

GEOLOGICAL, GEOCHEMICAL, AND
GEOPHYSICAL ASSESSMENT REPORT

D.D. CLAIM GROUP

KAMLOOPS MINING DISTRICT

N.T.S. 92 P 16 W
Latitude 51° 46' North
Longitude 120° 23' West

OWNED BY: KERR, DAWSON and ASSOCIATES LTD.
AND WERNER GRUENWALD

OPERATOR: PLACER DEVELOPMENT LIMITED

WRITTEN BY: Michael B. Gareau, B.Sc.(Hon.)
DATE: 29 January 1981

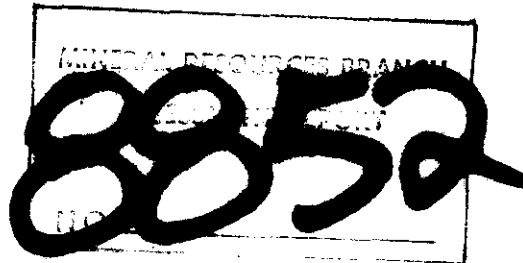


TABLE OF CONTENTS

		<u>Page No.</u>
1.0	SUMMARY	1
2.0	INTRODUCTION	2
	2.1 Location and Access	2
	2.2 Physiography and Climate	2
	2.3 Property History, Ownership and Economic Status	4
3.0	WORK PERFORMED	5
	3.1 Geochemical Survey	5
	3.2 Geophysical Survey	5
	3.3 Geological Survey	5
	3.4 Grid Establishment	5
4.0	SURVEY RESULTS	6
	4.1 Geochemical	6
	4.2 Geophysical	11
	4.3 Geological	12
5.0	CONCLUSIONS	14
6.0	REFERENCES	15
7.0	SUMMARY OF EXPENDITURES	16
8.0	STATEMENT OF QUALIFICATIONS	17
	APPENDICES	
	Appendix I : Stream Sediment Results	18
	Appendix II : B-Horizon Soil Results	19
	Appendix III: Lithogeochemical Results	20
	Appendix IV : Maps 1-7	21

LIST OF ILLUSTRATIONS AND TABLES

FIGURE 1:	D.D. Claim Group Location Map	3
TABLE 1:	Standard Extraction and Analytical Methods	7
MAPS		(all in Appendix IV)
Map 1:	Stream Sediments and Soil Geochemistry - ppm Mo	
Map 2:	Stream Sediments and Soil Geochemistry - ppm Cu, Zn, Pb, Ag, F	
Map 3:	Lithogeochemistry - ppm Mo	
Map 4:	Lithogeochemistry - ppm Cu, Zn, Pb, Ag, U, W, F, Bi	
Map 5:	Lithogeochemistry - % Fe, K, Cu, Na	
Map 6:	Magnetometer Survey	
Map 7:	Geology	

GEOLOGICAL, GEOCHEMICAL, AND
GEOPHYSICAL ASSESSMENT REPORT

D.D. CLAIM GROUP

1.0 SUMMARY

A three week exploration program of the D.D. Claim Group was undertaken by Placer personnel during the summer of 1980 in order to establish the source of a molybdenum soil anomaly, discovered by Falconbridge Nickel Mines Ltd. in 1966, and to re-evaluate known molybdenite mineralization within the property. Stream sediment, soil and rock samples were collected for analysis and interpretation. A magnetometer survey was undertaken to extend a previous survey and detailed geological mapping was conducted throughout the claims. Only one zone of molybdenite mineralization exists on the D.D. Claim Group. The high molybdenum values in stream sediment, soil and rock samples are coincident with and explained by this zone. The molybdenite zone is not economic at the surface and the geological parameters tested do not indicate an economic target at depth. Several other economic elements (i.e. Cu, Zn, Pb, Ag, and W) were tested for during the geochemical analyses; none of these form significant concentrations within the D.D. Claim Group.

2.0 INTRODUCTION

2.1. Location and Access

The D.D. Claim Group is in the Kamloops Mining District. It is located within N.T.S. map 92P/16W, lying south of Mahood Lake and approximately 25 kilometers northwest of the town of Clearwater (Figure 1).

The property can be reached over good gravel logging roads from the Clearwater Timber Products Ltd. sawmill (Camp 2) in Clearwater. A map of the logging road network can be obtained from Clearwater Timber Products Ltd. for a small fee. From the sawmill, one follows Road #2 west-northwest for approximately 34 kilometers, and then turns right onto Road #8 which provides access to the northern half of the claim group. Patricia Lake and the western boundary of the property are approximately 5 km. northeast along Road #8 from its intersection with Road #2. The southeastern corner of the claim group can be reached via a network of logging roads intersecting Road #2 at approximately 29 km. west-northwest of the Clearwater Timber Products Ltd. sawmill.

2.2 Physiography and Climate

Physiographically the property occurs within the Shushwap Highlands which forms the southeastern portion of the Interior Plateau Division of the Canadian Cordillera (S.S. Holland 1964; pp. 73-74). It is an area of moderate relief and round-topped ridges. The whole property lies between 1350 and 1700 meters elevations above sea level. The only stream of significance on the property is Patricia Creek which provides drainage over four-fifths of the claim group. It flows south to Coldsaur Lake which in turn empties southeast through Mann Creek into the North Thompson River.

The climate of this region is one of warm summers and fairly cold winters. The precipitation is moderate, but is slightly higher than the rest of the Interior Plateau.



FIGURE 1

PLACER DEVELOPMENT LIMITED

**D. D. CLAIM GROUP
LOCATION MAP**

0 100 200 300 400 500
KILOMETRES

FEB. 1981.

2.3 Property History, Ownership and Economic Status

Information on the early history of the D.D. Claim Group is drawn from a "Summary Report on the D.D. #1 and D.D. #2 Claims" written by W. Gruenwald for Kerr, Dawson and Associates Ltd. (1979).

Falconbridge Nickel Mines Ltd. was the first company to show interest in this region. In 1966 they staked a large area of molybdenum geochemical anomalies including the present claim group. From 1966 through to 1968 inclusive, Falconbridge conducted geological, geochemical and geophysical surveys; trenched the bedrock; constructed 8 km. of access road; and drilled five diamond drill holes totalling 833 meters on the D.D. property. No further work is reported for these claims from 1969 to 1975 and the claims were allowed to lapse. In 1976 the ground was again tied up, this time by Vital Mines Ltd. whose work apparently consisted only of the establishment of grids. The property became dormant again until Kerr, Dawson and Associates Ltd. and W. Gruenwald staked D.D. #1 and D.D. #2 claims in March 1979, and D.D. #3 claim in April 1980.

The D.D. Claim Group consist of 3 claims comprising 48 units. They are wholly owned by Kerr, Dawson and Associates Ltd. and Werner Gruenwald of Kamloops, British Columbia. Placer Development Ltd. of Vancouver, British Columbia optioned these claims from the above owners in April 1980 and is the current property operator.

A list of the claims is given below.

<u>Claim No.</u>	<u>No. of Units</u>	<u>Tag No.</u>	<u>Anniversary Date</u>
D.D. #1	12	45467	March 27, 1979
D.D. #2	18	45468	March 27, 1979
D.D. #3	18	47196	April 28, 1980

The current economic status of the property is that it is only a molybdenite showing still in the middle stages of exploration.

3.0 WORK PERFORMED

During a period from May 21 to June 12, 1980, Placer personnel conducted a short exploration program over the D.D. Claim Group. The program consisted of geochemical sampling, geophysical surveying, geological mapping and supportive grid work.

3.1 Geochemical Survey

This portion of the exploration program included sampling three different mediums - streams, soils, and outcrops. A total of 28 stream sediments samples, 184 soil samples and 23 bedrock samples were collected from all three claims.

3.2. Geophysical Survey

A total of 15 kilometers of line was surveyed in Claims D.D. #2 and D.D. #3 using a Scintrex MP-2 proton magnetometer. A Geometrix G-816 proton magnetometer was used as a base station recording magnetometer to monitor the daily magnetic activity in the area. This information was used to decide, in the event of high daily magnetic activity, whether or not that day's data was valid.

3.3 Geological Survey

The geology of the D.D. Claim Group was mapped to a scale of 1:5000 (i.e. 1cm = 50m). A total of 6345 square kilometers were covered by this program; this coverage included all of Claims D.D. #1, D.D. #2, and part of D.D. #3.

3.4 Grid Establishment

A previously existing north-south geophysical grid was extended to provide a larger area of control in Claims D.D. #2 and D.D. #3 for the geochemical and geophysical surveys documented in this report. This work added a total of 16.2 kilometers to the old grid system. The new grid lines were established by blazing trees and tying off pieces of flagging.

4.0 SURVEY RESULTS

4.1 Geochemical*

4.1.1 Stream Sediments Samples -

These were collected in the hopes of outlining areas anomalous in certain metallic elements, particularly molybdenum. Map 1 shows the sample locations.

The minus 80 mesh fraction of the sediment samples was analyzed for Mo, Cu, Zn, Pb, Ag, and F. A complete copy of the results is present in Appendix I. Only the molybdenum values are shown on Map 1; the remaining elements are given on Map 2.

Samples 92P/16W - 2, 9, 10 and 11 show the highest molybdenum values (65-300 ppm) and form a cluster in the east side of D.D. #1 Claim (Map 1). The streams from which these samples were taken originate from and run through an area of known molybdenum surface showings. This is the only area of significantly high molybdenum values in stream sediments.

A cluster of high silver values, ranging from 2 to 6 ppm, is located in the northwest corner of D.D. #1 Claim (Map 2). Samples 92P/16W - 13, 14, 15, 16, 17 and 18 returned the high

*Footnote: All the analytical work was performed by Placer Development Laboratories, Vancouver, B.C. The extraction procedures and analytical methods used for the various elements are listed in Table 1.

