

ARIS SUMMARY SHEET

District Geologist, Prince George

Off Confidential: 90.01.20

ASSESSMENT REPORT 18298

MINING DIVISION: Cariboo

PROPERTY: Duck
 LOCATION: LAT 52 44 40 LONG 121 28 00
 UTM 10 5844727 603509
 NTS 093A11W

CAMP: 038 Cariboo - Barkerville Camp

CLAIM(S): Duck, Duck 1
 OPERATOR(S): Gibraltar Mines
 AUTHOR(S): Bysouth, G.D.; Barker, G.E.
 REPORT YEAR: 1989, 52 Pages

COMMODITIES
 SEARCHED FOR: Copper, Gold, Silver

GEOLOGICAL

SUMMARY: The Duck property is underlain mainly by metasedimentary rocks of the Hadrynian Snowshoe Group and Granitic Gneiss of the Devonian-Mississippian(?) Quesnel Lake gneiss unit. Pyrite accompanied in places by chalcopyrite occurs as strong disseminations and massive lenses in dark grey phyllites of the Snowshoe Group. Pyrite, chalcopyrite, galena and sphalerite occur in quartz veins cutting the phyllite.

WORDS: Snowshoe Group, Granite Gneiss, Phyllite, Devono-Mississippian
 Chalcopyrite, Sphalerite

WORK

DONE: Drilling
 DIAD 1033.9 m 7 hole(s); NQ
 Map(s) - 4; Scale(s) - 1:1000, 1:2000, 1:3600
 SAMP 36 sample(s); AU, CU, MO, PB, ZN, AG, NI, CO

RELATED

REPORTS: 17254
 MINFILE: 093A

LOG NO: 0125	RD.
ACTION:	
FILE NO:	

DIAMOND DRILL REPORT
ON THE
DUCK 1 CLAIM GROUP
Cariboo Mining Division 93 A 11
(Latitude 52° 41', Longitude 121° 31')
OWNER: C.E. Carlson, Hixon, B.C.
OPERATOR: Gibraltar Mines Limited,
McLeese Lake, B.C.
G.E. Barker, G.D. Bysouth January 20, 1989

FILMED

GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,298

GOLD COMMISSIONER
RECEIVED and RECORDED
JAN 20 1989
M.R. _____ \$ _____
QUESNEL, B.C.

DIAMOND DRILL REPORT
ON THE
DUCK 1 CLAIM GROUP

Cariboo Mining Division
93 A 11
(Latitude 52° 41', Longitude 121° 31')

OWNER:
C. E. Carlson
P. O. Box 35
Site 9, R.R.#1
Hixon, B. C.

OPERATOR:
Gibraltar Mines Limited
P. O. Box 130
McLeese Lake, B. C.

Author: G. E. Barker
G. D. Bysouth

Submitted: January 20, 1989

TABLE OF CONTENTS

1 INTRODUCTION 1
2 MINERAL CLAIMS 1
 2.1 DUCK 1 GROUP 1
 2.2 DUCK 2 GROUP 1
3 GENERAL GEOLOGY 1
4 THE DRILL PROGRAM 2
 4.1 Objective 2
 4.2 Results 3
 4.3 Interpretation 4
5 STATEMENT OF EXPENDITURES 5
6 CONCLUSIONS 6
LIST OF FIGURES 7
 Figure 1. Area Location Map (In Text) 7
 Figure 2. Duck Group Claim Map (In Text) 7
 Figure 3. Drill Hole Location Map (In Pocket) 7
 Figure 4. Drill Section A (In Pocket) 7
 Figure 5. Drill Section B (In Pocket) 7
 Figure 6. Drill Sections C and D (In Pocket) 7
REFERENCES 7
APPENDICES 8
 APPENDIX A. Statement of Qualifications - G. D. Bysouth 8
 APPENDIX A. Statement of Qualifications - G. E. Barker 9
 APPENDIX B. Assay Sheets 10
 APPENDIX C. Drill Logs 10

