

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**20,485**

LOG NO: 11-28	RD.
ACTION:	
FILE NO:	

**REPORT ON 1990  
DRILLING PROGRAM ON THE  
PINE 1 CLAIM  
FORT STEELE MINING DIVISION,  
BRITISH COLUMBIA  
SEPTEMBER 15 TO OCTOBER 3, 1990**

Claims: PINE 1-7 (2462-2468)  
PINE 8Fr (4825)

Location: 1. 11 Km NW of Cranbrook  
2. NTS: 82G W 1/2  
3. Latitude: 49° 37'N  
Longitude: 115° 50'W

FOR:  
VICTORIA RESOURCE CORPORAION  
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## Summary

The PINE claims comprise 7 contiguous mineral claims and one fractional claim located in the Fort Steele Mining District. The claims are accessible by road from Cranbrook, 17 kilometers south east of the property. The Sullivan Pb-Zn-Ag deposit is 15 kilometers west of the PINE claims.

The property is underlain by the Proterozoic Purcell Supergroup Aldridge and Creston Formations to the north and the Purcell Supergroup Kitchener Formation and Cambrian Eager Formation to the south. The St. Mary Fault separates Aldridge and Creston Formations from the Eager and Kitchener Formations. Cretaceous monzonite intrusions related to the St. Mary's magnetic anomaly cut the sediments. Six zones of potential mineralization have been outlined on the property. The Lake zone which contained anomalous copper-gold soil and rock values with associated IP and mag anomalies related to a monzonite plug was explored during the 1990 program.

Exploration in 1990 consisted of the drilling of 4 NQ diamond drill holes totalling 575.4 meters. The holes intersected Eager Formation black mudstones and limestone and calc-silicate breccia which are intruded by a hornblende monzonite plug. The limestone and calc silicate breccias have not been noted regionally and are thought to prepresent locally derived breccias from an active Cambrian St. Mary fault. Mineralization intersected includes narrow quartz Cu-Pb-Zn-Fe sulphide-magnetite veins, disseminated Fe-Cu sulphides, thin beds of 15-20% Fe sulphides and minor garnet-diopside Fe sulphide skarn. Geochemical values are up to 4,000 ppb gold and 420 ppm over 0.32 meters, 121 ppb gold and 356 ppb copper over 3.2 meters and 2150 ppm copper over 0.1 meters in veins.

The limestone and calc silicate breccias located adjacent to an active Cambrian St. Mary fault represents a significant new geological discovery in the Kimberley region. The Eager Formation mudstone in the Lake zone contains thin Fe sulphide horizons adjacent to beds of fault scarp limestone breccias. This suggests a geological environment amenable to the formation of sedimentary exhalative (Sedex) base metal deposits. The St. Mary and related faults could have acted as conduits for fluids. The limestone/calc silicate breccia also represents a chemically reactive and porous unit which could host contact metasomatic deposits related Cretaceous intrusions.

The Eager Formation in the PINE claim area has good potential to host Sedex and contact metasomatic base and precious metal deposits. A program of geological mapping, prospecting and geochemical sampling with limited diamond drilling is recommended. The extent of this program would depend on the results of exploration on Victoria Resource Corporation's adjacent Mag claims.

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## **Introduction**

This report was prepared at the request of Mr. Rick Barclay of Victoria Resource Corporation. It describes exploration carried out on the PINE claims between September 15 and October 3, 1990. The program comprised part of the phase III program recommended by Kalhert (1989) and consisted of the drilling of 4 NQ diamond drill holes totalling 575.46 meters (1888 feet). The drilling was carried out by F. Boisvenu Diamond Drilling Ltd. under the supervision of T. Garagan of Aurum Geological Consultants Inc.

## **Location, Access and Physiography**

The property is located 14 kilometers SE of Kimberley and 11 kilometers northwest of Cranbrook, southeastern British Columbia. The claims are centered at 115°50' longitude and 49°37'N latitude (Figure 1).

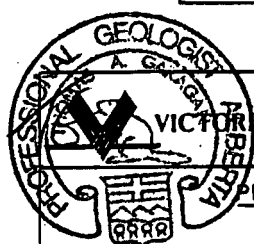
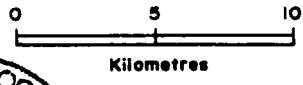
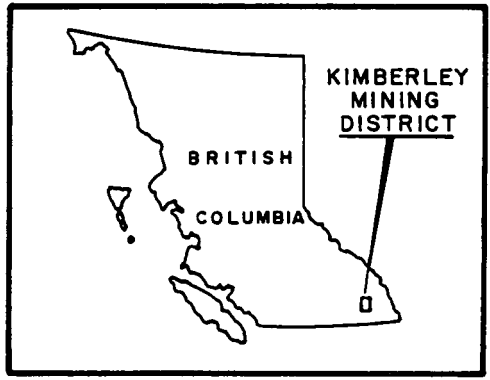
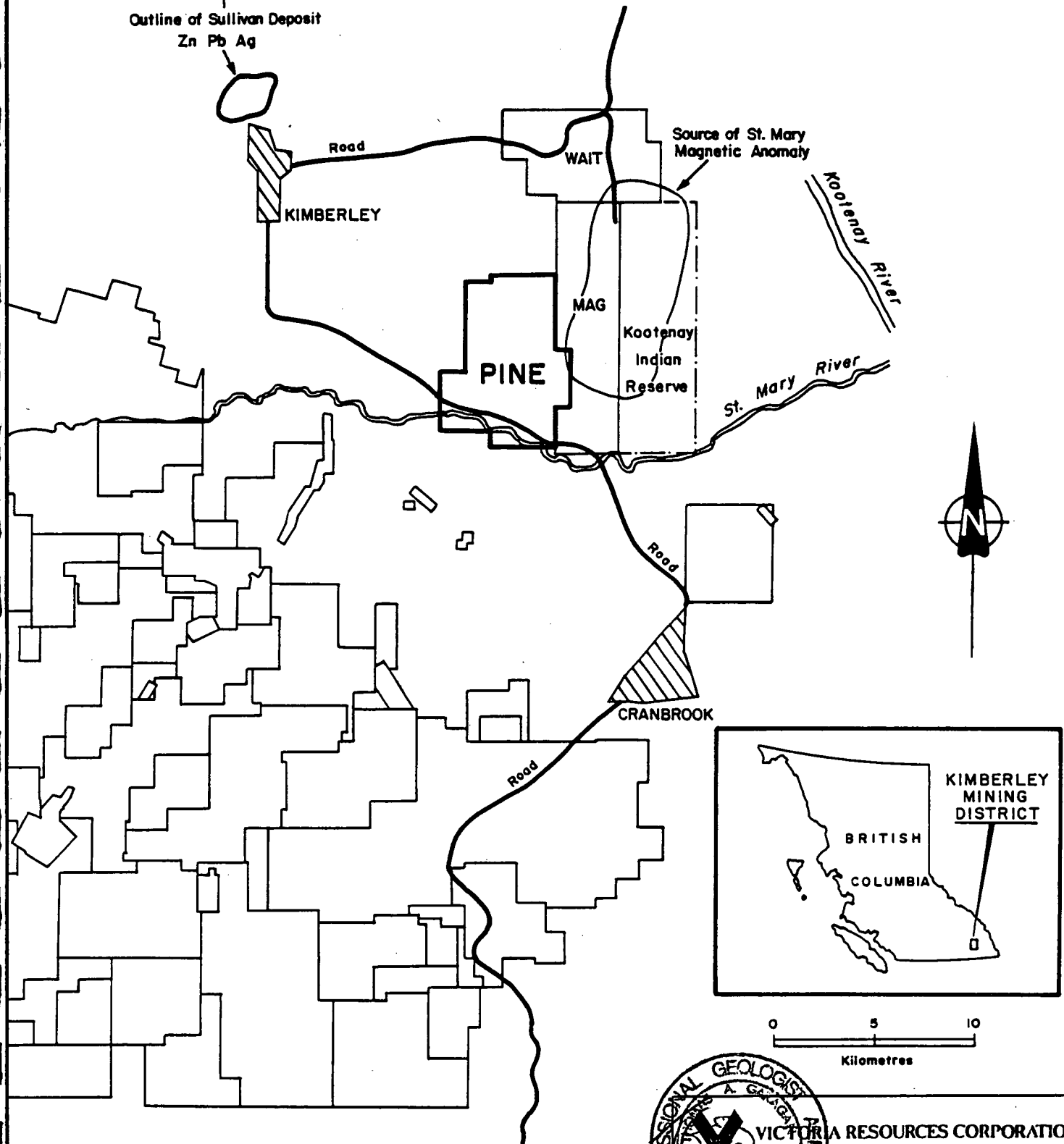
Access to the property is via highway 95A from Kimberley and Cranbrook. The Wycliffe-Maryville road leads from highway 95A at the southern end of the property and continues through the center of the claims. Numerous dirt roads provide access to the north end of the claims.

The PINE claims are located on the west side of the Rocky Mountain Trench, a large northwest trending trench located between the Rocky and Purcell Mountains. The claims are in an area of low relief and are dissected at the south end by the east flowing St. Mary River. Elevations vary between 1000 meters in the PINE 1 claim and 850 meters in the St. Mary River valley. The south half of the property is covered by grasslands and grazing land with several farms and ranches. The north half of the property is covered by pine forest.

## **Claim Status**

The PINE claims consist of 7 contiguous modified grid system claims (PINE 1-7) and 1 fraction (PINE 8Fr) totalling 116 units (Figure 2). The claims are located in NTS 82G/12 W1/2 of the Fort Steele Mining District. The claims are held by Victoria Resource Corporation and are optioned to Auriga Resources Ltd. Auriga can earn 49% by spending \$380,000 by September 30, 1990. The work described in this report represents the last phase of Auriga's earn in.

116° 00' W  
 49° 45' N  
 Outline of Sullivan Deposit  
 Zn Pb Ag

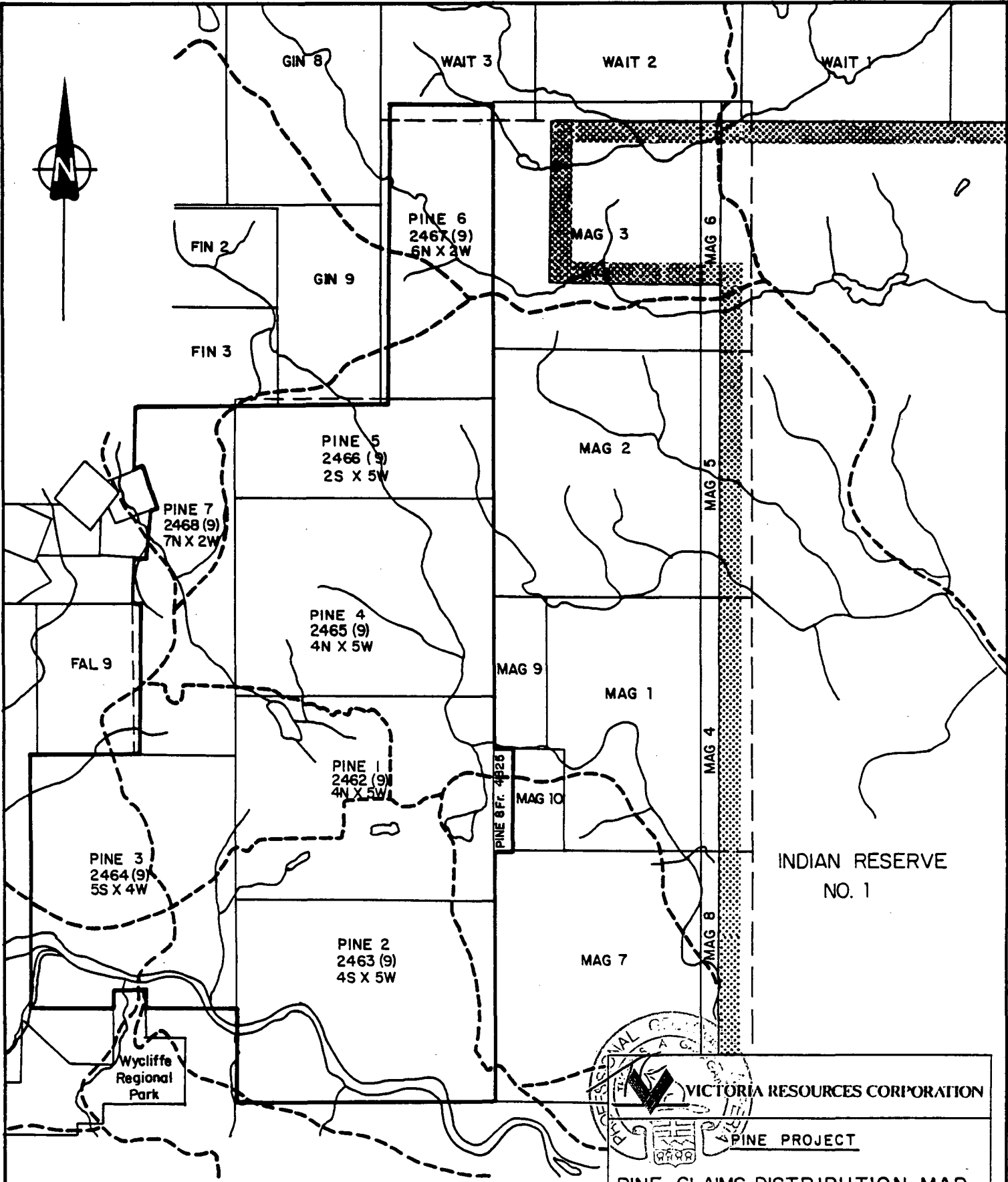


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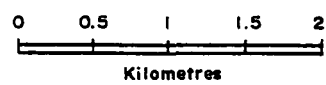
PINE PROJECT

**CLAIMS LOCATION**

DATE: NOV., 1990	PROJECT NO. 9016	FILE NO.	FIGURE : 1
DRAWN BY: T.G.			
REVISED:	SCALE: As shown		



- - - - ROAD  
 ——— CREEK



VICTORIA RESOURCES CORPORATION

PINE PROJECT

PINE CLAIMS DISTRIBUTION MAP

DATE: NOV., 1990	PROJECT NO. 9016	FILE NO.	FIGURE: 2
DRAWN BY: T. Garagan			
REVISED:	SCALE: 1 : 50,000		

The claim data are summarized below.

<u>Claim Name</u>	<u>Units</u>	<u>Record #</u>	<u>Expiry Date</u>
PINE 1	20	2462	Sept 23, 1991
PINE 2	20	2463	Sept 23, 1991
PINE 3	20	2464	Sept 23, 1991
PINE 4	20	2465	Sept 23, 1991
PINE 5	10	2466	Sept 23, 1991
PINE 6	12	2467	Sept 23, 1991
PINE 7	14	2468	Sept 23, 1991
PINE 8Fr	1	4825	Sept 13, 1991

Total Units

### History

Exploration in the area commenced in 1863 with the discovery of placer gold on the Wildhorse River, 20 kilometers east of the PINE claims. Placer gold was discovered on Perry Creek, 11 kilometers southwest of the PINE claims, in 1867. The creeks were mined heavily until approximately 1914. The Sullivan Pb-Zn-Ag deposit, located 15 kilometers west of the PINE claims was discovered in 1892. The Sullivan Mine produced 111.6m tonnes containing 6.8% Pb, 5.9% Zn and 2.4 opt silver from 1909 to 1979. The reserves in 1979 were 49m tonnes at 4.5% Pb, 5.9% Zn and 1.1 opt Ag (Hamilton et al, 1982) and the mine continues to produce today.

Several Cu-Au-Pb-Zn-Ag veins were discovered in this area during the late 1800's and early 1900's. These include the Yankee Girl (1 kilometer west of the PINE claims), the Homestake (located near the Perry Creek Placers) and the Bull River deposit (35 kilometers SE of the PINE claims). According to Kalhert (1988), some production was carried out on the Bull River deposit in the early 1970's.

In recent times, the northern half of the PINE claims were staked by Esso Resources. Exploration by Esso consisted of wide spaced gravity and Magnetic surveys (Campbell, 1990). A Turan Em and magnetometer survey was carried out by Cominco on the Lake grid area in 1969-70.

The PINE 1-7 claims were acquired by Victoria Resource Corporation in 1985. Exploration from 1986-1989 consisted of IP, Resistivity and Mag surveys, minor soil and rock geochemistry and minor mapping over the South, North, Lake, Lake West and Fisher grids. Minor mapping and sampling was done on the Lone Pine and Cherry Creek prospects in 1989. An option agreement was signed with Auriga Resources Limited in June 1989.



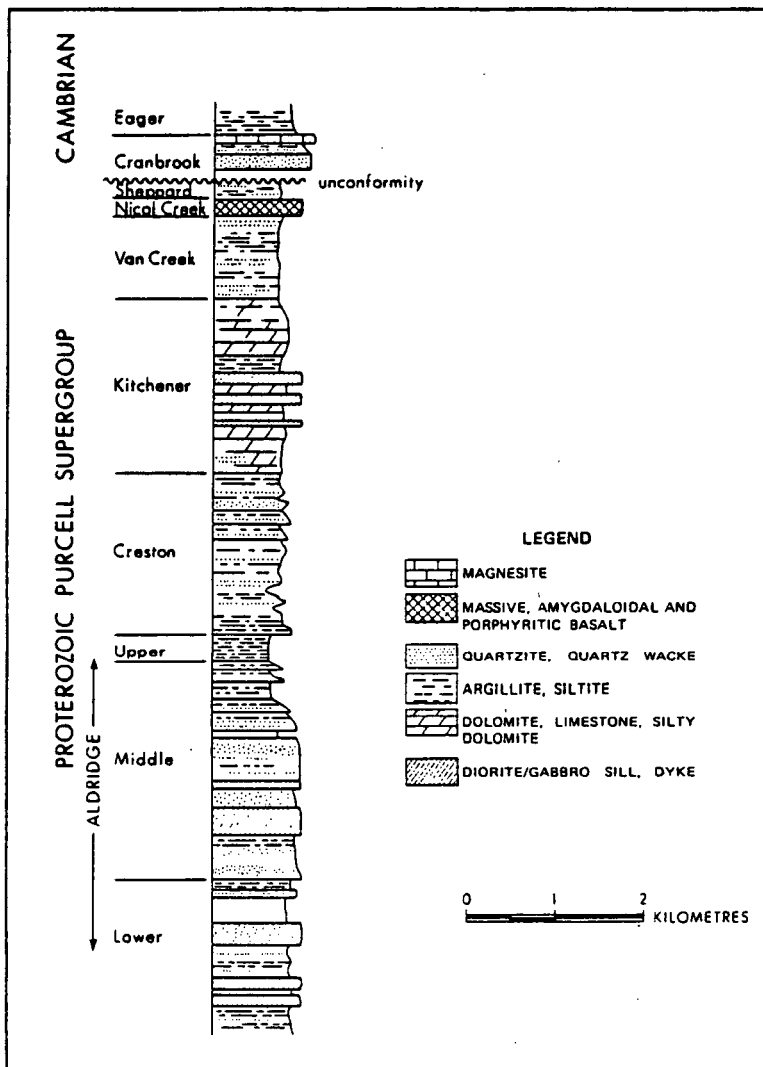
The program described in this report was carried out on the Lake Grid and Lake Grid West and is part of the program recommended by Kahlert (1988, 1989).

