

ARIS SUMMARY SHEET

District Geologist, Nelson

Off Confidential: 89.09.01

ASSESSMENT REPORT 18016

MINING DIVISION: Slocan

PROPERTY: Northern Belle  
LOCATION: LAT 50 00 12 LONG 117 09 42  
UTM 11 5538794 488414  
NTS 082K03E

CLAIM(S): Northern Belle, Judith Ann

OPERATOR(S): Goldsmith, L.B.

AUTHOR(S): Kallock, P.

REPORT YEAR: 1988, 32 Pages

COMMODITIES

SEARCHED FOR: Silver, Lead, Zinc

GEOLOGICAL

SUMMARY: Upper Triassic and Lower Jurassic Slocan Group argillites are cut by a northeast trending fissure or lode zone which contains silver-lead-zinc mineralization.

WORK

DONE: Drilling  
DIAD 367.3 m 6 hole(s); BQ  
Map(s) - 5; Scale(s) - 1:200, 1:1000  
SAMP 16 sample(s); PB, ZN, AG, AU

MINFILE: 082KSW015

LOG NO: 1123	RD.
ACTION:	
FILE NO:	

DIAMOND DRILLING PROGRAMME  
NORTHERN BELLE CLAIM GROUP  
MOUNT PAYNE AREA  
SLOCAN MINING DIVISION  
SANDON, B.C.  
NTS 82 K/3 E

FILMED

LATITUDE 50°00'N, LONGITUDE 117°12.3'W

Prepared for  
LOCKE RICH MINERALS LTD.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

18016

ARCTEX ENGINEERING SERVICES

Paul Kallock  
Consulting Geologist

October 18, 1988

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(Pocket inside back cover)

Geology Plan Map, 1:1000 Scale  
Drill Hole Profile, DDH 88-1 & 88-2, 1:200 Scale  
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Drill Hole Profile, DDH 88-4, 1:200 Scale  
Drill Hole Profile, DDH 88-5 & 88-6, 1:200 Scale

**DIAMOND DRILLING PROGRAMME  
NORTHERN BELLE CLAIM GROUP  
MOUNT PAYNE AREA  
SLOCAN MINING DIVISION  
SANDON, B.C.**

**SUMMARY**

During August 1988, a programme of diamond drilling was undertaken at the Northern Belle claim group in the Slocan mining camp in southeastern British Columbia. A total of 367.32 metres were drilled in six holes. The southeast dipping Northern Belle vein and a lower parallel vein were targets of the drilling. Five of the six drill holes encountered quartz-sulphide and/or limonite mineralization grading up to 230 ppb gold and assaying up to 0.07% lead, 15.40% zinc and 1.57 oz silver per ton in true widths up to 0.72 metres. Additional mineralization of similar grade and width is expected along strike in untested ground to the northeast. However, due to the relatively low precious metal value obtained from the current drilling programme, no additional exploration is recommended at this time.

## INTRODUCTION

The Northern Belle claim group is located 4.0 km south of Zincton, B.C., near the headwaters of McGuigan Creek, Sandon Mining Division, NTS map sheet 82 K/3 E. The claims are situated at latitude 50°00' north, longitude 117°12.3' west. Elevation ranges from 1890 m to 2287 m above sea level.

The claim group consists of two reverted crown grants and one located claim as follows:

<i>Name</i>	<i>Lot No.</i>	<i>Record No.</i>
Northern Belle	L3173	1143(3)
Galena Fraction	L4895	1143(3)
Judith Ann	-	2688(9)

Access to the property is by gravel and dirt road from Zincton on Highway 31A, 10 km up the McGuigan Creek valley. During June 1987, 0.38 km of new road was constructed to gain access to the Northern Belle adit and a lower adit. A backhoe was used to clear portal entrances. The adits were mapped and sampled, and outcrops in the vicinity and along the new road were examined. Soil samples were also collected at 25 m intervals along the road bank.

During August 1988, 100 metres of road was constructed and a drill site established from which six diamond drill holes were cored. A total of 367.32 metres were drilled to test the Northern Belle veins. Results of this programme are tabulated and discussed in this report.

There is no recorded production from the Northern Belle property, however open stopes along the cliff face are undoubtedly connected with the drift which is filled with muck within the Northern Belle adit, indicating removal of an undetermined amount of mineralization.

## GEOLOGY

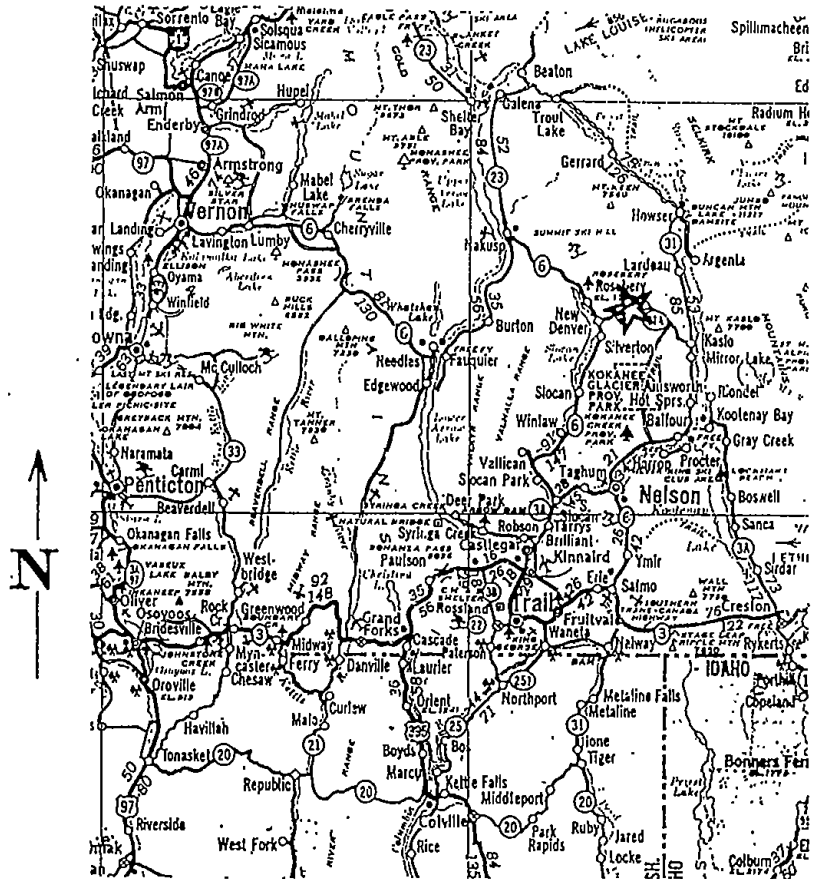
The claim area is underlain by Slocan sediments, a thick sequence of argillite and shale, with subordinate amounts of quartzite, limestone and tuff. Feldspar porphyry sills (?) up to 5 m thick can be seen in a cliff face along the northeast side of the Galena Fraction claim; these bodies are ptygmatically folded, and when viewed from a distance appear to outline recumbent folds.

The claims have been partially mapped and rock samples collected from surface workings by Goldsmith (1983). During June 1987, a road was constructed to gain access to the Northern Belle adit. Ten metres of excavation at the portal entrance was required to open the adit. The adit

# Location Map

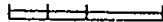
## NORTHERN BELLE CLAIM GROUP

Slocan Mining Division,  
Sandon Area, B.C.  
NTS 82 K/3 E



Kilometres

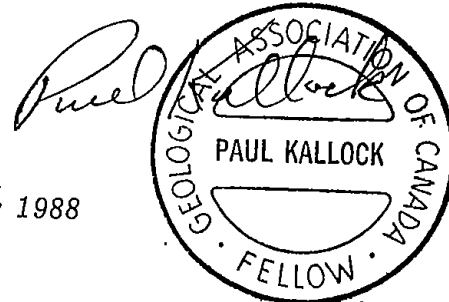
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To accompany report by