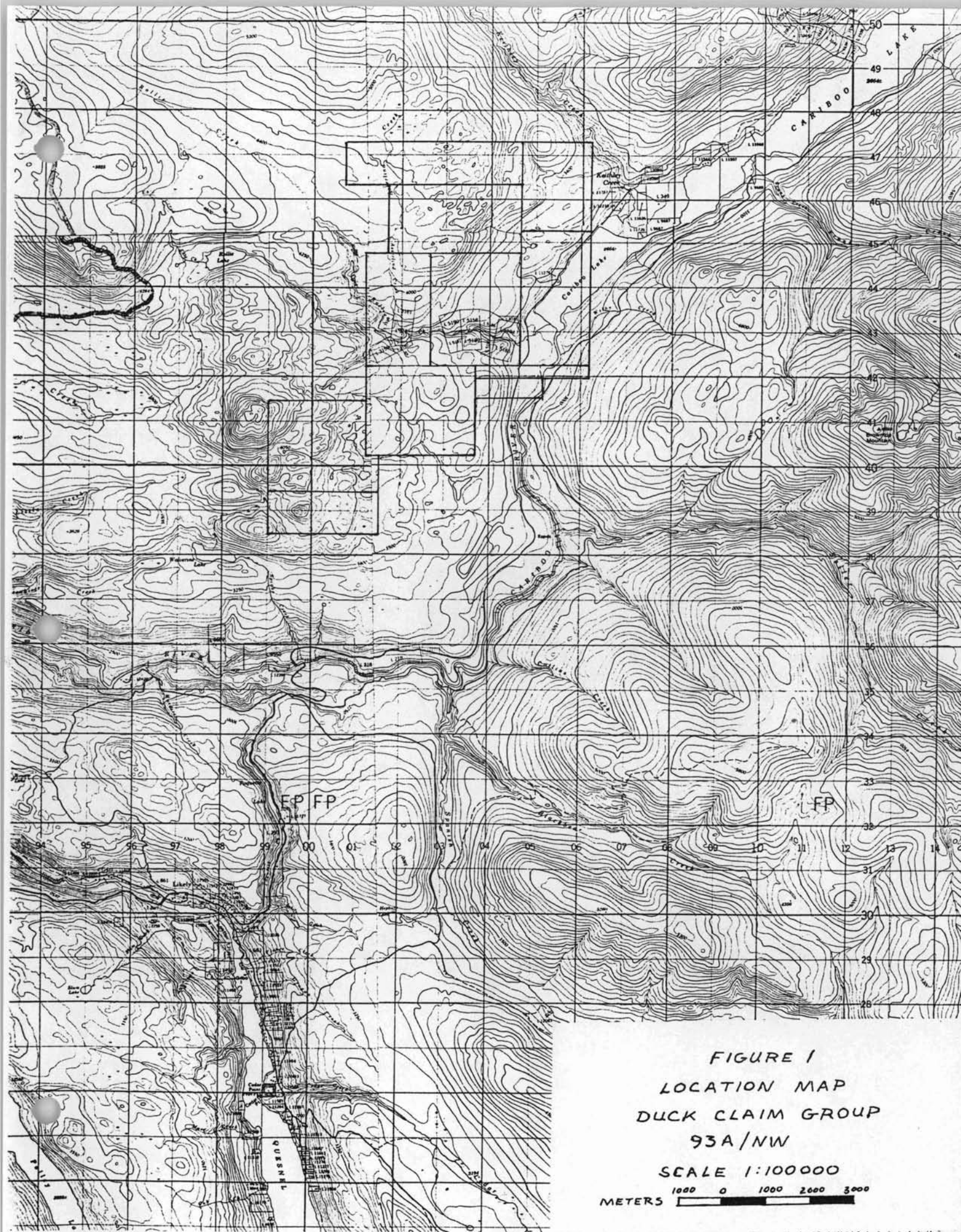


FIGURE 1
 LOCATION MAP
 DUCK CLAIM GROUP
 93A/NW

SCALE 1:100000
 METERS 1000 0 1000 2000 3000

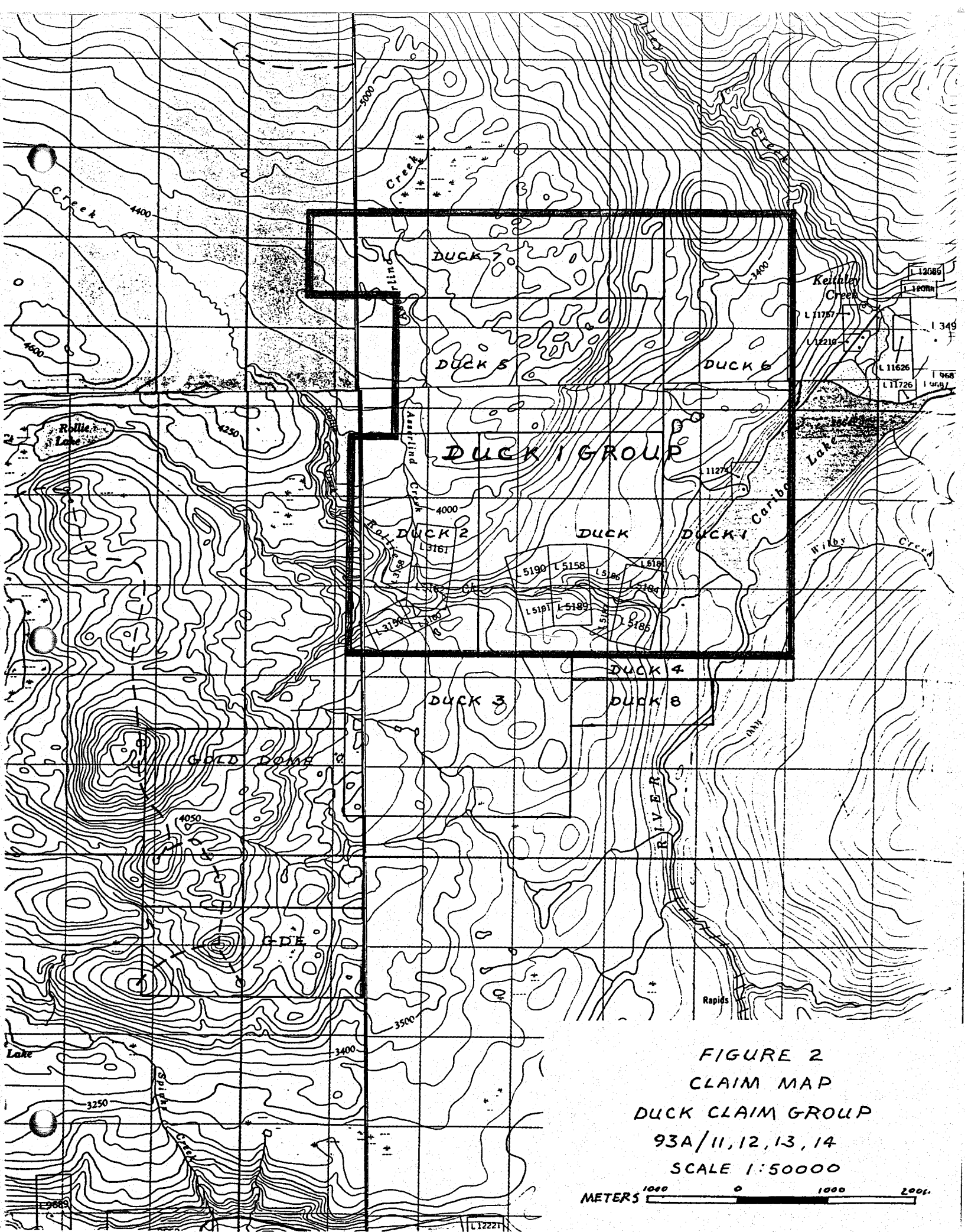


FIGURE 2
 CLAIM MAP
 DUCK CLAIM GROUP
 93A/11, 12, 13, 14
 SCALE 1:50000

METERS
1000
0
1000
2000

1 INTRODUCTION

The Duck Group is located in the Cariboo River District approximately 1.5 km. southwest of Keithley Creek, B. C. The claims cover the lower portion of the Rollie and Asserlind Creek watersheds and also include the southwest end of Cariboo Lake. The nearest large settlement is Likely, B. C. which lies about 20 km. to the southwest. Access to the property is via the main Keithley Creek road. Access within the property is provided by a network of logging roads.

