MT. WASHINGTON EXPLORATION PROJECT
MT. WASHINGTON COPPER CO. LTD.

Nanaimo Mining Division
British Columbia

W.G. STEVENSON & ASSOCIATES LTD.
January 14, 1970

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49° 45' North Latitude

125° 15' West Longitude

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SUMMARY

The property of Mt. Washington Copper Co.Ltd. on Vancouver Island 105 miles northwest of Vancouver features Tertiary plutons in wide variety of size, shape, composition and texture, with satellite dikes, and breccia pipes, intrusive into Triassic volcanics and Cretaceous sediments.

The soil over the Mt. Washington area has an extremely high copper content. Low-grade copper mineralization can be found in all rock types on the property and molybdenum coincident with copper, is widely distributed over the property.

Between 1956 and 1967 Noranda, Cominco, and Mt. Washington Copper Co. have independently conducted programs of geological mapping, geochemical and geophysical surveying and diamond drilling. The property had a brief period of production during 1965 and 1966, when approximately 400,000 tons of material with a grade of 1.10% copper, and minor amounts of gold and silver was mined and milled.

During 1968 and 1969 airborne magnetic, induced polarization, resistivity and geochemical surveys and diamond drilling was accomplished by Merietta Resources Ltd. Mr.Charles L. Elliot, Consulting Geophysist from Tucson, Arizona, reported:

The airborne magnetic survey, outlined seven significant features. The resistivities at Mt. Washington present

an extreme variation not normally encountered in North America. That the extreme range of induced polarization responses at Mt. Washington are some of the highest measurements from anywhere in the world.

Copper and molybdenum mineralization is wide spread and geochemical soil surveys have shown extremely high copper values. A substantial tonnage of near ore grade mineralization has been developed in three areas.

(1) In Murex Creek past drilling has indicated 2 million tons with a grade of 0.4% copper.

(2) In the vicinity of the old open pits 1/3 million tons with a grade of 1.07% copper can be obtained by underground mining methods.

(3) Two thousand feet southerly a vertical diamond drill hole penetrated 3 bands of copper mineralization (242' - 0.20% copper; 112' - 0.28% copper and 145' - 0.12% copper).

While the exploration accomplished over the past 12 years has provided valuable information, many of the geological phenomena, including structure, lithology, geometry of intrusive bodies and alteration associated with mineral deposition is not understood.

The responses from the airborne and ground magnetometer surveys, the induced polarization, resistivity surveys, the copper and molybdenum geochemical surveys have

been only partially tested.

The complex multiphase Tertiary intrusives, the strong faulting the widespread copper and molybdenum mineralization, the pattern of geophysical response are features similar to porphry copper mining districts in South America, Mexico, Western U.S.A. and Western Canada. The ease of access to an area where title to Mineral Rights is unquestioned in a country of stable government reduces much of the gamble in mineral exploration.

Nine areas with targets for diamond drilling will be discussed. A preliminary test of these targets could be accomplished with 2 diamond drill holes in each area each hole 500 feet deep.

INTRODUCTION

The geological environment of Mt. Washington on Vancouver Island, 105 miles northwest of Vancouver presents conditions similar with many low grade disseminated copper deposits.

Since 1957, Noranda, Cominco, Mariette Resources and Mt. Washington Copper Co. have independently conducted exploration programs in an effort to develop a large low grade ore body.

The property had a period of production during 1965 and 1966, when 392,000 tons of material with a grade of 1.16% copper, 0.01 oz gold/ton and 0.5 oz silver/ton

was mined and milled.

During 1966 - 1969 inclusive I supervised exploration programs over the property of Mt. Washington Copper Co. A report dated January 18, 1967 reviewed the geology, status of title to the property and the work that had been accomplished up to that date. That report also described the exploration accomplished during 1966. A report dated January 15, 1968 summarized the 1967 program and a paper on the geology of Mt. Washington was published in the November,1967, issue of the Western Miner magazine. A report dated February 12, 1969, reviewed the work accomplished during 1968, and a report dated November 17, 1969, described the work accomplished in 1969. These reports contain complete data and maps and are available for study.

The following is a review of the geological, geophysical, geochemical and diamond drilling data collected in the past. It utilizes information deemed pertinent in an appraisal of the geological environment and an assessment of the remaining exploration potential of the property. The information on the attached maps show location, property outline, geology, geophysical and geochemical responses, position of past diamond drill holes and exploration targets.

PROPERTY AND TITLE

Title to the base metal mineral rights has been granted to Mt. Washington Copper Co.Ltd.,by Canadian Pacific Oil and Gas, through Lease No.2 and exploration agreements No. 37, 39 and 41. During 1969 Mt.Washington applied for additional mineral rights in an adjoining area comprising a large block of ground south and east of the existing concession. This exploration agreement is being processed by C.P.O.G. at the present time.

The attached map (Appendix B) shows the outline of Mineral Lease Number 2, the 3 existing exploration agreements, and the additional area which is being processed to transfer title of the base metal mineral rights to Mt. Washington Copper Company.

Title to the precious metal mineral rights over approximately three-quarters of Mineral Lease No.2 area have been acquired and are held in the name of Mt. Washington Copper Company by 174 located claims and fractions and 4 Crown Granted Mineral Claims. The outline of the claim block is shown on the attached map (Appendix B).

LOCATION AND ACCESS

Mt.Washington is located on Vancouver Island 105 miles northwest of Vancouver, at 49° 45' North Latitude and 125° 15' West Longitude. It is situated 16 miles northwest of Courtenay, a station on the E.& N.Railway at tidewater.

Access is gained over improved roads from Courtenay through a Crown Zellerbach timber licence.

The copper, lead, zinc, silver deposit of Western Mines is located in Strathcona Park near the southern end of Buttle Lake, 19 miles southwest of Mt. Washington. The Argonaut mine, which produced two million tons of iron concentrate, is located 13 miles northwest of Mt.Washington. Shafts and tunnels near Comox Lake, ten to fifteen miles southeasterly, mark the location of coal mines now dormant.

HISTORY

In 1940 gold bearing quartz veins at Mt.Washington were discovered and staked by Messrs.J.M. and R.D.McKay. In 1944 and 1945 Springer interests drove an adit on these veins.

In 1956 Mt.Washington Copper Company Ltd., acquired title to the property, and granted a lease to Noranda Mines Ltd., who conducted a program of geological mapping, geophysical surveying and diamond drilling. When Noranda relinquished their lease in 1959 it was taken up by Consolidated Mining & Smelting Co. During 1963 and 1964 Cominco conducted a program of geological mapping and diamond drilling. When Cominco relinquished their lease Mt.Washington Milling Co.Ltd. erected a copper mill and commenced production on the small ore reserve that had been developed. This operation continued through 1965 and 1966 at a rate of 600

tons per day. Operations were discontinued in November, 1966.

During 1966 and 1967 Mt.Washington Copper Co.Ltd. conducted an exploration program over their property. In 1968 and 1969 Marietta Resources Co.Ltd.,under lease agreement with Mt.Washington Copper Co. conducted geological, geophysical, geochemical and diamond drilling programs.

In October, 1969, Marietta Resources relinquished their lease on the property and title reverted to Mt. Washington Copper Co.Ltd.

In December,1969, the G.S.C. released paper 68-50 "Geology and Mineral Deposits of Alberni Map-Area British Columbia (92 F) with a map of this area drawn to a scale of 1" = 4 miles.

GEOLOGY

Over the past 12 years Noranda, Cominco, Mt.Washington Copper Co. and Marietta Resources Co.Ltd., have performed exploration programs and have compiled reports and maps pertaining to the Mt. Washington property. These studies have provided a clearer understanding of the rock types, structure and mineralization and many of the geological phenomena. However, the relation of lithology and structure to the widespread mineralization over the property is not understood and presents an important problem requiring solution.

A number of Tertiary intrusive bodies are exposed within and beyond the property of Mt. Washington Copper Co. These invade Triassic volcanic rocks and Cretaceous sedimentary strata. The most prominent is a complex multiphase intrusive in the vicinity of McKay Lake and easterly.

LITHOLOGY

KARMUTSEN FORMATION (Triassic)

The Karmutsen formation is composed of basaltic flows, tuffs, agglomerates and breccias. These volcanic rocks are exposed over the northeastern two-thirds of Mineral Lease No.2. This formation is thought to be gently dipping, however attitudes are indistinct. It has a thickness in excess of 10,000 feet; the bottom is not exposed in the Mt.Washington area.

The rocks are porphyritic, amygdaloidal, and aphanitic, with poorly defined pillow structures. Fresh surfaces of the volcanics are dark gray to greenish-black, weathering greenish-gray to rusty brown. The basalts are deficient in primary silica, rich in mafic minerals, principally hornblende, of secondary origin, and plagioclase feldspar with minor chlorite, biotite, K-feldspar and sphene. Up to 3% magnetite has been observed in some specimens.

COMOX FORMATION (Cretaceous)

The Comox formation is made up of flat lying interbedded quartzitic sandstones, carbonaceous and pyritic

siltstones, coal seams and conglomerates. These lie unconformably over the Karmutsen Volcanics in the southwestern one-third of Mineral Lease Number 2, where the unit is in excess of 1,100 feet thick.

This formation resembles some of the uraniferous bearing sedimentary beds in Western U.S.A. However, a survey with a Geiger Counter conducted over certain specified lines revealed no significant responses.

Within the Comox formation a number of flat lying sills have been mapped. These vary in thickness from 20 - 150 feet. This intrusive rock has been classified on the more detailed maps as Pit Diorite. It is fine-grained, medium to dark gray, frequently mottled purplish-brown. The composition is approximately 40% mafic minerals and 60% gray plagioclase. Hornblende alters to chlorite, the other minerals to quartz, kaolin, and sericite. Disseminated pyrite-pyrrhotite and chalcopyrite occur both interstitial to plagioclase and as a replacement of the mafic minerals, related to chloritization of hornblende.

This rock forms the hanging wall of the mineralization in the south pit. Elsewhere on the property, copper mineralization is frequently found disseminated in tabular bodies of Pit Diorite. Molybdenite occurs on fractures in this rock type, in the western part of the main pit. Molybdenum-bearing quartz veinlets have been intersected

in drill holes. Four of the eight occurrences of molybdenum noted within intrusive rock are in veins and fractures in Pit Diorite. It is cut by mineralized quartz veins and altered and enriched with sulphides in the hydrothermal zones.

INTRUSIVE BODIES

An area of 2 square miles within Mineral Lease No.2 contains igneous stocks, pipes, sills, and dikes intrusive into the Karmutsen and Comox formations. The intrusives have been classified into four rock types.

1. HORNBLENDE QUARTZ DIORITE

Three bodies of this rock type have been recognized within Mineral Lease Number 2. This rock is light gray, medium-grained, in a granitic texture, speckled with mafic minerals. The composition is approximately 65% light gray fine to medium-grained plagioclase, and 35% mafic minerals, mainly actinolitic hornblende, of secondary origin. The ragged and irregular hornblende crystal boundaries and the presence of accessory sphene are distinctive.

Chalcopyrite and pyrite bearing quartz veinlets were found in the body one-half mile northeast of McKay Lake.

The body situated 1 mile northwest of the tailings pond is within a pronounced airborne magnetic anomaly. An analysis of the hornblende quartz diorite in drill core

from this location however shows that magnetite forms less than 0.5% of this rock.

2. GRANODIORITE

Four bodies of granodiorite have been mapped within C.P.O.G. Lease No.2. Three of these are near the southeast corner, and McKay Lake is within the fourth body.

The body at McKay Lake is approximately 4000 feet in diameter. The rock is fresh, unaltered and hard. Within this body a pronounced topographic low extending over an area 1200 feet by 1200 feet has developed which is now occupied by McKay Lake.

This rock is composed of approximately 60% fine to medium-grained, subhedral plagioclase, 15% quartz and 25% chloritized hornblende. These rocks weather light gray and are frequently limonite stained. The surface exposure of the intrusive at McKay Lake coincides with geochemical anomalies of both copper and molybdenum. This is also the site of a pronounced resistivity high. The perimeter of this granodiorite coincides with a body of Washington breccia, the open pits, and a magnetic anomaly.

Pyrite with minor chalcopyrite has been observed one-half mile north of the tailings pond and south of and adjoining McKay Lake.

3. FELDSPAR PORPHYRY

This rock type is exposed in the vicinity of Mt. Washington and McKay Lake. It is characterized by

light gray plagioclase phenocysts in a fine-grained, medium to dark gray groundmass.

Trace amounts of pyrite, pyrrhotite and chalcopyrite are disseminated in the intrusive located between Mt.Washington and McKay Lake and in the Comox sediments. Sulphide bearing quartz veins have been found within this body.

4. BRECCIAS

Three types of Breccia have been recognized on the property.

(1) WASHINGTON BRECCIA Five bodies of Washington Breccia are exposed, (1) 2000 feet northwest of McKay Lake, (2) 2000 feet southwest of McKay Lake, (3) 3000 feet east of McKay Lake, (4) 4000 feet east of McKay Lake, and south of Mine Road, (5) 4000 feet northeast of McKay Lake.

The bodies northwest and southwest of McKay Lake occur at the contact between granodiorite and Comox sediments. The northwest body is immediately northeast and east of the open pits and within magnetic anomaly C. The other two bodies are isolated outcrops within Karmutsen Volcanics.

The contacts of this breccia are gradational with the enclosing rock, we have not worked out their geometry and the origin is not clear.

Washington breccia is characterized by angular

fragments of enclosing rocks in a matrix of actinolite and magnetite. Chalcopyrite and molybdenite have been introduced into the matrix in the body of Washington breccia 1500 feet northeast of the open pit. Minor molybdenite in the matrix and chalcopyrite disseminated in fragments occur in the breccia south of the open pit.

Shearing and hydrothermal alteration has affected some bodies of Washington breccia, where realgar, arsenopyrite, pyrite, and minor chalcopyrite occur.

(2) MUREX BRECCIA

Three bodies of Murex breccia have been mapped. The largest is exposed in Murex Creek near the millsite. This breccia is composed of fragments of siltstone, quartzite, diorite, quartz diorite, granodiorite and volcanics in a matrix of gray Feldspar porphyry with variable magnetite content. Disseminated pyrite and pyrrhotite are found throughout this body and minor molybdenite, chalcopyrite covellite and bornite occur near the southern margin. The outline of this body coincides with the position of magnetic anomaly B.