TABLE 1

STANDARD EXTRACTION AND ANALYTICAL METHODS

ELEMENT	UNITS	EXTRACTION PROCEDURE		TIME	ANALYTICAL METHOD	DETECTION RANGE
		WT (grams)	ATTACK USED			
Mo	ppm	0.5	C HClO ₄ /HNO ₃	4 hrs.	Atomic Absorption (A.A.)	1-1000
Cu	ppm	0.5	C HClO ₄ /HNO ₃	4 hrs.	Atomic Absorption	2-4000
Zn	ppm	0.5	C HClO ₄ /HNO ₃	4 hrs.	Atomic Absorption	2-3000
Pb	ppm	0.5	C HClO ₄ /HNO ₃	4 hrs.	A.A. Background Corrected	2-3000
Ag	ppm	0.5	C HNO ₃	2 hrs.	A.A. Solvent Extractable	0.02-4.00
U	ppm	0.25	Dil. HNO ₃	2 hrs.	Fluorimetry Solvent Extractable	0.5-1000
W	ppm	1.0	C HF/HNO ₃ / HCl/H ₂ SO ₄	4 hrs.	A.A. Solvent Extractable	5-500
F	ppm	0.25	Na ₂ CO ₃ /KNO ₃ Fusion	30 min.	Specific Ion Electrode	40-4000
Bi	ppm	0.5	C HClO ₄ /HNO ₃	4 hrs.	Atomic Absorption	2-2000
Fe	%	0.5	C HF/HClO ₄ / HNO ₃ /HCl	6 hrs.	Atomic Absorption	0.02-20%
K	%	0.5	C HF/HClO ₄ / HNO ₃ /HCl	6 hrs.	Atomic Absorption	0.02-20%
Ca	%	0.5	C HF/HClO ₄ / HNO ₃ /HCl	6 hrs.	Atomic Absorption	0.02-20%
Na	%	0.5	C HF/HClO ₄ / HNO ₃ /HCl	6 hrs.	Atomic Absorption	0.02-20%

analysis results and were taken from streams which drain a ridge just 300 meters north of the most northerly samples. A bedrock source for these anomalous silver values has not been determined although bedrock exposures in the area were examined. It is interesting to note that the highest Cu, Zn and Pb results are coincident with the anomalous silver. The remaining stream sediment samples, however, carry only background values in Cu, Zn and Pb.

The flourine analysis results are uniformly low and show no discernable pattern.

4.1.2 Soil Samples -

Six lines of soil samples were taken on the D.D. #1 and D.D. #2 Claims in order to check the validity of the soil geochemical results obtained by Falconbridge (Assessment Report #1026, 1967), and to acquire geochemical data on additional elements (e.g. Cu, Zn, Pb, Ag and F). The sample locations are shown on Map 1.

For the most part, sampling was restricted to the B-horizon. Occassionally when the B-horizon was not present, a C-horizon sample was collected instead. The average sampling depth was between 10 and 30 centimeters below the surface. The minus 80 mesh fraction of the soil samples was analyzed for Mo, Cu, Zn, Pb, Ag and F. All the results are given in Appendix II. The molybdenum values are presented on Map 1 while the remaining elements are shown on Map 2.

The molybdenum soil results confirm the anomalous values obtained by Falconbridge in 1967, but also reveals a more continuous anomaly through the northeastern portion of the D.D. 2 Claim than is shown by Falconbridge's data. Sample analysis results range from 2 - 300 ppm Mo with an average of 47 ppm Mo for the 184 soil samples collected. The soil containing the anomalous molybdenum results is developed over glacial till. The till is thin ranging in thickness from 0.5 to 2 meters with abundant outcroppings of bedrock. This is

in fact a basal till which has undergone very little movement as evidenced by the provenance of the glacial material which reflects the local geology. Movement of the anomalous, till-derived soil (glacial direction is approximately from north to south; Tipper 1971) is probably less than 50 meters. Measurements of 58 soil samples give an average pH of 5.2. Under these acid soil conditions molybdenum is essentially immobile; consequently hydromorphic dispersion of this element would be negligible. The local origin of the soil-forming till, and the acid nature of the soil dictate that the results of the soil analyses reflect the molybdenum content of the underlying bedrock. There may in fact be a concentration of molybdenum in these soils due to residual accumulation.

Geochemical values for the other elements analyzed are not particularly interesting, (Map 2). Given below are the lowest, highest and mean values in parts per million obtained for Cu, Zn, Pb, Ag and F in the soils.

	<u>Lowest (ppm)</u>	<u>Highest (ppm)</u>	<u>Mean (ppm)</u>
Cu	2	128	20
Zn	5	265	45
Pb	2	115	15
Ag	0.05	1.18	0.23
F	100	780	294

There is a relatively good correlation between the high Cu, Zn and Pb values. Silver and flourine show a weak correlation with the higher base metal values but are more erratically distributed. The high base metal values form two distinct groupings: i) one is coincident with the northern part of the molybdenum anomaly in D.D. #1 Claim; ii) the second occurs at the western end of Line 16 S. Very little can be concluded from the geochemical results for Cu, Zn, Pb, Ag & F because the values are very low and their distribution lacks a consistent relationship with the molybdenum anomaly.

4.1.3 Bedrock Samples -

Hand specimen samples collected from outcrops, randomly distributed throughout the D.D. Claim Group, were analyzed for Mo, Cu, Zn, Pb, Ag, U, W, F, Bi, Fe, K, Ca and Na. All the analyzed samples were chosen to be visibly free of economic minerals, especially molybdenum, and thus provide background values in the bedrock underlying the property. Most of the samples are from the major intrusive body that occurs on the property, a medium to coarse-grained biotite quartz monzonite; the remainder were collected from younger, minor igneous phases - myrolitic alaskite and quartz feldspar porphyry. The analysis results are given in Appendix III along with the rock type for each sample. Map 3 gives the rock sample locations, their numbers and the Mo values (ppm) for each sample. Map 4 presents the results in parts per million for Cu, Zn, Pb, Ag, U, W, F and Bi. Map 5 shows the percent Fe, K, Ca, and Na, in the rocks.

Molybdenum values range from 3 to 66 ppm. These results have been contoured on Map 3 without consideration for differences in lithology because no correlation could be found between rock type and Mo values. A zone of higher (greater than 10ppm) molybdenum in bedrock occurs in the western portions of D.D. #1 and 2 Claims. The zone is approximately 1200 meters long and tapers south to north in width from 500 meters down to 200 meters. The higher bedrock Mo values are generally coincident with the Mo soils anomaly. Vein molybdenite mineralization in bedrock is exposed by trenches in the south end of higher bedrock Mo zone, and was also noted in outcrop in the north end of the zone.

The low, high and mean values for the other elements analyzed are given below.

	<u>Lowest</u>	<u>Highest</u>	<u>Mean Value</u>
Cu (ppm)	4	80	18.2
Zn (ppm)	5	86	32.5
Pb (ppm)	3	16	6
Ag (ppm)	0.02-	0.13	0.03
U (ppm)	0.05-	7.9	1.8
W (ppm)	5-	45	6.7
F (ppm)	100	720	313
Bi (ppm)	5	17	11
Fe (%)	0.53	2.66	1.47
K (%)	1.4	2.5	2.0
Ca (%)	0.28	1.49	0.83
Na (%)	2.3	3.2	2.7

The absolute values of these elements is generally low and their range in many cases is also very limited. None of these elements shows any zoning or clustering of high or low values; nor can any correlation be drawn between these elements and the molybdenun bedrock high contoured on Map 3.

4.2 Geophysical

A magnetic survey was conducted to extend an already existing survey. The vertical of the earth's magnetic field was measured and the readings recorded in gammas(). The readings were taken at 50 meter intervals along cross-lines. Diurnal variation was accounted for by loop corrections after each traverse. These traverses were tied to a base station traverse along the base line. This new data was in turn tied to the older magnetic survey conducted by Kerr, Dawson & Associates Ltd. (May 1980) by normalizing Placer's base line traverse to Kerr-Dawson's base line traverse.

The new readings (Placer's) range from 1459 to 2589 gammas. A semi-circular zone of higher amplitude and erratic readings exists in the southeast corner of the survey grid. This is obviously an area of slightly higher magnetite content. A weak NNW-SSE trend is evident by a ridge of higher values passing through

L 15S-6+50E, L 10S-4+00E, L 7S-3+00E and L 3S-1+50E. To the west and paralleling this ridge is a trough of low readings passing through L 15S-1+50E, L 12S-baseline, L 8S-2+00W, L 6S-3+00W and L 2S-4+50W. No definite conclusions can be calculated for this trend. As merely an observation, the ridge may represent a source that dips steeply to the east, with a maximum depth of 30 meters.

4.3 Geological

The geological mapping of the D.D. Claim Group by Placer personnel is presented on Map 7. The whole of the property lies within the Raft Batholith of Cretaceous age (Campbell and Tipper, 1971). Within the map area the outcroppings of bedrock consist almost solely of a medium to coarse grained, equigranular, biotite quartz monzonite. Locally the quartz monzonite is cut by myrolitic alaskite bodies and quartz feldspar porphyry dykes. Because the alaskite - quartz monzonite contact is so poorly exposed the shape of the alaskite bodies is a matter of speculation; their size is in the order of 200-300m long and 50-150m wide. Smaller, tens of centimeter, alaskite dykes have a general east-west orientation. The quartz feldspar porphyry dykes range in width from 10 centimeters to 10 meters. They strike southeast-northwest to east-west, dipping steeply north, and have been traced for over 500 meters. The above three rock types are cut by centimeter wide, pink aplite dykes that trend east-west ($+20^{\circ}$) and dip steeply north or south to vertically.

Structural features on the property include minor faults, shearing and fracturing. The main set of faults are oriented NNE-SSW; one of these shows a 15 meter right lateral displacement of an east-west striking quartz feldspar porphyry dyke. A second set of faults and lineaments strikes NW-SE. Two sets of weak shearing were commonly noted in the biotite quartz monzonite; these parallel the fault sets with the strongest shearing striking NNE-SSW (000 to 030° Az). Fracturing is generally weakly developed (3-5 fractures/meter) and strikes/dips of any orientation can be found.

