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NOTICE OF AMMENDMENT
to accompany

COPPER PASS MINES LTD.
GEOLOGIC REPORT NO. 2
STIKINE PLATEAU and PINE POINT
PROPERTIES

by M. A. ROED GEOLOGICAL EXPLORATIONS LTD.
10147 - 103 Street, Edmonton, Alberta.
September 27, 1966.

AMMENDMENT

1. Change Cover and Title Page from:

COPPER PASS MINES LTD.
GEOLOGIC REPORT NO. 2
STIKINE PLATEAU and PINE POINT
PROPERTIES

to:

COPPER PASS MINES LTD.
GEOLOGIC REPORT NO. 2
STIKINE PLATEAU and PINE POINT
PROPERTIES
DALVENIE, MAC, NEW DEAL, FOG, LIN, PASS,
REY, NAT, FRAC, RAC and TAC CLAIMS

Respectfully submitted,
M. A. ROED GEOLOGICAL EXPLORATIONS LTD.
per:
M. A. Roed

M. A. Roed, P.Geol.

DATED: February 16, 1967

COPPER PASS MINES LTD.

GEOLOGIC REPORT NO. 2

STIKINE PLATEAU and PINE POINT PROPERTIES

M. A. ROED GEOLOGICAL EXPLORATIONS LTD.

EXPLORATION CONSULTING RESEARCH

DATED: September 27, 1966.

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Department of

Mines and Petroleum Resources

ASSESSMENT REPORT

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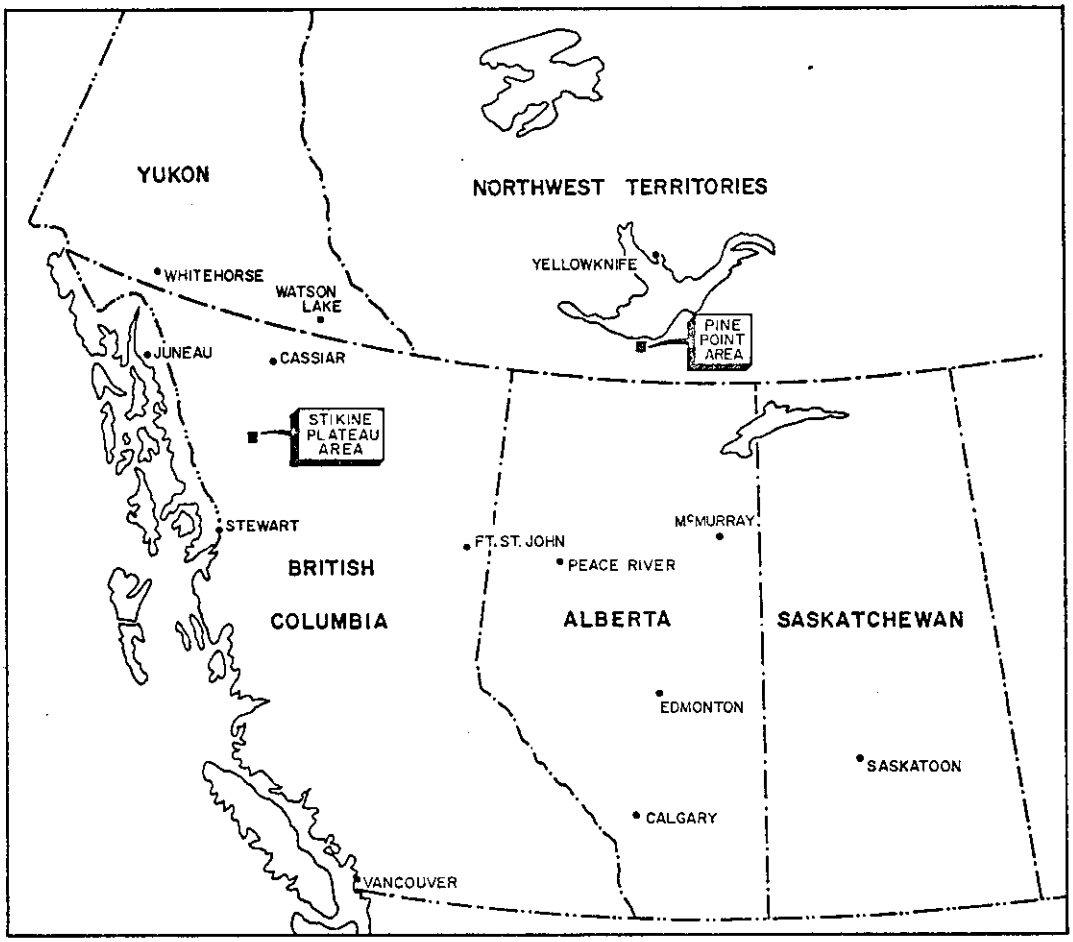

Figure 1

INDEX MAP
SHOWING LOCATION
OF
COPPER PASS MINES LTD.
PROPERTIES

To Accompany Geologic Report No. 2
Copper Pass Mines Ltd. Sept., 1966.

INTRODUCTION

This report describes the geology of the mining properties owned by Copper Pass Mines Ltd. in the Stikine Plateau area of northwestern British Columbia and in the Pine Point area, Northwest Territories (Figure 1).

Extensive geologic field work, prospecting, trenching and some drilling has been completed on the Stikine Plateau property and a detailed induced polarization survey has been run. In addition numerous samples of a geochemical soil sampling program are presently being analysed.

A photogeologic study of a large area was made for the Pine Point property along with a compilation of relevant published geologic information. Also, government aeromagnetic maps have been interpreted by geophysicists and geologists for the property in order to determine the basement structure. Due to the overburden conditions a field examination of the property was not feasible.

Information contained in the present report comprises an account of recent geological and geophysical reports on the properties with added information from recent work and developments in the respective areas plus other published data. References are given in the text to appropriate sources.

A total of eighty-one days was spent in the field working on the Stikine Plateau property between the dates of June 21 and September 8, 1966. M. A. Roed, P.Geol. spent fourteen days examining the property, and during the remaining time exploration on the property was under the direction of Norman W. Reynolds, B.Sc., Chief Mining Geologist, M. A. Roed Geological Explorations Ltd.