The second body of Murex breccia is exposed south of the open pits. The matrix of this body (about 65%) is dark purplish-brow n, fine-grained feldspar porphyry, with fragments of pit diorite and Comox sediments. Mineralization here consists of disseminated chalcopyrite in fragments, with disseminated pyrite, pyrrhotite, and chalcopyrite in the

matrix. This breccia is cut by hydrothermally altered structures.

The third body, exposed in a road cut $\frac{3}{4}$ mile northeast of the millsite, has not been delineated or tested. This body may be related to the Murex breccia body near the mill.

(3) M-3 BRECCIA

A body of M-3 Breccia was recognized on the Mine Road 4000 feet east of McKay Lake. It is composed of angular fragments of granodiorite or quartz diorite in a brownish-black chloritic matrix. Molybdenite associated with epidote and minor pyrite and chalcopyrite occurs in the matrix of this breccia. The origin of this breccia is unknown.

STRUCTURE

The sedimentary beds of the Comox formation are gently-dipping. They overlay the Karmutsen Volcanics which are massive with indistinct attitudes and if folding is present, it is difficult to recognize.

The Comox formation at Mt.Washington occurs at 5000 elevation. The northwest regional fault across the property has a displacement estimated at 3500 feet.

To illustrate the structural and stratographic relationships I have constructed and attached as Appendix K, 2 vertical sections across Mineral Lease No.2. These sections are based on our observations and on regional

maps and sections published by the Geological Survey of Canada.

A system of faulting has been recognized within Mineral Lease No.2. A statistical analysis of the strike direction of 75 faults shows the most predominant strike direction is northerly. A north 20 - 35° east and north 45° west direction is also noted.

Mineralization in fault zones is characterized by vein quartz, kaolinization, actinolite, realgar, pyrite, pyrrhotite, chalcopyrite and arsenopyrite. Minor amounts of galena and sphalerite occur west and south of McKay Lake. In the vicinity of McKay Lake all faults are mineralized. The two most prominent mineralized fault directions are north 50 - 65° east and north 25 - 45° west.

In the vicinity of McKay Lake an arcuate pattern of faults and breccia, and a system of radial faults along with complexity of lithology, intrusive bodies, alteration, mineralization and topography suggest a center of intrusion. A second center is indicated $1\frac{1}{2}$ miles east of McKay Lake in Murex Creek, where the largest body of intrusive breccia in Mineral Lease No.2 is exposed. A zone of weakness marked by intrusive Murex breccia extends 3 miles westerly to McKay Lake.

MINERALIZATION AND PAST PRODUCTION

The host rock for the ore grade mineralization at Mt. Washington was gently dipping quartz veins, Comox sedi-

ments and Pit Diorite. The quartz veins 5 - 25 feet in width were relatively high grade, with disseminated mineralization in the sediments and sills. The source of the mineralization appears to be the Pit Diorite and this rock forms the hanging wall of the open pits.

An ore reserve of 337,000 tons with a grade of 1.07% copper adjacent to the open pit, down to the elevation of the tunnel level is indicated, and a substantial tonnage of material of similar grade is expected to continue below this tunnel elevation.

In the area extending from the south pit to Glacier Lake, bounded on the east by Washington breccia, and on the west by porphyry and Murex breccia, gently-dipping Comox sediments have been intruded by sills of Pit Diorite which contain disseminated chalcopyrite. In this area drill holes C-8 and C-10 put down by Cominco, hole 69-15 by Marietta and geological mapping by Tedlie, indicate a mineralized zone 2000 feet long and 500 feet wide. Hole C-10 drilled vertically 858 feet penetrated 3 bands of mineralization. The uppermost, 242 feet thick commencing at a depth of 15' averages 0.20% copper; the second zone commencing at a depth of 430 feet averages 0.28% copper over a thickness of 112 feet, and the third commencing at a depth of 665 and continuing to the bottom of the hole, averages 0.12% copper over 145 feet.

On the southeast side of Murex Creek two

million tons of material with a grade of 0.40% copper is indicated, within gently-dipping brecciated Karmutsen Volcanics. The zone has not been delineated toward the southeast.

On the northwest bank of Murex Creek, blebs and veinlets of chalcopyrite and pyrite were recognized in Karmutsen Volcanics adjacent to a feldspar porphyry dike. Samples on the northwest bank over 150 feet assayed 0.25% copper, 0.1 oz ton/silver with traces of molybdenite and gold. The extension northwesterly beyond the stream channel is masked by overburden.

An isolated occurrence of molybdenum assaying 0.1% over a width of 16 feet was exposed in Comox sediments in Murex Creek immediately south of the Mine Road. Iron stained Comox sediments an additional 1000 feet south are exposed in cliffs over broad areas. Samples of quartzite from these cliffs assay 0.05% to 0.12% copper, 0.06 to 0.75 oz silver/ton with traces of lead, nickel and gold. This area lies south of the breccia at the junction of Mill Road and Murex Creek and the mineralization is possibly related.

A 5-foot sample of quartzite between sills of feldspar porphyry in the bench area two thousand feet south of McKay Lake assayed 1.0% copper, 0.02 oz silver/ton with traces of molybdenum, nickel and gold.

A sample of brecciated Comox mudstone 100 feet in length 1900 feet north of North Pit in Pyrrhotite Creek, assayed 0.17% copper, 0.01 oz silver/ton, with traces of molybdenum, nickel and gold.

Pyrite, pyrrhotite, arsenopyrite, realgar, chalcopyrite, molybdenite, gold, silver, galena, and sphalerite are found in all rock types within Mineral Lease Number 2. Concentrations of sulphides in the Karmutsen Volcanics near the contact with the Comox formation in places suggest that the Comox formation may have acted as an impermeable barrier to mineralizing solutions, with the consequent deposition of sulphides in the volcanics.

GEOPHYSICAL PROGRAM

During 1967 ground magnetic, induced polarization and resistivity surveys were performed over the property. The induced polarization resistivity survey was reported by McPhar Geophysics and the ground magnetometer program by Dr. D.W.Smellie, Consulting Geophysist.

During 1968 an airborne magnetic survey was conducted over the property of Mt.Washington Copper Co., followed by an induced polarization resistivity survey. Mr. C.L.Elliot, Consulting Geophysist, reported on this survey under date of November 8,1968. The maps which formed part of his report are reproduced and attached as Appendices D, F and G.

During 1969 a program of diamond drilling was initiated to test the anomalies outlined by the geophysical program, and a ground magnetic survey was performed to provide detailed information on the airborne magnetic anomalies. Mr.Elliot supervised the ground magnetic program and reported under date of September 9,1969. The map which formed part of his report is reproduced and attached as Appendix E.

AIRBORNE MAGNETIC SURVEY

During 1968 an airborne magnetic survey was conducted over and beyond the limits of Mineral Lease Number 2. I have attached as Appendix D an airborne magnetic map drawn to a scale of 1" = 2000 feet, which shows Mr. Elliot's appraisal. He stated the airborne magnetic survey outlined 7 significant magnetic bodies. The principal body, marked "A" likely represents a basic intrusive at a depth of 600 feet. Two other intrusives are probably indicated by the other magnetic anomalies. Magnetic Anomaly B appears to be closely related to the body of Murex breccia near the mill. The proximity of Body C to the open pits suggests that the body may be the source of the mineralization that was mined in 1965 and 1966, and is related to the body of Washington breccia.

GROUND MAGNETIC SURVEY

The ground magnetic survey accomplished dur-

ing 1967 covered only a small area over the northeastern part of concession area. A magnetic low positioned approximately $\frac{1}{2}$ mile north of the millsite was found which Dr.D.W. Smellie suggested might reflect a zone of hydrothermal alteration and which warranted investigation.

The airborne magnetic survey was followed in 1969 by diamond drilling and a ground magnetic survey. Mr. Elliot supervised the geophysical program and has written a report dated September 8, 1969, correlating this ground survey and the information obtained from diamond drilling with the airborne survey.

I have attached a map drawn to a scale of 1" = 2000 feet marked Appendix E to show Mr. Elliot's appraisal.

Mr. Elliot has suggested that the ground survey following the airborne magnetic survey has shown that the four magnetic zones tested are not homogeneous igneous bodies. He postulates that these bodies are separate vertical bands of basic intrusive or breccia within non-magnetic country rock. He suggests the magnetic zones at Bodies A and D are close to surface, and the magnetic zones at Body B are buried at moderate depth.

INDUCED POLARIZATION SURVEY

During 1968 an induced polarization survey designed to search for large disseminated sulfide deposits to depths of 750 feet was conducted over Mineral Lease No.2.

Mr. Eiliot postulated that the high response reflected a sulfide content of 1.5%. I have attached as Appendix F a map drawn to a scale of 1" = 2000 feet to illustrate Mr. Elliot's appraisal of this survey.

Mr. Elliot noted four significant polarization zones marked Zone A through D. Zone A, 13,000 feet long by 2500 feet wide, from near surface to a depth of 500 feet appears to be peripheral to magnetic Bodies A and B. Zone B, 8,000 feet long by 1700 feet wide, from near surface to a depth of 500 feet, appears to be peripheral to magnetic Body A. Zone C, 8,000 feet long by 1,000 feet wide, appears to coincide with the contact between Comox sediments and Karmutsen Volcanics, and to be peripheral to magnetic Body B. Zone D, 2500 feet long by 1000 feet wide appears to be peripheral to airborne magnetic Body C.

RESISTIVITY SURVEY

During 1968 a resistivity survey was conducted over Mineral Lease Number 2.

Mr. Elliot has stated the rock resistivities vary more than four magnitudes, which made survey procedures difficult. I have attached a map marked Appendix G to show Mr. Elliot's interpretation. He noted an outstanding zone of low resistivity in the northeast part of Mineral Lease Number 2, which trends easterly 16,000 feet and beyond. The zone lies on the northern flank of magnetic bodies

A and B and is coincident with a high induced polarization zone. The western edge apparently terminates against the McKay Lake intrusive complex. While this zone is within volcanics, Mr. Elliot states this low resistivity is not indicative of volcanic rocks.

Two other zones of low resistivity are outlined. The first in the northwest, the second in the southeast part of Mineral Lease Number 2, both extending beyond the limits of the Mineral Lease. They were not corroborated by induced polarization responses. The low resistivity in the southeastern part of Mineral Lease Number 2 probably reflects the naturally low resistivities of sedimentary rocks. The response in the northwest is not discussed.

A zone of high resistivity approximately one mile in diameter is exposed in the northwestern part of the concession area centered over McKay Lake.

The induced polarization-resistivity survey conducted during 1967 appears very generally to conform with the pattern that was established during 1968. However, one line in the western edge of the concession area surveyed in 1967 and not in 1968, showed anomalous results which warrant investigation.

GEOCHEMICAL SURVEY

During 1966 reconnaissance geochemical sampling was initiated over C.P.O.G. Mineral Lease Number 2. An

area with high copper content was indicated approximately 1½ miles east of McKay Lake. In 1967 a detailed geochemical survey confirmed the results of the 1966 program and an anomalous area approximately a mile in diameter was outlined.

Detailed geochemical surveys within C.P.O.G. Lease No.2 and a reconnaissance survey over parts of the area westerly from C.P.O.G.Lease No.2 was accomplished in 1968 and 1969.

T.S.L.Laboratories of Vancouver performed the geochemical analyses in 1968. Copper and Molybdenu- was extracted from the soil samples with hot hydrochloric acid. The copper content was determined by atomic absorption, the molybdenum content determined with zinc dithiol.

During 1969 the analytical work was performed by Chemex Laboratories in North Vancouver. Copper and molybdenum were extracted with hot per chlorate nitric acid and determinations were made with a Varian-Techtron AA5 Atomic Absorption Spectrophotometer.

During 1968 and 1969 a total of 2134 soil samples were collected, at intervals of 100 - 200 feet along lines established 200 - 1600 feet apart. These samples were obtained from depths of 1 - 3 feet using an auger.

An analysis of the sample results has shown that concentrations of copper in the soil above 320 ppm and

above 10 ppm for molybdenum and are anomalous.

Lines with only one isolated anomalous assay have not been considered significant, and future programs should give consideration to these individual high geochemical assays. The attached geochemical maps drawn to a scale of 1" = 2000 feet, show 13 copper and 3 molybdenum areas that are anomalous.

COPPER

The copper anomalies shown on map marked Appendix H form two distinct clusters, both with eliptical outlines and both with a central core of low values. The first is centered over McKay Lake, the second over Murex Creek $1\frac{1}{2}$ miles easterly.

ANOMALY C-1

South of the open pits, surrounding breccia hill. Area 7,000,000 square feet - 10% outcrop.

Mudstone, quartzite and conglomerate of the Comox formation have been intruded by Pit Diorite, Feldspar porphyry and breccia. Copper, Silver and gold mineralization has been found in quartzite, Pit Diorite, feldspar porphyry and breccia The copper values within C-1 are the highest found, often over 1000 ppm.

DDH C-15, positioned within this anomaly intersected 100 feet of material with a grade of 0.30% copper, and minor amounts of gold and silver. DDH C-10

intersected 242 feet of material with a grade of 0.20% copper and at a lower elevation 112 feet with a grade of 0.28% copper. DDH 69-15 intersected 30 feet of material with a grade of 0.26% copper, minor gold, silver and 0.01% molybdenum.

The diamond drilling within this area has not provided an adequate test, and the geochemical survey has not delineated the anomaly.

The presence of favourable structures and rock types near the open pits, the position of the induced polarization anomaly obtained during 1967 in an area with the highest geochemical copper assays offers exploration attraction.

ANOMALY C-2

On mine road 1/2 mile northeast of McKay Lake. Area 1,200,000 square feet - 2% outcrop.

Hornblende Quartz Diorite and granodiorite outcrop in this area coincide with anomalies C-2 and C-3. A fault zone striking N.35°E dipping 58° northwest, 2' wide carrying a 2" stringer of chalcopyrite bearing quartz was found.

ANOMALY C-3

4000 feet northeast of McKay Lake. Area 300,000 square feet - no outcrop.

A north-south trending fault which forms

the contact of volcanics and intrusives projects northerly into this anomaly. Our mapping suggests this anomaly is underlain by Hornblende Quartz Diorite and volcanics. The Surface within this anomaly is void of outcrop and trenching or drilling is indicated.

