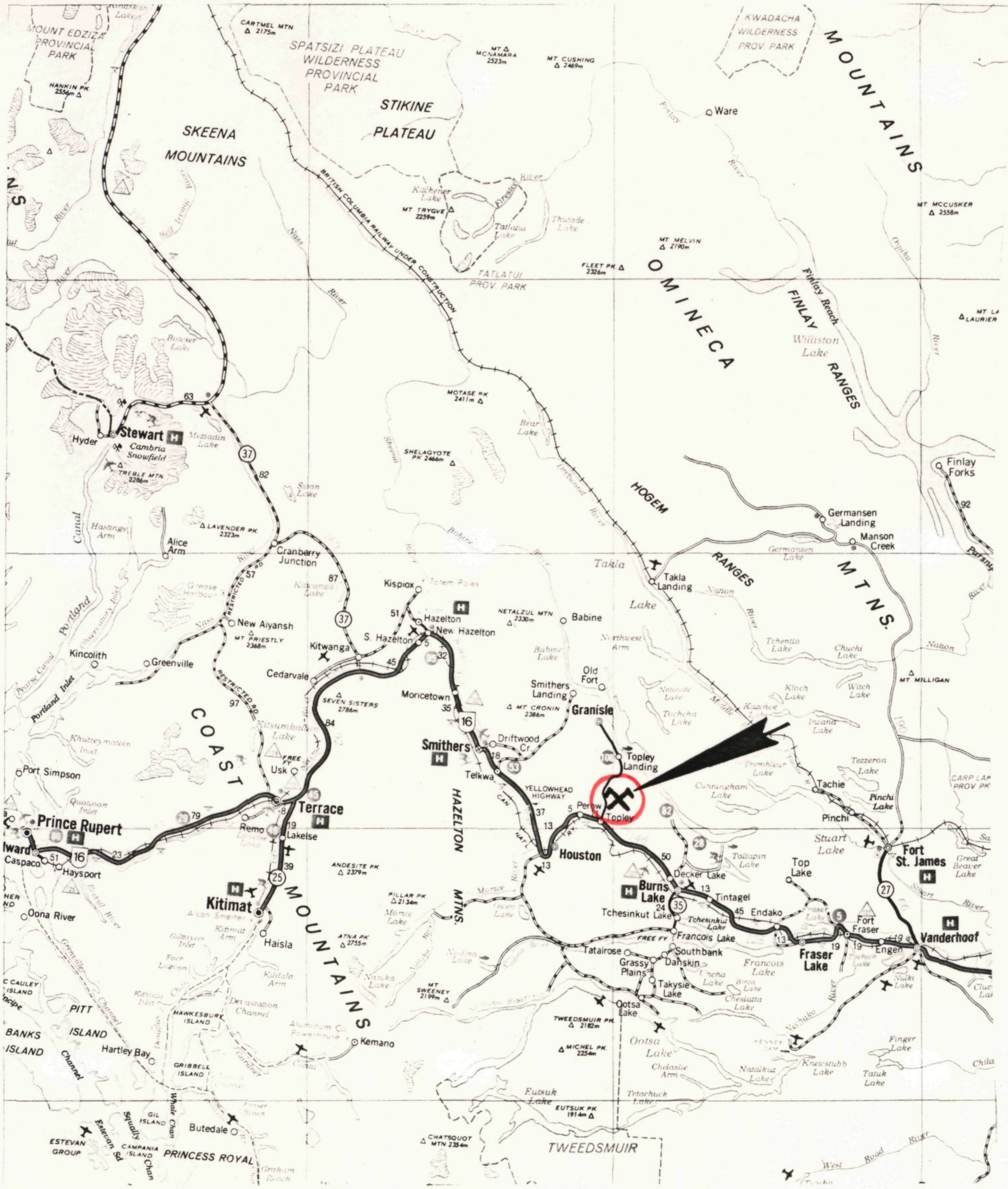
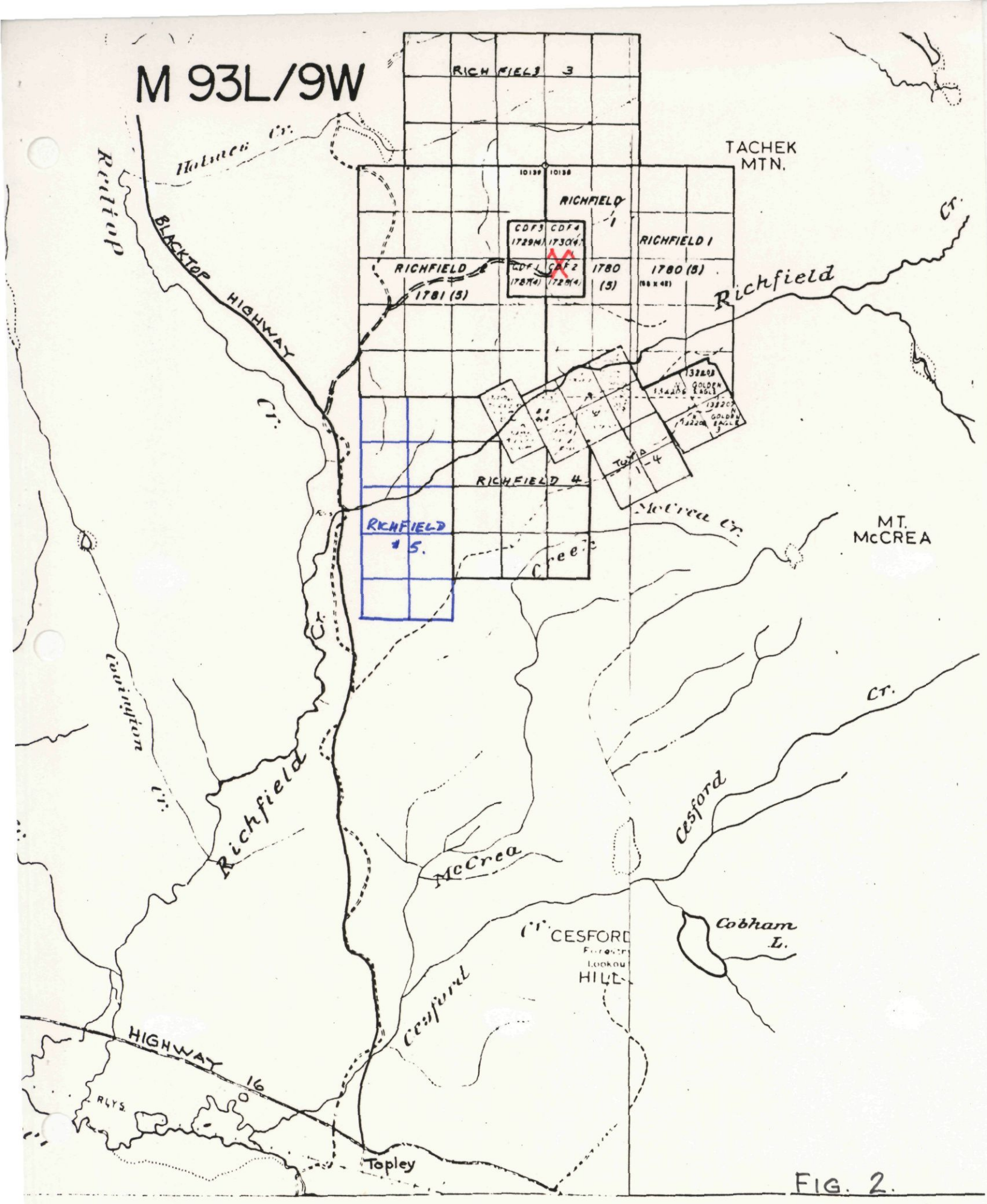

MOUNT EDZIZA PROVINCIAL PARK
SPATSIZI PLATEAU WILDERNESS PROVINCIAL PARK
KWADACHA WILDERNESS PROV. PARK
SKEENA MOUNTAINS
STIKINE PLATEAU
MOUNTAINS
OMINECA
FINLAY RANGES
HOGEM RANGES
MTNS.
COAST MOUNTAINS
HAZELTON MTNS.
BRITISH COLUMBIA RAILWAY UNDER CONSTRUCTION
TATLATUI PROV. PARK
Williston Lake
Finlay Reach
Ware
Stewart
Hyder
Cambria Snowfield
Meziadin Lake
Cranberry Junction
Alice Arm
New Aiyansh
Kincolith
Greenville
Kispiox
Hazelton
New Hazelton
S. Hazelton
Kitwanga
Cedarvale
Moricetown
Smithers
Telkwa
Driftwood Cr.
Smithers Landing
Babine
Old Fort
Granisle
Topley Landing
Topley
Perow
Houston
YELLOWHEAD HIGHWAY
Takla Landing
Takla Lake
Germansen Landing
Manson Creek
Finlay Forks
Tachie
Pinchi
Pinchi Lake
Stuart Lake
Fort St. James
Vanderhoof
Fort Fraser
Fraser Lake
Endako
Tintagel
Decker Lake
Burns Lake
Tchesinkut Lake
Francois Lake
Southbank
Tatalrose
Grassy Plains
Danskin
Takysie Lake
Ootsa Lake
Engen
Terrace
Usk
Remo
Lakelse
Kitimat
Haisla
Kemano
Prince Rupert
Port Simpson
Caspaco
Haysport
Oona River
PITT ISLAND
BANKS ISLAND
Hartley Bay
Butedale
PRINCESS ROYAL
TWEEDSMUIR
ESTEVAN GROUP
Kitsumkalum Lake
Portland Inlet
Portland Canal

FIG. 1.


