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CONSULTING GEOLOGICAL & MINING ENGINEERS
1000 GUINNESS TOWER
VANCOUVER 1, B.C.

Stikine Resources Ltd.

Report on

TRAPPER LAKE MOLYBDENUM PROPERTY

Northwestern, B. C.

June 10, 1971.

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INTRODUCTION

On September 15, 1970, the writer, in company with Messrs. E. Mueller and I. Livgaard, examined the exposures on the property owned by Stikine Resources in northwestern British Columbia. The area of mineral occurrences on the property has been recently glaciated, with the result that extensive mineral showings are available for examination on bare, clean rock. The writer made a reconnaissance map of these exposed showings and compiled a general photogeological map of the entire property from enlarged aerial photographs.

The property of Stikine Resources is primarily a large tonnage molybdenum deposit similar in general size to the Adanac and Endako deposits elsewhere in British Columbia. Comprehensive work is required to determine its continuity and grade. The writers' knowledge of, and experience with, most of the known molybdenum deposits in the Canadian Cordillera, both those in production and those that are prospects, served as background for the assessment of the Stikine Resources' deposit.

In an initial report dated Dec. 10, 1970, the writer outlined a program that included drilling each of the known mineral occurrences in one season. The present report is a revision of that program designed to provide an initial stage that can be completed in the remaining half of the 1971 season.

LOCATION AND ACCESS: (58°17'45" N, 132°39' W)

The molybdenum property of Stikine Resources Ltd. is located in the northwest corner of British Columbia about 90 miles south and east of Atlin and 60 miles northwest of Telegraph Creek, (Fig. 70-1). The property is equidistant (180 miles) from Whitehorse, Y. T., to the northnorthwest, from Stewart to the southsoutheast and from Watson Lake to the northeast. The city of Juneau, Alaska, lies 65 miles due west of the property but access to it is impractical except by air.

The property is presently accessible only by air, either by helicopter directly to the property or by float plane to Trapper Lake which lies 10 miles north of the property. The closest road is the Dease Lake - Telegraph Creek road about 60 miles to the southeast. The Cassiar-Stewart Highway, at Dease Lake, lies 95 miles due east of the property.

The property lies just inside the eastern fringe of the Coast Range Mountains, which in this region comprise the most rugged mountains in North America. Peaks rise to 7000-9000 feet from sea level 20 miles to the west and from 3000 feet on the Taku Plateau 20 miles to the east. All of the highlands are occupied by ice fields that feed glaciers down most valleys to a general elevation of about 5000 feet throughout most of the region; in the vicinity of the Taku River, 50 miles northwest of Trapper Lake, the larger glaciers reach sea level. The Coast Range mountains comprise a formidable barrier to transportation and generally the only avenues through them are along the few major rivers that cut through the range. The two northern-most such rivers are the Taku, 30 miles northwest of Trapper Lake, and the Stikine, 60 miles southeast of Trapper Lake,(Fig. 70-2). One of the headwaters of the Whiting River, which flows westward to the sea, rises in the small lake at the north end of the property of Stikine Resources and flows through a narrow pass, at elevation 3000 feet, down to a main branch of the Whiting. This pass may afford a worthwhile avenue to the sea for the property but it will have to be examined to determine its susceptibility to avalanches and its amenability for road construction.

<u>Accessibility</u>: The present inaccessibility of the Trapper Lake property will require air support for initial exploration but this could be improved, if the results of the exploration are good, by the construction of an airstrip east of Trapper Lake, beyond the high peaks. Eventually, should the property be considered for production, an access road could be constructed either eastward to the Cassiar-Stewart Highway or, possibly, westward through the Alaska Panhandle 50 miles to the sea in the Whiting River valley. Because a road westward may involve very difficult construction and snow conditions and in addition will require the establishment of a port and encounter the problems of materials handling in Alaska it may be eventually more sensible to push a road eastward to the Cassiar-Stewart Highway.instead. Such a road would be 60-70 miles in length to the Telegraph Creek-Dease Lake road and thence 15-20 miles to the Cassiar-Stewart Highway at Dease Lake. The route for this road would be due east from Trapper Lake for 20 miles to the Sheslay River and thence 30 miles southeast up the Sheslay valley to the headwaters of the Tahltan River. From that point the route could either follow the Tahltan River 15 miles southeast to the Telegraph Road at Days Ranch or cut due east across the flat plains 20 miles to the same road at Caribou Meadows. It should be appreciated that a road from Trapper Lake to Dease Lake would involve reasonably easy construction, encountering relatively minor bedrock, if any, negligible gradients, ample road fill and no permafrost.

PROPERTY:

The Trapper Lake property of Stikine Resources Ltd. consists of 108 mineral claims in a single, nearly square block that embraces a north-trending valley ten miles south of Trapper Lake, (Fig. 70-4). These claims were surveyed by the firm of White, Hosford and Impey Ltd., Dominion Land Surveyors, in September, 1970. The central six claims of the group were examined by the writer during his visit to the property. These claims, Karen 40A, 77A, 89A, 51A, 76A and 90A, cover the principal known showings on the property.

The claims are named Karen 1 to Karen 108, with the suffix "A" added to the following numbers : 15, 17, 38, 40, 42, 51, 52, 54, 59, 60, 67, 71-90, 92 and 93.

All claims are in good standing until September, 1971.

HISTORY:

Because of difficult access the northwestern corner of British Columbia has only been sparsely explored to date. Placer gold deposits were exploited east of Atlin, and the Polaris Taku copper-lead-zinc mine on the Taku River produced until the late 1950's but it wasn't until after World War 2 and the beginning of construction of the Cassiar-Stewart Highway that modern prospecting began to penetrate the area along the east flank of the Coast Range inland from the Alaska Panhandle. This resulted in the discovery and the development to production of the Granduc (copper) and the Cassiar (asbestos) deposits and, in more recent years, the dsicovery and present development of the Schaft Creek (copper-molybdenum) and Adanac (molybdenum) deposits, all major ore deposits. Also discovered, but not developed to date, was the Kennco Stikine (copper) deposit.

The Trapper Lake molybdenum deposit of Stikine Resources was discovered and staked in 1962 by Mr. Godfrey, a prospector for Southwest Potash Corp., but no work was done on the property and the claims were allowed to lapse. The property was restaked in 1970 and acquired by Mr. E. Mueller prior to the writer's examination. No physical work has been done on the property by anyone to date.

SUMMARY AND RECOMMENDATIONS

The Trapper Lake molybdenum property of Stikine Resources Ltd. is located 10 miles south of Trapper Lake in the northwest corner of British Columbia, within the eastern edge of the Coast Range Mountains and 20 miles east of the border of the Alaska Panhandle. It is presently accessible only by air from Atlin, 90 miles to the north, or from Dease Lake, 95 miles to the east. An access road to the property could most easily be built to connect with the Cassiar-Stewart Highway near Dease Lake.

The property is made up of one square block of 108 surveyed mineral claims.

The property is underlain by intrusive rocks on the eastern edge of the Coast Range Batholith. The predominant rock on the property is massive granodiorite, with minor monzonite occurring in the southwest. Near the centre of the property the granodiorite is intruded by three or four relatively small stocks of alaskite which are extensively exposed along the flanks of the main central valley as fresh rock recently bared by glaciation. The alaskite stocks and the adjacent granodiorite are generally jointed with three sets of fractures but most markedly by an east-west set of steep fault-fractures. The more intensely fractured portions of the exposed alaskite bodies, and the adjacent granodiorite, are pervasively mineralized with molybdenite, minor chalcopyrite, pyrite and quartz.

The molybdenite occurrences comprise the feature of most economic interest on the property and are noteworthy because they are clearly and extensively exposed in three major areas of alaskite. The full extent of all of the occurrences is not known because the exposures are partially covered in overburden. Three deposits, two of which may join beneath overburden, are clearly exposed for a total area in excess of 100 acres over a vertical interval of about 150 feet. A fourth deposit has not been prospected.