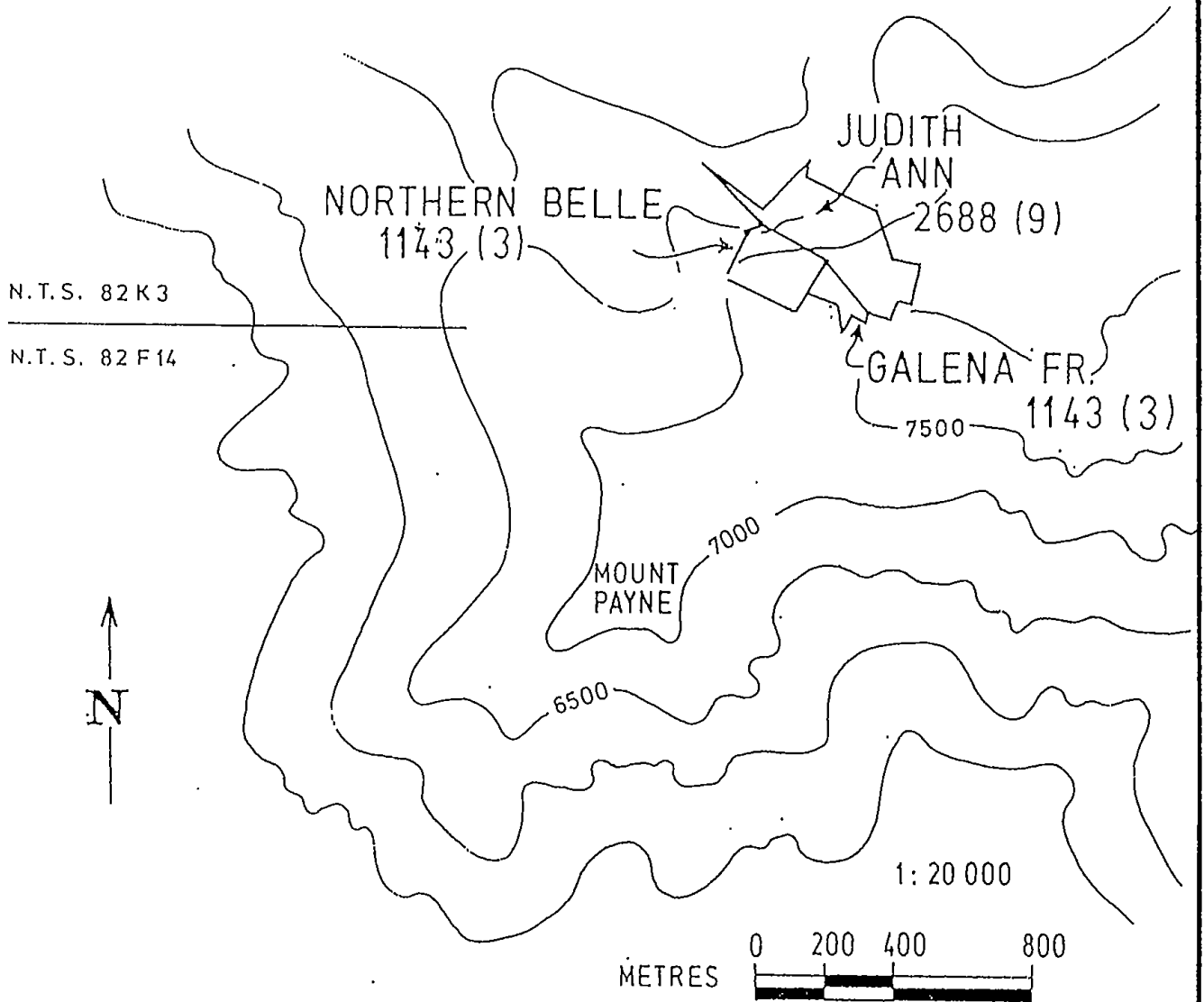
Paul Kallock  
Consulting Geologist

ARCTEX ENGINEERING SERVICES October 1988



# LOCKE RICH MINERALS LTD.

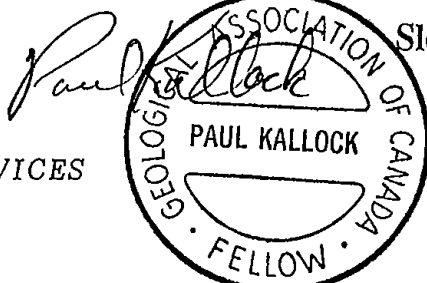
# CLAIM MAP



## NORTHERN BELLE CLAIM GROUP

To accompany report by

Paul Kallock  
Consulting Geologist



Slocan Mining Division,  
Sandon Area, B.C.  
NTS 82 K/3 E

ARCTEX ENGINEERING SERVICES

October 1988

# LOCKE RICH MINERALS LTD.

was entered and rock chip samples collected from the vein and walls at 5 m intervals between the portal and the muck-filled drift which blocks the adit at 22.5 m. The 1:1000 scale geology map of Kallock (1987) has been amended to include data from the 1988 drill programme, and is included in the pocket of this report.

The geology as described in the drill logs in the Appendix is repetitive in that numerous beds of argillite, silty argillite, and several calcareous beds ranging from grey limestone to black carbonaceous limestone are present. Measurements of bedding attitude in relation to core axis indicates several folds within the length of the drill holes. The sedimentary rocks belong to the Slocan Group.

In the lower portions of several of the holes, felsite dykes were encountered. They are generally white with very fine feldspar and quartz, but are not porphyritic. Each contains variable amounts of fine disseminated pyrite. In DDH 88-5 a felsite dyke is host to pyrite-sphalerite mineralization of the Northern Belle vein. The competence of the dyke appears to be greater than the sedimentary rock and therefore was a better host to mineralization once channelways were opened.

Structurally, several of the vein intercepts in the drill holes showed fault gouge and shearing. Fault zones were also seen in the core above the vein intercept in DDH 88-3 which may account for an apparent curve of the vein as seen in plan view of the adit level in the vicinity of DDH 88-3.

## DIAMOND DRILL PROGRAMME

As can be seen on the 1:1000 scale geology plan map included in the pocket of this report, a drill station was established 45 metres east of the Northern Belle adit. A fan of six drill holes was directed northerly to test the southeast-dipping Northern Belle vein. In addition, the first hole was drilled deeper to test mineralization of the lower parallel vein. Six drill holes, totalling 367.32 m, are described in the drill logs included in the Appendix and listed as follows:

<i>Diamond Drill Hole</i>	<i>Azimuth (degrees)</i>	<i>Angle (degrees)</i>	<i>Length (metres)</i>
NB 88-1	330	-60	120.49
NB 88-2	330	-45	41.16
NB 88-3	350	-45	42.68
NB 88-4	020	-45	40.37
NB 88-5	040	-45	58.60
NB 99-6	040	-60	<u>64.02</u>
			367.32
			(1,204.8 ft)



A wireline J.K. Smith Model 300 diamond drill rig operated by McFeron & Marcus Drilling was used to obtain BQ size core. Drilling commenced August 26 and was completed September 6, 1988. Core is stored at 210 Alpha Street in Silverton, B.C.

## Mineralization

Mineralized sections of the core were split and one-half of the core was sent to Chemex Labs of North Vancouver, B.C., for lead, zinc and silver assays and gold geochemical analyses. Results and analytical procedures are included in the Appendix; results are also shown on 1:200 scale drill hole profiles in the pocket of this report.

### DDH 88-1

Diamond drill hole 88-1 passed below the main adit, approximately 10.0 m down the dip of the lode. Between 35.34 m and 36.49 m, the argillite contains abundant limonite, local clay and traces of finely disseminated galena. From 36.80 m to 36.86 m a 0.06 m section of core showed quartz-carbonate breccia and traces of sphalerite in a zone which dips 55° to core axis. This attitude corresponds closely with the expected dip of the Northern Belle lode. A 0.30 m split sample from 36.68 m to 36.98 m contained 40 ppb Au, 0.10% Pb, 1.26% Zn, and 0.16 oz Ag/ton. A 1.34 m sample of core from the hangingwall contained <5 ppb Au, 0.13% Pb, 0.61% Zn, and 0.28 oz Ag/ton.

From the main vein intersection, DDH 88-1 was extended to a length of 120.49 m. The lower vein which is exposed at surface near the portal of the lower decline, 60 m northwest of the main adit, was intersected in the drill hole at 119.39 m. A 0.64 m intersection of the vein, which represents a true width of 0.62 m assayed 0.06% Pb, 0.14% Zn, and 0.17 oz Ag/ton. No gold was detected.

### DDH 88-2

This hole was angled at -45° at the same azimuth as DDH 88-1. It was drilled to a length of 41.16 m, and passed slightly below the main adit. A 0.79 m wide zone between 33.54 m and 34.33 m contained three quartz veinlets less than 1.5 cm wide and several limonite-goethite veinlets in iron-stained argillite. This zone may have represented the Northern Belle structure. No samples were assayed.

### DDH 88-3

The lode was encountered between 33.02 m and 33.32 m in DDH 88-3. This represents a true width of 0.28 m. A sample of this interval assayed 0.13% Pb, 8.22% Zn, and 1.18 ppm Ag.

intersections have passed through the fissure filling at points above and below the adit level and have tested approximately 40 m of strike length and up to 30 m vertical elevation.


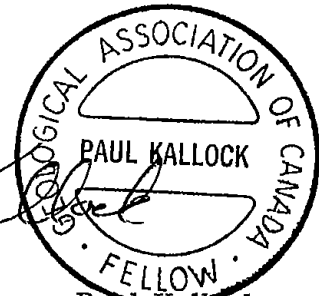
In most drill intercepts a zone of quartz veinlets accompanied by limonite, pyrite and minor sphalerite was seen to be hosted in argillite. In DDH 88-3 the intercept was completely oxidized to limonite-goethite and contained 8.22% Zn and 1.18 oz Ag/ton. The best mineralization was obtained from DDH 88-5 where massive pyrite-sphalerite up to 0.3 m in width was found. A 1.43 m chip sample including the massive sphalerite contained 230 ppb Au, 0.07% Pb, 15.40% Zn, and 1.57 oz Ag/ton. A white felsite dyke was host to mineralization in this hole. DDH 88-6 tested the vein 16 m below the DDH 88-5 intercept. It encountered quartz veins with up to 0.27% zinc and <0.01 oz Ag/ton.

Additional drilling on strike to the northeast from DDH 88-5 may encounter encouraging zinc mineralization although silver values in DDH 88-5 were low. Increased silver content of the lode, if it continues to the northeast, is a possibility.

The lower, parallel vein which was intercepted at 119.39 m in DDH 88-1 contained lower values of lead, zinc and silver than were obtained at surface.

## RECOMMENDATIONS

Although zinc content of 15.40% was encountered in a drilled length of 1.43 m, values of silver, up to 1.57 oz Ag/ton, are not high enough to warrant further exploration at this time.

  
  
Paul Kallock  
Consulting Geologist

Vancouver, B.C.

