

SUMMARY REPORT  
ON  
PROPERTY

OF  
PINNACLE MINES LIMITED NPL  
A, C, CLE, PIN, & ART CLAIMS  
KNUTSFORD AREA  
KAMLOOPS MINING DIVISION  
PROVINCE OF BRITISH COLUMBIA

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ERRANDCAST  
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AUG '69

(A)  
I.P.  
FOR SUMMAC

PROPERTY

The property consists of some sixty-two contiguous located mineral claims as follows:

A1 - 4 incl.	47777 - 47780
5A - 8A incl.	56758 - 56761
A9 - 12 incl.	47785 - 47788
A13-16 incl.	48071 - 48074
C1 - 3 incl.	47789 - 47791
C4-18 incl.	47955 - 47969
CLE1-10 incl.	47792 - 47801
PIN 1 Fr.	71608
PIN 2 Fr.	71609
PIN 3	71610
PIN 4	71611
PIN 5 Fr.	71612
PIN 6 Fr.	71613
PIN 7 Fr.	71619
PIN 8 - 12 incl.	71614 - 71618
ART 1 - 6 Fr. incl.	No record numbers available

92INE015

A, CLE, JOKER

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92INE015. (9W)

PROPERTY FILE

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The above located mineral claims are recorded in the Mine Recorder's Office in the city of Kamloops, Kamloops Mining Division, Province of British Columbia.

#### LOCATION AND ACCESS

The property is situate some five miles south of the village of Knutsford and eight miles south-south-west of the City of Kamloops, B.C. The property lies within the one degree area of the south-east quadrant whose co-ordinates are  $50^{\circ}$ ,  $120^{\circ}$  N.E. Number 5 Highway traverses the east margin of the property and extends to Merritt some 45 miles to the south. Under normal conditions access is available to all parts of the property with conventional vehicles using several branch roads. Further, the Edith Lake Road traverses the west margin of the property. The City of Kamloops and surrounding area is serviced by P.W.A., C.N.R., C.P.R., and the Trans-Canada Highway.

#### TOPOGRAPHY AND VEGETATION

The surface of the area presented by the property is that of roughly rolling range-land of low to moderate relief with the hills well-rounded by glaciation. The south east slopes of "Les Roches Moutonees" may be somewhat precipitous. In general, the presence of exposed bedrock surface for geological observation is sparse; the overburden, mainly glacial detritus material, is extensive. Approximately forty per cent of the area is forest covered, i.e. pine, and spruce with lesser poplar and alder scrub. The open areas support

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various grasses and sage-brush to qualify as grazing land and with minor areas under active cultivation of feed crops. Several ponds and sloughs of both permanent and intermittent nature occur on the property and would provide sufficient water for drilling purposes. Elevations range from 2600' to 3500' above sea level.

#### HISTORY

The area of the property under discussion has been subjected to sporadic mineral exploration since the latter part of the 19th century. Earlier efforts were directed towards the search for gold in quartz veins. Somewhat later efforts prior to 1930 were directed towards the discovery of high grade copper bearing structures as indicated by the numerous exploration pits and trenches.

Such a situation was developed on the Kamloops Copper Consolidated Property where some thousands of tons of high-grade copper ore were mined and milled. Since 1950 several nearby properties lying within the Iron Mask Batholith have developed nominal tonnages of ore grade material, i.e. Cominco Limited, Ajax Property, 10 million tons of 0.5% Copper; Makao Development Limited, 250,000 tons of 2% Copper. Further exploration programs of several other properties in the immediate area have indicated individual sections in drill holes obviously of ore grade.

The area of the property between the Joker adit and Separation Lake has been subjected to sporadic exploration since 1950. In 1955 Commercial Minerals Limited conducted a program of some 5,500' of diamond drilling and minor bulldozer stripping in the vicinity of

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the Joker adit. Several sections of significant mineralizations were indicated. Later this area was subjected to some geophysical surveying, however the results are not available. In the autumn of 1966, Pinnacle Mines Limited, NPL, acquired the property and conducted a magnetic and induced polarization survey over the central portion of the property and carried out some 1200' of drilling. During the summer of 1968, a geochemical soil sampling programme was conducted over the entire property. During the months of August and September the property was geologically mapped on a scale of 1" to 200' and the final map reduced to a scale of 1" to 500'. In December an induced polarization survey over selected areas of the property was carried out. Extreme weather in the area precluded completion of the i.p. survey at that time. The Induced Polarization program previously outlined was completed in the month of May, 1969.

