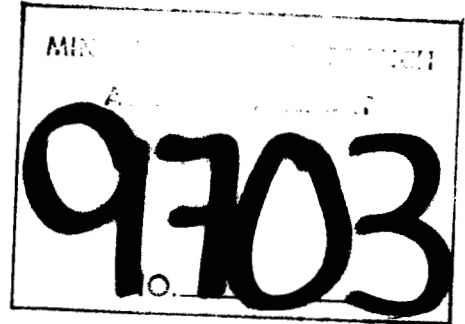


81-#915 - #9703

SOIL GEOCHEMISTRY  
BELLE GROUP  
SHEEP CREEK DISTRICT  
NELSON MINING DIVISION  
N.T.S. 82F/3E  
LATITUDE 49 09' LONGITUDE 117 08'

ARCTEX ENGINEERING SERVICES



J. M. LOGAN  
GEOLOGIST  
LOCKE B. GOLDSMITH, P. ENG.  
CONSULTING GEOLOGIST  
ARCTEX ENGINEERING SERVICES  
OCTOBER, 1981

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APPENDIX: Certificates Of Analysis

SURFACE GEOLOGY AND SOIL GEOCHEMISTRY MAP  
(in pocket at back)

SOIL GEOCHEMISTRY  
BELLE GROUP  
SHEEP CREEK DISTRICT  
NELSON MINING DIVISION, B.C.

ABSTRACT

Soil geochemical sampling on the Wolf and Argyle reverted crown granted claims (Belle Group), complicated by contamination from past milling operations, has failed to isolate any definite targets other than two areas with high gold background values. These require rapid evaluation to determine whether detailed soil sampling is warranted.

## INTRODUCTION

On May 28, 1981 grid lines on the Argyle claim (1980 program) were located and extended southward over the remainder of the claim onto the Wolf claim. About 1.1 kilometers of grid was established and a total of 15 soil samples were collected and sent to Loring Laboratories Ltd. for analysis.

The Belle Group consists of the Wolfe (L 3856) and Argyle (L 10155) reverted crown granted claims. These two contiguous claims are located immediately west of the junction of Sheep and Waldie Creeks, 12 kilometers southeast from the town of Salmo, B.C. Situated 49 09' latitude, 117 08' longitude, in the Nelson Mining Division, the area covered by the claims extends up-slope both north and south from Sheep Creek which approximately, bisects the group from east to west.

## ACCESS

Access is gained to the property via the formed all weather Sheep Creek Road which leaves Old Highway 3 about 5.5 kilometers south of Salmo, B.C. Heading east up Sheep Creek, this road bisects the Belle Group 8 kilometers from the point where it left Old Highway 3. Owing to the revival of mining interests in the Sheep Creek valley, this road may be kept open by plowing in winter.

# KOOTENAY BELLE MINE

SHEEP CREEK, B.C.