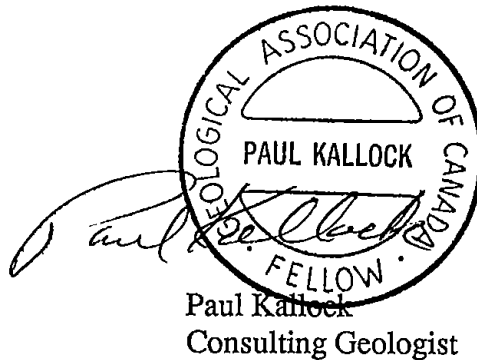
October 18, 1988

**GEOLOGIST'S CERTIFICATE**  
**PAUL KALLOCK**

I, Paul Kallock, do state: that I am a Geologist with Arctex Engineering Services, 301 - 1855 Balsam Street, Vancouver, B.C.

I Further State That:

1. I have a B.Sc. degree in Geology from Washington State University, 1970. I am a Fellow of the Geological Association of Canada.
2. I have engaged in mineral exploration since 1970, both for major mining and exploration companies and as an independent geologist.
3. I have authored the report entitled, "Diamond Drilling Programme, Northern Belle Claim Group, Mount Payne Area, Slocan Mining Division, Sandon, B.C." The report is based on my fieldwork carried out on the property and on previously accumulated geologic data.
4. I have no direct or indirect interest in any manner in either the property or securities of Locke Rich Minerals Ltd., or its affiliates, nor do I anticipate to receive any such interest.
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. Sheets of analyses in the Appendix could be omitted from a prospectus because all values are plotted on maps.



Vancouver, B.C.  
October 18, 1988

## REFERENCES

- Goldsmith, L.B. 1983. Preliminary Geological Mapping and Soil Geochemistry, Northern Belle Group, Mount Payne, Slocan Mining District, Sandon, B.C. Private report filed for assessment credits.
- Kallock, P. 1987. Soil and Rock Geochemical and Geological Investigation, Northern Belle Claim Group, Mount Payne, Slocan Mining Division, Sandon, B.C. Report prepared for Merritt Minerals Inc.

## COST STATEMENT, 1988 PROGRAMME

## Diamond drilling

367.32 m cost

\$27,717.50

= \$75.46/m

**APPENDIX**



**Chemex Labs Inc.**  
 Analytical Chemists \* Geochemists \* Registered Assayers  
 994 WEST GLENDALE AVE., SUITE 7, SPARKS,  
 NEVADA, U.S.A. 89431  
 PHONE (702) 356-5395

To: ARCTEX ENGINEERING SERVICES  
 2390 - 1055 W. HASTINGS ST.  
 VANCOUVER, B.C.  
 V6E 2E9/  
 Project: NORTHERN BELLE  
 Comments: CG; PAUL KALLOCK

Page No. : 1  
 Tot. Pages: 1  
 Date : 29-SEP-88  
 Invoice # : I-8823972  
 P.O. # : NONE

**CERTIFICATE OF ANALYSIS A8823972**

SAMPLE DESCRIPTION	PREP CODE	Au ppb FATAA	Pb %	Zn %	Ag oz/T					
88-1 35.84-36.68	208	< 5	0.13	0.61	0.28					
88-1 36.68-36.98	208	40	0.10	1.26	0.16					
88-1 36.98-37.99	208	< 5	0.01	0.09	0.07					
88-1 118.38-119.39	208	< 5	0.01	0.01	< 0.01					
88-1 119.39-120.03	208	< 5	0.06	0.14	0.17					
88-1 120.03-120.49	208	< 5	0.01	0.09	0.06					
88-3 32.71-33.02	208	< 5	0.01	0.15	0.16					
88-3 33.02-33.32	208	40	0.13	8.22	1.18					
88-3 33.32-33.63	208	< 5	0.01	0.27	0.04					
88-4 35.98-36.28	208	< 5	0.01	0.59	0.10					
88-4 36.28-36.46	208	200	0.32	2.30	0.89					
88-4 36.46-36.77	208	15	0.01	0.18	0.07					
88-5 49.85-50.49	208	25	0.20	0.77	0.24					
88-5 50.49-51.92	208	230	0.07	15.40	1.57					
88-5 51.92-52.99	208	10	0.03	2.61	0.07					
88-6 58.60-58.84	208	< 5	0.01	0.27	< 0.01					

*PK*

DIAMOND DRILL LOG  
 NORTHERN BELLE MINERAL CLAIM GROUP - ZINCTON, B.C.

Date Commenced: August 27, 1988  
 Date Completed: August 31, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-1  
 Azimuth: 330°  
 Angle: 60°  
 Length: 120.49 m

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
0. 00-5. 58	Grey banded argillite, darker beds are finer and phyllitic, lighter grey beds are siltstones or fine grained sandstone which are occasionally calcareous. At 3.81 m bedding at 45° 5.34 m foliation at 35°	weak (less than .5%) disseminated pyrite.				
5. 58-17. 53	Mostly black carbonaceous shale and argillite, minor light grey argillite and siltstone beds, minor calcareous siltstone. 11.28 m beds at 40° 13.72 m beds at 42° 16.77 m beds at 40°	numerous calcite coated fractures subparallel to bedding, foliation, traces disseminated pyrite, weak iron oxidation above 16.77, minor oxidation below.				
17. 53-35. 34	Mostly grey banded argillite minor black carbonaceous beds, there appears to be numerous soft sediment deformation structures, and minor displacement of beds along cross cutting fractures and cross cutting calcite stringers. 18.60 m beds at 39° 20.12 m beds at 35° 22.26 m beds at 30° 24.09 m beds at 20° 25.00 m beds at 25°	same as above but locally 1 - 2% disseminated pyrite as at 23.81 and 26.68.				



Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
	<p>25.91 m beds at 20° Zones of calcareous siltstone or silty limestone between 31.28 m to 31.59 m</p> <p>27.43 m beds at 27° 30.49 m beds at 32° 32.93 m beds at 35° 33.54 m beds at 45° 34.45 m beds at 65°</p>	<p>At 31.65 m, 3 cm fracture-vein zone with up to 1 cm quartz- calcite vein-breccia, minor pyrite in adjacent argillite, vein crosscuts bedding, dips to 45° to calcite.</p>				
35.34-36.49	Similar banded argillite and siltstone	<p>Strong, dark brown goethite (limonite) alteration preferentially altering some beds soft (more clay?) also along some fractures. At 36.34 m two blebs of fine cubic gölena on irregular 10° - 20° fracture.</p>	<5	0.13	0.61	0.28
			40	0.10	1.26	0.16
			<5	<0.01	0.09	0.07
36.49-36.80	Non-limonitic argillite minor quartz veinlets.	<p>35.34 - 36.68 36.68 - 36.98 36.98 - 37.99</p>				
36.80-36.86	<p>Quartz-carbonate breccia zone with angular argillite clasts. Zone bisects argillite at sharp contact and dips 55° to CA (core Axis)</p>	<p>Vuggy crystalline quartz. Patchy sphalerite less than 2% of zone.</p>				

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
36. 86-61. 89	Grey banded argillite 38. 72 m beds at 50° 41. 16 m beds at 35° 44. 82 m beds at 48° 50. 30 m beds at 45° 57. 01 m beds at 50°	Commonly with calcite stringers between 36. 80 and 49. 70. Quartz at 47. 56 and 48. 17 but no sulfides. No significant veining below 49. 70.				
61. 89-66. 07	Interval has distinctive banding of light and dark grey beds which are 1/2 to 3 cm thick. 59. 15 m beds at 50° 61. 28 m beds at 55°					
66. 07-80. 88	White fine ground Aplite Dyke upper contact is sharp at 45°, lower contact at 27°  Banded grey argillite 67. 68 m beds at 35° 70. 12 m beds at 25° 73. 67 m beds at 15° 75. 76 m beds at 0° 79. 88 m beds at 47° 74. 70 - 74. 82 Fault Zone slickensides on talcose sheared and bleached argillite upper contact at 80° lower contact at 55° 5 cm of silicification in adjacent sediment above, 5 cm of bleaching and clay alteration below.	2% very fine disseminated pyrite.  68. 66 - 68. 90 irregular quartz vein, with orange-brown limonite trace pyrite, moderate chlorite. 70. 61 - 70. 79 similar quartz vein, neither have drussy quartz or crystals.				

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
107. 87-110. 09	<i>Fault zone, dark grey argillite with numerous clay gouge seams less than 1 cm thick, most are oriented at 55° to core axis, beds are strongly folded.</i>	<i>minor, quartz, trace pyrite.</i>				
110. 09-112. 38	<i>Grey argillite 112. 23 beds at 60°</i>	<i>111. 55 6 cm quartz vein, traces pyrite at margin.</i>				
112. 38-113. 26	<i>Felsite dyke, similar to previous dyke.</i>					
113. 26-118. 38	<i>Folded argillite, bedding attitude varies from 0° - 40°.</i>					
118. 38-120. 03	<i>Felsite dyke upper contact at 50° fault zone at lower contact at 60° dyke show strong argillic alteration also with fine sericite?</i>	<i>Pyrite increases to 5% at lower contact; dissemination very fine galena and sphalerite increase from 0 at top to 1% each at bottom, mostly associated with fine quartz veinlets.</i>				
120. 03-120. 49	<i>Sheared and faulted argillite strong quartz and gouge within 5 cm of dyke, remainder of interval shows slicks mostly on black carbonaceous shear planes. Most shearing at 60° to core axis.</i>	<i>Less than 1% pyrite.</i>				

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
		118.38 - 119.39	< 5	< 0.01	0.01	< 0.01
		119.39 - 120.03	< 5	0.06	0.14	0.17
		120.03 - 120.49	< 5	0.01	0.09	0.06
120.49		End of Hole.				