All of the outcrops examined are relatively fresh rocks. The only alteration present is due to weathering whose effect deminishes dramatically at approximately 0.5 to 1.0 meter below the bedrock surface.

Mineralization in the area consists of pyrite, chalcopyrite and molybdenite. Pyrite occurs as disseminations on fractures and in quartz microveins; pyrite mineralization is fairly common and can be found throughout the D.D. Claim Group. Molybdenite and chalcopyrite also occur as disseminations on fractures and in quartz microveins; however these minerals are restricted to a northwest-southeast zone in the eastern portion of Claims D.D. #1 and 2 (Map 7). This zone is 250 to 350 meters wide and at least 1200 meters long. Only a weakly developed stockwork of mineralized fractures and microveins is present within this zone.

The quartz microveins range in width from hairline up to 3 centimeters. They have a fairly consistent strike of 105°Az ($\pm 20^{\circ}$) and dip steeply northeast to vertically.

For the most part the character of the molybdenite mineralization is evidence of a very dry hydrothermal event with a paucity of quartz veining and a lack of significant alteration minerals. Only rarely does one observe potassium feldspar envelopes associated with the quartz microveins or mineralized fractures. The quartz microveining and the pyrite, chalcopyrite and molybdenite mineralization can be found cutting all exposed lithologies and therefore constitute the final intrusive event on the property.

Limonite and pyrolusite are the two most common secondary minerals noted. These are present on weathered bedrock surfaces and fractures.

5.0 CONCLUSIONS

The distribution of the anomalous molybdenum stream sediment (Map 1), soil (Map 1), and rock (Map 3) samples are all coincident with and explained by a zone of observed molybdenite mineralization (Map 7) in outcrop. This is the only area of any significant mineralization on the property.

The zone of molybdenite mineralization parallels the weak northwest-southeast magnetic pattern (Map 6) seen in the detailed magnetic survey. More precisely this zone lies between a ridge of magnetic highs to the east and a trough of magnetic lows to the west. The significance of this relationship is not known.

Molybdenite mineralization seen in bedrock exposed by trenches and in outcrops is weakly developed and does not represent an economic deposit at the surface. A poorly developed stockwork, the paucity of quartz veining, the lack of alteration minerals, the absence of any lithogeochemical halo or highs within and adjacent to the zone of weak molybdenite mineralization discourages any ideas of an economic deposit of molybdenum at depth. This molybdenite zone appears to represent a single, short and dry, late phase pulse of hydrothermal fluids. The control for the localization of molybdenite mineralization within this zone is not known.

No further work is recommended for the D.D. Claim Group.

6.0 REFERENCES:

- R.B. Campbell and H.W. Tipper (1971): Geology of the Bonaporte Lake Map-Area, British Columbia; GSC Memoir 363; Dept. of Energy Mines and Resources.
- D.H. Helgensen (1967): Geochemical Report on the Wet, Sun and Aku Mineral Claims, Kamloops Mining Division, British Columbia; BCDM Assessment Report #1026.
- S.S. Holland (1964): Landforms of British Columbia, A Physiographic Outline; BCDM Bulletin 48.
- Kerr, Dawson and Associates Ltd. (1980): Geophysical Report on the D.D. Claim Group, Kamloops Mining Division, British Columbia; submitted for assessment April 1980.
- H.W. Tipper (1971): Glacial Geomorphology and Pleistocene History of Central British Columbia; GSC Bulletin 196; Dept. of Energy, Mines and Resources.

7.0

SUMMARY OF EXPENDITURES
D.D. Claim Group

Labour Cost:

(Period of Work for most personnel May 21st - June 12th)

M. Gareau (Geologist)	@ \$125.00/day x 23 days =	\$2,875.00
R. Boyce (Geologist)	@ \$150.00/day x 21 days =	3,150.00
D. Pease (Cook)	@ \$ 90.00/day x 23 days =	2,070.00
M. Dore (Field Assistant)	@ \$ 75.00/day x 23 days =	1,725.00
J. Young (Field Assistant)	@ \$ 75.00/day x 23 days =	1,725.00
D. Barron (Field Assistant)	@ \$ 75.00/day x 23 days =	1,725.00
D. Atkins (Field Assistant)	@ \$ 75.00/day x 23 days =	1,725.00

TOTAL LABOUR COST \$14,995.00

Camp Cost:

Accommodation & Meals = \$30.00/man day

Total Man Days for the above personnel = 159 man days x \$30.00

TOTAL CAMP COST \$4,770.00

Vehicle Expense:

1 only 3/4 ton Chev. Suburban @ \$300.00/mo.

1 only 3/4 ton Chev. Pickup @ \$260.00/mo.

TOTAL VEHICLE EXPENSE \$560.00

Assay Cost:

Rock Geochem - 23 samples for (Mo,Cu,Zn,Pb,Ag,U,W,F,Bi,Fe,K,Ca,Na)
@ \$29.65/sample = \$681.95

Stream Geochem - 28 samples for (Mo,Cu,Zn,Pb,Ag,F)
@ \$10.65/sample = \$298.20

Soil Geochem - 184 samples for (Mo,Cu,Zn,Pb,Ag,F)
@ \$1,959.60

TOTAL ASSAY COST \$2,939.75

Geophysical Rentals:

1 Only Geometrix G-816 Base station recording magnetometer
@ \$900.00/mo.

1 Only Scintrex MP-2 Magnetometer
@ \$600.00/mo.

TOTAL RENTAL \$1,500.00

Data Compilation & Report Preparation:

M. Gareau (Geologist) @ \$125.00/day x 10 days \$1,250.00

Report Preparation:

Drafting, Typing, Binding etc. \$700.00

TOTAL EXPLORATION COST \$26,714.75

8.0

STATEMENT OF QUALIFICATIONS

I, M.B. Gareau, with a business address at 700 - 1030 West Georgia Street, Vancouver, British Columbia (V6E 3A8), do hereby certify that:

1. I am a graduate of the University of Dalhousie Halifax, Nova Scotia with a Bachelor of Science degree in the Geological Sciences, 1977 (Honours Certificate, 1978).
2. I have engaged in the practice of mineral exploration throughout Canada since graduation.
3. I have supervised and carried out the field work and have assessed and interpreted the data from this geological, geochemical and geophysical program on the D.D. Claim Group, 51° 46'N Lat., 120° 23'W Long., in the Kamloops Mining District.

Respectfully submitted



M.B. Gareau, B.Sc. (Honours)

January 29, 1981

MBG/adg

APPENDIX I

STREAM SEDIMENT RESULTS

Area: Kerr-Dawson

PLACER DEVELOPMENT LIMITED

Geologist: R. Boyce

Map Sheet No.: 92P 16W

Geochemistry Analysis Sheet No. 1.

Date: June 25/80 Page 1 of 1

Venture: V-176

sediments

Card Type	SAMPLE No.	Lab. Proj.	P P M															
			Mo	Cu	Zn	Pb	Cd	Ni	Co	Ag	Au	U	V	W				
A	92P 16W 3	0044	6	13	68	14					0.42							
	4		16	43	109	22					0.50							
	5		3	20	119	25					0.58							
	6		10	51	100	22					0.45							
	7		2	15	52	12					0.27							
	8		5	15	122	19					0.49							
	9		103	59	52	13					0.20							
	10		180	15	63	18					0.47							
	11		300	48	53	22					NSS							
	12		20	20	73	21					1.00							
	13		17	58	104	48					2.60							
	14		24	75	209	101					2.39							
	15		45	43	245	124					2.44							
	16		21	152	510	290					5							
	17		10	52	109	85					6							
	18		41	79	130	56					2.49							
	19		65	31	79	11					0.46							
	20		29	18	760	48					NSS							
	21		30	14	117	41					0.34							
	22		40	49	98	28					0.44							
	23A		20	16	112	23					0.44							
	23B		35	51	99	18					0.73							
	25		17	51	120	41					0.81							
	26		7	67	183	24					1.00							
	27		14	56	62	19					0.21							

APPENDIX II

B - HORIZON SOIL RESULTS

Area: Kerr Dawson

PLACER DEVELOPMENT LIMITED

Geologist: R. Boyce

Map Sheet No.: 92P-16W

Geochemistry Analysis Sheet No. 2.

Date: June 18/80 Page 2 of 2

Venture: V-176

soils

Card Type	SAMPLE No.	Lab. Proj.	P P M					PPB	%	
			F	As	Bi	Mn	Fe	Hg	Ba	L.O.I.
			16 17 20 21	23 24 30 31	35 36 40 41	45 46 50 51	55 56 60 61	80		
B	3+00S- 3+75E	0040	330							
	4+00E		140							
	4+25E		300							
	4+50E		400							
	4+00S- 0+50E		145							
	0+75E		200							
	1+00E		570							
	1+25E		620							
	1+50E		125							
	1+75E		250							
	2+00E		700							
	2+25E		200							
	2+50E		520							
	2+75E		700							
	3+00E		300							
	3+25E		220							
	3+50E		600							
	3+75E		560							
	4+00E		700							
	4+25E		240							
	4+50E		290							

Area: Kerr-Dawson

PLACER DEVELOPMENT LIMITED

Geologist: R. Boyce

Map Sheet No.: _____

Geochemistry Analysis Sheet No. 1.

