

# 4791

948/6W

GEOLOGICAL AND GEOCHEMICAL REPORT

948/6W

on the

DEV GROUP

NORTH EASTERN BRITISH COLUMBIA

owned by

CANADIAN SUPERIOR EXPLORATION LIMITED

by

Peter J.S. Boyle

supervised by

R.A. Dujardin, P.Eng.

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>4791</u> MAP _____
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PROPERTY DESCRIPTION:

DEV 264 to 303

(Record Nos. 61019 to 61058)

LOCATION:

Nabesche River Watershed

N.T.S. 948 6W 56°123°SE

LIARD MINING DISTRICT

DATE STARTED:

September 3rd, 1973

DATE COMPLETED:

September 22, 1973

## CONTENTS

	<u>Page</u>
A. INTRODUCTION	1
B. HISTORY OF PROPERTY	2
C. GEOLOGY	3
D. MINERALIZATION	7
E. GEOCHEMISTRY	
1. Methods	8
2. Discussion of Results	9
F. CONCLUSIONS AND RECOMMENDATIONS	11

### APPENDICES

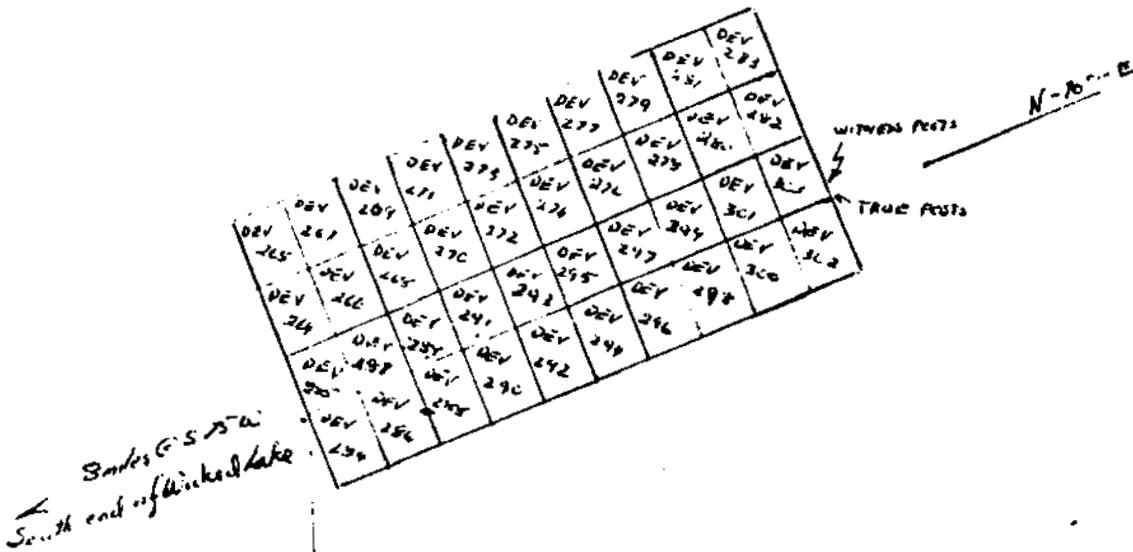
- I Statement of Expenditures
- II Certificate - P.J.S. Boyle

### ILLUSTRATIONS:

#1 Claim Location Map	Figure 1
#2 Geology	Figure 2
#3 Structural Cross Section	Figure 3
#4 Geochemical Survey 1973 Soils Zinc	Figure 4
#5 Geochemical Survey 1973 Soils Lead	Figure 5
#6 Geochemical Survey 1973 Soils Copper	Figure 6
#7 Topography	Figure 7

fig 1

NSR1A



8.3 miles  
South to Mt Burden

Sketch Showing Location  
of  
DEV 264-303 (# 292764M - # 294256L,  
NTS 94 B/6W

Scale 1:50,000

L111111 410.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 4791 MAP # 1

A. INTRODUCTION

This report discusses assessment work to be recorded against claims in the Nabesche River watershed at lat.  $56^{\circ}17'N$ , long.  $123^{\circ}24'W$ ., N.T.S. 94B 6W (fig. 1). The claims held by Canadian Superior Exploration Limited of Vancouver include:

DEV 264 - 303 inclusive  
(record numbers 61019 - 61058)

The property lies within the Rocky Mountains, 15 miles north from the east arm of Williston Lake and approximately 90 miles west of Fort St. John.

Access to the property is by helicopter.

B. HISTORY OF THE PROPERTY

The Dev Claims were staked on July 2nd, 1972. Approximately 250 claims were staked in the area, however only the 40 claims described in this report are now valid.

Cominco conducted an extensive geochemical and drilling programme on the adjoining NABE and WIND claim groups during 1972 and 1973.

During the period September 3rd, 1973 to September 22nd, 1973 one geologist and one field assistant, under the direction of the writer, undertook a geological and geochemical survey of the property. From September 15, 1973 to September 22nd, 1973 the writer, with one assistant, completed the geological mapping of the property.

A base line 11,800 feet long was established along the claim line. The programme of geological mapping and geochemical sampling was conducted over a 200 by 400 foot sample grid extending 1200 feet south from the base line and 4000 feet north.

The appended geological map shows the distribution of outcrops and an interpretation of the geology, plotted on a base map at a scale of 1:10,000 enlarged from a 1:50,000 topographic map N.T.S. 94B 6W. All outcrops shown have been visited and all structural observations are accurate to within 5 degrees.

C. GEOLOGY

1. STRATIGRAPHY

The stratigraphic breakdown was established primarily on a basis of the sedimentary characteristics of the various units and their stratigraphic relationship to the fossiliferous Dunedin Formation.