Commencing in February, 1969 a diamond drilling program to the extent of 3,648' was carried out. Some 8 holes were drilled, investigating various geophysical anomalies and surface showings. The results of this drilling are summarized in a later section.

During the month of May an H.D. 25 bulldozer with hydraulically controlled rippers was contracted for from Bond Construction Limited of Kamloops. A trench of the order of 850' in length and some 22' wide with an average depth of 15' was excavated along the bluff running at right angles to the Joker adit. The purpose of the excavation was to more fully expose mineralization observed in the Joker adit and in nearby drill holes.

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## DISCUSSION OF RESULTS

Induced Polarization - the Induced Polarization terminated in 1968 due to adverse weather conditions was initiated again in April of 1969. The anomalous conditions termed A, B, and C as described in a summary report by Mr. J. B. Prendergast, January 30, 1969, were further delineated and the area originally covered in this survey expanded to the north and additional coverage was added to the central portion of the property. Anomaly A, centering about the point 62 W on Line 88 North was investigated on the ground. The axis of the anomaly follows a local shear zone with disseminated to massive stringers of pyrite with minimal amounts of chalcopyrite in a shear zone. This ground evidence would justify the extent and intensity of the induced polarization survey however, the mineral occurrence is worthy of further investigation by means of bulldozer trenching in order to more fully delimit the extent of mineralization observed.

Anomaly B, was subjected to sub-surface investigation by means of diamond drilling. Two holes were drilled sectioning the axes of the induced polarization anomaly and revealed a shear zone containing pyrite, both disseminated and as narrow massive veinlets, along with minimal chalcopyrite mineralization. No further work is planned at this location for the moment.

Anomaly C. The southern limit of this anomaly was sectioned by means of a diamond drill hole and revealed a fault structure with associated pyrite and magnetite mineralization. Additional induced polarization surveying to the northwest indicated a substantial area of extremely high chargeability. Subsequent ground investigation

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revealed that the extreme chargeability was due primarily to an underground water system in use by the Shannon Ranch. Further, this buried water system is also used as a ground for the electrification of the Ranch. Sufficient information is available to preclude any further investigation of this induced polarization anomaly.

Anomaly D, has proven to be caused in major part by a similar underground irrigation and water system using metallic conduit.

Anomaly E, commencing at a point 12 W on line 96 North occurs as an anomaly of moderate intensity striking in a north-easterly direction. The axis of this anomaly is coincident with the diorite-peridotite contact. Old workings along this contact have revealed mineralization in the form of massive streaks and blebs of specular hematite and chalcopryrite. Three short diamond drill holes were drilled along this contact and revealed mineralization in the form of weakly disseminated native copper, chalcopryrite, accompanied by massive lenses and disseminated halos of pyrite and specular hematite. No mineralized sections of economic significance were revealed in this series of three holes.

#### BULLDOZER TRENCHING

In the latter part of May and first part of June, a bulldozer trench of some 850' in length was excavated in the area of the Joker adit. In the immediate vicinity of the adit, one edge of the lenticular body was exposed over an average depth of 13.6'. Along a length of 340' in this vicinity channel samples revealed average copper values of 0.47%.

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Mineralization observed was primarily in the form of malachite and azurite with minimal chalcopyrite. Immediately below the Joker adit was observed native copper in the form of linings of fracture-faces and shear-faces. It would appear that the best values resulting from the presence of native copper are in immediate proximity to the diorite-peridotite contact.

#### DIAMOND DRILLING

The diamond drilling program carried on in 1969 prior to June 20th entailed some 3,648' of B.Q. and N.Q. Core drilling. Eight holes were completed and the results thereof described as follows:

Hole No. P2 was collared at 90+00N 58+00 West drilling at  $-45^{\circ}$  in an easterly direction. The purpose of the hole was to determine the causative factors of an induced polarization anomaly. Various facies of diorite, microdiorite and cherry creek breccia were encountered containing frequent lenses of disseminated pyrite as well as several shear zones containing pyrite and minor chalcopyrite. A shear zone commencing at 145' over a width of 5' contained chalcopyrite mineralization of economic significance, i.e. 0.50% copper. It would appear then that the induced polarization anomaly would owe its origin to the abundant presence of disseminated and massive lenses of pyrite.

Hole P3 collared at 88+00 N 58+00 W with a similar azimuth and declination to hole P2 was drilled to a depth of 745.6'. Mineralogy and mineralization were similar to that encountered in hole P2 with only minimal short sections of copper mineralization indicated, i.e. 551.6' to 554.4' yielding values of 0.50% copper.