M 93L/9W
RICH FIELD 3
TACHEK MTN.
10139
10138
RICHFIELD 1
CDF3 1729(4)
CDF4 1730(4)
CDF1 1787(4)
CDF2 1729(4)
RICHFIELD 2
1781 (5)
1780 (5)
1780 (8)
RICHFIELD 1
Richfield Ct.
Richfield
BLACKTOP HIGHWAY
Ct.
RICHFIELD 4
RICHFIELD 5.
McCrea Ct.
MT. McCREA
Creek
Richfield Ct.
Richfield
McCrea
Cesford
Ct.
Cobham L.
CESFORD
HILL
Cesford
HIGHWAY 16
RLYS.
Topley
FIG. 2.
126° 15'
OMINECA MINING DIVISION

The claims are of two types:

The CDF #1,2,3 & 4: 2-Post claims, staked on April 5, 1979 and recorded in the name of F.B. Whiting on April 30,'79; Record Nos. 1727 - 1730 inclusive.

And the RICHFIELD #1 & #2 claims, each of 20 units, staked May 5,6 & 7 and recorded in the name of F.B. Whiting on May 30, 1979; Record Nos. 1780 and 1781.

The common boundary line between the Richfield #1 & #2 claims runs north-south as an extension of the earlier central staking line of the CDF #1-#4 2-Post claims. The identification post # 2-S from the Legal Corner Post for the Richfield #1 & #2 is beside the post which serves as the Final Post for CDF #1 & #2 and the Initial Post for CDF #3 & #4. The portal of the Taylor Crosscut in the center of the area of old underground workings lies 50 m east of a point 750 ft north of the Initial Post for CDF #1 & #2. Portions of the Richfield #1 & #2 claims thus overlie the CDF #1 - #4 claims. To the south the Richfield #1 & #2 adjoin and in places overlap onto already-existing claims on the south side of Richfield Creek, the Golden Eagle, High Command, Silver Cup, et al. The net area of the 40 units of the Richfield #1 & #2 is accordingly decreased to approximately 35.5 claim units.

By an Agreement dated August 10, 1979, F.B. Whiting gave Cobre Exploration Ltd an option to acquire the CDF #1-#4 and Richfield #1 & #2 claims, subject to approval by regulatory agencies.

Figure 2 is the claim map.

Cobre Exploration Ltd is listed on the Vancouver Stock Exchange. Its President is M.J. Fitzgerald, and the office is at 254 E. 14 th St.., North Vancouver, B.C., Tel. 980-4312. The Secretary is T. Brock,T el. 687-1444, with his office on the Fifth Floor of the United Kingdom Bldg, Granville & West Hastings.

Two adjoining blocks of claims were staked later in 1979 :

the RICHFIELD # 3 M.C., of 15 units, 3 North by 5 East, covering the northern extension of the mineralized zone,

and RICHFIELD # 4 M.C., of 12 units, 4 South by 3 East, covering the possible offset portion of the zone south of Richfield Creek.

These claims are owned beneficially 70% by Cobre Exploration Ltd and 30 % by F.B. Whiting.

C. HISTORY

The first discovery of gold-silver mineralization at what later became the Main Workings was made in 1926. The claims were promptly optioned by the Standard Silver-Lead Mining Co. which sank a shaft and opened up the 100-Foot Level from it. Results at first were confused, and the property was returned to the prospector, who formed the Topley-Richfield Mining Co., achieved an underwriting for $ 1,500,000 , deepened the shaft to the 200-Foot Level, and did considerable drifting, crosscutting, raising on ore, and diamond drilling. Work by that company ceased in early 1929 as with the metal prices in effect then ($ 20.67 per ounce of gold and $ 0.58 per ounce of silver) the indicated grades of 0.2 - 0.5 oz Au and 8 - 20 oz of silver were sub-marginal. The property lay idle until 1934-1935 when the price of gold had been raised; prospecting found other veins to the east, in what had at first been regarded as barren " footwall " , with rich ore across narrow widths.

Again the property was left idle until it was optioned by Silver Standard Mines Ltd in 1954-56. That company did some surface drilling, and then de-watered the old underground workings, re-sampled them, and did more underground drilling. Results are described in a later section of this report.

An Eastern Canada company, Seemar Mines, took over the claims in 1967 and reportedly had an E.M. survey made.

In 1975 the claims were optioned by Canadian Superior Exploration Limited, which did limited stream-silt sampling, a small I.P. survey, and then drilled four holes, only three of which penetrated bedrock. An interpretation of the Canadian Superior work is given later.

The present claims, covering a wide area surrounding the Main Workings, were staked by F.B. Whiting early in 1979.

Numerous showings of gold-silver mineralization accompanied by either lead-zinc or zinc-copper occur 2 - 4 km to the south, on claims held by other owners. The deposits there are similar in general characteristics to those on the Richfield claims, having rich layers or veins in similarly-altered andesite. The existence of those deposits over a large area confirms the interpretation that the Richfield-type deposits are not just local veins or replacements, but are part of a whole " center of multi-metal mineralization ".

Historical references are taken from:
B.C. Minister of Mines Report for 1926 p.138-143, M.M. 1927 p. 140-147, M.M. 1928 p. 173-174, M.M. 1937 p.C 26-27 , M.M.1955 p.25, Geology in B.C. 1975 p.G 65, Exploration in B.C. 1975 p.E 140. Also Assessment Report 5438, and 5707.

D. REGIONAL GEOLOGY

The best regional geology map known to the writer is Map 971 A - " Smithers - Fort St. James ", a sector of which is given as Figure 3.

This map shows the area of the claims as being underlain by Map-unit 13 : " Jurassic or Cretaceous Tachek Group - Andesite and andesite breccia, basalt and rhyolite ". To the north is Map-unit 2A :"Permian and/or later Topley Intrusions - granite and granodiorite". The area directly northwest of the Richfield claims was explored in 1972-73 by Ducanex Resources, which drilled 10 holes for copper and molybdenum associated with " K-feldspar-rimmed veinlets in Topley granitic rocks ": see " Geology, Exploration and Mining in B.C., 1973 p.343 ".

The Topley Intrusions are earlier than the Jurassic volcanics that host the Richfield deposits and which lie unconformably upon the eroded surface of the older intrusives. Descriptions of the regional geology suggest that the unconformity dips shallowly south from its exposures at the headwaters of Holmes Creek, 1.5- 2.0 km north of the Richfield claims' northern boundary. Therefore it can be presumed that at some considerable depth below the present surface, granitic rocks will underlie the showings. On Holmes Creek, early Tachek-group clastic sediments occur, lying on the Topley Intrusions and underlying the Tachek volcanics; these too may occur at depth below the showings.