DIAMOND DRILL LOG  
NORTHERN BELLE MINERAL CLAIM GROUP - ZINGTON, B.C.

Date Commenced: September 1, 1988  
 Date Completed: September 1, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-2  
 Azimuth: 330°  
 Angle: -45°  
 Length: 41.16 m.

Interval metres	Lithology	Mineralization	Samples		
			Au ppb	Pb %	Zn % Ag oz/ton
0.00-2.13	No core.				
7.0 - 18.60	Banded argillite and siltstone locally calcareous as from 2.29 beds at 40° 4.57 beds at 35° 7.93 beds at 20° 10.67 beds at 18° 13.11 beds at 25° 15.24 beds at 30°	weak disseminated pyrite 1 cm quartz vein at 8.45 oriented at 35°.			
18.60-22.29	Black calcareous siltstone very calcareous. 18.90 beds at 32°	occasional calcite stringer			
22.29-38.20	Grey banded argillite, minor dark carbonaceous beds, minor calcareous beds. 23.78 beds at 30° 26.83 beds at 15° 28.81 beds at 0°	25.12 2 cm quartz vein at 80° to core axis. 33.54 1.5 cm quartz vein with goethite at 70°.			

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
22.29-38.20 (cont'd)	<p>31.25 beds at 15°</p> <p>28.81 beds at 0°</p> <p>31.25 beds at 15°</p> <p>33.23 beds at 20°</p> <p>33.99 beds at 35°</p> <p>36.74 beds at 35°</p> <p>Northern Belle vein probably represented by quartz at 33.54 or goethite at 34.27.</p>	<p>33.90 1 cm quartz vein at 85°</p> <p>33.99 1/2 cm quartz vein at 75°</p> <p>34.27 - 34.33 numerous goethite veinlets and limonite alteration (brown staining) of argillite.</p>				
38.20-41.16	<p>Mostly calcareous siltstone or silty limestone bed, lesser noncalcareous argillite.</p> <p>38.41 beds at 40°</p> <p>40.85 beds at 40°</p>	<p>Occasional calcite stringer and &lt;1% disseminated pyrite.</p>				
41.16	End of hole					

DIAMOND DRILL LOG  
 NORTHERN BELLE MINERAL CLAIM GROUP - ZINCTON, B.C.

Date Commenced: September 2, 1988  
 Date Completed: September 2, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-3  
 Azimuth: 350°  
 Angle: -45°  
 Length: 42.68 m.

Interval metres	Lithology	Mineralization	Samples		
			Au ppb	Pb %	Zn % Ag oz/ton
0.00 - 1.52	No core.				
1.52-8.87	Grey banded argillite, strongly broken, lesser limestone. 2.90 m. beds in limestone at 30° 7.01 m. beds at 35°	minor calcite stringers.			
8.87-13.11	Mostly grey to dark grey carbonaceous limestone, lesser grey argillite. 12.80 m. beds at 35° fault zone 12.99-13.08 black clay and graphite(?) attitude unknown may parallel bedding.	minor calcite stringers			
13.11-22.99	Banded light and dark grey argillite. 19.21 m. bedding at 36° 22.56 m. bedding at 44°	minor calcite stringers			

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
22. 99-24. 60	Mostly grey to light grey banded limestone lesser grey argillite bands, competent with minor fracturing. 24. 09 m. beds at 32°	Minor white calcite stringers.				
24. 60-32. 35	Grey argillite and siltstone with several limestone beds at: 26. 65-27. 74, 29. 24-29. 30, 31. 13-31. 40, 32. 13-32. 35 29. 27 m. beds at 50° 31. 25 m. beds at 40° Possible shearing clay fractures at 30. 79 at 25° to core access.	minor calcite.				
32. 35-34. 63	Generally dark grey, weakly banded argillite some carbonaceous zones. 32. 77 m. beds at 43°	32. 99-34. 21 calcite stringers have limonite stain, increased limonite near 6 cm goethite vein-breccia at 33. 20 which has completely oxidized boxwork structures after sulfides. Attitude of vein is 70°.	<5	0. 01	0. 15	0. 16
34. 63-42. 68	Distinctly banded light and dark grey argillite, bands are 1/2 to 4 cm thick. 34. 91 m. beds at 42° 39. 02 m. beds at 50° 42. 68 m. beds at 53° End of hole.	33. 02 - 33. 32 m. 33. 32 - 33. 63 m. locally 1% disseminated or patchy pyrite. minor calcite stringers.	40	0. 13	8. 22	1. 18
42. 68			<5	<0. 01	0. 27	0. 04



DIAMOND DRILL-LOG  
NORTHERN BELLE MINERAL CLAIM GROUP - ZINCTON, B.C.

Date Commenced: September 3, 1988  
 Date Completed: September 3, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-4  
 Azimuth: 020°  
 Angle: -45°  
 Length: 40.37 m.

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
0.00 - .76	No core.					
0.76 - 3.38	Brownish grey argillite .91 m. beds at 50°					
3.38 - 4.66	Grey limestone and banded calcareous siltstone.					
4.66 - 7.26	Broken argillite, moderately banded.					
7.26 - 9.21	Dark grey carbonaceous limestone, calcareous siltstone lesser argillite. 7.47 m. beds at 55°	occasional white calcite stringer				
9.21 - 9.97	Grey to dark grey argillite.					
9.97 - 10.18	Light grey limestone.					
10.18-11.74	Argillite, banded 11.59 m. beds at 58°					

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
11. 74-11. 95	Grey banded limestone					
11. 95-15. 00	Banded argillite 13.60 m. beds at 60°	occasional clay or calcite veinlet.				
15. 00-15. 27	Dark grey banded limestone.					
15. 27-15. 91	Light grey argillite.					
15. 91-16. 68	Light and dark grey folded and locally brecciated limestone.					
16. 68-19. 30	Grey weakly banded argillite. 17.99 m. beds at 55°					
19. 30-19. 39	Grey finely banded limestone 19.36 m. beds at 55°					
19. 39-26. 37	Grey banded argillite, minor calcareous beds. 24.09 m. beds at 54°	minor calcite stringers				
26. 37-26. 52	Dark grey granular calcareous siltstone.					
26. 52-32. 93	Argillite mostly banded occasionally dark grey bed to 15 cm very minor calcareous beds. 27.44 m. beds at 63° 32.62 m. beds at 68°	local calcite veinlets.				
32. 93-33. 63	Mostly grey limestone lesser argillite.					

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
33. 63-40. 37	<p>Grey banded argillite</p> <p>34. 15 m. beds at 66°</p> <p>35. 67 m. beds at 47°</p> <p>37. 80 m. beds at 52°</p> <p>37. 65 - 39. 33 darker, (finer) beds show strong foliation oblique to bedding.</p> <p>37. 90 m. beds at 40°, foliation at 15°.</p> <p>38. 72 m. beds at 35°, foliation at 5°.</p> <p>39. 63 m. beds at 65°.</p>	<p>35. 95 1 cm quartz at 35°</p> <p>36. 28 - 36. 46 vein zone oxidized, sheared brecciated with quartz, calcite, sericite limonite, clay, 2% sphalerite. and &lt; 1% galena, dips 60 - 70° to core axis.</p> <p>36. 65 1 cm quartz at 55°</p>	< 5	< 0. 01	0. 59	0. 10
		35. 98 - 36. 28	200	0. 32	2. 30	0. 89
		36. 46 - 36. 77	15	0. 01	0. 18	0. 07
40. 37	End of hole.					

DIAMOND DRILL-LOG  
 NORTHERN BELLE MINERAL CLAIM GROUP - ZINCTON, B.C.

Date Commenced: September 4, 1988  
 Date Completed: September 4, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-5  
 Azimuth: 040°  
 Angle: -45°  
 Length: 58.60 m.

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
0.00 - .91	No core.					
.91 - 2.26	Argillite, weakly banded 1.83 m. beds at 55°					
2.26-3.63	Dark grey limestone and calcareous siltstone.					
3.63-4.18	Argillite					
4.18-4.39	Grey limestone					
4.39-5.00	Argillite	Weak limonite on fractures				
5.00-8.66	Grey to black limestone lesser argillite. 6.65 m. beds at 75°					
8.66-10.88	Light and dark grey banded argillite. 9.91 m. beds at 60°					
10.88-10.98	Light grey limestone.					

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
10. 98-17. 31	Distinctly banded argillite. 12. 80 m. beds at 60° 15. 55 m. beds at 66° 16. 92 m. beds at 70°					
17. 31-17. 53	Light grey limestone.					
17. 53-17. 84	Argillite					
17. 84-18. 02	Light grey limestone.					
18. 02-18. 51	Argillite.					
18. 51-18. 75	Grey limestone. 18. 66 m. beds at 68°					
18. 75-20. 70	Banded argillite 20. 12 m. beds at 77°					
20. 70-21. 10	Grey banded limestone lesser argillite. 20. 88 m. beds at 70°					
21. 10-21. 59	Argillite.	Occasional calcite veinlet				
21. 59-21. 83	Limestone and silty limestone. 21. 80 m. beds at 70°					
21. 83-23. 72	Banded argillite.					