NELSON MINING DIVISION

82F 3E

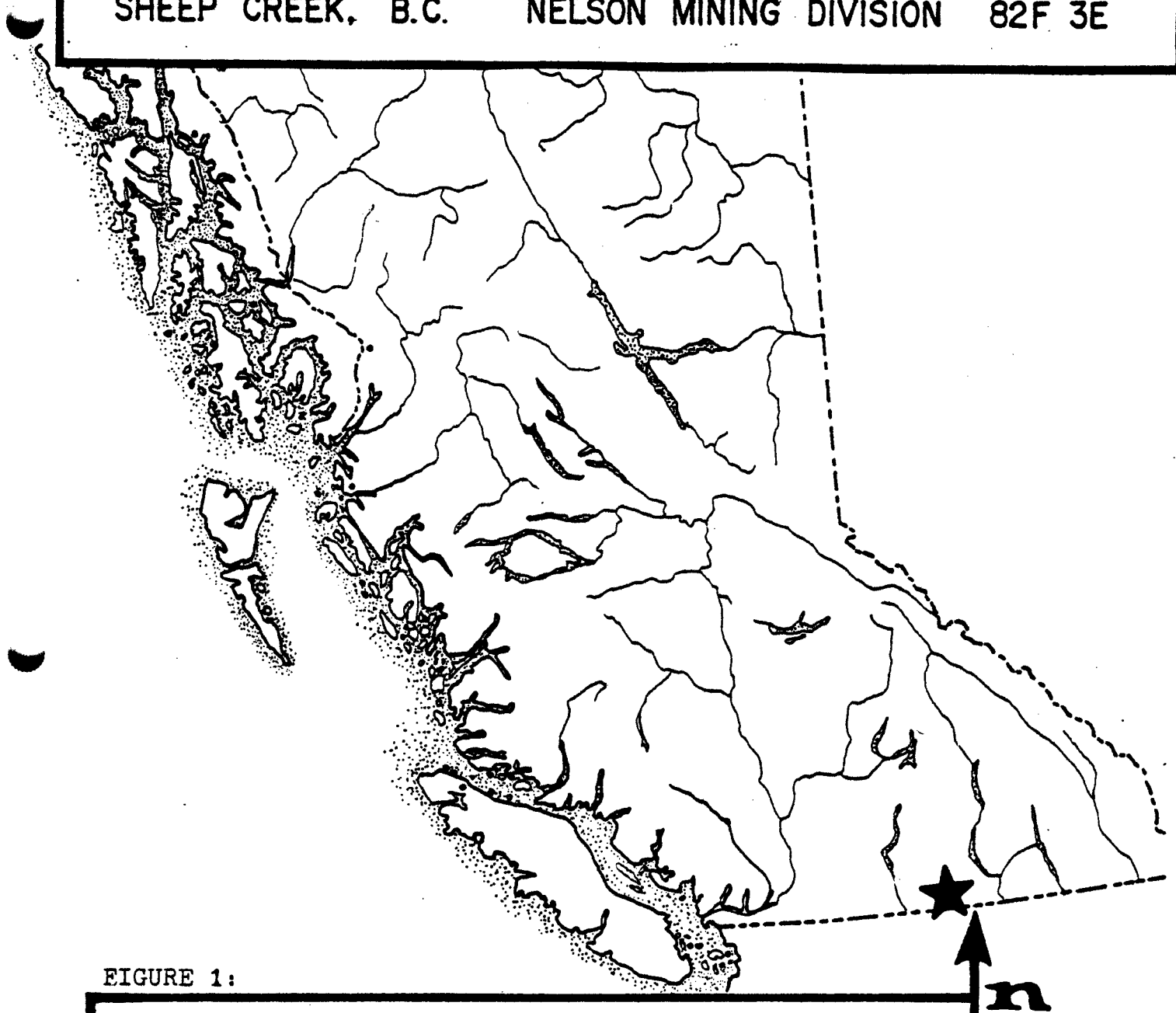


FIGURE 1:

## Location map

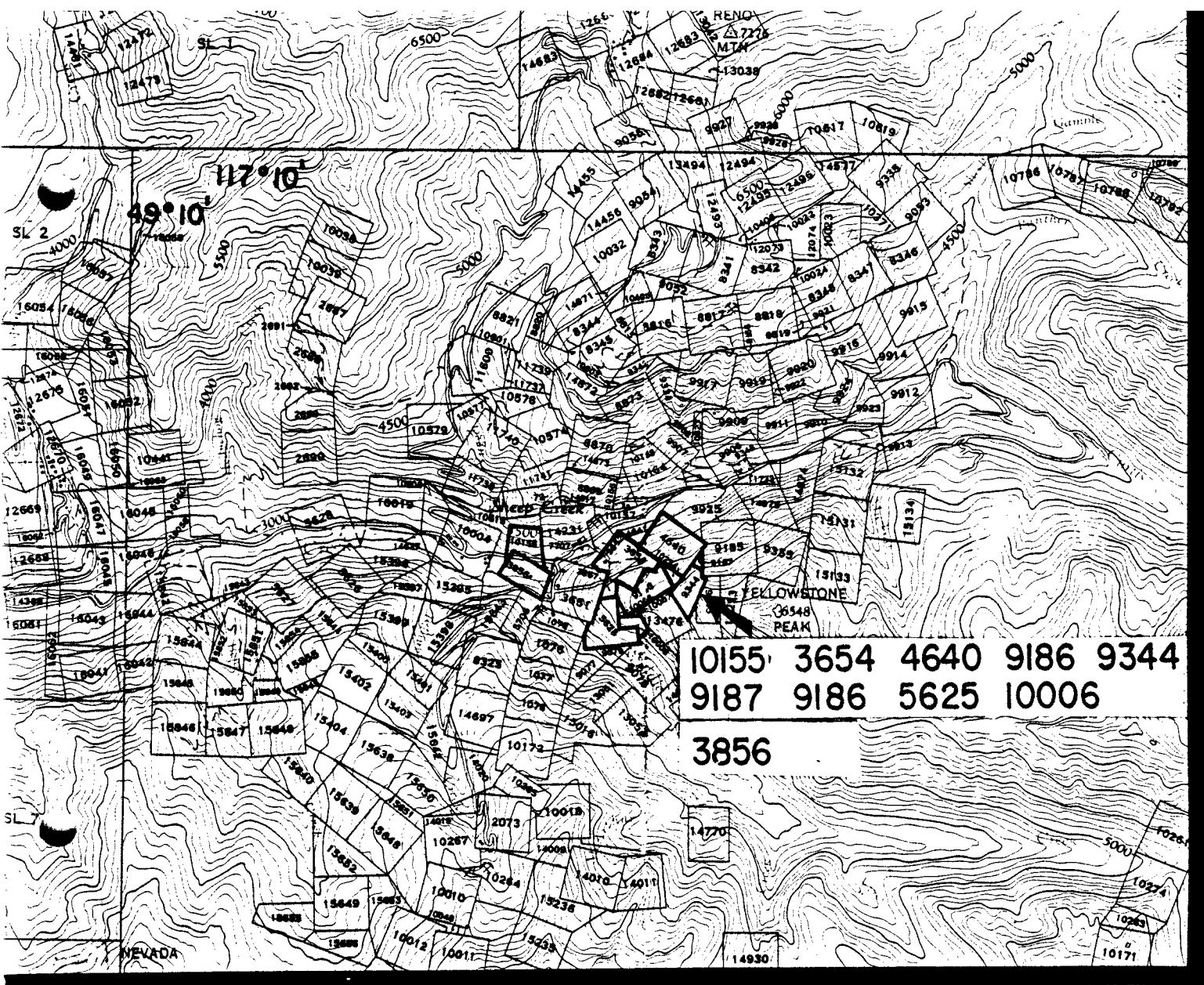


FIGURE 2:

# CLAIM MAP

0 500 1000 m.

## KOOTENAY BELLE MINE

SHEEP CREEK, B.C. NELSON MINING DIVISION 82F 3E

## HISTORY

History for the "Sheep Creek Mining Group" is amply discussed by Mathews (1953) and Walker (1929). The Argyle and Wolfe crown granted claims were probably acquired in the rush to hold land after the major discovery. Nothing in the way of development work is reported in the literature and no evidence was noted on site.

## GEOLOGY

The general geological relationships covering the claim group and surrounding area is described in numerous publications, specifically 1980 Assessment Report and will not here be reiterated.

A Surface Geology and Soil Geochemistry Map, adapted from the Mathews Map (1953), is located in the back pocket. This shows the claim group to be underlain by lower Cambrian(?) limestone and argillite of the Laib Group. No rock exposures were encountered during this years' work and the likelihood of outcrop occurring on the northern portion of the group is minimal.

## SOIL GEOCHEMISTRY

Grid lines were extended southward from the Argyle baseline at Az. 185 . Line spacing was 100 meters with a sampling

interval of 50 meters. Samples were taken from between 25 to 30 cms below the surface in the 'B' horizon (where developed). Each sample was packaged in a labelled kraft sample bag and shipped to Loring Laboratories Ltd., for analysis of gold, copper, lead and zinc values. The Certificates of Analysis are appended.

Samples are screened to -80 mesh and 500 mg of the fine fraction is weighed into test tubes. Aquaregia is added and the sample is digested in a water bath at 100.C for three hours. Test tubes are then bulked to the 10 ml level, mixed and allowed to settle overnight. The samples are then put through the atomic absorption, with appropriate standards and the results are reported in parts per million, or in the case of gold, in parts per billion (Goldsmith, 1980).

#### DISCUSSION OF GEOCHEMICAL RESULTS

Owing to the nature of material sampled, the number of samples and the topographic situation, statistical evaluation is not feasible and comparison between Argyle values of 1980 and 1981 is further complicated by the limited number of truly representative values collected (1981). The low lying nature of the Wolf claim appears to have attracted the site of a settling pond(?)/area(?) for mill tailings. These are easily recognizable as either brilliant orange or dull grey silt and silt sized material which usually return quite anomalous values.