It is intriguing to hypothesize what might exist where the deep-seated faulting and alteration evidenced by the Tachek volcanics in the near-surface workings encounters the clastic lower-Tachek sediments and the underlying Topley Intrusions. The nature of the mineralization there could be drastically different from what is seen in the known showings, and it is possible to envisage a massive, south-

FIG. 3

MAP 971A

LEGEND

SEDIMENTARY AND VOLCANIC ROCKS

CENOZOIC

TERTIARY

OLIGOCENE OR LATER

ENDAKO GROUP

23 — *Mainly vesicular and amygdaloidal basalt, andesite and dacite; flow breccia and agglomerate;* **23a**, *trachyte and andesite flows, dykes, and sills; may be older than 23*

EOCENE OR OLIGOCENE

22 — *Rhyolitic flows, tuffs, and intrusions; minor dacite, andesite, and basalt*

21 — *Conglomerate, sandstone, and shale; minor tuff; coal*

CRETACEOUS OR LATER

UPPER CRETACEOUS OR LATER

19,20 — **19**, *andesite, trachyte, and rhyolite; intercalated arkose and conglomerate:* **20**, *rhyolite, dacite, andesite, basalt; minor related tuffs and breccias; may be partly or entirely of same age as 21*

UPPER CRETACEOUS AND PALEOCENE

SUSTUT GROUP

18 — *Conglomerate, shale, greywacke, and tuff;* **18a**, *conglomerate, sandstone, shale, greywacke, argillite, minor quartzite and andesite; may be in part younger than 18*

LOWER CRETACEOUS OR LATER

17 — *Andesitic, dacitic, rhyolitic, and basaltic flows, tuffs, and breccias; minor sandstone, shale, and conglomerate*

MESOZOIC

CRETACEOUS

LOWER CRETACEOUS

16 — *USLIKA FORMATION: conglomerate; minor sandstone and shale*

JURASSIC AND CRETACEOUS

UPPER JURASSIC AND LOWER CRETACEOUS

15 — *Conglomerate, sandstone, shale, argillite, greywacke, quartzite, tuff, and minor lava; some coal*

JURASSIC OR (?) CRETACEOUS

TACHEK GROUP

13 — *Andesite and andesite breccia; basalt and rhyolite;* **13a**, *argillite and conglomerate*

JURASSIC

MIDDLE OR UPPER JURASSIC

12 — *Andesitic, dacitic, and rhyolitic flows, tuffs, and breccias; minor argillite*

MIDDLE JURASSIC

11 — *Argillite, argillaceous quartzite, quartzite, sandstone, limestone, and tuff; fossiliferous*

LOWER JURASSIC (?)

10 — *Andesitic, dacitic, rhyolitic, and basaltic flows, tuffs, breccias, and agglomerates*

JURASSIC AND CRETACEOUS

HAZELTON GROUP

14 — *Andesite, rhyolite, trachyte, basalt, and related breccia and tuff; minor argillite, arkose, sandstone, and limestone. May include some undifferentiated Triassic rocks*

plunging shoot of breccia ore running down that unconformity, at an unknown but not un-reachable depth.

The existence of rhyolite in the Tachek Group is also significant in terms of relating the gold-silver-copper-lead-zinc mineralization to volcanogenic processes. Large amounts of a tan rhyolite occur on Shoulder Mountain, a few kilometers north of Holmes Creek. More is reported from Matzehtzel Mtn, also not far north of the Richfield claims. Considering the well-established relationships between rhyolite domes and massive-sulphide volcanogenic deposits, there is a good possibility that a major massive-sulphide deposit could occur at depth in this vicinity, possibly at the contact between the rhyolite and an overlying andesite bed. The Richfield claims cover all of the area where such a deposit could occur.

The two long-range ore-making possibilities described above are, of course, subordinate in interest at this moment to the primary targets comprised of the main topleyite alteration zone with its ore layers, and the Eastern Sector with its near-vertical quartz-gold-silver-copper-lead-zinc veins, described below.

E. LOCAL GEOLOGY

Within the area of the claims, there are two different and easily-distinguished sectors. See Fig. 4.

The Eastern Sector, extending from about 100 m east of the central staking line of the CDF #1-#4 claims, has andesite (and veins) close to the surface. Outcrops of andesite are not plentiful, but they occur in sufficient abundance to show that bedrock occurs at shallow depths, from 0 to perhaps 6 m, covered by a thin layer of glacial drift and earth. The andesites are brown to green, porphyritic, and massive; bedding is indistinct. They show little alteration except immediately adjacent to the Au-Ag-Cu-Pb-Zn zones. This sector shows on the I.P. profiles as a High Resistivity area. The percentage of outcrop area, compared to covered ground, is 3 - 5 %. Wherever outcrops occur, old mine diggings exist. This leads to the conclusion that the entire Eastern Sector is favorable for the occurrence of ore-grade veins, and that numerous potential orebodies may exist under the drift- covered areas.

The Western Sector, extending from the Taylor Crosscut in the Main Workings all the way to the westernmost edge of the Richfield #2 claims , has no outcrops. The sub-surface geology can be interpreted only from the few drill-holes beside the Main Workings, from the Canadian Superior I.P. survey, and from the regional geological map. It seems that while the topographic surface in this Western Sector is notably flat and even, sloping at 3 - 5 ° to the west, the bedrock surface may be strongly gullied with steep slopes and abrupt valleys where the overburden cover may jump to thicknesses of 20 - 40 m within very short distances. The part of this Sector that lies adjacent to the Main Workings shows on the I.P. survey profiles as a Low Resistivity area.

The largest, richest, and most continuous known ore deposits occur along the eastern margin of the Western Sector, close to the north-striking, west-dipping edge of the highly-altered andesite that is referred to as " topleyite ". The deposits are one, two, or possibly several layers of gold-silver-pyrite mineralization within the topleyite; they generally dip west, but have been reported as dipping northeast or to be lying flat. These layers are in places much disrupted by faulting , and may be offset to leave gaps, or repeated to suggest multiple layers. In addition to these gold-silver-pyrite zones, which seem to be replacements, there are also more definitely vein-type bodies, which commonly lie right against the Andesite Footwall and occasionally cross into it. Tunneling has demonstrated that these bodies within the topleyite extend north-south for a length of at least 1000 feet; the two levels, and holes drilled below the lowermost level, show that the deposits exist over a dip length of at least 450 feet, and the deepest holes are in material of ore grade and thickness. For example, the deepest hole in the central section of the Main Workings cut 2.5 ft grading 0.34 oz Au / t, 21.0 oz Ag / t, 4.2 % Pb, 6.3 % Zn.

In addition to being open at depth, there are drillhole intersections at both the north and south ends that show that mineralization exists beyond or below the present limits of the two underground levels : Hole S-1, 600 ft north of the shaft, cut a 9-ft vein of which the best 2.0 ft assayed 0.58 oz Au / t, 8.4 oz Ag / t., and this intersection is at a depth of 297 feet below the surface, which is 97 feet below the lowest level of mine workings. The Canadian Superior drill-hole # 75-3, some 300 ft south of the shaft, almost overshot the topleyite zone , but did intersect a wide body of low-grade mineralization, which, across 14.0 ft, assayed 0.03 oz Au / t, 3.0 oz Ag / t. (equivalent to $ Can. 70.00 per ton today).