## Regional Geology

The PINE claims are underlain by Proterozoic and Cambrian sediments which were deposited on the western edge of the ancestral North American Craton. The property is located on the eastern edge of the Purcell Anticlinorium, a broad, gently, north plunging fold structure developed in the Proterozoic (Hoy, 1983). The Proterozoic units are cut by a series of north trending normal and thrust faults, some of which are remobilized Proterozoic structures. The Proterozoic and Cambrian units are cut by high level Cretaceous granitoid intrusives (Figure 3a).

The Proterozoic units in the area are represented by the Purcell Supergroup, a >10,000 meter thick series of shallow water, shelf, tidal flat and deltaic deposits and deeper water turbidite deposits (Hoy, 1982, 1983). Basalt and andesite flows occur near the top of the Purcell Supergroup. The local stratigraphy is summarized in Figure 3b.

The lowermost unit within the Purcell Supergroup consists of the Aldridge Formation, which is divided into a Lower, Middle and Upper unit. The Lower unit consists of thin to medium bedded rusty weathering argillite, siltstone and quartzite with some intraformational conglomerate. The Middle Aldridge consists of medium to thick bedded quartz wacke and siltstone. These grade upward to thin bedded and laminated mudstones and siltstones of the Upper Aldridge. The overlying Creston Formation consists of shallow water quartzite, siltstone and argillite. The Kitchener Formation overlies the Creston Formation and consists of a lower thin bedded, green and tan dolomitic siltstone member and an upper dark grey carbonaceous silty dolomite member (Hoy, pers comm, in Press). The Van Creek Formation is an olive green and tan, shale and siltstone. The overlying Nicol Creek Formation consists of massive locally amygdaloidal basalts, and some andesite flows with intercalated tuffs, siltstone and quartzite. The top of the Purcell Supergroup consists of the Sheppard Formation which is comprised of light green and tan, finely laminated siltstone and argillite. The Purcell Supergroup Moyie sills consist of diorite and gabbro sills and dykes which cross cut the Aldridge and Kitchener Formations.



FROM HOY, 1983 pg. 12.

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PINE PROJECT

STRATIGRAPHIC SUCCESSION  
in the KIMBERLEY AREA

DATE: OCT., 1990	PROJECT NO. 9016	FILE NO.	FIGURE: 3b
DRAWN BY: HOY	REVISI		
REVISI	SCALE: AS SHOWN		

The lower most Cambrian unit consists of quartzite, siltstone and magnesite of the Cranbrook Formation. The Cranbrook Formation unconformably overlies the Purcell Supergroup. The upper most Cambrian unit in the area consists of dark to light grey (and black) silty argillite and mudstone of the Eager Formation.

Several high level porphyritic quartz monzonite and monzonite dykes and plugs, cross cut all units in the area. Several of these plugs have been dated between 94 and 122 ma (Hoy and Heyden, 1988). A large egg shaped magnetic anomaly is located immediately east of the PINE claims and high level plugs above this anomaly have been dated by Hoy and Heyden using U-Pb methods at 94 ma. The magnetic anomaly has been interpreted to represent a buried intrusion. Kahlert (1988) believes this intrusion to be gabbro to carbonatite in composition.

The sediments are cut by several northeast and east trending faults. The most prominent of these are the Kimberley, St. Mary-Boulder Creek and the Moyie-Dibble Creek faults. Movement on these faults have been noted in the Proterozoic and continues to early Cretaceous time. The Moyie and St. Mary fault systems coincide with the boundary of a geophysically interpreted southwest-trending PreCambrian rift which extends beneath the Rocky Mountains (Kanasewich et al, 1968).

North and northeasterly trending normal faults cross cut some of the earlier faults and folds. Folding consists of broad open northwest trending and plunging open folds. The folds are tight and overturned adjacent to some major structures.

The Rocky Mountain Rift consists of a northwest trending major structure found between the Foreland Fold and Thrust Belt and the Omineca terrain. It is located east of the PINE claims and appears to have had little local effects.

The Sullivan Pb-Zn stratabound deposit is situated at the top of Lower Aldridge Formation and is adjacent to the Kimberley fault. The mineralization is believed to have formed on the sea floor adjacent to a Proterozoic growth fault. Several copper and gold quartz veins and replacement zones are located in the Purcell Supergroup throughout this area. Only the Bull River deposits (east of the Rocky Mountain Trench) have seen any production.

## Property Geology

The PINE claims can be geologically divided into a north and south half by the St. Mary Fault (Figure 3a). The north half of the property is underlain by northeast trending, east dipping Creston and Aldridge Formations. No work was carried out in this area in 1990 and is therefore not discussed further. More detailed descriptions are given by Kahlert (1988).

The south half of the PINE claims can be again divided into a north and south half. The northern area is underlain by Eager Formation which is in fault contact (St. Mary Fault) with Aldridge and Creston Formation to the north and Kitchener Formation to the south (Hoy, 1984). The Kitchener Formation consists of predominantly green mudstone with interlayered silty dolomite and minor tan mudstone to graywacke. It is cut by gabbroic sills and dykes. The units are folded and trend  $040^{\circ}$  to  $150^{\circ}$  and dip from  $55^{\circ}\text{E}$  to  $80^{\circ}\text{NW}$ .

All exploration in 1990 was carried out within the Eager Formation on the east side of the PINE claims (Lake zone). The exposures of Eager Formation within this area consist of predominantly mudstone, argillite and minor quartz arenite and calc silicate. The units trend  $060^{\circ}$  to  $080^{\circ}$  and dip  $45$  to  $70^{\circ}\text{NW}$  (usually  $60-70^{\circ}$ ). Drilling in the area and mapping on the MAG claims have indicated that a large part of the Eager Formation (approx. 30%) in the Lake Zone and part of the MAG claims is comprised of limestone/calc silicate breccias. The unit is matrix supported with subangular clasts of quartz arenite (Aldridge), hornfelsed mudstone, limestone, skarn and quartz. The clasts are poorly sorted and vary in size from <1 centimeter to 1 meter. The contacts with the mudstone are usually sharp and scoured. Trygve Hoy (per comm 1990) had not seen this unit during mapping and was unsure which formation it belonged to. He thought that the large thickness of associated dark mudstone could only represent Eager Formation. The best interpretation is the breccia represents a slope deposit proximal to an active Proterozoic and Cambrian St. Mary Fault.

Cretaceous quartz monzonite and monzonite plugs intrude the Eager Formation in the Lake and Fisher prospects and intrude the Kitchener Formation near the South prospect. The intrusions contain large K-feldspar and plagioclase phenocrysts and probably represent high level plugs related to the intrusion associated with the St. Mary's magnetic anomaly.

Six zones of potential mineralization have been outlined by Kahlert (1989) on the PINE claims. These are the Cherry Creek, North, Lone Pine, Fisher, Lake and South prospects. The Cherry Creek, North, Lone Pine, Fisher and South prospects have no known

mineralization and were summarized by Kahlert. No exploration was carried out on these prospects in 1990. The Lake prospect contains minor copper-gold and copper-lead-zinc bearing quartz calcite veins associated with hornblende monzonite and garnet-diopside skarn development. Drilling in 1990 concentrated on the Lake prospect and it is described in detail below.

## **Exploration**

### Introduction

Exploration on the PINE claims was carried out between September 15 and October 3, 1990. It consisted of the drilling of 4 NQ diamond drill holes totalling 575.46 meters (1888 feet). Three holes were drilled on the Lake grid and one hole was drilled on the Lake West grid. Some geological mapping was carried out and one rock sample was collected. The hole locations are plotted in Figure 4 and the cross sections are plotted in Figures 5 to 7. The drill logs are in Appendix A and summary logs and results are in Table 1. The core is stored in a core shack at the south end of a road adjacent to Wait Creek on the Wait 2 claim.

A total of 68 samples of mineralized, altered and background drill core were spilt (core splitter) and sent to Chemex Labs in N. Vancouver for gold, copper, lead, zinc, silver, arsenic and tungstone analyses. One surface sample was also collected. Gold analyses were by standard 30 gram fire assay techniques with an atomic absorption finish. Copper, lead, zinc and silver analyses were by atomic absorption methods using an aqua regia digestion. Tungsten was analysed with colourmetric methods and arsenic was done using Aqua regia hydride and atomic absorption. The gold-copper results are plotted in the cross sections and the results are listed in the drill logs and on the lab sheets in Appendix A.

### Drilling

The holes drilled in the Lake and Lake West area intersected Eager Formation sediments, intruded by monzonite to syenite dykes and a plug. The sediments strike NE and dip steeply to the northwest. Up indicators, including graded bedding and scour marks suggest that sedimentary tops are to the east.

The Eager Formation is comprised of mudstone and calc silicate and limestone (marble) breccias. Quartz wacke, silty arenite, and argillite are interlayered with the mudstones. The mudstones and wackes dominate in the northwest and the limestone and calc silicate breccia are dominant in the southeast part of

the area drilled. The mudstone, wacke, arenite and argillaceous mudstones are black to grey brown, massive to locally well bedded. The mudstones dominate within this unit and are usually massive. Interlayered one to four centimeter wide pyrite and pyrrhotite bands (2 to 15% sulphides) were intersected in P90-2 and P90-4.

The limestone and calc silicate breccia (altered limestone breccias) were intersected in the lower part of P90-1 and P90-2 and in part of P90-4. The unit is matrix dominated. The fragments are highly variable in size (up to 1 meter) and consist of subangular to subrounded clasts of siltstone/mudstone (usually hornfelsed in breccia), limestone, calc silicate, pyrite and quartz arenite (Aldridge and Creston Formation). The fragments often have a narrow alteration rim (?) and calc silicate clasts usually contain a rim of garnets. The matrix is fine grained, clastic and predominantly calcareous. The fragments are often flattened parallel to bedding. Contacts with mudstones are locally scoured.

The northeastern part of the area drilled is intruded by a megacrystic, K feldspar porphyritic monzonite to syenite plug. Several dykes and sills intrude the sediments south of the plug. The aerial extent of the plug is unknown, but it appears to be elongate in a northeast direction. The mudstones and wackes are hornfelsed and the limestone breccias are locally calc silicate altered (quartz-diopside-epidote + garnet) and skarnified (garnet and diopside) in the area as a result of the emplacement of the intrusion.

Mineralization intersected in the holes includes disseminated pyrite and pyrrhotite, quartz-pyrite-pyrrhotite-chalcopryrite-magnetite and quartz-pyrite-pyrrhotite-galena-sphalerite-calcite-chalcopryrite veins. Some thin beds of pyrite and pyrrhotite was intersected in the mudstones.

Drill hole P90-1 was drilled to test a deep chargeability low and resistivity low and a shallow resistivity high. Surface rock samples contained anomalous Au and Cu results (see Figure 6, Kahlert, 1988). The hole intersected hornfelsed quartz wacke, siltstone and mudstone with a biotite quartz monzonite dyke near the top of the hole. Matrix dominated limestone and calc silicate breccia predominates from 49.82 meters to the bottom of the hole at 154.3 meters. Bedding core axis angles vary between 15 to 60° near the top of the hole (30° average) and are between 10 and 20° deeper in the hole. Chloritized breccia and gouge zones with associated pyrite veining was intersected from 90.7 to 99.81 meters and from 145 to 152.35 meters. The breccias probably represent fault zones and have a core axis angle of 20 to 30°. The geophysical anomalies are likely related to limestone and calc silicate breccias.

**Table 1  
Summary Logs**

<b>Hole P90-1</b>	<b>Location:</b> Lake Grid, 2+50S/0+27W	<b>Azimuth:</b> 270°	<b>Dip:</b> 45°
0-13.22m	casing		
13.22-19.14	hornfelsed quartzwacke & siltstone, some qtz-py stockwork		
19.14-22.36	biotite quartz monzonite		
22.36-38.15	argillaceous siltstone & wacke, minor calc silicate		
38.15-49.82	interlayered calc silicate, limestone, argillite & wacke		
49.82-54.35	limestone & calc-silicate breccia		
54.35-60.86	greywacke		
60.86-70.89	calc silicate & limestone breccia, some py-cp-qtz-gnt veins		
70.89-77.13	biotite hornfelsed greywacke		
77.13-90.7	interlayered calc silicate breccia & greywacke		
90.7-99.81	brecciated & chlorite altered calc silicate breccia & fault gouge		
99.81-109.68	calc silicate & limestone breccia, minor greywacke & hornfels, marble, skarn, minor qtz-cp-py veining throughout (notably 100.84-101.16)		
109.68-113.12	calc silicate breccia & garnet diopside skarn, minor pyrrhotite & pyrite		
113.12-145	as in 99.81-109.68, minor py-po-gnt-mag veins		
145-152.35	as in 90.7-99.81		
152.35-154.23	limestone & calc silicate breccia		
EOH			
<b>Hole P90-2</b>	<b>Location:</b> 1+50S/1+40W	<b>Azimuth:</b> 090°	<b>Dip:</b> 47°
0-3.05m	casing		
3.05-5.44	hornfelsed wacke		
5.44-6.86	hornblende-biotite magacrystic monzonite to syenite		
6.86-10.17	silty argillite to wacke		
10.17-13.11	chloritized breccia & fault gouge, qtz-py-po-cp fractures		
13.11-14.81	mudstone with 5 cm monzonite dyke		
14.81-15.85	felsite dyke		
15.85-22.97	wacke to mudstone, minor quartz flooding & qtz-py veining		
22.97-23.16	hornblende megacrystic monzonite		
23.16-25.63	hornfelsed mudstone to wacke		
25.63-25.88	felsite dyke		
25.88-74.42	wacke to mudstone 1-2% qtz-py-po-cp ± ch & cc veins		
74.42-74.69	marble/limestone breccia		
74.69-74.79	qtz-ch-po-cp vein		
74.79-82.84	quartzwacke, mudstone, conglomerate, arenite, good bedding, some graded bedding, tops down hole		
82.84-83.09	dolomite and calc silicate breccia		
83.09-83.34	mudstone		
83.34-83.62	as in 82.84-83.09		

Table 1 cont'd

83.62-119.29 mudstone, quartzwacke, minor qtz-cc-gnt-po veining  
119.29-122.36 interlayered mudstone & limestone & calc silicate breccia  
122.36-127.91 chloritized breccia, fault gouge, 2% pyrrhotite  
127.91-148.13 limestone & calc silicate breccia, minor quartz arenite  
EOH

**Hole P90-3**      **Location:** 0+25S/1+80W      **Azimuth:** 090°      **Dip:** -47°

0-7.47m casing & overburden  
7.47-20.95 hornblende megacrystic monzonite to syenite  
20.95-28.15 biotite monzonite dyke  
28.15-30.66 as in 7.47-20.95  
30.66-33.86 quartz-pyrite-pyrrhotite-chalcopyrite-magnetite veins C/A 11°  
33.86-107.02 as in 7.47-20.95  
107.02-110.92 hornfelsed mudstone, wacke, minor pyrite & pyrrhotite  
110.09-111.31 as in 7.47-20.95  
111.31-143.81 mudstone & greywacke, minor conglomerate - minor graded  
bedding top indicators, up is down hole, minor qtz-py-po  
veins & qtz-cc-ch-py-gn-sp veins  
143.81-144.08 as in 7.47-20.95  
144.08-144.4 hornfels greywacke  
144.4-144.81 as in 7.47-20.95  
144.81-145.6 as in 144.08-144.4  
145.6-147.23 as in 7.47-20.95  
147.23-147.83 greywacke, minor hornfels  
EOH

**Hole P90-4**      **Location:** 1+55S/6+50W      **Azimuth:** 135°      **Dip:** -45°

0-6.1m casing  
6.1-76.16 mudstone, minor greywacke & conglomerate, up indicators  
suggest tops downhole  
76.16-77.18 calcareous breccia & conglomerate  
77.18-77.94 as in 6.1-76.16  
77.94-101.36 as in 76.16-77.18  
101.36-102.5 calcite stockwork & breccia zone, 5% pyrite  
102.5-125.27 argillaceous mudstone, minor calcareous breccia &  
conglomerate interbeds  
EOH



A quartz-pyrite-pyrrhotite (chalcopyrite) vein with pyrrhotite and pyrite replacing garnet-diopside skarn adjacent to the vein from 100.84 to 101.16 (0.32 meters) contained 4000 ppb gold and 420 ppm copper. This sample represents the highest gold value in the program. Garnet-diopside skarn from 109.68-111.18 meters (1.5 meters) with an associated 5 centimeter quartz-pyrite-pyrrhotite-chalcopyrite vein contained 95 ppb gold and 140 ppm copper. Calc silicate breccia with a 4 centimeter quartz-pyrite-pyrrhotite vein and epidote-chlorite alteration contained 270 ppb gold and 94 ppm copper from 120.7 to 122.2 meters (1.5 meters). A zone of 3-4% pyrrhotite, pyrite and trace chalcopyrite within calc silicate breccia contained 380 ppb gold and 74 ppm copper from 127.93 to 128.72 meters. A 3 centimeter wide quartz-pyrite magnetite vein within a quartz magnetite pyrite replacement zone within limestone breccia contained 150 ppb gold and 260 ppm copper (135.08-135.4 meters).