1. L 00W, 0+50S; 1+00W, 0+75S to 1+75S; 2+00W, 0+50S to 1+00S

Anomalous values for gold and lead and specifically copper and zinc (1+00W, 1+50S) are attributed to either sampling of mill tailings or material which has been contaminated subsequently by secondary dispersion from this old settling pond.

2. L 1+00W, 0+50S; 3+00W, 1+00W

Generally poor samples consisting of sand and gravel had to be taken owing to reworking action of the creek at high water. Anomalous values are attributed to creek transported and concentrated elements.

3. L 3+00W, 0+50S

The high gold value with respect to the low values of lead, copper and zinc make this area worthy of note. Contamination would not likely have been so selective.

4. L 2+00W, 2+00S; 1+00W, 2+50S

High background gold values occur in the vicinity of old donkey trails and newer roads. Contamination is a likely suspect, but a rapid re-assessment is required.

## CONCLUSIONS

The site of an old settling pond, low topography (at creek level), and more recently road rehabilitation have all limited the effectiveness of soil geochemistry as a prospecting tool

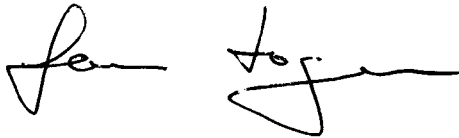
RECOMMENDATIONS

1. In collaboration with work on the remainder of the Sheep Creek Property, geochemical anomalies 3 and 4 should be investigated to determine whether detailed sampling is required.


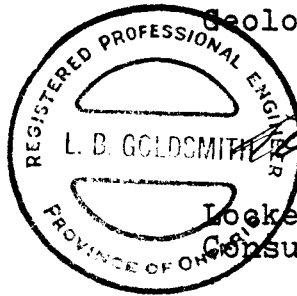
If fill-in sampling is deemed necessary, sampling would be taken at 25M X 25M spacings.

2. Assessment work should be filed at present and the group held in good standing for as long as work costs permit.

All of which is respectfully submitted,



James M. Logan,  
Geologist



Locke B. Goldsmith, P. Eng.  
Consulting Geologist

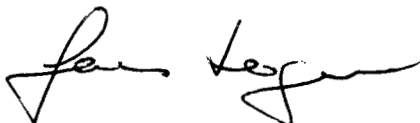
Vancouver, B.C.  
October, 1981

## STATEMENT OF QUALIFICATIONS

JAMES M. LOGAN

1. I, James M. Logan, of 5058 Ross St., Vancouver, B.C. am a graduate of Brock University, St. Catharines, Ont. with a B.Sc.(Honours) degree in Geology.
2. I have been engaged in mining exploration for five years.
3. I have written the report entitled "Soil Geochemistry, Belle Group, Sheep Creek District, Nelson Mining Division" dated October 1981. The report is based on research and fieldwork conducted and supervised by the author.
4. I have no ownership in the property nor do I own shares of Arctex Engineering Services.
5. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

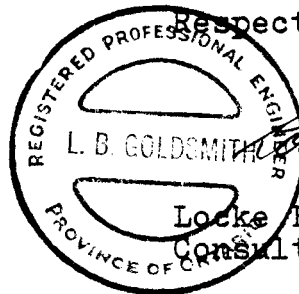
Respectfully submitted,

James M. Logan,  
GeologistVancouver, B.C.  
October, 1981

ENGINEER'S CERTIFICATE  
 LOCKE B. GOLDSMITH

1. I, Locke B. Goldsmith, am a Registered Professional Engineer in the Province of Ontario and a Registered Professional Geologist in the State of Oregon. My address is 301 - 1855 Balsam St., Vancouver, B.C.
2. I have a B.Sc. (Honours) degree in Geology from Michigan Technological University and have done postgraduate study at Michigan Tech, University of Nevada and University of British Columbia. I am a graduate of the Haileybury School of Mines and am a Certified Mining Technician.
3. I have been engaged in mining exploration for 22 years.
4. I have co-authored the report entitled "Soil Geochemistry Belle Group, Sheep Creek District, Nelson Mining Division". The report is based on field work conducted and supervised by the author.
5. I control, with associated, 100% interest in the property.
6. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted,



*Locke B. Goldsmith*  
 Locke B. Goldsmith, P. Eng.  
 Consulting Geologist

Vancouver, B.C.  
 October, 1981

## REFERENCES

Goldsmith, L.B.