Date: June 25/80 Page 1 of 6

Venture: V-176

soils

1 Card Type	2	SAMPLE No.	16 17 20 21 Lab. Proj.	P P M															
				23 26 Mo	30 31 Cu	35 36 Zn	40 41 Pb	45 46 Cd	50 51 Ni	55 56 Co	60 61 Ag	65 66 Au	70 71 U	75 76 V	80 W				
A		4+00S- 0+00	0044	140	64	57	16						0.27						
		0+50W		110	22	60	53						0.58						
		1+00W		170	120	88	25						0.37						
		1+50W		300	27	87	24						0.25						
		2+00W		106	64	99	12						0.24						
		2+50W		51	10	28	9						0.14						
		3+00W		36	40	70	11						0.22						
		6+00S- 0+00		19	15	46	9						0.08						
		0+50E		125	85	68	15						0.29						
		duplicate 0+50E		171	116	80	19						0.67						
		1+00E		86	62	53	11						0.15						
		1+50E		133	43	50	12						0.14						
		2+00E		43	29	45	13						0.42						
		2+50E		32	17	27	15						0.26						
		3+00E		12	14	35	8						0.19						
		3+50E		13	11	51	7						0.14						
		duplicate 3+50E		16	13	36	7						0.16						
		4+00E		36	24	32	9						0.22						
		4+50E		85	21	41	10						0.09						
		5+00E		170	51	63	11						0.22						
		5+50E		50	10	40	9						0.19						
		6+00E		25	8	19	6						0.24						
		6+50E		14	40	29	4						0.19						
		7+00E		98	57	62	18						0.34						
		7+50E		42	18	38	9						0.19						

Area: Kerr-Dawson
 Map Sheet No.: _____
 Venture: V-176

PLACER DEVELOPMENT LIMITED
 Geochemistry Analysis Sheet No. 1.
 soils

Geologist: R. Boyce
 Date: June 25/80 Page 4 of 6

Card Type	SAMPLE No.	Lab. Proj.	P P M															
			Mo	Cu	Zn	Pb	Cd	Ni	Co	Ag	Au	U	V	W				
A	16+00S ^{12+00 W} 11+50W	0044	21	21	84	110					0.17							
	12+50W ^{12+00W}		14	17	88	38					0.23							
	13+00W ^{12+50W}		11	26	42	30					0.15							
	13+50W ^{13+00W}		15	27	82	30					0.39							
	14+00W ^{13+50W}		14	24	80	29					0.29							
	14+50W ^{14+00W}		7	23	63	16					0.12							
	15+00W ^{14+50W}		23	54	265	75					0.41							
	15+50W ^{15+00W}		17	23	125	29					0.24							
	16+00W ^{15+50W}		37	64	140	62					0.43							
	16+50W ^{16+00W}		25	71	178	62					0.35							
	17+00W ^{16+50W}		5	14	165	20					0.81							
	17+50W ^{17+00W}		4	8	36	14					0.16							
	11+00S 0+00		19	25	42	10					0.07							
	0+50E		36	41	66	10					0.32							
	1+00E		60	62	36	15					0.23							
	1+50E		20	12	28	8					0.15							
	2+00E		28	13	18	10					0.23							
	2+50E		38	31	20	22					0.19							
	3+00E		100	24	26	12					0.17							
	3+50E		60	17	26	8					0.07							
	4+00E		52	16	28	8					0.14							
	4+50E		56	16	25	7					0.11							
	5+00E		62	18	38	10					0.11							
	5+50E		136	24	33	12					0.21							
	6+00E		170	8	29	9					0.11							

APPENDIX III

LITHOGEOCHEMICAL RESULTS

KEY TO LITHOLOGIES

BQM - biotite quartz monzonite
QFP - quartz - feldspar porphyry
MA - Myrolitic alaskite

Area: _____

PLACER DEVELOPMENT LIMITED

Geologist: M. Gareau

Map Sheet No.: 92P/16W

Geochemistry Analysis Sheet No. 1.

Venture: v-176

Date: July 28/80 Page 1 of 2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	SAMPLE No. Lithology	Lab. Proj.	P P M												
			Mo	Cu	Zn	Pb	Cd	Ni	Co	Ag	Au	U	V	W	
A	BQM 11S - 2+50E	0084	7	6	21	3				0.02-		0.5-		5-	
	MA 13S - 5+50E		8	16	20	5				0.02-		4.7		5-	
	BQM M27 - 3-3		18	80	40	7				0.04		0.8		5-	
	BQM M28 - M5		10	8	36	6				0.02		0.5-		5-	
	QFP M30 - M4		7	7	11	3				0.02-		2.4		5-	
	BQM M30 - M10		6	7	27	3				0.02-		0.5-		5-	
	BQM M30 - M11		8	27	40	9				0.07		1.6		5-	
	BQM M31 - M6		8	10	52	4				0.02-		0.5-		5-	
	BQM M31 - M9		5	9	25	4				0.02-		1.6		5-	
	BQM J1 - M8		6	11	24	4				0.02-		0.5-		9	
	QFP J5 - M1		52	6	12	3				0.02-		0.5-		5-	
	MA M31 - M16		4	5	5	4				0.02-		4.7		5-	
	BQM J5 - M4		4	22	37	5				0.02		3.2		5-	
	BQM J6 - M1		4	4	15	5				0.02-		0.5-		5-	
	QFP J7 - M3		4	8	48	15				0.08		0.5-		5-	
	BQM J7 - M4		5	24	38	6				0.04		3.2		5-	
	BQM J7 - M6		6	6	75	16				0.02		2.4		13	
	BQM J8 - M2		5	9	35	4				0.02		0.8		5-	
	QFP J8 - M6		3	5	18	4				0.02-		0.5-		5-	
	MA J8 - M7		6	34	15	13				0.03		7.9		5-	
	BQM J8 - M9		4	17	50	13				0.06		0.5-		5-	
	QFP J8 - M10		3	7	36	4				0.02		0.5-		5-	
	BQM J11 - M1		5	11	27	6				0.03		0.5-		5-	
	BQM J11 - M11		5	5	40	6				0.02		0.5-		5-	
	BQM J11 - M12		10	62	36	7				0.10		0.5-		5-	

Area: _____

PLACER DEVELOPMENT LIMITED

Geologist: M. GareauMap Sheet No.: 92P/16W

Geochemistry Analysis Sheet No. 2.

Date: July 28/80 Page 1 of 2Venture: V-176

rocks

Cord Type	SAMPLE No.	Lab. Proj.	P P M												PPB	%			K	Ca	Na
			F	As	Bi	Mn	% Fe	Hg	Ba	L.O.I.											
	LITHOLOGY		16 17 20 21	25 26	30 31	35 36	40 41	45 46	50 51	55 56	60 61	80									
B	BQM 11S - 2+50E	0084	250		7		1.48										2.0	1.11	3.2		
	MA 13S - 5+50E		120		7		0.68										1.9	0.33	2.9		
	BQM M27 - 3-3		460		11		1.71										1.9	1.10	2.8		
	BQM M28 - M5		380		10		2.13										1.6	1.22	3.1		
	QFP M30 - M4		130		5		0.81										1.4	0.40	2.6		
	BQM M30 - M10		300		8		1.59										2.0	1.30	2.9		
	BQM M30 - M11		390		11		1.75										2.1	1.03	3.0		
	BQM M31 - M6		280		9		0.53										2.3	0.30	2.8		
	BQM M31 - M9		280		9		1.64										2.2	1.23	3.0		
	BQM J1 - M8		360		10		1.67										2.0	1.16	3.0		
	QFP J5 - M1		180		8		1.04										1.7	0.53	2.3		
	MA M31 - M16		100		5		0.53										2.3	0.30	2.8		
	BQM J5 - M4		360		11		1.92										1.7	1.10	2.8		
	BQM J6 - M1		240		6		1.10										2.2	0.43	2.7		
	QFP J7 - M3		340		14		1.87										2.4	0.80	2.9		
	BQM J7 - M4		360		15		2.23										2.4	1.13	2.7		
	BQM J7 - M6		540		12		2.25										2.0	1.23	2.8		
	BQM J8 - M2		300		13		2.08										2.4	0.94	2.9		
	QFP J8 - M6		160		5		0.80										2.2	0.38	2.8		
	MA J8 - M7		100		8		0.88										2.3	0.36	2.6		
	BQM J8 - M9		420		16		2.15										2.2	1.20	2.9		
	QFP J8 - M10		370		14		1.99										2.1	1.27	2.6		
	BQM J11 - M1		400		11		1.80										2.1	0.82	2.7		
	BQM J11 - M11		370		12		1.80										1.9	0.63	2.8		
	BQM J11 - M12		400		14		2.09										2.2	1.26	2.6		

Area: _____

PLACER DEVELOPMENT LIMITED

Geologist: M. Gareau

Map Sheet No.: 92P/16W

Geochemistry Analysis Sheet No. 1.

Venture: V-176

Date: July 28/80 Page 2 of 2

rocks

1 Card Type	2 SAMPLE No.	Lab. Proj.	P P M																									
			Mo	Cu	Zn	Pb	Cd	Ni	Co	Ag	Au	U	V	W														
	LITHOLOGY		17	20	21	25	26	30	31	33	36	40	41	45	46	50	51	53	56	60	61	65	66	70	71	73	76	80
A	BQM J12 - M6	0084	37	13	9	4														0.02-			5.6				5-	
	BQM M5 - A-1		5	33	54	5														0.02-			0.5-				5-	
	BQM M5 - C-1		4	9	55	7														0.02			0.5-				22	
	BQM M5 - E-1		4	12	43	3														0.02-			0.5-				5	
	BQM M5 - F-1		7	74	52	7														0.04			1.6				6	
	BQM J3 - 9-1		6	7	50	3														0.04			1.6				5-	
	BQM J7 - 8-1		28	6	22	6														0.08			1.6				7	
	BQM J11 - 1-1		3	6	26	4														0.02-			0.5-				5-	
	BQM J11 - 7-1		6	10	32	8														0.02-			0.5-				6	
	MA J11 - 8-1		5	68	19	9														0.02-			0.5-				5-	
	QFP J11 - 9-1		4	7	53	13														0.03			0.8				45	
	MA J11 - 11-1		6	54	20	5														0.02			1.5				5-	
	MA J12 - 5-1		7	5	15	4														0.13			5.4				5-	
	BQM J9 - 1-1		3	21	20	3														0.02-			0.5-				5-	
	BQM J9 - 4-1		5	12	24	6														0.02-			4.6				5-	
	BQM TR7 - 1		66	16	17	3														0.02-			2.3				5-	
	BQM TR - 3-1		51	16	86	5														0.02-			4.6				5-	
	MA M27 - 3-6		8	8	19	4														0.04			3.1				5-	

Area: _____

PLACER DEVELOPMENT LIMITED

Geologist: M. Gareau

Map Sheet No.: 92P/16W

Geochemistry Analysis Sheet No. 2.