STIKINE PLATEAU AREA

Location of Area

Claims belonging to Copper Pass Mines Ltd. in the Stikine Plateau area are located in the west half of the Cake Hill Map Sheet (104 I/4 West), British Columbia and extend from Upper Gnat Lake south for approximately 3 miles (Figure 2). They are bounded on the east by the Stewart-Cassiar Highway and extend two miles west occupying an area of approximately 6 square miles or about 40,000 acres. From Dease Landing at the southern end of Dease Lake the claims are located approximately 22 miles in a direction south 12 degrees east.

Access

The eastern boundary of the claims borders an all-weather gravel highway (part of the Stewart-Cassiar highway scheduled for completion in 1968?). This highway joins the Cassiar-Watson Lake road 94 miles to the north - from this junction the distance to Watson Lake, Yukon Territory is 85 miles.

A tote road constructed on the property in July and August of 1966 connects the Stewart-Cassiar highway to the main showings situated approximately one mile west. The

tote road is navigable for approximately three-quarters of a mile by four wheel drive vehicles.

Physiography

The property is located in the Hotailuh Range of mountains near the northeastern edge of the Stikine Plateau which abuts against the Cassiar Mountains. Relief is in the order of 2,000 feet. Valleys have been heavily glaciated hence u-shaped and trend in a north-south direction. Intervening mountains are generally rounded by glacial action, but rise to elevations of up to 6,170 feet in the area.

Specifically, the claims are located on the eastern slope of Thenatlodi Mountain between an elevation of 3,500 feet and 5,500 feet. The property is situated almost directly on the Arctic Ocean and Pacific Ocean drainage divide, but is swampy and poorly drained by several small stream systems flowing north and south respectively. Rock exposure is abundant above 5,000 feet elevation but below this outcrop is scarce.

MINING HISTORY

The property was first staked in 1899 by Joseph B. Clarihue at the time of the Dease Lake gold rush and has been restaked several times after that. In 1935 the Dalvenie, Mac

and New Deal claims became Crown Granted. Numerous trenches had been opened before 1935 but virtually no work has been done on the claims since that time. During 1966 Lytton Minerals Ltd. has been engaged in an extensive drilling program just to the north of the property but results of this work have not been announced. There is presently considerable exploration activity in the area by various mining companies and prospectors.

GENERAL GEOLOGY

Regional Geology

The geology of the area has been mapped by the Geological Survey of Canada (Map 9-1957 and Map 29-1962) on a scale of 1 inch equal four miles and the general tectonic framework has also been determined by the Geological Survey of Canada (Gabrielse and Wheeler, 1961).

Sedimentary and igneous rocks of three ages occur in the immediate area (Gabrielse, 1962); from oldest to youngest they are: (1) Upper Triassic and (?) earlier rocks; (2) Jurassic and/or Cretaceous Intrusives; (3) Pleistocene glacial deposits.

The property is situated on the north east flank of an indicated copper province of the Stikine Plateau area

Regional Structure

The regional structure of the area is composed of an extensive east-west trending anticlinal structure which may be related in part to the Hotailuh Batholith (Gabrielse and Wheeler, 1961, Figure 4). A large part of the Stikine Plateau area is characterized by strong north trending fault structures which have been reported from as far west as the Galore Creek area (Barr, 1966). Similar north trending structures are present on the Copper Pass property (Figure 2).

LOCAL GEOLOGY

Stratigraphy and Petrography

The major portion of the claims lie within a re-entrant of the granodiorite of the Cassiar batholith. The granodiorite outcrops in the south of the property on the Pass Group where it is equigranular crystalline and contains no visible metallic mineralization. Although unaltered, the granodiorite is transected by numerous north-south trending topographic depressions presumably related to the general north trending faults of the area. The rocks in the re-entrant are mainly of two types - volcanic (or intermediate) and sedimentary.

The volcanics are very basic in composition and range from very fine grained to a coarse porphyritic andesite. In numerous localities on the property the porphyritic andesite is coarsly crystalline and resembles an intrusive rock. Also the discordant nature of these basic rocks and the lack of flows or bedding suggest that these rocks may be of intermediate origin, between an intrusive and an extrusive, possibly representing in part small, isolated plutons. The andesite is moderately fractured and in numerous localities contains abundant disseminated pyrite mineralization.

The sediments are metamorphosed and consist of interbedded argillite, quartzite and minor thin beds of chert. The sediments have been strongly folded and are characterized by steep dips and a general northwest strike direction. In localities where the sediments have been severely fractured they are characterized by small gossanized features.

Three diabase dikes occur on the property trending N 16° E. dip 75° W. The dikes are 3 to 4 feet thick and are separated by 2 to 6 feet of a sheared mineralized zone. The dikes occur along a highly sheared fault zone which carries the main part of the mineralization of the area. Since in some localities the dikes contain blebs of chalcopyrite, it is believed the dikes were intruded before or contemporaneous

with the mineralization of the fault zone. The dikes cannot be conveniently shown on the scale of the geologic map, however, they have been identified at Trenches 1, 2, 3, 7 and 8 paralleling the fault zone (Figure 2). It is reasonable to assume that they are present at depth unless they have been folded or offset by faulting in the subsurface.

Economic Geology

The main mineralized zone is located in a north trending depression extending from Trench No. 1 to Trench No. 6 (Figure 2). The zone then continues along the side of the mountain for approximately 2,400 feet to the north. The southern end of the zone has been stripped exposing a mineralized fault zone about 60 feet wide trending N 16° E; the dip could not be determined but is believed to be steep. The fault zone is bordered on the west by relatively unfractured porphyritic andesite containing large euhedral pyroxene crystals. The east side of the fault zone contains a series of three parallel relatively unmineralized diabase dikes between which occurs the major part of the mineralization of the southern trenches. Between the diabase dikes and to the east of the dikes the rock is mainly metasediments and is heavily fractured and weathered.

The sulphide minerals consist mainly of pyrite and chalcopyrite in a highly fractured smokey grey quartz of the fault zone. The fractures in the quartz are coated with thin films of hematite. In the north trenches pyrite and arsenopyrite are the common minerals.

In Trench No. 1 of the southern end of the mineralized zone the following assays results were obtained (Figure 2):

Width (in feet)	2	4	4	3	4	4	5	5	5	5
Assay % Copper	.6	1.4	3.4	1.42	.6	.85	.67	.25	.23	1.22

These assays indicate 1.03% copper over a width of 41 feet which is an encouraging result since this zone also coincides with an I.P. anomaly that is a minimum of 1,800 feet in length.