The tonnage potential of the deposits, taken to an arbitrary depth of 400 feet, is roughly estimated to be in excess of 30 million tons of exposed better grade material; in excess of 100 million tons of exposed low grade material; and in excess of 200 million tons of possible ore material beneath overburden. The grade is unknown but the available exposures appear to be comparable to the Adanac deposit near Atlin, B. C.

On the basis of the existing exposures of the molybdenite deposits the Trapper Lake property warrants extensive reconnaissance diamond drilling to determine (1) if the deposits are of ore grade, and (2) the depth and lateral extents of the deposits. It is quite possible that the grade may not be sufficient to be economic in this area but this must be determined by drilling.

RECOMMENDATIONS:

The Trapper Lake area is a high cost region for exploration due to lack of road access, therefore the cost of the recommended program of diamond drill investigation is high. However; costs are considered to be warranted in view of the fact that the target is a major porphyry-type deposit with openpit potential.

Two stages of exploration are proposed to be done in two successive seasons:

Stage 1 - Mapping, soil sampling and 5000 ft of drilling $200,000
Stage 2 - 12,000 ft. of diamond drilling $400,000 - 500,000.

GEOLOGICAL SETTING

REGIONAL GEOLOGY:

The Trapper Lake property is underlain entirely by intrusive rocks belonging to the Coast Range Batholith.

The area between the Stikine and Taku reivers is geologically distinctive in that the eastern edge of the Coast Range Batholith in this interval is interrupted from its northeastward trend by irregular apophyses and intrusive outliers of major and minor dimensions, (Fig. 70-2). Such areas of outlying intrusive bodies are distributed irregularly along the east margin of the Coast Range Batholith from the 49th Parallel to the Yukon, and in each such area major porphyry copper-type ore deposits have been discovered. In northwestern British Columbia two such deposits are presently being developed toward production, Schaft Creek, south of Telegraph Creek, and Adanac, east of Atlin. The Schaft Creek copper-molybdenum deposit is in excess of 300 million tons and the Adanac molybdenum deposit in excess of 100 million tons. It is of interest that the Trapper Lake molybdenum deposit of Stikine Resources is located within an outlying apophyse of the Coast Range Batholith, (Fig. 70-2), approximately midway between Adanac and Schaft Creek.

It is characteristic of the irregular portions of the east margin of the Coast Range Batholith that the various intrusive bodies are of different ages and compositions. All are younger than Jurassic in age and compositions range from granite to quartz diorite, with a common predominance of monzonitic rocks. In the vicinity of Trapper Lake the Geological Survey of Canada have mapped two major types of intrusive rocks along the eastern margin of the batholith; these are monzonitic rocks and, less extensive, granodioritic rocks, (Fig. 70-3). Within these two general map units are many, varied, smaller related intrusive bodies. Most of the Stikine Resources' property is underlain by granodioritic intrusives but the southern portion of the claim block is reportedly underlain by monzonitic rocks, much of which is covered by glaciers.

The dominant tectonic structure in northwestern British Columbia is the Nahlin Fault, which extends from Dease Lake to Atlin Lake, (Fig. 70-2). On the southwest side of this major fault the formations are cut by regional faults trending in three prominent directions; north, northwest and eastward. Examples of each of these have been mapped by the Geological Survey in the vicinity of Trapper Lake, (Fig. 70-3), but the rock exposures on the property of Stikine Resources indicate that the most important fault-fractures belong to the east-trending set.

PROPERTY GEOLOGY:

During his examination of the property the writer traversed the area of the central claims by foot and the entire area of the property by helicopter. The results of the examination have been used in conjunction with air-photo interpretation to produce the sketch map of the geology of the central one third of the property presented in this report as Fig. 70-5. Because much of the rock in the valleys has been clearly exposed by recent glacial scouring many geological contacts and fractures show clearly on air photos and can be readily traced on foot. Such features shown in Fig. 10-5 have been examined by the writer but an enlarged and uncorrected air photo has been used as a base map for this illustration; therefore, although the features are depicted in their relative correct locations the precise scale o f the map is not accurate.

Granodiorite: Aerial reconnaissance indicates that most of the outcrop portions of the property are underlain by blockily jointed granodioritic intrusive rock(s). This rock is well exposed along the flanks of the central valley on the property and is generally massive, dark mottled gray, medium to coarse crystalline and comprised predominantly of feldspar, quartz and hornblende. Local gossans are developed in the granodiorite and appear to be generally related to fractures and/or faults. The predominant fault or fracture set in the areas of granodiorite that surround the central valley of the property trends northeastward and dips steeply to vertically. In the area of the known mineral showings, in the central valley, it is of interest that the dominant fracture direction is east-west rather than northeast-southwest.

Alaskite: Within the central valley of the property the general granodiorite country rock is intruded by three or four irregular-shaped stocks of alaskite. These are shown in Fig. 70-5. Two of these bodies, the Central and the West, are so aligned on opposite sides of the main valley as to suggest that they represent the east and west extremities of one stock, the middle of which is blanketed by glacial overburden. The complete extent of the East and the South alaskite stocks is not known because the former is partially covered by a glacier and the latter by valley-fill overburden, (Fig. 70-5).

The alaskite in all stocks is uniformly white to pale cream coloured, massive, fine to medium crystalline and comprised 30% of watery quartz and 70% of grayish and chalky feldspars. Mafic minerals are rarely present whereas very fine, disseminated pyrite is almost ubiquitous. The alaskite is clearly intrusive into the granodiorite and cross-cutting contacts are well exposed around the peripheries of all stocks.

Monzonite: The map prepared by the Geological Survey of Canada of this area of British Columbia indicates that the southern portion of the property of Stikine Resources Ltd. is underlain by monzonitic intrusive rocks. Such a change in rock type is not readily apparent from the air and would have to be confirmed by ground mapping.

Andesite dikes: Fine crystalline, massive, dark green andesitic dikes from one to twenty feet in width are commonly distributed in the vicinity of the contacts of the Central and West alaskite stocks. These dikes trend northerly and dip steeply east and west and are intrusive into both the alaskite and the granodiorite. The dikes tend to pinch, swell and change direction abruptly and have evidently been strongly controlled in their emplacement by the fracture system. No sulphide mineralization was seen within the dikes.

Occurrences of economic interest: The known mineral occurrences on the property of Stikine Resources Ltd. that are of economic interest at this time are several extensive outcrop exposures of molybdenite, (molybdenum), with minor local but significant concentrations of chalcopyrite, (copper). All of the known showings of these commercial sulphide minerals occur within or near the east, central and west alaskite stocks at the centre of the property. The south stock may be similarly mineralized but it has only been examined from the air and requires to be prospected on the ground.

The exposed occurrences, if of sufficient grade, would be amenable to large tonnage open-pit mining.

ECONOMIC GEOLOGY

ECONOMIC MINERAL OCCURRENCES:

The most widespread sulphide mineral of economic interest on the Trapper Lake property is molybdenite. It occurs abundantly in portions of the east, central and western alaskite bodies and sparsely in the remaining portions of the bodies. North of the western alaskite stock the molybdenite extends for about 700 feet into the surrounding granodiorite. The molybdenite occurs in three habits; (1) as disperse disseminations throughout the rock; (2) as thin films and lenses along fractures, either well defined or incipient, and (3) as lenses with quartz and pyrite in veinlets and veins.

The disseminated molybdenite ranges in size from fine, (1 mm), flecks that stipple the host rock like black pepper to large, (3 cm), rosettes that are erratically distributed in the rock. The disseminated molybdenite appears to be restricted to the alaskite rocks.