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
23. 72-24. 02	Silty bedded limestone	occasional calcite or clay veinlet. Local disseminated pyrite				
24. 02-30. 18	Grey banded argillite 28.96 m. beds at 72°					
30. 18-30. 30	Light and dark grey bedded limestone.					
30. 30-38. 38	Argillite, generally well bedded. 32.93 m. beds at 72° 37.96 m. beds at 70°	irregular 10 cm white quartz vein at 31.95. minor calcite veinlets.				
38. 38-42. 71	White fine grained apite dyke upper and lower contacts at 55°. Host argillite is unaltered.	2% fine disseminated pyrite and occasional pyrite veinlet				
42. 71-48. 48	Distinctly banded argillite, beds are 1/2 to 3 cm thick 48.17 m. beds at 75°	minor quartz-clay(?) veinlets at 25° - 35°. Pyrite and trace sphalerite in quartz at 46.98 (three hair-line veinlets at 55° 70° & 80°). Each has <1 cm iron stained argillite selvage.				
48. 48-51. 92	White to light-grey, fine grained felsic dyke. Upper contact gradational from bleached sediments approximately conformable to bedding. Quartz veins at lower contact.	Fine disseminated pyrite 2% increasing to 10% near vein. Also strong limonite and 10% pyrite at 48.51 - 48.57.				

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
		50.49 2 cm quartz- orange limonite vein at 20°				
		50.61 - 50.91 Quartz-pyrite- sphalerite vein, 30% pyrite, 30% sphalerite.				
		50.91 - 51.80 silicified dyke with 10% pyrite some quartz veins 2% sphalerite.				
		51.80 - 51.92 4 cm quartz- sphalerite vein at 20°				
		51.92 - 53.20 several quartz- pyrite limonite veins at 5° - 20° to core axis hosted in argillite.				
		occasional quartz-calcite veinlet.				
51.92-58.60	Grey banded argillite, 56.10 m. beds at 65°		25	0.20	0.77	0.24
			230	0.07	15.40	1.57
			10	0.03	2.61	0.07
58.60	End of hole.					

DIAMOND DRILL LOG  
NORTHERN BELLE MINERAL CLAIM GROUP - ZINCTON, B.C.

Date Commenced: September 5, 1988  
 Date Completed: September 5, 1988  
 Drilled By: McFeron & Marcus  
 Core Size: BQ  
 Core Storage: 210 Alpha Street  
 Silverton, B.C.

Hole No.: 88-6  
 Azimuth: 040°  
 Angle: 60°  
 Length: 64.02 m.

Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
0.00 - .73	No core.					
.73 - 21.34	Grey banded argillite with numerous grey interbedded limestone or calcareous limestone. Occasional zone of dark carbonaceous siltstone or limestone such as 5.64 - 7.01 m. .91 m. beds at 90° (perpendicular to core access). 7.32 m. beds at 85° 10.06 m. beds at 65° 16.77 m. beds at 80° 21.34 m. beds at 75°	minor calcite coated fractures traces disseminated pyrite.				
21.34-42.38	Grey banded argillite, mostly unfractured, soft sediment deformation structures in upper part, banding is uniform in lower half of interval. 28.35 m. beds at 60° 30.49 m. beds at 50° 34.76 m. beds at 70° 39.33 m. beds at 80°	occasional calcite coated fracture.				



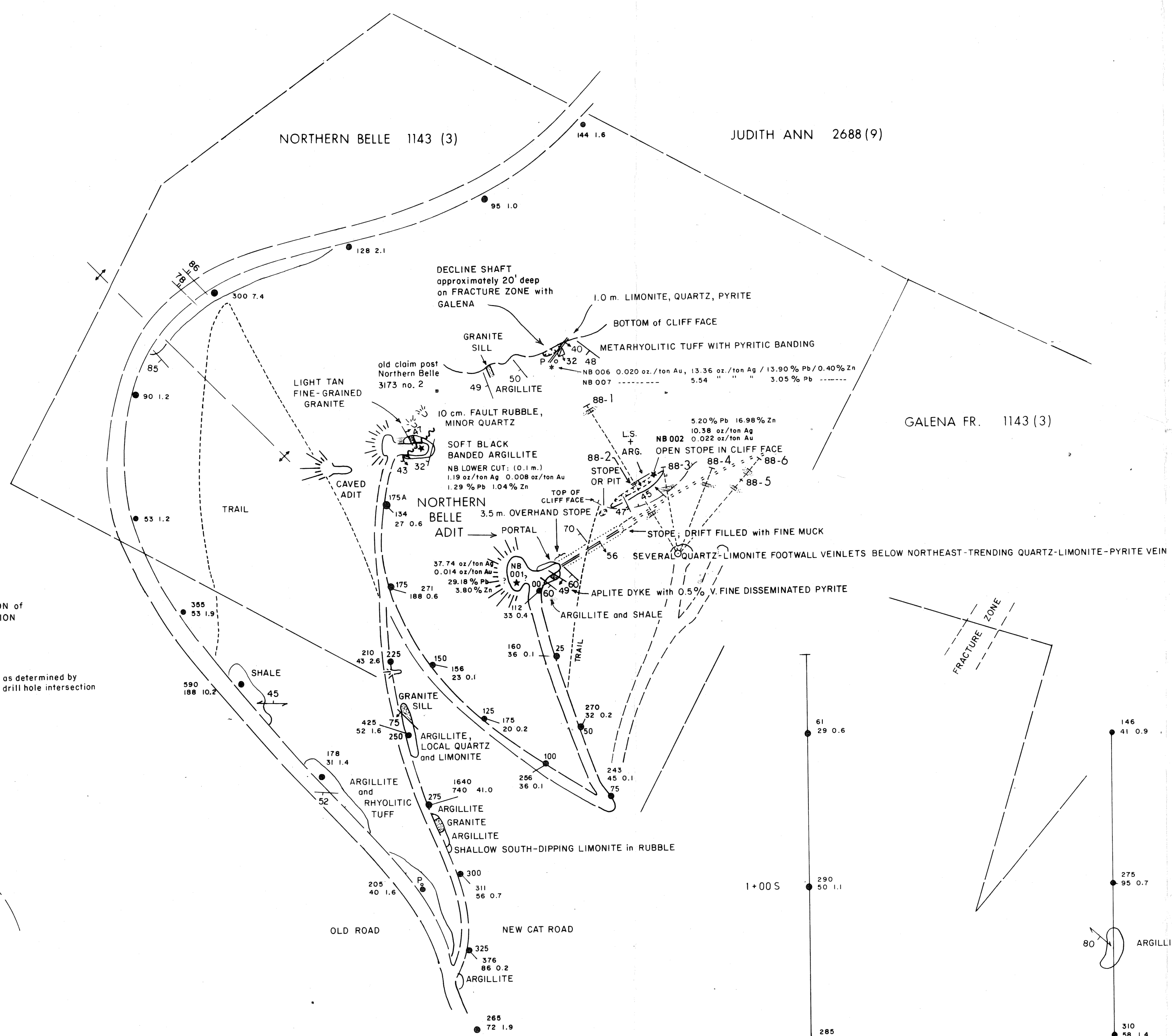
Interval metres	Lithology	Mineralization	Samples			
			Au ppb	Pb %	Zn %	Ag oz/ton
42. 38-44. 02	Light tan felsic dyke. upper contact 70°, lower 45°	2% disseminated pyrite occasional limonite vein with clay alteration.				
44. 02-52. 74	Grey banded argillite with interbedded grey siltstone. 47. 85 m. beds at 75° 49. 70 m. beds at 85° 51. 83 m. beds at 90°	minor quartz-clay-limonite veinlets.				
52. 74-54. 24	Light grey felsic dyke	1 - 2 % finely disseminated pyrite.				
54. 24-55. 00	Argillite, beds at 72°.					
55. 0-57. 65	Felsic dyke, lower contact at 70°.	< 1% pyrite.				
57. 65-59. 36	Argillite, grey 58. 08 m. beds at 80°	58. 60 - 58. 84 quartz vein and argillite breccia. 1/2 cm of black sooty graphite (?) in center, quartz is vuggy with minor orange limonite, goethite and trace sphalerite (?).				
59. 36-61. 28	Felsic dyke, sharp lower contact at 65°.	58. 60 - 58. 84 1% disseminated pyrite.	<5	0. 01	0. 27	< 0. 01
61. 28-62. 50	Argillite, bedding at 70°					
62. 50-64. 02	Felsite dyke	1% pyrite.				
64. 02	End of hole.					