	<u>Thickness</u>	
Besa River Formation	?	Devonian-Mississippian
Dunedin Formation	895'	Middle Devonian
Stone Formation	150'	Middle Devonian
Wokkpash Formation	300'	Lower Devonian
Muncho-McConnell Formation	2,000+'	Lower Devonian

Muncho-McConnell Formation

The Muncho-McConnell Formation is in excess of 2,000 feet thick. It is composed of fine-grained, medium to dark blue dolomites weathering medium grey. Bedding varies between 1/4 inch and 30 inches and is occasionally fissile.

The Wokkpash Formation

The appearance of the first thinly bedded dolomite with undulose bedding indicates the lowest unit in the Wokkpash Formation. The undulose bedding has an amplitude of 2 to 4 inches and period of 15 to 20 inches. The thinly bedded dolomites, containing up to 30% well rounded grains,

are fine-grained, medium blue in colour, weathering yellow. Cross-bedding on a 2 - 3 foot scale is common. Interbedded at 10 to 50 foot intervals are bands of massive dolomite 1 to 10 feet in thickness and dark blue in colour.

No fossils were observed.

This unit has a thickness of 300 feet.

#### The Stone Formation

The Stone Formation is 150 feet thick. It is a fine-grained dolomitic mudstone, medium blue-green in colour, weathering light grey to white. It exhibits very prominent joint development on weathered surfaces. At the lower contact thinly bedded dolomites are interbedded at 2 to 3 foot intervals, with massive bedded dolomitic mudstone over 30 feet. The upper contact is abrupt.

There are no fauna sufficiently well preserved to be identified.

#### The Dunedin Formation

Immediately overlying the Stone-Dunedin unconformity lies a medium-grained, light grey dolomitic unit 25 feet thick which weathers a distinctive yellow. This is overlain by 10 feet of limestone or limey dolomite which is medium-grained, dark blue in colour, weathering dark grey.

This is in turn overlain by 480 feet of fossiliferous, dark grey to black, coarse-grained dolomite. Occasional light grey bands of clean dolomite will form good marker beds as will the occasional shale beds. The fossils are restricted to bank deposits which are elongate and discontinuous.

Above the fossiliferous unit of the Dunedin is found a fine-grained limestone 10 to 30 feet thick. It is dark blue in colour, weathering medium blue-grey. Bedding is 1 to 5 inches thick.

The highest observed unit is composed of massively bedded, light grey, clean dolomites with a minimum thickness of 450 feet. The upper contact was not observed.

#### The Besa River Formation

The Besa River Formation is composed of dark grey to brown shales which were observed in cliffs, but not examined. The shales are incompetent and weathering is recessive.

## 2. STRUCTURE

The principal structure in the area is the St. Bernard anticline, an elongate dome, at the margin of which, thrusting has resulted in a repetition of Devonian lithologies. The St. Bernard anticline has a northwest-southeast orientation. The associated deformation has



resulted in pronounced west dipping thrusts. The displacement on these thrusts ranges from 10's to 1000's of feet. These thrusts are relatively closely spaced and are associated with folds which are generally northerly trending, narrow, steep-limbed, and plunge to the south.

D. MINERALIZATION

Sulphide mineralization has been noted in two localities:

In the north-eastern corner of the claim group at 118+360 E 46+00N there is a sphalerite showing. Analysis for trace metal content indicated >1% zinc, 30 ppm lead, 1.5 ppm silver, 272 ppm copper and 760 ppm cadmium. The pale yellow sphalerite is very finely disseminated and is associated with calcite and white dolomite. Stratigraphically the mineralization is found immediately below the central limestone member, 460 feet above the base of the Dunedin Formation. Mapping indicates that the rock textures associated with the mineralization are found to be well developed in the lower half of the Dunedin Formation.

On the central ridge at 88E 40N over an area 400 feet by 600 feet is found a solution collapse type breccia. Galena mineralization is found in float and outcrop. The galena in float appears to occupy prominent joints in the rock and is associated with later quartz. The galena in outcrop is associated with white dolomite and quartz replacing the host rock. A mineralized rock geochem sample assayed >1% zinc, > 1% lead, 31 ppm silver, 145 ppm copper and 69 ppm cadmium. The mineralization is found several feet below the Dunedin-Stone contact.

E. GEOCHEMISTRY

1. METHODS

- (a) Soil samples were collected using a mattock. Most samples were taken from shallow depths of 8 inches or less because of the thin soil development, where possible, brown sandy loam and clay of the B horizon was taken.
- (b) One pound of rock chip samples were collected from all outcrops, within 5 feet of the grid station, where no soil samples could be obtained and when mineralization was located.
- (c) Soil and rock chip samples were packaged in kraft brown paper sample bags having a wet strength of 32 pounds.
- (d) Soil samples were partially dried in the field, completely dried in the laboratory in a warm oven, and seived through a -80 mesh nylon screen. Rock chip samples were similarly treated, crushed and seived through a -80 mesh.
- (e) Analyses of rocks and soils were carried out at the laboratory of Core Labs in Smithers. A one gram sample was digested in hot Aqua Regia for copper,

lead, zinc and silver and in controlled Aqua Regia for mercury. The solution was assayed by atomic absorption on a Jarrel-Ash spectrophotometer.

## 2. DISCUSSION OF RESULTS

### (a) Soil Geochemistry

Zinc content in soils on the Dev property is generally high with a background value of 110 ppm. Values in excess of 148 ppm are regarded as anomalous. On this basis four anomalous areas are delineated over the Dunedin and underlying Stone Formation.