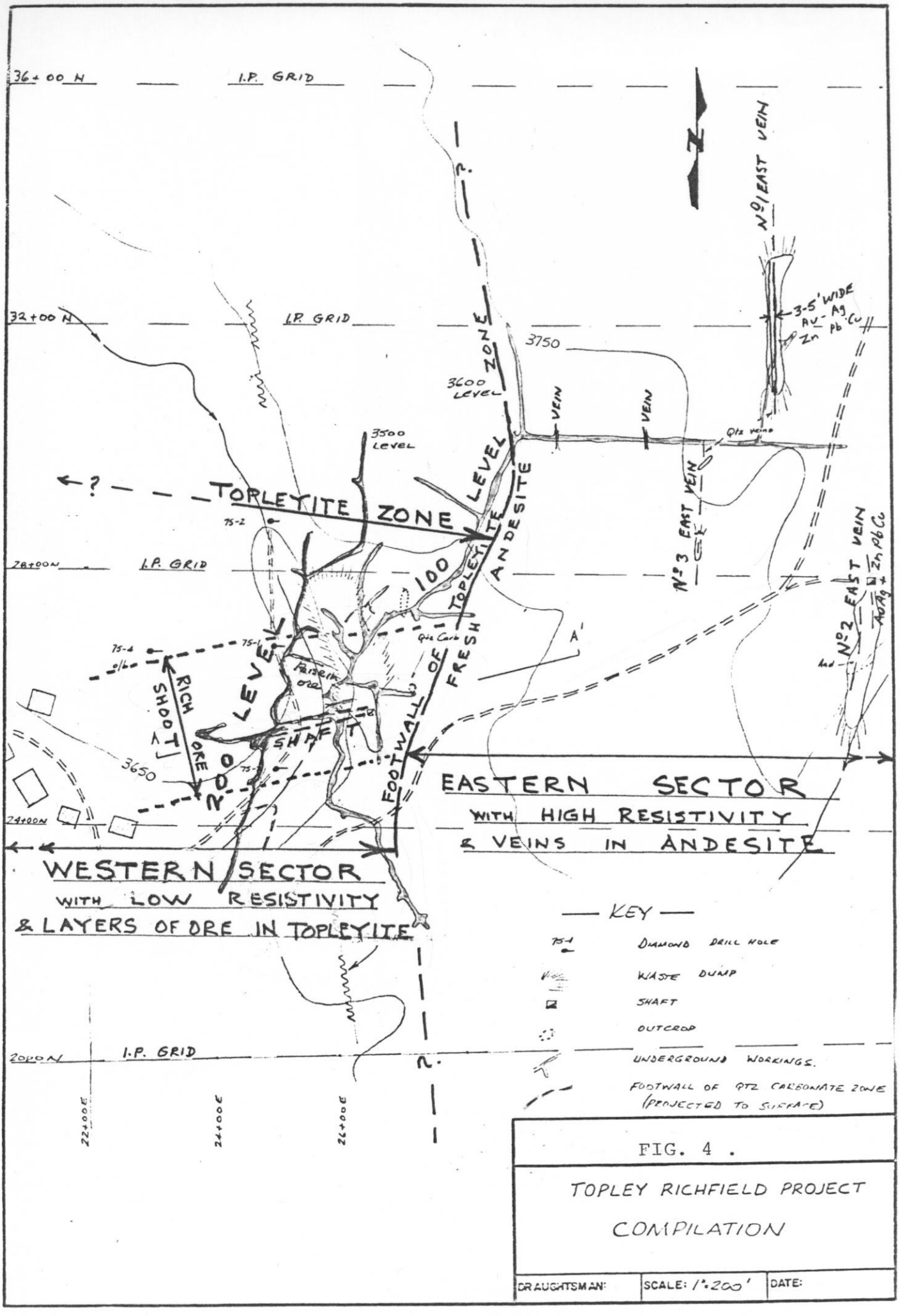


FIG. 4 .

TOPLEY RICHFIELD PROJECT

COMPILATION

DRAUGHTSMAN:	SCALE: 1"=200'	DATE:

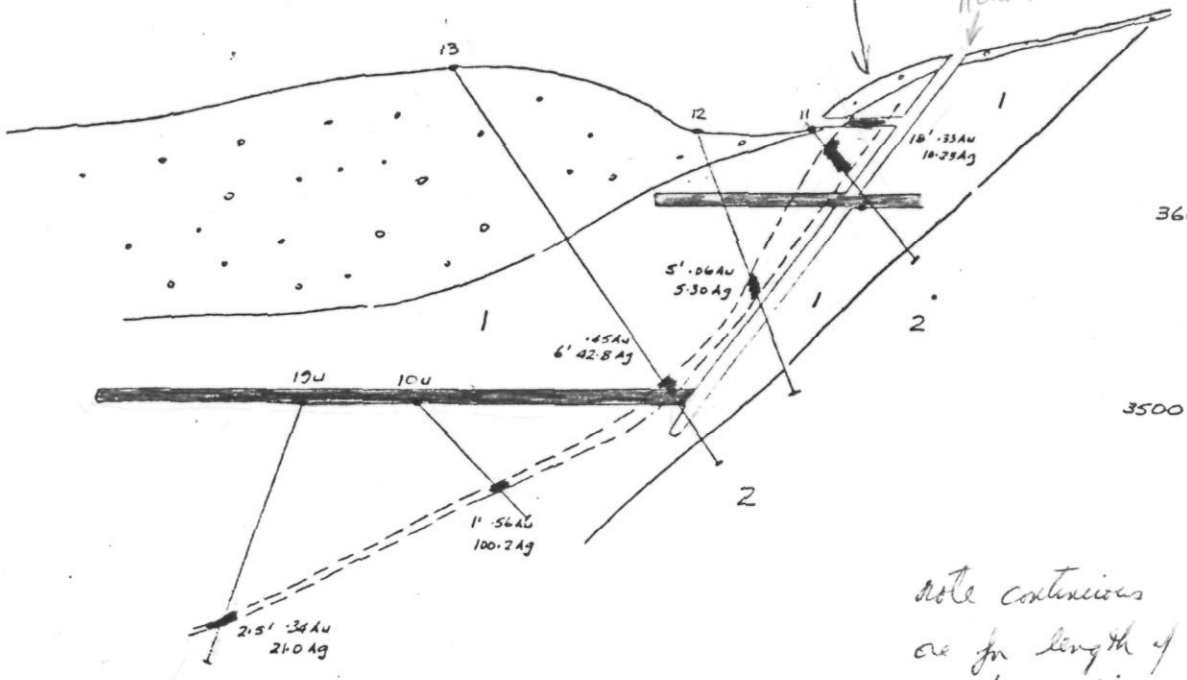
W

E

ELEV (FT.)

Note ore near surface.

Headframe



note continuous ore for length of 425' on dip, still open at bottom.

KEY

o o o	OVERBURDEN
1	QUARTZ CARBONATE ZONE
2	ANDESITE
	DRIFT

0 50 100 200

FEET

NOTE:
DATA FROM SEGMAR MINES LTD
&
RICHFIELD MINING CO. LTD

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

TOPLEY RICHFIELD PROJECT

SECTION A-A'

DRAUGHTSMAN: JS | SCALE: 1" = 100' | DATE: DEC/75

The average grade and width, and even the number of separate ore layers, found on the 100-Foot Level is exceptionally difficult to interpret from the old reports and the assay plans. In places it appears that there is one main layer that has been repeated by cross faulting. Elsewhere it is suggested that there may be as many as seven layers or shoots, dipping northeast and striking northwest across a belt 100-150 feet wide. As these workings are flooded it is not possible to re-study them now, so that a firm conclusion as to the number, extent, and abundance of the shoots on the 100-Foot Level must be left for later examination or an intensive drilling campaign. With the present stage of knowledge, it is possible that there is a generally-mineralized block of ground extending from surface down to just below the 100-Foot Level, perhaps 200 ft long and 100 ft wide, that would make a mineable grade overall, taking low-grade or barren layers together with numerous rich shoots or layers or vein segments, at say 0.1 oz Au, 6 oz Ag /t.

On the 200-Foot Level there appear to be at least two ore layers which strike north and dip 45° to the west. In the central part of that level, re-sampling by Silver Standard Mines in 1954-56 , taking the weighted average of 74 channel samples, gave a length of 120 ft, a thickness of 2.7 ft, and a grade of 0.465 oz Au / t, 17.6 oz Ag / t. Weaker mineralization continues some distances north and south. The deepest hole on the down-dip continuation of that rich shoot , for which the assays are given on page 11 of this report, showed the ore to continue at least 250 ft down the dip, to a point 100 ft vertically below the 200-Foot Level. This is hole 19-U .

A raise connecting the 200-Foot and 100-Foot Levels shows rich ore, in the range of 3.4 ft thick grading 0.27 oz Au /t, 49.2 oz Ag /t.

In the northern and southern extension drifts

on both levels, multiple veins were found in a wide belt close to the Footwall Andesite, with highly-variable widths and assays.

In a report of this type it is not feasible to quote assay results over a total of more than 4600 linear feet of drifts, crosscuts, and raises. Interested persons can study the many level assay plans and the drill records. From the work done to date by the writer, the following conclusions have been reached:

1. In certain parts of the topleyite zone, mineralization is restricted to one or two layers, dipping west at 45°, that can carry 0.40 Oz Au /t , 17.0 oz Ag /t, or better, across thicknesses of 2.7 - 3.7 feet, and over longer strike lengths, to include thinner or lower-grade material, might grade 0.30 oz Au / t, 10.0 oz Ag / t over 3.0 feet.

2. In other parts of the topleyite zone, numerous shoots or layers or veins (or combinations of all of these), appear to exist, which could produce a " mass-type " mineralization of exploitable grade over widths of over 100 feet and lengths of several hundreds of feet.

3. Given favorable combinations of circumstances in the very large un-explored areas of the topleyite belt, it could be anticipated that :

a) single layers several feet thick could occur, carrying grades of 0.3 - 0.5 oz Au / t, 10 - 20 oz Ag / t., which could be mined by underground stoping.

b) bulk mineralization could occur, in which a multiplicity of veins/shoots/layers could be mined together with intervening low-grade material, forming mineable blocks containing several hundreds of thousands and potentially several millions of tons.

The Metal Factor plot of Canadian Superior's I.P. survey, done in 1975, shows a narrow anomaly over the known mineralization at the Main Workings. It also shows a stronger, wider anomaly 2000 feet long (and open at both ends), on the western side of the Low Resistivity area that correlates with the intensely-altered topleyite zone. This anomaly could indicate the presence of a very large mass mineralized " in bulk ", which could be mined by open pit. There are no outcrops anywhere near that anomaly, as the overburden cover is complete. Thus, until this anomaly is tested by drilling, its source is unknown. Drilling there is recommended, as the tonnage suggested by an anomaly 400 ft wide and 2000 ft long, to a depth of say 400 ft, would be some 26 million tons. Extensions to the north and south could multiply that tonnage. See Fig.5 .