Due to the swampy nature of the topographic depression Trench Nos. 5 and 6 could not be excavated successfully, but were tested with diamond drill hole X-Ray 66-03. The results of this drill hole showed a very narrow mineralized zone containing fine grained pyrite with minor amounts of chalcopyrite. Trenches Nos. 7 and 8 were opened up with the cat showing the possible extension of the dikes from No. 1 Trench, but the trenches contain only two feet

of mineralization. The porphyritic andesite to the west of the fault zone in Trenches Nos. 7 and 8 contains abundant disseminated pyrite and pyrrhotite.

Two other diamond drill holes, X-Ray 66-01 and 66-02 were drilled in the showings but did not penetrate deep enough to be of value.

Assay results were obtained from Trenches 7, 8, 9 and 10, but showed only traces of mineralization.

INDUCED POLARIZATION ANOMALIES

An induced polarization survey has been carried out along the main mineralized zone of the Stikine Plateau property as shown in Figure 2. The survey was run by Geosurvey Exploration Limited using frequency domain equipment manufactured by Geoscience Incorporated. The following account is a summary of the results of the I.P. Survey coordinated with the available geologic information.

Three I.P. anomalies within 150 feet of the surface occur on the property, a southern anomaly, a northern anomaly, and an anomaly on the down-hill line (Figure 2).

The southern anomaly is judged to be weak but may be reflecting mineralization along the fault zone. Assays and descriptions of surface samples over part of the southern anomaly indicate the presence of massive sulfides in the form

of chalcopyrite and pyrite which averages 1.03% copper over 41 feet. The anomaly may be reflecting at least part of this mineralized zone at depth over a width of approximately 200 feet and a length of 1,800 feet.

The northern anomaly, because of its large size, is probably reflecting either disseminated mineralization in the metasediments or concentrated mineralization near a possible subsurface contact between the metasediments and the porphyritic andesite. Since the area may be bounded by faults, it is of considerable interest if the mineralization is of economic importance. Only a minimum size of the anomaly is indicated in Figure 2 since it is open to the north and also to the west for most of its length, however it ranges from 300 to 1,000 feet wide and up to at least 3,300 feet long.

The anomaly on the down-hill line is located across a north-south trending depression, interpreted as a fault zone, flanked on both sides by ultrabasic rocks. Good frequency effects and high metal conduction factors across 350 feet suggest that the anomaly is due to mineralization within 150 feet of the surface, although it is possible that clay and fault gauge material is giving the I.P. effect.

GEOCHEMICAL ANOMALIES

A small scale pilot geochemical survey was run

showing one strong mercury anomaly corresponding to a weak copper anomaly in the vicinity of Trench No. 8. Also a weak mercury anomaly was obtained at the south end in the vicinity of Trench No. 1.

Because of the relative success of this survey soil samples were collected every 50 feet on the crosslines over the induced polarization anomalies. The samples are presently being analysed by Barringer Research Limited.

Although the mercury anomalies are not indicative of a mercury deposit, they may indicate areas where hydrothermal activity has taken place.

PINE POINT AREA

Location and Access

The Pine Point property of Copper Pass Mines Ltd. is shown in Figure 1 and 3 and comprises an area of 6 square miles (73 claims) located about 19 miles southwest of Pine Point to the east of the Buffalo River. A winter trail is located one and one half miles southwest of the property and leads westward to the Hay River - Pine Point Highway, and the Fort Smith road is located seven miles to the northeast (Figure 1).

Physiography

As determined from aerial photographs the property is nearly all muskeg and of low relief (less than 10 feet). Overburden consisting of glacial deposits is expected to be thick over all parts of the property except the extreme southern part. The surface is characterized by well pronounced patterned ground (hummocks) with pools of free water in some of the depressions between the hummocks. Some of the depressions may be sink holes.

GENERAL GEOLOGY

General Remarks

The geology of the Pine Point area has been mapped by Norris (1965), but other publications exist for the area dating from 1899 to the present. The most detailed report of notable economic significance is given by Campbell (1966) who has included many recent developments. In addition information is available from published reports of various mining companies active in the Pine Point area.

For the present report a photogeologic study was made and information compiled from existing publications.

A very large area was examined on the photographs which resulted in the interpretation of near-surface rock types on the property. The most recent visit to the Pine Point area by M. A. Roed was in March, 1966 but a personal examination of the property was not warranted because of swamp and overburden conditions.

Stratigraphic Geology

The general stratigraphic geology has been studied by Norris (1965) so that only a brief summary of the stratigraphy will be given. The stratigraphic sequence (from oldest to youngest) consists of the Precambrian, Ordovician and older, and Devonian rock units and Pleistocene deposits. Nomenclature used in this report is that of Norris (1965) where possible.

Precambrian

Precambrian rocks do not occur on the surface in the area but form the basement complex at depth. Typical rocks of the Precambrian are granite, gneiss and schist. The upper surface of the Precambrian is believed to be irregular in relief with a regional slope to the southwest of 20 feet per mile. The extensive basement faults discussed

on succeeding pages of this report are developed in the basement rocks.

Ordovician and Older

The Ordovician and older sedimentary rocks in the region consist of a basal sandstone overlain by argillaceous dolomite, grey sandstone, red shale, massive dolomite and dolomitic red beds. The massive dolomite and dolomitic red beds belong to the Mirage Point formation, which is the main Ordovician rock unit in the area. They are not known to outcrop in the area but should occur in the subsurface.

Middle Devonian

Rocks of Middle Devonian age are the most widespread in the area. The oldest is the Chinchaga formation, overlain by the Pine Point formation, which is overlain by the Presqu'ile formation, which is in turn overlain and partly equivalent to the Slave Point, Nyarling and Sulphur Point formations. Most of the formations are fossiliferous and the identification of the various fossil assemblages are the only valid way of solving the stratigraphy (Warren and Stelck, 1962). The succession of Middle Devonian rocks

in the Pine Point area is exceedingly complex and will only be briefly discussed (from oldest to youngest) in this report.

1. Chinchaga Formation

The Chinchaga formation consists mainly of evaporites with interbedded dolomite, and dolomite and limestone breccia. It overlies the Upper Ordovician unconformably and occurs in the subsurface.