A Lead content of 46 ppm or more is regarded as anomalous on the property. Background readings of 36<sup>ppm</sup> are noted in this area. The lead anomalies are generally coincident with the anomalous zinc values. However, the anomalous lead values appear to be more localized and less subject to downhill transportation. Grid reference of coincident anomalous lead-zinc values

#1	114E	52N
#2	88E	40N
#3	92E	10N
#4	114E	23N

Copper does not emerge as a significant factor in

the soil survey. Values in excess of 14 ppm are taken as anomalous.

(b) Rock Geochemistry


Anomalous areas defined by rock geochemistry, show a good degree of coincidence with soil anomalies.

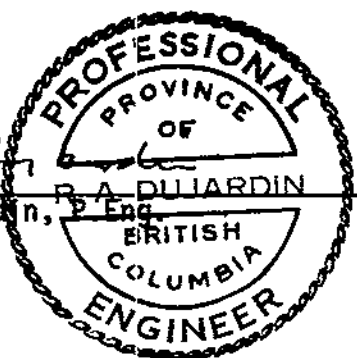
F. CONCLUSIONS AND RECOMMENDATIONS

The major question is the extent of mineralization on the central ridge (88E 40N), and whether the distribution of zinc mineralization in the showing in the north eastern corner of the property(118 +360E 46N) is strictly controlled by solution collapse structures and secondary rock textures associated with these features. These showings, which are surrounded by large high order lead-zinc geochemical anomalies, indicate that the property contains several interesting targets.

Trenching of the showing on the central ridge at 88E 40N, and the anomalies which have no outcrop expression, at 114E 52N, 92E 10N and 114E 23N, is highly recommended.

  
Peter J.S. Boyle

  
R.A. Dujardin, P. Eng.



A circular professional seal for R.A. Dujardin, P. Eng., a Professional Engineer in the Province of British Columbia. The seal features the text "PROFESSIONAL ENGINEER" around the bottom edge, "PROVINCE OF" at the top, and "BRITISH COLUMBIA" in the middle. The name "R.A. DUJARDIN" is written across the center of the seal.

APPENDIX I

STATEMENT OF EXPENDITURES

In support of an affidavit on application for Certificate of Work on Mineral Claims DEV 264 - 303 inclusive. Work recorded in Vancouver ....

1. Geological Survey

Salaries:

P. Boyle*	Sept. 15-22, 1973	8 days @ 27.70	\$221.60	
D. Leishman**	Sept. 15-22, 1973	8 days @ 25.54	<u>\$204.32</u>	\$ 425.92

2. Geochemical Survey

G. Norman*	Sept. 3-22, 1973	20 days @ 23.54	\$470.80	
B. Holland**	Sept. 7-22, 1973	16 days @ 16.66	\$263.56	
J. Juhasz**	Sept. 3-9, 1973	7 days @ 16.66	<u>\$116.62</u>	\$ 850.98

3. Data Compilation and Report Writing

P. Boyle*	Oct./Nov., 1973	12 days @ 27.70	\$332.40	\$ 332.40
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4. Camp Supplies

\$ 300.00

5. Living Expenses

\$ 413.00

6. Helicopter Support

\$ 659.60

7. Geochemical Analyses

\$1,049.00  
\$4,030.90

Total Direct Cost of Survey \$4,030.90

Work Recorded Declared before me at the City \$4,000.00

Province of British Columbia, this 18  
\* Geologist  
\*\* Assistant  
of Vancouver, in the  
December 1973, A.D.

*Peter J. Boyle*

*Joan Tenna*  
A Commissioner for Sub-mining Recorder

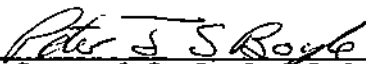
APPENDIX II

CERTIFICATE

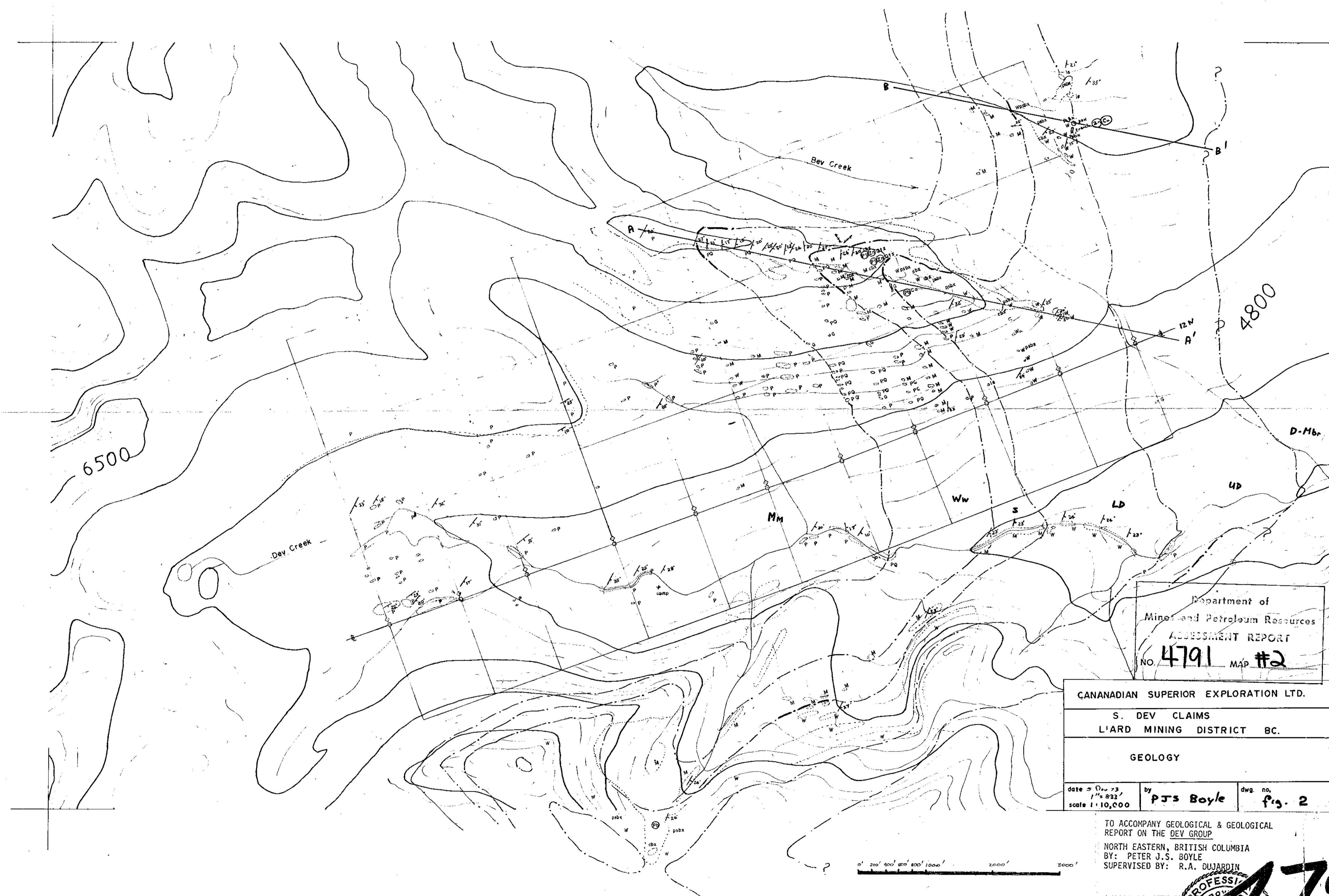
I, PETER J.S. BOYLE, of the City of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a geologist resident at 174 West 21st Street Vancouver, British Columbia.
2. I am a graduate of the University of Saskatchewan (1972) with a B.Sc (advance) degree in geology.
3. I have been practising my profession for one and one-half years.
4. I have been employed by Canadian Superior Exploration Limited since May, 1973.