....

The above descriptions apply to the Western Sector. In regards to the Eastern Sector, which covers a band 5 claim-lengths from north to south and 3.8 claim lengths from west to east, in which bedrock is close to the surface and the mineralization occurs as distinct veins, the following data are available.

Strong veins were found in outcrops or in shallow trenches about 400 feet northeast of the Main Workings. On one vein, a shaft was sunk, and a pile of vein material beside it shows abundant sphalerite, in a quartz-carbonate matrix, with arsenopyrite, galena, and chalcopyrite. No assays are available. A second vein 4.8 ft wide, of similar mineralogy, striking north and near-vertical, is exposed in a long trench some hundreds of feet north of that shaft.

The Minister of Mines Report for 1937, p.C26-27, mentions work done on a vein " 1,000 feet easterly from the

original workings, consists of a shear-zone about 5 feet in width, in andesitic breccia, striking from north to north-east and dipping 45 degrees easterly. The extent of this shear-zone along its strike is possibly considerable, as a shear-zone exposed some 300 feet south-west may be the same. " A shaft was sunk on the vein to a depth of 35 feet, and a drift was run southward for a distance of 25 ft. Two samples are reported: across 15 in.- 0.46 oz Au/t, 10.0 oz Ag/t, 1.0 % Cu, 2.8 % Zn; and across 21 in.- 0.10 oz Au/t, 6.4 oz Ag/t, 0.8 % Cu, 3.9 % Zn. A pile of average ore estimated to contain 32 tons gave: 0.22 oz Au/t, 9.0 oz Ag/t, 1.5 % Cu,3.6 % Zn.

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SILVER STANDARD SAMPLES.

1955-56

Topley Assays

Sample 77) 120 / 7.6 spec.

L = 120'

W = 2.7'

03. Au = .465

03 Ag = 17.6

17.6 / 31.17 Sept. 1979 Value: $270/t.

If diluted to 5.0 Ft Mining Width.

1 1/2 N - 3400 Level.

SAMPLE No	Width	Au. 03	Ag. 03	MULTIPLY.		SAMPLE No	Width	03 Au	03 Ag	MULTIPLIED	
25	2.0	.28	2.16	.560	4.32	101	3.0	.40	39.0	1.200	117.0
27	2.0	.32	3.62	.640	7.24	105	2.5	.26	24.7	.650	61.6
30	5.0	.52	7.84	2.600	39.20	58	1.5	.28	10.5	.420	15.7
32	4.0	.66	7.02	2.640	28.08	61	1.0	.40	4.5	.400	4.5
35	5.0	.54	10.34	2.700	51.70	55	1.5	.10	3.9	.150	5.9
38	5.0	.74	17.80	3.700	89.00	50	3.0	.34	19.5	1.040	58.5
39	4.0	.72	29.50	2.880	118.00	90	2.0	.26	8.9	.520	17.8
40	4.0	.50	15.60	2.000	62.40	92	2.0	.28	6.8	.560	13.6
42	2.0	.50	8.10	1.000	16.20	100	2.5	.18	5.1	.450	12.6
43	2.0	1.06	17.10	2.120	34.20	95	2.5	.42	12.9	1.050	32.3
47	1.5	1.08	32.50	1.620	48.80	102	3.0	.40	8.2	1.200	24.6
8	1.5	.56	47.56	.825	71.50	106	2.5	.28	14.8	.702	37.2
53	3.0	.72	58.60	2.160	175.80	108	2.5	.32	16.3	.800	40.8
54	3.0	.58	21.50	1.740	64.50	107	2.5	.40	22.6	1.000	56.6
55	5.0	.40	42.00	2.000	210.00	110	1.5	.40	27.4	.600	41.2
56	2.0	.43	28.25	.860	56.50	109	2.5	.38	39.3	.950	98.5
60	3.0	.82	24.90	2.460	74.70	113	2.5	.62	41.4	1.560	103.6
61	2.0	.36	25.48	.720	50.96	115	2.5	.84	42.0	2.100	105.0
66	3.0	.60	51.20	1.800	153.60	42	2.5	.62	33.4	1.560	83.5
67	4.0	.08	4.56	.320	18.24	129	3.0	.82	4.6	2.460	13.8
68	1.5	.36	23.60	.540	35.40	112	2.5	.48	37.5	1.200	94.0
69	2.0	.20	20.04	1.400	140.28	121	4.0	.58	40.4	2.320	161.6
70	3.0	.15	9.02	1.260	63.14	127	3.0	.82	4.7	2.460	14.1
71	1.0	.60	40.20	.600	40.20	123	4.0	.68	7.9	2.720	31.6
72	6.0	.12	2.68	.720	16.08	125	3.0	.12	6.2	.360	17.6
73	1.5	.38	18.30	.570	27.40	128	3.0	.64	17.8	1.920	53.4
74	2.0	.22	1.52	.440	3.64	134	3.0	.40	24.2	1.200	72.6
76	1.0	.24	5.04	.240	5.04	126	3.0	.64	5.2	1.920	15.6
77	1.5	.14	4.54	.210	6.81	130	4.0	.66	7.2	2.640	28.8
78	1.5	.16	4.84	.240	7.26	135	2.0	.24	10.8	.480	21.6
79	1.5	.32	4.84	.480	7.26	142	2.5	1.10	7.0	2.750	17.5
83	2.0	.24	20.20	.480	40.40	147	1.5	.30	7.1	.450	10.6
82	2.0	.36	30.30	.720	60.60	143	1.5	.24	3.4	.360	5.1
89	2.5	.66	18.10	1.650	45.20	144	1.5	.18	4.4	.270	6.6
90	2.5	.26	8.90	.650	22.50	146	2.5	.78	9.7	1.850	24.2
99	2.5	.36	14.30	.900	35.80	145	2.5	.38	6.0	.950	15.0
96	2.5	.40	13.40	1.000	33.45	54	2.0	.18	4.0	.360	8.0
						77	270.5 / 2.7 Ft Av. Thickness			93.127 / .465 03 Au/t	35.256 / 17.6 03 Ag/t.

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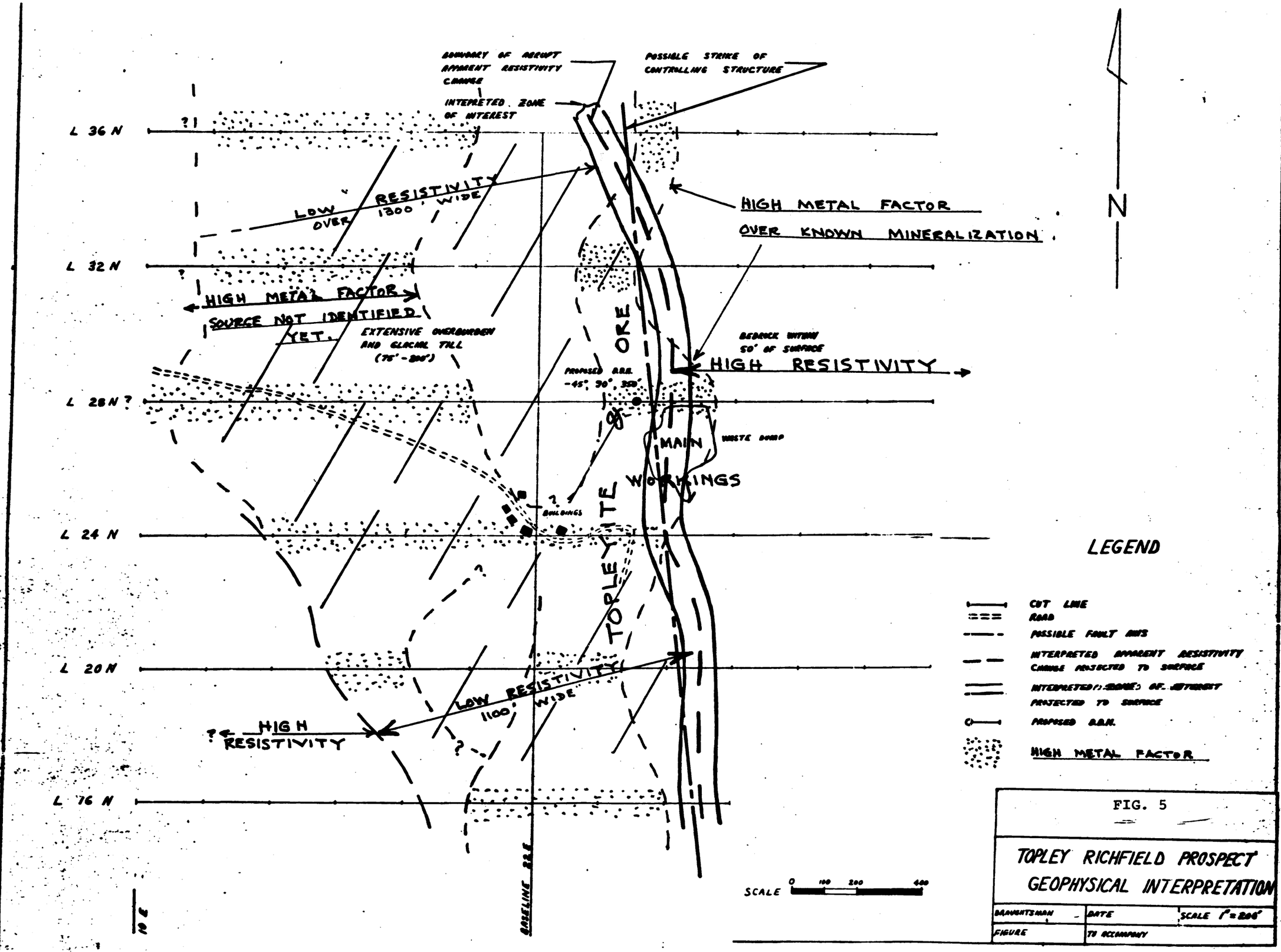