2. Pine Point Formation

The Pine Point formation overlies the Chinchaga formation and underlies the Presqu'ile formation. In the area the Pine Point formation is composed of the following lithologic members ... limestone, dolomite, shale, and limestone and shale; it is believed to be of widespread occurrence.

3. Presqu'ile Formation

The Presqu'ile formation is "restricted mainly to a light coloured coarsely recrystallized variably massive dolomite which is generally presumed to have replaced reefal limestones" (Norris 1965, page 64). On aerial photographs it displays a characteristic near-surface outcrop pattern

and can be traced from one area to another. It overlies the Pine Point formation and is overlain by (and partly equivalent to) the Sulphur Point and the Slave Point formations.

The limit of occurrence of the Presqu'ile has not been defined but it is reasonable to expect its regional development in a 25 mile-wide belt trending northeast-southwest in the Pine Point area. To the south in the Pine Point area the Presqu'ile formation passes into evaporites of the Nyarling formation but isolated occurrences of the reef may occur even in this area.

Although the Presqu'ile formation is variable in thickness, the depth at which it occurs in the area in relation to the Pine Point townsite may be calculated on the following basis:

1. By assuming that the Presqu'ile formation does not change in thickness from the vicinity of Pine Point townsite to the property under study.
2. By assuming a regional plunge of 22.6 feet per mile for the Presqu'ile formation in a southwesterly direction from its outcrop area (Norris 1965, page 8).

These assumptions, however, do not take into consideration

the irregular and unpredictable nature of the reefal Presqu'ile formation, nor the local structure (anticlines, synclines, faults).

Reefs such as the Presqu'ile formation are erratic in occurrence as has been recently well illustrated in the Pine Point area and the Rainbow Lake Oilfield of northwestern Alberta. A drill may miss a reef objective by a few hundred feet because of the typical pinnacle form in which reefs commonly have grown.

4. Sulphur Point Formation

The Sulphur Point formation represents the undolomitized reefal and associated limestone beds which grade into and interfinger with the Presqu'ile formation; some beds of the Sulphur Point formation overlie the Presqu'ile formation. The Slave Point formation, which is the formation near the surface on the property, typically overlies the Sulphur Point formation but is partly equivalent to it.

5. Horn Plateau Formation

The Horn Plateau formation overlies the Slave Point formation and is present in the vicinity of and west

of Buffalo River. It is composed of thick bedded limestones and dolomites with numerous reef-type units which are discernable on aerial photographs.

Upper Devonian - Hay River Formation

The Hay River formation of Upper Devonian age unconformably overlies a number of older formations in the region, and in the Pine Point area it overlies the Horn Plateau formation. The distribution is not well known but is believed to be present west of the Buffalo River. Lithologically the Hay River formation consists of bedded limestone, dolomite and interbedded shales.

Pleistocene

The entire area is mantled by a variable thickness (0 to 200 feet) of glacial drift. Typically the drift is composed of a basal layer of glacial till with numerous boulders and a "matrix" of sandy clay. This till usually overlies bedrock directly except in areas of preglacial valleys where the till may overlie preglacial gravel.

Glacial - lacustrine silt, clay and sand overlie the till and form most of the surficial deposit of the area. The thickness of the lacustrine sediment is quite variable ranging up to perhaps 30 feet.

Numerous abandoned glacial shorelines (distinct from recently abandoned shorelines) characterize the surface of the lacustrine deposits and are often composed of sand and gravel. Resistant rock units are commonly emphasized where they coincide with old glacial shorelines. Eskers are very rare in the area but a few small eskers are present Sand dunes are also rare, but where they occur they are trending northwest-southeast.

Numerous drumlins and grooves are present in the south part of the area and indicate a general southwest direction for the latest glacier advance. These physiographic features (that is, drumlins) often reflect near-surface bedrock.

LOCAL GEOLOGY

Near-Surface Rock Units on the Property

Two rock units are present near the surface on the property: (1) Near-surface carbonate rock unit (limestone, dolomite or argillaceous types of carbonates) with thin overburden; (2) Deeply buried less resistant rock unit believed to be shale (unmarked in Figure 3). From regional photogeologic studies and published information it appears that the two units occur in the Slave Point forma-

tion of Middle Devonian age.

Rock Unit Relationships

The two rock units occurring near the surface belong to the Slave Point formation of Middle Devonian age. Norris (1965, page 76) has described a section of Slave Point beds which occur in a sink-hole about nine miles to the northeast of the property; the sequence consists of "brown fine-grained bituminous limestone; light and dark brown brecciated limestone; fissile shaly limestone and soft, dark brown shale at the base of the exposure."

The Slave Point formation typically overlies the Presqu'ile formation in most of the region but the precise stratigraphic relations are unknown on the property. The main host rock for the lead-zinc deposits in the region is the Presqu'ile formation and it may occur below the Slave Point formation on the property, possibly within 250 feet of the surface if assumptions given on page 14 are correct. It is possible however, that the property is located over an off-reef facies which may or may not comprise suitable host rocks.

ECONOMIC GEOLOGY

Summary

Ore bodies in the Pine Point area appear to be restricted to carbonates of the Middle Devonian sequence and in particular to the Presqu'ile formation and associated facies. However, there is no reason why other formations cannot contain ore if subject to suitable ore forming processes. The metallic mineralization is almost exclusively sphalerite, galena, marcasite and pyrite in that order of abundance (Campbell, 1966).

Summarizing the available information a general exploration hypothesis can be presented which is applicable to exploration on property of Copper Pass Mines Ltd. in the Pine Point area:

1. Ore bodies occur in the Presqu'ile formation and related facies which commonly developed along magnetic highs reflected by basement structures.
2. Ore bodies occur in areas of extensive basement fault zones, and assuming that the ore-bearing solutions migrated along these fault zones, areas in the vicinity of the fault zones offer considerable exploration potential if an avenue for migration of the ore-bearing solutions was maintained to potential host

rocks. A suitable avenue of migration for example may have been in the form of fractures developed in response to epeirogenic movements subsequent to Paleozoic sedimentation in the area.

3. Reefs such as the Presqu'ile formation are somewhat unpredictable in nature, offering considerable exploration potential.

4. The areal extent of the Presqu'ile formation and other potential host rocks has not been delineated in detail offering considerable exploration potential.