Dated at Vancouver, B.C.  
this

  
Peter J.S. Boyle, B.Sc.





**LEGEND**  
Stratigraphic Succession

D-Mbr	Besa River Formation
LD	Upper Dunedin Formation
LD	Lower Dunedin Formation
S	Stone Formation
Ww	Wokkopash Formation
MM	Muncho - McConnell Formation

Rock Type Dunham

M	Mudstone (dolomitic)
W	Wackestone (dolomitic)
P	Packstone (dolomitic)
PQ	Packstone + Quartz grains (dolomitic)
G	Grainstone (dolomitic)
B	Boundstone (dolomitic)
ls.	Limestone

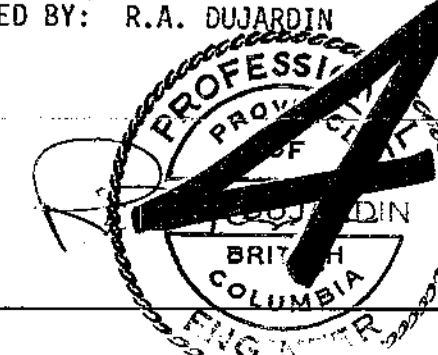
- contact
- inferred contact
- outcrop
- mineralisation
- contour
- claim post
- witness post
- bedding
- jointing
- true breccia
- pseudo breccia

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ASSESSMENT REPORT  
NO. 4791 MAP #2

CANADIAN SUPERIOR EXPLORATION LTD.  
S. DEV CLAIMS  
L'ARD MINING DISTRICT BC.  
GEOLOGY

date = Dec 73 by PJS Boyle dwg no. fig. 2  
scale 1:10,000

TO ACCOMPANY GEOLOGICAL & GEOLOGICAL  
REPORT ON THE DEV GROUP  
NORTH EASTERN, BRITISH COLUMBIA  
BY: PETER J.S. BOYLE  
SUPERVISED BY: R.A. DUJARDIN



**4791  
M2**

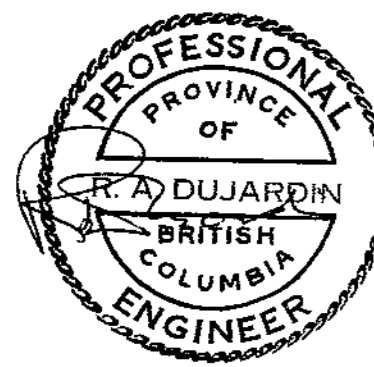


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**Legend**

- UP. Upper Dunedin Formation
- LD. Lower Dunedin Formation
- S. Stone Formation
- W. Wokkash Formation
- Mn. Muncho - McConnell Formation