1980: Soil Geochemistry, Kootenay Belle Mine, Sheep Creek District, Nelson Mining Division" for / Arctex Engineering Services, November, 1980.

Mathews, W.H.

1953: Geology of the Sheep Creek Camp, BCDM Bulletin No. 31.

McGuire, R.A.

1942: Sheep Creek Gold Mining Camp, Transactions, CIMM, Vol. XLV, pp. 169-190.

Walker, J.F.

1929: Mineral Developments in Salmo Map-Area, B.C., G.S.C. Summary Report, Part A.

Walker, J.F.

1934: Geology and Mineral Deposits of Salmo Map-Area, B.C., G.S.C. Mem. 172.

## COST STATEMENT

## PERSONNEL

Name	Position	Rate	Days	Cost
L.B. Goldsmith	Consulting Geologist	\$ 320	1/2 Oct 21	\$ 160.00
J.M. Logan	Field Geologist	220	May 27-29 *	660.00
P. Harker	Prospector	140	May 27-29 *	420.00

## ROOM AND BOARD

6 man days @ \$30.13 per day	180.78
------------------------------	--------

## TRANSPORTAION

4-Wheel Drive @ \$30. for 3 days	90.00
Fuel and mileage @ \$0.25 per mile	259.00

## ASSAYS

15 soil samples analysed for: Au, Zn, Cu, Pb	
\$14.85 per sample	222.75

## REPORT WRITING

1/2 Oct 14, Oct 17, 1/2 Oct 18, Oct 19; 3 days @ \$220.	660.00
Typing	<u>25.00</u>
Drafting	<u>40.00</u>
Copies	<u>37.00</u>

Total

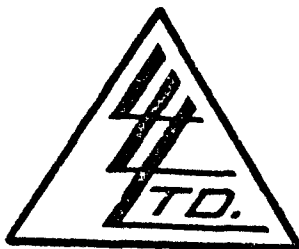
\$2754.53

\* Travel from Vancouver - Salmo, May 27,  
return May 29

APPENDIX

To: CRÓW EQUITIES LTD.,  
524, 550 - 6th Avenue S.W.,  
Calgary, Alberta  
ATTN: N.K. Ursel

cc: L.B. Goldsmith  
J. Logan (2)



File No. 21719  
 Date June 23, 1981  
 Samples Soil & Gravel

*Certificate of*  
**ASSAY of**  
**LORING LABORATORIES LTD.**

Page # 2

SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
<u>"Soil &amp; Gravel"</u>				
WO-LO+0+50S	27	490	23	2.2
WO-1W-0+50S	23	78	75	1.3
1+50S	480	1500	4000	10.0
2+00S	26	40	146	1.4
2+50S	17	30	210	1.0
3+00S	19	32	110	0.7
WO-2W-1+00S	30	460	116	1.6
1+50S	19	36	160	1.2
2+00S	18	37	166	1.4
2+50S	20	41	140	1.1
WO-3W-0+50S	13	40	50	0.8
1+00S	78	260	220	1.8
1+50S	24	39	104	1.1
2+00S	28	45	142	1.0
2+50S	23	38	115	1.2

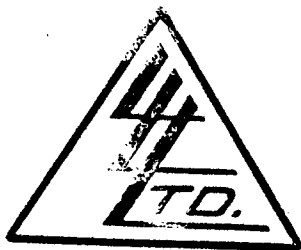
**I Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*Ed. Swan*  
 Assayer



To: CROW EQUITIES LTD.,  
 524, 550 - 6th Avenue S.W.,  
 Calgary, Alberta  
 ATTN: N.K. Ursel  
 cc: L.B. Goldsmith  
 J. Logan (2)



File No. 21719-1  
 Date July 10, 1981  
 Samples Soil & Gravel

**Certificate of  
 ASSAY  
 LORING LABORATORIES LTD.**

SAMPLE No.	PPB Au
<u>"Soil &amp; Gravel"</u>	
WO-LO+0+50S	3580
WO-1W-0+50S	1446
1+50S	4500
2+00S	60
2+50S	100
3+00S	32
WO-2W-1+00S	272
1+50S	78
2+00S	128
2+50S	60
WO-3W-0+50S	150
1+00S	510
1+50S	54
2+00S	48
2+50S	48
<p><b>I Hereby Certify</b> THAT THE ABOVE RESULTS ARE THOSE          ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .</p>	

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*T. Enclaw*  
 Assayer

# LEGEND

## Stratigraphy

PROBABLY POST-TRIASSIC

7 GRANITE AND GRANDIORITE

LOWER CAMBRIAN (?)