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Hole P4, collared at 92+00N 35+00W was drilled due west at  $-45^{\circ}$ . The purpose of the hole was to investigate a induced polarization anomaly of moderate to strong intensity. To a depth of 525' various facies of diorite were sectioned. No significant copper values were encountered, however an abundance of minor sheared and brecciated zones containing disseminated to massive pyrite offered a plausible explanation for the induced polarization anomaly.

Hole P5 was collared at 102+08 N, 9+98 W and drilled in a westerly direction at  $-45^{\circ}$  in an attempt to section at depth mineralization observed in an old exploration pit, i.e. the Grey Mask Shaft. The hole sectioned several diorite-peridotite contacts which probably represent the transition zone resulting during the forceful intrusion of the peridotite dyke. Mineralization encountered included disseminated to massive pyrite and specular hematite as well as minor disseminated chalcopyrite and native copper. In spite of the apparent abundance of sulphide mineralization, the only section of economic significance was the section 116.2 to 117.8 which yielded 0.42% copper in the form of native copper and chalcopyrite.

Hole P6, drilled to a depth of 355.7' at a declination of  $-45^{\circ}$  in a south-easterly direction, was collared at 108+00N 5+27W. The purpose of the hole was to investigate an induced polarization anomaly of moderate chargeability thought to be associated with the peridotite-diorite contact. The hole was collared in diorite and sectioned the diorite-peridotite contact. Mineralization encountered in the hole included massive blebs of specular hematite and pyrite

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as well as minimal amounts of chalcopyrite and native copper. No mineralized sections containing cupriferous mineralization of economic significance were encountered.

Hole P7A, is a vertical hole collared at 104+72 N 5+81 W and drilled to a depth of 425'. The hole was contained in a transition zone between diorite and peridotite. Several sections of interesting cupriferous mineralization were encountered of the order of .1 to .12% copper consisting of disseminated chalcopyrite, however, no sections of economic significance were indicated.

Hole P8, collared at 82+96 N 17+25 W drilled at a declination of  $60^{\circ}$  in a south westerly direction was drilled to a depth of 400'. The purpose of the hole was to intersect at depth mineralization observed in the trench in the immediate vicinity of the Joker adit. The hole was cased in diorite, transected the peridotite dyke occurring along the creek valley and re-entered diorite. The transition zone between the peridotite and diorite yielded an 8.8' section running 0.49% Copper at a depth of 100-108.8'. This mineralization was in the form of disseminated chalcopyrite.

Hole P9, collared at 80+39 N 19+79W was drilled at a declination of  $-45^{\circ}$  and in opposition to hole No. P8. A unique situation occurs here in that the fault zone at the point of intersection of this drill hole contained no peridotite. This fault zone from a depth of 101' to 124.4' yielded a 23.4' section of 1.41% Copper. These values are derived primarily from the presence of disseminated native copper lying along and lining the shear planes of the fault zone.

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## CONCLUSIONS

The areas of abnormal chargeability as indicated by the induced polarization survey designated A, B, C, and D have been investigated either by surface observation or diamond drilling. These anomalies owe their origin either to pyrite mineralization or to man-made structures and no further work in these immediate areas is anticipated. The area designated E would appear to bear a relationship in space to the mineralized structures known to exist in the area of the Joker adit. A topographic depression connecting these two areas suggests that the fault structures indicated in these two areas are indeed one and the same. Mineralization encountered in diamond drill holes no. P9 and the surface mineralization sampled in the trench area is obviously of ore grade and of great economic significance. Any further work carried out on the property should primarily be concentrated in this area. Efforts should be directed to extending the exposure of mineralization and sampling same in order to arrive at a more complete evaluation.

In addition, disseminated chalcopyrite mineralization has been observed in the area 8+00 N 16+00 W. The exposure of this mineralization is very limited and further investigation by means of bulldozer trenching would be in order.

The area immediately to the west of the Joker adit has been drilled in part by Commercial Minerals. Results of this drilling program are incomplete, however, results available indicate a tonnage of some 75,000 tons grading 0.6% copper available for extraction. This

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mineralized body should be completely delineated so that an economic assessment of the occurrence may be arrived at.

#### RECOMMENDATIONS

In view of the encouraging results of the drilling and trenching program in the vicinity of the Joker adit area, it is recommended that the mineralized zone be fully delineated by a continuation of the program, i.e. drilling and trenching. Further exploration efforts should be applied to the area lying between the Joker Adit and the Grey Mask area since the two areas are thought to be related in their occurrence along a common linear structural feature.