The Duck claims were staked in 1987 and 1988 to cover sulfide mineralization observed in dark grey phyllites of the Snowshoe Group. The claims also cover several lead-silver quartz vein prospects located in the lower canyon of Rollie Creek. These veins plus coarse placer gold found in the creek canyon and in ancient stream channels cut by the creek were the focus of considerable exploration and mining activity from the late 1800's to at least 1952. (Minister of Mines Reports, 1926, 1931, 1951). A local origin for the placer gold has always been an intriguing possibility. The main focus of the exploration work during 1987 and 1988, however, was towards large tonnage ore zones in the sulfide-bearing sedimentary rock units.

This report covers a diamond drill program conducted by Gibraltar Mines Limited during the period August 19 to August 29, 1988. Seven holes were drilled for a total of 1033.88 meters. The contractor was Frontier Drilling Ltd. of Kelowna, B.C. The drilling was done only on the Duck and Duck 1 mineral claims. Core is stored at the Gibraltar Mines plantsite.

2 MINERAL CLAIMS

The mineral claims of the Duck Property are shown in Figure 2 and claim information is tabulated below:

2.1 DUCK 1 GROUP

<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>NO. OF UNITS</u>	<u>DATE OF RECORD</u>
DUCK	8334	20	MARCH 29, 1987
DUCK 1	8335	18	MARCH 29, 1987
DUCK 2	8365	15	APRIL 16, 1987
DUCK 5	8566	18	AUGUST 14, 1987
DUCK 6	8671	12	OCTOBER 1, 1987
DUCK 7	8672	16	OCTOBER 1, 1987

2.2 DUCK 2 GROUP

<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>NO. OF UNITS</u>	<u>DATE OF RECORD</u>
DUCK 3	8410	20	MAY 15, 1987
DUCK 4	8507	5	JUNE 26, 1987
GOLD DOME	8543	20	JULY 16, 1987
GDE	8544	10	JULY 16, 1987
DUCK 8	9132	3	MAY 6, 1988

Duck 6 and Duck 7 are currently owned by Gibraltar Mines Limited. The remainder are all owned by C. E. Carlson but held under option by Gibraltar Mines Limited.

3 GENERAL GEOLOGY

The geology of the Duck 1 Group is not well known. As shown in G.S.C. Map O.F. 574 (R. B. Campbell, 1978) the property is underlain by sedimentary rocks of the Snowshoe and Midas Formations and by Quesnel Lake Gneiss. The suggested age of the Snowshoe Formation is Hadrynian with parts of it equivalent to the Devonian Black Stuart Formation and the Mississippian Guyet Formation. Similarly the Midas Formation is considered also of Hadrynian age with parts of it equivalent to the Devonian Black Stuart Formation. These correlations are by no means satisfactory but they do illustrate the difficulty in subdividing the thick assemblage of sedimentary rocks underlying the Cariboo Lakes area. A Devonian to Mississippian age is supported however, by the occurrence of volcanic rocks within the sedimentary sequence. The Quesnel Lake Gneiss has been given an age of Archean to Paleozoic; similar rocks to the south have provided ages of Late Devonian to Middle Mississippian (Mortensen, 1987).

Our work within the Duck 1 Group indicates the sedimentary rocks form a thick monotonous assemblage of grey, green and black laminated rocks which could be variously referred to as siltite, or phyllite, or in some cases tuffite. A predominately black phyllite sequence is well exposed in road cuts along the northwest shore of Cariboo Lake on the Duck 1 claim. This sequence consists mainly of black graphitic phyllite and black siltite with lesser amounts of green phyllite. It strikes northwesterly and dips at low angles to the north. It appears to overlie a grey and green phyllite sequence which may contain some beds of pyroclastic material. Along the lake shore road cuts, both sequences contain zones of abundant iron sulfide and sporadic concentrations of chalcopryite and sphalerite. Most of this mineralization is disseminated but quartz vein systems are also present carrying various combinations of pyrite, chalcopryite, sphalerite and galena. The black phyllite sequence has been traced westerly as far as Duck 5 mineral claim where it is in contact with a fine grained diorite. To the north, on Duck 5 and Duck 7 a dark green chlorite-plagioclase rock occurs which has been tentatively identified as a meta-andesite. Within the lower Rollie Creek canyon another assemblage of phyllites is well exposed. These, however, are predominately of green and grey coloration with only minor beds of black phyllite and siltite. Disseminated pyrrhotite, chalcopryite, sphalerite and galena was found in several black siltite exposures about 1.6 km. above the mouth of the creek. The same mineralization was also found in a chloritic schist formation nearby along the bed of the stream. Of particular interest in the canyon is the occurrence of silver bearing quartz-galena veins which had been explored by trenching and underground work beginning in 1878 (Amos Bowman, 1888) and extending to at least 1933 (Minister of Mines Reports, 1926, 1933).

Granite rocks of the Quesnel Lake Gneiss formation are also common within the claim group. Three main exposures are involved. One underlies a small hill south of Two-Mile Lakes and appears to overlie the phyllite sequences exposed along the lake shore. The other forms a series of prominent bluffs west of the lake and the third straddles the Rollie Creek canyon above the mouth of Asserlind Creek. In each case the rock appears as a coarse grained leucocratic metacrystic granite or quartz monzonite. Near some contacts with the phyllite the gneiss shows zones of shearing and possible mylonite development.

4 THE DRILL PROGRAM

4.1 Objective

The primary purpose of the 1988 drill program was to test the grade, thickness and continuity of copper mineralization found in surface showings of black phyllite and siltite. The general exploration target was a sedimentary-hosted large tonnage copper-silver deposit.

4.2 Results

Seven vertical N.Q. diamond drill holes were completed. Drill conditions and recoveries were generally good. The location of the holes is shown in Figure 3 and copies of the logs are provided in the Appendices. Drill sections are also provided to show the interpreted geological relations. Survey control was by compass, chain, abney level and topographic map. Only a small amount of the core was assayed. Determinations were made at three meter intervals for copper, molybdenum, lead, zinc, silver, cobalt, nickel and gold.