Drill hole P90-2 was drilled to test a resistivity high adjacent to a resistivity low with an associated mag high and Chargeability high. Associated soil geochem values in this zone were up to 355 ppm copper and 24 ppb gold. P90-2 intersected hornfelsed greywacke and mudstones from 0 to 74.42 meters with up indicators suggesting tops to the east. Hornblende megacrystic monzonite dykes cut the mudstones at 5.44 to 6.86 and 22.97 to 23.16 meters and felsite dykes cut the sediments from 14.81 to 15.85 meters and 25.63 to 25.88 meters. Interlayered limestone (calc silicate) breccia and mudstone dominate from 74.42 to 119.29 and limestone/calc silicate breccia dominates from 119.29 meters to the bottom of the hole. Chloritized fault zones similar to P90-1 were intersected from 10.17 to 13.11 meters and from 122.36 to 127.91 meters. The fault from 122.36 to 127.91 meters is probably equivalent to 145 to 152.35 meters in P90-1. Part of the breccia zone from 10.17 to 10.67 meters contained 1800 ppm copper. Narrow zones of quartz-chlorite-calcite-pyrrhotite+ chalcopyrite and pyrite veining from 24.13 to 24.63 and 74.69 to 74.79 contained 1500 and 2150 ppm copper. The remaining vein samples in the hole contained slightly anomalous values. The resistivity and chargeability anomalies could be related to the fault zones or calc silicate breccias but the source of the mag anomaly is not known.

Drill hole P90-3 was drilled to test the down dip extension of a grab sample of hornfelsed sediments containing 860 ppb gold and 303 ppm copper (Kahlert, 1989). This sample and the exposure could not be located at the time of drilling. Drill hole P90-3 intersected megacrystic monzonite from the top of the hole to 107.02 meters, from 110.9 to 111.31 meters, from 143.8 to 144.08 meters, from 144.4 to 144.81 meters and from 145.6 to 147.23 meters. The rest of the hole consisted of weakly hornfelsed

mudstone and greywacke. A biotite monzonite dyke was intersected from 20.95 to 28.15 meters.

A quartz-pyrite-pyrrhotite-magnetite-chalcopyrite vein was intersected from 30.66 to 32.28 meters (extends parallel to core to 33.86 meters). Magnetite occurs as late fractures and rims in sulphides. The zone was intersected at an angle of 11° to the core and averaged 121 ppb gold and 356 ppm copper from 30.66 to 33.86 meters (3.2 meters). Quartz-calcite-pyrite-pyrrhotite-galena ± sphalerite vein zones from 102.46 to 102.81 meters and 118.01 to from 118.73 meters contained 30 and 15 ppb gold, 320 and 138 ppm copper, 670 and 300 ppm lead and 345 and 530 ppm zinc over 0.35 and 0.72 meters respectively.

Drill hole P90-4 was drilled to test a strong NE trending ground magnetometer anomaly (#600 gammas) with an associated broad chargeability high and weak resistivity low (Kahlert, 1989). The hole intersected massive mudstone with some limestone breccia/conglomerate (fragments more rounded, but still matrix supported). A calcite stockwork and breccia zone with associated chlorite alteration from 101.36 to 102.5 meters carried 100 ppb gold and 72 ppm copper. The source of the geophysical anomalies have not yet been explained, however the old grid was difficult to re-establish and the distances between the drill collar and anomalies were estimated by using the plotted trace of the geophysical anomalies and the position of the hole relative to the Lake; i.e. the position of the hole relative to the Lake is known, but the exact position of the geophysical anomalies relative to the hole is not known.

### Surface Sampling

One rock sample was collected during the 1990 program. In addition, copper soil geochem data from Kahlert (1988) was contoured (Figure 9).

Sample number 510451 (Figure 4) was collected from an outcrop of hornfelsed, weakly pyritized and silicified mudstone exposed during ramp construction. The sample is a composite grab and contains an anomalous copper value of 295 ppm.

The soil sample data from 1988 was contoured at 20, 25, 30, and 50 ppm levels. The maximum value was 355 ppm. The overall trend is northeast, approximately parallel to the fault structures intersected in P90-2 and 3. The anomalies and faults are at an acute angle to the bedding. The anomaly is comprised of 2 parallel northeast trending anomalies, at least 600 meters long and open to the southwest. Hole P90-2 and 3 evaluated part of the northeast end of the anomaly and intersected copper

bearing quartz veins. The trend of the soil anomalies could reflect the trend in the quartz veins. Some more evaluation is required.

### Petrographic Studies

A total of 9 samples of drill core were sent to Vancouver Petrographics for petrographic studies. The samples represented the different major rock types and one mineralized calc silicate. The petrographic report and descriptions are in Appendix B.

The report describes the intrusion to be extremely fresh and is monzonite in composition. The limestone and calc silicate breccias are all partially skarnified with a high proportion of wollastonite, not noted during logging. A mudstone sample with a "leopard" texture (see logs) proved to contain mica altered andalusite porphyroblasts. Sulphides noted were pyrrhotite and chalcopyrite.

### **Conclusions and Recommendations**

The PINE claims are underlain by Proterozoic and Cambrian sediments which are intruded by Cretaceous hornblende monzonite plugs. The north half of the claims are underlain by clastic sediments of the Proterozoic Purcell Supergroup Aldridge and Creston Formations. They are in fault contact (St. Mary Fault) to the south with the Cambrian Eager Formation mudstones and limestone breccias. Kitchener Formation dolomitic mudstones (Upper Purcell Supergroup) are in fault contact with the Eager Formation further to the south. Six zones of potential mineralization have been outlined on the property. The Lake zone contains anomalous copper-gold soil and rock values with associated IP and mag anomalies related to a monzonite plug and was the only target for 1990 exploration.

Exploration in 1990 consisted of the drilling of 4 NQ diamond drill holes totalling 575.4 meters to test weak soil and rock geochem and geophysical anomalies. The holes intersected Eager Formation mudstone and limestone and calc silicate breccia intruded by a hornblende monzonite plug. The mudstones are hornfelsed adjacent to the intrusion. Mineralization consisted of quartz-Fe-Cu-Pb-Zn- sulphide-magnetite veins, minor garnet-diopside skarn development, disseminated Fe-Cu sulphides and some thin beds of 15-20% Fe sulphides. Veins are up to 0.32 meters wide (true width) and carry values of up to 4,000 ppb gold and 420 ppm/0.32 meters, 121 ppb gold and 356 ppm copper over 3.2

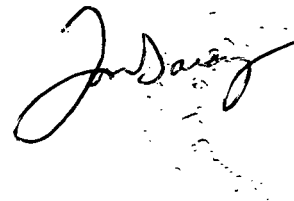
meters and 215 ppm copper over 0.1 meter. The better gold-copper values are associated with veins within the calc silicate breccias (with garnets) and in the intrusion.

A northeast trending copper soil geochem anomaly is at least 600 meters by 7 to 100 meters wide. The anomaly is parallel to northeast trending faults intersected in P90-1 and P90-2 and is probably related to northeast trending quartz-sulphide veins similar to the intersected veins.

The limestones and calc silicate breccias intersected during drilling have not been located within the Eager Formation elsewhere in the region (Hoy per comm). The breccias are locally derived and probably represent slope breccias developed along an active Cambrian St. Mary Fault scarp. Active faults are significant in the formation of Sedex massive sulphide deposits similar to Sullivan as they act as conduits for fluids and form local sedimentary basins (traps). Although no Sedex mineralization has been previously found within the Eager Formation, in the presence of narrow pyrite-pyrrhotite bands intersected in P90-4 and P90-2 suggests that some Sedex mineralization has occurred. Therefore the potential for locating Sedex style mineralization in the Eager Formation on the PINE claims is good.

The limestone and calc silicate breccias are highly porous and chemically reactive rocks. The potential for locating a contact metasomatic Cu-Au deposit in the calc silicate breccias adjacent to the monzonite plugs is good.

The potential for the location of a contact metasomatic and Sedex deposit within the Eager Formation is good and some geological mapping and prospecting should be carried out. In addition, a diamond drill hole could be drilled to test the copper soil anomaly where it is underlain by the limestone/calc silicate breccias (Figure 9). Further exploration on the Lake zone should depend on the results of exploration on Victoria Resource Corporation's adjacent Mag claims. Exploration recommended by Kahlert (1988, 1989) on the other zones on the property have not been carried out and should be done at the same time as further work on the Lake zone. In addition, all historical data on the MAG, WAIT and PINE claim groups should be compiled as recommended by Campbell (1990).



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Property		Coordinates		Dip Tests		Advance		Depth		Date Collared		Date Completed			
PINE claims		2+50 S / 0127 W		135.94 m - 42° (acid)		114 m.				Sept 18, 90		Sept 21			
Purposes				Drilled by				Assays by				Logged by			
Test IP				Boisvenue				Chemex				T. Garagan			
Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Al	Cu	Pb	Zn	Ag	As	W
From	To					From	To								
0	13.22			Casing + overburden											
13.22	19.14	98%		hornfelsed quartzwacke + siltstone - fine to medium grained, coarsening upwards. It grades to grey gn. well indurated, locally calcareous. mica biotite horizons throughout - oxidized to 15.44m. Calcareous unit contains 1-5% garnets often adjacent to qtz veins. min zones of thin bedding 17.87 m/a 60° - bedding zone contains 1-3% diss py + po (pyrobitite) - tr. mal. - 0-5% gls - py - biotite fracture - stockwork - random distribution - orientation qtz vein > 2cm as follows: 14.72m - broken core - 2 qtz-py (1+4cm) (5% py) veins over 10cm of core 15.62-15.72m - quartz-clay-pyrite (5%) vein gouge zone (1A-50% - + 5% garnet) 18.74 - 3cm qtz-clay-pyrite (1-2%) vein @ 45° 17.33-17.88 } 15% qtz-py-b: stockwork 16.32-16.52 } aa, 10% sericite - chlnb - garnets.	S10251	13.22	14.62	1.4m	<5	76	<1	24	<0.2	2	3
					S10252	14.62	16.32	1.7m	<5	126	<1	20		1	2
					S10253	16.32	17.33	1.01m	10	134	12	22			
					S10254	17.33	17.88	0.55	<5	162	1	12			
					S10255	17.88	19.14	1.26	<5	104	1	20			
19.14	22.36	100%		biotite quartz monzonite - fine grained to medium grained w/ lower to coarse grained Al2SiO5 phenocrysts - 15% diss biotite + 1-1% diss py-po, some pyrite fracture, minor sericite all'a - grey-green upper contact sharp intrusive, minor brecciation C/A 30°, lower contact aa C/A 90°											
22.36	38.15	99%		Argillaceous siltstone, greywacke, black v.f. - fine grained locally well bedded, unusual spotted texture (leopard texture) ? ilitic fragments, weakly calcareous throughout minor qtz-py fractures - weakly magnetic with 1-3% v.f. grained diss py+po - minor actinolite on fractures contains thin calc-silicate (diopside: qtz-chlorite) interbeds at 29.27m, 29.76m + 32.82m bedding C/A: 29.67 - 18°, 31.7m: 20°, 32.8m: 15° qtz-graphite-pyrite breccia zone - 5cm wide 35.24 - C/A 45% - 10% pyrite - C/bn.	S10256	21.7	32.7	1.0m	<5	44	6	56	<0.2	1	3
					Thin section describes spots of andalwite										
					S10257	35.56	35.76	0.2	<5	46	6	56	<0.2	1	2

Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W
From	To					From	To								
38.15	43.41	95		calc silicate, minor limestone, white + green, minor greywacke, fine to medium grained, qtz-ss diopside-chloride (minor garnets) massive to locally well bedded, contorted bedding in places very siliceous from 40.44 to 42.1 bi hornfels 39.84-40.14, 1% py fractures, minor diss. 40.44-40.64 - 5% qtz veining, lower contact C/A: 30°	510258	40.44	40.64	0.2	45	110	6	25	<0.2	11	9
43.41	49.82	75		silty argillite - sooty + greywacke as in 22.36-38.15 43.74-45.39 - very fine grained - siliceous - 2-3% py fracture calcareous from 47.33-47.63 + 48.88-49.28 lower contact C/A: 30°	510259	44.69	45.39	0.8	45	210	4	36	<0.2	1	3
49.82	54.35	99		limestone to calc silicate breccia, grey to white - calcareous matrix with sub angular to sub rounded fragments of hornfels, sulphide (py), limestone, quartz, quartzite, quartz, garnet, calc silicate. Matrix supported, fine grained calcite/limestone fragments, clasts up to 15cm across, averages 1mm-1cm, contains 1-5% py + po diss. + fractures bedding contorted, contains minor quartz flooding near top, minor epidote	510260	49.82	51.32	1.5	45	72	4	22	<0.2	1	2
					510261	51.32	52.82	1.5	45	94	2	30	<0.2	2	2
					510262	52.82	54.35	1.53	45	43	1	38	<0.2	1	3
54.35	60.86	100		grey wacke as in 43.41-49.82 slightly calcareous top + bottom, massive to thick bedded, calc silicate fragment? at 55.08 1-2% po + py bedding C/A: 55.84-35° 2cm qtz vein at 57.51 C/A: 45°											
60.86	70.89	99		calc silicate + limestone breccia as in 49.82-54.35. minor limestone - bi hornfels greywacke interlayers. 1-3% honey coloured garnets, 1-2% diss py with minor py knots up to 1.5cm across, trace chalcopyrite at 64.63 68.78-70.89 - 5% diss py + py knots + 10% chlorite, minor quartz veining, and trace chalcopyrite, garnets increase to 1-2% in areas of increased sulphides. Garnet + sulphides occur as seams and along margins of clasts + vein veins 70.59 - qtz-py vein, 2cm wide, 20% py C/A: 85° 68.78-69.03: qtz chlorite epidote garnet pyrite (cubes) fracture zone with 5-7% med. um to coarse grained pyrite cubes, 20% diopside garnet 69.68 - 2cm cc-qtz vein C/A: 40°	510263	68.78	69.03	0.25m	45	46	1	26	<0.2	1	2
					510264	69.03	70.89	1.86m	50	126	2	36	<0.2	2	3









AURUM GEOLOGICAL CONSULTANTS INC.

DIAMOND DRILL LOG

HOLE No. P90-4

Page 1 of 2

Property	PINE	NTS	82G12	Claim	PINE 1	Elevation		Azimuth	135°	Length	411', 125.27m	Dip	-45°
Coordinates	1455S / 6450W	Dip Tests	43° - 125.27-	Advance	87.5m	Depth		Date Collared	Sept 25 / 90	Date Completed	Sept 27 / 90		
Purposes	Stress Mag. chargeability high			Drilled by	Boisvenue			Assays by	Chemex		Logged by	T. Garagan, H. Keyser	

Interval	From	To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W
							From	To								
0	6.1				Casing											
6.1	76.16	99			Mudstone, massive, locally bedded, black, 45% waste + intraformational conglomerate, v. graind, slightly calcareous, locally rooty, minor 1 to 10cm wide calcareous unit (40%) in fillings; 1% glz-cc (py) veinlets 12.72 - mica pods + fragments 17.72 - 10cm wide c/a bedding 50° 25.8 - 5cm wide bedding c/a 40° 26.71 - 3cm wide bedding c/a 40° 29.36 - 1cm wide " c/a 40° 30.01 - 2cm wide " c/a 40° 38.15 - 13cm wide " c/a 30° * top indicator in hole - 32.41 showing graded bedding with up down hole - similar at 42.2 & 44 21.82 - 1cm glz-cc (py) vein with cc-py-py alteration rim (local) c/a 5° 33.21 - 1cm aa c/a 30° 40.25-40.39 - 10% glz fracturing with ti. py 47-52m unit max calcareous 55.82 - 3cm calcareous bed c/a 20° 57.19 - 5mm glz-mud-py-py band c/a 20° 59.8 - 1cm glz-py vein c/a 20°? band 60.05 - P7-P8 band 2.5cm c/a 20° 62.66 - 6cm glz-cc (py) streakwork (10% veining) 62.71 - 5cm-cc-glz-wacke-py-sh (5% py) bed, tops up hole (30cm) 63.15 - 1cm glz-cc-sh vein c/a 15° 64.29 - 5cm aa + py + mica py c/a 15° 64.67 - 2 to 1.5cm wide cc-wacke py+py band c/a 35° 66.42 - 5% glz-cc (py) veining c/a 15-40° 67.29 - fig to 3x4cm calcareous wacke, P7-P8 dash (5%), 20% clasts 67.98 - 3cm cc-glz wacke frag. 68.33-68.58, 68.86-69.0, 69.31-69.44 - calcareous wacke bedding c/a 45° 70.27, fragment aa, 5% py 71.81-71.92 - calcareous wacke aa c/a 40° 74.58, 74.62 - glz-py-py band, 15% sulphide c/a 35°, similar fragment 3x4cm	510466	25	26	1.0m	45	38	6	90	0.4	3	2
						510467	50	51	1m	45	43	11	84	0.3	8	2

Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W
From	To					From	To								
76.16	77.18	100		calcareous breccia/conglomerate with frags of subrounded to subangular mudstone, gtwacks + matrix, matrix is gtwacks + calcareous, clasts up to 10 cm matrix supported, trip. py. fragments orientated 70° to C/A.											
77.18	77.94	100		mudstone as in 6.1-76.16, fine grained, well indurated, irregular clasts of wacks, striated    to bedding 'A: 70-80', minor cc veining (1mm)											
77.94	101.36	100		calcareous cglm/breccia as in 76.16-77.18 w. fr. argill. beds /clasts at 81.11-81.26, 87.3-87.75 + 98.37-98.46.											
101.36	102.5	100		calcareous staurolite + breccia zone / fault zone, weak to moderate Al <sub>2</sub> SiO <sub>5</sub> alt'n. some gts indurated, fracturing random, derived 30% to 'A'. 25% cc - py veining with 5% xtlite py. lower contact is sharp with slickensides developed on frac surface - 65° to C/A. -1-2% random py frac. microlitic drusy cc filled cavities in matrix. 102.2-102.4 - 50% irregular py pod.	510468	101.36	102.5	1.14	100	72	21	22	0.3	1	3
102.5	125.27	100		Argillite, mudstone with calcareous breccia / cglm interbeds fine grained, well indurated, black. Rare gts arenite; argillite, wacks clasts to 2cm in diameter. 1-2% random cc fractures. Bedding 65-80° to C/A. cglm zone similar to 76.16-77.18 at 103.08-103.22, 105.39-105.98, 111.26-111.56 (minor cc veins) + 114.14-115.86. 117.85-1-2% diagenetic py vugs + cc - py vugs / wacks 122.49 - 1cm cc lined frac, CA-60.  EOH - 125.27	510469	114.6	115.86	1.26	45	12	2	23	0.4	1	2

AURUM GEOLOGICAL CONSULTANTS INC.