5. The best method of delineating ore bodies in the Pine Point area has proven to be by induced polarization techniques.

The origin and description of the Pine Point ores has been recently discussed by Campbell (1966) and the above account is in general agreement with his ideas. Folinsbee et al (1966) has indicated that the sulfides of the Pine Point area may be syngenetic in origin in which case any porous carbonate in the Middle Devonian evaporite basin may form potential host rocks for mineralization. However, the origin of the Pine Point ores is not precisely known at the present time.

STRUCTURAL GEOLOGY

General Remarks

The Middle Devonian and older Paleozoic rocks of the Pine Point area form part of a regional homoclinal succession of rock units trending northwest and dipping gently to the southwest throughout the area. The sediments comprising this succession were presumably laid down on a broad shallow platform or shelf fringing the southwest margin of the Precambrian Shield referred to as the Alberta Shelf Region south of the Great Slave Lake area (Norris, 1965, page 86).

Faults

Surface Faults and Folds

Careful examination of the photographs failed to delineate either faults at the surface or evidence of folding on the property.

Basement Faults

Basement faults are faults which are developed in

rocks belonging to subsurface extensions of the Canadian Shield and do not necessarily affect overlying sedimentary rocks. On the basis of aeromagnetic maps of the Geological Survey of Canada (1950), one major basement fault zone has been delineated close to the property (Figure 3). It occurs just to the northwest of the property trending in a northeast-southwest direction and can be traced for at least 42 miles.

MAGNETIC ANOMALIES

Magnetic Highs and Lows

An area of relative magnetic low occurs on the property and is shown by the isomagnetic contour lines in Figure 3 (G.S.C., 1950). Magnetic readings as low as 2060 gammas are present on the property compared to about 1720 gammas in the area of Pine Point mines.

A distinct magnetic high occurs just to the southeast of the property as shown in Figure 1. It can be traced for at least 12 miles trending in a southwest-northeast direction and may be associated in part with a major basement fault zone located to the southeast.

CONCLUSIONS

Stikine Plateau Property

Extensive trenching and shallow diamond drilling of the showings uncovered near surface mineralization of economic importance in the vicinity of Trench No. 1. Good copper values were obtained across the No. 1 Trench - 1.03% copper over 41 feet.

Results of the induced polarization survey indicate three anomalies all of which are of prime interest. The north anomaly may be reflecting either disseminated mineralization or concentrated mineralization at or near a subsurface contact between the ultrabasic rocks and metasediments. Since surface bedrock samples do not contain significant mineralization the latter possibility is the most probable. The anomaly on the down-hill line coincides with an extensive north-south depression and represents mineralization in a possible north-south trending fault zone.

The third anomaly, referred to as the south anomaly may also be of economic importance since surface mineralization over the anomaly indicates an average of 1.03% copper over a width of 41 feet. The I.P. anomaly appears to be reflecting this mineralization over a minimum length of 1,800 feet within 150 feet of the surface.

Pine Point Property

A major basement fault zone is believed to occur just to the northwest of the property. Although the stratigraphic section is not known on the property, it is possible that the Presqu'ile formation occurs within 250 feet of the surface. Other potential host rocks may be present on the property at depth, and near-surface carbonates are believed to be present in the southern part of the property. A prominent magnetic high is present just to the southeast of the property.

The above information is considered to be favourable for exploration of lead-zinc ore deposits on the property, but if ore deposits are discovered they may be deeper than their counterparts further to the north in the Pine Point area. On the other hand it is entirely possible that near-surface carbonates have been mineralized.

RECOMMENDATIONS

Stikine Plateau Property

1. I recommend drilling the north anomaly at a minimum of ten locations.

2. I recommend drilling two test-holes on the down-hill line.

3. I recommend drilling the south anomaly at a minimum of three locations.

4. I recommend further induced polarization in order to delineate the anomalies for further drilling if results are favourable for the initial drilling programs.

5. I recommend further prospecting and geochemical soil sampling on the claims especially in zones of suspected faults and in the area underlain by granodiorite.

Pine Point Property

1. I recommend a reconnaissance induced polarization survey on the property in order to detect mineralized zones.

2. Although geochemical prospecting is not a proven method in the Pine Point area, soil samples should be collected in order to discover any geochemical anomalies which may be present.

3. I recommend an initial electromagnet survey of the property in order to check for near-surface metallic conductors. Electromagnet methods are not proven in the Pine Point area, but theoretically should detect near-surface conductors.

ESTIMATED COSTS - STIKINE PLATEAU PROPERTY

Initial Stage:

Diamond Drilling 2,000 feet	$20,000
Geochemical Analysis	2,000
Geological Services	6,000
Assays	2,000
Camp Costs	5,000
Transportation	5,000
	$40,000

Secondary Stage:

Diamond Drilling	$20,000
Assays	2,000
Induced Polarization	10,000
Line Cutting	5,000
Geological Services	6,000
Camp Costs	5,000
Transportation	5,000
	$53,000

ESTIMATED COSTS - PINE POINT PROPERTY

1966 Costs:

Transportation	$1,000
Geological Services	500
Camp Costs	1,000
Geochemistry	500
Line Cutting for Induced Polarization Survey	2,000
	$5,000

1967 Costs:

Induced Polarization Survey	$2,500
Transportation and Camp Costs	1,500
Geological Services	1,000
	$5,000

PROFESSIONAL QUALIFICATIONS

M. A. ROED

1. I, Murray Anderson Roed, reside at 8728 - 101 Avenue Edmonton, Alberta.
2. I have a B.A. (1959) and an M.A. (1961) in Geology from the University of Saskatchewan, Saskatoon.
3. I am a Professional Geologist registered with the Alberta Association of Professional Engineers.
4. M. A. Roed Geological Explorations Ltd. is registered in the Province of Alberta.
5. I possess experience in the following fields of geology: structural and stratigraphic geology; photogeology; geophysics; engineering geology; subsurface coal exploration; surficial geology; paleontology.
6. I have worked in the Mackenzie Mountains, Franklin Mountains, Richardson Mountains, Mackenzie River Valley, Rocky Mountains and Foothills, Old Crow Mountains, Keele Range, Eagle Plain, West Coast of Vancouver Island, and Southern Alberta.
7. I belong to the following professional societies: Alberta Association of Professional Engineers; Geological Society of America; Association of Engineering Geologists; Canadian Institute of Mining and Metallurgy.