ANOMALY C-4

3200 feet east of McKay Lake. Area 200,000 square feet - 10% outcrop.

Karmutsen Volcanics and intrusives are exposed. Modest amounts of pyrite, pyrrhotite and chalcopyrite mineralization has been recognized within this anomaly.

ANOMALY C-5

3000 feet southeast of McKay Lake. Area 1,000,000 square feet - 1% outcrop.

This anomaly coincides with the position of molybdenum anomaly M-1. It is situated at the base of the Comox formation.

Drill hole 69-16 tested anomaly M-1 and C-5. The core did not contain significant mineralization. However this hole was stopped at a depth of 85' due to drilling difficulties, and the source of mineralization has not been recognized.

ANOMALY C-6

3500 feet northwest of old mill site. Area 100,000 square feet - no outcrop.

Our mapping suggests that this anomaly is underlain by volcanics.

ANOMALY C-7

500 feet northeast of C-6. Area 400,000 square feet - 1% outcrop.

Outcrops of Karmutsen Volcanics which contain quartz veins with pyrite and modest amounts of chalcopyrite are exposed in a road cut. No sampling was accomplished.

ANOMALY C-8

On Murex Creek between Tsolum Main Road and the mine road. Area 1,400,000 square feet - 3% outcrop.

The south side of Murex Creek within the outline of this anomaly was diamond drilled by Cominco in 1963 - 1964. The results of the drilling indicated an appreciable tonnage of material containing low grade copper mineralization. This mineralization occurs in brecciated volcanics near a feldspar porphyry dike.

During 1968 eight chip samples which contained pyrite, pyrrhotite and chalcopyrite in brecciated Karmutsen Volcanics cemented by chlorite, were collected from the southeast side of Murex Creek, within the outline of this geochemical anomaly. These samples which represented a length of 290 feet, assayed 0.20% copper and 0.025% molybdenum.

During 1969, mineralization was discovered on the northwest bank of Murex Creek. A sample over a length of 150 feet assayed 0.25% copper, trace molybdenum, trace gold and 0.1 oz silver/ton. Overburden toward the northwest masks the extension of this mineralization. A drill hole on the north side of the Creek failed to penetrate mineralization.

ANOMALY C-9

On the Tsolum Main Road at Murex Creek. Area 300,000 square feet - 2% outcrop.

Outcrops of volcanics with disseminated pyrrhotite, pyrite and minor chalcopyrite and narrow quartz veins are found in Murex Creek.

ANOMALY C-10

On the Tsolum Main Road over a drainage channel from the mill. Area 300,000 square feet - no outcrop.

Outlying mapping suggests that Karmutsen Volcanics occur beneath the overburden.

ANOMALY C-11

One-half mile west of the millsite. Area 400,000 square feet - 3% outcrop.

Bedrock exposures are deeply weathered volcanics and breccias.

Steep cliffs of Comox sediments stained with red oxides are exposed south of anomaly C-11. Samples of this material assayed 0.05% to 0.12% copper, 0.06 to 0.75 oz ton/silver, traces of lead, nickel, gold. This area is south of the mineralized breccia at the Junction of the Mill Road and Murex Creek.

ANOMALY C-12

At the millsite. Area 1,500,000 square feet - 1% outcrop.

This anomaly appears to be the eastern extension of C-11. Dust and drainage from the mill may cause this anomaly. However, one-half of the area is above drainage from the mill. The predominant East-West wind directions might have elongated the pattern of this anomaly.

Exposures of dark gray-green basic volcanics containing small amounts of pyrite are exposed in the foundation of the mill building and nearby road cuts.

ANOMALY C-13

1400 feet southeast of the millsite on the Mine Road. Area 500,000 square feet - 2% outcrop.

Karmutsen Volcanics with small diorite and breccia dikes outcrop in road cuts and on the hillside south of the road. We observed a moderate amount of pyrite, pyrrhotite and chalcopyrite mineralization disseminated within fractures, and in quartz stringers. Sulphides are

especially abundant in the vicinity of the breccia dike.

Drill hole 69-2, designed to test this geochemical anomaly and a zone of I.P. response did not intersect significant mineralization.

MOLYBDENUM

During the 1966 - 1967 the geochemical samples were not assayed for molybdenum, as this metal was not considered diagnostic. Commencing in 1968 all geochemical samples were assayed for molybdenum.

The attached map marked Appendix I outlines three areas around McKay Lake with anomalous molybdenum content in the soil. These areas form an eliptical pattern approximately 1½ miles across with a central core of low assays.

ANOMALY M-1

3000 feet east of McKay Lake. Area 6,700,000 square feet - 5% outcrop.

This anomaly coincides in part with copper anomalies C-3, C-4 and C-5 described above.

Molybdenite mineralization is found in intrusive and breccia rocks along road cuts in the northern part of this anomaly, one rock specimen assayed 0.38% molybdenum. This anomaly was partially tested by drill holes 69-8, 69-9, and 69-13. Hole 69-9 intersected 10 feet assaying .046% molybdenum; 69-13 intersected 100 feet assaying 0.04% molybdenum.

Molybdenite mineralization has been found in the southern part of this anomaly in breccia, intrusives, and Karmutsen Volcanics. X-Ray Hole 69-16, drilled in the southern part was stopped at a depth of 85 feet due to drilling difficulties. It did not penetrate mineralization of significance.

The source of anomalous molybdenum content in the soil has not been determined.

ANOMALY M-2

1300 feet north of McKay Lake. Area 400,000 square feet - 1% outcrop.

Slightly metamorphosed volcanic rocks at the contact with Hornblende Quartz Diorite and granodiorite have been observed. The intrusive is cut by quartz veins.

ANOMALY M-3

South of open pits. Area 700,000 square feet - 10% outcrop.

Copper Anomaly C-1 coincides in part with this anomaly. Feldspar porphyry, breccia and Comox sediments are exposed.

Diamond drill hole C-10, south of this anomalous area intersected 0.048% molybdenum over 10 feet. DDH C-8 drilled north of the anomaly intersected minor molybdenite along fracture planes. DDH 69-15, collared in the southwest section of this anomaly intersected minor molybdenite.

DIAMOND DRILLING

Diamond drilling in Mineral Lease Number 2 was conducted by Noranda, 1951 to 1962; Cominco, 1963, 1964; Mt.Washington Milling Co. 1965, 1966, and Marietta Resources 1968, 1969.

NORANDA

Our records of Noranda's drilling are not complete. Most of Noranda's drilling followed stripping and trenching of surface mineralization or electromagnetic anomalies. Their major drilling effort was concentrated in the area now occupied by the open pits. By 1961, they reported 179,250 tons averaging 2.41% Cu, 0.01 Au/ton and 3.4 oz. Ag/ton had been developed.

COMINCO

During 1963 and 1964 Cominco completed 12,607 ft. of diamond drilling. This drilling was divided between the open pits and Murex Creek.

During 1969 the core from selected Cominco holes were re-logged and re-sampled, which disclosed copper and molybdenum not previously recognized.

MT.WASHINGTON MILLING CO.

This drilling program was directed toward expanding the ore body located by Noranda. Our records of this drilling are incomplete, and we have not examined the drill core which is stored on the property. However,

maps and sections suggest an ore reserve of 70,763 tons of 1.20% Cu., west of the north pit, and 337,000 tons of 1.07% copper east of the south pit down to the tunnel level.

MARIETTA

During 1968 and 1969 Marietta Resources completed 6578 ft. of diamond drilling. Of this 4999 ft. was designed to test geophysical anomalies and 1579 ft. to test surface mineralization and geological concepts.

No significant mineralization was recognized by drilling geophysical anomalies. Intercepts of sub-commercial mineralization were obtained in some holes testing surface mineralization.

A summary of the drilling by Noranda, Cominco and Marietta is appended as Appendix M.

AREAS OF EXPLORATION ATTRACTION

The additional geological, geochemical and geophysical programs and the diamond drilling program implemented during 1969 did not develop bodies of commercial mineralization. Valuable geologic information and data have been collected, and 9 specific areas warrant investigation. These areas are outlined on the attached map drawn to a scale of 1" = 2000 feet, and marked Appendix L.

The following is a description of these areas, and a discussion of the exploration that has been accomplished in the past.

DESCRIPTION OF AREAS

AREA A

The 1968 airborne magnetic survey outlined an anomaly 2000 feet north of the northwest corner of Mineral Lease No.2. This anomaly was verified on the ground with a magnetometer, which showed two bands of high magnetic intensity.

This area is beyond the limits of the induced polarization and resistivity survey. The geochemical work in this area has not shown consecutive high values in either copper or molybdenum. Our geological mapping has shown only limited outcrops of Karmutsen Volcanics, we have not recognized mineralization.

AREA B

This area extends 2,000 feet northerly from the open pits and easterly from Pyrrhotite Creek. It is between magnetic anomalies C and D. Induced polarization zone D and a very low resistivity response are within this area.

The geochemical survey showed sporadic responses for molybdenum and copper, although no anomalies have been designated.

Our geological mapping shows Karmutsen Volcanics offset from Comox sediments by a northwesterly trending fault.

Our prospectors recognized copper and some molybdenum mineralization near the junction of the Mine-Mill Road. Noranda trenched this area and reportedly exposed mineralization which assayed 0.33% copper over 115 feet. This trench is now covered with soil and vegetation.

AREA C

Pyrite, Pyrrhotite, and Copper with minor molybdenum mineralization is exposed along the east side of the ridge approximately 1,000 feet south of the open pit. This mineralization occurs in Washington breccia, Pit Diorite and Comox sediments which dip gently toward the west.

This area is southwest of and outside magnetic anomaly C. The resistivity survey indicated a shallow, flat-lying conductive horizon, corresponding with the mineralized zone exposed on the east side of the ridge, only weak responses were shown by the induced polarization survey. Anomalous concentrations of copper were found in the soil east and west of the ridge.

Samples of core, from Cominco hole C-10 drilled vertically in 1963 penetrated 242 feet of material with a grade of 0.20% copper and two other mineralized bands one 112 feet with a grade of 0.28% copper and a lower band 145 feet thick with a grade of 0.12% copper. This mineralization has not been delineated, the nearest drill hole is 750 feet northeasterly.

AREA D

This area is centered over McKay Lake which may represent the surface expression of a center of igneous intrusion. Bedrock exposures here are concealed over an area 1000' x 1500'. The rock at McKay Lake over a radius of 2000 feet is fresh unaltered granodiorite. Bodies of breccia, magnetic anomalies, and the open pits occur at the perimeter of this intrusive. A pattern of faulting appears to be centered on McKay Lake.

Our geophysical survey did not show an induced polarization anomaly in this vicinity; it is within a zone of high resistivity. This area is within geochemical anomalies of copper and molybdenum.

AREA E

This area is 1000' east of McKay Lake between magnetic anomalies B and C, outside induced polarization anomalies and zones of low resistivity. It is within the confines of the western copper geochemical anomalies and over the most impressive molybdenum anomaly recognized on the property.

Our geological mapping has indicated this area is underlain by Karmutsen Volcanics, and by quartz diorite. An X-Ray drill hole put down 85 feet, intersected Karmutsen Volcanics with negligible molybdenum. The source of the molybdenum has not been recognized and exploration is justified.

AREA F

This area is west and northwest of the mill-site, astride Murex Creek between the Mine Road and the Tsolum Main Road. It is centered over airborne magnetic Anomaly "B". Induced polarization zones A and C cross this area and a zone of low resistivity crosses the northern part of the area. It correlates with the eastern copper geochemical anomalies.

Cominco's diamond drilling has indicated a reserve of two million tons of material with a grade of .4% copper on the south side of Murex Creek. The rocks of this area are mainly Karmutsen Volcanics and Murex breccia. Our mapping during 1969 showed low grade mineralization north of Murex Creek. However a diamond drill hole here failed to penetrate significant mineralization.

AREA G

This area is 3 miles east of McKay Lake, near the eastern edge of the concession area. It is centered over airborne magnetic anomaly "A", peripheral to an induced polarization anomaly and a corresponding zone of low resistivity.

A band of alluvium masks bedrock in this area. Our geologic work has shown two types of intrusives north and south of this masked area. These are possibly offset by faulting. One drill hole in this area did not

encounter significant mineralization.

AREA II

This area is centered 1 mile northerly from the tailings pond. It is on the northern extremity of magnetic anomaly A, within induced polarization zone A, and a coinciding zone of low resistivity. Geochemical lines near the center of the area obtained background responses in both copper and molybdenum.

The channel of Parker Creek occupies a structural linament that trends north-south through the area. The rock in the northern seven-eights is Karmutsen Volcanics, a body of Hornblende Quartz Diorite outcrops at the southern edge.

Two drill holes were put down during 1969. The northern most penetrated Karmutsen Volcanics, the hole at the southern edge penetrated Hornblende Quartz Diorite. Neither hole penetrated the contact or significant copper or molybdenum, and they failed to account for the geophysical responses.

AREA I

This area is immediately east of C.P.O.G. Lease No.2 one mile northeast of the tailings pond.

Magnetic anomaly A is one mile west; a zone of moderate I.P. response is projected across the southern part of this area. A zone of low resistivity crosses the northwestern part, and a second zone is outlined 1,000 feet

south of the southern boundary. A geochemical line across this area did not provide anomalous responses.

Sedimentary siltstones, and shales, part of the Comox formation, and light greenish-gray volcanics of the Karmutsen formation underly this area. The volcanics contain minor quartz stringers, some of which carry sulphides. A quartz-diorite body is exposed at the southern edge.

Approximately 5000 feet west of Wolf Lake three trenches were put down which exposed mineralization. These were near Ice Creek where it is cut by a northeast fault.

CONCLUSIONS

1. The multiphase Tertiary intrusives, the strong faulting, the widespread copper and molybdenum mineralization at Mt. Washington offer features similar to porphry copper mining camps in South America, Mexico, Western U.S.A. and Western Canada.

2. A number of intrusives have been found near the summit of Mt. Washington. These are a complex assemblege of quartz diorite, porphyry and breccias, intrusive into volcanic and sedimentary rocks.

3. The soil over the Mt. Washington area has an extremely high copper content. Low-grade copper mineralization can be found in all rock types on the property, and some 400,000 tons of ore-grade material has been treated

from quartz veins which were discovered on Mt.Washington in 1940.