DDH 88-	1	2	3	4	5	6
AZIMUTH	330°	330°	350°	020°	040°	040°
ANGLE	-60°	-45°	-45°	-45°	-40°	-40°
LENGTH (metres)	120.49	41.16	42.68	40.37	58.60	64.02

1988 DIAMOND DRILL HOLE INFORMATION

YOUNGER DYKES : GRANITE  
GRANODIORITE  
APLITE  
FELSITE

UPPER TRIASSIC TO LOWER JURASSIC  
SLOCAN GROUP : ARGILLITE,  
SHALE,  
LIMESTONE,  
and minor RHYOLITIC TUFF



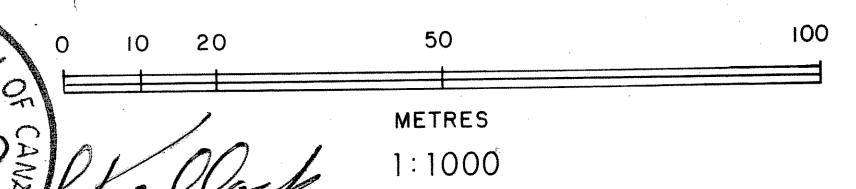
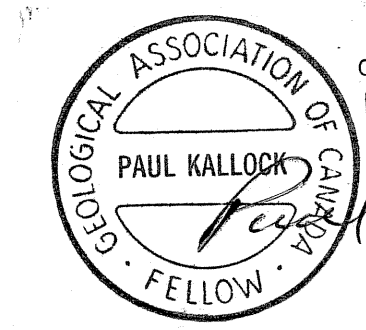
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

GEOLOGY MAP

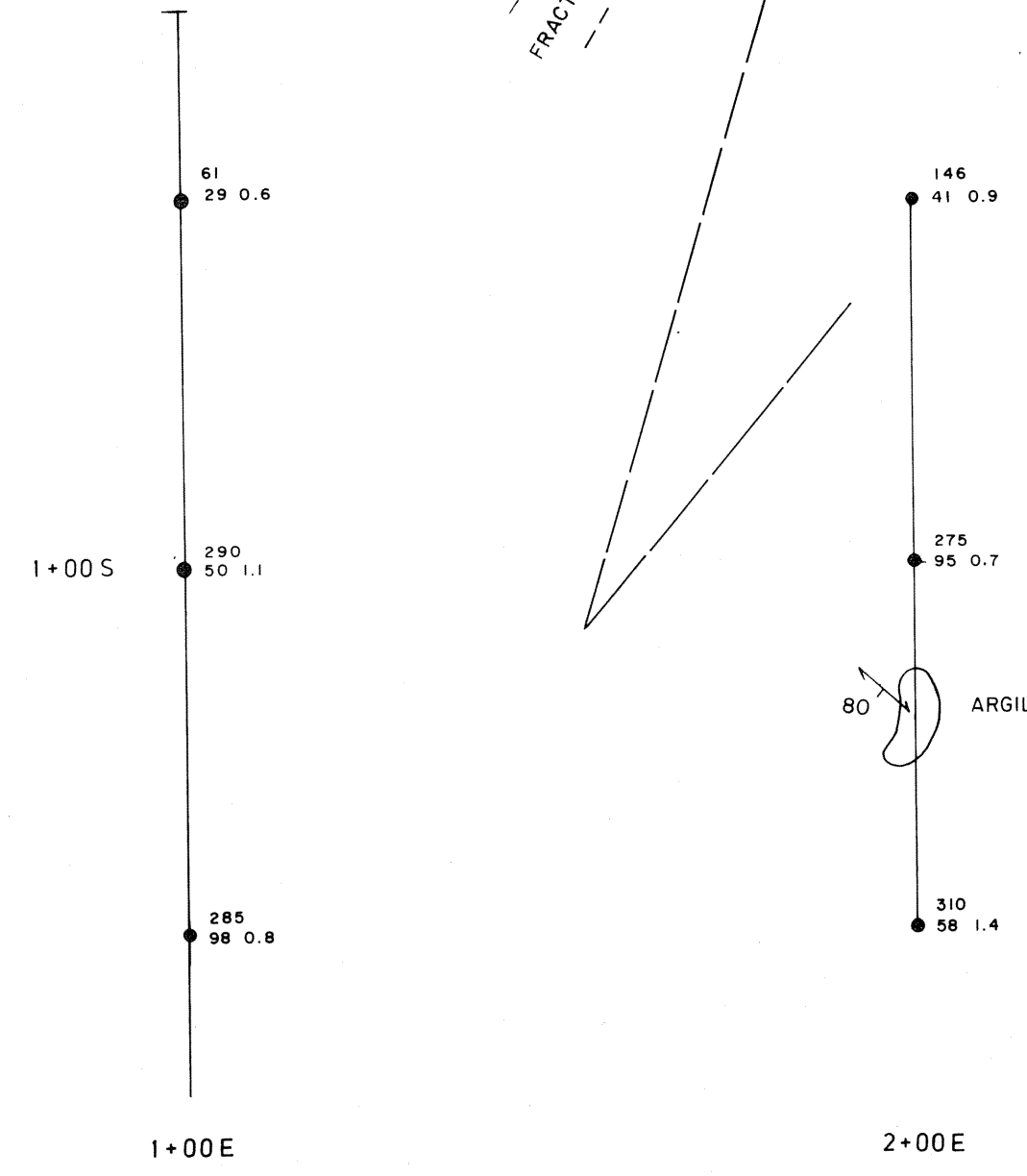
SHOWING SOIL GEOCHEMISTRY and ROCK ASSAYS  
AND 1988 DIAMOND DRILL STATIONS WITH  
VERTICAL DRILL HOLE INTERSECTIONS

18-016

TO ACCOMPANY REPORT BY  
PAUL KALLOCK, CONSULTING GEOLOGIST  
ARCTEX ENGINEERING SERVICES JULY 1987  
AMENDED OCT. 1988

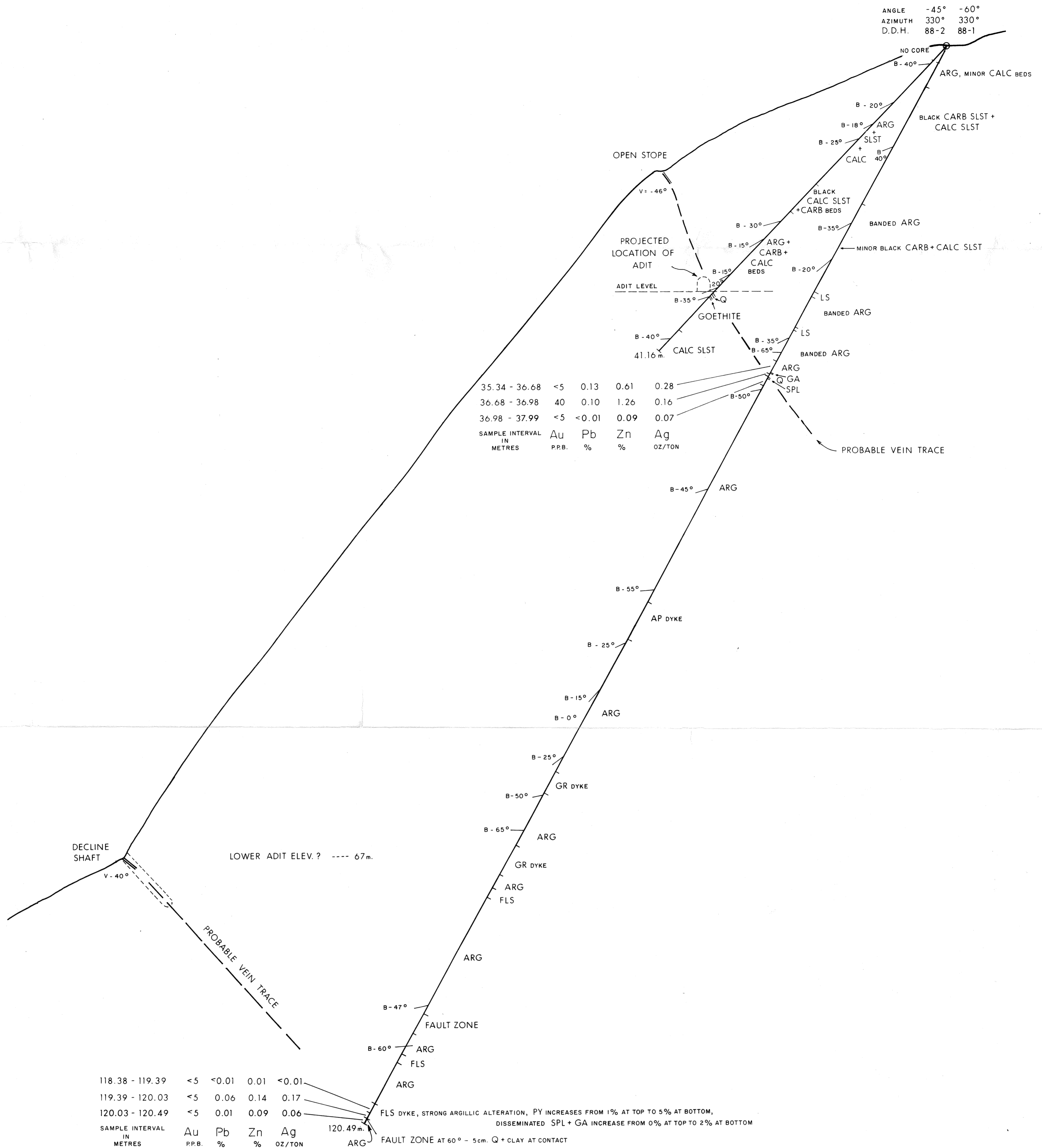


SANDON AREA B.C. SLOCAN MINING DISTRICT NTS 83K/3E  
**Northern Belle Claim Group**  
**Locke Rich Minerals Ltd.**



NORTH

SOUTH



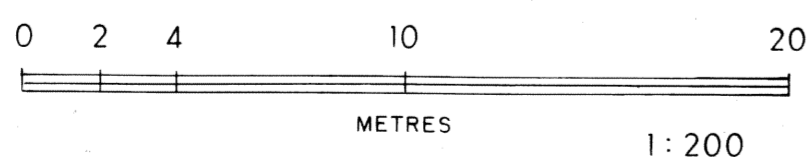
VIEWER FACING 060°  
**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