The extent of the mineralization observed to occur in the immediate proximity to line 8+00 N 16+00 W should be delimited by bulldozer stripping and investigated at depth by means of diamond drilling if necessary. The results of the exploration program recently completed dictate that the program be continued in order to completely delineate the indicated mineralized structures. Such a program would include the following phases.

- A. Diamond Drilling - 4000' of B.Q. Diamond drilling to completely delineate the mineralized structure in the vicinity of the Joker adit and to investigate at depth the occurrence of disseminated chalcopyrite mineralization near the south margin of the property.
- B. Bulldozer Stripping - 300 hours with a machine of the capacity of an HD 28 with hydraulically controlled rippers in order to investigate the occurrence of

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chalcopryrite mineralization near the south margin of the property and to test the surface exposures of the structure lying between the Joker adit and the Grey Mask shaft.

Such a program would entail the following estimated expenditures:

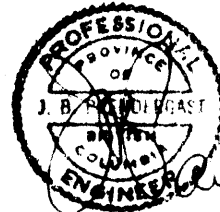
A. Diamond Drilling 4000' of B.Q. Wireline	
Core drilling at \$11.50 / foot.	\$46,000.00
B. Bulldozer Stripping 300 hours with HD 25	
at \$35.00 per hour.	10,500.00
C. Engineering Supervision and Consulting.	5,000.00
D. Sampling and Assaying.	4,800.00
E. Contingency @ 15%	9,945.00
Total:	<u>\$76,245.00</u>