DIAMOND DRILL LOG

HOLE No. P90-2

Page 1 of 5

Property	PINE	NTS 82G12	Claim PINE 1	Elevation	Azimuth 090	Length 148.13 m	Dip -47°
Coordinates	1+50S/140W	Dip Tests 137.16 - 44°	Advance 103 m	Depth	Date Collared Sept 21/90	Date Completed Sept 23	
Purposes	IP Anomaly, Cu soil anomaly			Drilled by Boisvenue	Assays by Chemex	Logged by T. Garagan	

Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W	
From	To					From	To									
0	3.05			Casings												
3.05	5.44	76%		hornfelsed greywacke, fine to medium grained, massive, grey well indurated 2-3% very fine to fine grained biotite + 2-7% fine grained almandine, 2-3% randomly distributed orientated oxidized pyrite fractures 4.86m - limonite-clay gouge												
5.44	6.86	85%		hornblende-biotite (min) feldspar megacrystic monzonite to syenite, contains 20-25% coarse grained (up to 2cm, avg 0.5cm) equant feldspar in a fine to medium grained hornblende-feldspar (biotite-gt) matrix. Contains 20% mafic. Unit is oxidized with 1-2% py fractures occasionally into matrix. Upper 30cm is weakly sericitized Upper/lower contacts are sharp - along fracture 4/A 35°												
6.86	10.17	87%		silty argillite to greywacke, v fine to medium grained, massive, grey to dk grey-purple hornfelsed w/ tr-10% vfg biotite + tr-5% fine to med grained garnets - coarse near upper contact. lower 1m is v fg w "leopard" texture (see 90-1)												
10.17	13.11	44%		breccia, highly chloritized, ground calc + fault gouge - breccia consists of subrounded fragments of hornfels, 1-10cm across, calc silicate in a matrix of calcite + chlorite, smaller silicified fragments, quartz + feldspar The fragments have Qtz-chlorite reaction rims. lower part of zone is highly silicified. Zone averages 15-20% chlorite + 5% dior + fracture controlled py > po + tr chalcopyrite 10.67 + 13.11 - fault gouge 10.97-11.17 - silicified hornblende with 10% Qtz-py stock work	510284 510285	10.17 10.67	10.67 13.11	0.6 2.44	<5 <5	1800 450	82 56	114 108	20.2 20.2	4 1	6 6	
13.11	14.81	55		Mudstone + ground calc - blk to dk brn well indurated, massive 1-2% dior (vfg) py + tr. po. with 5% Qtz-py veins in lower 30cm 14.07 - Ser megacrystic monzonite dyke	510286	13.11	14.81	1.7	<5	168	40	36	20.2	2	4	
14.81	15.85	59		felsite, v fine to fine grained, white to dk grey s/vfg bi. + tr. vfg digerated feldspar, 1-2% dissegnts. 5% dior + fracture py	510287	14.81	15.85	1.04	<5	90	20	18	<0.2	1	4	

Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W
From	To					From	To								
15.85	22.97	78		wacke to mudstone, grey to grey-brown, v. fine to medium grained, poorly bedded, 3-5% vfg biotite, tr. garnets - 1% py frac + tr. 1% diss. py 17.77-18.19 - Qtz bedded zone w/ 20% Qtz veining, 5-7% py.	510288	17.77	18.19	0.42	<5	420	22	46	40.2	1	8
22.97	23.16	100		feldspar porphyritic magmatic monzonite, very coarse grained equant feldspar in a fine to medium grained feldspar Qtz biotite (min) chlorite (15% after hornblende) - 5% py fractures + seams in matrix Upper contact - 1cm Qtz-py vein, upper/lower contact CIA 50°											
23.16	25.63	100		biotite feldspar mudstone to wacke, dk purple to green - biotite vfg massive - dk rock bi. rich tr. Qtz-py fracturing 24.13-24.63 - 10% ch-Qtz-cc-py (1:1) fractures + veins bleached adjacent to fractures.	510289	24.13	24.67	0.5	<5	1500	36	90	40.2	1	3
25.63	25.88	100		feldspar dyke, fine grained, equigranular, feldspar-Qtz rock (25% Qtz) with 5% very fine grained biotite, white, minor Qtz-py fractures Upper + lower contacts, sharp with ch-cc frac (1-2mm) CIA 70°											
25.88	38.55	100		greywacke, minor mudstone - massive with poorly developed bedding in fine grained sections v. fine to med grained, grey to purple grey - thin zone of bi hornbl. 1-2% po+py diss. fracture. 31.19-31.39 - 10% ch-po-py stockwork veins 1-2cm wide, random distribution, w/ 5% sulphides 35.46-35.66 - 2-3% diss coarse py cubes (5-10mm) 35.96-36.92 - contorted bedding, calc silicate wacke - weakly chloritized 1cm garnet diopside layer at 36.36 - 5% py + po 37.15-38.4 - 5% po+py veins + diss - CIA 11 to bedding: 25° lower contact CIA 30°	510290	35.96	36.92	0.96	<5	450	20	44	40.2	1	3
38.55	74.42	99		mudstone, minor greywacke + calcareous mudstone, well bedded mudstone has local "leopard" texture. vfg-fg - thin to thick bedded locally massive bedding CIA: 44.9m - 45°, 59.4m - 25° 72.23 - 30° 44.9-45.16 - graded bedding with scouring at base indicating flops downhole is a fining upward (depositional) sequence. Unit contains tr-1% py + 1% cc + Qtz fractures 39.67-39.83 - calc silicate breccia, 25% cc, 5% po CIA 70° 40.09-40.26 - cc-Qtz stockwork w/ 5-7% po replacing sils, 15% cc	510291	39.67	40.67	1.0	<5	220	20	56	40.2	1	3
					510292	40.67	41.67	1.0	<5	240	10	30	40.2	1	4
					510293	41.67	42.67	1.0	<5	240	10	20	40.2	1	3
					510294	42.67	43.63	1.0	<5	230	10	20	40.2	1	5



Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width
From	To					From	To	
82.84	83.01	100		dolomite to calc silicate breccia, contorted bedding, 5% subangular hornfels mudstone frags. up to 5x10cm.				
83.09	83.34	100		Mudstone				
83.34	83.62	100		calc silicate breccia, matrix supported w/40% calc silicate hornfels frags up to 2x5cm, fragments composed    to bedding @ 40° 5% po in matrix.				
83.62	119.29	99		Mudstone, black, minor qtz wacke, local "leopard" texture, well indurated, minor calc silicate layers - green bn. minor hornfels locally well bedded: 87.17 - C/A 25°, 105.16 - C/A 35°, 113.84 - C/A 40° 94.68 - graded bedding suggests tops down hole. 110.35 - 30cm fine gravel grade, (down hole) up into sdst to massive to 111.7, where it is x-cut by coarse sdst bed with similar down hole gradings 87.37-87.47 - 5% po seams + swirls in qtz wacke 92.84-92.96 - 12cm qtz - po (10%) - py (4) - grnt vein with lim + gt all'n 95.46-95.58 - 5% qtz-cc-po-py (2-3%) veining with 5% cc all'n 96.86 - 1cm qtz vein 99.6 - 5cm of 25% cc-po veining C/A 50° 100.13-100.53 - calc silicate breccia 101.69 - 1cm qtz-cc-lim breccia vein 106.46-106.61 - bleached wacke w/ 5% disc + frac ch + po 111.4 - 2cm cc vein, minor po C/A 50° 115.75 - 2cm ch-po frac 114.85 - 4cm band with 15% po rch - C/A 35° 117.81-117.93 - calc silicate breccia - C/A 40°				
119.29	119.69	100		limestone + calc silicate breccia as below				
119.69	120.3	100		bi-hornfels wacke, bn, 5% 1x4cm limestone (mabb) pad, fr. 2% po				
120.3	122.36	100		limestone (mabb) + breccia, minor calc silicate to po + py				
122.36	123.44	17%		Ground core, gouge + chloritized + fractured calc silicate breccia				



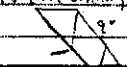


AURUM GEOLOGICAL CONSULTANTS INC.

DIAMOND DRILL LOG

HOLE No. P70-3

Page 1 of 4

Property		Coordinates		Dip Tests		Advance		Depth		Date Collared		Date Completed					
PINE		0125 S / 1180W		acid test 726.8-44°						Sept 23/90		Nov 25/90					
Purposes				Drilled by				Assays by				Logged by					
Mag. Cu test anomaly				Beisvenue N.G.				Chemex				T. Garagan					
Interval	From	To	Recy %	RQD	DESCRIPTION	Sample No.	Interval	From	To	Core Width	Ag	Cu	Pb	Zn	As	As	W
0	7.47				Casing, overburden.												
7.47	20.95		95		Feldspar megacrystic monzonite to syenite, gneiss, coarse to very coarse (1x2cm) Feldspar megacrysts in a matrix of medium grained hornblende, fsp + qtz. Unit contains 40-60% phenocrysts. There are two feldspars. The larger fsp (avg. 1x2cm) are equant, with a greenish tinge and likely K-feldspar. The 2nd feldspar are smaller (up to 10.5cm), white + subhedral to euhedral. The hornblende occupies 15-25% of lens and is interstitial to fsp phenocrysts. Unit contains tr-1% py in fract dim. lower 1m has weak sericitization - lower contact broken ore. 15.7, 13.72 - fault gouge.												
20.95	28.15		68		bi monzonite dyke, upper + lower contacts broken core, however margins approached + the megacrystic monzonite is sericitized adjacent to dyke unit is fine grained with 50% medium grained feldspar phenocrysts, hornblende 15% of fine grained biotite. Matrix is fsp, qtz, biotite + sericite. Unit contains approximately 3-4% disc py, is bleached locally + contains 1-2% sericitization, contains 10% glt. cc - py vein in block west thought with glt flooding around vein. Vein contains 15% cc + 2-10% py. They are from to 4cm wide, average 1-2cm.	510463	20.95	23.16	2.21	2.5	42	8	26	40.2	2	15	
						510454	23.16	25.6	2.44	2.5	48	9	56		3	8	
						510455	25.6	27.4	1.8	2.5	58	6	56		2	6	
						510456	27.4	28.15	0.75	2.5	46	4	28		2	22	
28.15	30.66		100		megacrystic monzonite as before, large feldspars are compositionally zoned, lower 23cm is strongly sericitized with 5-7% py + py in matrix. Lower contact is picked at the upper edge of vein but due to very shallow CA, the zone is present for an additional 5.5cm down hole.	510457	30.43	30.66	0.23	2.5	98	4	40	40.2	1	2	
30.66	32.28		100		Quartz vein, with 15% sulphides + 2-5% magnetite and 5% calcite. Sulphides consist of 70% pyrite + 20% pyrrhotite + 10% chalcocite. Magnetite occurs as rims around sulphides and along late fractures with calcite. Quartz is quartz massive. Vein cuts the contact at an angle is parallel to the contact for a long way down (see below). 10% sericite at contact.  9° C/A 11°, vein width 0.3m	510458	30.66	31.03	0.39	60	128	34	26	60.2	12	3	
						510459	31.03	32.28	1.23	180	650	114	14	0.2	12	12	

Interval		Rec'y %	RQD	DESCRIPTION	Sample No.	Interval		Core Width	Au	Cu	Pb	Zn	Ag	As	W	
From	To					From	To									
32.28	33.86	100		Qtz vein 50% aa + 5% sericitized megacrystic hornblende monzonite vein is subparallel to core along whole section + matrix of altered intrusion contains 10% sulphides	710460	32.28	33.86	1.58	90	184	20	28	202	10	11	
						wtavg	30.66	33.86	3.2m	121	356					
33.86	107.02	99		megacrystic hornblende monzonite to syenite as before, feldspars are zoned 41.61 - 12cm xenolith of fg-mg bi-hb mmz-diorite, fr-1% similar xenoliths 42.07 - 5mm qtz-py (40%), minor magnetite vein with weak sericitization + qtz flooding adjacent vein @/A 20° 43.6 - 5cm qtz vein with 2-4% py + 1% gn with 5cm wide se-cc altered zone adjacent vein @/A 35° 68.88 - 2mm qtz-py-ch fac with 10mm cc-se alt'n halo @/A 10° 74.89 - 2cm qtz-cc-py-mag vein - 40% py+mag (4:1) with alt'n halo @/A 25° 75.36 - 10cm zone of qtz-cc-py-mag veins similar @/A 45°, 40% veining 77.6 - 1cm vein @/A 45° matrix is fine grained (gradual decrease) at this point rphenocrysts catenated + hornblende % is increasing - ? possibl margin effect. 79.52-79.66 - qtz-py-cc vein @/A 20° - contains 10% py, minor magnetite and 2 phases of vein growth - early euhedral gray qtz with open space filled by cc-qtz-se 80.87 - 1cm qtz-py-mag-cc vein (py:mag 10:1, 40%) @/A 25° vein has 2cm se-cc alt'n halo on both sides 89.92 - 20cm of 1-5mm py fac, subparallel to core @/A 5° se-cc alt'n 91.12 - 2cm py-po-qtz-cc-se (epidote) (ep) vein, minor magnetite 5% sulphides py:po=10:1 @/A 10° 94.8 - 5mm vein aa @/A 10° 93.06 - 5cm qtz-se vein @/A 70° 97.32 - 5cm - 10% qtz-cc-py vein with intense qtz-se (cc) alt'n 102.27 - white qtz vein with 5% py, 1-2% gn, 1.5cm wide @/A 45° 102.56-102.71 - 2% qtz-cc-po-py vein (up to 2cm across) with an area of qtz-se (weak cc) - py:po (10% sulphides) alt'n @/A 20°, vein contains 1-2% gn 105.16 - 0.5cm po-cc-ch-qtz fac @/A 5° unit is fine grained + catenated, 30-75% mafics near contact, fr possible contact irregular @/A 70° with a 1cm qtz-cc-po-py-ch vein Xing contact.												
					510461	102.56	102.81	0.35	30	320	670	345	0.4	8	13	



Interval		Rec'y %	ROD	DESCRIPTION	Sample No.	Interval		Core Width
From	To					From	To	
143.8	144.08	100		2-11cm megacrystic hb monz sills with 3cm bi hfls between	41A45			
144.08	144.4	100		bi hfls greywacke				
144.4	144.81	100		hb-bi megacrystic monzonite as before. c/A 20° strike top 45°				
144.81	145.6	100		as in 144.08-144.81				
145.6	147.23	100		bi-hb megacrystic monzonite as before with bi > hb, also contains a fine grained bi mmz centre (5% of total bi) which intrudes the megacrystic rock. Xenolithic of megacrystic monz + bi hfls with fine grained rock c/A 4 contact -45°, L contact -11°				
147.23	147.83	100		greywacke with bi hfls developed within 30cm of dyke.				
				EoH				



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To: VICTORIA RESOURCE CORPORATION

1000 - 609 W. HASTINGS ST.  
VANCOUVER, BC  
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Page Number : 1  
Total Pages : 1  
Invoice Date : 21-OCT-90  
Invoice No. : I-9024348  
P.O. Number : V000163

Project : PING  
Comments : SC: TOM GARAGAN

## CERTIFICATE OF ANALYSIS A9024348

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R	As ppm	W ppm			
510451	205	294	< 5	295	2	46	0.3	5	4			
510466	205	294	< 5	38	6	90	0.4	3	2			
510467	205	294	< 5	43	11	84	0.3	8	2			
510468	205	294	100	72	< 1	22	0.3	1	3			
510469	205	294	< 5	12	2	23	0.4	1	< 2			

CERTIFICATION: Hart Buchler



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Project: PINE  
Comments: CC: TOM GARAGAN

Page Number: 1  
Total Pages: 1  
Invoice Date: 11-OCT-90  
Invoice No.: I-9023978  
P.O. Number: V000162

## CERTIFICATE OF ANALYSIS A9023978

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Acqua R	As ppm	W ppm			
510453	205 294	< 5	42	8	26	< 0.2	2	15			
510454	205 294	< 5	48	9	56	< 0.2	3	8			
510455	205 294	< 5	58	6	56	< 0.2	2	6			
510456	205 294	< 5	46	4	28	< 0.2	2	22			
510457	205 294	< 5	98	4	40	< 0.2	1	2			
510458	205 294	60	128	38	26	< 0.2	12	3			
510459	205 294	180	650	114	14	0.2	12	12			
510460	205 294	90	184	20	28	< 0.2	10	11			
510461	205 294	30	320	670	345	0.4	8	13			
510462	205 294	< 5	176	2	30	< 0.2	2	3			
510463	205 294	< 5	158	2	32	< 0.2	1	3			
510464	205 294	15	138	300	530	< 0.2	5	3			
510465	205 294	< 5	530	2	28	< 0.2	1	5			

CERTIFICATION: Jan Beckler



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Page Number : 1  
 Total Pages : 1  
 Invoice Date : 4-OCT-90  
 Invoice No. : I-9023691  
 P.O. Number : V000158