Drill holes D-1, D-2 and D-3 were positioned to intersect the down-dip extension of chalcopyrite-sphalerite-pyrrhotite mineralization exposed in black siltites about 60 to 100 meters to the south, in the Rollie Creek canyon. The holes encountered abundant and widespread pyrite and pyrrhotite but only weak and sporadic concentrations of chalcopyrite and sphalerite. The sulfides were disseminated throughout an array of grey, greenish grey, green, dark grey and black phyllites. Some of the green phyllites displayed a distinct volcanic appearance imparted by recognizable relict feldspar or hornblende grains; moderately coarse fragmental textures and a general lack of bedded structure; these rocks have been tentatively identified as tuffite. In drill holes D-1 and D-3, concentrations of 1768 ppm. and 2982 ppm. zinc occur respectively over six-meter intervals at the contact between black phyllite and green tuffite. Elsewhere sphalerite, and also chalcopyrite, appear to have a random distribution throughout the assemblage but only in sufficient concentrations to impart slightly anomalous values to the assayed sections. The highest concentrations of iron sulfide appear to be in the black units. Except where contained in quartz-carbonate veins, the sulfides are very fine grained and not easily seen without magnification even though they may occur in concentrations up to four percent. It should be noted that the black units encountered in these holes consist of various combinations of soft black graphitic schist, dark grey phyllite and hard black siliceous siltite, or quartzite.

Diamond drill holes D-4, D-5, D-6 and D-7 were positioned to test the down-dip extensions of chalcopyrite and sphalerite mineralization found in surface rock exposures of black siltite in the vicinity of Two-Mile Lake and along the Cariboo Lake road cuts. No significant ore mineralization was found. Scattered blebs of chalcopyrite were observed in all holes but very little sphalerite was noted. Widespread pyrite in the form of uniform disseminations and quartz vein constituents were found in the black phyllites and siltites of all holes. Average sulfide concentrations appeared to range between one and two percent. This mineralization was found to be coarser grained than that of D-1, D-2 and D-3 and generally devoid of pyrrhotite. The rock units encountered in each hole also appeared to be different. D-5 intersected a thick sequence of green and grey rocks, completely lacking in graphitic beds. Some massive and chlorite-rich sections appeared to be of volcanic origin. Drill hole D-6 passed through a granitic gneiss body and into a black phyllite formation which was found to be much thicker than any of the black units encountered near Rollie Creek. The hole was located to intersect the base of

the black phyllite formation which, in the lake shore road cuts to the east, contains ore grade copper mineralization. Unfortunately, the hole was abandoned at 164.6 meters after intersecting a series of highly broken quartz vein systems. Drill hole D-7 went through a green banded phyllite unit and into a different black phyllite formation. The up-dip extension of this formation was intersected by D-4 which due to fault problems was abandoned at only 66.8 meters.

4.3 Interpretation

As shown in Figures 4 and 5, an attempt was made to subdivide the rock sequence encountered near Rollie Creek into mappable units. Because of the overwhelming similarity between rock types, this interpretation is quite tentative. It does, however, reveal a type of repetitive depositional history involving two, and possibly three, cycles of banded green phyllite, green tuffite and black phyllite. In each cycle, the green tuffite directly underlies the black phyllite and grades downward into an array of green and grey laminated rocks. These in turn pass abruptly into an underlying black phyllite sequence. If this interpretation is correct, the rocks here would strike at about 320-degrees and dip 35-degrees northeasterly.

An interpretation of geological relations in the vicinity of Two-Mile Lakes is shown in Figure 6. This is actually a compilation of surface geology, geophysics and drilling results. In texture, composition and structure these rocks are very similar to those of Rollie Creek but do not correlate in either thickness or stratigraphic order. Coarse grained Quesnel River Gneiss occurs at the top of the section followed by a black graphitic phyllite formation which is about 110 meters thick. The gneiss has a pronounced cataclastic texture and is separated from the phyllite by a 28-meter wide zone of mixed black phyllite and white fine grained quartz-feldspar rock. This may represent a ragged intrusive contact. Below the graphitic phyllite formation a banded green phyllite zone occurs which is about 50 meters thick. It passes into a 94-meter thick black siltite formation which is predominately hard siliceous siltite but does include beds of soft graphitic material. The base of the section consists of a thick sequence of green and grey phyllites, siltites and possibly tuffites which were intersected in hole D-5. The above assemblage strikes at about 290-degrees and has a proven dip of about 25-degrees to the north. The corresponding dip of similar magnitude to the south is based on the fact that drill hole D-5 did not intersect a siltite formation exposed to the south. If this interpretation is correct, the rocks in the vicinity of Two-Mile Lakes form a broad west trending anticlinal structure.

The diamond drill program has not indicated the presence of any metal-enriched horizon, or formation, which would directly lead to a sediment-hosted ore body. Instead, the minerals chalcopyrite and sphalerite appear scattered in small amounts throughout the intersected rock units. Some zinc enrichment was noted along the black phyllite - green tuffite contact near Rollie Creek but this was not confined to any specific stratigraphic horizon. Similarly, the iron sulfide enrichment found in most of the black units need not reflect a period of abnormal sulfide deposition, but rather may be a function of the reducing environment in which the rocks were formed.

The common occurrence of sphalerite and chalcopyrite throughout the sedimentary sequence however, must be considered a mineralogical anomaly and does warrant some explanation. These minerals may be diagenetic; that is, the chalcopyrite, sphalerite and iron sulfides may have formed by the migration and interaction of constituent elements within the sedimentary pile during

metamorphism. This process is consistent with the accepted mode of formation for at least some sedimentary ore bodies. On the other hand, the minerals may be epigenetic, or introduced by some external, most likely, hydrothermal source. In this connection, the ore minerals may represent an outer, almost barren phase of better grade mineralization. Both models appear equally plausible. A third possibility involving a syngenetic, or more specifically, an exhalative origin does not appear likely, due to the almost ubiquitous distribution of the ore minerals.