8. I have no interest in the property of the company or in the securities offered nor do I expect to receive any directly or indirectly.

Within the scope of this study, all information contained within this report is believed to be accurate.

Respectfully submitted,

M. A. ROED GEOLOGICAL EXPLORATIONS LTD.

per:

Murray A. Roed

Murray A. Roed, P.Geol.

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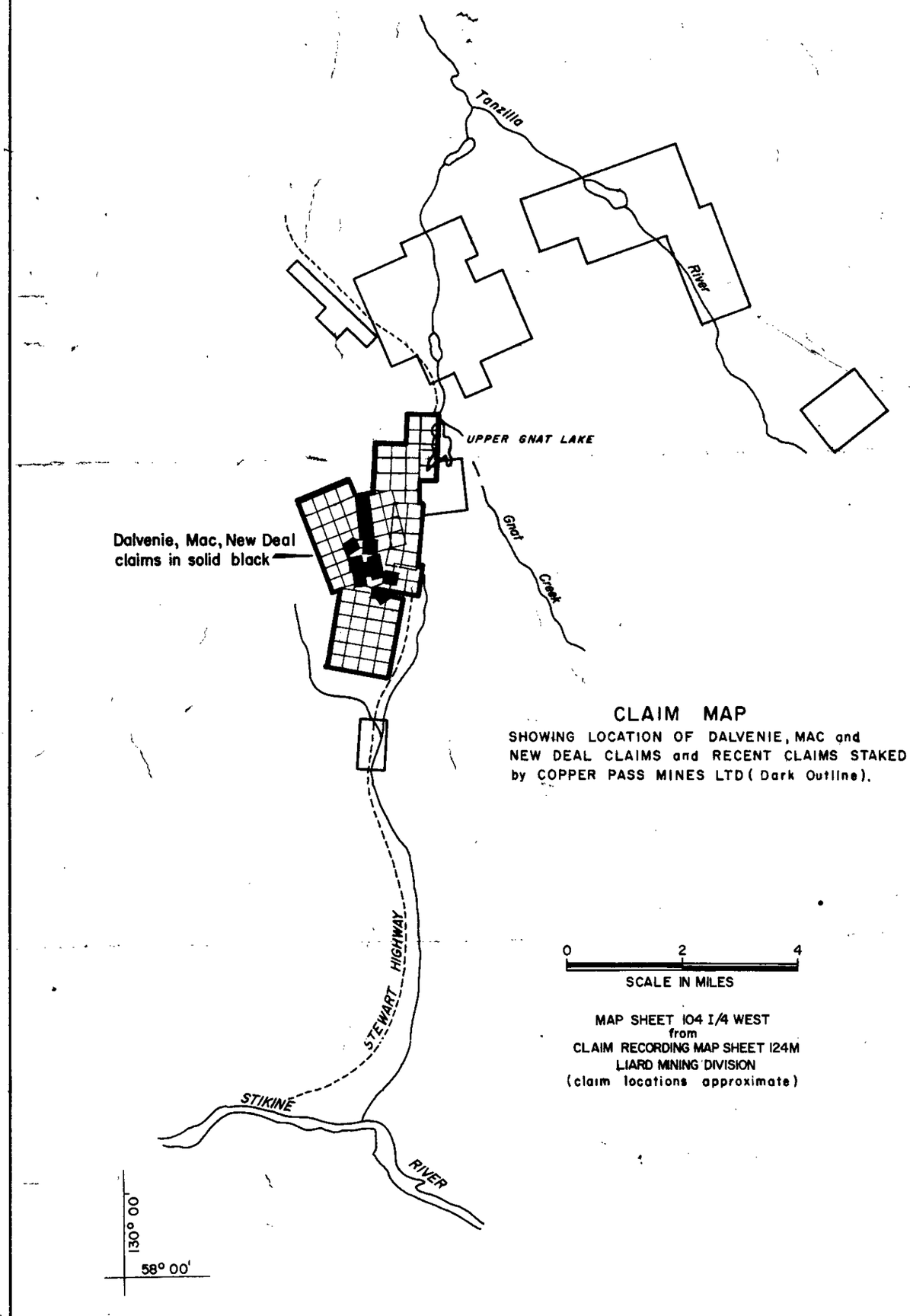
Norris, A. W., 1965 Stratigraphy of Middle Devonian and Older Palaeozoic rocks of the Great Slave Lake region, Northwest Territories; Geological Survey of Canada, Memoir 322.

Warren, P. S. and Stelck, C. R., 1962. Western Canadian Givetian: Journal of the Alberta Society of Petroleum Geologists, Volume 10, Number 6, pages 273 - 291.