Project : PINE  
 Comments : CC: TOM GARAGAN

## CERTIFICATE OF ANALYSIS A9023691

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R	As ppm	W ppm			
510251	205 294	< 5	76	< 1	24	< 0.2	2	3			
510252	205 294	< 5	126	< 1	20	< 0.2	1	2			
510253	205 294	10	134	12	22	< 0.2	1	2			
510254	205 294	< 5	162	1	12	< 0.2	1	2			
510255	205 294	< 5	104	1	20	< 0.2	1	2			
510256	205 294	< 5	44	6	56	< 0.2	1	3			
510257	205 294	< 5	46	6	56	< 0.2	1	2			
510258	205 294	< 5	110	6	25	< 0.2	11	9			
510259	205 294	< 5	210	4	36	< 0.2	1	3			
510260	205 294	< 5	72	< 1	22	< 0.2	1	2			
510261	205 294	< 5	94	2	30	< 0.2	3	2			
510262	205 294	< 5	43	1	38	< 0.2	1	3			
510263	205 294	< 5	46	1	26	< 0.2	1	2			
510264	205 294	50	126	2	36	< 0.2	2	3			
510265	205 294	< 5	260	3	50	< 0.2	1	3			
510266	205 294	< 5	55	5	58	< 0.2	2	4			
510267	205 294	15	80	< 1	58	< 0.2	2	3			
510268	205 294	< 5	55	< 1	56	< 0.2	1	3			
510269	205 294	10	48	< 1	46	< 0.2	1	3			
510270	205 294	4000	420	< 1	22	< 0.2	9	60			
510271	205 294	80	50	< 1	38	< 0.2	1	3			
510272	205 294	95	140	< 1	27	< 0.2	1	11			
510273	205 294	30	80	< 1	25	< 0.2	1	2			
510274	205 294	< 5	50	< 1	27	< 0.2	< 1	3			
510275	205 294	< 5	50	1	28	< 0.2	1	4			
510276	205 294	270	94	2	44	< 0.2	1	4			
510277	205 294	5	60	< 1	54	< 0.2	1	4			
510278	205 294	25	45	< 1	14	< 0.2	1	3			
510279	205 294	380	74	8	45	< 0.2	1	2			
510280	205 294	150	260	7	22	< 0.2	18	12			
510281	205 294	< 5	85	5	64	< 0.2	1	3			
510282	205 294	< 5	166	11	96	< 0.2	1	6			
510283	205 294	< 5	168	8	86	< 0.2	2	3			

CERTIFICATION:

*Hart Buchler*





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 Invoice Date: 4-OCT-90  
 Invoice No. : I-9023779  
 P.O. Number : V000160

Project : PINE  
 Comments: CC: TOM GARAGAN

## CERTIFICATE OF ANALYSIS A9023779

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R	As ppm	W ppm			
510284	205 294	< 5	1800	82	114	< 0.2	4	6			
510285	205 294	< 5	450	56	108	< 0.2	1	6			
510286	205 294	< 5	168	40	36	< 0.2	2	4			
510287	205 294	< 5	90	20	18	< 0.2	1	4			
510288	205 294	< 5	420	22	46	< 0.2	< 1	8			
510289	205 294	< 5	1500	36	90	< 0.2	1	3			
510290	205 294	< 5	450	20	44	< 0.2	1	3			
510291	205 294	< 5	220	20	56	< 0.2	1	3			
510292	205 294	< 5	240	10	30	< 0.2	1	4			
510293	205 294	< 5	240	10	20	< 0.2	< 1	3			
510294	205 294	< 5	230	10	20	< 0.2	< 1	5			
510295	205 294	< 5	380	18	48	< 0.2	1	6			
510296	205 294	< 5	2150	2	20	0.2	< 1	3			
510297	205 294	< 5	230	6	14	< 0.2	< 1	3			
510298	205 294	< 5	86	14	34	< 0.2	< 1	3			
510299	205 294	< 5	92	14	32	< 0.2	< 1	4			
510300	205 294	< 5	86	6	24	0.8	< 1	5			
510452	205 294	< 5	108	15	38	< 0.2	< 1	6			

CERTIFICATION:

*Hart Bickler*

**APPENDIX B**  
**PETROGRAPHIC REPORT**



# Vancouver Petrographics Ltd.

JAMES VINNELL, Manager  
JOHN G. PAYNE, Ph.D. Geologist  
CRAIG LEITCH, Ph.D. Geologist  
JEFF HARRIS, Ph.D. Geologist  
KEN E. NORTHCOTE, Ph.D. Geologist

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Report for: Tom Garagan,  
Aurum Geological Consultants Inc.,  
424 Glamorgan Cresc., SW,  
Calgary, Alberta,  
T3E 5B8

Job 90

November 8th, 1990

## SAMPLES:

9 core samples for sectioning and petrographic description.

Sample designations and preparation types are as follows:

90-1 39m.	Thin section
90-1 52m.	Polished thin section
90-1 510262	Polished thin section
90-1 510273	Polished thin section
90-1 Bottom 274	Thin section
90-2 122.89m.	Thin section
90-2 126.4m.	Thin section
90-2 144.85m.	Polished thin section
90-3 59.56m.	Thin section

## SUMMARY:

The samples of this suite are clearly of skarnic affinities. They show the small-scale banded and patchy variations in mineralogy and texture typical of this environment, and several of them are breccias in which fragments of thermally metamorphosed rocks (marbles, arkosic siltstones, etc.) are cemented, and more or less replaced, by a complex suite of skarn minerals including diopside, wollastonite, epidote, garnet, idocrase, tremolite and zeolites.

One sample (90-1 39m.) shows relatively mild thermal effects. It is a spotted carbonaceous mudstone, containing flecks of biotite and prominent spots which probably represent porphyroblastic growths of andalusite - now altered to micas. It contains disseminated pyrrhotite.

Another sample (90-3 59.6m.) is a fresh, coarsely porphyritic monzonite.

The remaining samples are of skarnic type. One group exhibits well-defined breccia textures, whilst the others appear to be of more banded character.

The breccia group comprises Samples 90-1 52m., 90-2 122.9m, 90-2 126.4m and 90-2 144.8m. The last two of these contain coarse clasts of calcitic marble and of more minor arkosic siltstone. Sample 90-2 126.4m. has a matrix of calc silicates, veined and impregnated by zeolites, and shows diffuse biotitization. In 90-2 144.8m. the apparent interclast material includes a distinctive assemblage in which rounded quartz grains are set in a calc-silicate matrix. Similar material (showing varying degrees of skarnification of the matrix) is seen in several other samples, and possibly represents an altered silty conglomerate protolith.

In 90-2 122.9m. the principal fragment type is a hornfelsed arkosic quartzite with disseminated actinolite and biotite. The onglomeratic phase, in this case with a relatively mildly skarnified matrix, is also represented. Other areas of the slide may represent totally skarnic material.

Sample 90-1 52m. is a somewhat finer-grained breccia of varied skarnic clasts. It contains disseminated pyrite.

The banded group comprises Samples 90-1 510262, 510273 and Bottom 274. The first appears to represent a contact between a hornfelsed arkosic siltstone (with abundant disseminated biotite and probable altered andalusite) and a strongly skarnified version of the probable silty conglomerate lithotype - with rounded quartz grains set in a matrix of epidote and idocrase. 510273 is a banded rock incorporating a variety of skarnic assemblages - in which signs of derivation from the marble, feldspathic siltstone and conglomerate (noted in other samples) are recognizable. The sample designated Bottom 274 is a marble, partially replaced by wollastonite, flanked by zones composed of garnet, wollastonite and zeolite.

Traces of disseminated pyrrhotite are seen in several of the skarnic rocks.

Individual petrographic descriptions are attached.



J.F. Harris Ph.D.

((604) 929-5867)

SAMPLE 90-1 39m.

CARBONACEOUS MUDSTONE (SPOTTED HORNFELS)

Estimated mode

Quartz	10
Sericite	55
Phlogopite)	5
Biotite)	
Opaque dust	25
Pyrrhotite(?)	3
Zeolite	2

This is a dark, fine-grained rock in which an incipient foliation, principally defined by the elongation of disseminated sulfides, is visible on the macro-scale. Diffuse, porphyroblast-like bodies are a prominent feature of the etched cut-off block.

In thin section the rock is found to consist essentially of a minutely fine-grained aggregate (1 - 10 microns in size) of sericite and abundant opaque dust. It shows a slightly sinuous micro-lenticular fabric, and appears to be a carbonaceous mudstone.

Accessory quartz occurs as scattered individual grains, 20 - 100 microns in size, and occasionally as tiny, cherty-textured, concordant lenses. Other accessories are small, equant flakes and felted clumps of pale brown biotite, and disseminated sulfides (probably pyrrhotite) as granules 20 - 100 microns in size, often aggregating as small, sometimes elongate clumps.

The porphyroblasts are found to be composed of lamellar/reticulate to complex cruciform growths of minutely felted sericite and/or pale (phlogopitic) biotite. These most likely represent altered andalusite (of the variety chiastolite).

The rock is cut by a fractive system filled by a prismatic form of zeolite.

This sample appears to be a mildly hornfelsed carbonaceous/sulfidic mudstone. It contains skeletal porphyroblastic growths of chiastolite, now retrogressively altered to micas.

## Estimated mode

Quartz	29
Carbonate	22
Epidote	22
Diopside	20
Wollastonite	2
Garnet	2
Pyrite	3
Pyrrhotite	trace
Chalcopyrite	trace

The cut-off block of this sample exhibits a heterogenous, patchy/streaky texture which, in part, appears to represent a polyolithic breccia. Fragments are mainly in the 5 - 10mm size range, are often somewhat elongate, and tend to show a preferred orientation.

On the thin section scale, the distinction between fragments and matrix is often uncertain.

Some definite fragments consist of feathery-textured or polygonal mosaic aggregates of calcite with minor interstitial granules and networks of calc-silicates (diopside, epidote and garnet). Others consist of compact, essentially monomineralic granular epidote, and others are fine-grained quartzitic aggregates with interstitial epidote.

Other distinctive assemblages, whose relationships are less clear cut, consist of aggregates of coarse prismatic diopside, and areas of rounded to sub-angular quartz grains or polycrystalline aggregates, 0.2 - 2.0mm or more in size, set in a matrix consisting predominantly of epidote.

Wollastonite is a sporadic minor accessory, in intimate intergrowth with other interclast calc-silicates.

The rock locally contains relatively abundant sulfides. These are principally pyrite, as individual subhedra and euhedra, from 0.02mm up to as much as 2.0mm in size, the coarser ones commonly being sieved with inclusions of the silicate host. Less commonly, the sulfides form irregular veniform pockets. A few grains consist of pyrrhotite with thin rims of pyrite, and traces of chalcopyrite are seen as minute dispersed flecks in the silicate host. The pyrite appears to be concentrated in the calc-silicate matrix phase, sometimes peripheral to fragments, and often associated with pockets or rounded grains of quartz.

This rock appears to be a breccia of more or less skarnified marble, quartzite and calc-silicate fragments in a matrix (or more finely fragmental phase?) of complexly intergrown calc-silicates.

## Estimated mode

Quartz	20
K-feldspar	20
Plagioclase	10
Biotite	20
Phlogopite	7
Wollastonite	3
Idocrase(?)	15
Epidote	4
Sphene)	trace
Rutile)	
Pyrrhotite	1

This is a heterogenous, crudely-banded rock. Examination of the stained cut-off block shows that approximately half of the sectioned portion consists of a distinctive assemblage (texturally similar to that occurring in several of the other samples) made up of prominent rounded grains of quartz, scattered through a white-etched, locally potassic matrix.

This is in irregular, sinuous (bedded?) contact with a fine-grained grey zone which, together with intercalated lenses and patches of potassic composition (yellow-stained) and zones of dark, equant clumps of apparent micaceous composition, makes up the rest of the slide.

In thin section the first (quartz-studded) unit is found to consist of rounded to ovoid grains (and occasional polycrystalline aggregates) of quartz, 0.1 - 2.0mm in size, set in a matrix which now consists largely of a granular aggregate of intergrown epidote and probable idocrase (high relief, pale brown, very low birefringence). Occasional diffuse wisps of minutely felsitic or cherty material are locally recognizable; these are thought to be remnants of an original matrix, now almost totally replaced by the calc-silicates. The outlines of the rounded quartz grains are often somewhat diffuse, suggesting incipient marginal replacement by the matrix.

This unit contains scattered heterogeneities in the form of radiate clusters of wollastonite, and a clast-like clump of granular/prismatic diopside and quartz with intergrown pockets and networks of pyrrhotite.

The other unit consists of a minutely fine-grained, interlocking aggregate of feldspars and minor quartz, of grain size 10 - 30 microns. This is more or less intensely and evenly impregnated by biotite, as tiny granules and randomly-oriented individual flakes, 10 - 100 microns in size. Coalescent clumps of biotite sometimes contain small rutile needles, or have cores of pyrrhotite.

Sample 90-1 510262 cont.

The equant clumps, prominent in the off-cut, are found to consist of cubic patches of felted biotite - generally paler in colour than the disseminated form, and probably phlogopitic.

This assemblage has the aspect of a hornfels, and the cubic patches of micas may represent pseudomorphs of original andalusite. The protolith appears to have been an arkosic siltstone.

The contact with the other unit is marked by a non-potassic zone with less biotite, which includes rounded quartz grains as in the skarnified portion. This may represent the gradational transition between two related protolithic sedimentary units. In the one containing coarse, rounded quartz grains, the silty matrix has apparently been totally replaced by calc silicates, whereas in the other (without coarse quartz grains), a more potassic silt aggregate has been converted to a biotite hornfels.



## Estimated mode

Quartz	27
K-feldspar	12
Wollastonite	9
Epidote	12
Actinolite	4
Diopside	14
Calcite	11
Tremolite	3
Garnet	7
Pyrrhotite	1
Pyrite	trace
Chalcopyrite	trace

On the scale of the off-cut block (q.v.), the sectioned portion of this sample consists of 4 more or less distinctive textural/mineralogical assemblages, in apparent banded relationship.

These consist, at one end, of clumps of brown garnet in a white-etched matrix. Adjacent to this is a less strongly etched, streaky/lensy zone without garnet. This gives way to a band characterized by abundant discrete, rounded quartz grains in a fine matrix (which includes disseminated sulfides). The final member represented in the slide is minutely fine-grained and rich in K-feldspar (note yellow cobaltinitrite stain).

Thin section study reveals the following characteristics for these four zones:

The first consists of a feathery/sheaf-like intergrowth, on the scale 0.02 - 0.2mm, of fine-grained calcite and wollastonite, with minor accessory flecks of diopside. Garnet (pale brown and isotropic in transmitted light) forms skeletal to subhedral, porphyroblastic clumps, 0.2 - 2.0mm in size, commonly incorporating inclusions of the fibro-lamellar carbonate-wollastonite matrix.

The next band consists essentially of lensy/laminar alternations of fine-grained diopside and epidote, with occasional incorporated wisps of the garnet/calcite assemblage.

The next band is an assemblage which is seen as a component of several other rocks of the suite. Abundant, individual, sub-rounded, parallel-oriented, equant to ovoid/elongate quartz grains, 0.1 - 1.0mm or more in size, are set in a minutely felsitic or cherty matrix which is diffusely impregnated with cryptocrystalline epidote and diopside. Disseminated tiny grains of pyrrhotite are also relatively common. Occasionally the calc-silicates form coarser pods or porphyroblastic crystals elongated parallel to the textural grain.

Sample 90-1 510273 cont.

The final band is a diffuse-margined (recrystallized) aggregate of K-feldspar and minor quartz, of grain size 20 - 100 microns, with abundant, tiny, randomly-disseminated granules and skeletal/acicular porphyroblasts of actinolite. This resembles the assemblage making up a large fragment in Sample 90-2 122.9m.

The contact between this band and the previous one is via a zone of intermingling, marked by lensy concentrations of coarse, anhedral tremolite (also seen in Sample 90-2 122.9m.).

## Estimated mode

Garnet	15
Wollastonite	24
Zeolite	16
Calcite	40
Diopside	3
Quartz	2
Sulfides	trace

This is a heterogenous-textured (crudely-banded?) skarn. The sectioned portion (see cut-off block) includes garnet-bearing assemblages at each end, flanking a central, calcite-rich zone, in which semi-coalescent clumps of a white-etched mineral are most abundant in the marginal portions (adjacent to the garnetiferous assemblage).

The latter is found, in thin section, to consist essentially of a heterogenous intergrowth of wollastonite, garnet and a colourless mineral of very low R.I., showing straight extinction, which is apparently a type of prismatic zeolite. The garnet forms well-crystallized, homogenously isotropic, equant, irregular clumps and elongate segregations, up to several mm in size. These commonly incorporate lamellar crystals of wollastonite. The wollastonite, in this assemblage, ranges from coarse blades of several mm in size to radiate/acicular clusters. The zeolite is mainly notably coarse, and forms irregular pockets throughout; it locally incorporates patches of quartz.

The central zone consists of an anhedral/interlocking, somewhat crenulate-margined mosaic of calcite, of grain size 0.2 - 1.0mm. Wollastonite is a major accessory, forming sporadic irregular clusters of radiate/acicular habit. Minor diopside is associated with these, and some show embryonic to locally well-crystallized development of cores of garnet.

Traces of disseminated Fe sulfides occur in the garnetiferous zone at one end of the slide.

## Estimated mode

Quartz	30
K-feldspar	10
Actinolite	8
Biotite	3
Sphene	trace
Diopside	22
Wollastonite	15
Tremolite	7
Garnet	2
Carbonate	1
Epidote	1
Pyrrhotite	1

This is a variant of the coarse breccia lithotype exemplified by the samples from 126.4m. and 144.8m. (in which the principal fragment-type is a rather pure calcitic marble).

The present sample contains virtually no carbonate. The principal fragment in the sectioned portion is a 3cm sub-angular to partially rounded clast of hornfelsed arkosic quartzite. This consists of a partially recrystallized aggregate of quartz and K-feldspar grains, 20 - 100 microns in size, with abundant accessory actinolite and lesser biotite, plus traces of disseminated sulfides. The actinolite is in the form of acicular grains and skeletal/poikiloblastic euhedra, and the biotite is as tiny, poorly-formed granules. The fabric is totally non-oriented.

A notable feature of this fragment is a lighter-coloured peripheral zone distinguished by a paucity or lack of the disseminated calc-silicate components. This zone conforms closely to the shape of the fragment and is apparently a reaction rim developed subsequent to incorporation in the breccia. The clast is transected by a thin, pre-brecciation veinlet of quartz.

In addition to this prominent large fragment, the stained off-cut shows several areas of obviously different mineralogy and texture whose relationship is unclear, but which, in some cases, may represent modified clasts.

One area exhibits a distinctive clastic, or pseudo-clastic texture, similar to that described in Sample 90-2 144.8m. In the present sample this consists of individual, ovoid/rounded to sub-angular grains of quartz, 0.1 - 1.0mm in size, scattered (with partial preferred orientation) through a matrix of what appears to be minutely felsitic plagioclase (or possibly chert). Fine-grained calc silicates, including actinolite, diopside and epidote, and disseminated Fe sulfides, are developed throughout this matrix. This lithotype could well represent a skarnified wacke or silty conglomerate.