4. Molybdenum coincident with the concentrations of copper, is distributed over the property.

5. Mr. Charles L.Elliot, Consulting Geophysist, concluded:

(A) The airborne magnetic survey, outlined seven significant and outstanding features.

(B) The resistivities at Mt.Washington present an extreme range of variation not normally encountered in North America.

(C) The extreme range of induced polarization at Mt. Washington is not often found in North America, and presents some of the highest measurements from anywhere in the world.

6. The induced polarization and coincident low resistivity zones peripheral to magnetic anomalies in the eastern part of the concession area has been partially tested by diamond drilling.

7. The responses from the airborne and ground magnetometer surveys, the induced polarization and resistivity surveys and the copper and molybdenum geochemical surveys toward the west have been only partially tested.

8. Considerable exploration has been accomplished in the past 12 years on the Mt. Washington property. While this work has provided valuable information many of

the geological phenomena, structure, lithology, geometry of intrusive bodies and alteration associated with mineral deposition is not understood.

9. Nine attractive diamond drill targets remain untested.

10. Each of these areas could be tested with 2 diamond drill holes each 500 feet deep, at an estimated cost of $20,000.00.

Respectfully submitted,

W.G.STEVENSON & ASSOCIATES LIMITED

Per: _____

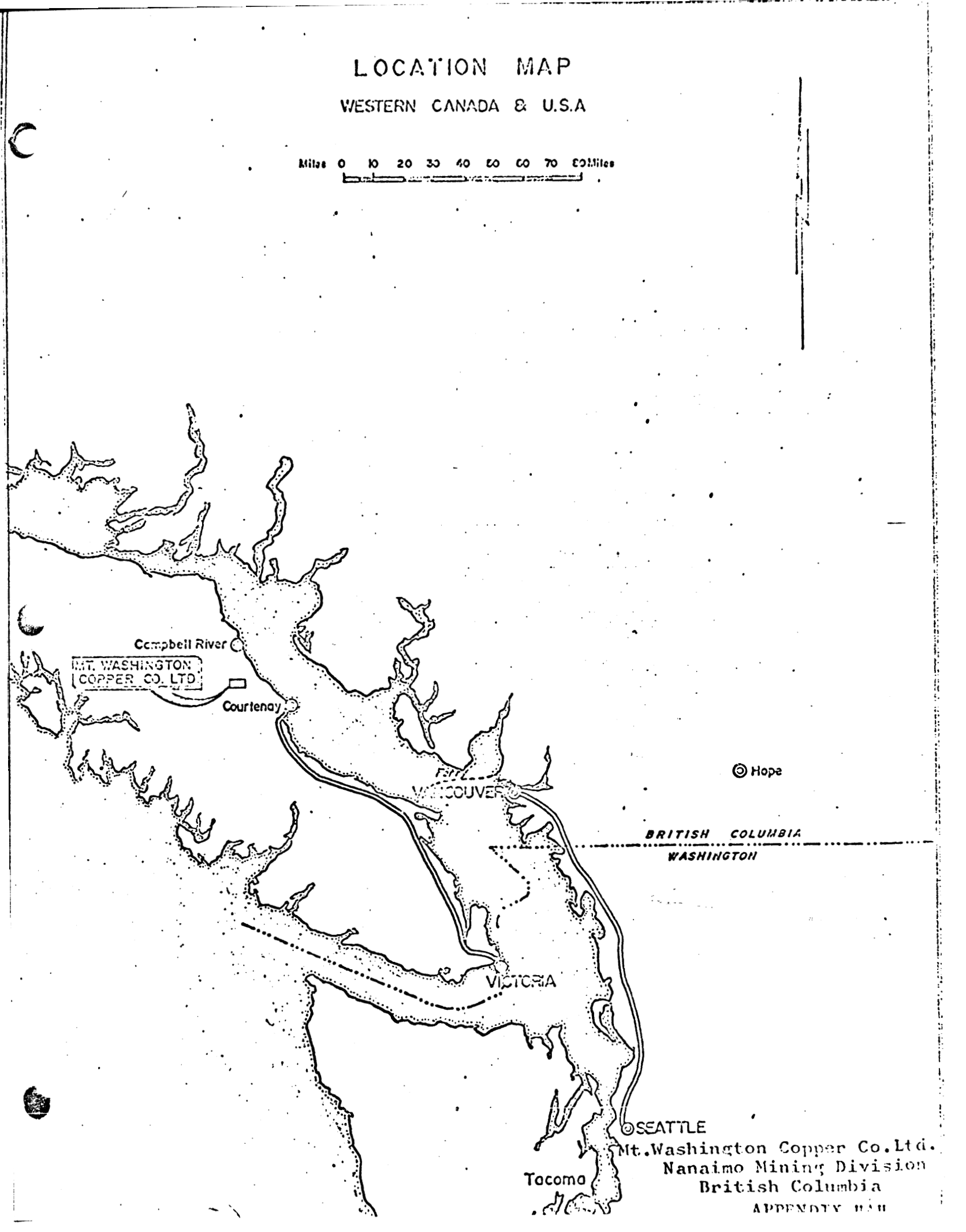
W.G.Stevenson, P.Eng.

Vancouver, B.C.

January 14, 1970.

LOCATION MAP

WESTERN CANADA & U.S.A



Mt. Washington Copper Co. Ltd.
Nanaimo Mining Division
British Columbia

APPENDIX "A"

Drilled by Marietta

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	Grades % Mo.	Remarks
69/1	500'	Test of I.P. Anomaly	335' - 340'	5'	0.11		Disseminated sulfide on fractures in Karmutsen Volcanics.
			380' - 390'	10'	0.26		
69/2	507'	Test of I.P. Magenetic Geochemical Anomalies	200' - 210'	10'	0.10		Silicified zones in Karmutsen Volcanic
			290' - 300'	10'	0.12		Silicified epidotized zones in Karmuts
			420' - 430'	10'	0.24		Volcanics. Sulfides in fractures in Ka mutsen Volcanics.
69/3	1000'	Test of I.P. Anomaly	300' - 310'	10'		0.01	Mineralization in fractures in Karmuts
			330' - 340'	10'		0.02	Volcanics.
			520' - 530'	10'		0.01	" " " " "
			810' - 820'	10'	0.10		" " " " "
			910' - 920'	10'		0.01	" " " " "
69/4	1000'	Test of Magnetic Anomaly A	400' - 410'	10'	0.40		Veinlets and fractures in Karmutsen Volcanics.
69/5	492'	Test of I.P. Anomaly					No sampling; Karmutsen Volcanics.
69/6	500'	Test of I.P. Anomaly	170' - 180'	10'	0.13		Silicified zone in Karmutsen Volcanics
			380' - 390'	10'	0.20		Veinlet of sulphide in Karmutsen Volca ics.
69/7	1000'	Test of Magnetic Body A	160' - 170'	10'		0.01	Mineralization in fracture in Hornblen
			180' - 190'	10'		0.05	Quartz Diorite; Quartz-Laumontite vein
			370' - 380'	10'		0.01	in Hornblende Quartz Diorite; Dissemin ated Sulphides in Hornblende Quartz Diorite.
69/8	220'	Test of Breccia	5' - 20'	15'	0.13		Disseminated sulfide in Feldspar Porph

DDH No.	Depth	Objective	Mineralized Intercepts	Length	% Cu	% Mo	oz Ag	Remarks
69/9	304.5'	Test of Surface Molybdenum Mineralization	280' - 290'	10'		0.05		Mineralization in shear zone in Karmuts Volcanics; Molybdenum at end of hole.
69/10	373'	Test of Murex Breccia	0' - 40'	10'	0.24	0.03	0.13	Disseminated sulfides in Murex Breccia.
			50' - 90'	40'	0.31	0.01	0.15	Disseminated sulfides in Murex Breccia.
			100' - 200'	100'	0.16	0.01	0.08	Disseminated sulfides in Murex Breccia.
			210' - 240'	30'	0.28	0.01	0.14	Disseminated sulfides in Murex Breccia.
			0-240 Av.	240'	0.25	0.017	0.11	
69/11	454'	Test of Extension of Mineralization in DDH C-9	0 - 60'	60'	0.18		0.06	Sulfides disseminated in matrix of Washington Breccia.
			140 - 150	10'	0.13			" " " "
			0 - 160	160'		0.025		" " " "
69/12	101'	Test of Surface Mineralization						No mineralization worth sampling. Karmusen Volcanics.
69/13	166'	Test of surface Mineralization.	12' - 111'			0.04		Molybdenite in M-3 Breccia.
69/14	100'	Test of Mineralization Upper Murex Creek	0' - 10'	10'	0-49			Disseminated sulphides and fracture fillings in Comox Quartzite.
			0' - 100' Av.	100'	0-20		0.09	Disseminated sulphides and fracture fillings in alternating Comox sediments and intrusives.
69/15	143'	Test of surface mineralization	6' - 20'	14'	0.14		0.22	Sulphides associated with kaolinitized zones in Pit Diorite, also disseminated sulphides in Pit Diorite.
			40' - 70'	30'	0.26			
			40' - 50'	10'		0.01		
			6' - 70' Av.	64'	0.13		0.12	

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	% Mo.	Oz.AG	Remarks
C-15	566'	Test of Murex Breccia	74.8' -94.4'	19.6'	0.21			Disseminated sulphides; Murex Breccia.
			200' - 304'	104'	0.3		0.2	Cominco Assay: Kaolinized,sericitized zo
								"Samples vary 0.1% - 0.7% Cu.
			304' - 368.6'	64.6'	0.21			Disseminated sulfides in Murex Breccia & Comox fm. Re-logged 1969.
C-16	491'	Test of Murex Zone	36.5' - 55'	18.5'	0.6			Cominco Assay:Brecciated Volcs.(Murex Zo
			114' - 181'	67'	0.2			" " " " "
			181' - 218'	37'	0.4			" " " " "
			218' - 234'	16'	0.2			" " " " "
			114' - 234'	Av.120'	0.3			Re-logged 1968.
C-17	597'	Test of surface mineralization						No sampling: Karmutsen Volcanics: Altere zone(sericite,vein quartz,sulphides) 389' - 393.5'. Not re-logged.
C-18	434'	Test of Murex Zone	160.5'- 199'	38.5'	0.2			Disseminated sulfides in Brecciated Karm
			199' - 224.5'	25.5'	0.4			sen Volcanics. Cominco Assay. Re-logged 1968.
C-19	969'	Test of Murex Zone	74' - 162'	88'	0.3			Cominco Assay:Disseminated sulphides in Pit Diorite,Hornblende, Quartz Diorite a Volcanics.
			210' - 234-5'	24.5'	0.4			Disseminated sulphides in Murex breccia
			464.5'-493.5'	29'	0.2			Volcanics,latter partly silicified.
			642-5'- 648.5'	6'	4.8			Murex Zone(Brecciated Volcanics) Disseminated sulphides & veins. Re-logged 1968.
C-20	574'	Test of Murex Zone						No sampling; Karmutsen Volcanics; 67'-218' est.0.2% cu. Re-logged 1968.
C-21	460'	Test of Murex Zone						No sampling; traces of sulphides on fractures; Karmutsen Volcanics.Re-logged 196

DDH No.	Depth	Objective	Mineralized Intercepts	Length	% Cu	% Mo	Remarks
59/16	85'	Test of Geochemical Anomaly M-1					Sampled, but no significant results obtained. Penetrated Karmutsen Volcanics.
				Drilled by Cominco			
C-1	413'	Test of Murex Breccia	0' - 85'	85'	0.25		Disseminated sulfides in Murex Breccia; Cominco assays.
			85' - 181'	96'	0.20		
			375-5'-413'	37.5	0.19		Disseminated sulfides in Comox fm. Cominc assays, Minor molybdenite at 406'. Re-logged 1968.
C-2	436'	Test of Murex Breccia	110' - 191-5'	81.5'	0.30		Disseminated sulfides in Murex Breccia a Comox fm Cominco assays.
			211.0'-232.5'	22.5'	0.30		
			4'				Sulfides in fractures in Comox fm. associated with incipient Washington breccia-
			272.2'-292.2	20'		0.11	
			277.1'-301.2'	23.1'	0.18		tion; Re-logged 1968.
C-3	394'	Test of Murex Breccia					No sampling; Murex Breccia & Karmutsen form. Re-logged 1968.
C-4	619'	Test of Murex Breccia					Minor disseminated sulphides in Murex Breccia; assayed <0.10% Cu. Re-logged 196
C-5	460'	Test for parallel zones South below pit.	57' - 78'	21'	1.0'		Former ore body intersected; not re-logged.
C-6	432'	Test of mineralization below SOuth pit.	50' - 58'	8'	0.8		Sulphides in vein now exposed in south pit. Not re-logged.
C-7	459'	Test for parallel zones below north pit	25.5' - 47'	21.5'	1.0		Sulfide on contact between Pit Diorite (above) & Comox fm.(below).
			120' - 340'	220'	0.12		Disseminated sulfide veinlets in Pit
			260' - 280'	20'		0.17	Diorite. Re-logged in 1969.

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	% Mo	oz.Ag.	oz Au)	Remarks
C-8	427'	Test of Washington Breccia south of pits.							No sampling; Minor molybdenite in Washington Breccia @ 75'. Re-logged 1969.
C-9	454'	Test of Washington Breccia northeast of pits.	0' - 20'	20'	0.27	0.014	0.17	)	Mineralization associated with matrix of Washington Breccia. Re-logged 1969.
			20' - 90'	70'	0.36	0.042	0.06	0.07)	
			90' - 120'	30'	0.13	0.041	0.05	)	
			120' - 210'	90'	0.18	0.03	0.04	)	
			210' - 250'	40'	0.31	0.022	0.07	0.07)	
C-10	858'	Test of surface mineralization	15' - 55'	40'	0.17		0.06		Disseminated sulfides mainly in Comox formation. Disseminated sulfides mainly in Diorite. Disseminated sulfides in Comox formation. Disseminated sulfides mainly Pit Diorite.
			72' - 94'	22'	0.31				
			104' - 139'	35'	0.26				
			139' - 257'	118'	0.24				
			430' - 542'	112'	0.28				
			457' - 467'	10'		0.05			" " " "
			667' - 812'	145'	0.14				Re-logged, 1969
C-11	558	Test of surface mineralization	128' - 132'	4'	0.5				Cominco assay: chlorite, vein quartz in volcanics. Quartz veins; Molybdenite; Not re-logge
			183' - 193'	10'	0.35				
C-12	568'	Test of surface mineralization							No sampling; Est.grades by Cominco up to 0.6% Cu; Molybdenite noted. Karmutsen Volcanics. Not re-logged.
C-13	492'	Test for mineralization near No.1 Fault.	25' - 35'	10'	0.12				Disseminated sulfides in Comox fm.quartz Alternating Pit Diorite and Comox fm. Re-logged 1969.
C-14	420'	Test of mineralization intersected by Noranda DDH 57-3	40' - 54'	14'	0.7				Cominco Assay: Brecciated Volcs; (Murex Zo
			54' - 127'	73'	0.2				" " " " "
			127' - 232'	105'	0.3				" " " " "
			232' - 288.5'	56.5'	0.2				" " " " "
			40' - 288.5'	Av.248.5	0.3				Re-logged 1968.