The molybdenite that occurs on fractures in the rock is again preferentially distributed within the alaskite and is actually a form of dissemination in that the quantities on any one fracture are generally paper thin and discontinuous but the number of fractures so mineralized is evenly distributed throughout the rocks. In the exposures that were examined by the writer three joint-fracture sets are the principal hosts for the molybdenite, namely, in order of abundance of molybdenite on them:

1. East-west striking, 80° south dip.

2. Southwest striking, 10°-20° north dip.

and 3. Southwest striking, 70° southeast dip.

Throughout the central and west alaskite bodies the mineralized fractures are spaced from six inches to three feet apart, the more closely spaced occurrences being in the northern halves of both exposures.

The third type of molybdenite occurrence, in veins, is the most widespread and the richest. Veinlets of quartz and pyrite up to $\frac{1}{4}$ inches in width are common everywhere in the alaskite bodies but in the northern parts of the central and west alaskite bodies they are more closely spaced than general and more richly mineralized with molybdenite.

These veinlets occupy the above-described joint-fracture sets with marked preference to the steep east-west set. In the most richly mineralized portions of the alaskite wide (6 inches to 1 foot), east-west veins of quartz-molybdenite-pyrite occur at about 50 foot spacing and in the west alaskite body in particular these veins contain lenses of massive molybdenite several inches in width and tens of feet in length. Despite the relatively recent glacial scouring of the rock, practically all of the veins and veinlets have been markedly leached of molybdenite and pyrite to depths of one to several inches below the surface.

The second sulphide of economic importance on the property is chalcopyrite. This copper mineral is generally confined to the granodiorite host rock. From the preliminary examination it appears that the chalcopyrite occurs in economically significant concentrations across a width of about 600 feet beyond the northern contact of the west and central alaskite bodies, Fig. 70-5. It generally occurs with or without molybdenite, as fine fracture fillings on the east-west set of fractures. The granodiorite between the east and central alaskite bodies has not been examined for chalcopyrite occurrences but if the copper mineralization is zoned peripheral to the molybdenum concentrations this would be a logical area for copper. Within the alaskite stocks the amount of copper is negligible; however, within the granodiorite along the north side of the central and west alaskite bodies the amount of copper may reach economic significance.

Pyrite is the most widely distributed sulphide mineral in the rocks exposed on the property and it is markedly concentrated in the zones of greatest molybdenite concentration. It occurs commonly as fine to medium crystalline dissemination throughout most of the alaskite bodies and as fracture-fillings and vein material in the areas of molybdenum and copper mineralization. Interestingly, where the pyrite and the molybdenite occur as disseminations in alaskite they rarely occur in actual contact with one another, suggesting that their depositions occurred under different physical-chemical conditions.

The only rock alterations noted by the writer are argillic or sericitic alteration of the feldspars in the mineralized alaskite and incipient potash feldspathization of the granodiorite near contacts with the alaskite.

Grade: Because the molybdenite occurs both as disseminations and veins irregularly distributed over several very large areas of the alaskite intrusive bodies the determination of the grade of the Trapper Lake deposit will require a large, comprehensive program. Surface sampling is of doubtful merit because of the common tendency of molybdenite to leach out of fractures and veins to depths in excess of several feet or more, thus any worthwhile surface sampling would require the excavation in bedrock of trenches several feet in depth.

Reconnaissance sampling of the deposit can best be accomplished by the diamond drilling of the various areas of known mineralization in the central portion of the property. The results of a preliminary drill program would not provide a precise grade determination but would provide a general measure of the grade as well the depth and lateral extent of the mineralization.

The areas of highest molybdenite concentrations examined by the writer occur along the northern 1000 feet of the central and the west alaskite intrusive bodies. These exposures are remarkably similar to the better grade portions of the Adanac molybdenite deposit near Atlin in that both deposits have molybdenite in alaskite as fine fracture fillings, as vein material with quartz and as disseminations, all occurring together. In addition, the richest part of the Adanac deposit has steeply-dipping quartz-molybdenite-gouge veins, from 6 inches to one foot in width, spaced about 50 feet apart in the alaskite. In the Trapper Lake deposits this feature is represented by the east-west steep veins well exposed in the west alaskite exposures. Thegrade of this rich portion of the Adanac deposit is approximately 0.25%MoS_2. Having examined both deposits in detail the writer estimates that the better portions of the Trapper Lake are of comparable grade.

During his examination of the Trapper Lake deposit the writer took a number of samples for assay, not as a measure of the grade of the exposures, but as a measure of certain types of mineralization that occur in the exposures. The assay certificates for these samples are appended to this report and the results are discussed herewith:

Sample 1779 - A grab sample of massive, unfractured, fine crystalline alaskite with very fine, (0.5-1.0 mm), grains of molybdenite disseminated through the rock like a sparse scattering of pepper. This type of rock most commonly occurs in the east and the central alaskite bodies. The sample assays 0.088% MoS_2 and 0.01% Cu.

Sample 1780 - A grab sample of massive, medium crystalline alaskite with a relatively high concentration of disseminated coarse grained molybdenite and pyrite. This type of rock is locally common in the central alaskite body but does not represent large quantities of that body. The sample assays 0.626% MoS_2 and 0.01% Cu.

Sample 1781 - Massive, medium crystalline alaskite with disseminations of molybdenite as coarse (¼") rosettes aligned along incipient fractures. The grab sample was taken from the west alaskite but the type of mineralization is common to all exposures and occurs in abundance in boulders between the central and west alaskite bodies. The sample assays 1.59% MoS_2.

Sample 1782 - This sample, taken from the west alaskite, is a chip channel cut across a quartz-molybdenite vein one foot in width. The sample includes one foot of mineralized wallrock on either side of the vein, giving a total width of 3 feet for the sample. The sample is obviously high grade and is typical of the higher grade lenses on the east-west veins. The sample assays 6.52% MoS_2.

The significance to the writer of the above assay results is that the disseminated molybdenite and the vein concentrations are of sufficient grade to up-grade the large areas of barren intervening alaskite that would comprise the bulk of possible orebodies. The determination of whether the grade of the deposit is generally high enough to comprise ore must be made by diamond drilling.

Tonnage: Some estimation of the tonnage potential of the better mineralized exposures of the Trapper Lake deposit can be made, with no stipulation as to the possible grades.

The most intensely mineralized northern portion of the west alaskite, termed the West Zone, is exposed over a vertical interval of about 150 feet and measures 1200x500 feet in surface dimension; if a depth of 400 feet is assumed the tonnage represented by this zone is estimated to be about 30 million tons. The north (best mineralized) portion of the Central Zone similarly represents about 15 million tons, as does the

East Zone. If the high grade northern portions of the Central and the West zones represent the two ends of an east-west trending orebody, the main portion of which is covered in boulder outwash in the valley floor, then the tonnage represented, to a depth of 400 feet is approximately 100 million tons.

Potential tonnage also exists in the Central-West Zone(s) south of the above-described best mineralized areas. In addition, the potential of the South Zone remains to be determined.

The boulder outwash that covers the valley floor between the Central and the West zones contains a very high proportion of richly molybdenite mineralized boulders. These boulders are rounded, therefore have been transported, and have been probably derived from either the East Zone, the South Zone or from a possible hidden deposit in the valley floor between the Central and the South zones. The possible existence of such a deposit beneath the grassland south of the Central Zone, (Fig. 70-5), may be detected by soil geochemistry but the soil samples must be taken on a tight grid in order to detect possible mineralized boulder trains in the overburden.

POSSIBLE OREBODIES:

From the available exposures it appears to the writer that the Central and West alaskite bodies represent the east and west ends of the same stock. It also seems apparent that the northern half or one third of this stock has been intensely fractured, particularly in an east-west direction, and this zone has been pervasively mineralized with molybdenite and local chalcopyrite and comprises the largest, richest mineralized deposit presently known on the property. The tonnage of this deposit, to a depth of 400 feet, is about 100 million tons, but the actual depth of the mineralization may be well in excess of 400 feet and the tonnage would then be correspondingly higher. South of this possible orebody the central and west alaskite bodies are extensively but more sparsely mineralized with molybdenite and may represent additional open pit ore. The grade of this lower grade rock must be determined.