Sample 90-2 122.89m. cont.

A slight variant of the same assemblage, in which the matrix includes a component of K-feldspar, is seen in another part of the slide.

Another area (showing a strong white etch on the off-cut) consists predominantly of fibrous/acicular wollastonite with intergrown diopside and fine-grained garnet, and pockets of carbonate. This assemblage grades (by replacement?) into the pseudoclastic one - via a zone in which the quartz ovoids are set in a dominantly wollastonite matrix.

Another distinctive area, at one corner of the slide, consists of tremolite as coarse (porphyroblastic or accreted polygranular) patches, incorporating tiny relict granules of quartz. This area shows a selvage of minutely microgranular K-feldspar.

SAMPLE 90-2 126.4m.

BRECCIA, WITH MARBLE CLASTS

Estimated mode

Calcite	68
K-feldspar	5
Zeolite	15
Diopside	2
Secondary biotite(?)	5
Idocrase	1
Quartz	2
Epidote	1
Sulfides	1

This sample is a coarse breccia or conglomerate, made up of rounded to somewhat flattened fragments of calcitic marble, 1 - 4cm in size, in a streaky, heterogenous matrix.

The fragments are composed of an undeformed, equigranular, polygonal mosaic of calcite, of grain size 0.2 - 0.6mm. Diopside is a minor accessory, as sporadic clumps of tiny granules and prismatic grains in the grain boundaries of the calcite aggregate.

The matrix, or inter-fragmental material, is of complex composition and heterogenous texture. The most prominent constituent is a prismatic zeolite. In part this forms distinct veinlets, sometimes clearly cutting the marble clasts; offshoots of the zeolite veins locally penetrate the marble as delicate, intergranular networks.

The more distinct veinlets and pockets of blocky-textured zeolite alternate with a complex, streaky/patchy, multicomponent intergrowth of fine-grained carbonate, zeolite, diopside, idocrase, epidote, quartz and K-feldspar - in various proportions. The distribution of yellow cobaltinitrite stain on the off-cut suggests that the K-spar may, in part, represent remnants of small fragments.

Another rather prominent constituent is a brown, minutely felted material which is probably a form of biotite. This occurs in the matrix phase as diffuse clumps and pervasive impregnations; it is also developed in similar mode in the peripheral zones of some of the marble clasts.

Minor sulfides (probably mainly pyrrhotite) occur as irregular threads or disseminations in the matrix phase.

SAMPLE 90-2 144.85m. BRECCIA, WITH SKARNIC MATRIX

Estimated mode

Calcite	36
K-feldspar	8
Wollastonite	10
Diopside	20
Quartz	20
Epidote	3
Garnet	3
Opaque	trace

This is a rock of somewhat similar type to 90-2 126.4m., being a breccia or conglomerate in which rounded clasts of calcitic marble are the principal fragment type, together with less abundant clasts of K-feldspathic composition (see stained off-cut).

The apparent interclast, or matrix component, is both more abundant and mineralogically different from that in the sample from 126.4m. In particular, it lacks the veinlets and diffuse impregnations of zeolite characterizing the other sample, and is prominently studded with small, rounded grains of quartz.

The marble clasts in the slide range in size from 2 - 20mm or more. They appear to be of identical composition to those in the other sample, consisting of mosaics of polygonal calcite grains, 0.1 - 0.5mm in size, with minor accessory diopside as scattered, tiny, prismatic grains and clumps in the grain boundaries of the calcite.

A subordinate clast type consists of minutely interlocking, saccharoidal aggregates of K-feldspar, of grain size 10 - 50 microns, with rather abundant disseminated needles and granules of diopside, epidote and opaques. One example was also seen of a clast composed of a texturally similar aggregate of quartz, with minor K-spar and disseminated epidote.

The interclast material contains abundant, sharply defined, sub-angular to rounded bodies of quartz, 0.1 - 1.0mm in size, set in a matrix of calc silicates. The quartz bodies have the aspect of clasts. They are mainly monocrystalline, but a few are polycrystalline aggregates. They typically show strain polarization and recrystallization effects. They are mainly equant/ovoid in form, and tend to show partial preferred elongation.

The matrix consists of micro-granular to bladed intergrowths of diopside, wollastonite, epidote and minor garnet. The wollastonite (etched white in the off-cut) exhibits a strong tendency to concentrate as rims around the marble clasts. These show local marginal replacement of the carbonate by wollastonite.

## Estimated mode

K-feldspar	52
Plagioclase	28
Quartz	6
Hornblende	11
Biotite	1
Carbonate	1
Spheue	1
Apatite	trace
Opaques	trace

This is a fresh, undeformed, prominently porphyritic, intrusive-textured igneous rock.

Subhedral phenocrysts, 1 - 2cm in size, are composed of K-feldspar. This is predominantly cryptoperthitic, but occasionally shows traces of the characteristic cross-hatch twinning of microcline. These phenocrysts are somewhat poikilitic, incorporating small grains of plagioclase and quartz, especially in their peripheral zones.

The matrix of the rock is composed of an intergrowth of plagioclase and hornblende, with accessory quartz and K-feldspar. The plagioclase and hornblende are euhedral-subhedral grains, 0.5 - 2.5mm in size (occasionally to 5.0mm); the quartz and K-spar are generally of an interstitial character, forming an equigranular aggregate in the size range 0.2 - 0.5mm, together with some finer-grained hornblende and brown biotite. The plagioclase has a twinning-indicated composition of about  $An_{30}$  (oligoclase-andesine)

Spheue is a prominent minor accessory, as scattered anhedral to euhedral grains, generally associated with (and occasionally enclosed within) hornblende. Traces of apatite and opaques are the other accessories.

The rock is strikingly fresh, the only alteration being minor replacement of fine-grained matrix hornblende by carbonate. Carbonate is also seen as rare, threadlike veinlets cutting feldspars .

This rock is relatively quartz-poor, and has a composition in the monzonite field. The field classification of megacrystic hornblende monzonite appears quite acceptable, though the inclusion of hornblende as a modifier is, perhaps, superfluous and somewhat misleading. Hornblende is the typical and characteristic mafic of the monzonite class and, in this case, is not the megacrystic constituent.



**APPENDIX C**

**STATEMENT OF COSTS**

Sept 15 to Sept 23, 1990 P90-1, P90-2  
Sept 24 to Oct 3, 1990, P90-3, P90-4

**STATEMENT OF COSTS PINE-1**  
 Sept 15 to Sept 23, 1990 P90-1, P90-2

**Drilling Costs: P90-1, 90-2:**

Drilling by F. Boisvenu Drilling Ltd., New Westminster B.C.:

Invoice #900905

1. 986' (300.53 meters) @ \$20.10/ft	\$ 19,818.60	
2. 6' (1.83 meters) (>500', 90-1) @ \$21.80/ft	130.80	
3. 2 acid tests @ \$60.30	120.60	
		20,070.00

Mud, Bits, Grease, etc.

4 bags mud @ 12.00	48.00	
2 pails mud @ 147.67	295.34	
2 NQ bits @ 630.00	1,260.00	
1 NQ bit @ 50% - 630.00	315.00	
1 NQ bit @ 75% - 630.00	472.50	
Subtotal	2,390.84	
12% overhead charge	286.91	
		2,677.75

Drill and Cat Hours for site preparation:

Sept 18 to Sept 23		
17 man hours @ 28/hr	476.00	
2 drill hours @ 20/hr	40.00	
15 hours @ 75hr	1,125.00	
		1,641.00

Drill and Cat Mob  
 50% of \$6,900.00

3,450.00

Core Splitter 50% of \$100.00

50.00

**Total Drilling Costs**

**\$27,888.75**

**Geochem Costs: Chemex Labs, N. Vancouver**

51 samples for Au, Ag, As, Cu, Pb, Zn and  
 W analysis @ \$28.50

1,453.50

**Labour Costs; Aurum Geological Consultants Inc.**

**Invoice # AGCI 81-90111**

Tom Garagan, B.Sc, FGAC, P.Geol - Drill  
 Supervision, logging, Sept 15-Sept 23, 1990;  
 8.5 days @320/day

2,720.00

<b>Truck Costs-</b> T.Garagan,ERC 90-8 & AGCI 81-90111		
Truck Rental 9 days @ \$60/day	540.00	
Gas 161.81 x 50%	<u>80.94</u>	620.94
<b>Food and Accommodation:</b> AGCI 81-90111, TG ERC 90-8		
Total 50% of \$1,174.08		587.04
<b>Field Supplies:</b> AGCI 8190111 and TG ERC 90-8		
Total 50% of \$141.88		70.94
<b>Report Costs</b>		
TG and drafting, printing: estimated at \$3500.00		
50% of \$3500		1,750.00
<b>Petrographic Studies:</b> Vancouver Petrographics		
50% of \$607.50		<u>303.75</u>
<b>Total Costs for Assessment Purpose P90-1,P90-2</b>		<b>\$35,394.92</b>

**STATEMENT OF COSTS; PINE-1**  
Sept 24 to Oct 3, 1990 P90-3, P90-4

**Drilling Costs: P90-3, 90-4:**

Drilling by F. Boisvenu Drilling Ltd., New Westminster B.C.:

Invoice #900905

1. 896' (273.1 meters) @ \$20.10/ft \$18,009.60

2. 2 acid tests @ \$60.30 120.60

18,130.20

Mud, Bits, Grease, etc.

1 bag mud @ 12.00 12.00

1 NQ bit @ 75% - 630.00 472.50

1 NQ Casing Shoe @ 280.00 280.00

1 NQ Tricone @ 750.50 750.50

Subtotal 1,515.00

12% overhead charge 181.80

1,696.80

Drill and Cat Hours for site preparation:

12 man hours @ 28/hr 336.00

8 cat hours @ 75/hr 600.00

936.00

Drill and Cat Mob

50% of \$6,900.00 3,450.00

Core Splitter 50% of \$100.00

50.00

**Total Drilling Costs**

**\$24,263.00**

**Geochem Costs: Chemex Labs, N. Vancouver**

18 samples for Au, Ag, As, Cu, Pb, Zn and

W analysis @ \$28.50

513.00

**Labour Costs; Aurum Geological Consultants Inc.**

**Invoice # AGCI 81-90111**

Tom Garagan, B.Sc, FGAC, P.Geol - Drill

Supervision, logging, Sept 24-Oct 3, 1990;

5.5 day @ \$320/day 1,760.00

Harmen Keyser, B.Sc., FGAC, logging

Sept 27-29, 1990

3 days @ \$320/day 960.00

2,720.00

**Truck Costs- T.Garagan, ERC 90-8 & AGCI 81-90111**

Truck Rental 10 days @ \$60/day 600.00

Gas 161.81 x 50% 80.94

680.95

<u>Food and Accommodation:</u> AGCI 81-90111, TG ERC 90-8	
Total 50% of \$1,174.08	587.04
<u>Field Supplies:</u> AGCI 8190111 and TGERC 90-8	
Total 50% of \$141.88	70.94
<u>Report Costs</u>	
TG and drafting, printing, estimated at \$3500.00	
50% of \$3500	1,750.00
<u>Petrographic Studies:</u> Vancouver Petrographics	
50% of \$607.50	<u>303.75</u>
<b>Total Costs for Assessment Purpose P90-1,P90-2</b>	<b>\$30,888.68</b>

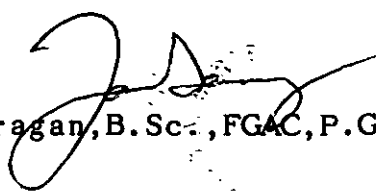
**APPENDIX D**  
**STATEMENT OF QUALIFICATIONS**

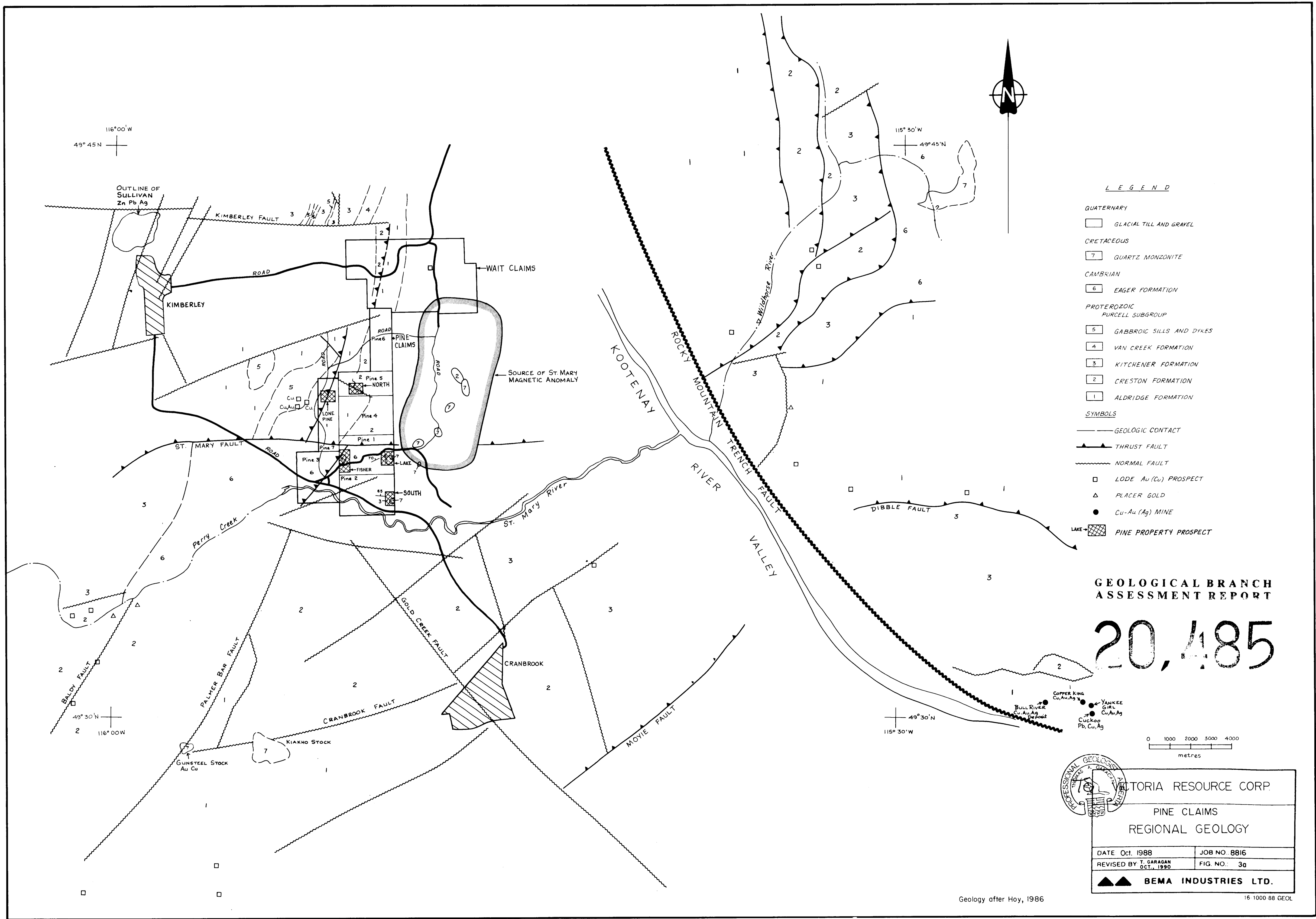
## STATEMENT OF QUALIFICATIONS

I, THOMAS GARAGAN, hereby certify that:

1. I am a geologist with Aurum Geological Consultants Inc. of P.O.Box 4367, Whitehorse, Y.T. and I supervised the work described in this report.
2. I obtained a Bachelor of Science degree with Honours in Geology from the University of Ottawa, Ontario, in 1980.
3. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA).
4. I am a fellow of the Geological Association of Canada (F3819) and a member of the Mineralogical Association of Canada and the Yukon Professional Geoscientists Society.
5. I have been engaged in mineral exploration and geological survey mapping on a full and part time basis for 13 years, of which 9 have been spent on mineral exploration programs in the Cordillera.
6. I have no interest in the claims or securities of Victoria Resources Corporation nor do I expect to obtain any.
7. I consent to the use of this report in a company report or statement, provided that no portion is used out of context in such a manner as to convey a meaning differing materially from that set out in the whole.

DATED at Calgary, Alta., this 14<sup>th</sup> day of November 1990.