FIG. 5

TOPLEY RICHFIELD PROSPECT
GEOPHYSICAL INTERPRETATION

DRAUGHTSMAN	DATE	SCALE 1" = 200'
FIGURE	TO ACCOMPANY	

F. TOPLEYITE

Reference has been made earlier in this report to the term " Topleyite ". This name was applied to the unusual rock found beside the rich ore discovered in the original trenches. The term is applied to a rock which is clearly a product of very intense alteration of the Jurassic andesites. All stages of the alteration from fairly fresh andesite to topleyite can be recognized, best seen in drill cores. This rock is identical to the "green carbonate" of Ontario.*

The un-altered andesite is most commonly green, sometimes medium brown, almost always somewhat porphyritic with white feldspar crystals 1 - 2 mm long. The first stage of alteration is to impose a general pale-green cast to the rock, and to fade the outlines of the phenocrysts. Next, the feldspars remain only a vague ghosts, and the rock becomes banded, with pale green stripes appearing. Then, the rock loses all resemblance to a volcanic rock, and is a striped rock with pale green minerals in bands 2-3 mm across, alternating with quartz-rich layers of similar width. Finally, the rock shows a high content of carbonate, and the entire mass is medium-grained (grains 1 - 3 mm across) of a tan color, and without the green striping. It carries 5 - 8 % Fe, making it an ankerite.

It was reported that on weathering, topleyite disintegrates to a fine rubble. It weathers a rusty brown color.

On the dumps of rock from the drifts and cross-cuts of the two underground levels, it is easy to see that the topleyite zone has been subjected to several periods of replacement, veining, and movement. Much of the topleyite is twisted, showing the effects of pressure and movement after it was made. It has been cut by later veins of quartz, which in turn have been sliced and veined by carbonate - calcite and dolomite,

*It also has some green chrome mica, fuchsite or mariposite.

and these are veined again by more quartz and carbonates.The sulphides appear to have come in at the end of these processes.

The interpretation put on the foregoing is that the topleyite is a very intense alteration of deep-seated nature, that can be expected to continue a long way down below the present surface; that the zone in which the topleyite alteration occurred is one of long-continued movement, stress, and metasommatic processes; and that accordingly, anything seen close to the present surface can be expected to continue along strike and down dip almost indefinitely. Supporting this interpretation of the deep-seated nature of the topleyite alteration is the observation that similar alteration, with gold-silver-lead-zinc-copper, or assorted mixtures of these, has been found at many sites within 5 km of the Richfield's Main Workings.

Old reports mention that a very strong, wide fault zone had been found at the extreme western edge of the 100- and 200-Foot Levels; it apparently strikes north and dips west. It is likely that this fault acted as a feeder for the alteration and mineralization, with the known deposits on its footwall or eastern side. It is common for faults to have a sharp boundary on their footwall side, and to have a wider zone of movement and alteration on their hangingwall side, where branch faults tend to splay off. In this environment, such a situation could be the cause of the wide I.P. Metal Factor anomaly on the western side of the Resistivity Low, reinforcing the concept that bulk mineralization may occur there.

G. DEEP POSSIBILITIES

In the Section D. REGIONAL GEOLOGY, reference was made to certain ore-making possibilities on the Richfield claims.

One of these is related to the formations under the Tachek volcanics, where they rest first on Jurassic clastics and then on the older, underlying Topley Intrusions. A section east-west, and one north-south, are given to illustrate the possible ore-making possibilities at depth. See Figs. 6 & 7.

The other relates to the rhyolite domes that exist towards the north. In a typical volcanogenic environment ore can occur close to the centre of the rhyolite vent, near " mill-rock " breccias, or it can occur in a " distal " position in beds surrounding the dome, at distances of several miles from it.

The reported occurrences of rhyolite in this vicinity are all to the north of the Richfield claims, within the Tachek volcanics. As the volcanics dip south, the rim of the rhyolite masses could occur at depth below the surface of those claims, at some horizon inside the andesites. A normal-type massive-sulphide ore-body could occur somewhere around the rim of the rhyolites. While there is no evidence at present to indicate that such an orebody exists, it is a real possibility based on solid geological interpretations.

H. WORK IN PROGRESS

Cobre Exploration Ltd has already begun a program of work on the Richfield claims.

The first work done was to establish a surveyed base-line north-south through the center of the claims for a length of 2,500 m; hubs were set at either 100-m or 50-m spacing, and elevations recorded. A grid of cross lines was then blazed and flagged, with pickets every 25 m; this grid extends from 10+00 N to 13+00 S. Most cross lines extend from 4+00 E to 5+00 W, however lines 10+00 N, 5+00 N, 1+00 N, 5+00 S, and 10+00 S were extended to 10+00 W and up to 20+00 E to allow reconnaissance geophysical surveys to be made in search of new ore zones far removed from the area of old workings.

An E.M. 16 survey has been made covering the lines from 5+00 N to 10+00 S. Many anomalies were found, some of which correlate with known veins; the others strongly suggest that other veins occur beneath overburden-covered sectors of the claims - these merit testing by drilling or trenching.