LAIB GROUP

6 Limestone and ARGILLITE

RENO FORMATION

5 ARGILLITE, ARGILLACEOUS QUARTZITE, DARK QUARTZITE, GRIT.

QUARTZITE RANGE FORMATION

4 NEVADA MEMBER — QUARTZITE, ARGILLACEOUS QUARTZITE.

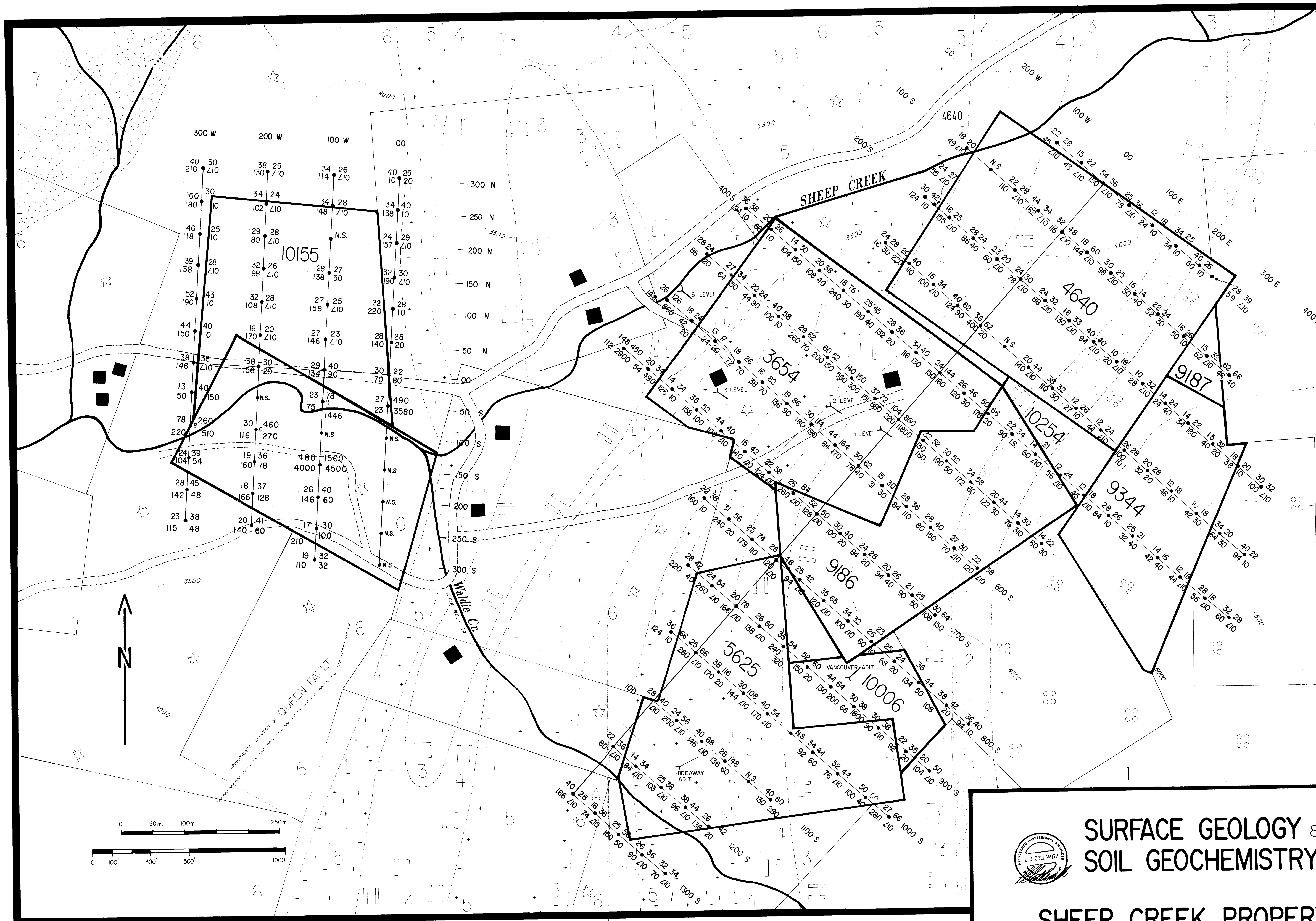
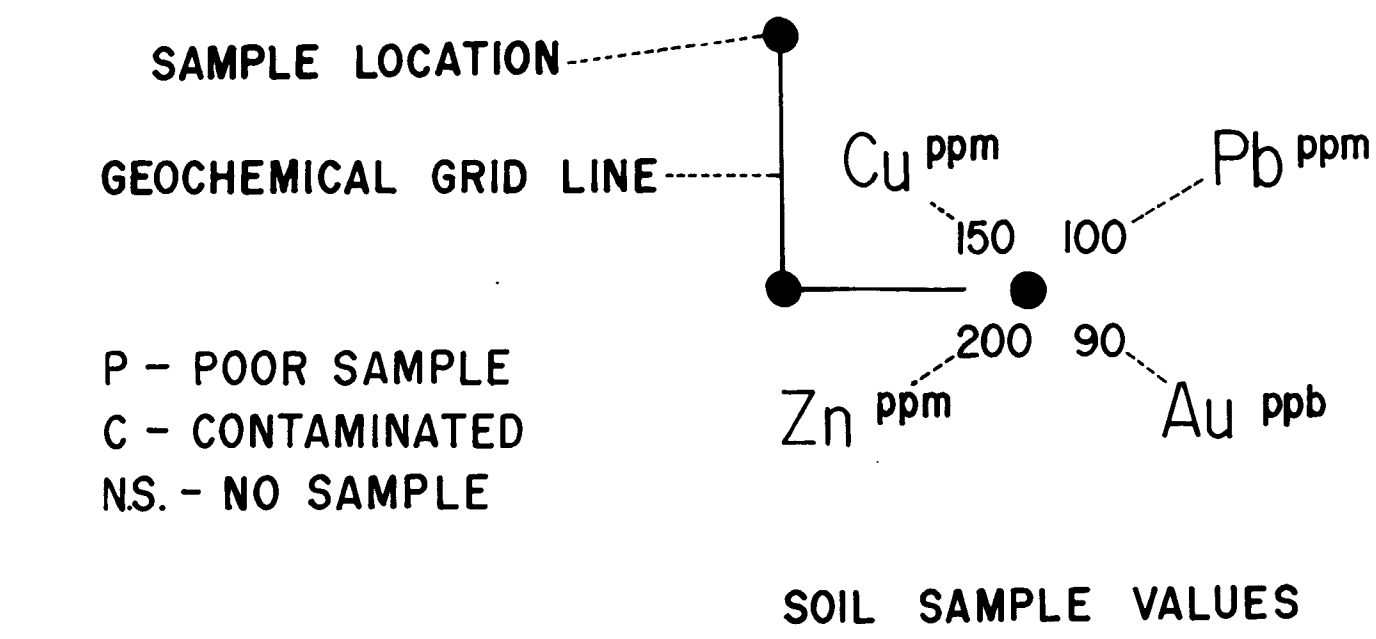
3 UPPER AND MIDDLE NUGGET MEMBERS — QUARTZITE AND ARGILLACEOUS QUARTZITE.