  
Thomas Garagan, B.Sc., FGAC, P.Geol

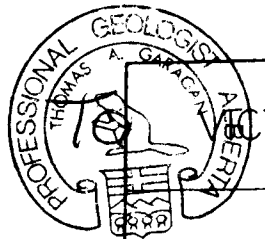
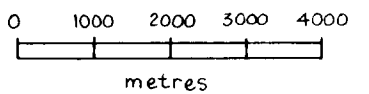


**LEGEND**

- QUATERNARY
  - GLACIAL TILL AND GRAVEL
- CRETACEOUS
  - 7 QUARTZ MONZONITE
- CAMBRIAN
  - 6 EAGER FORMATION
- PROTEROZOIC
  - PURCELL SUBGROUP
    - 5 GABBROIC SILLS AND DYKES
    - 4 VAN CREEK FORMATION
    - 3 KITCHENER FORMATION
    - 2 CRESTON FORMATION
    - 1 ALDRIDGE FORMATION
- SYMBOLS
  - GEOLOGIC CONTACT
  - ▲ THRUST FAULT
  - ~ NORMAL FAULT
  - LODGE Au (Cu) PROSPECT
  - △ PLACER GOLD
  - Cu-Au (Ag) MINE
  - ▣ PINE PROPERTY PROSPECT

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**20,485**



**VICTORIA RESOURCE CORP.**

**PINE CLAIMS  
REGIONAL GEOLOGY**

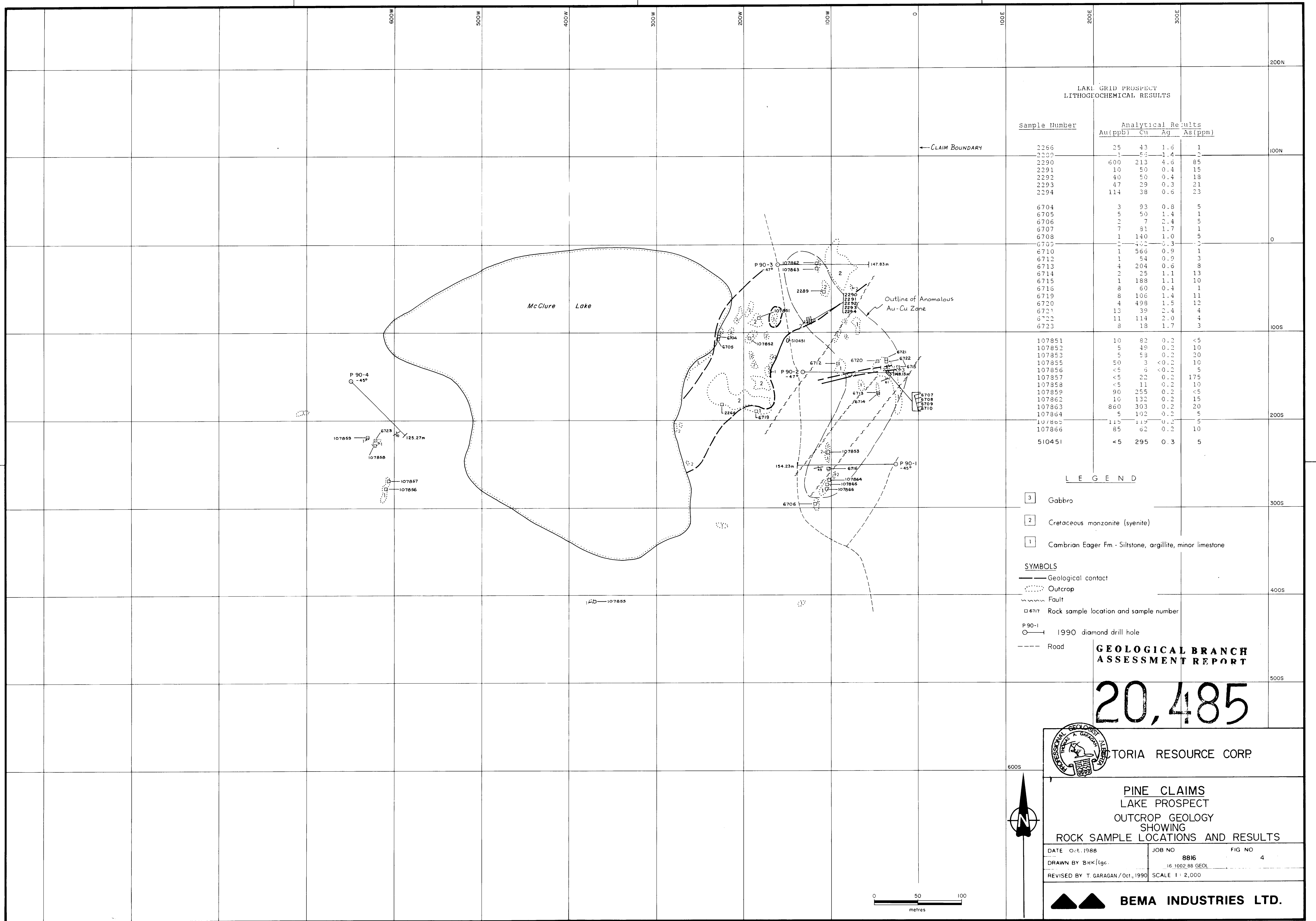
DATE Oct. 1988      JOB NO. 8816  
 REVISED BY T. SARAGAN      FIG. NO.: 3a  
 Oct., 1990

**BEMA INDUSTRIES LTD.**

Geology after Hoy, 1986

16-1000 88 GEOL





LAKI GRID PROSPECT  
LITHOGEOCHEMICAL RESULTS

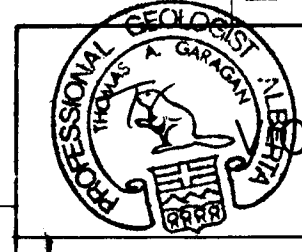
Sample Number	Analytical Results			
	Au (ppb)	Cu	Ag	As (ppm)
2266	25	43	1.6	1
2290	1	53	1.4	2
2290	600	213	4.6	85
2291	10	50	0.4	15
2292	40	50	0.4	18
2293	47	29	0.3	21
2294	114	38	0.6	23
6704	3	93	0.8	5
6705	5	50	1.4	1
6706	2	7	2.4	5
6707	7	81	1.7	1
6708	1	140	1.0	5
6709	2	402	0.3	0
6710	1	566	0.9	1
6712	1	54	0.9	3
6713	4	204	0.6	8
6714	2	25	1.1	13
6715	1	188	1.1	10
6716	8	60	0.4	1
6719	8	106	1.4	11
6720	4	498	1.5	12
6721	13	39	2.4	4
6722	11	114	2.0	4
6723	8	18	1.7	3
107851	10	82	0.2	<5
107852	5	49	0.2	10
107853	5	53	0.2	20
107855	50	3	<0.2	10
107856	<5	6	<0.2	5
107857	<5	22	0.2	175
107858	<5	11	0.2	10
107859	90	255	0.2	<5
107862	10	132	0.2	15
107863	860	303	0.2	20
107864	5	102	0.2	5
107865	115	119	0.2	5
107866	85	62	0.2	10
510451	<5	295	0.3	5

LEGEND

- 3 Gabbro
  - 2 Cretaceous monzonite (syenite)
  - 1 Cambrian Eager Fm - Siltstone, argillite, minor limestone
- SYMBOLS
- Geological contact
  - ⋯ Outcrop
  - Fault
  - 6717 Rock sample location and sample number
  - P 90-1 1990 diamond drill hole
  - Road

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

20,485

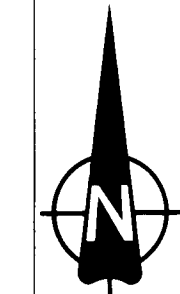
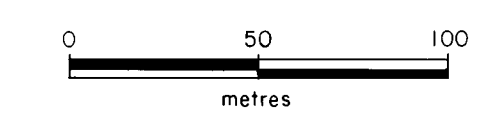


VICTORIA RESOURCE CORP.

PINE CLAIMS  
LAKE PROSPECT  
OUTCROP GEOLOGY  
SHOWING  
ROCK SAMPLE LOCATIONS AND RESULTS

DATE Oct. 1988	JOB NO 8816	FIG NO 4
DRAWN BY BHK/lgc.	16-1002-88 GEOL	
REVISED BY T. GARAGAN/Oct., 1990	SCALE 1 : 2,000	

**BEMA INDUSTRIES LTD.**



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

20,485

LEGEND

CRETACEOUS

- 2a - porphyritic megacrystic hornblende monzonite
- 2b - bi-hb monzonite, bi monzonite, felsite

CAMBRIAN EAGER FORMATION

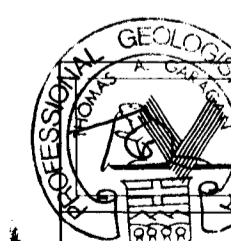
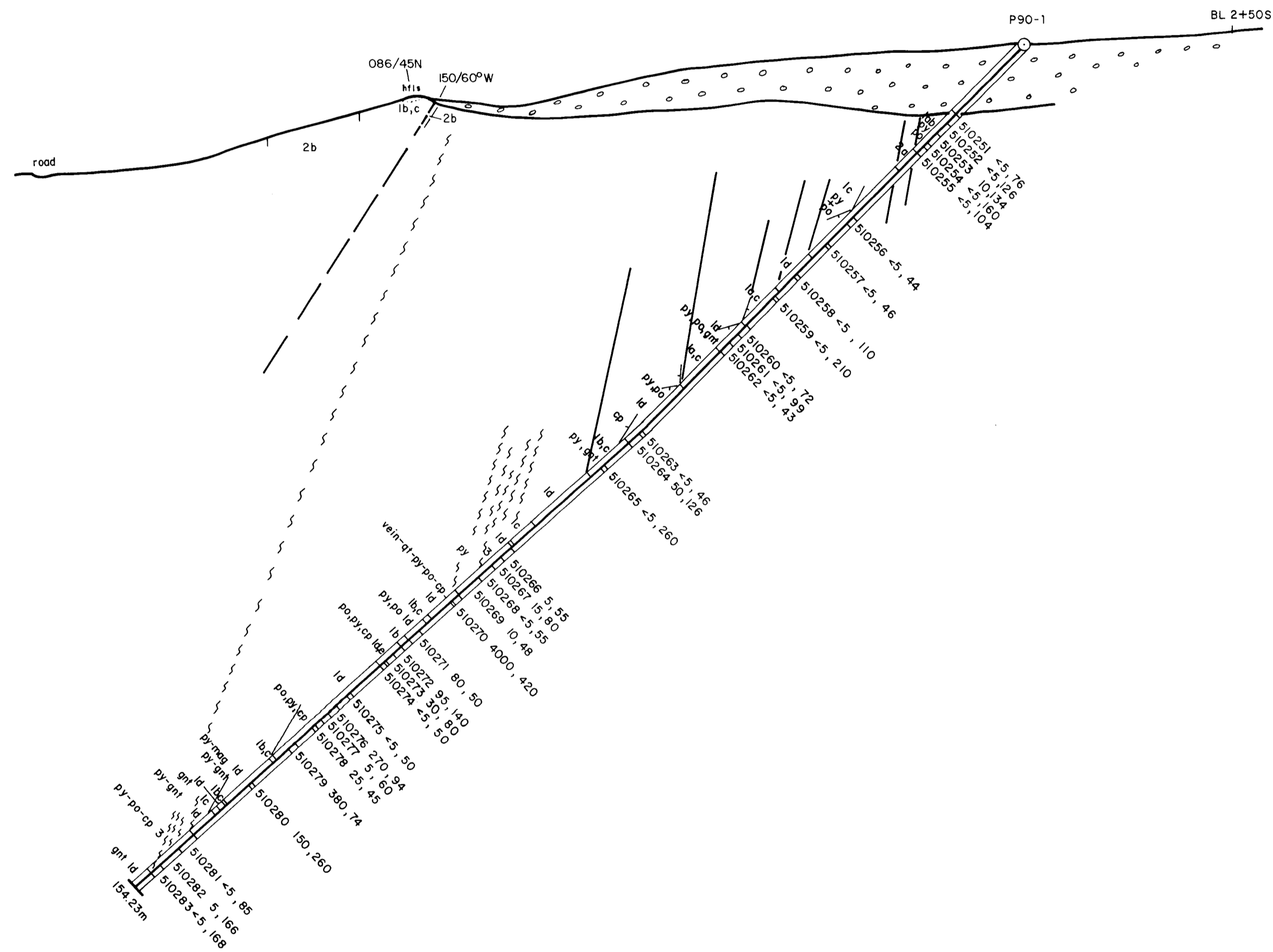
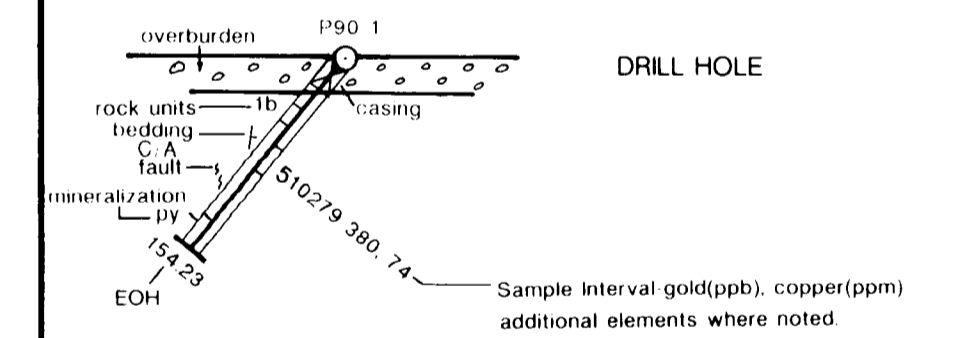
- 1a - siltstone, sandstone, conglomerate
- 1b - hornfels
- 1c - mudstone, argillite, greywacke
- 1d - limestone breccia, calc silicate, limestone
- 1e - skarn
- 1f - calcareous conglomerate - breccia

AGE UNKNOWN

- 3 - chloritized breccia, fault breccia, gouge

MINERALS

- po - pyrrhotite
- py - pyrite
- cp - chalcopyrite
- sp - sphalerite
- gn - galena
- mag - magnetite
- gnt - garnet
- cc - calcite
- qt - quartz



VICTORIA RESOURCES CORPORATION

PINE PROJECT

DRILL SECTION P90-1  
LINE 2 + 50 S  
LOOKING NORTH

DATE October, 1990	PROJECT NO 9016	FILE NO	FIGURE : 5
DRAWN BY T GARAGAN/lgc	SCALE 1 500		
REVISED :			

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

20,485  
LEGEND

CRETACEOUS

- 2a - porphyritic megacrystic hornblende monzonite
- 2b - bi-hb monzonite, bi monzonite, felsite

CAMBRIAN EAGER FORMATION

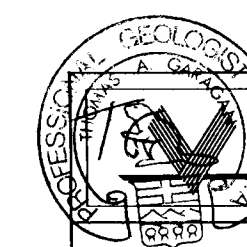
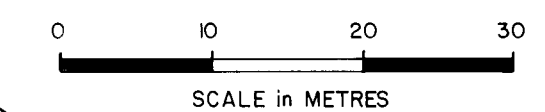
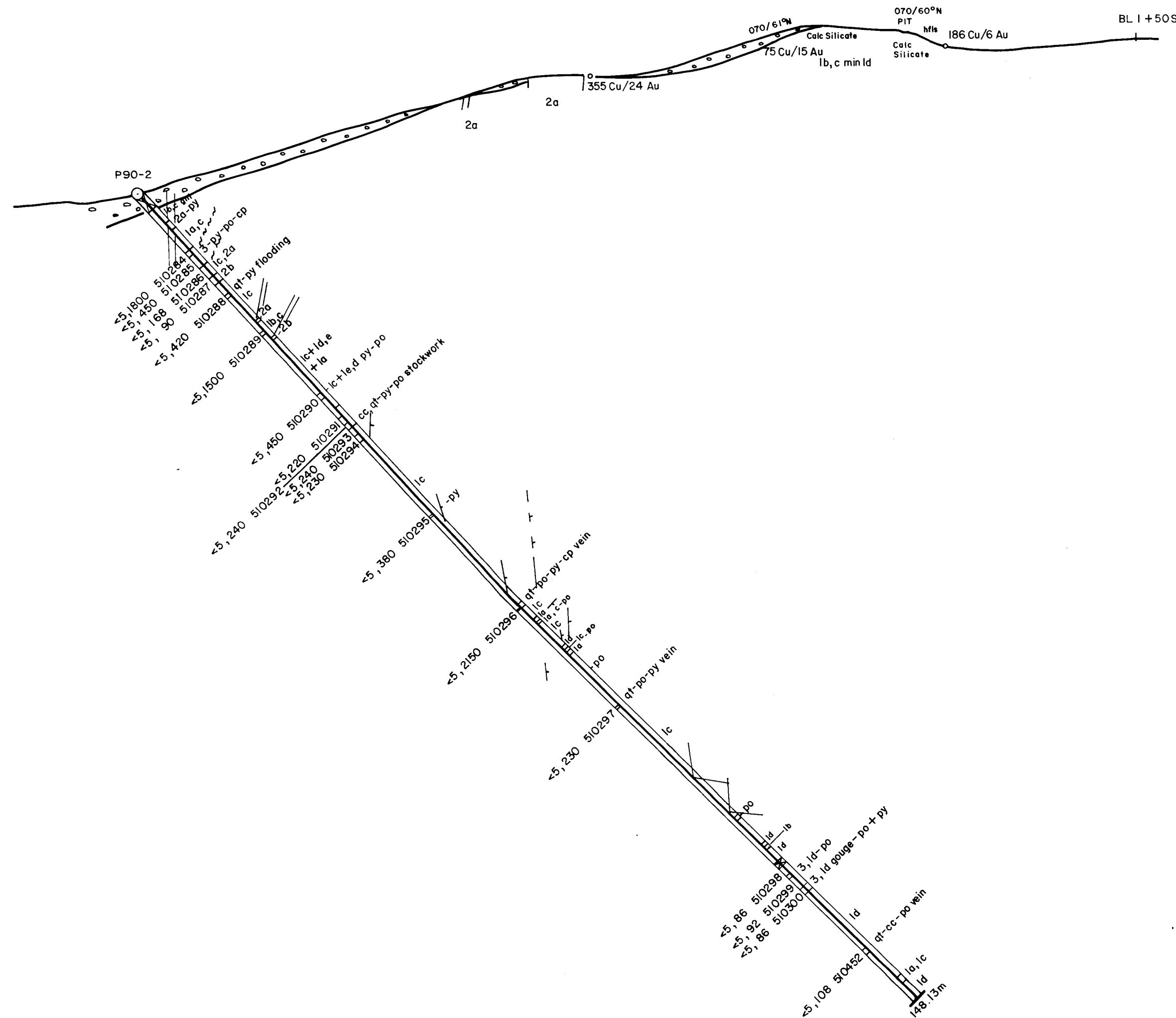
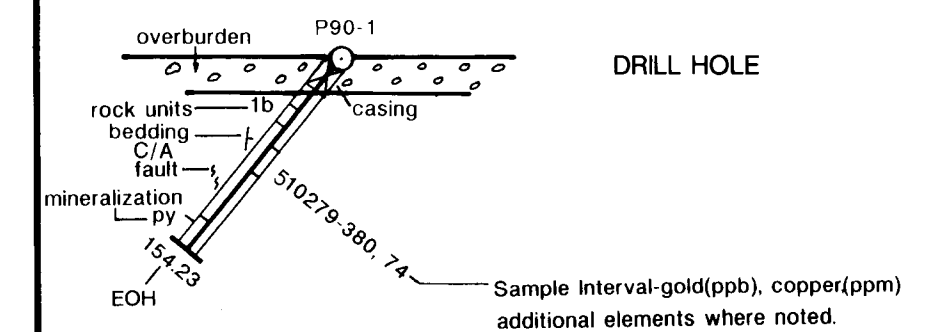
- 1a - siltstone, sandstone, conglomerate
- 1b - hornfels
- 1c - mudstone, argillite, greywacke
- 1d - limestone breccia, calc silicate, limestone
- 1e - skarn
- 1f - calcareous conglomerate - breccia