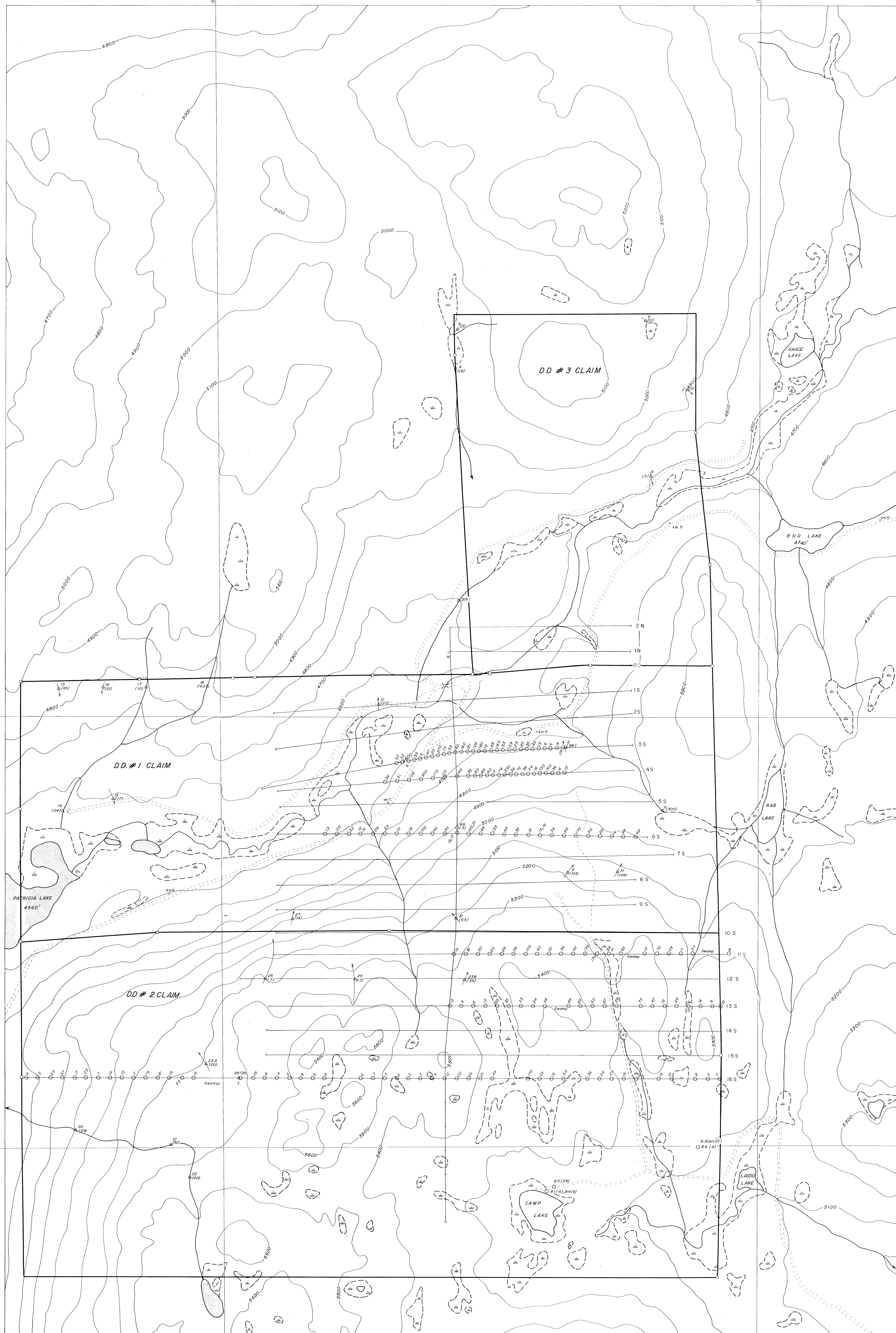
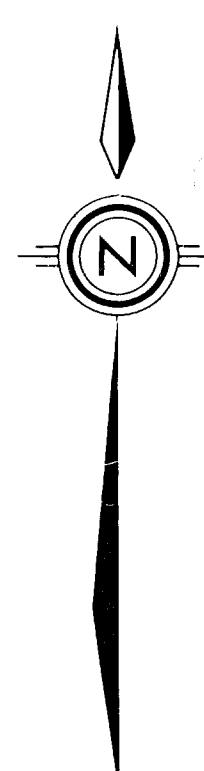
Venture: v-176

Date: July 28/80 Page 2 of 2

Cord Type	SAMPLE No.	Lab. Proj.	rocks													%		
			P P M													%		
LITHOLOGY			F	As	Bi	Mn	% Fe	Hg	Ba	L.O.I.	K	Ca	Na					
B	BQM J12 - M6	0084	230		11		1.06				2.0	0.53	2.5					
	BQM M5 - A-1		320		15		2.66				1.8	1.31	2.6					
	BQM M5 - C-1		320		13		1.93				1.9	1.49	2.7					
	BQM M5 - E-1		360		16		1.85				2.0	1.16	2.5					
	BQM M5 - F-1		380		17		1.98				1.7	1.36	2.7					
	BQM J3 - 9-1		720		11		2.23				2.0	1.40	2.6					
	BQM J7 - 8-1		200		11		1.07				2.3	0.46	2.4					
	BQM J11 - 1-1		420		11		1.67				1.7	1.04	2.6					
	BQM J11 - 7-1		300		14		1.75				2.0	0.99	2.7					
	MA J11 - 8-1		150		8		0.85				2.5	0.36	2.6					
	QFP J11 - 9-1		220		15		0.97				1.8	0.28	3.1					
	MA J11 - 11-1		270		8		0.85				2.1	0.45	2.4					
	MA J12 - 5-1		160		7		0.80				1.7	0.35	2.3					
	BQM J9 - 1-1		520		9		1.67				2.2	1.07	2.9					
	BQM J9 - 4-1		600		14		1.74				2.1	0.75	2.7					
	BQM TR7 - 1		240		15		1.09				2.4	0.37	2.5					
	BQM TR3 - 3-1		270		12		1.40				1.4	0.50	2.3					
	MA M27 - 3-6		200		5		0.96				1.8	0.43	2.4					

APPENDIX IV

MAPS 1 - 7



- LEGEND**
- SAMPLE NUMBER
 - △ STREAM SEDIMENT SAMPLE LOCATION
 - PPM Mo
 - SOIL SAMPLE LOCATION
 - PPM Mo
 - 23 - SAMPLE NUMBER
 - 167 - PPM Mo

Mo ppm

0 - 14.9
15 - 29.9
30 - 49.9
50 - 79.9
80 - 99.9
≥ 100

8852

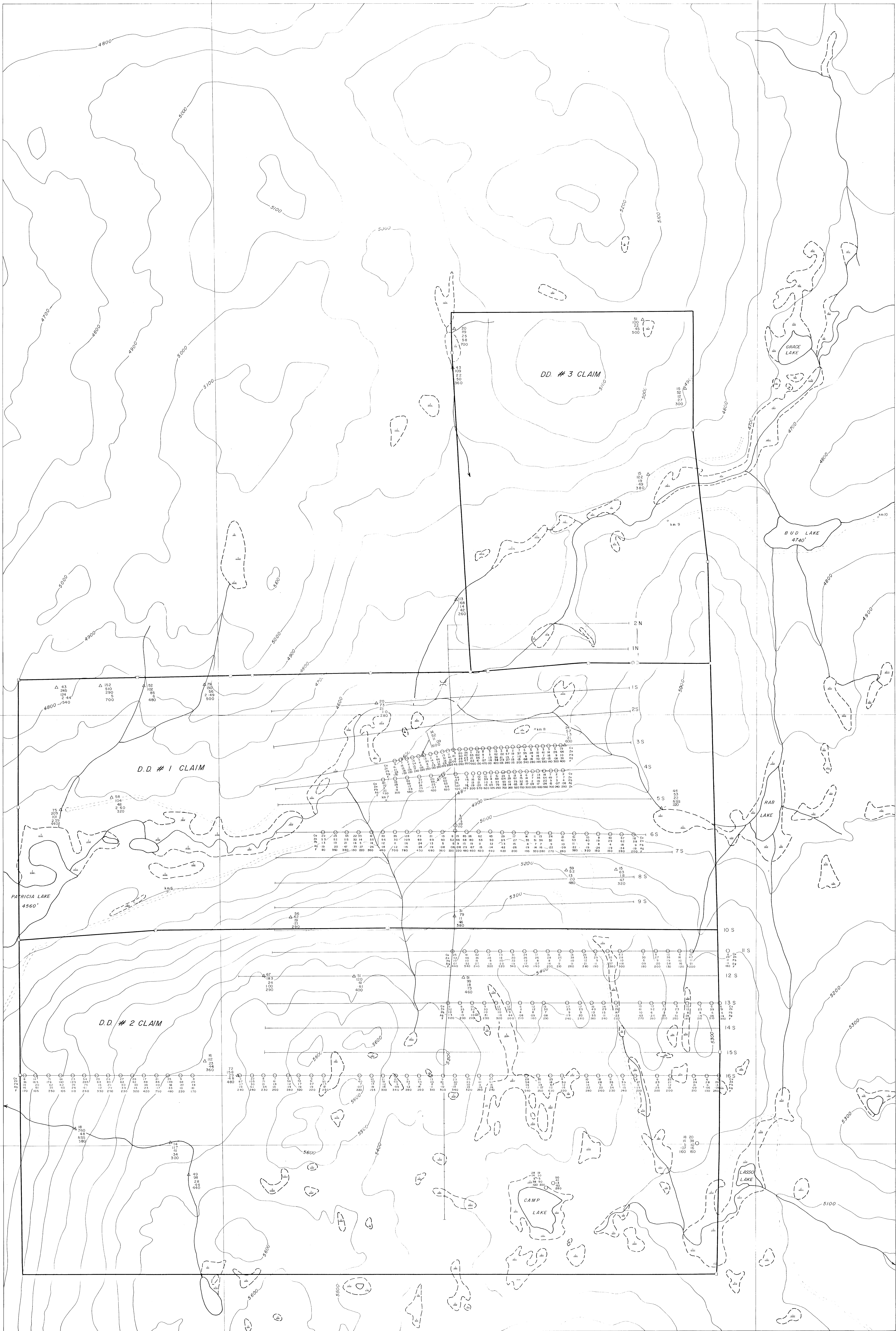
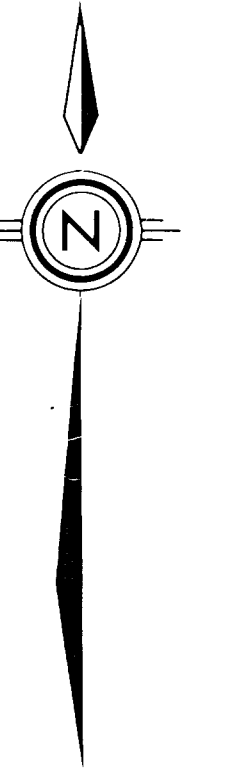
MAP I