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	% Mo	Remarks
S-6	1526'	Test of downward extension of Washington Breccia					No sampling: 7 altered zones intersect Intrusives, Washington Breccia, and Murex Breccia: Bottomed in Karmutsen Volcanics. Minor sulphides including molybdenite. Not re-logged.

Drilled by Noranda

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	Remarks
51-1	105'	Test of surface mineralization	20'- 28' 38'- 40'	8' 8'	0.7 1.6	In Pit Diorite(?) Hole in Noranda series, but N suggests it predates major Noranda activity.
57-1	140'	Test of surface mineralization	13'- 88'	75'	0.3	Sulphides in Brecciated Karmutsen Volcanics.
57-2	140'	" "	20'- 81'	61'	0.4	Sulphides in Brecciated Karmutsen Volcanics. " " " " "
57-3	90'	Test of surface mineralization	6'- 30' 30'- 90'	24' 60'	0.3 0.8	Sulphides in Brecciated Karmutsen Volcanics. " " " " "
58-1	200'	Test of E.M. Anomaly				Intrusive, probably Pit Diorite; No assays reco
58-3	64'	Test of E.M. Anomaly ?	0'- 10'	10'	0.7	Details unknown:Intrusive,probably Pit Diorite.
58-8	200'	Test of E.M. Anomaly ?	0'- 84'	84'	0.2	" " " " " "
58-10	42'	Test of E.M. Anomaly ?	30'- 35'	5'	0.8	Details unknown:Intrusive,probably Pit Diorite.
58-11	233'	Test of E.M. Anomaly ?	95'-105'	10'		Details unknown: Intrusive, probably Pit Diorit
58-2	210'	Test of E.M. Anomaly ?	301 - 45'	15'	1.0	Details unknown: Sulphides in Intrusives,probabl Pit Diorite.
60-2	121'	Test of E.M. Anomaly				Results unknown:Drilled in Comox fm.
60-7	178'	Test of E.M. Anomaly				" " " " "
60-6	204'	Test of E.M. Anomaly				" " Alternating Comox fm.& Intrusive probably Pit Diorite.
60-8	45'	Test of E.M. Anomaly	35'- 45'	10'	0.7	Details unknown:Mineralization in Intrusives pr bably Pit Diorite.

DDH No.	Depth	Objective	Mineralized Intercepts	Length	Grades % Cu	Remarks
62-24	100'	Test of Vein (in South Pit)				No assays: Intrusive, probably Pit Diorite.
62-51	61'	Test of Vein (in South Pit)	0'- 10'	10'	0.9	Mineralization in Intrusive, probably Pit Diorite.
62-56	85'	Test of Vein (in South Pit)				No assays: Intrusive, probably Pit Diorite.
62-52	45'	Test of Vein (in South Pit)	0'-12.5'	12.5'	0.8	Mineralization in Intrusive, probably Pit Diorite.
62-54	107'	Test of Vein (in South Pit)	37'- 41'	4'	0.9	Mineralization in Intrusive, probably Pit Diorite.
62-62	31'	Test of Vein (in South Pit)	17'- 21'	4'	0.8	Mineralization in Intrusive, probably Pit Diorite.
62-64	95'	Test of Vein (in South Pit)	80.5'- 95'	14.5'	1.5	Mineralization in Intrusive, probably Pit Diorite.

REFERENCES

Carson, D.J.T., (1960), "Geology of Mount Washington, Vancouver Island, British Columbia", unpublished M.A.Sc.thesis, University of British Columbia.

(1968), "Metallogenic Study of Vancouver Island with Emphasis on the Relationship of Mineral Deposits to Plutonic Rocks", unpublished Ph.D.thesis, Carleton University, Ottawa.

Carswell, H.T. (1967), "Petrographic Report on Rock Specimens from Mount Washington". Appendix M in Stevenson's Report, January 15, 1968.

Cominco, (1963, 1964), Unpublished reports, drill logs and Maps.

Elliot, Charles L. (1968), "Airborne Magnetics, ground induced Polarization and ground Resistivity Surveys, Mt.Washington Copper Mine Area". Appendix C in Stevenson's Report, February 12, 1969.

Elliot, Charles L. (1967), "Ground Magnetic Survey Mt.Washington Copper Mine Area". Appendix H in Stevenson's Report, November 17, 1969.

Elliot, Charles L. (1969) "Physical Property Laboratory Determinations, core samples, drill holes 69-1 through 67-9 Mt.Washington Copper Mine Area.

Hendry, Ken (1968), "Induced Polarization and Resistivity Survey, Mt.Washington Area". Appendix C in Stevenson's Report, February 12,1969.

Muller, J.E. (1969), "Geology and Mineral Deposits of Alberni Map Area, British Columbia", Geological Survey of Canada Paper 68-50.

Noranda, (1957,-58-59-61), Unpublished Reports and Maps.

Ross, J.A.C. & Associates. Preliminary Report Appraisal of Mine property on Mt.Washington at Courtenay, B.C.

Scott, J.S. (1966), "Notes on Geochemical Survey, Mount Washington Copper". Appendix A in Stevenson's Report, January 18,1967

(1967), "Review of Geochemical Data, Mount Washington. Appendix F in Stevenson's Report, January 15, 1968.

(1968), "Report on Geochemical Exploration at Mount Washington Copper Project". Appendix D in Stevenson's Report, February 12, 1969.

Skerl, A.C. (1956), Mt.Washington Copper Co. Murex Section.

Smellie, Donald W., (1967), "Geophysical Survey, Mount Washington Copper Mining Co.Ltd." Appendix H in Stevenson's Report, January 15,1968.

Stevenson, W.G., (January 18,1967), Geological Report on the property of Mount Washington Copper Co.Ltd.

(January 15,1968), Report on Exploration for 1967 on the property of Mount Washington Copper Co.Ltd.

(February 12,1969), Report on Exploration for 1968 Mount Washington Copper Project.

(1969) "Preliminary Geological Report Mt.Washington Area.

(November 17,1969), Report on Exploration for 1969 Mount Washington Copper Project.

Western Miner (November,1967),Mt.Washington Copper Co.Ltd. Geological Conception as Porphyry Copper Deposit.

British Columbia Annual Report, Minister of Mines, 1900 - 1968.

Sutherland, Brown, A., (1966), "Tectonic History of the Insular Belt of British Columbia,"C.I.M. Spec.Vol.No.8,pp.83-100.

Sutherland, D.B., Bell R.A. (1967), "Report on induced Polarization and Resistivity Survey on the property of Mt. Washington Copper Co." Appendix I in Stevenson's Report January 15,1968.

MINERAL LEASE NO. 2

For a period of 50 years from May 1st, 1962, or as long thereafter as minerals are being produced in commercial quantities.

If at the expiration of 50 years or at a later time while the Lease is still current none of the minerals are being produced because metal prices do not justify the continuation of such production, the terms of this lease shall continue for a further period not exceeding 2,555 consecutive days, but in any event only as long as such conditions prevail.

The minimum annual royalty on Lease No. 2 is 50 cents per acre due and payable to CanPac Minerals Limited on May 1, 1970.

Lessee shall pay the Lessor for all ore mined from the lands and shipped, except gold and silver, royalty as follows:

Royalties

The Lessee shall pay to the Lessor for all ore mined from the said lands by the Lessee and shipped, royalty as follows:

(a) Copper - A royalty based on the net smelter returns and the yearly average grade of mill feed determined by mill head samples which the Lessee shall take and assay, as follows:

Average Grade of Mill Feed		Royalty Payable
2% copper or less	--	3% of Net Smelter Returns
Over 2% copper but not exceeding 3% Copper	--	4% of Net Smelter Returns
Over 3% Copper	--	5% of Net Smelter Returns

For purposes of determining the royalty payable for a given month the weighted average grade of mill feed in that portion or the whole of the calendar year ending with such month shall be used, but the total amount of royalty so paid in respect of any calendar year shall be adjusted at the end of that year, based on the actual weighted average grade of mill feed during that year.

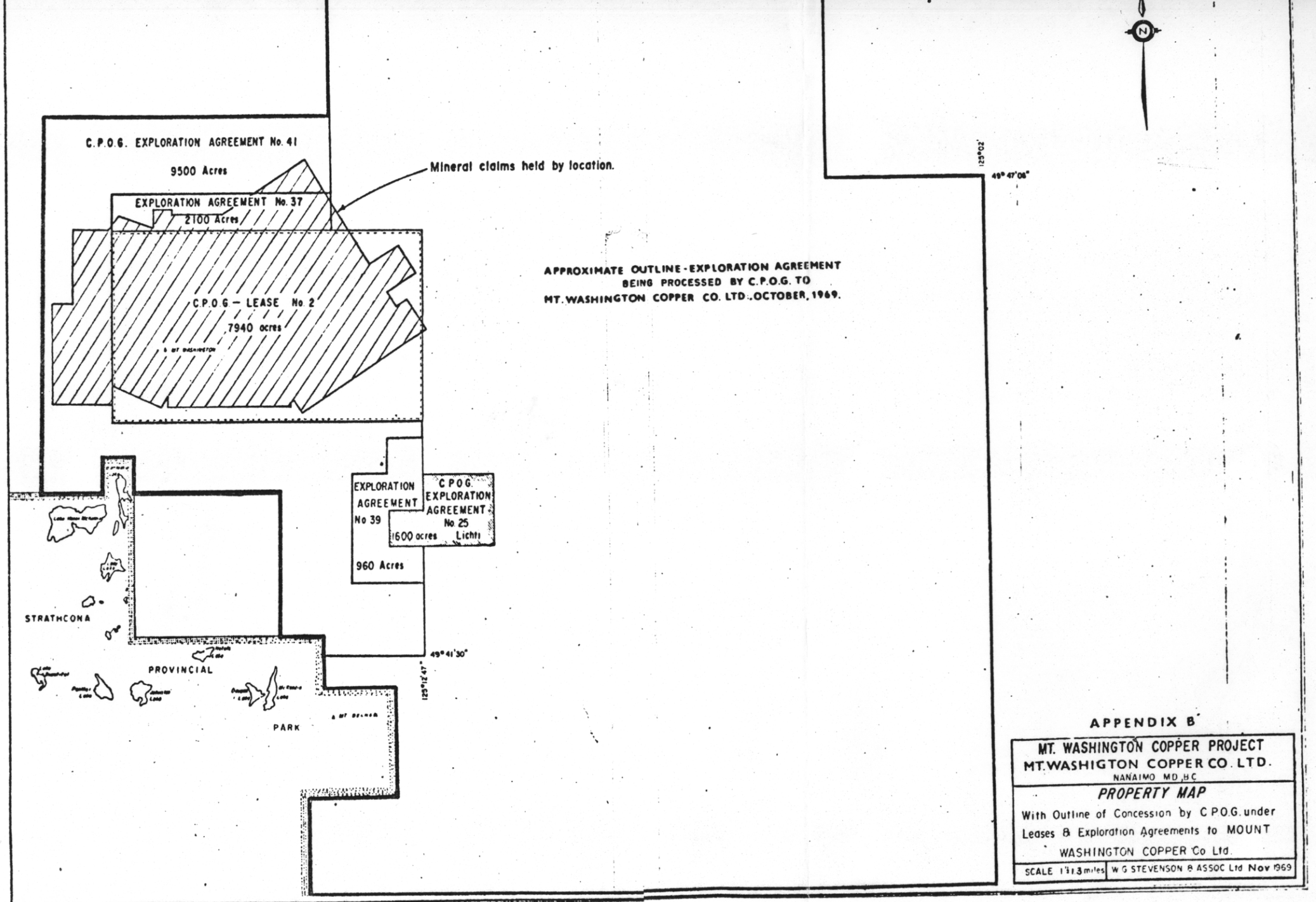
(b) Iron - Concentrated Ore - 3% of the shipping value thereof. The minimum royalty shall be twenty cents (20¢) per ton of concentrated ore.

Direct-shipping Ore - 5% of the shipping value thereof. The minimum royalty shall be thirty-five cents (35¢) per ton of direct-shipping ore.

(c) Other Metals - 3% of net smelter returns or if concentrates or ore containing such metals are sold as such 3% of the gross proceeds from the sale of such concentrates or ore. "Gross proceeds" shall mean the gross returns from the shipment of any given lot of concentrates or ore before any deductions for freight or treatment charges.

There are no obligations or payments due on Mining Agreement No. 37 until February 28, 1971. On Mining Agreement No. 39 until February 28, 1971. On Mining Agreement No. 41, until August 14, 1971.

Mining Agreement No. 53 has not been finalized.