The East Zone outcrops exhibits some of the richest molybdenite concentrations on the property. The writer has not thoroughly examined this zone but it seems evident that it represents a second possible orebody that would be supplementary to the larger Central-West Zone.

Other possible orebodies may occur in the South Zone and/or beneath the grassy valley floor north of the South Zone.

When the possible tonnage potential, to depths in excess of 400 feet, of all of the mineralized zones is considered the total could be in excess of 300 million tons. Exploration of the property must now be directed to the determination of how much, if any, of this mineralized rock is of sufficiently high grade to comprise ore at present metal prices.

Extraction of the possible orebodies by openpit mining would present no major problems. Snowfall is heavy in the area and may preclude full year-around mining. Also, the creek draining the central valley will have to be piped over or around any pit on the Central-West zones.

CONCLUSIONS

The Trapper Lake property of Stikine Resources Ltd. is essentially an unexplored mineral prospect, and under normal circumstances such a property would be subjected to diverse preliminary geophysical, geochemical and physical investigations in order to determine if the deposit would warrant diamond drilling. In this case, the Trapper Lake property is somewhat unique in that the natural exposures of the deposit, due to recent glacial planing of the rock, are more extensive and diagnostic than those in most porphyry-type deposits that have been explored by trenching. As an example of an unexplored mineral deposit this one is rare in that areas of bare, fresh rock totalling nearly 100 acres in extent expose large portions of the possible orebodies. Because of the extent and character of these natural exposures the property is, in essence, one step beyond the usual preliminary stage of exploration for most mineral deposits. Thus, the Trapper Lake molybdenum deposits warrant extensive initial drill investigation because of their clearly exposed favourable geology, large size and possible economic grade.

Geologically, one of the most interesting features of most of the known openpit-type of molybdenum deposits in British Columbia is the spatial association of the deposits with late silicic intrusive bodies that are petrologically classifiable as alaskite. These rocks occur as relatively small irregularly shaped stocks that are generally intrusive into monzonitic bodies which occur as apophyses or outliers along the eastern edge of the Coast Range Batholith and in the interior batholiths such as the Nelson and the Cassiar. The monzonites themselves appear to be late derivatives of their parents batholiths. The composition of all of the alaskite bodies from the U.S. border to Alaska is essentially identical; namely, quartz, feldspar and 0-5% ferromagnesium minerals (usually biotite). The alaskite bodies are generally locally porphyritic with potash feldspar phenocrysts up to several inches in length. The same bodies may also exhibit large portions that are finely crystalline and aplitic in texture. In all cases the molybdenite is concentrated in particularly intensely fractured and faulted portions of the alaskite stocks and locally in the adjacent rocks. Large tonnage molybdenite deposits, not all of which are presently economic, in this type of geological setting have been examined by the writer at Beaverdell, at the headwaters of the Bridge River, at Tahtsa Lake, at Cassiar (Cassiar Moly), at Atlin (Adanac Mine) and west of Dease Lake. The Trapper Lake deposits most resemble the Adanac deposit in geologically setting and molybdenite occurrence.

The spatial relation between large molybdenite deposits and silicic (alaskite) late intrusive stocks in the Canadian Cordillera is evidently a function of magmatic differentiation wherein the time and the chemical conditions that result in the late emplacement of alaskite porphyritic stocks also favour the molybdenum-rich hydrothermal solutions that subsequently mineralize the fractured alaskite stocks. In any case, one distinctive feature of the molybdenum province that is being developed in the Canadian Cordillera east of the Coast Range Batholith is the spatial association of many of the major deposits with late alaskite stocks and it is this geological feature that is strikingly evident on the Trapper Lake property.

In terms of size the available exposures of the richest molybdenite occurrences on the Trapper Lake property, i.e., the north ends of the Central and West zones, indicate that a tonnage in excess of 30 million tons of possible ore-grade material is reasonable to assume. If these occurrences represent the east and west ends of an east-west orebody that is parallel to the predominant fracture-vein system, and the alaskite contact, then this entire deposit could exceed 100 million tons to a depth of 400 feet. If some portion of this deposit, say 20-30 million tons, is of high enough grade to provide a profitable start-up to a major operation then the remaining reserve would appear to be large enough to justify a long life to such an operation. Examination of the exposures on the Trapper Lake property suggests that such local high grade cores or centres do exist within the main mineralized zone.

In addition to this readily estimated (exposed) ore material there are the undetermined possible reserves from the East Zone, the southern halves of the Central and West zones and perhaps the South Zone.

The opportunity to see and estimate tonnages of mineralized material, such as exists on the Trapper Lake property, is unusual for an unexplored mining property and is entirely due to the exposure of extensive fresh outcrops by recent glaciation.

The grade of the exposed molybdenite deposits remains to be determined. It can be visually estimated but because of near-surface leaching of the molybdenite from veinlets and because of the difficulty of determining with any precision the amount of disseminated molybdenite in the expanses of hard, smoothly planed rock, such estimates become subjected to too much personal bias to be entirely dependable. However, in the opinion of the writer some of the northern portions of the Central and West zones of the Trapper Lake deposits exhibit in outcrop sufficient closely spaced, well mineralized fractures, veinlets and veins, together with enough disseminated mineralization in the intervening country rock to probably comprise openpit molybdenum ore at present market conditions. To a very large degree the writer's opinion is based on the comparison of these exposures with those underground in the eastern end of the Adanac orebody where extensive drifts have been driven through the orebody and bulk sampled. Both deposits exhibit comparable densities of molybdenite mineralized fractures, veinlets and disseminations together with the regular spacing of relatively wide, richly mineralized steep shear-veins through the deposit. Such material at Adanac has an average grade in excess of 0.25% MoS_2, which at present metal prices is profitable openpit ore. If a concentration of 20-30 million tons of such material occurs in the Trapper Lake deposits, and if the large tonnage of exposed lower grade mineralized rock that comprises the remainder of the deposits is of high enough grade to sustain a major openpit operation, the Trapper Lake molybdenite deposits would probably be profitable to exploit under existing conditions. As a result of the examination of the Trapper Lake exposures, together with the results of his sampling of specific types of mineralized rock, the writer is of the opinion that there is a reasonable likelihood of the Trapper Lake deposits containing at least 20-30 million tons of relatively high grade molybdenum (copper?) ore together with tonnages of profitably minable supplementary ore in excess of 100-200 million tons. This likelihood is sufficiently evidenced to warrant the investigation of the deposit by reconnaissance diamond drilling.

The following discussion describes the exploration program deemed by the writer to be a minimal one necessary to determine the general worth of the Trapper Lake property and to determine if additional, comprehensive exploration of the deposit would be warranted. The primary purpose of the initial exploration will be to determine the grade of the exposed mineral deposits together with their general extent, at depth and laterally, by means of diamond drilling. Other investigations that can be carried on simultaneously with the drilling are considered to be supplementary but the results conceivably could influence the overall assessment.

RECOMMENDED EXPLORATION PROGRAM

An extensive diamond drill exploration program is required for the proper assessment of the Trapper Lake property but such a program would cost in excess of $500,000 if done in one season; therefore, the proposed program has been divided into two stages, each to be done in successive seasons, with the results of the first stage to act as a guide for the second.

The first stage should include mapping, prospecting, geochemical soil surveying and some diamond drilling. The second stage would consist entirely of diamond drilling and be designed to provide a preliminary assessment of the continuity and grade of each of the known major sulphide occurrences.

STAGE 1

MAPPING: It is recommended that areas of the West, Central and East zones be mapped on 200 scale, with particular attention paid to the following features:

1/ Distribution and type of sulphide mineralization
2/ Faults, fractures, joints and veins.
3/ Petrology and hydrothermal alteration.
4/ Outcrop boundaries and distribution of sulphide bearing boulders in overburden.