**18,016**

DDH 88-1 & 88-2

**Drill Hole Profile**

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 PAUL KALLOCK, CONSULTING GEOLOGIST  
 ARCTEX ENGINEERING SERVICES

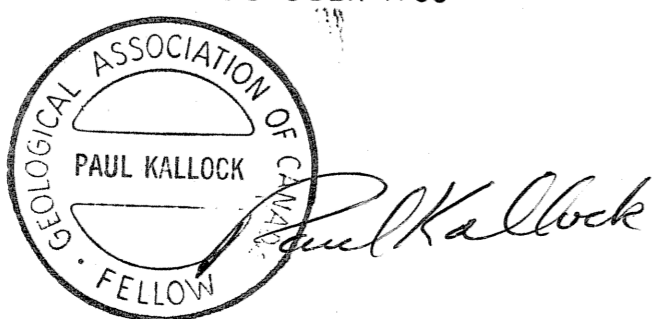


SANDON AREA B.C. SLOCAN MINING DISTRICT NTS 83K/3E

**Northern Belle Claim Group**

**Locke Rich Minerals Ltd.**

OCTOBER 1988

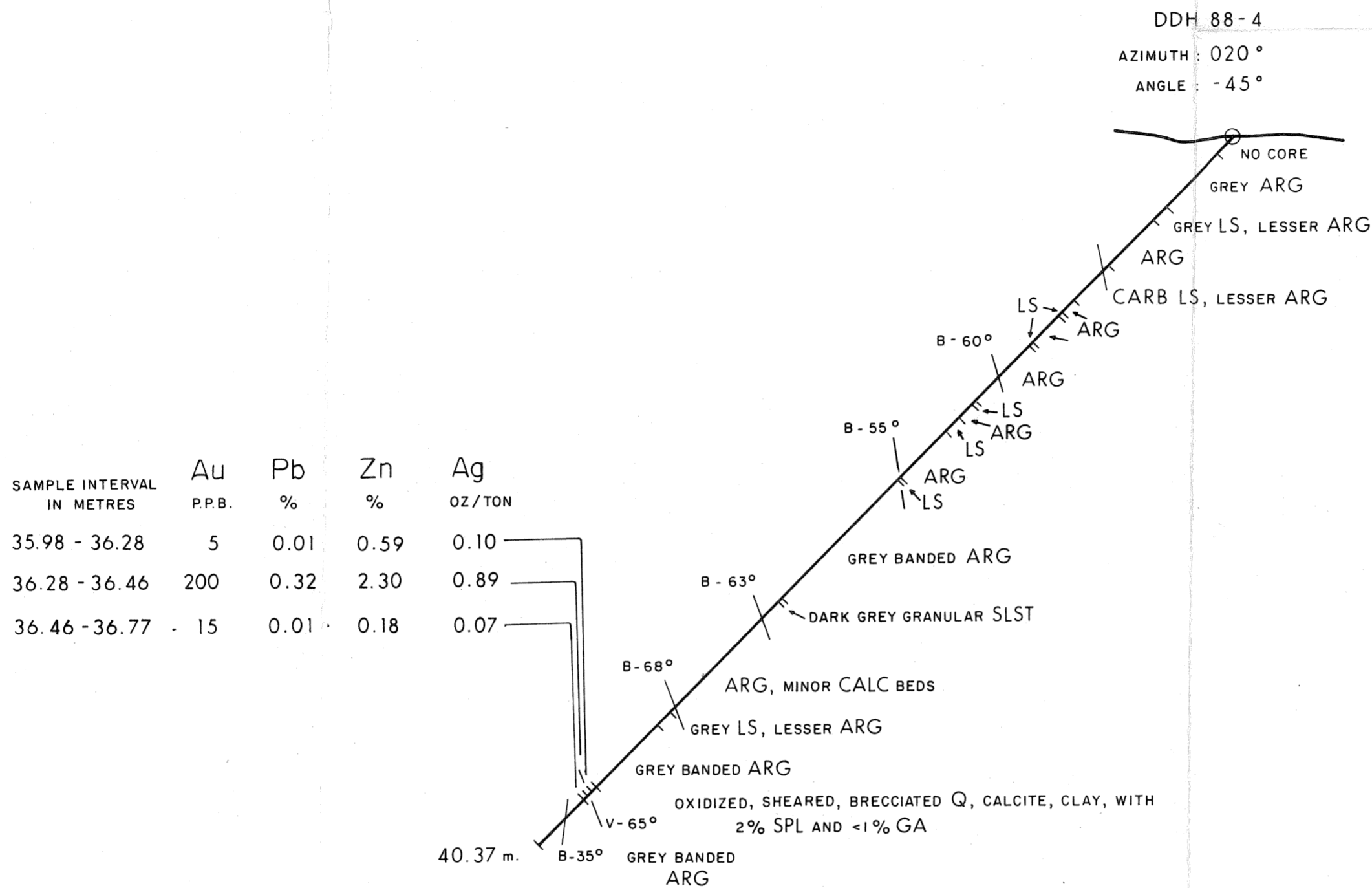


- CALC CALCAREOUS
- BLK BLACK
- CARB CARBONACEOUS
- ARG ARGILLITE
- SLST SILTSTONE
- LS LIMESTONE
- GR GRANITE
- Q QUARTZITE
- GA GALENA
- SPL SPHALERITE
- FLS FELSITE
- AP APLITE
- PY PYRITE
- LIM LIMONITE

V-70° VEIN ATTITUDE  
 B-40° BEDDING

NORTH

SOUTH

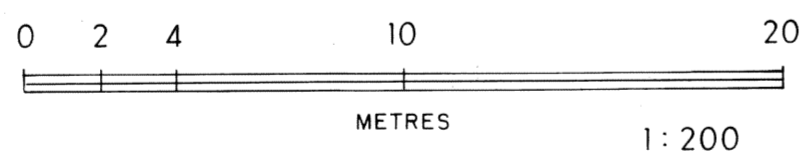


VIEWER FACING 110°

DDH 88-4

### Drill Hole Profile

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PAUL KALLOCK, CONSULTING GEOLOGIST  
ARCTEX ENGINEERING SERVICES

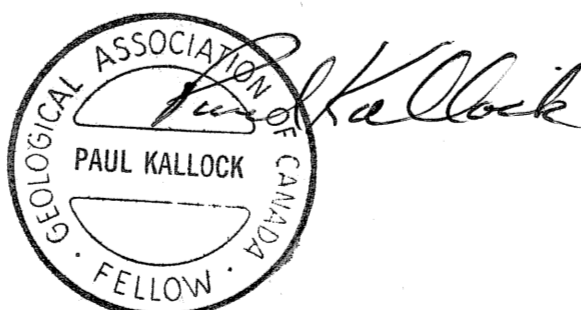


SANDON AREA B.C. SLOCAN MINING DISTRICT NTS 83K/3E

**Northern Belle Claim Group**

**Locke Rich Minerals Ltd.**

OCTOBER 1988



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

# 18-016

- CALC CALCAREOUS
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- AP APLITE
- PY PYRITE
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V-70° VEIN } ATTITUDE  
B-40° BEDDING }