psbx pseudo breccia  
cbx true breccia  
Pb, Zn, Cu, Cd mineralisation



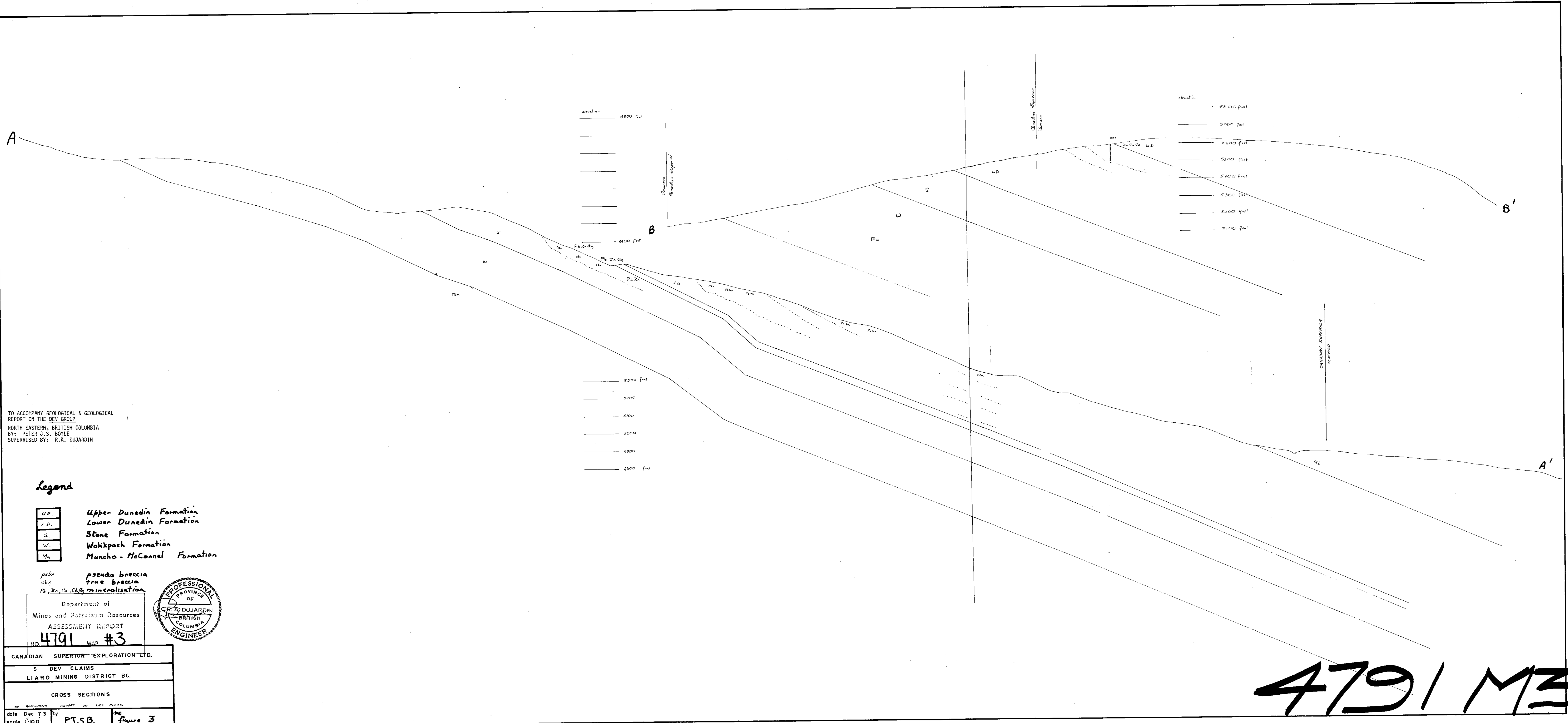
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4791 MAP #3

CANADIAN SUPERIOR EXPLORATION LTD.  
S DEV CLAIMS  
LIARD MINING DISTRICT BC.