5 STATEMENT OF EXPENDITURES

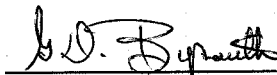
1988 DIAMOND DRILL PROGRAM, DUCK GROUP

1. Drilling Costs	
Direct drilling charges, 1033.88m. @ \$43.64 per meter	\$45,118.52
Other charges (mob-demob, lost equip., mud, ...)	4,247.33
2. Supplies	
170 core boxes @ \$5.95 per box	1,011.50
3. Vehicle Costs	
Rental 1988 pick-up, 10 days @ \$30.00 per day	300.00
4. Assay Costs	
36 samples:	
assayed for Cu,Mo,Pb,Zn,Ag,Ni,Co @ \$7.00 per sample	252.00
assayed for Au @ \$5.50 per sample	198.00
5. Personnel Costs	
1. Field Supervision	
G. Barker, Aug. 19 to Aug. 28, 1988	
50 hours @ \$22.00 per hour	1,100.00
2. Core Logging	
G. Barker, Aug. 21 to Aug. 30, 1988	
40 hours @ \$22.00 per hour	880.00
G. Bysouth, Aug. 30 to Sep. 02, 1988	
32 hours @ \$31.00 per hour	992.00
3. Report Writing	
G. Bysouth, Dec. 15 to Dec. 30, 1988	
60 hours @ \$31.00 per hour	1,860.00

TOTAL	\$55,959.35
	=====

6 CONCLUSIONS

The original target of an ore grade copper-silver zone within a specific black siltite formation as suggested by surface exposures has not been substantiated by the 1988 diamond drill program. Further, there is no evidence of exhalative-type mineralization within any of the sedimentary assemblages intersected by drilling. At this point, the property must be re-evaluated from an epigenetic perspective with particular attention paid to fault structures, quartz vein systems and alteration patterns.



G. D. Bysouth
Senior Geologist



G. E. Barker
Exploration Geologist

GIBRALTAR MINES LIMITED

REFERENCES

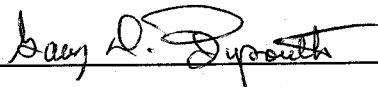
1. Barker, G. E., Bysouth, G. D.: Geochemical Soil Survey Report on the Duck 1 Group March 1988 - Assessment Report.
2. Bowman, A., (1988): Geological Survey of Canada Report, Geology of the Cariboo Mining District, B. C.
3. Campbell, R. B. (1978): Quesnel Lake, Geological Survey of Canada, Open File Map 574.
4. Mortensen, J. K. (1987): Canadian Journal of Earth Sciences, Vol. 24, p. 1261-1266.
5. Minister of Mines 1926 p. A 178
1933 p. A 138
1951 p. 118

APPENDICES

APPENDIX A. Statement of Qualifications - G. D. Bysouth

I, Garry D. Bysouth, of Gibraltar Mines Limited, McLeese Lake, British Columbia, do certify that:

1. I am a geologist.
2. I am a graduate of the University of British Columbia with a B.Sc. degree in Geology in 1966.
3. From 1966 to the present I have been engaged in mining and exploration geology in British Columbia.
4. I personally participated in the field work, supervised the program and interpreted the results.

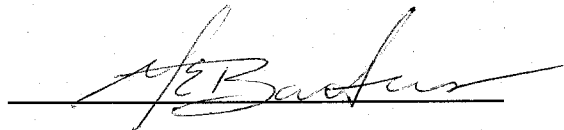


Garry D. Bysouth

APPENDIX A. Statement of Qualifications - G. E. Barker

I, George E. Barker, of Gibraltar Mines Limited, McLeese Lake, British Columbia, do certify that:

1. I have a General Science Degree from the University of Waterloo since 1985.
2. From 1978 to the present I have been engaged in mining and exploration geology in British Columbia.
3. I personally participated in the field work and logged most of the core.

A handwritten signature in black ink, appearing to read "G. E. Barker", is written over a horizontal line.

G. E. Barker

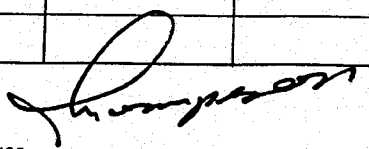
GIBRALTAR MINES LIMITED
ASSAY CERTIFICATE

Date Sept. 12, 1988

Drill Core
Geology Exploration

Sample No.	% Cu	Total Cu	% Pb	Ni	Co	M/S ₂	Ag
	Cu	Zn	Pb				
100-021							
416 34 0-33	265 PPM	1632 PPM	252 PPM	78 PPM	14 PPM	20 PPM	4.0 PPM
35 1-34	260	4332	60	66	22	10	4.0
36 2-39	210	424	56	82	32	10	3.6
416 47 69-72	340	203	28	68	32	5	4.4
48 73-76	115	47	20	24	10	5	2.4
49 77-80	20	54	20	52	20	5	2.8
50 78-81	185	164	28	92	42	10	4.8
416 76 81-84	155	464	104	80	16	15	3.6
77 85-87	165	648	80	84	14	20	3.2
78 88-90	180	440	64	92	14	20	3.2
79 91-93	195	544	160	82	14	15	3.6
80 94-96	195	416	120	84	14	20	3.2
81 97-99	170	336	92	92	28	15	4.0
416 90 123-126	95	90	16	74	30	10	3.6
46 403 162-165	135	253	124	72	16	25	3.2
04 165-165	170	480	92	72	16	30	3.2
100-011							
415 26 1-2	165	102	52	74	24	20	2.8
27 3-5	180	1224	180	76	28	15	3.6
28 6-8	290	2312	128	90	38	10	4.4
29 9-11	155	416	96	88	34	10	4.0
30 12-14	180	237	28	94	38	15	3.2
31 15-17	150	2040	20	88	34	10	4.0
32 18-20	95	227	20	100	38	10	4.0
33 21-23	115	108	24	96	36	5	4.0
34 24-26	110	93	20	96	38	10	4.0

cc: Assay Lab.

Assayer 



VANGEOCHEM LAB LIMITED

MAIN OFFICE AND LABORATORY
1988 Triumph Street
Vancouver, B.C. V5L 1K5 3
(604) 251-5656 FAX: 254-5717

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VANCOUVER, B.C. V5L 1L6
(604) 251-5656

REPORT NUMBER: 881392 6A

JOB NUMBER: 881392

GIBRALTAR MINES LTD.