Respectfully submitted,

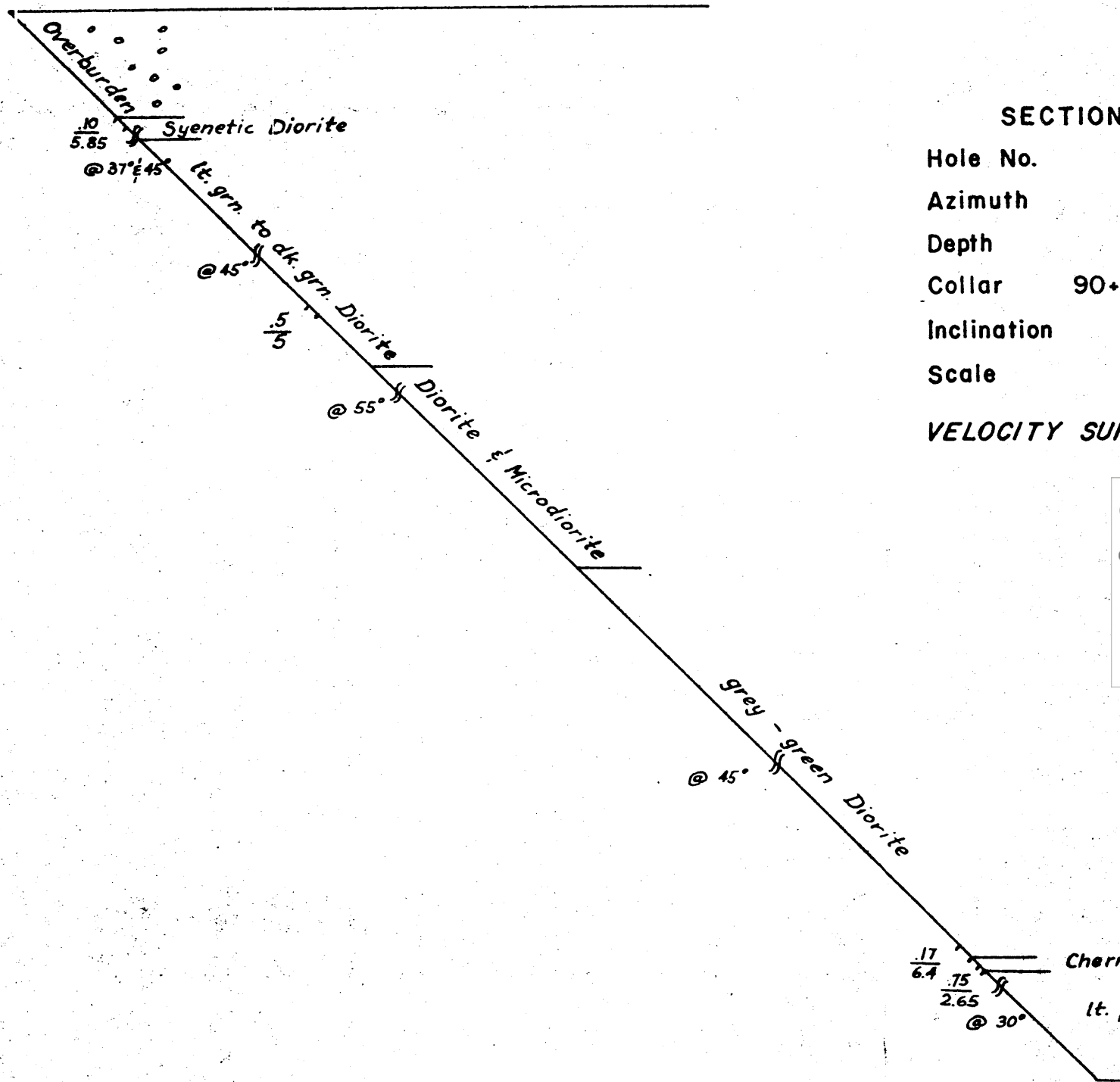
VELOCITY SURVEYS LIMITED

C. T. Pasioka, B. Sc.

J. B. Prendergast, M.A., P.Eng.



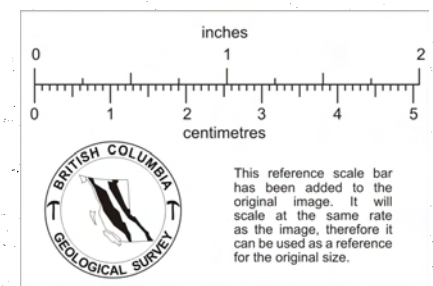
Expiry Date: May 28, 1970



**SECTION**

Hole No. P-2  
 Azimuth 090°  
 Depth 528  
 Collar 90+00N 58+00W  
 Inclination -45°  
 Scale 1" = 50'

**VELOCITY SURVEYS LIMITED**



Overburden

@ 30°  
f 35°

Light grn. to dk. grn. Diorite

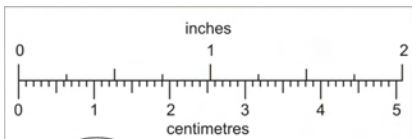
@ 40° f f @ 45° yellow orange-grn.  
Diorite - Cherry Crk. Form.  
39  
3.9  
@ 60° f 35°