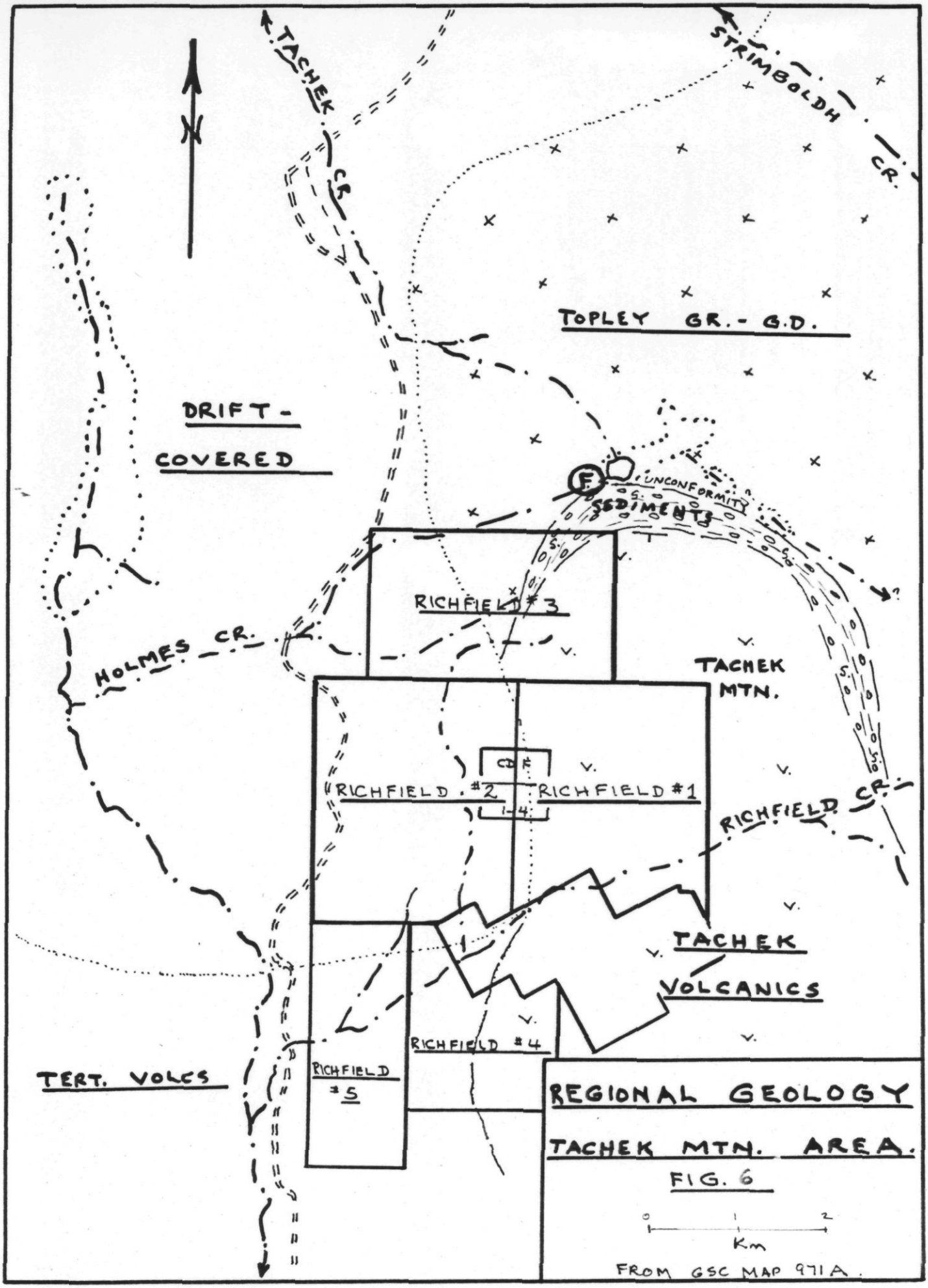
A magnetometer survey was made over 9 cross lines from 5+00 N to 10+00 S. This established that a definite magnetic low is found over the topleyite/ore zone where it is known to occur on lines 0+00 N and 1+00 N. Step-out pairs of lines to the north and south show that identical magnetic lows occur on strike to the north and south, giving a minimum interpreted length to the topleyite zone of 1,500 metres. The width is variable, ranging from 225 m over and west of the Main Workings, and increasing to over 600 m towards the south, and 300 - 600 m to the north. There are no outcrops within this belt as the cover of drift is continuous, so the full extent has high potential for holding multiple ore-bodies.

A Pulse E.M. survey has been made over the central part of the grid, covering the Main Workings and adjacent areas to the north, west, and south. This survey has found a very strong continuous conductor under overburden-covered ground a short distance west of the Main Workings. The conductor has been followed from 2+50 N to 8+00 S, a strike length of 1,050 metres, and is open to both north and south. This conductor is within the topleyite zone as outlined by the magnetic survey and the resistivity survey; it may be a major ore layer. A second conductor was found on lines 7+00 S and 8+00 S, very close to the north-south base line.

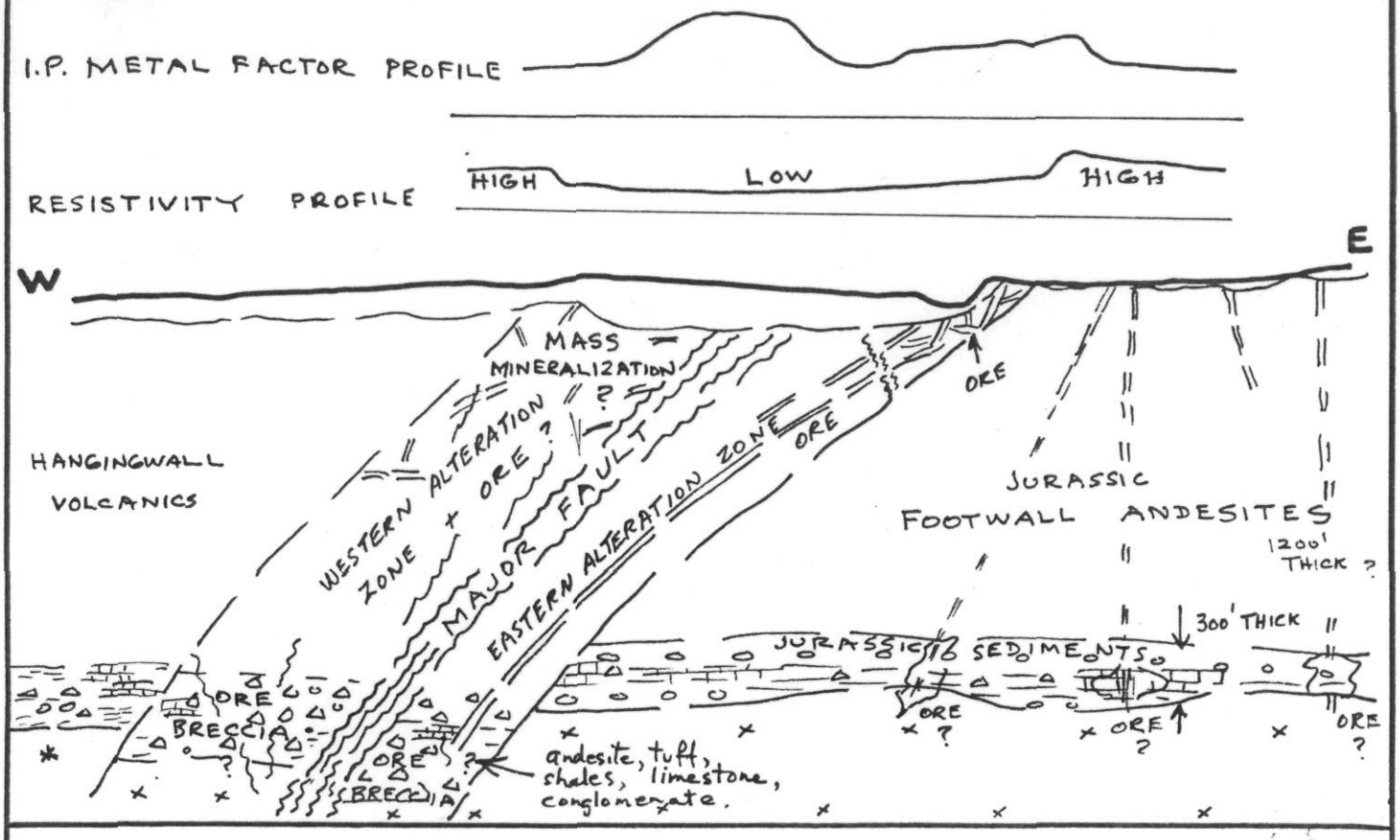
Combining the interpretations of the various geophysical surveys that have been made provides strong confirmation of the existence of a long wide topleyite zone, that must persist west, north, and south from the Main Workings. This entire zone is favorable for the occurrence of ore, which could be in the form of a set of narrow rich shoots similar to that already developed in the Main Workings, or which might, under the right conditions of widespread quartz flooding followed by repeated brecciation and mineralization, form bodies of large dimensions and consequent high tonnages.

Secondary targets on which testing is justified have also been disclosed by the E.M. 16 survey, which found anomalies both east of, and west of, the principal topleyite zone.

Extensive drilling is needed to follow the known ore north, south, and down-dip from the Main Workings; to test the strong new conductors found by the Pulse E.M. survey; and to explore the probable veins farther east and west indicated by the E.M. 16 anomalies.


TACHEK CR.
STRIMBOLDH CR.
TOPLEY GR. - G.D.
DRIFT - COVERED
UNCONFORMITY
SEDIMENTS
RICHFIELD #3
HOLMES CR.
TACHEK MTN.
RICHFIELD #2
RICHFIELD #1
RICHFIELD CR.
TACHEK VOLCANICS
RICHFIELD #4
RICHFIELD #5
TERT. VOLCS
REGIONAL GEOLOGY
TACHEK MTN. AREA.
FIG. 6
0 1 2
Km
FROM GSC MAP 971A.

E-W SECTION.