APPENDIX B

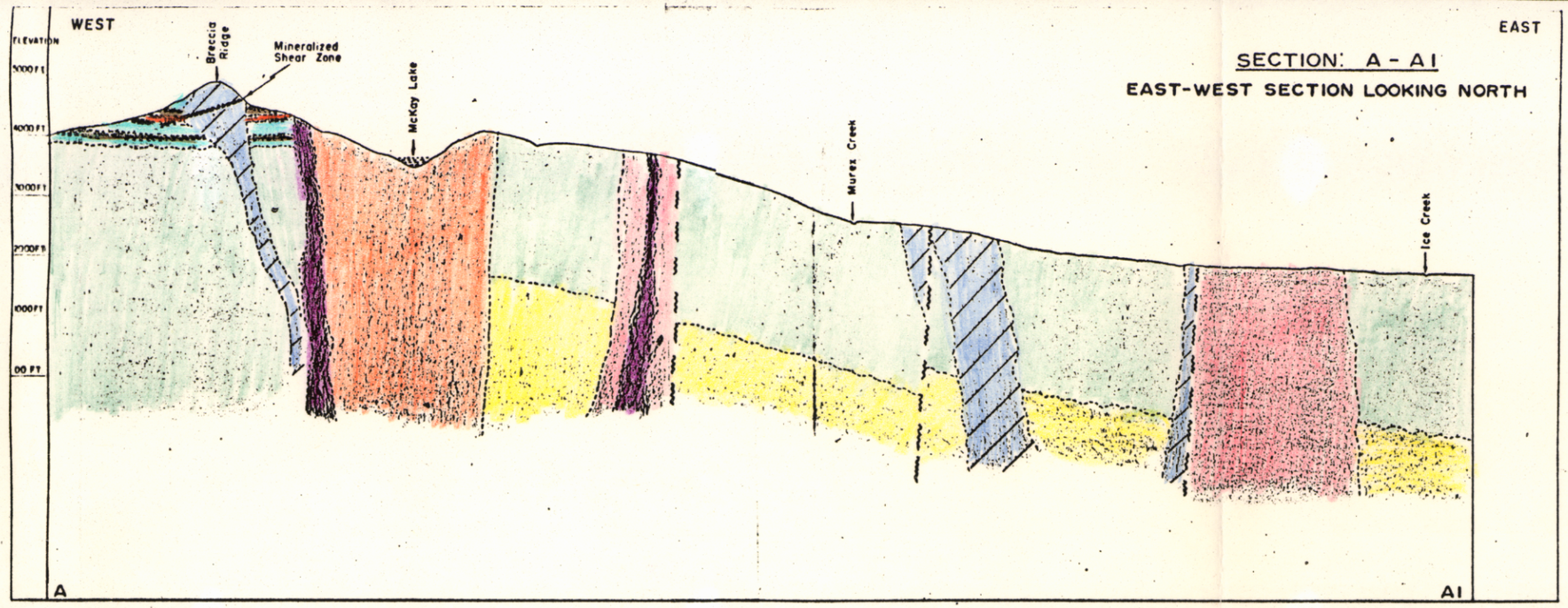
MT. WASHINGTON COPPER PROJECT
MT. WASHIGTON COPPER CO. LTD.
NANAIMO MD, B.C.

PROPERTY MAP

With Outline of Concession by C.P.O.G. under Leases & Exploration Agreements to MOUNT WASHINGTON COPPER Co Ltd.

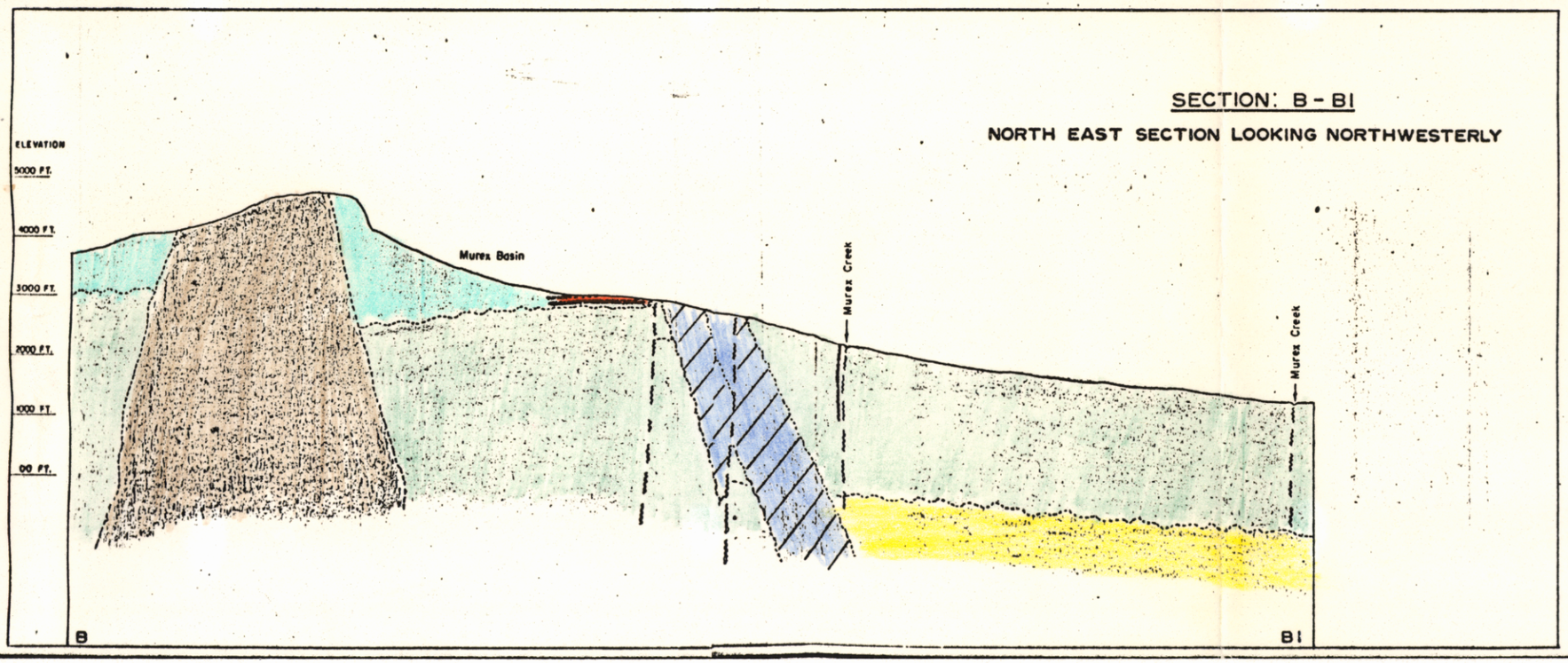
SCALE 1" = 1.3 miles | W G STEVENSON & ASSOC Ltd Nov 1969


B1
A1
A
B
LAKE
LEGEND
Overburden
Washington Breccia with M-3 Breccia
Mt WASHINGTON INTRUSIVES
Granodiorite
Hornblende Quartz Diorite
Feldspar Porphyry
Mures Breccia
Comox Formation with sills of Pit Diorite
UNCONFORMITY
Karmutsen Volcanics
N
Work Sheet
APPENDIX C
MT WASHINGTON COPPER PROJECT
MT WASHINGTON COPPER CO. LTD.
NANAIMO MD. B.C.
GEOLOGICAL MAP
Based on work by Cominco, Noranda, G.S.C., B.C. Dept of Mines, W.D. Tedlie, R. Vallabh, W.G. Stevenson and others
FEET 2000 0 2000 FEET
JANUARY, 1969
W.G. STEVENSON & ASSOC. Ltd



SECTION: A - A1

EAST-WEST SECTION LOOKING NORTH



SECTION: B - B1

NORTH EAST SECTION LOOKING NORTHWESTERLY

LEGEND

- Washington Breccia

MT. WASHINGTON INTRUSIVES

- Granodiorite
- Hornblende Quartz Diorite
- Murex Breccia
- Feldspar Porphyry
- Comox Formation with Pit Diorite.

UNCONFORMITY

- Karmutsen Volcanics

UNCONFORMITY

- Sicker Group

APPENDIX K

MT. WASHINGTON COPPER PROJ

MT. WASHINGTON COPPER CO. L

NANAIMO M.D. B.C.

VERTICAL SECTIONS

GEOLOGICAL MAP

APPENDIX C SHOWS LOCATION OF SECTI

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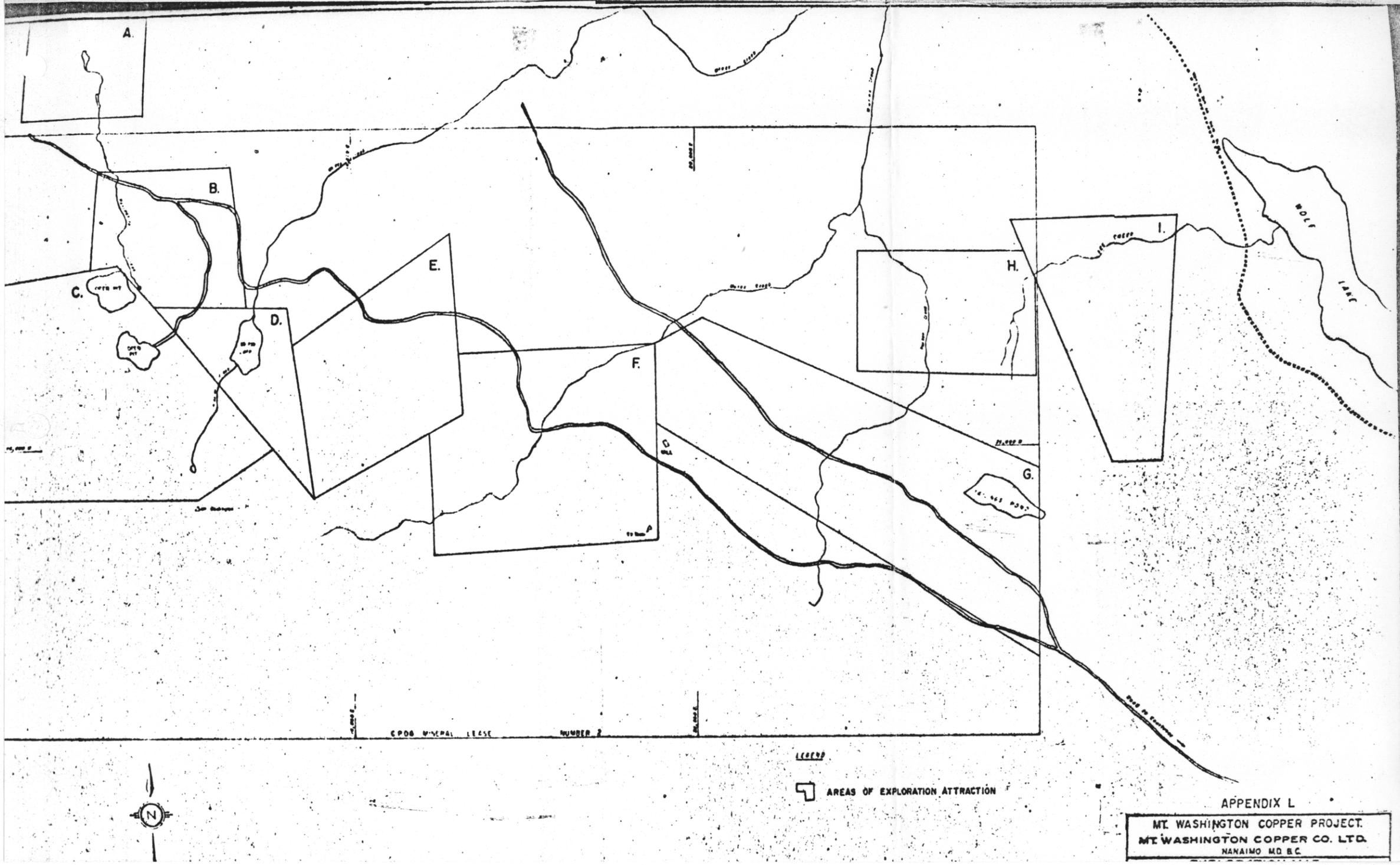
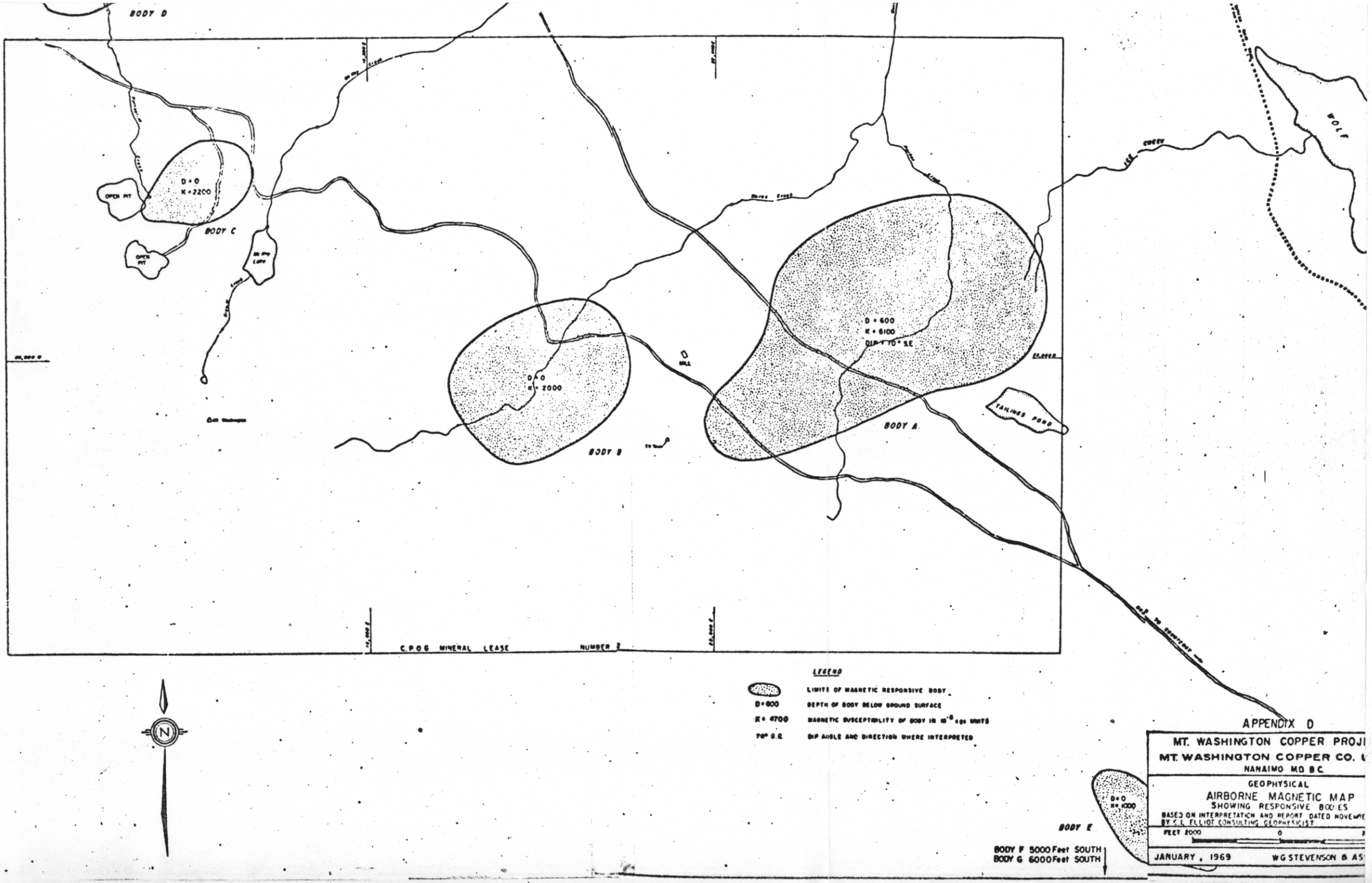
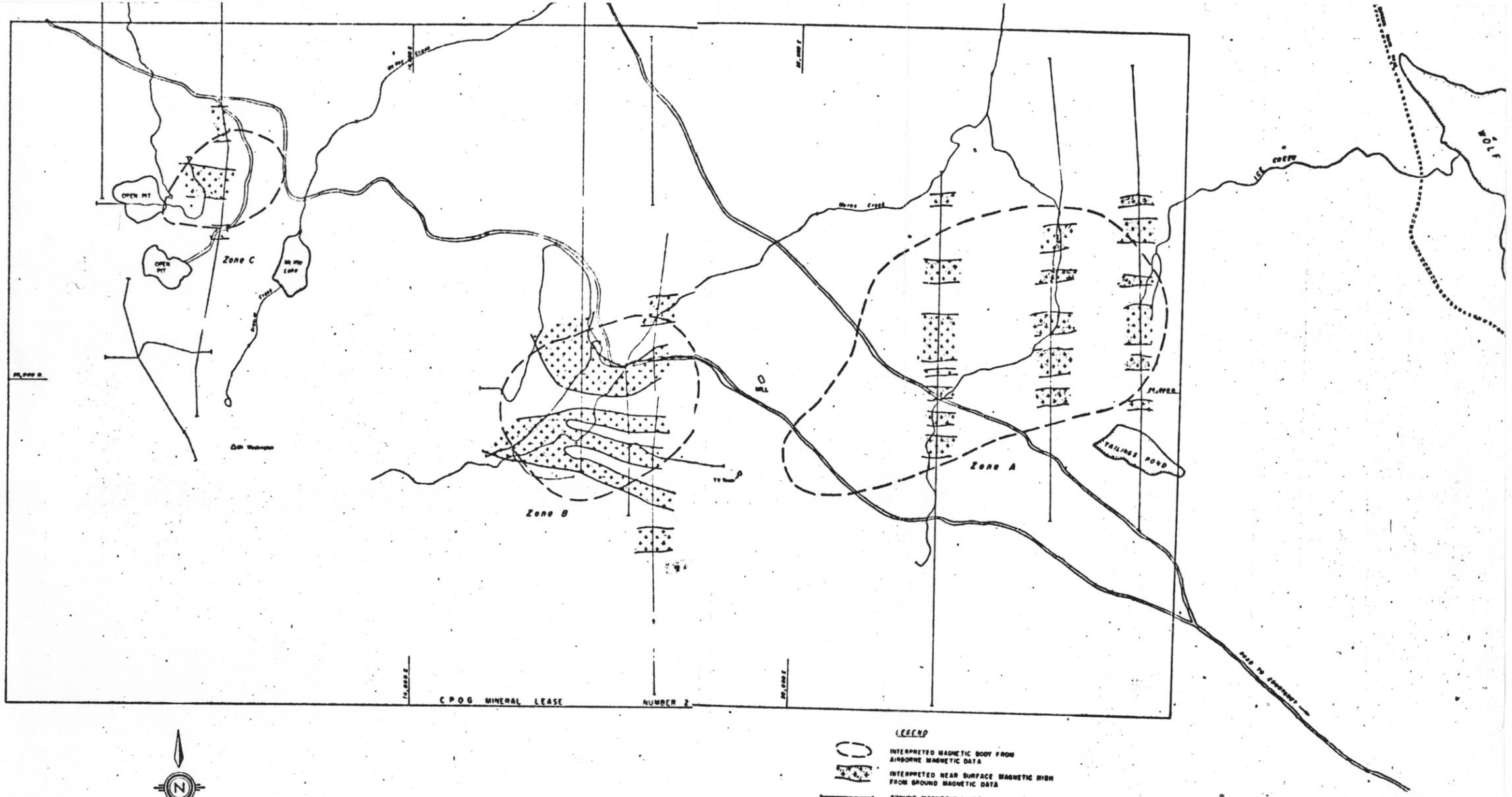
JANUARY, 1970 W.G. STEVENSON & AS