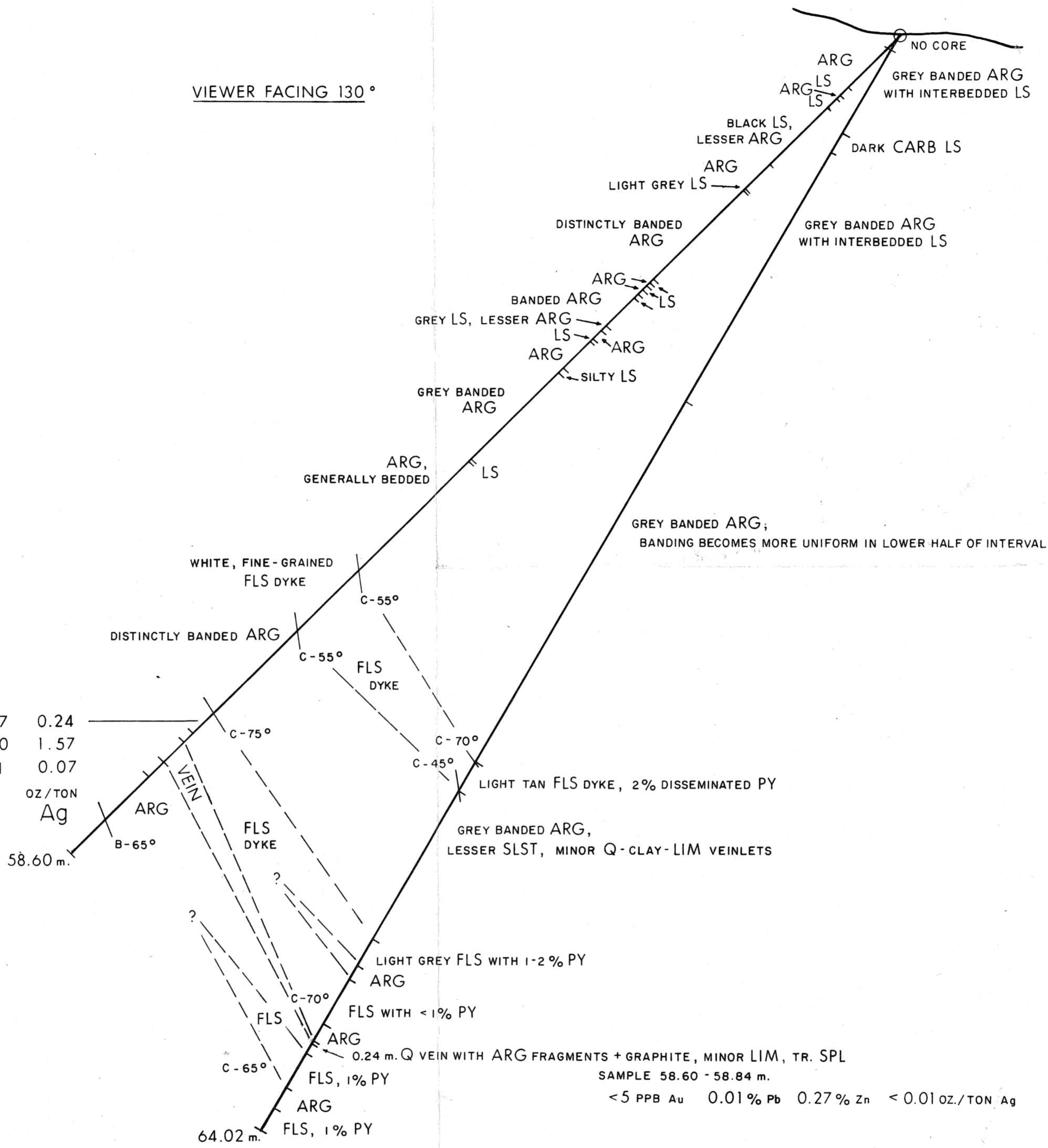
NORTHEAST

SOUTHWEST

D.D.H 88-5 88-6  
AZIMUTH: 040° 040°  
ANGLE: -45° -60°

VIEWER FACING 130°

SAMPLE INTERVAL IN METRES	P.P.B.	% Au	% Pb	% Zn	oz./TON Ag
49.85 - 50.49	25	0.20	0.77	0.24	
50.49 - 51.92	230	0.07	15.40	1.57	
51.92 - 52.99	10	0.03	2.61	0.07	



SAMPLE 58.60 - 58.84 m.  
< 5 PPB Au 0.01% Pb 0.27% Zn < 0.01 oz./TON Ag

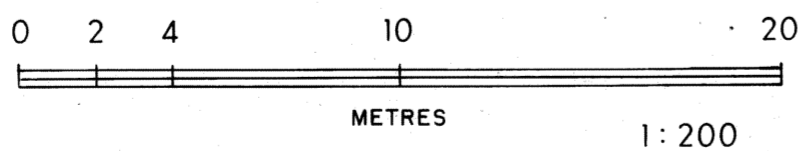
DDH 88-5 & 88-6

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

### Drill Hole Profile

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ARCTEX ENGINEERING SERVICES

# 18-016

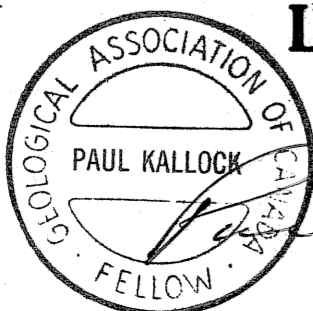


SANDON AREA B.C. SLOCAN MINING DISTRICT NTS 83K/3E

## Northern Belle Claim Group

## Locke Rich Minerals Ltd.

OCTOBER 1988



*Paul Kallock*

- CALC CALCAREOUS
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- FLS FELSITE
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- LIM LIMONITE

V-70° VEIN } ATTITUDE  
B-40° BEDDING }

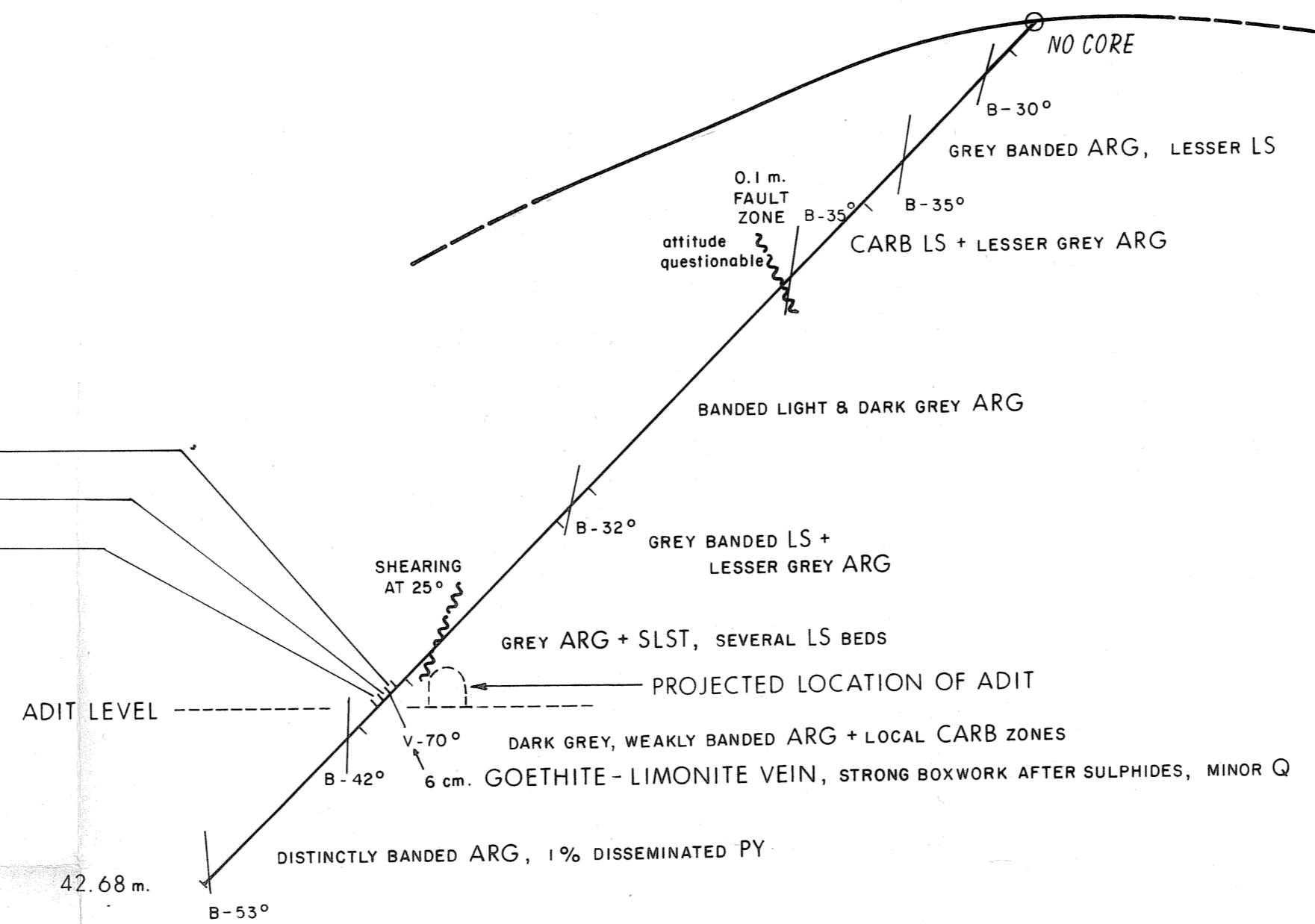
NORTH

SOUTH

DDH 88-3 AZIMUTH 350° ANGLE -45°

	Au	Pb	Zn	Ag
	P.P.B.	%	%	OZ/TON
32.71 - 33.02	<5	0.01	0.15	0.16
33.02 - 33.32	<5	0.13	8.22	1.18
33.32 - 33.63	<5	<0.01	0.27	0.04

SAMPLE INTERVAL (METRES)



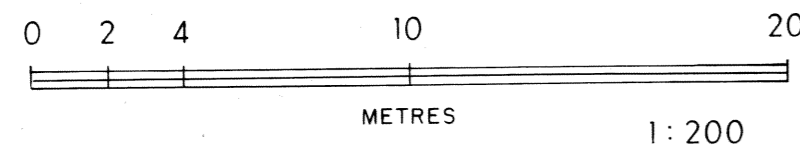
GEOLOGICAL BRANCH ASSESSMENT REPORT

18-016

DDH 88-3

Drill Hole Profile

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PAUL KALLOCK, CONSULTING GEOLOGIST  
ARCTEX ENGINEERING SERVICES

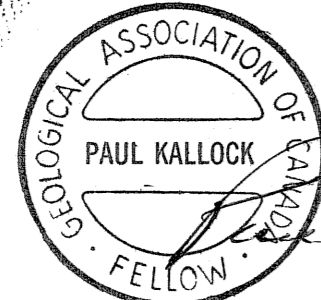


SANDON AREA B.C. SLOCAN MINING DISTRICT NTS 83K/3E

Northern Belle Claim Group

Locke Rich Minerals Ltd.

OCTOBER 1988



*Paul Kallock*

VIEWER FACING 080°

- CALC CALCAREOUS
- BLK BLACK
- CARB CARBONACEOUS
- ARG ARGILLITE
- SLST SILTSTONE
- LS LIMESTONE
- GR GRANITE
- Q QUARTZITE
- GA GALENA
- SPL SPHALERITE
- FLS FELSITE
- AP APLITE
- PY PYRITE
- LIM LIMONITE

V-70° VEIN } ATTITUDE  
B-40° BEDDING }