PAGE 1 OF 1

SAMPLE #	Au
41526	10
41527	10
41528	45
41529	15
41530	15
41531	5
41532	5
41533	10
41534	5
41535	nd
41536	nd
41537	5
41538	10
41539	10
41540	10
41541	5
41542	10
41543	10
41544	nd
41545	nd
41546	15
41634	nd
41635	10
41636	10
41647	20
41648	15
41649	15
41650	10
41676	10
41677	10
41678	5
41679	nd
41680	10
41681	10
41690	nd
46403	10
46404	5

DETECTION LIMIT

5

nd = none detected

-- = not analysed

is = insufficient sample

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EXPLORATION DIAMOND DRILL LOG

SCALE of LOG 1:200

HOLE NO 88-D1 Page 3 of 5

GEOLOGY	FOLN.	DEPTH	GR. ST.	MINERALIZATION	REMARKS	BLOCKS	% REC	% PY	SAMPLE No.	ASSAY VALUES								
DARK BANDED SILTITE 70.2 m to 86.3 Similar to Rx from 44.4m to 61.9 m (gtz-carb-graphite)	70 to ? 45 v. wr	69.0			REQ-87	66.1		<0.5										
	80 med	72.0		Py > pyr (Zns)	REQ-53	69.2	98	1.0										
	70 med	75.0		Py ((Zns))	REQ-40	71.3	97	1.5										
	70 med	78.0		Py < PYR (cPY)(Zns)		74.4	98	1.5										
	70 to 50 med	81.0		PY (cPY)(Zns)		77.4	98	1.0										
	65 med	84.0		Py > PYR (((Zns cPY)))		79.6	97	1.5										
	70 v. wr	87.0		Py > PYR (cPY)		82.6	99	1.0										
	60? v. wr	90.0		Py > PYR ((Zns))		85.6	98	1.0										
	60? v. wr	93.0		PYR > PY Zns (cPY)		88.7	98	0.5										
	40 to 60? v. wr	96.0		PYR > PY (Zns)(cPY)		91.7	98	0.5										
?	99.0		(PY)		93.6	99	<0.5											
						96.6												

GREEN LLMIT-inter bedded
with dark banded siltite
86.3 m to 108.0 m

GIBRALTOR MINES LTD

EXPLORATION DIAMOND DRILL LOG

SCALE of LOG 1/200

HOLE NO 88-D2 Page 1 of 5

LOCATION DUCK CLAIM GROUP BEARING _____ LATITUDE _____ CORE SIZE NQ
 DATE COLLARED 20 AUG 1988 LENGTH 154.53m (507') DEPARTURE _____ DATE 26 AUG 1988
 DATE COMPLETED 21 AUG 1988 DIP 90° ELEVATION _____ LOGGED BY G.E. BARKER

GEOLOGY	FOLN.	meters DEPTH	GR. ST.	MINERALIZATION	REMARKS	BLOCKS	% REC	% PY	SAMPLE No.	ASSAY VALUES							
OVERBURDEN		6			CASING TO 6.1m	6.1		+ PYR									
<u>GREEN UNIT</u> <u>6.1 to 28m</u> A light green to grey green non laminated Rx consisting of carb, feld, Qtz, chl. This zone is interbedded with black to dark grey bands (graphitic?) probably same material that makes up the dark banded siltites and/or phyllites	?	9		limonite to 11.6m (PY)	Badly broke. core 6.1m to 17.4m		70	0.5?									
	?	12		fault gouge		10.4		0.5?									
	?	15		py > pyr Zns		13.7	50	1.0?									
	?	18		-gouge -gouge py > pyr ((Zns))		17.4	45	1.0?									
	60 wt	21		pyr Zns ((Cpy))		20.4	98	2.0									
	65 to 70 wt	24		(pyr > py)		23.5	99	1.5									
	65 wt	27		pyr > py (Zns)		26.5	96	2.0									
	65 wt	30		(pyr > py)		29.0	92	1.0									
							93										

Black
pyrrhotite?

GIBRALTAR MINES LTD

EXPLORATION DIAMOND DRILL LOG

SCALE of LOG 1:200

HOLE NO 88-D2 Page 2 of 5

GEOLOGY	FOLN.	meter DEPTH	GR. ST.	MINERALIZATION	REMARKS	BLOCKS	% REC	% PY	SAMPLE No.	ASSAY VALUES										
										Cu ppm	Zn ppm	Pb ppm	Mi ppm Co ppm	MoS ₂ ppm	Ag ppm	Au ppb				
<p>No dark siltite bands 32.9m to 42.0m</p> <p>Frequent dark siltite interbedding 42 to 45m - also increase in gtz</p> <p>Dark interbedding zone reduced 45 to 78 less gtz, increase in carb. 45m to 78m</p>	75 wtz	33	gtz v. w. 6m wide	minor broken core	30.5		95	0.5												
	NA	36		pyr - (Zns)		33.2		95												
	NA	39		(pyr)		34.4		95	<0.5											
	NA	42				37.5		96												
	NA	45				39		98	<0.5											
	70 WR	48		(pyr)		40.2		98	<0.5											
	70 v.wtz	51				42		98	<0.5											
	60? v.wtz	54		(pyr)(Zns)		43.3		97	<0.5											
	75? v.wtz	57			minor broken core	45		97												
	80 v.wtz	60		pyr (Zns)		46.3		96	<0.5											
	75? v.wtz	63		pyr-py (Zns)		47.9		96	<0.5											
	80? v.wtz	66				49.9		97	<0.5	41544	175	392	72	70	20	4.0	ND			
						57.0		97	<0.5					18						
						59.4		96	<0.5	41545	160	310	64	72	20	3.4	ND			
									<0.5					18						

ND = NONE DETECTED

GIBRALTAR MINES LTD

EXPLORATION DIAMOND DRILL LOG

SCALE of LOG 1:200

HOLE NO 88-D2 Page 5 of 5

GEOLOGY	FOLN.	DEPTH	GR. ST.	MINERALIZATION	REMARKS	BLOCKS	% REC	% PY	SAMPLE No.	ASSAY VALUES							
										Cu PPM	Zn PPM	Pb PPM	Ni PPM Co PPM	MnO2 PPM	Ag PPM	Au PPB	
	65 v wtz	132		Py > Py		131.4	98	0.5									
	70 v wtz	135		Py > Py		133.2	98	1.5									
	75 wtz	138		Py > Py		136.2	99	1.0									
Strong increase in Dark banded siltite 137.9m to 141m	75 mod	141		Py > Py (Zns) (Cpy)		139.3 141.1	97	1.5	41535	100	313	64	58 18	15	2.6	ND	
	70 wtz	144		Py > Py (Zns)		143.6	96	1.0	41526	115	632	140	74 24	10	3.0	ND	
	75 v wtz	147				146.6	98	20.5	41537	225	234	72	68 32	10	3.4	5	
	75 v wtz	150		(Py) (Py)		149.7	98	0.5	41538	113	144	24	50 38	15	3.6	10	
	80 v wtz	153				152.7	98	20.5	41539	85	208	40	32 40	10	4.0	10	
	80 v wtz				END of HOLE	154.53	98	20.5	41540	430	480	40	40 50	10	4.6	10	