dk. green Diorite

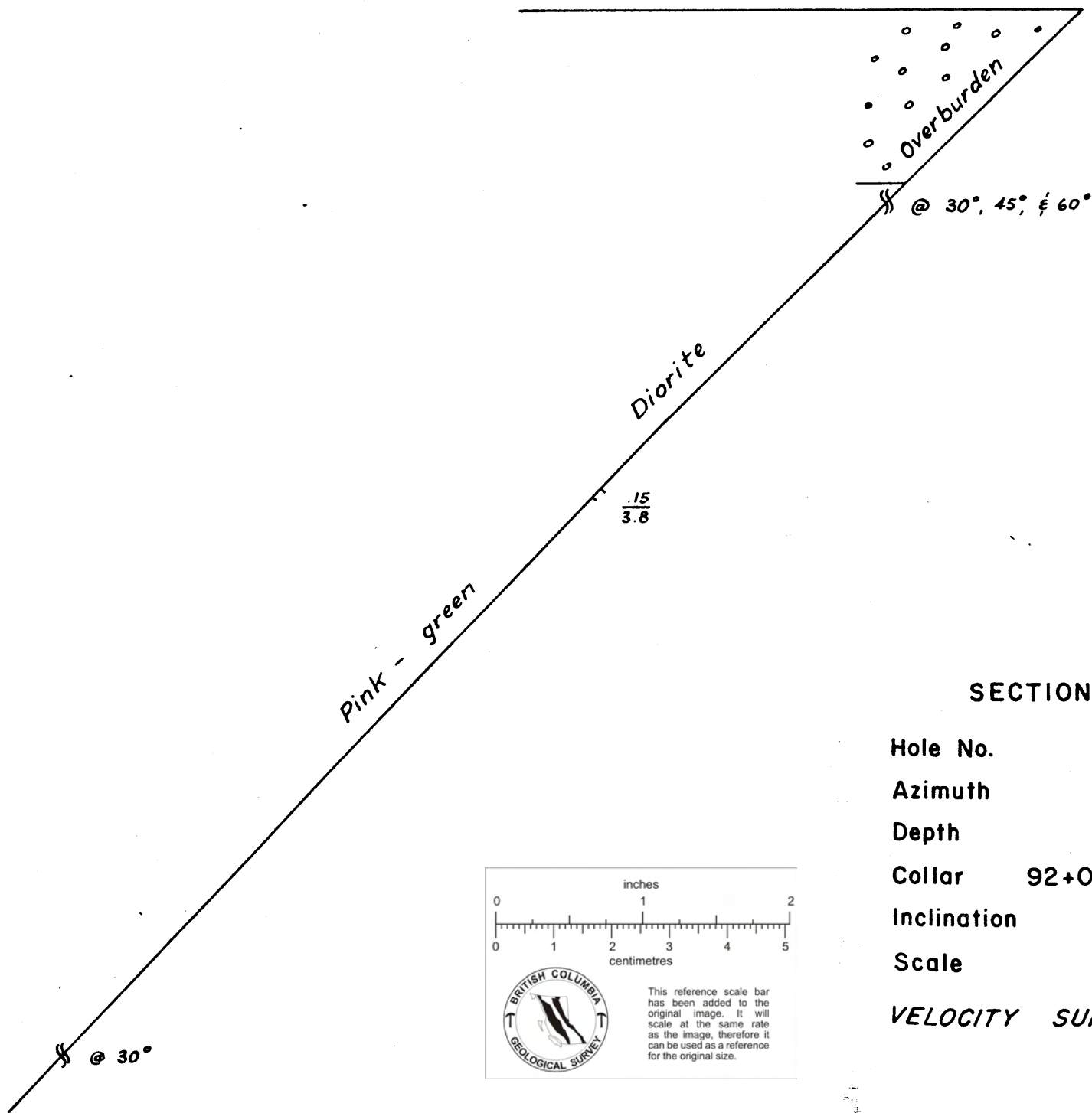
SECTION

Hole No. P-3  
Azimuth 090°  
Depth 745.6  
Collar 88+00 N 58+00 W  
Inclination -45°  
Scale 1" = 50'