ppm MOLYBDENUM



DRAWN: M.B.G.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED
TRACED: J. L.	DATE: OCT, 1980	KERR DAWSON VENTURE
NTS 92 P 16 W		KAMLOOPS MINING DIVISION

STREAM SEDIMENT & SOIL GEOCHEMISTRY D.D. CLAIMS
FILE NO. 80-05-V-176-4B-0005



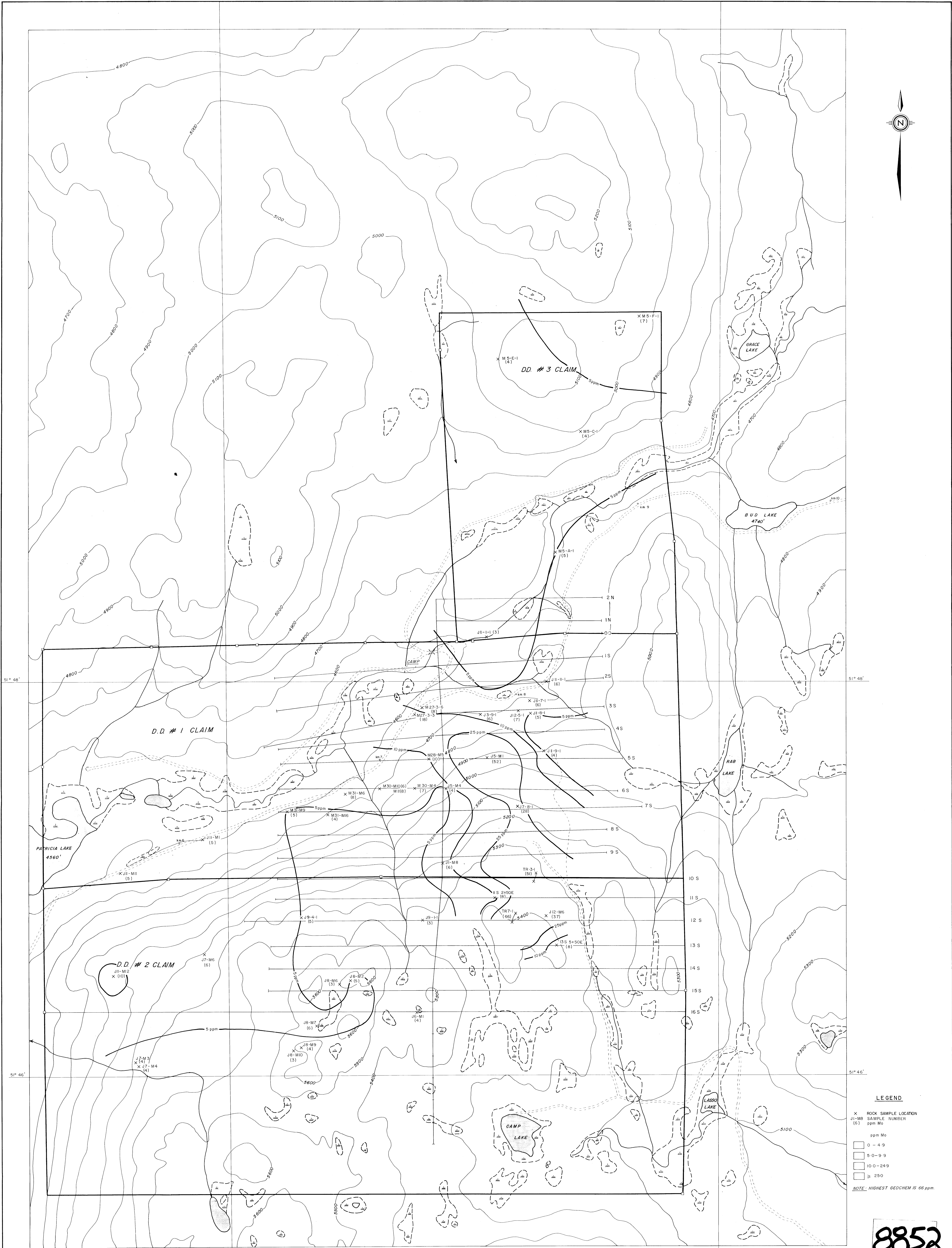
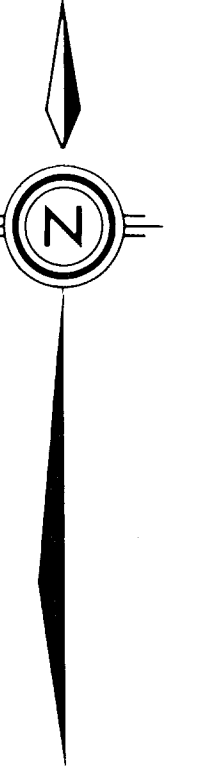
- LEGEND**
- ▲ STREAM SEDIMENT SAMPLE
 - SOIL SAMPLE
 - 6 Cu
 - 23 Zn
 - 8 Pb
 - 25 Ag
 - 200 F

8852

MAP 2



DRAWN: MBG	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	STREAM SEDIMENTS AND SOIL
TRACED: J. L.	DATE: FEB. 1981	KERR DAWSON VENTURE	GEOCHEMISTRY: ppm Cu, Zn, Pb, Ag, F
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	FILE NO. 80-05-V-176-4B-006C



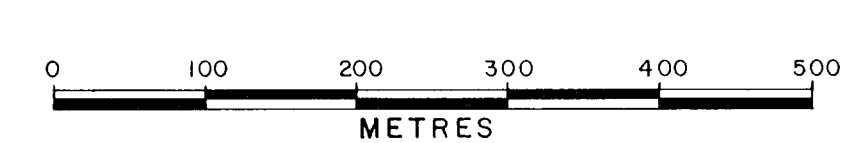
LEGEND

- X ROCK SAMPLE LOCATION
- J1-M8 SAMPLE NUMBER
- (5) ppm Mo
- ppm Mo
- 0 - 4.9
- 5.0 - 9.9
- 10.0 - 24.9
- ≥ 25.0

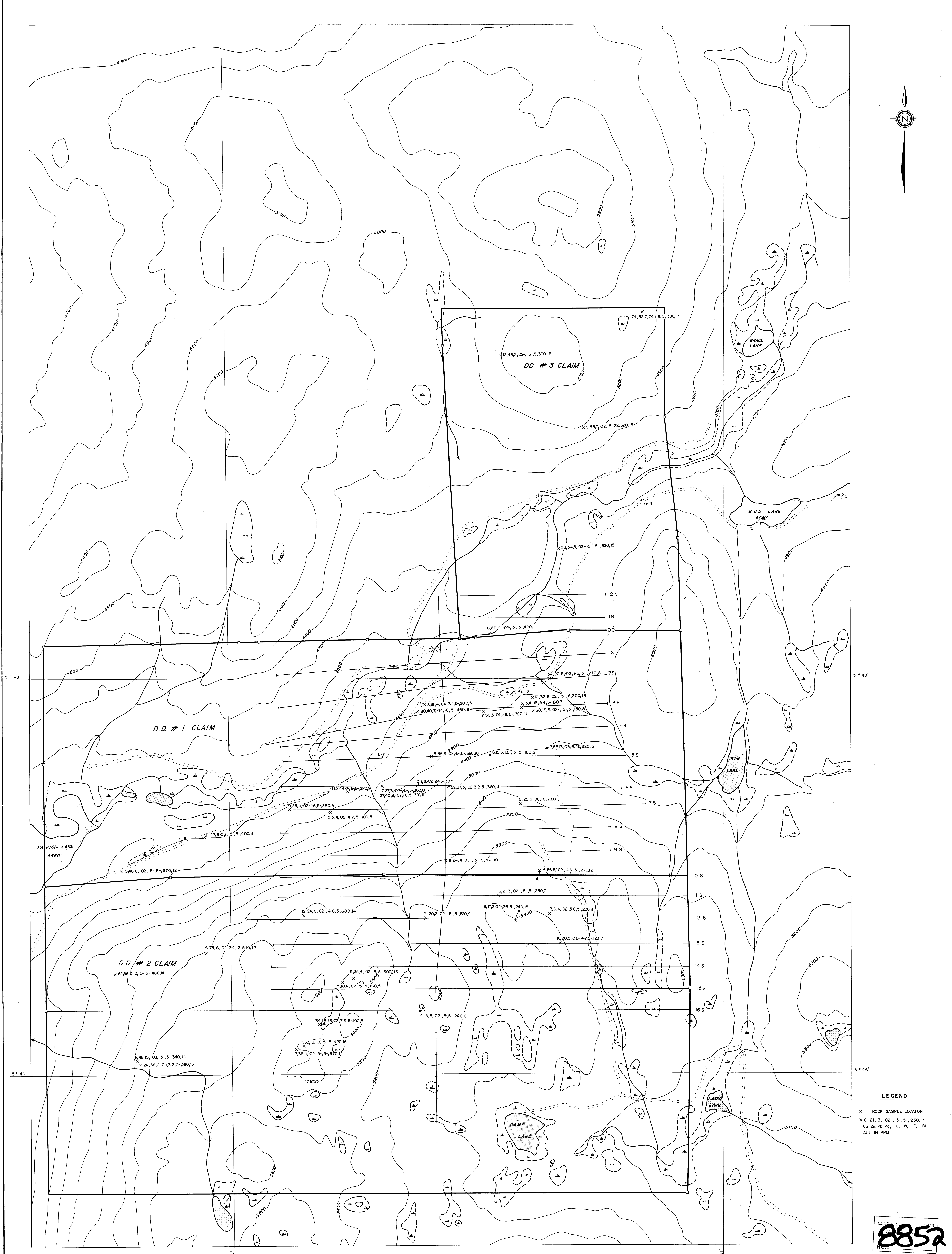
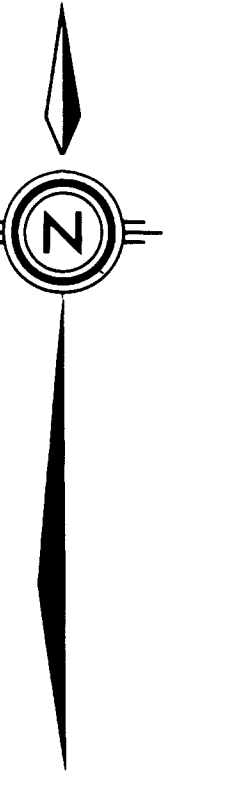
NOTE: HIGHEST GEOCHEM IS 66 ppm.