ND = NONE DETECTED

GIBRALTAR MINES LTD.
EXPLORATION DIAMOND DRILL LOG

Hole No. ~~88-D3~~ **88-D3**

Page No. 1 of 6

HOLE 88-D3

LOCATION Duck Option BEARING - LATITUDE _____ CORE SIZE N.Q.W
 DATE COLLARED AUG 21/88 LENGTH 184.4m (605') DEPARTURE _____ DATE Aug 31 1988
 DATE COMPLETED AUG 23/88 DIP -90 ELEVATION _____ LOGGED BY G.D. BYSOUTH

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py. +Pyr.	Sample No.	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ni ppm	Co ppm	
Casing To 6.7 m					6.7												
BLACK BANDED PHYLITE (6.7 - 35.1 m)	50 wk	9.0m		mainly dissem py very minor pyr		80	2.0	41626									
a black to dark grey graphitic rock usually strongly laminated with light grey (qtz-carb?) laminae 1-3mm thick alternating with thicker laminae and bands of dark grey to black material - also contains partings and zones of ext highly graphitic rx (50%?) - most of the rx is med. hard (5-6) and grades in place to a black siltite (Hs-7)	50wk	12.0		dissem - py	10.1 11.3	75	2.5	41627									
It appears to consist of varying proportions of qtz- carbonate, graphite, mica minerals and sulfides. The sulfides are extremely fine grained - < 5µm and not clearly evident without magnification.	60 wk	15.0		dissem py.	14.3	85	3.0	41628									
	70 wk.	18.0		dissem py	17.1	70	4.0	41629									
	45 wk	21.0		dissem py very minor pyr	19.5	80	4.0	41630									
	50 wk	24.0		dissem py minor qtz-carb-py bands strong graph. zone	21.6 23.5	85	4.5	41631									
	60-70 wk	27.0		dissem py and pyr. minor specks of cp and sphal.	25.9	80	4.5	41632									
	cren.			pyr >> py		65	4.0	41633									
		30.0			29.6												
	cren			pyr >> py dissem sphal + minor cp	32.6	85	3.5	41634	265	20	252	1632	410	ND	78	14	
		33.0															

ND = none detected.

GIBRALTAR MINES LIMITED

Hole No. 5 D3
Page No. 3 of 6

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Au ppt	Ni ppm	Co ppm
		80			67.4		<.5	41646								
		69.0m		red-brown mica zone		95										
<u>QUARTZ PORPHYRY</u> (69.9 - 77.4 m)	80-90?	71.0m		50 hle carb-cp 45, 2mm qtz-carb-cp	70.4	95	.5	41647	340	5	28	203	4.4	20	68	32
"qtz-eye" phenocrysts up to 6mm dia in a aphanitic qtz-spar matrix - contains ~5-10% chl. wisps which prob are alt'd bio phenocrysts.	50	75.0		70° 2cm qtz(cp) 40+60, 12cm+6cm, qtz-carb x 2	75.0	95	<.5	41648	115	5	20	47	2.4	15	24	10
	45	78.0		dissem pyr(cp) and dk brown sphal? in chl zones	78.0	90	1.0	41649	20	5	20	54	2.8	15	52	20
<u>MASSIVE BROWN MICA ZONE</u> (77.4 - 79.9 m) - also interbedded with lesser massive chl.	?	81.0		contact concordant	80.5	95	1.5	41650	185	10	28	164	4.8	10	92	42
<u>BLACK BANDED PHYLITE</u> (79.9 - 100.0 m) very similar to 9.0-35.1m but less graphitic	60-70	84.0		broken zone - poss fault. dissem py, minor pyr, and cp - py often as larger subhedral cubes	81.4	60										
	60-70	84.0		dissem py, minor pyr, and cp as above plus sparse sphal.	84.4	95	2.0	41676	155	15	104	464	3.6	10	80	16
	60-70	87.0		dissem py, minor pyr, and cp as above plus sparse sphal.		98	2.0	41677	165	20	80	648	3.2	10	84	14
	60-70	90.0		dissem pyr - minor py - blebs of cp in larger pyr seg. - fine sphal along qtz-carb lam.	87.5	85	2.0	41678	180	20	64	440	3.2	5	92	14
	60-90	93.0		dissem pyr and py minor dissem sphal rare cp.	90.5	75	2.0	41679	195	15	160	544	3.6	ND	82	14
	70-80	96.0		dissem pyr - py - sphal. broken zone incr. graph.	92.3	75										
		96.0			93.6	75										
		96.0			95.4	55	1.0	41680	195	20	120	416	3.2	10	84	14
alt. blk and green bands.		99.0		dissem pyr - cp - pinkish pyr? in bands	98.1	70	2.0	41681	170	15	92	336	4.0	10	92	28

ND = none detected

GIBRALTAR MOES LIMITED

Hole No. 89073
Page No. 4 of 6

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu PPM	Mo PPM	Pb PPM	Zn PPM	Ag PPM	Au PPM	Ni PPM	Co PPM		
		100.0m		dissem pyr-cp.	100.9	90												
<p><u>GREY-GREEN PHYLLITE</u> (100.0m - 120.9m)</p> <p>- predom. grey-green but includes pea green, dark green and dark grey beds - contains fine dissem. pyr. which incr. in dark grey beds - not strongly banded - indiv. beds not strongly defined - contact gradational with overlying black phyllites.</p> <p>- some sections resemble green dacitic volcanics</p> <p>- this unit is quite soft (H3-4) and readily fizzes in acid</p> <p>- in places contains round clasts up to 2cm dia</p>	60-80	102.0m	}	broken zone			<.5	41682										
	70-80	105.0m					103.3	75										
	60-70	105.0m	}	pea green massive zone (volcanic?)			<.5	41684										
	0-45	108.0m					104.2	70										
		0-45	111.0	}	mainly dk grey bands with qtz-carb laminae			<.5	41685									
	70?	111.0					107.3	85										
		70?	114.0	}	broken zone			<.5	41686									
	70?	114.0					108.2	50										
		0-90 Cren	117.0	}	broken zone			<.5	41687									
	0-90 Cren	117.0					111.3	80										
	0-90 Cren	120.0	}	mainly pyr in massive x-cutting veins with minor cp blebs			<.5	41688										
0-90 Cren	120.0					114.3	80											
<p><u>MIXED DARK GREY AND GREEN PHYLLITE</u> (120.9 - 132.5 m)</p> <p>- greenish beds of phyllite similar to above interbedded with banded dark grey phyllite similar to the banded black phyllite unit intersected at 79.9-100.0m</p> <p>- the green bands or beds tend to be massive</p> <p>- beds vary from 6cm to 6.0m wide</p>	0-90	120.9m	}	mainly pyr in massive x-cutting veins with minor cp blebs			3.5	41689										
	70	123.0					120.3	85										
	70	123.0	}	dissem pyr and py minor cp			2.5	41690	95	10	16	90	3.6	ND	74	30		
	0-90 Cren	126.0					123.7	85										
	0-90 Cren	126.0	}	dissem pyr + py			1.0	41691										
45-70	129.0					126.8	85											
	45-70	131.7	}	dissem pyr + py			1.0	41692										
	45-70	132.0					129.8	80										