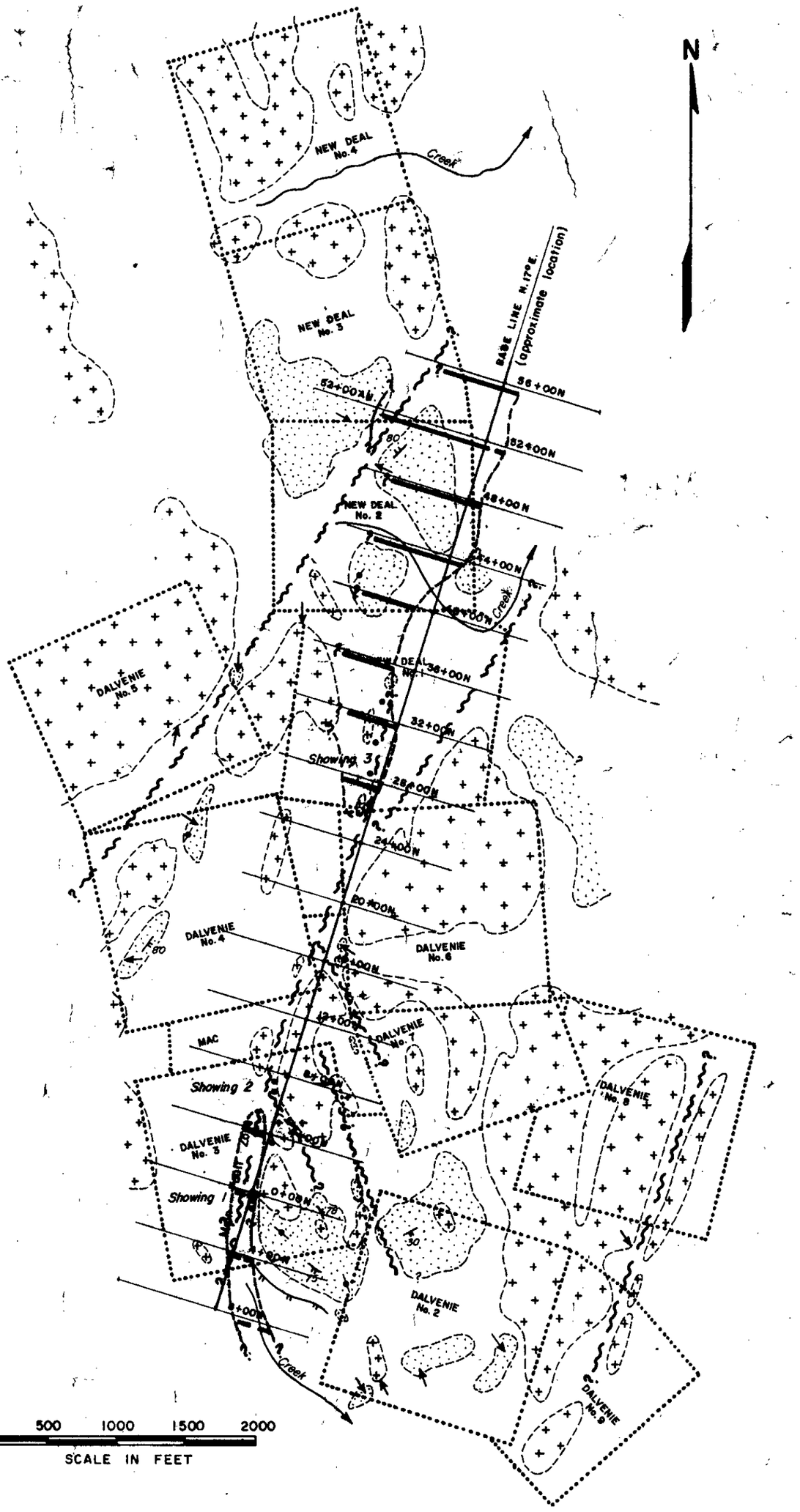


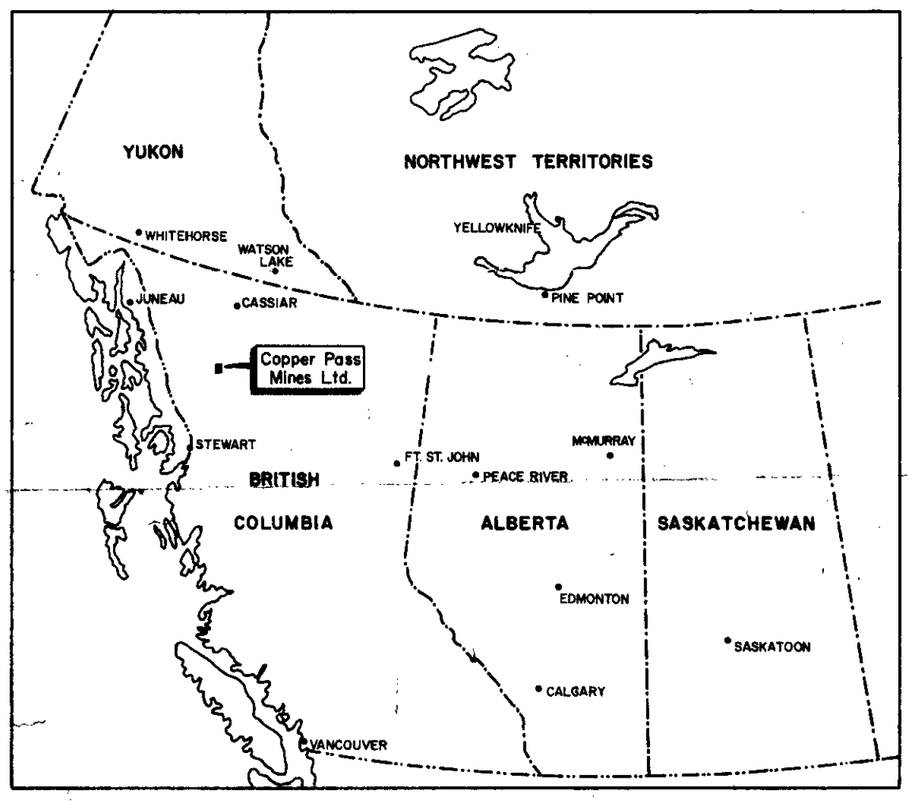
CLAIM MAP

SHOWING LOCATION OF DALVENIE, MAC and NEW DEAL CLAIMS and RECENT CLAIMS STAKED by COPPER PASS MINES LTD (Dark Outline).

0 2 4
SCALE IN MILES

MAP SHEET 104 I/4 WEST
from
CLAIM RECORDING MAP SHEET 124M
LIARD MINING DIVISION
(claim locations approximate)





INDEX MAP
SHOWING LOCATION OF
REPORT AREA

LEGEND FOR
INDUCED POLARIZATION SURVEY
DALVENIE, MAC & NEW DEAL CLAIMS

- Approximate Outline of Anomalous Area
- Anomaly
- Weak Anomaly

Dated Sept. 6, 1966 GEOSURVEY EXPLORATION LTD.

LEGEND

QUATERNARY
Glacial till and recent alluvial and colluvial deposits.

JURASSIC AND/OR CRETACEOUS
Undifferentiated mafic and ultra mafic intrusives.

TRIASSIC AND EARLIER
Argillite, quartzite, siltstone, tuff.

Approximate boundary of areas of outcrop or intermittant outcrop.

Fault or shear zone, dip unknown.

Strike and dip symbol, way up of beds unknown.

Vertical beds.

Showing of mineralization, usually gossaned.

General location of old trenches.

Scarp of stream valley.