APPENDIX L

MT. WASHINGTON COPPER PROJECT.
MT. WASHINGTON COPPER CO. LTD.
NANAIMO B.C.


BODY D
D = 0
K = 2200
OPEN PIT
OPEN PIT
BODY C
D = 0
K = 2000
BODY B
D = 600
K = 6100
DIP = 70° S.E.
BODY A
TAILINGS POND
WOLF
LEE CREEK
C.P.O.G. MINERAL LEASE NUMBER 2
LEGEND
LIMITS OF MAGNETIC RESPONSIVE BODY
D = 600 DEPTH OF BODY BELOW GROUND SURFACE
K = 4700 MAGNETIC SUSCEPTIBILITY OF BODY IN 10⁻⁶ cgs UNITS
70° S.E. DIP ANGLE AND DIRECTION WHERE INTERPRETED
N
D = 0
K = 1000
BODY E
BODY F 5000 Feet SOUTH
BODY G 6000 Feet SOUTH
APPENDIX D
MT. WASHINGTON COPPER PROJ
MT. WASHINGTON COPPER CO.
NANAIMO B.C.
GEOPHYSICAL
AIRBORNE MAGNETIC MAP
SHOWING RESPONSIVE BODIES
BASED ON INTERPRETATION AND REPORT DATED NOVEMBE
BY C.L. ELLIOT CONSULTING GEOPHYSICIST
FEET 2000 0
JANUARY, 1969
W.G. STEVENSON & AS



APPENDIX E

MT. WASHINGTON COPPER PROJ

MT. WASHINGTON COPPER CO.

NANAIMO MD B.C.

GEOPHYSICAL

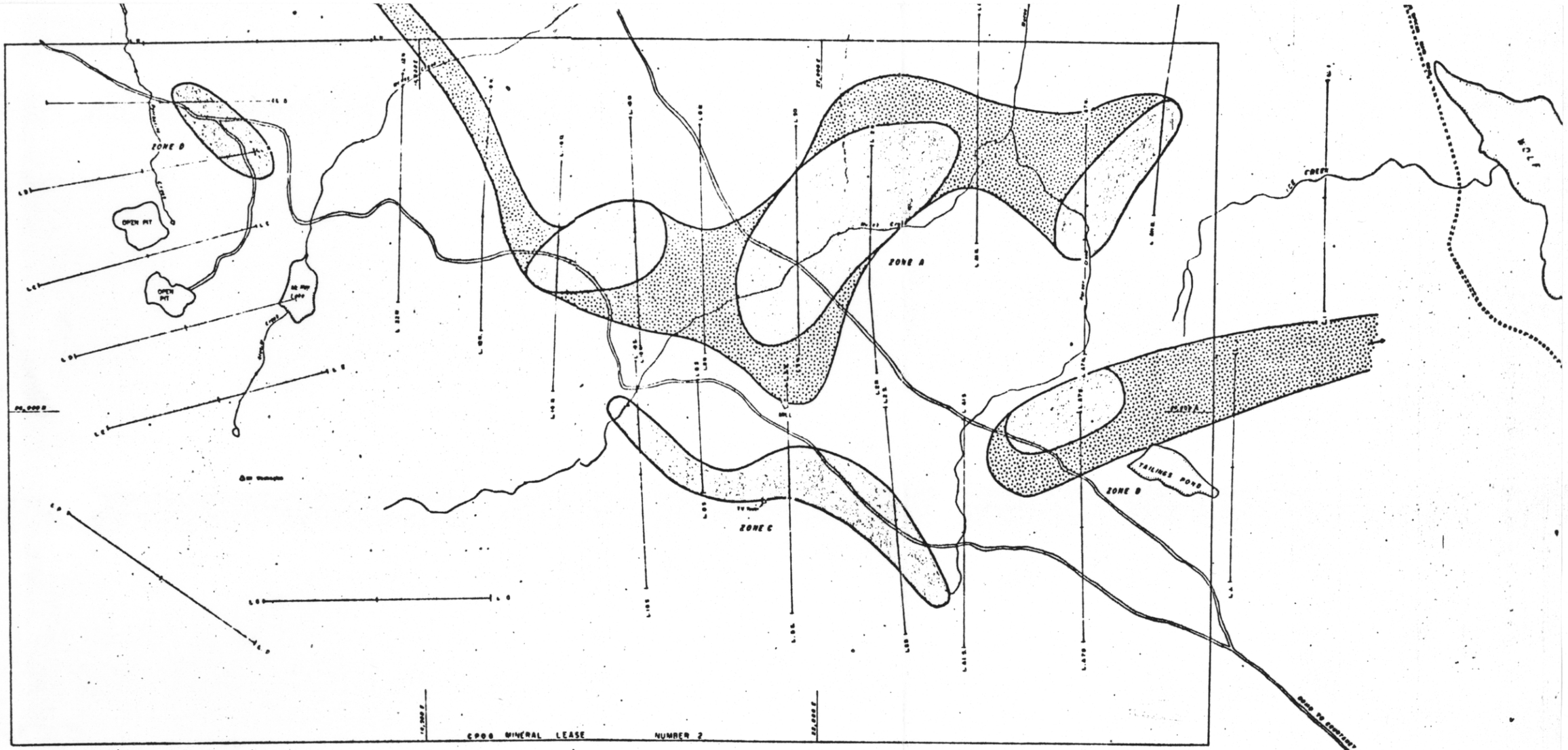
SHOWING MAGNETIC MAP

SHOWING RESPONSIVE ZONES

BASED ON INTERPRETATIONS AND REPORTS DATED A
8, 1969 AND SEPTEMBER 8, 1969 BY C.L. ELLIOT CONSU
GEOPHYSICIST

FEET 2000 0

JANUARY, 1969 W.G. STEVENSON & AS



LEGEND

INDUCED POLARIZATION RESPONSIVE ZONE – STRONG

INDUCED POLARIZATION RESPONSIVE ZONE – MODERATE

L.8 ——— L.8 GROUND TRAVERSE LINES

APPENDIX F

MT. WASHINGTON COPPER PROJE

MT. WASHINGTON COPPER CO. L

NANAIMO MD B.C.