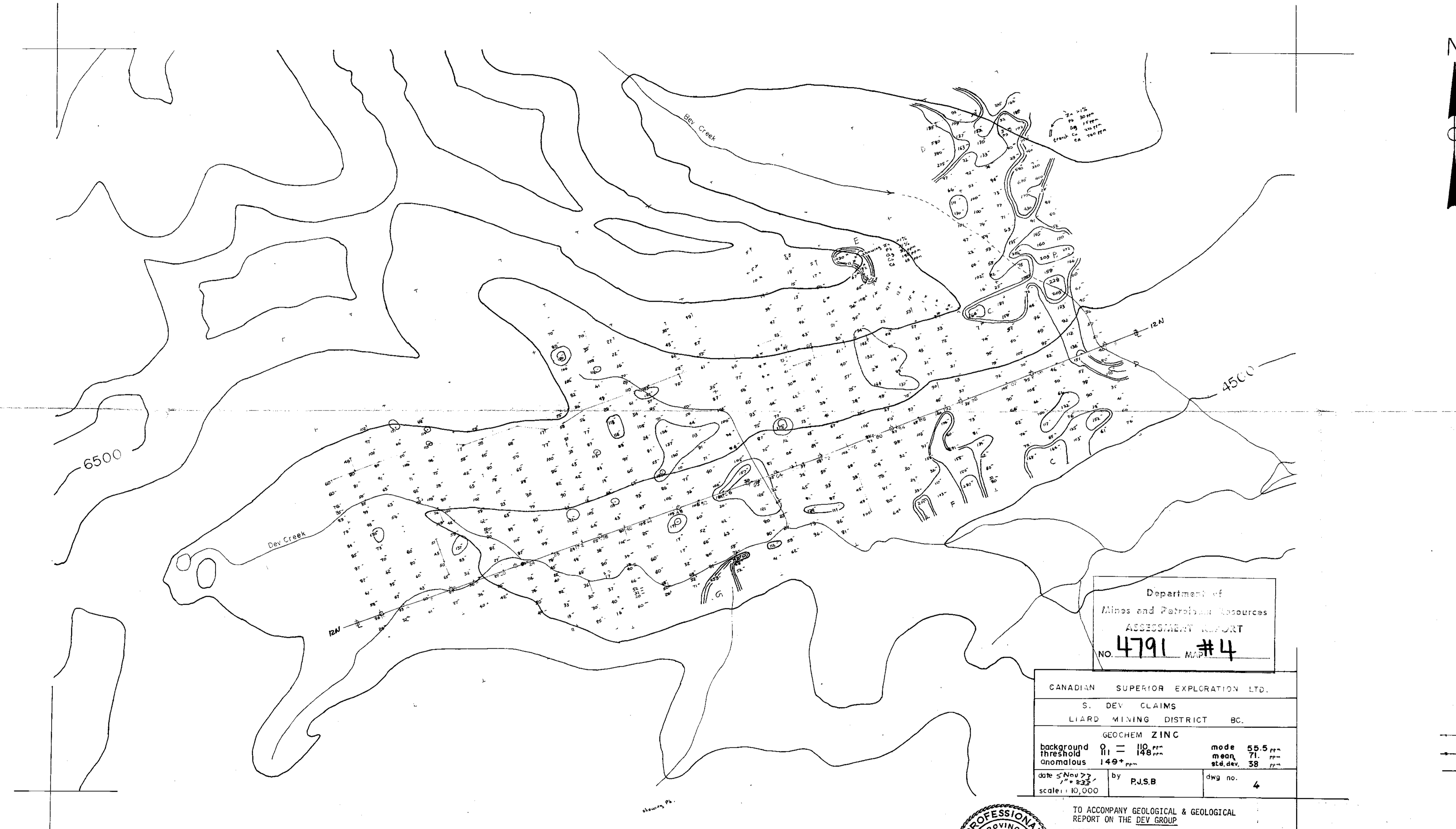
CROSS SECTIONS

REPORT ON DEV CLAIMS

date Dec 73 by P.J.S.B. dwg figure 3  
scale 1:100



4791 M3



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NO. 4791 MAP #4

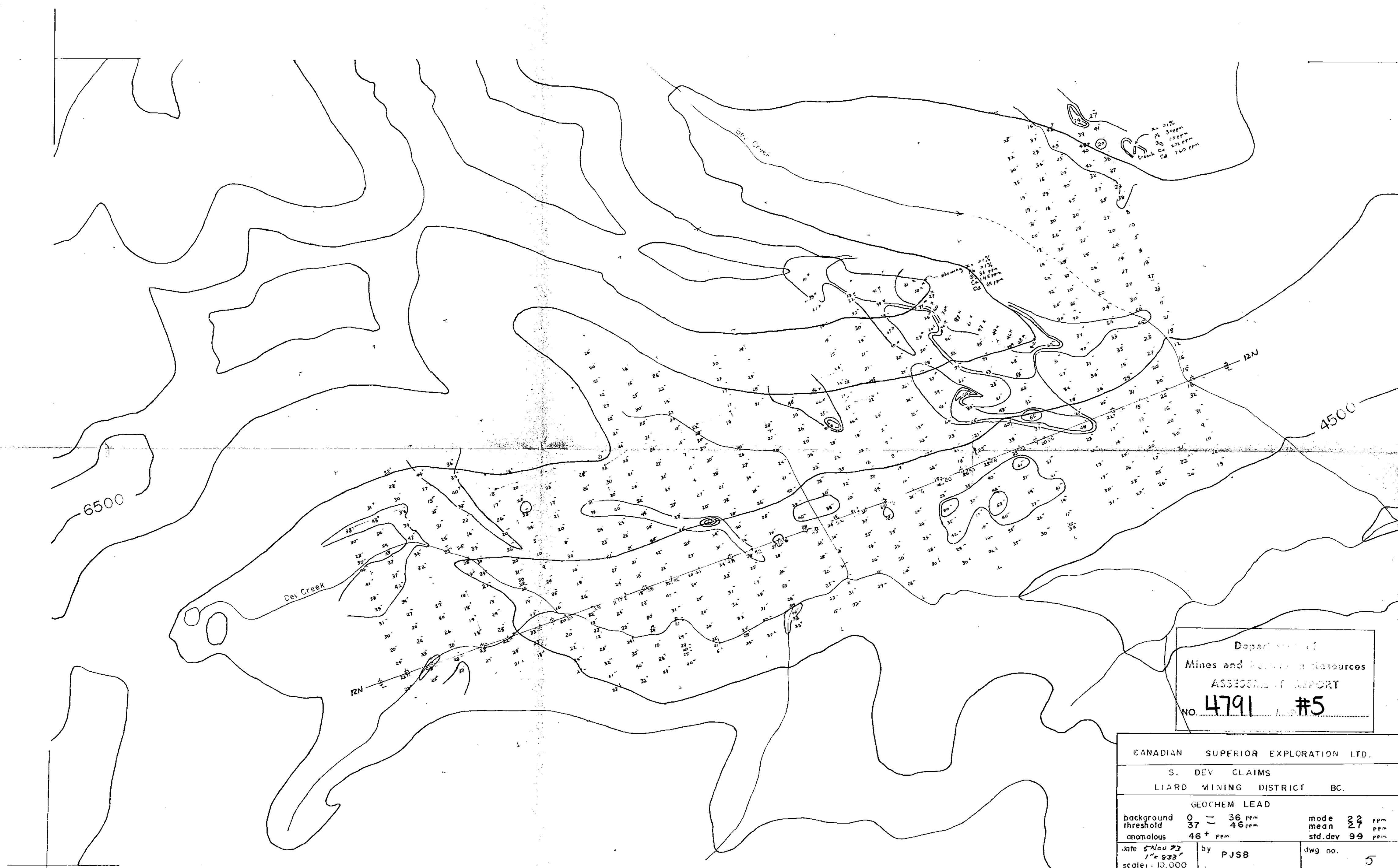
CANADIAN SUPERIOR EXPLORATION LTD.			
S. DEV CLAIMS LIARD MINING DISTRICT BC.			
GEOCHEM ZINC			
background	0 = 110 ppm	mode	55.5 ppm
threshold	111 = 148 ppm	mean	71 ppm
anomalous	149+ ppm	std. dev.	38 ppm
date 5 Nov 77	by P.J.S.B.	dwg no.	4
scale: 10,000			

- LEGEND
- soil sample location
  - rock sample location
  - +— claim pos.