FIGURE 1

PRELIMINARY GEOLOGIC MAP

and IP GRID

SCALE : GRAPHIC

—SEPT, 1966—

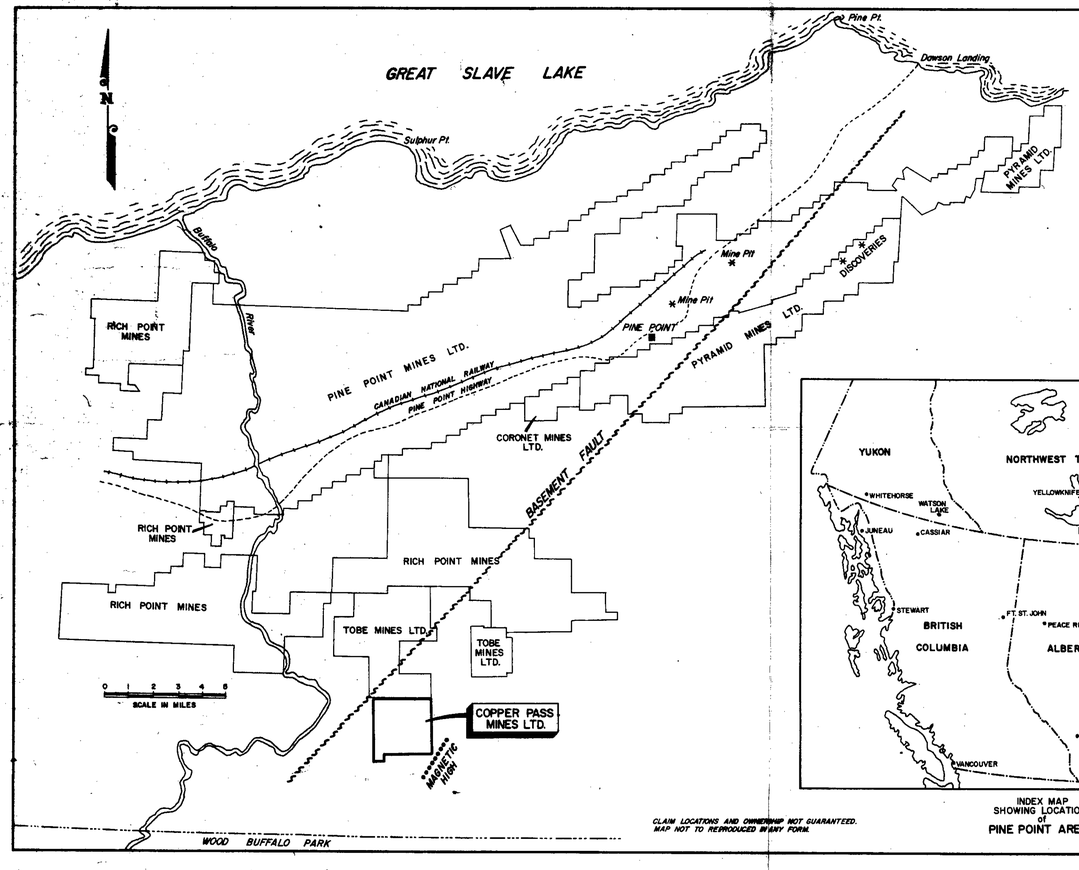
To Accompany Induced Polarization Survey, Mac and New Deal Claims, Stikine Plateau Area, B.C.

Map supplied by M.A. Roed Geologic Explorations Ltd.

GEOSURVEY EXPLORATIONS LIMITED

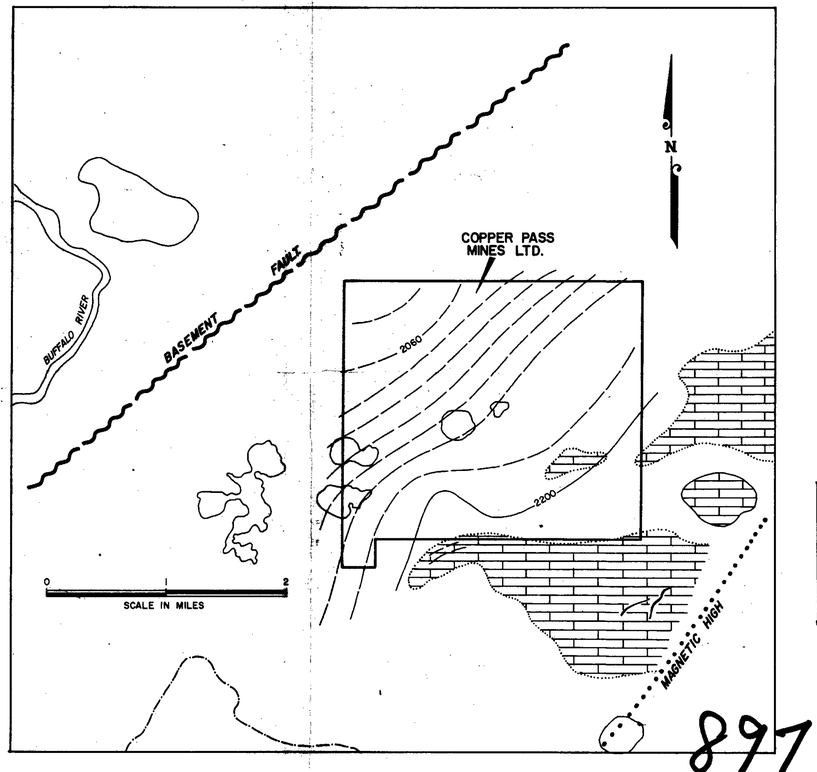
897

897
#2



CLAIM LOCATIONS AND OWNERSHIP NOT GUARANTEED.
MAP NOT TO REPRODUCED IN ANY FORM.

INDEX MAP
SHOWING LOCATION
of
PINE POINT AREA



LEGEND

- Near-surface carbonate rock
- Basement fault, approximate
- Trend of magnetic high
- 2200 — Isomagnetic lines (from G.S.C. 83-BIO Geophysical Paper)
- Trace of carbonate beds
- Winter trail
- Outline of property (from the preliminary staking map)
- Lake

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 897 MAP # 3

To Accompany Geologic Report No. 2, Copper Pass Mines Ltd. Sept., 1966

Figure 3
— PHOTOGEOLOGIC MAP —
COPPER PASS MINES LTD.
PINE POINT AREA
MAP DRAWN FROM AERIAL PHOTOGRAPHS

M.A.ROED GEOLOGICAL EXPLORATIONS LTD.

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