VELOCITY SURVEYS LIMITED

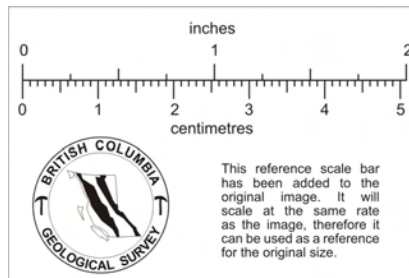


This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

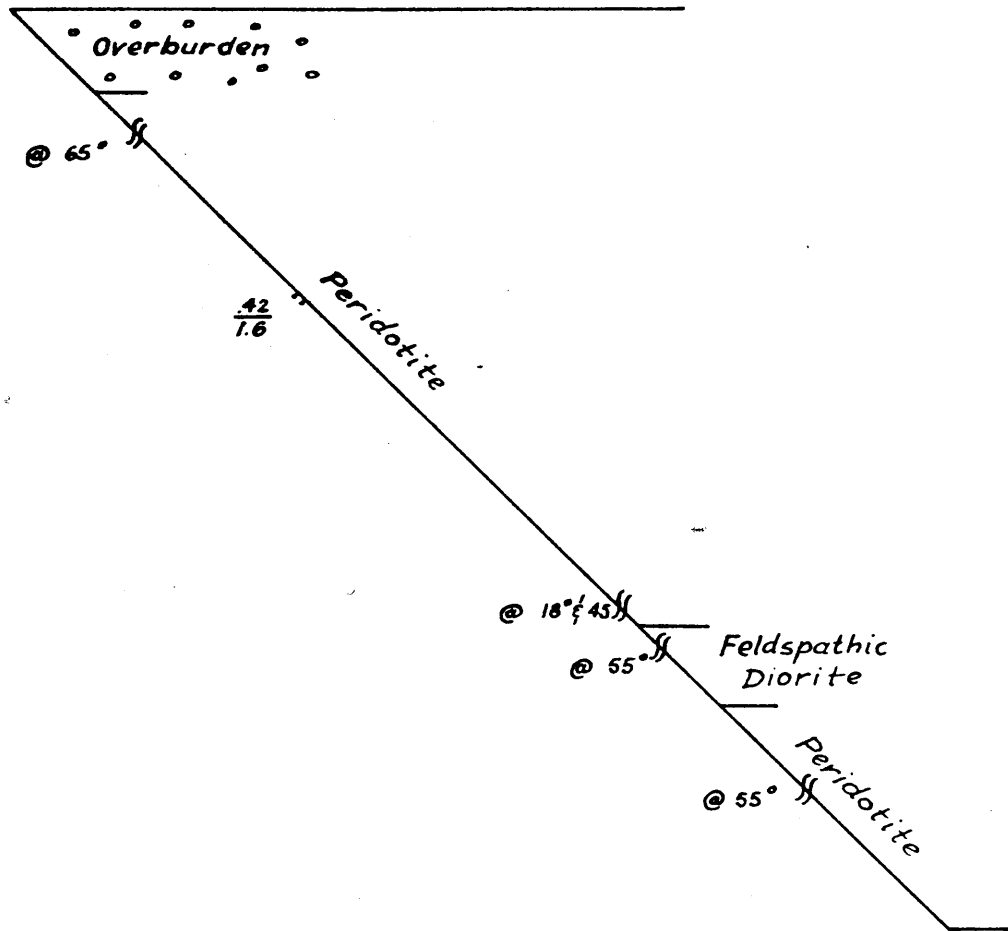


**SECTION**

Hole No. P-4  
 Azimuth 270°  
 Depth 525  
 Collar 92+00 N 35+00 W  
 Inclination -45°  
 Scale 1" = 50'



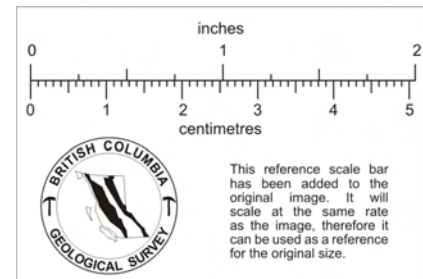
**VELOCITY SURVEYS LIMITED**



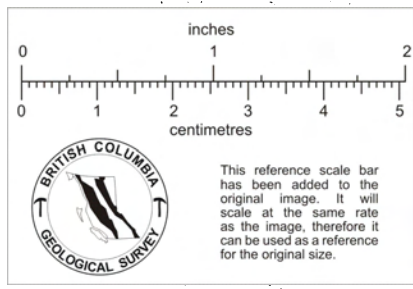
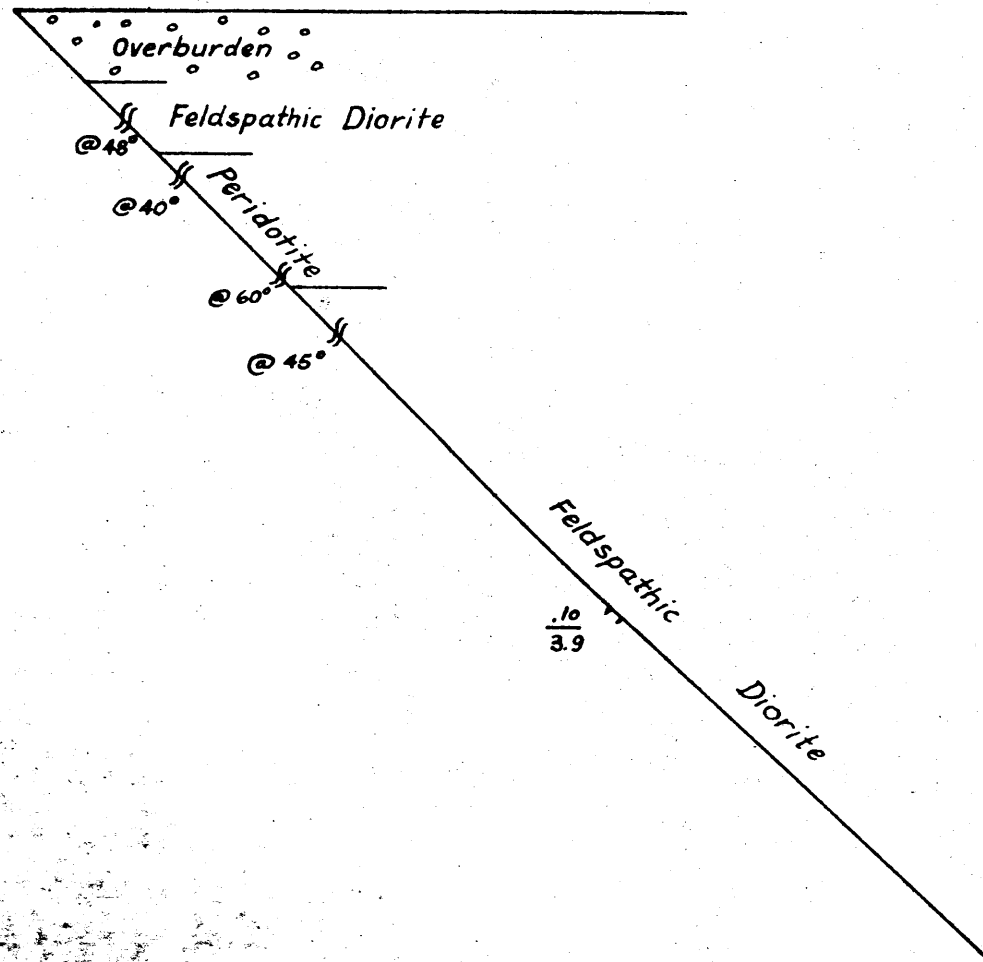
## SECTION