8852

MAP 3



DRAWN: MBG	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	LITHOGEOCHEMISTRY-ppm Mo
TRACED: J. L.	DATE: FEB, 1981	KERR DAWSON VENTURE	D.D. CLAIMS
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	FILE NO. 80-05-V-176-4B-0007



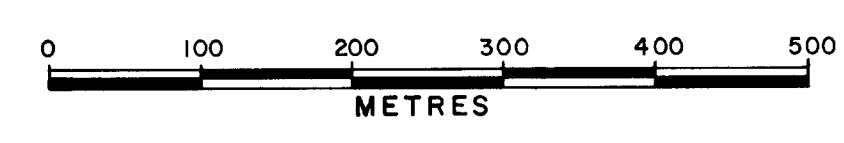
LEGEND

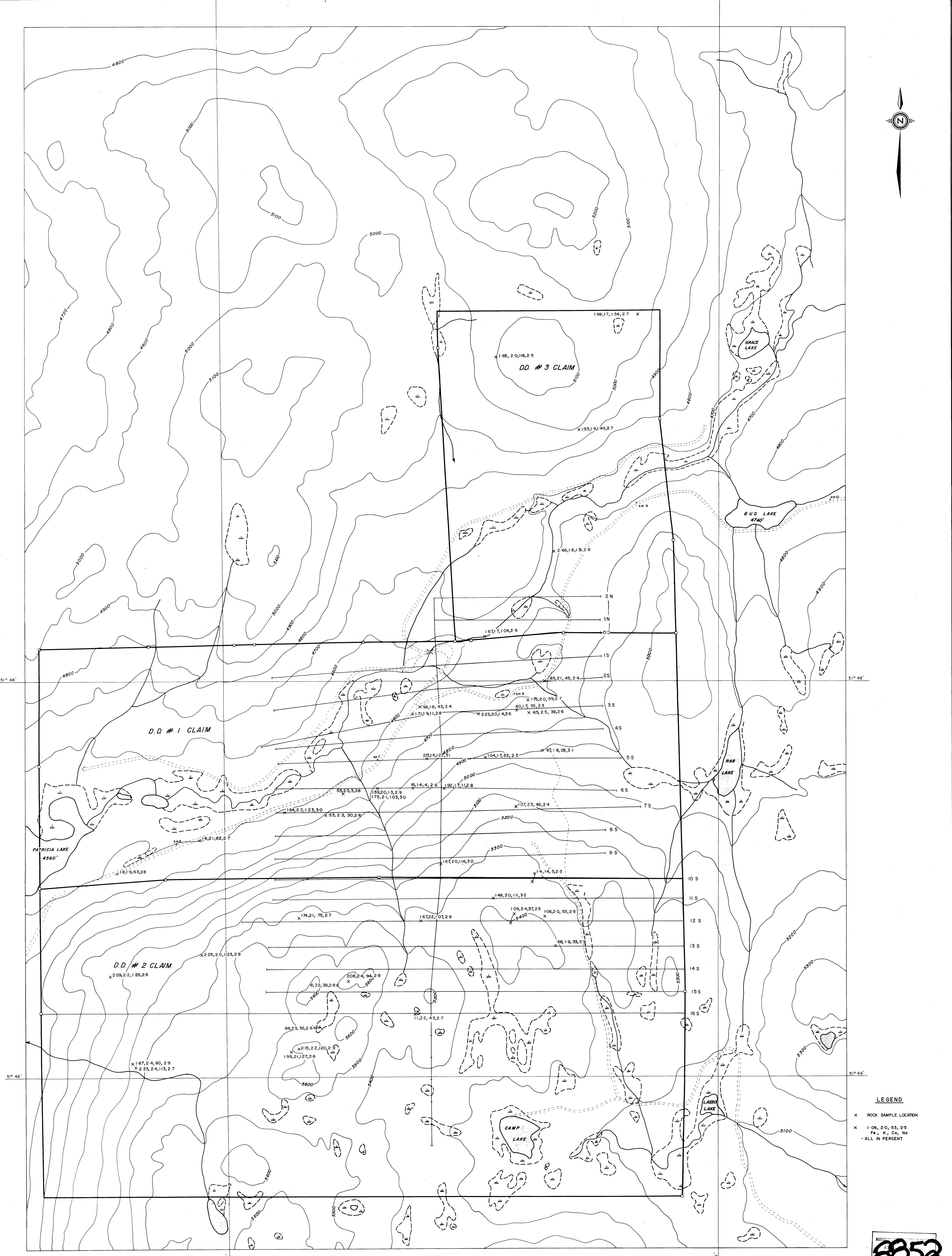
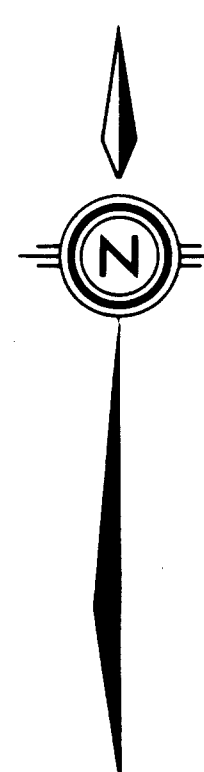
- X ROCK SAMPLE LOCATION
- X 6, 21, 3, 02, 5, 5, 250, 7
- Cu, Zn, Pb, Ag, U, W, F, Bi
- ALL IN PPM

8852

MAP 4

DRAWN: MBG	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	LITHOGEOCHEMISTRY ppm Cu, Zn, Pb, Ag, U, W, F, Bi
TRACED: J. L.	DATE: FEB 1981	KERR DAWSON VENTURE	
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	





51° 48'

51° 48'

51° 46'

51° 46'

120° 23'

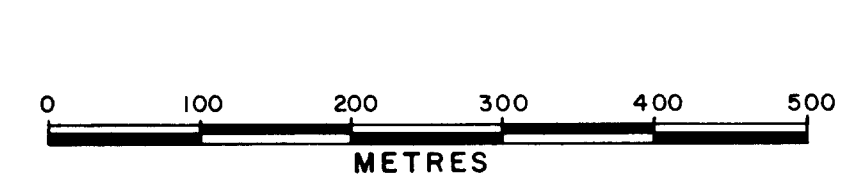
121° 21'