This mapping will provide guidance for subsequent drill exploration of the main molybdenite - (chalcopyrite) zones.

Also, as much of the surrounding property should be geologically mapped on 400 scale as possible and all of the property should be prospected.

As a base for the above mapping both 200 and 400 scale contour maps have been prepared from existing government aerial photos.

GEOCHEMICAL SURVEY: The large area of grassland in the bottom of the main valley north of the South Zone could conceal mineral deposits similar to those that are exposed. The boulder fill in this valley, near the moraine, (Fig. 70-6) is profuse with boulders containing a wide variety of types and quantities of molybdenite mineralization and it is possible that these boulders originated from bedrock now covered by the grassland. As a preliminary exploration of this possibility it is proposed that the area, shown in Fig. 70-6, be soil sampled for molybdenum and copper on a 100 ft. grid spacing. This will result in a total of about 500 samples.

Experience with similar occurrences elsewhere in British Columbia indicates that the geochemical reflection of a molybdenite deposit in bedrock beneath about 50 feet, or less, of glacial ablation till or outwash will appear as a relatively uniform, compact anomaly. In contrast, the geochemical reflection of mineralized boulders in the overburden will appear as disconnected anomalous patches and/or streaks, generally strung out in elongate bands from the source area. By taking closely-spaced soil samples it should be possible in this type of deposit to detect the reflection of a buried orebody even in the presence of mineralized material in the overburden.

DIAMOND DRILLING: The first stage of the diamond drill exploration of the molybdenum deposit of Stikine Resources should be done by one drill after about a month of mapping has been completed. This limited time in the first season means that only about 5000 feet of drilling can be accomplished in Stage 1.

The Stage 1 drilling should consist of ten holes at an average depth of 500 feet per hole. It is tentatively suggested, pending the results of the mapping that will precede the drilling, that four holes should be drilled in the West Zone, three in the Central Zone, two in the East Zone, and at least one between the West and Central zones. However, it is recommended that following the drilling of the first three or four holes on the West Zone the subsequent drill plan be reviewed for possible redirection.

The complete drill exploration program recommended for this property, most of which would be done in Stage 2, is described in detail herewith:

The drill targets in order of importance are:

1. North end of West Zone.
2. North end of Central Zone.
3. Between the West and Central zones.
4. East Zone.

and possibly 5. South Zone.

Because the majority of the richest molybdenite veins strike east-west and dip vertically all drill holes should be on a north bearing and dip at minus 55°. For this preliminary stage the writer recommends that the holes be drilled in north-south lines in order to provide continuous sampling across the apparent widths of the West, Central and East zones. An arbitrary depth of 500 feet is recommended for most of the holes, with selected holes going to 1500 feet for ultimate depth determinations.

The recommended general lay-out of the drill holes is shown in Fig. 70-6 of this report. The holes on the Central and West zones are spaced, in line, 300 feet apart so that the bottom of each hole will lie approximately beneath the collar of the next hole in the line. The four holes in the line in the centre of the valley are spaced 300 feet apart and the two flanking holes are approximately 300 feet away The locations of the four holes on the East Zone must await more detailed examination of that exposure. The six holes recommended for the valley floor between the Central and West zones are designated for depths of 700 ft. each in order to allow for the unknown depths of overburden. These holes are laid out in one north-south line in the centre of the valley together with two single flanking holes.

Because of the difficulty of attaining complete recovery of molybdenite in core drilling it is strongly advised that large diameter wireline core be used initially, specifically NQ size, (1 7/8" core), with mud; if results are satisfactory then experimentation can be tried with reduced core size or without mud.

The total recommended drill footage is:

West Zone:	8 holes @	500 ft.		
	1 hole @	1500 ft.	=	5500 ft.
Central Zone:	6 holes @	500 ft.		
	1 hole @	1500 ft.	=	4500 ft.
Valley bottom:	6 holes @	700 ft.	=	4200 ft.
East Zone:	4 holes @	500 ft.	=	2000 ft.
		TOTAL:		16200 ft.

With an allowance of 800 feet for possible drilling of the South Zone this would bring the total to 17,000 feet. To accomplish this in one season (July- Sept.) no fewer than three drill machines would be required and, depending on conditions encountered, as many as five may be necessary toward the final half of the season. This assumes that the camp can be established and equipment to set on the property by July 1. Because such a schedule is very tight it is proposed that about 5000 feet be done in a first season as Stage 1 and the remainder in the following season as Stage 2.

Core will need to be logged, split and sent for assay as quickly as reasonably possible in order to provide quidance for possible changes in hole location and depths.

The above program is laid out with the specific purpose of testing each of the areas of known mineralization thoroughly enough to determine at least in general if any one of them is or is not of sufficient grade to comprise ore. Since it is possible that any one area may be of ore grade and the others may only be marginal it is necessary to sample them all in order to permit assessment of the whole.

The foregoing exploration program will have to be air supported and will therefore be very costly; however, if the results of the first year's work are positive and the continued exploration of the property is becoming evident as necessary then an effort should be made to construct an airstrip near Trapper Lake by the end of the first season. Also, provision should be made to leave the drill on the property over the winter and have it ready for an early start in the following season.

Consideration should be given to flying fuel directly to the area of the drill sites in the late winter prior to the second season. At such time the aircraft could land on the snow on skis.

STAGE 2:

The work to be done in Stage 2 will consist entirely of the diamond drilling described in the above program less that completed in Stage 1. It is stressed that Stage 2 is not contingent on the results of Stage 1 but can be guided by them.

COST ESTIMATE

Because the Trapper Lake property is presently remote and accessible only by air the cost of the above-recommended drill program will be very high. Current total unit costs for large drill programs of other properties in the same area are about $25 per foot, for operations supplied by airstrips at or near the properties. By extrapolation, the Stage 1 5000 feet recommended for Trapper Lake is estimated to cost approximately $40 per foot, for a total property operating cost of $200,000.

An estimate of the costs of the proposed staged program is as follows:

Stage 1:

Diamond drilling (5000 ft. NQ @ $12/ft.)	$60,000.
Soil sampling and analysis	$ 2,000.
Geological mapping, core splitting, logging etc.	$ 8,000.
Helicopter (Drill moves etc.)	$10,000.
Camp and Equipment	$20,000.
Travel and communications	$10,000.
Mobilization, servicing and demobilization (Fixed wing)	$20,000.
Field supervision and expediting	$ 7,000.
Administration, overhead and consulting	$30,000.
Contingencies (10%)	$18,000.
TOTAL	$200,000.

Stage 2:

The footage to be drilled in Stage 2 would be approximately 12,000 feet, which constitutes a major drill program. If such a program is to be supported by fixed wing to Trapper Lake and helicopter from there to the property the cost will be higher than existing properties serviced by landing strips or road. By the same token if Stage 2 is to be carried out consideration should then be given to walk in a bulldozer to Trapper Lake and build a landing strip.

In any case, the total cost of Stage 2 is estimated to be in the order of $400,000 - 500,000, depending on the course decided for transportation. A more exact estimate can be made following Stage 1.

The above cost is a high one for the initial investigation of a property; this is primarily due to the fact that with present transportation facilities, this is a high cost area for exploration. However, the targets are large and if they prove to be of ore grade such an expenditure will have been worthwhile. From the exposures available it is reasonable to suggest that if their grade is high enough, the Trapper Lake deposits have the potential of being major porphyry-type open-pit deposits.

Respectfully submitted,
DOLMAGE CAMPBELL & ASSOCIATES LTD.

Douglas D. Campbell, P. Eng., Ph. D.

Vancouver, Canada.

DOLMAGE CAMPBELL & ASSOCIATES LTD.
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1000 GUINNESS TOWER
VANCOUVER 1, B.C.

CERTIFICATE

I, Douglas D. Campbell, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.