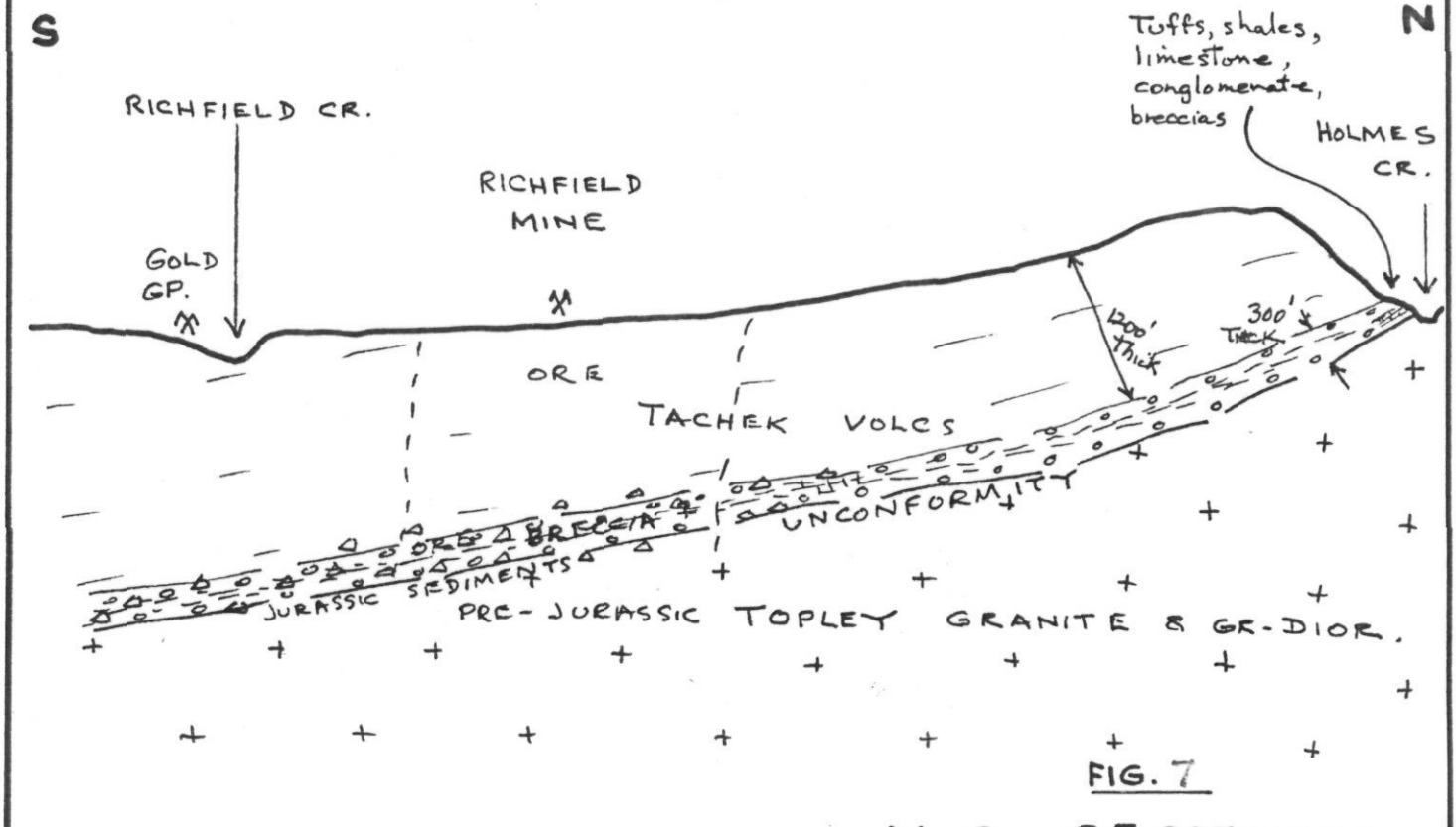


FIG. 7

N-S SECTION.

I. RECOMMENDED WORK PROGRAM

The work program required to give a thorough test to the many ore-making possibilities on the Richfield claims is described below; estimated costs are given on a following page.

The objectives of the program are :

:- to follow the known ore north, south, and down dip from the present limits of the Main Workings;

:- to identify the nature of the strong Pulse E.M. conductor lying west of the Main Workings and, if ore is found, to follow it north and south;

:- to prospect widely within the buried topleyite zone in search of other ore-bodies that may not have a clear geophysical expression;

:- to expand the existing geophysical coverage farther east, north, and west, to clarify the connections between anomalies found on the widely-spaced grid lines, to identify other drill targets.

:- to make a deep test of the posssible ore shoot at the intersection of the unconformity at the base of the Tachek volcanics with the major structural break along which the topleyite zone has been developed.

The amounts of drilling allowed for in the cost estimates would of course have to be increased greatly if new ore zones are located by the first work.

RICHFIELD GOLD - SILVER PROPERTY

PROPOSED WORK PROGRAM AND BUDGET :

Item	Cost : $ Can.
1. Surface diamond drilling, BQ or NQ @ $ 15.00/ft base rate + $ 2.00 additionals = $ 17.00 / ft 15 holes of 450 ft = 6750 ft x $ 17.....	$ 114,750
2. Surface percussion drilling, 48 holes of 250 ft = 12,000 ft at total cost $ 5.00 / ft.....	$ 60,000
3. Backhoe for trenching for new veins: 10 days of 10 hrs each @ $ 55.00/ hr.....	$ 5,500
4. Bulldozer for road repair and extensions to drill sites: 10 days x 10 hrs / day @ $ 75 / hr.....	$ 7,500
5. E.M. Survey 60 line mile @ $ 500 / l.m. all incl. (line flagging, survey, reports, maps).....	$ 30,000
6. Geochemical sampling incl. gridding & assays 1000 samples @$10 / sample	$ 10,000
7. Assaying: 1200 samples @ $ 10.....	$ 12,000
8. Metallurgical test re heap leaching, vs flotation	$ 10,000
9. Labor: general camp helpers, 2 persons for 60 days @ $ 70.00 overall , wages, CPP,U.I.C., W.C.B.	$ 8,400
10. On-site geologist, 4 months @ $ 2,000.....	$ 8,000
11. Geological supervision and engineering (compilation of old data, geol. cross-sections, hole lay-out, maps, drafting & copying, report: 5 mo.)	$ 15,000
12. On-site office and core-shack repair.....	$ 3,000
13. Outside consultants: 10 days @ $ 500 incl. expenses	5,000
14. Living costs re supervisors 120 days @ $ 50.....	$ 6,000
15. Travel to & from Vancouver to site, 10 trips @ $ 300 / trip, air fare, meal, motels.....	$ 3,000
16. Head Office costs.....	$ 4,000
Sub-total.....	$ 302,150

Budget, continued:

Item	Cost
Sub-total from Page 21.....	$ 302,150
17. Maps, ortho-photos, office supplies.....	$ 2,000
18. Office costs: telephone, copying, miscell.....	$ 1,000
19. Vehicle rental: 4 mo. @ 500 / mo.....	$ 2,000
20. Field equipment, tools, tool rental.....	$ 3,000
21.Gasoline, oil, camp supplies.....	$ 3,500
Total.....	$ 313,650
22. Contingencies, possible extra work .....@ 10 %.	$ 31,350
TOTAL PROGRAM BUDGET.....	$ 345,000

The program outlined above is what is needed to give the property a thorough test. Cobre Exploration Ltd is proceeding with the first stages of the program, consisting of surveying, gridding, geophysical work, soil sampling , geologic mapping, preparation of cross-sections, and trenching. It is anticipated that drilling will commence as soon as the above work has defined the highest-priority targets, possibly by late fall, 1979, weather permitting.

K. CONCLUSIONS

This property has the best mine-making potential of any deposit in Western Canada in an equivalent stage of development. There is a reserve of ore in sight, already 90 % developed, amounting to some 20,000 tons grading at least $ 250 per ton in gross contained gold-silver alone, without allowing any credit for the other base metals. The known ore is open down-dip and the deposit as a whole is open to the north and south on strike. There are numerous other veins in the Andesite Footwall area which may carry mineable shoots. There is an I.P. Anomaly (Resistivity and Metal Factor) confirmed by a magnetic low, giving a long wide topleyite zone with a strong conductor in it, which may be ore.

The property is close to a main highway, in an area where mining is already an accepted industry, with water and power available. No townsite is required.

Exploration work is already under way, funded by Cobre Exploration Ltd.

Proposals for participation by other companies are welcomed, and can be discussed with either Mr. M.J. Fitzgerald, President, or Mr. Tim Brock, Secretary.

THIS REPORT PREPARED BY THE
UNDERSIGNED AT THE REQUEST OF
COBRE EXPLORATION LTD.

Vancouver, B.C. Nov. 25 , 1979.

F.B. Whiting