Hole No. P-5  
 Azimuth 090°  
 Depth 344.8  
 Collar 108+00 N 5+27 W  
 Inclination -45°  
 Scale 1" = 50'

VELOCITY SURVEYS LIMITED







**SECTION**

Hole No. P-6

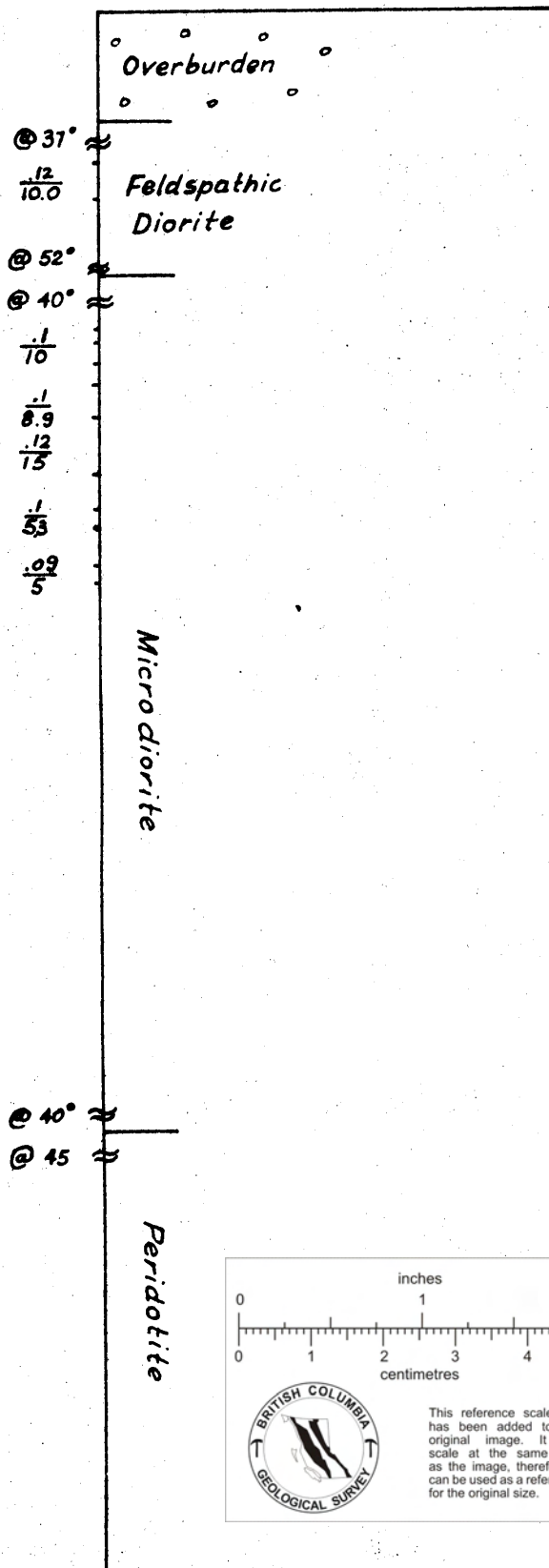
Azimuth 135°

Depth 355.7

Collar 108+00N 5+27 W

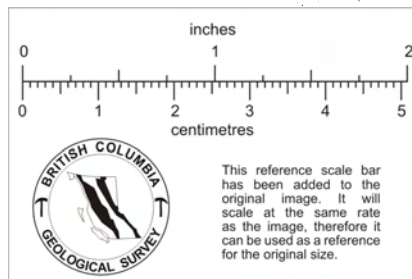
Inclination 45°

Scale 1" = 50'



**SECTION**

Hole No. P-7A  
 Azimuth 0  
 Depth 425  
 Collar 104+72 N 5+81 W  
 Inclination 90°  
 Scale 1" = 50'



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