2. I am a graduate of the University of British Columbia, (B.A. Sc., Geological Engineer, 1946), and of the California Institute of Technology, (Ph. D., Economic Geology and Geophysics, 1955.)

3. I am a registered Professional Engineer of the Province of British Columbia and of the Yukon Territory.

4. From 1946 until 1957 I was engaged in mining and mining exploration in Canada and the United States as geologist for a number of companies before beginning private practice as a consulting geological engineer.

5. I have personally examined the Karen Group of claims owned by Stikine Resources Ltd. near Trapper Lake, B.C., and have examined all public and available private data on the area of the property.

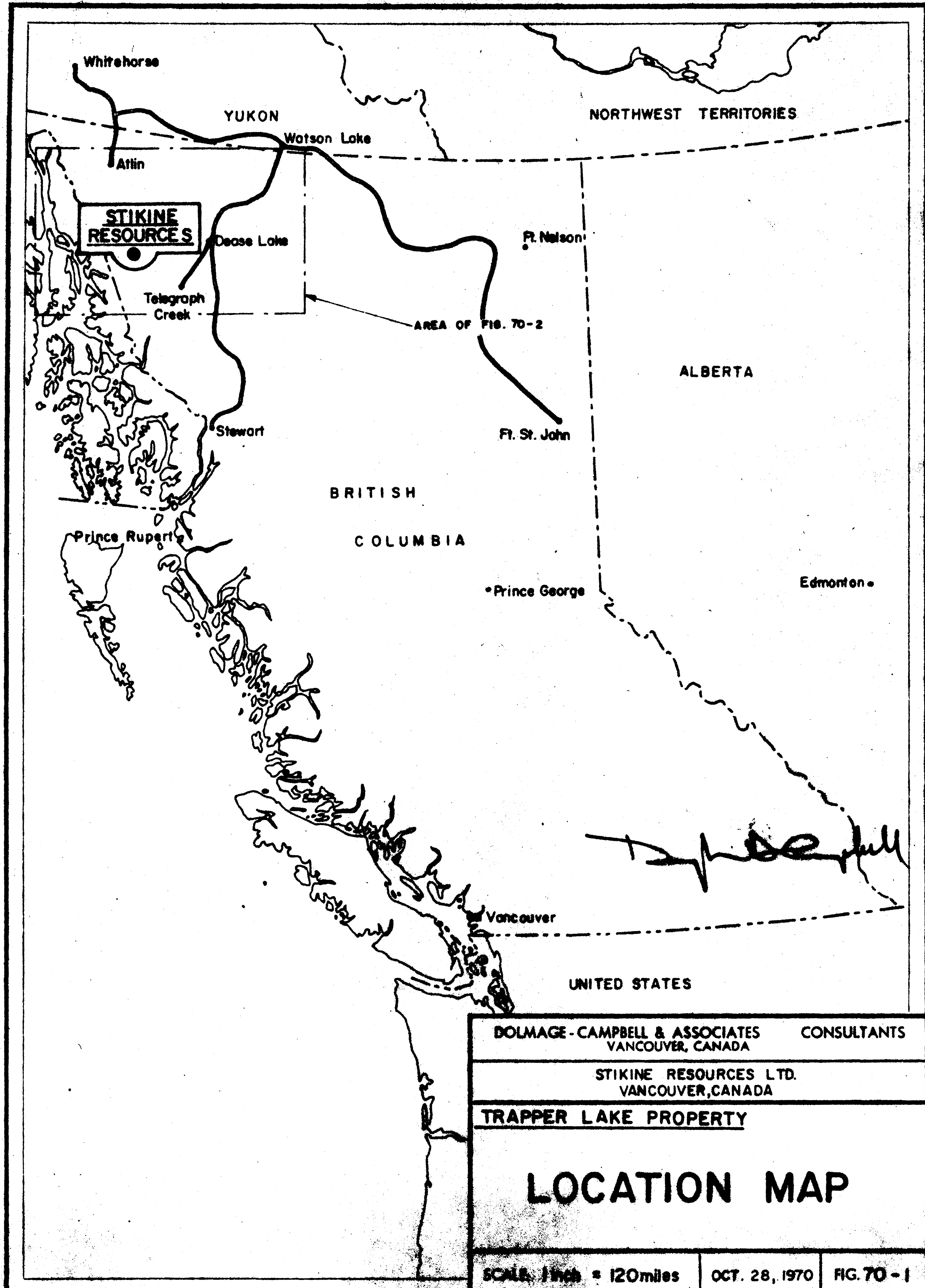
6. I have not received, nor do I expect to receive, any interest directly or indirectly, in the properties or securities of Stikine Resources Ltd. or of any associated companies.

Respectfully submitted,

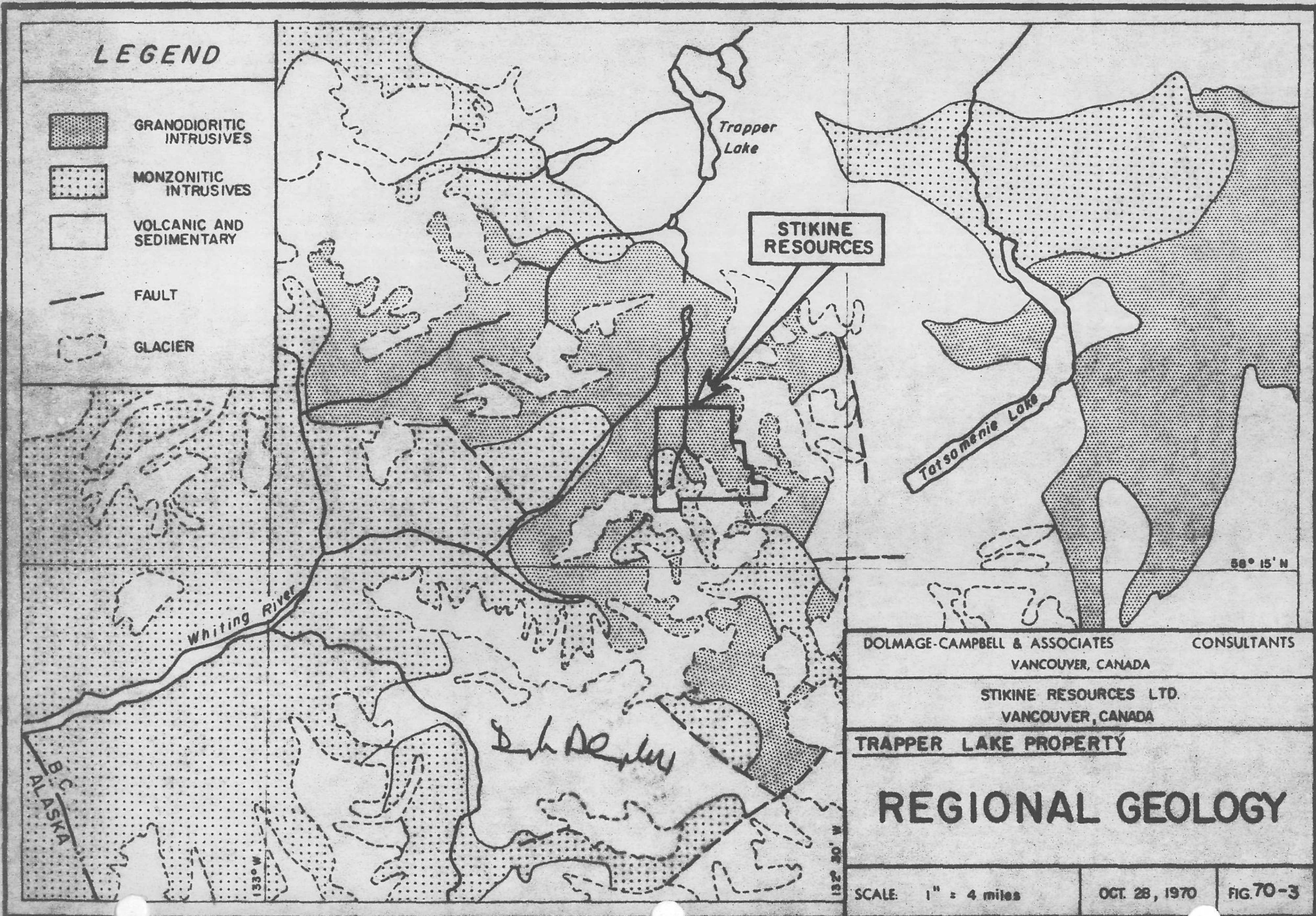
Douglas D. Campbell, P. Eng., Ph.D.