2 LOWER NUGGET MEMBERS — ARGILLITE AND ARGILLACEOUS QUARTZITE.

1 MOTHERLODE MEMBER — QUARTZITE, MINOR ARGILLITE, GRIT, GREEN SCHIST.

## Symbols

- ROAD
- STREAM
- CREEK
- ADIT
- CLAIM BOUNDARY
- KOOTENAY BELLE MINE GROUP
- OTHER
- BUILDING
- ASSUMED AND APPROXIMATE GEOLOGICAL BOUNDARY.



**KOOTENAY BELLE MINE**

GEOLOGY AFTER W.H. MATTHEWS  
D.M.B. 31  
1953

**BLACK DIAMOND  
RESOURCES LTD.**

NOTE:  
FOR DETAILS OF VANCOUVER ADIT  
SEE UNDERGROUND GEOLOGY &  
ASSAY PLANS, AUGUST 1938,  
AND JUNE 1981.

**SURFACE GEOLOGY &  
SOIL GEOCHEMISTRY 9703**

**SHEEP CREEK PROPERTY**  
NELSON MINING DIVISION NTS: 82F/3E

L.B. GOLDSMITH, P.Eng.  
CONSULTING GEOLOGIST

ARCTEX ENGINEERING SERVICES  
OCTOBER 1980  
REVISED AUGUST 1981