AGE UNKNOWN

- 3 - chloritized breccia, fault breccia, gouge

MINERALS

- po - pyrrhotite
- py - pyrite
- cp - chalcopyrite
- sp - sphalerite
- gn - galena
- mag - magnetite
- gnt - garnet
- cc - calcite
- qt - quartz



VICTORIA RESOURCES CORPORATION

PINE PROJECT

DRILL SECTION P90-2

LINE 1 + 50 S

LOOKING NORTH

DATE : October, 1990	PROJECT NO. 9016	FILE NO.	FIGURE : 6
DRAWN BY : T. GARAGAN/lgc	SCALE : 1 : 500		
REVISED :			

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

# 20,485

LEGEND

CRETACEOUS

- 2a - porphyritic megacrystic hornblende monzonite
- 2b - bi-hb monzonite, bi monzonite, felsite

CAMBRIAN EAGER FORMATION

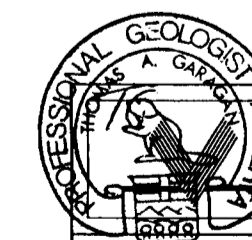
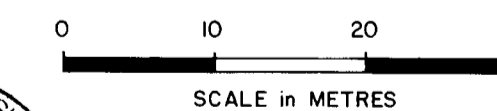
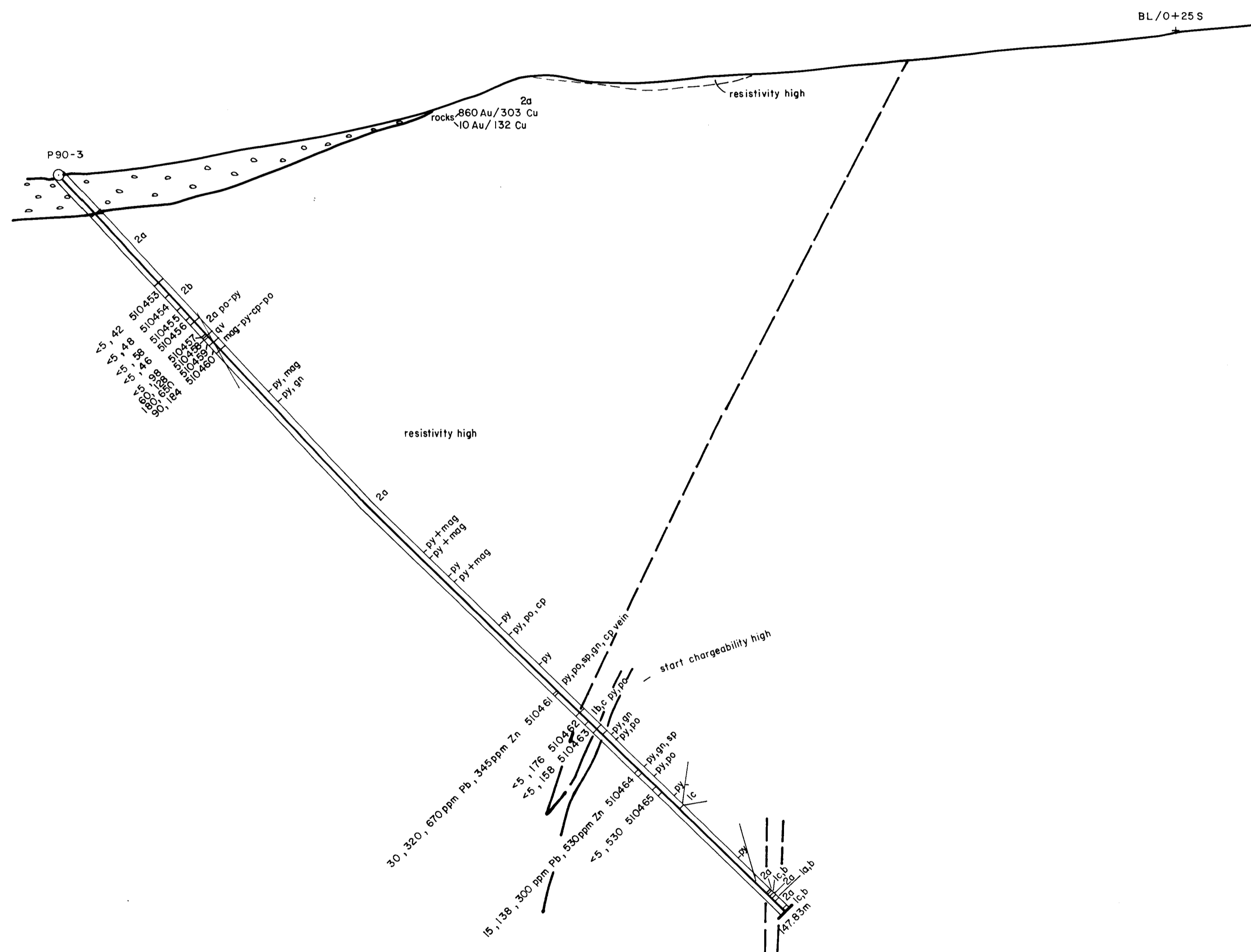
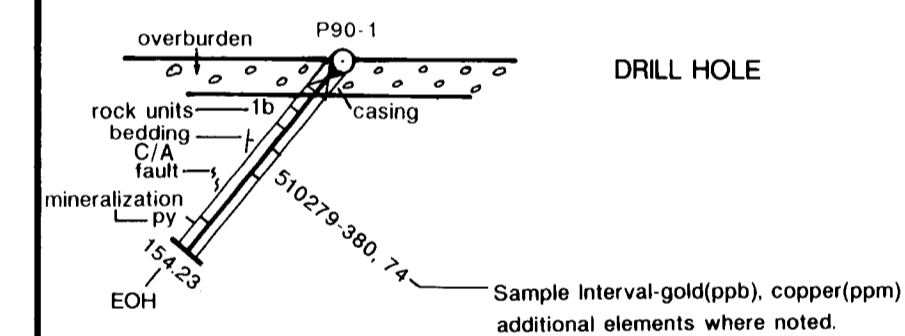
- 1a - siltstone, sandstone, conglomerate
- 1b - hornfels
- 1c - mudstone, argillite, greywacke
- 1d - limestone breccia, calc silicate, limestone
- 1e - skarn
- 1f - calcareous conglomerate - breccia

AGE UNKNOWN

- 3 - chloritized breccia, fault breccia, gouge

MINERALS

- po - pyrrhotite
- py - pyrite
- cp - chalcocopyrite
- sp - sphalerite
- gn - galena
- mag - magnetite
- gnt - garnet
- cc - calcite
- qt - quartz



VICTORIA RESOURCES CORPORATION

PINE PROJECT

DRILL SECTION P90-3

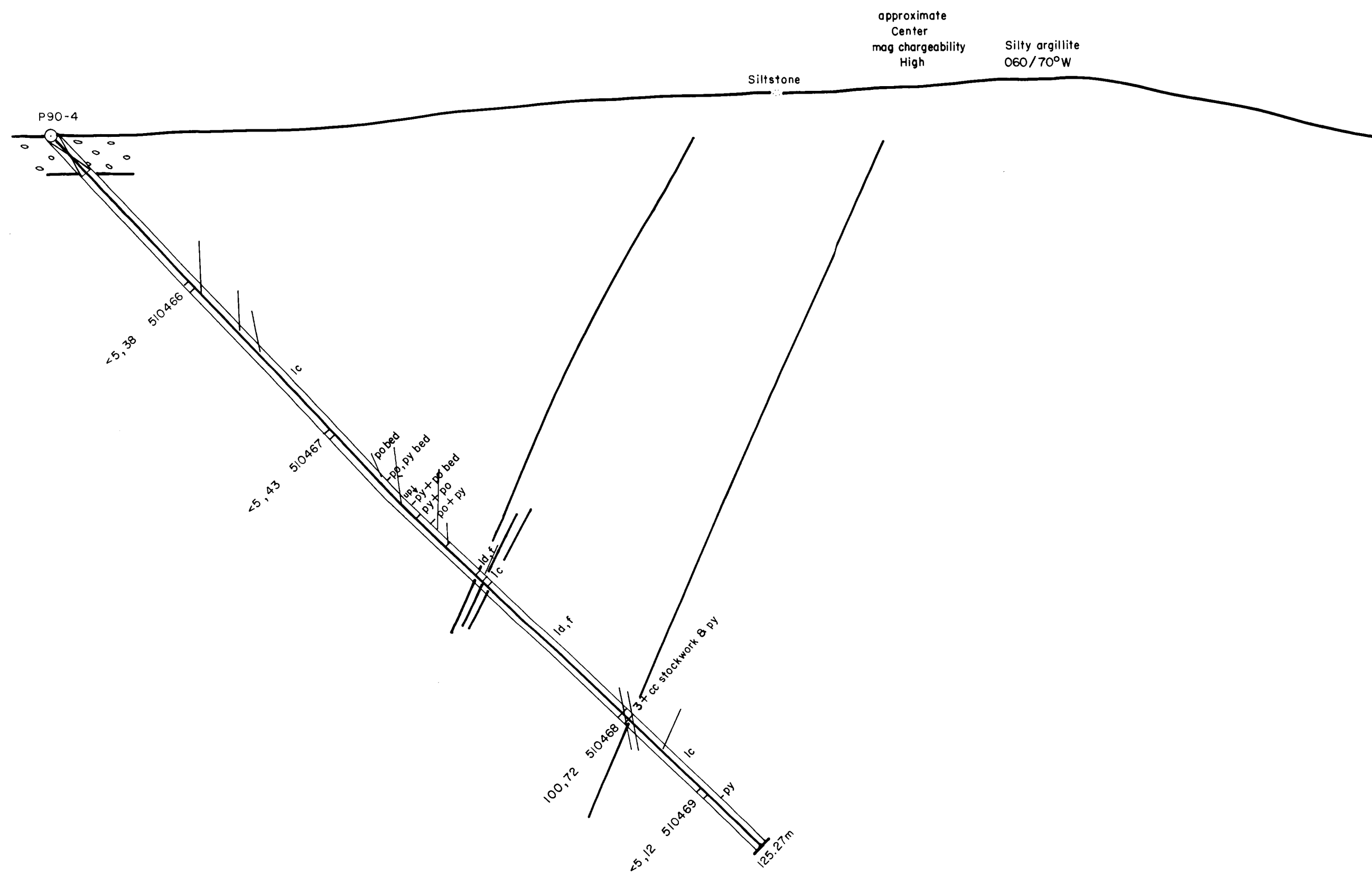
LINE 0 + 25 S

LOOKING NORTH

DATE - October, 1990	PROJECT NO. 9016	FILE NO.	FIGURE : 7
DRAWN BY : T. GARAGAN/lgc	REVISER :		SCALE : 1 : 500

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

20,485  
LEGEND



CRETACEOUS

- 2a - porphyritic megacrystic hornblende monzonite
- 2b - bi-hb monzonite, bi monzonite, felsite

CAMBRIAN EAGER FORMATION

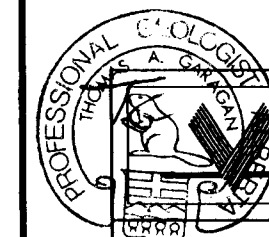
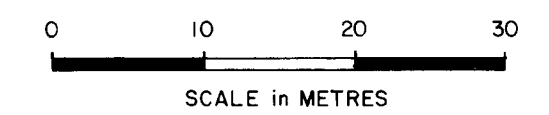
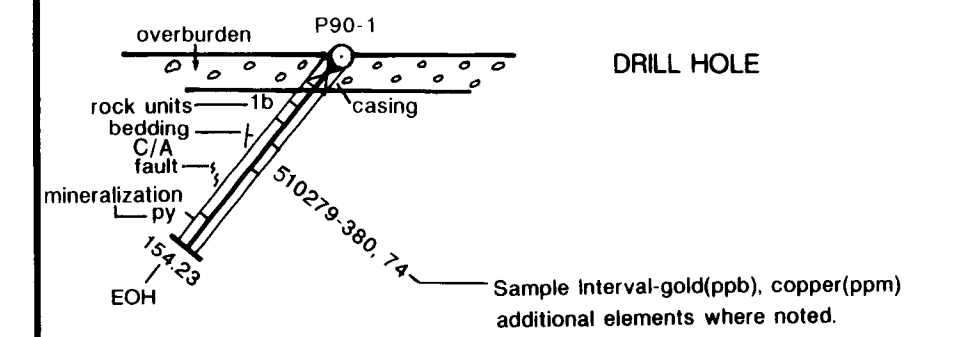
- 1a - siltstone, sandstone, conglomerate
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- 1c - mudstone, argillite, greywacke
- 1d - limestone breccia, calc silicate, limestone
- 1e - skarn
- 1f - calcareous conglomerate - breccia

AGE UNKNOWN

- 3 - chloritized breccia, fault breccia, gouge

MINERALS

- po - pyrrhotite
- py - pyrite
- cp - chalcopyrite
- sp - sphalerite
- gn - galena
- mag - magnetite
- grt - garnet
- cc - calcite
- qt - quartz

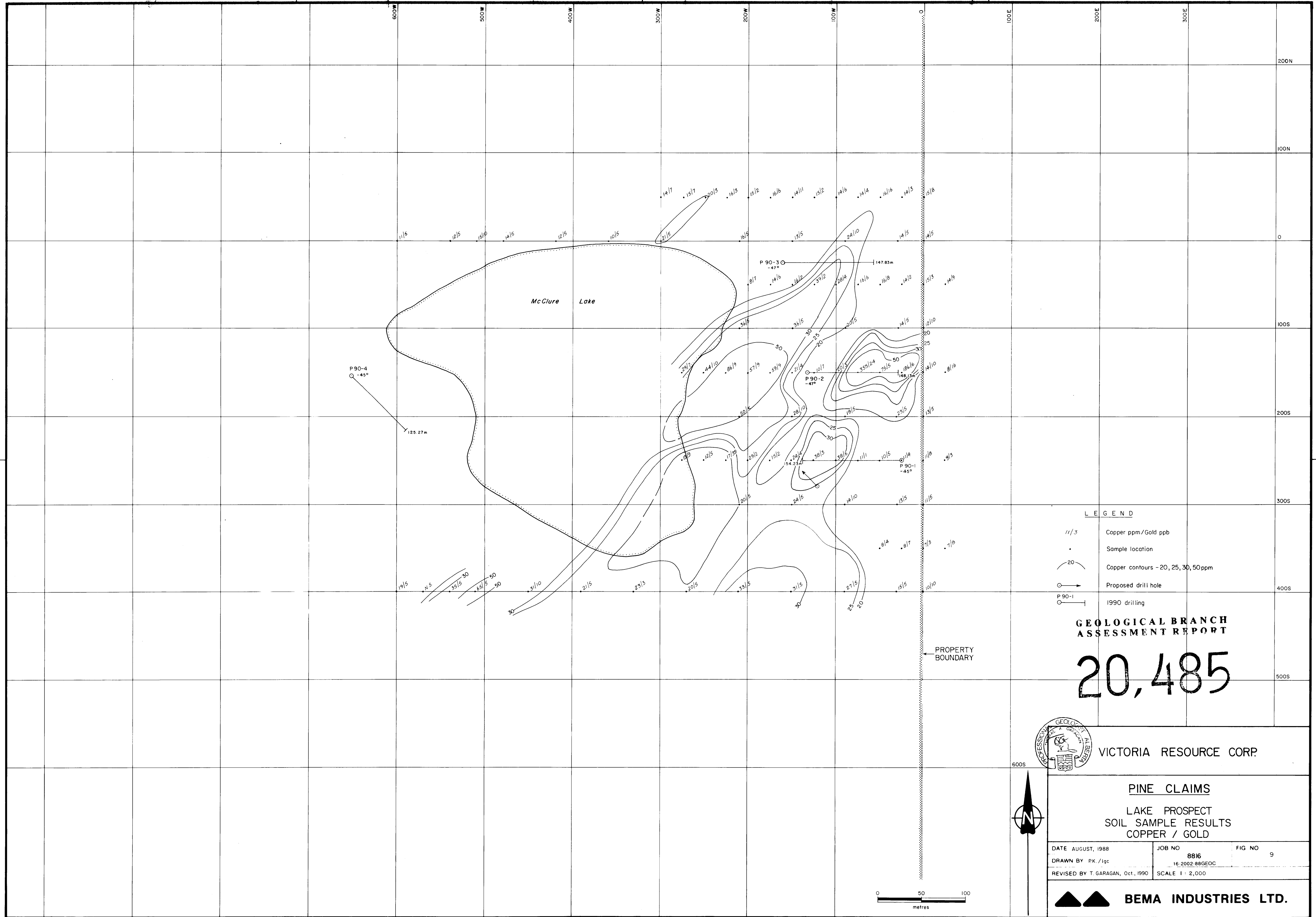


VICTORIA RESOURCES CORPORATION

PINE PROJECT

DRILL SECTION P90-4  
LINE 6+50W/1+50S off section  
LOOKING NE

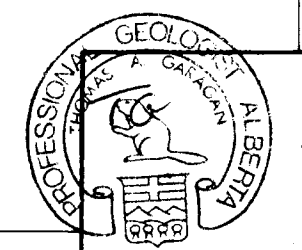
DATE : October, 1990	PROJECT NO. 9016	FILE NO.	FIGURE : 8
DRAWN BY : T. GARAGAN/lgc	SCALE : 1 : 500		
REVISED :			



- LEGEND**
- 11/3 Copper ppm/Gold ppb
  - Sample location
  - 20 — Copper contours - 20, 25, 30, 50ppm
  - → Proposed drill hole
  - P 90-1 1990 drilling

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**20,485**



VICTORIA RESOURCE CORP.

**PINE CLAIMS  
LAKE PROSPECT  
SOIL SAMPLE RESULTS  
COPPER / GOLD**

DATE AUGUST, 1988	JOB NO 8816	FIG NO 9
DRAWN BY PK./lgc	16.2002-88GEOC	
REVISED BY T. GARAGAN, Oct., 1990	SCALE 1 : 2,000	

**BEMA INDUSTRIES LTD.**