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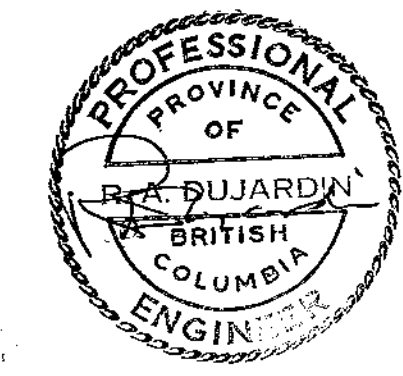
4791 MA



Department of  
Mines and Technical Resources  
ASSESSMENT REPORT  
NO. 4791 #5

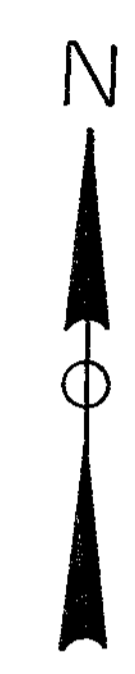
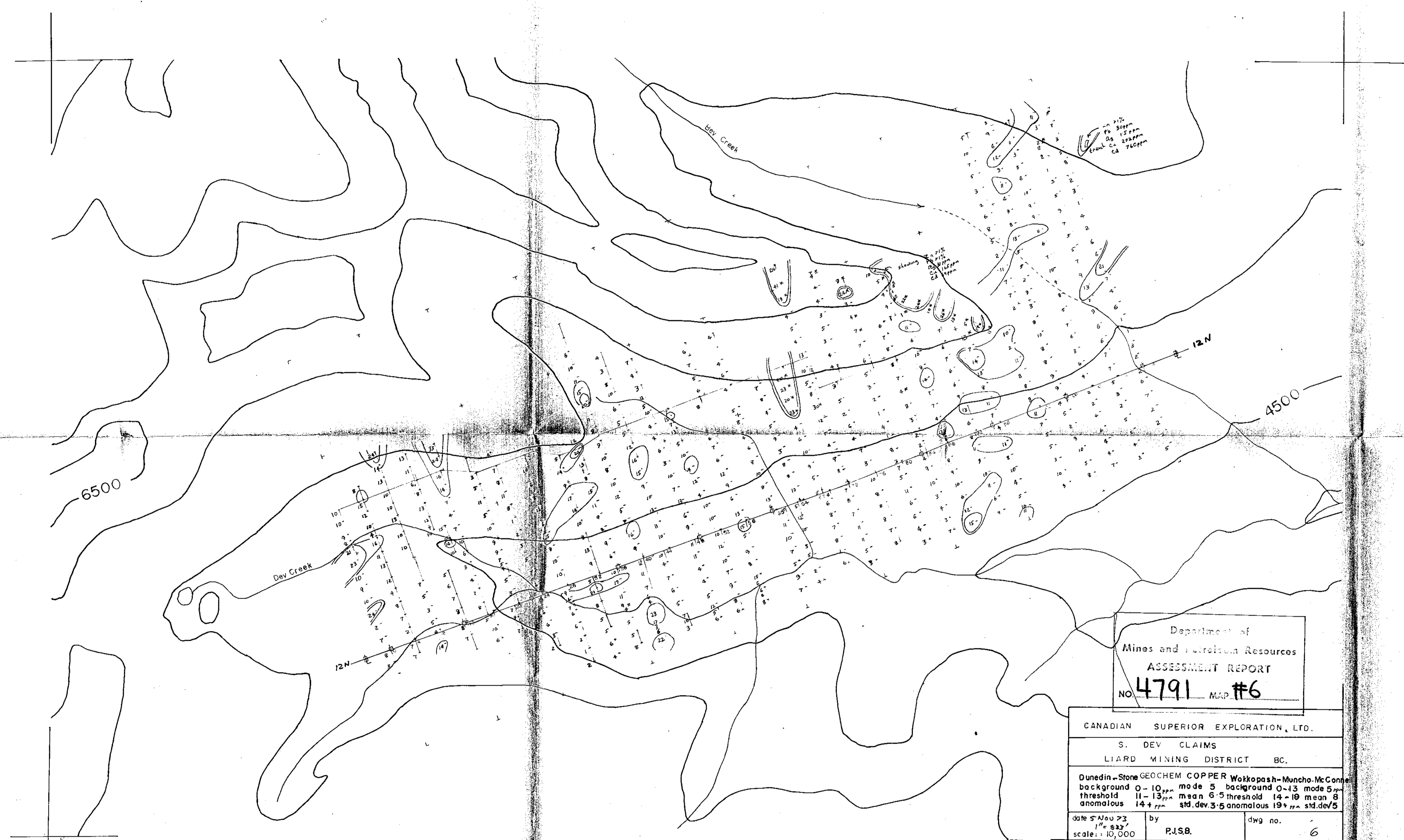
CANADIAN SUPERIOR EXPLORATION LTD.			
S. DEV CLAIMS			
LIARD MINING DISTRICT BC.			
GEOCHEM LEAD			
background	0 - 36 ppm	mode	22 ppm
threshold	37 - 46 ppm	mean	27 ppm
anomalous	46 + ppm	std. dev	99 ppm
Done 5 Nov 72 scale 1:10,000	by PJSB	Dwg no.	5

LEGEND  
 soil sample location  
 rock sample location  
 claim post



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REPORT ON THE DEV GROUP  
NORTH EASTERN, BRITISH COLUMBIA  
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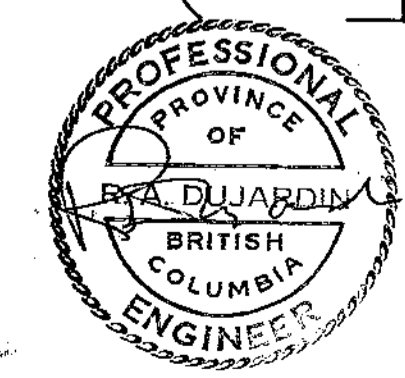
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NO. 4791 MAP #6