June 10, 1971.

Vancouver, Canada.



DOLMAGE - CAMPBELL & ASSOCIATES VANCOUVER, CANADA		CONSULTANTS
STIKINE RESOURCES LTD. VANCOUVER, CANADA		
TRAPPER LAKE PROPERTY **LOCATION MAP**		
SCALE: 1 inch = 120 miles	OCT. 28, 1970	FIG. 70 - 1



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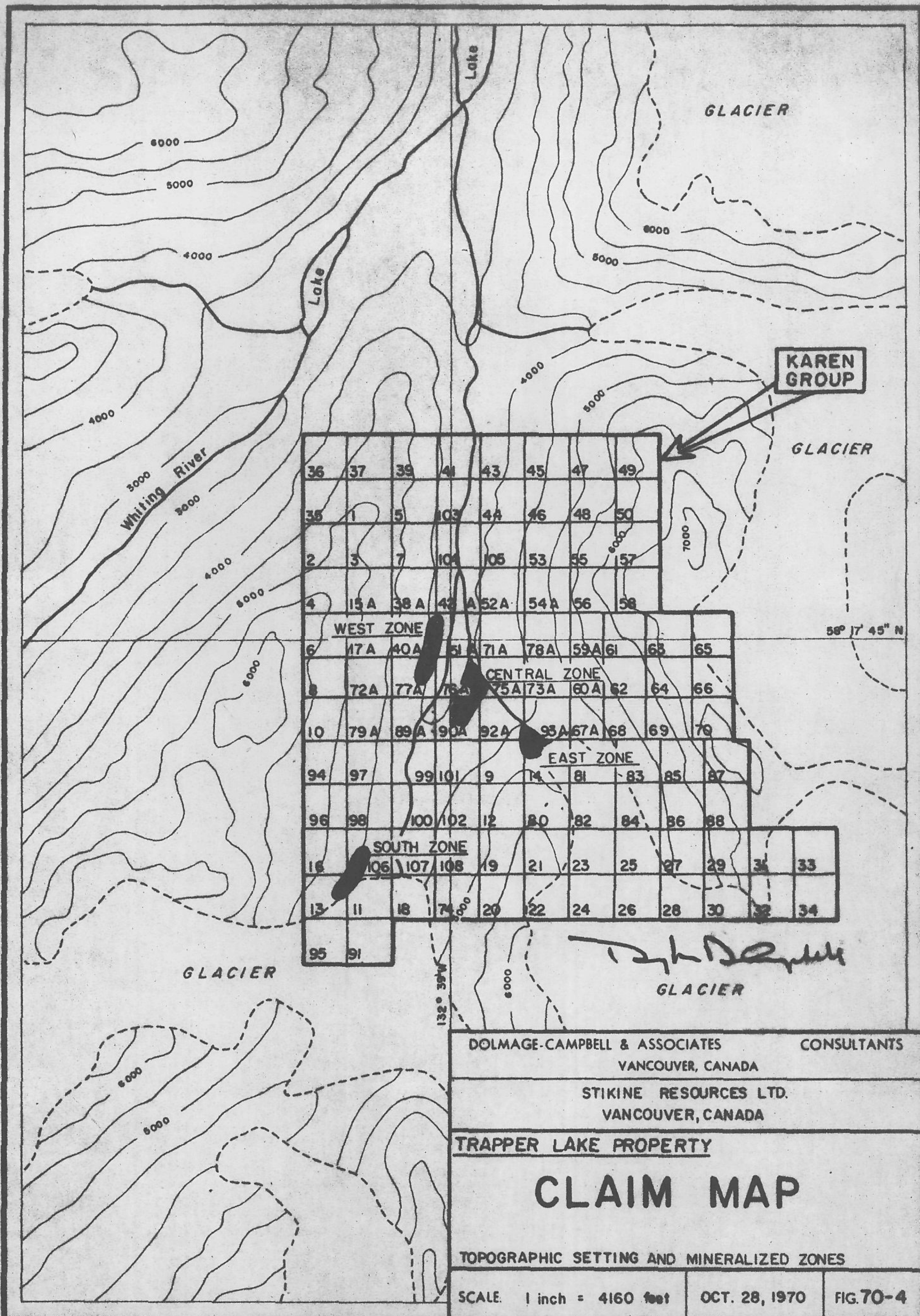
VANCOUVER, CANADA