GEOPHYSICAL

INDUCED POLARIZATION MA

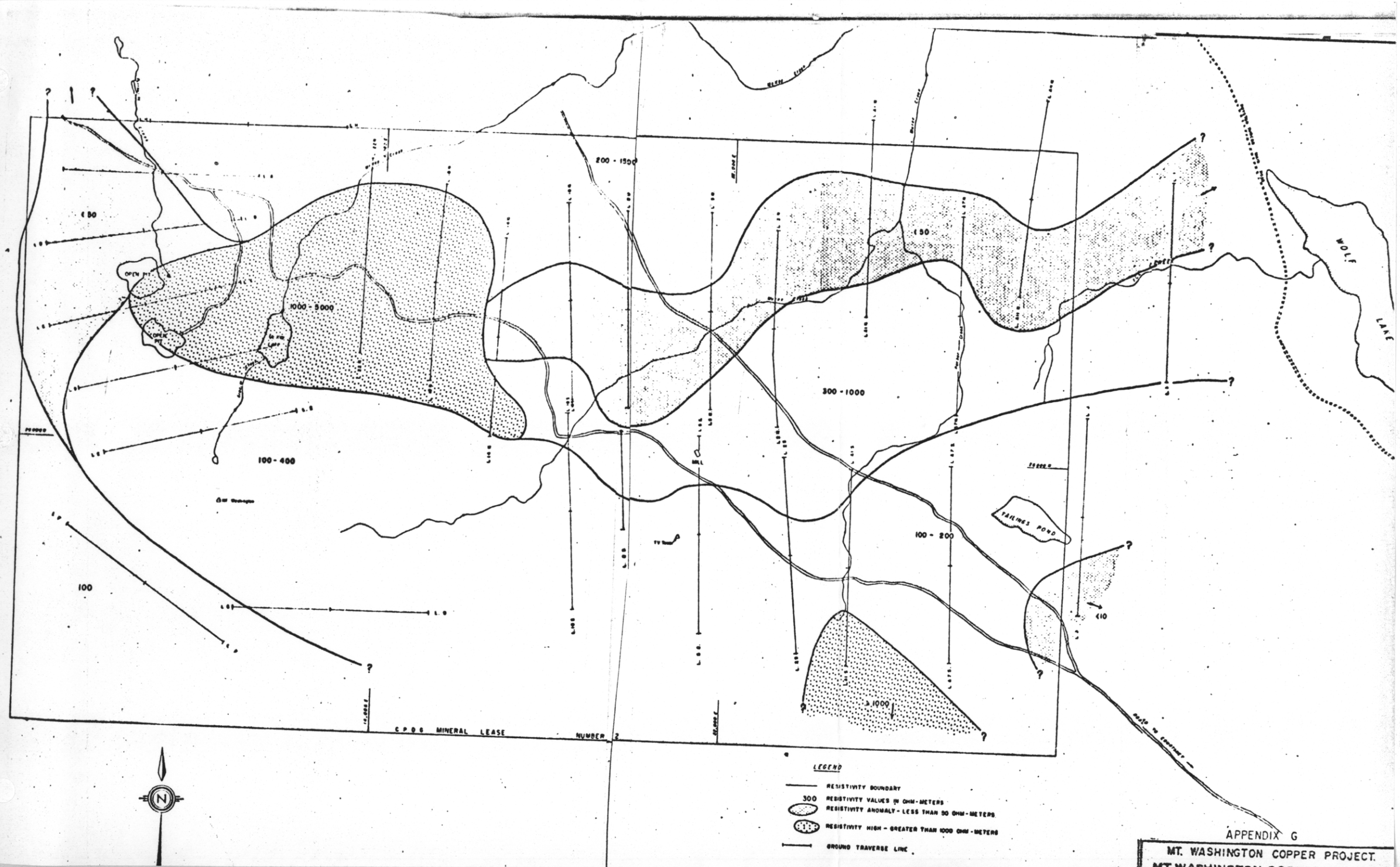
SHOWING RESPONSIVE ZONES

BASED ON INTERPRETATIONS & REPORT DATED NO

BY C. L. ELLIOTT CONSULTING GEOPHYSICIS

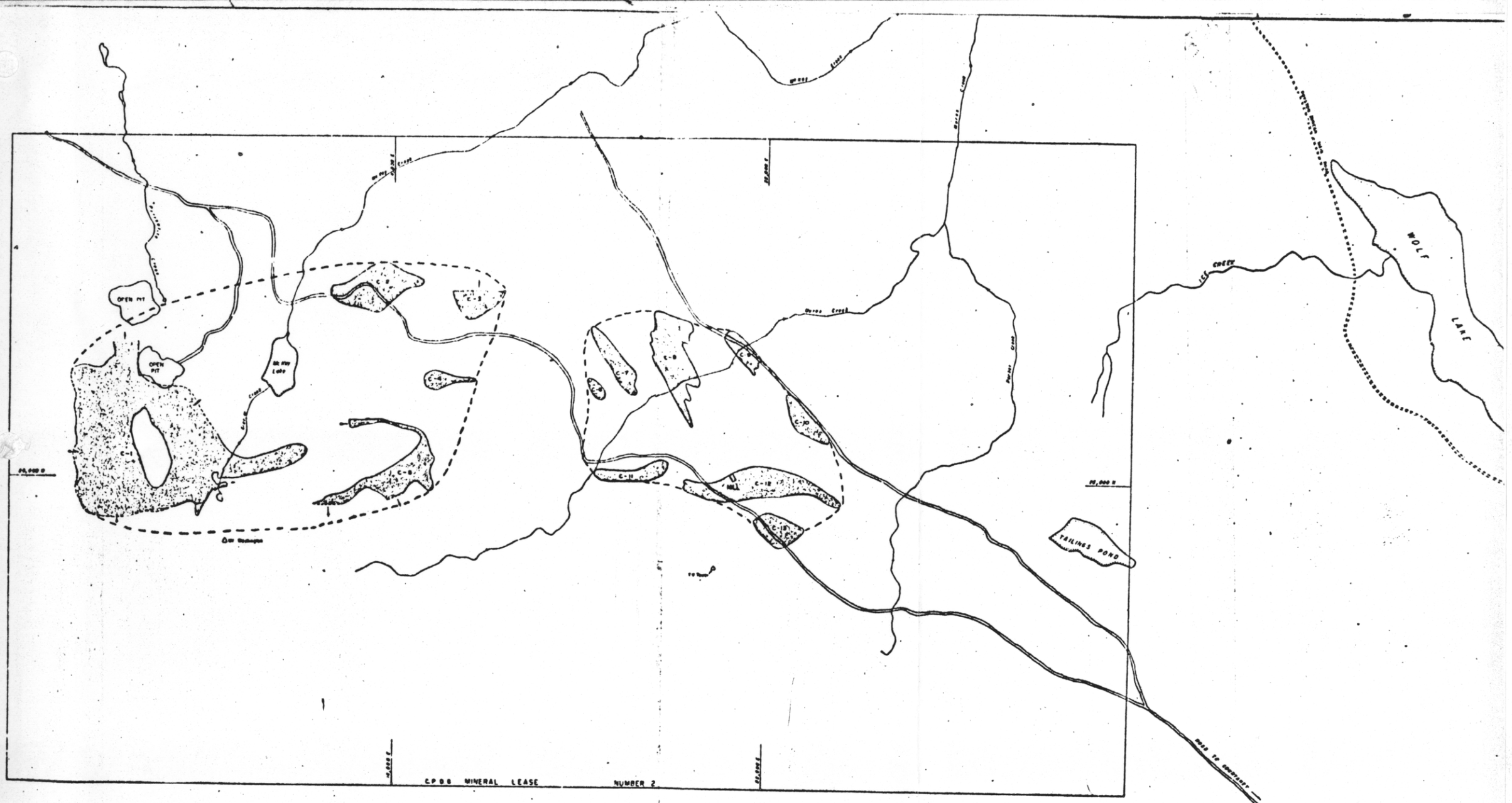
FEET 2000 0

JANUARY, 1969 W.G. STEVENSON & ASS



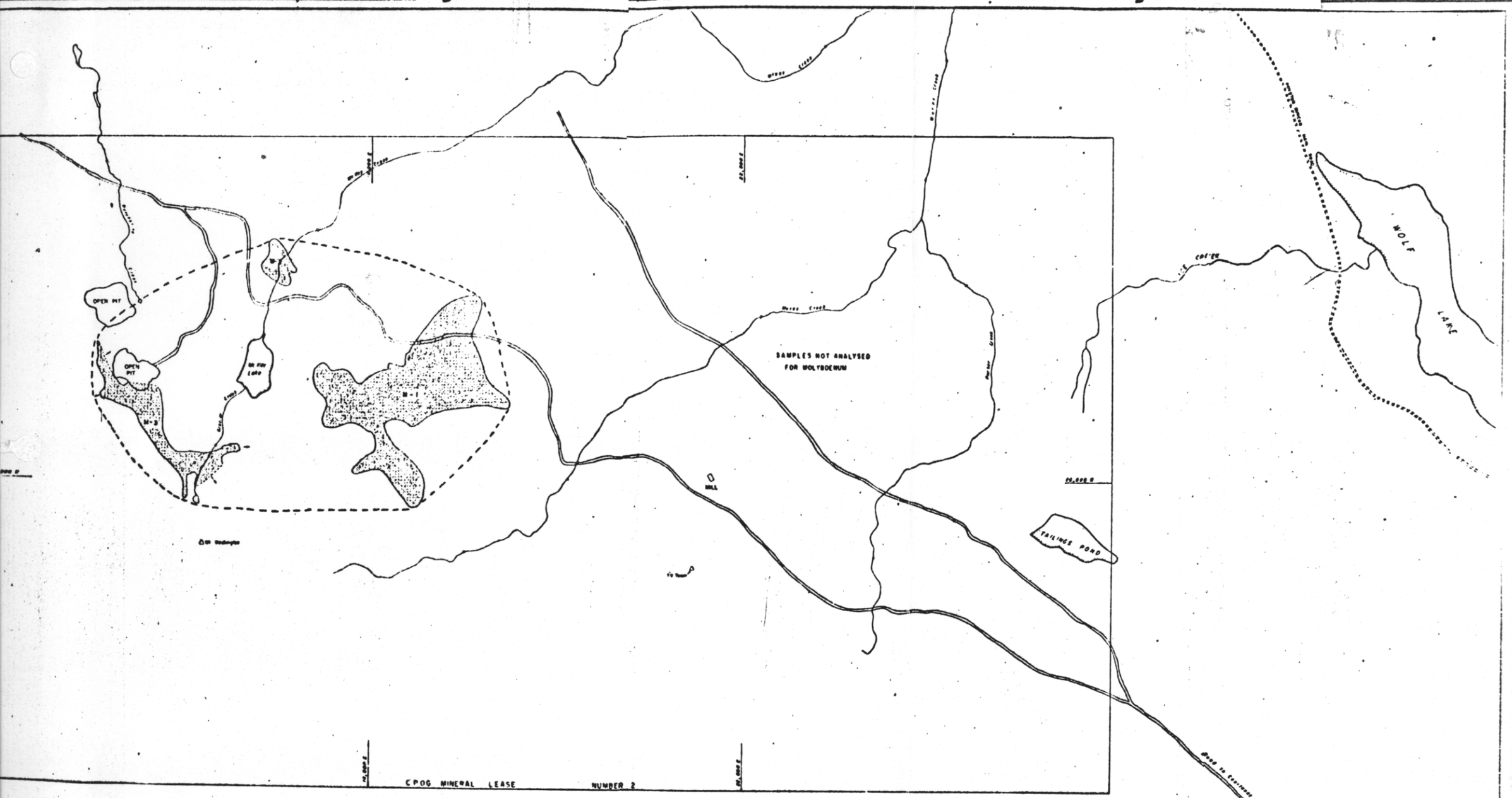
APPENDIX G

MT. WASHINGTON COPPER PROJECT.



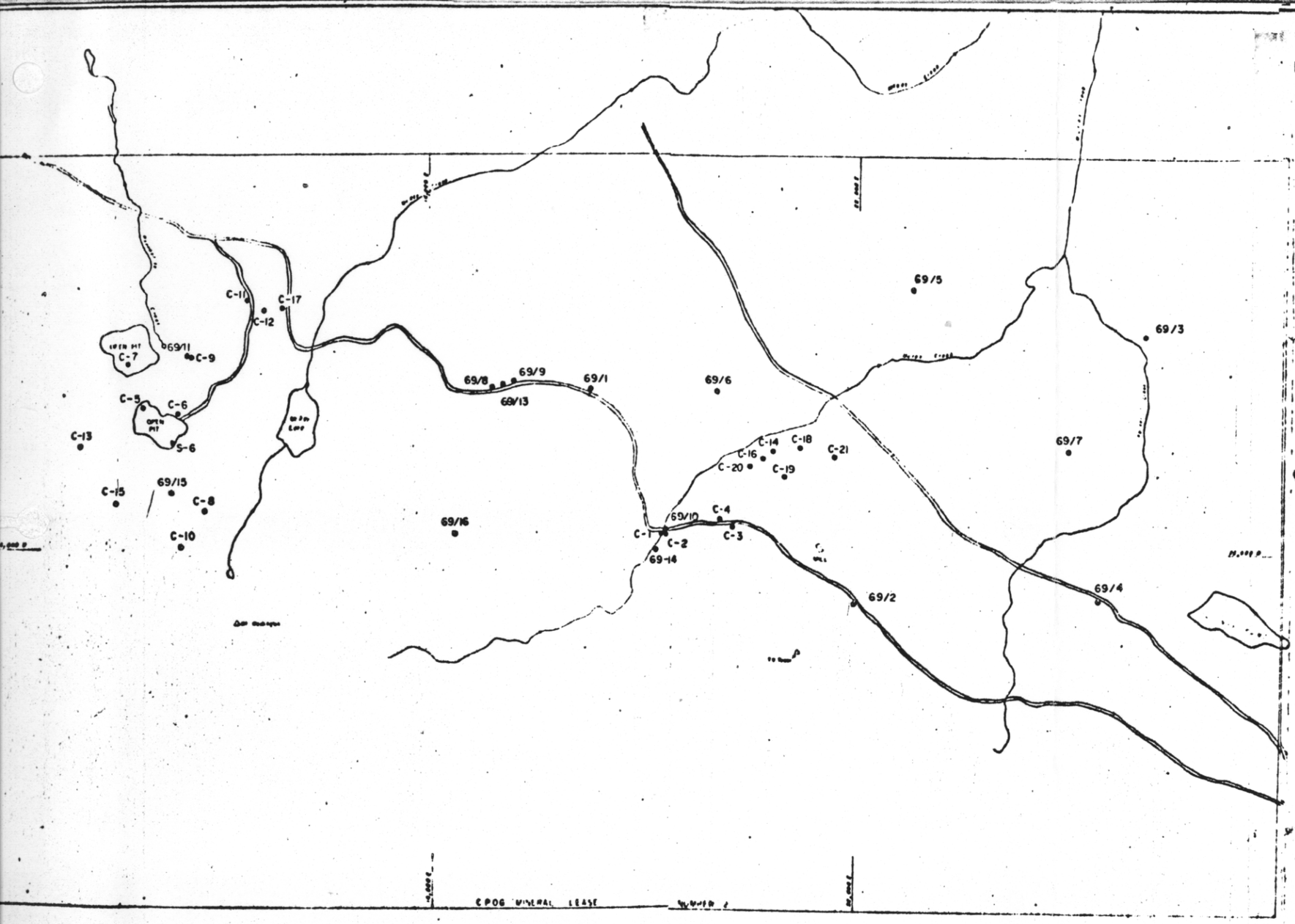
APPENDIX H

MT. WASHINGTON COPPER PROJECT.



APPENDIX I

MT. WASHINGTON COPPER PROJECT.
MT. WASHINGTON COPPER CO. LTD.



MARIETTA D.D.H. NO.	FOOTAGE	DIP	DIRECTION
69/1	500'	-90°	—
69/2	508'	-68°	S 35° W
69/3	1000'	-70°	South
69/4	1000'	-70°	N 26° E
69/5	492'	-90°	—
69/6	500'	-90°	—
69/7	1000'	-90°	—
69/8	220'	-90°	—
69/9	304.5'	-60°	S 10° W
69/10	373'	-90°	—
69/11	454'	-90°	—
69/12	101'	-45°	N 79° W
69/13	166'	-45°	N 10° E
69/14	100'	-90°	—
69/15	143'	-50°	S 20° W
69/16	85'	-45°	N 55° W

COMINCO D.D.H. NO.	FOOTAGE	DIP	DIRECTION
S-6	1,526'	-40°	S 32° W
C-1	413'	-25°	S 72° W
C-2	436'	-25°	South
C-3	394'	-25°	S 5° W
C-4	618'	-59°	North
C-5	460'	-90°	—
C-6	432'	-50°	S 42° W
C-7	459'	-90°	—
C-8	427'	-90°	—
C-9	454'	-45°	West
C-10	858'	-90°	—
C-11	558'	-30°	N 29° W
C-12	568'	-40°	S 15° E
C-13	492'	-90°	—
C-14	420'	-50°	North
C-15	556'	-63°	East
C-16	491'	-50°	N 15° W
C-17	597'	-50°	S 15° E
C-18	434'	-48°	North
C-19	969'	-63.5°	North
C-20	574'	-74°	N 3° W
C-21	460'	-90°	—

APPENDIX J

MT. WASHINGTON COPPER PROJECT.
MT. WASHINGTON COPPER CO. LTD.
NANAIMO, B.C.