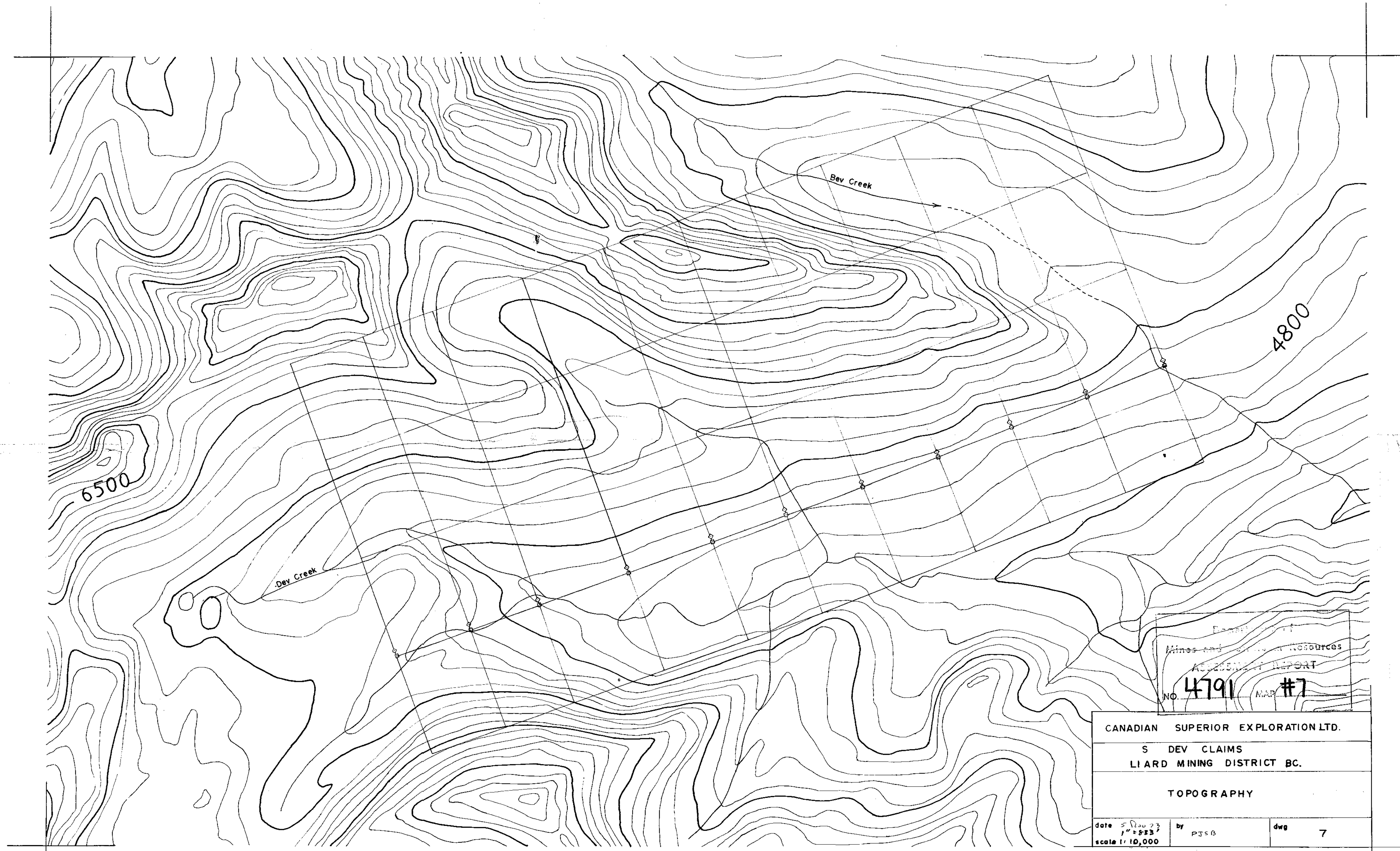
CANADIAN SUPERIOR EXPLORATION, LTD.		
S. DEV CLAIMS		
LIARD MINING DISTRICT BC.		
Dunedin-Stone GEOCHEM COPPER Wokopash-Muncho-McConnell background 0-10 ppm mode 5 background 0-13 mode 5 threshold 11-13 ppm mean 6.5 threshold 14-19 mean 8 anomalous 14+ ppm std.dev 3.5 anomalous 19+ ppm std.dev 5		
date 5 Nov 73	by P.J.S.B.	dwg no. 6
scale: 1" = 833'		

LEGEND  
 soil sample location  
 rock sample location  
 claim post



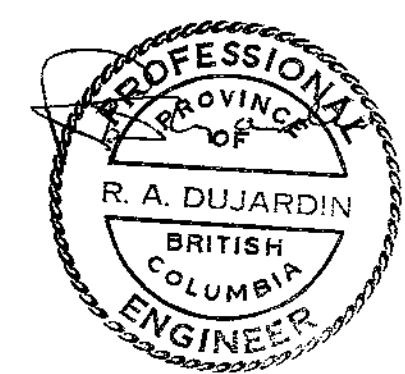
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4791 M6



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NO. 4791 MAP #7

CANADIAN SUPERIOR EXPLORATION LTD.  
S DEV CLAIMS  
LIARD MINING DISTRICT BC.  
TOPOGRAPHY  
date 5/20/73 by PJSB dwg 7  
scale 1" = 10,000'



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4791 M7