TRAPPER LAKE PROPERTY

REGIONAL GEOLOGY

SCALE: 1" = 4 miles	OCT. 28, 1970	FIG. 70-3



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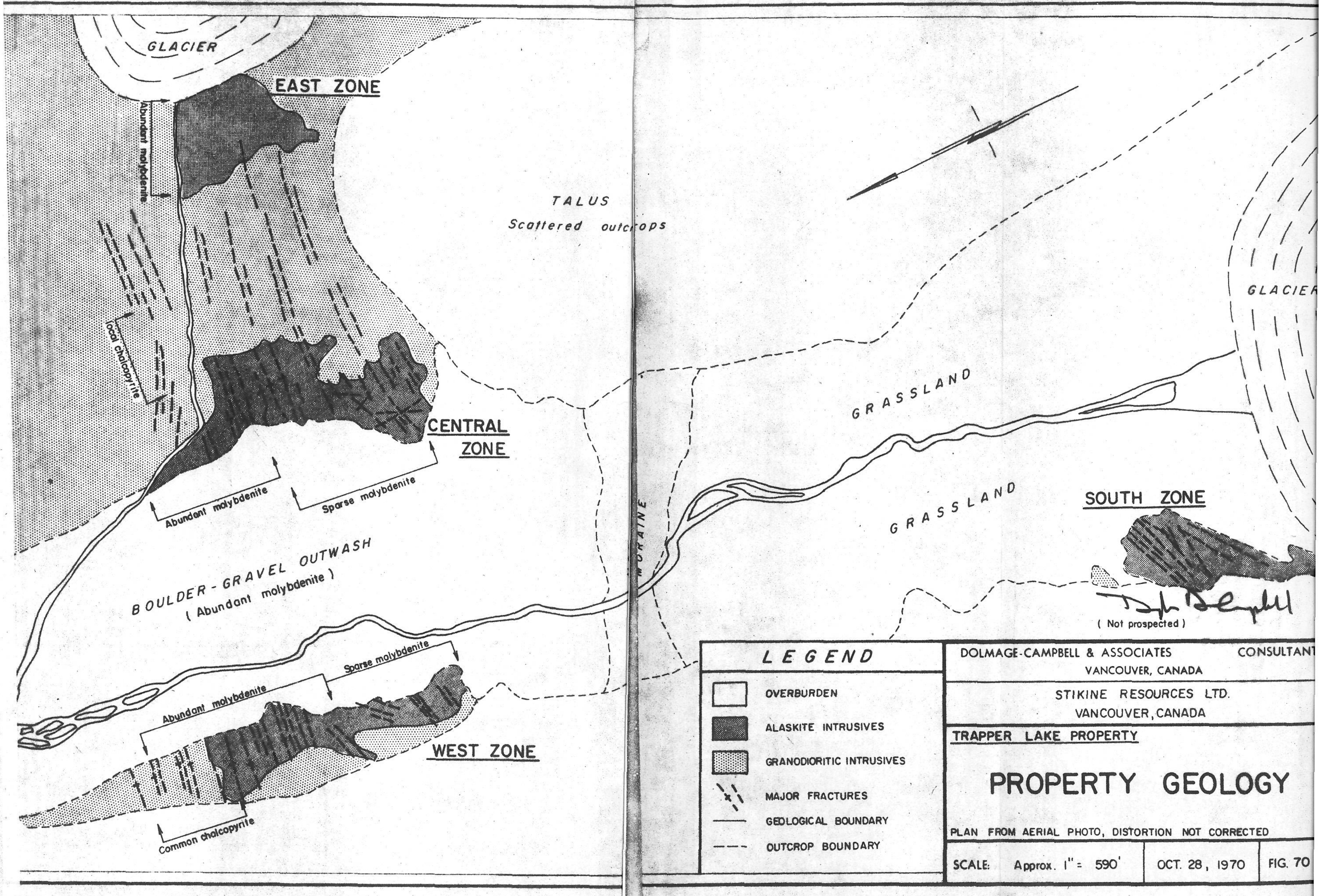
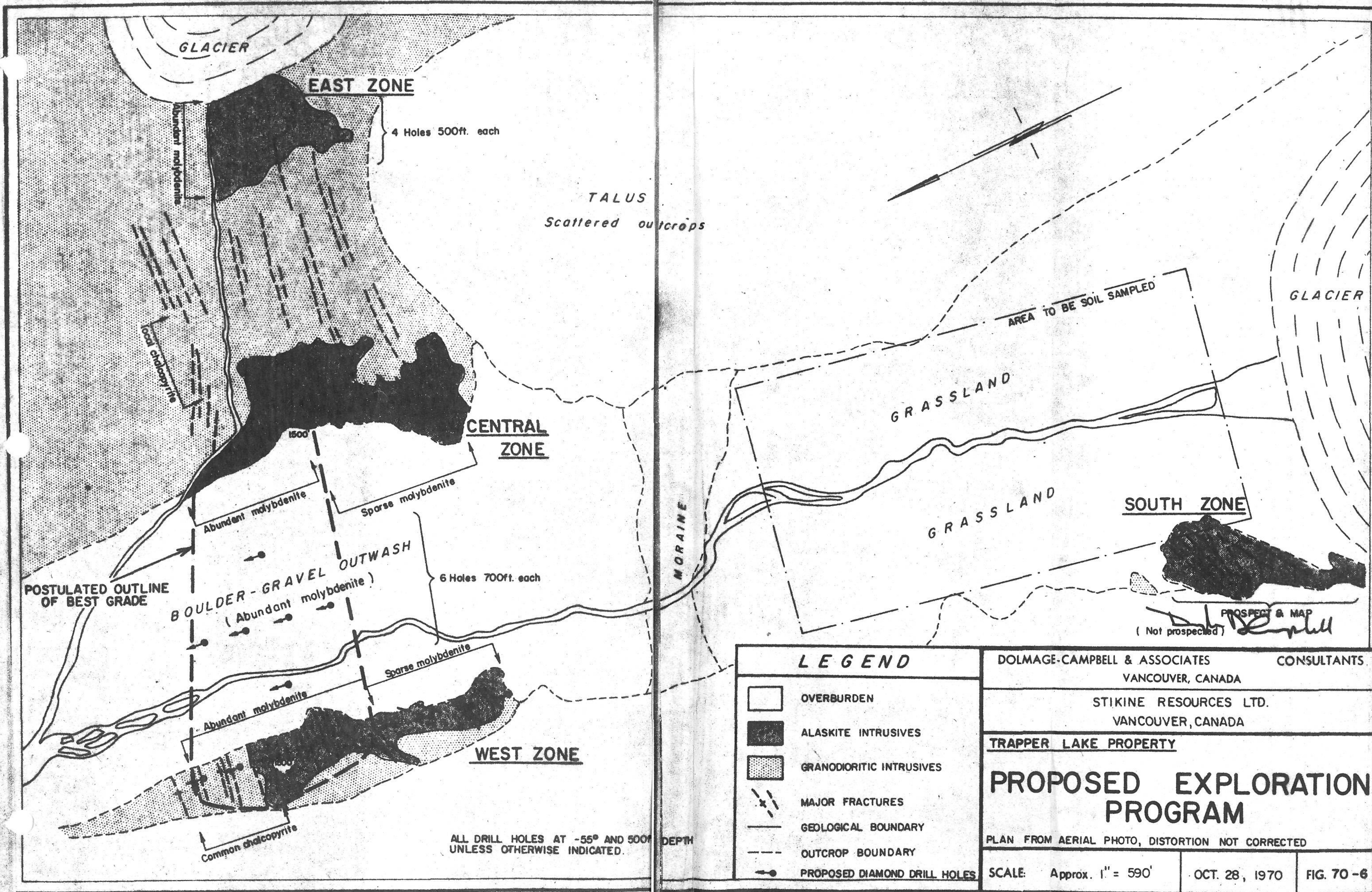
TRAPPER LAKE PROPERTY

CLAIM MAP

TOPOGRAPHIC SETTING AND MINERALIZED ZONES

SCALE: 1 inch = 4160 feet	OCT. 28, 1970	FIG. 70-4


GLACIER
EAST ZONE
Abundant molybdenite
TALUS
Scattered outcrops
local chalcopyrite
CENTRAL ZONE
Abundant molybdenite
Sparse molybdenite
BOULDER - GRAVEL OUTWASH
(Abundant molybdenite)
MORAINE
GRASSLAND
GRASSLAND
GLACIER
SOUTH ZONE
(Not prospected)
Sparse molybdenite
Abundant molybdenite
WEST ZONE
Common chalcopyrite
LEGEND
OVERBURDEN
ALASKITE INTRUSIVES
GRANODIORITIC INTRUSIVES
MAJOR FRACTURES
GEOLOGICAL BOUNDARY
OUTCROP BOUNDARY
DOLMAGE-CAMPBELL & ASSOCIATES CONSULTANT
VANCOUVER, CANADA
STIKINE RESOURCES LTD.
VANCOUVER, CANADA
TRAPPER LAKE PROPERTY
PROPERTY GEOLOGY
PLAN FROM AERIAL PHOTO, DISTORTION NOT CORRECTED
SCALE: Approx. 1" = 590'
OCT. 28, 1970
FIG. 70


GLACIER
EAST ZONE
Abundant molybdenite
4 Holes 500ft. each
TALUS
Scattered outcrops
local chalcopyrite
CENTRAL ZONE
1500'
Sparse molybdenite
Abundant molybdenite
POSTULATED OUTLINE OF BEST GRADE
BOULDER - GRAVEL OUTWASH
(Abundant molybdenite)
6 Holes 700ft. each
Sparse molybdenite
Abundant molybdenite
WEST ZONE
Common chalcopyrite
ALL DRILL HOLES AT -55° AND 500ft DEPTH UNLESS OTHERWISE INDICATED.
MORAINE
AREA TO BE SOIL SAMPLED
GRASSLAND
GRASSLAND
GLACIER
SOUTH ZONE
PROSPECT & MAP
(Not prospected)
LEGEND
OVERBURDEN
ALASKITE INTRUSIVES
GRANODIORITIC INTRUSIVES
MAJOR FRACTURES
GEOLOGICAL BOUNDARY
OUTCROP BOUNDARY
PROPOSED DIAMOND DRILL HOLES
DOLMAGE-CAMPBELL & ASSOCIATES CONSULTANTS
VANCOUVER, CANADA
STIKINE RESOURCES LTD.
VANCOUVER, CANADA
TRAPPER LAKE PROPERTY
PROPOSED EXPLORATION PROGRAM
PLAN FROM AERIAL PHOTO, DISTORTION NOT CORRECTED
SCALE: Approx. 1" = 590'
OCT. 28, 1970
FIG. 70-6