LEGEND

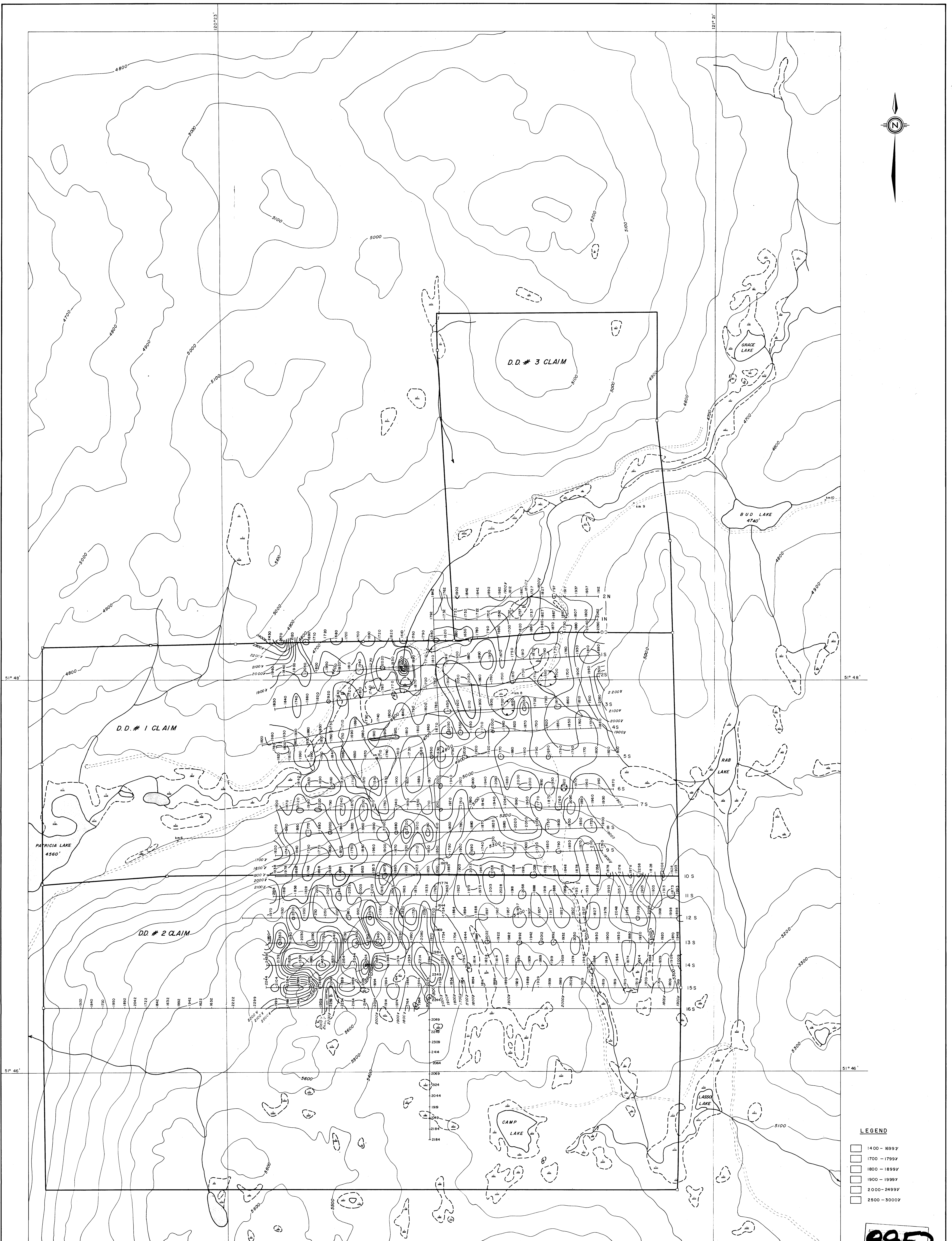
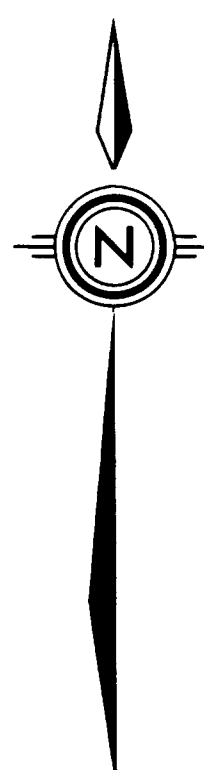
- X ROCK SAMPLE LOCATION
- X 1-06, 2-0, 53, 2-5
Fe, K, Ca, Na
- ALL IN PERCENT

8852

MAP 5



DRAWN: M.B.G.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	LITHOGEOCHEMISTRY % Fe, K, Ca, Na
TRACED: J. L.	DATE: FEB, 1981	KERR DAWSON VENTURE	
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	



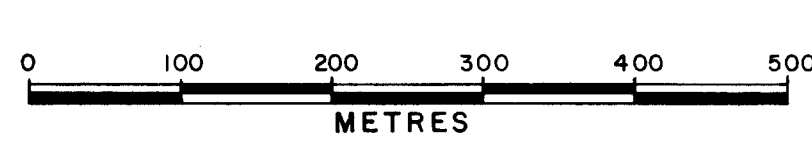
LEGEND

[Symbol]	1400 - 1699
[Symbol]	1700 - 1799
[Symbol]	1800 - 1899
[Symbol]	1900 - 1999
[Symbol]	2000 - 2499
[Symbol]	2500 - 3000

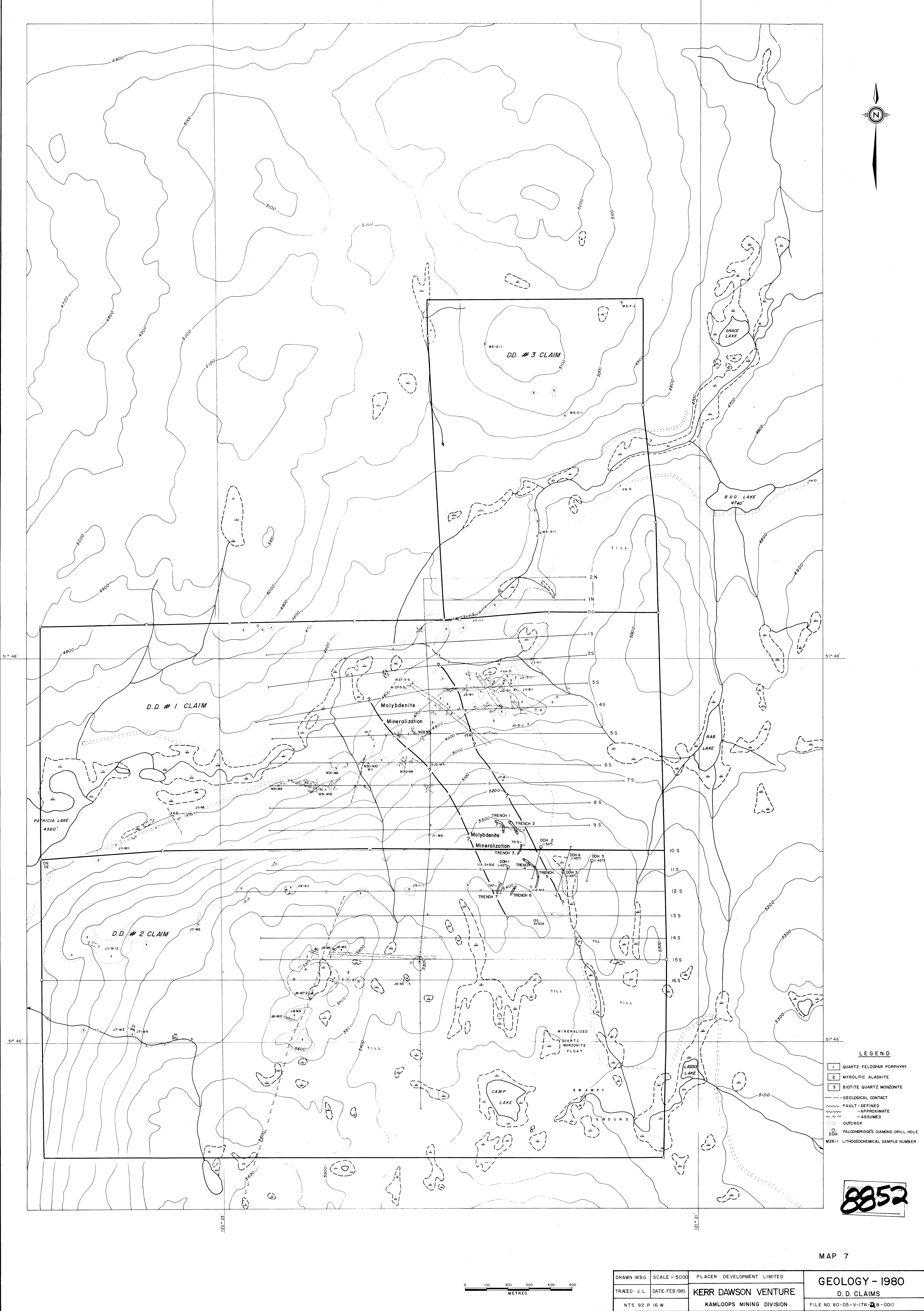
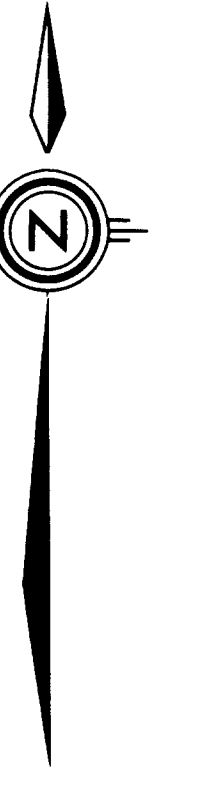
8852
NO.

MAP 6

COMPILATION OF DATA FROM:
A) KERR, DAWSON & ASSOC. LTD. APR. 1980.
B) PLACER 1980 (MAY & JUNE)



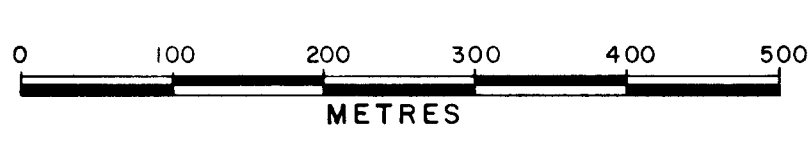
DRAWN: M.B.G.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	MAGNETOMETER SURVEY
TRACED: J.L.	DATE: OCT, 1980	KERR DAWSON VENTURE	
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	
			FILE NO. 80-05-V-176-13B-0004



- LEGEND**
- 1 QUARTZ FELDSPAR PORPHYRY
 - 2 MYROLITIC ALASKITE
 - 3 BIOTITE QUARTZ MONZONITE
 - GEOLOGICAL CONTACT
 - FAULT - DEFINED
 - FAULT - APPROXIMATE
 - FAULT - ASSUMED
 - OUTCROP
 - FALCONBRIDGE'S DIAMOND DRILL HOLE
 - D.D.H.
 - M26-1 LITHOGEOCHEMICAL SAMPLE NUMBER

8852

MAP 7



DRAWN: M.B.G.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	GEOLOGY - 1980 D. D. CLAIMS FILE NO. 80-05-V-176-B-000
TRACED: J. L.	DATE: FEB 1981	KERR DAWSON VENTURE	
NTS 92 P 16 W		KAMLOOPS MINING DIVISION	