ND = none detected

GIBRALTAR MINES LIMITED

Hole No. D3

Page No. 5 Of 6

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ni ppm	Co ppm		
From 138.0m to 152.5m the dark grey beds >> green beds.	45	135.0		fine dissem pyr + py + minor cp	133.8	75	1.5	41693										
	5-80	138.0		dissem pyr + py - minor cp. rare sphal.	136.8	85	4.0	41694										
	80	141.0		dissem pyr + py - minor cp - rare sphal	139.9	85	3.5	41695										
	0-90	144.0		dissem pyr + py	142.3	80	2.5	41696										
	60-80	147.0		dissem pyr + py	145.4	85	1.0	41697										
	10-80	150.0			148.4	90	1.0	41698										
	80	151.5			151.5	40	1.5	41699										
	60	153.0		fine dissem py + pyr	154.5	85	2.0	41700										
	0-90 Cren	156.0		fine dissem py + pyr.	157.6	90	3.0	46401										
	0-90 Cren	159.0		fine dissem py - pyr - cp rare sphal.	160.6	80	3.0	46402										
90 Cren	163.0	fine dissem py - pyr - cp rare sphal.	163.7	85	2.0	46403	135	25	124	253	3.2	10	72	16				
		165.0																

BLACK BANDED SILTITE
(152.5 - 178.7 m)

- similar to the black banded phyllite but harder (6-7) and contains more qtz - generally contains less dark bands and def. less graphite
- finely dissem py occurs throughout with pyr and very minor cp - in general py >> pyr.

GIBRALTAR MOES LIMITED

Hole No. 03
Page No. 6 of 6

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ni ppm	Co ppm
	cren	168.0		dissem PY-Pyr-cp rare sphal	166.7	90	2.5	46404	170	30	92	480	3.2	5	72	16
	cren to 90	171.0		dissem PY-Pyr-cp	169.8	90	3.0	46405								
	cren to 90	174.0		dissem PY-Pyr - minor cp	172.8	80	2.0	46406								
	cren to 90	177.0		dissem PY-Pyr - minor cp	175.9	80	2.0	46407								
	80	178.7		dissem Pyr-cp	178.9	90	1.5	46408								
	80 wk cren	180.0			182.0	90		46409								
		183.0				75										
					184.1											
<p><u>GREENISH GREY PHYLLITE</u></p> <ul style="list-style-type: none"> - weakly laminated with dk and lighter green layers - in places appear clastic or brecciated with ovoid frags up to 1cm dia <p>E.O.H 184.4 m</p> <p><i>SAB</i></p>																

GIBRALTAR MINES LTD.
EXPLORATION DIAMOND DRILL LOG

Hole No. 88-D4

Page No. 1 of 2

HOLE 88-D4

LOCATION Duck Option BEARING - LATITUDE _____ CORE SIZE N.Q.W
 DATE COLLARED 23 AUG 88 LENGTH 66.8 m (219') DEPARTURE _____ DATE Sept 5, 1988
 DATE COMPLETED 24 AUG 88 DIP -90° ELEVATION _____ LOGGED BY G.D. By south

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu	Mo	Pb	Zn	Hg	Au		
Casing To 15.2 m																
		15.0m														
<u>BLACK BANDED SILTITE</u> (15.2 - 66.8 m)				1.5 m gg and bx	15.2											
not like the siltite of D-3 - this lacks fine repetitive lamination - ind. bands gen. range from 2cm to 10cm. - sulfides are also diff. - ie, no pyr., Py occurs as large cubes and seg's up to 3mm ; sphal doesn't occur and sp appears very minor. - the rx consists of fine grn black laminae and beds interbed with light grey quartz-carb laminae and beds - some of the carb appears ankeritic		18.0m		broken core	16.7	40	95									
		21.0m		broken core + minor gg	19.5	45	0.5									
		24.0m		broken core + minor gg	22.9	50	0.5									
	80-90	27.0m		dissem py as blebs and cubes up to 2mm rare sp.	27.4	60	1.0									
		30.0m		broken gougy core	30.2	50	1.0?									
		33.0m		broken gougy core	32.0	30	1.0?									
		36.0		strong graphitic + py zone	34.4	50	3.0									
		39.0		graphite-py-gg zone	36.0	50										
				gg-broken graph. zone	38.7	70	1.5?									

Fault
Zone
15.2m to
23.9m.

Poss
Fault
Zone
27.4
to
31.4m

def
Fault

GIBRALTAR MOES LIMITED

Hole No. 8804
Page No. 2 of 2

Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py.	Sample No.	Cu	Mo	Pb	Zn	Ag	Au			
	?	42.0m	○	gg-bx } def. fault zone	40.8	30	1.5?										
	?	45.0	○	gg-bx }	42.7	50	2.0?										
	40-50	48.0	▨	} broken gougy graphitic - Py Zone		55	3.0										
	45	51.0	▨					2.0									
	30-50	54.0	○	} Fault	51.8												
		57.0	○			53.9	60	?									
		60.0	○	} Zone 53.4 to 65.5 m	55.5	40	?										
		65.0	○			57.0	40	?									
		66.0	○	broken gougy graphitic	58.8	35	?										
			○	broken gougy graphitic	60.0	45	?										
			○		63.1	30	?										
			○		65.5	10	?										
			○		66.8	60											

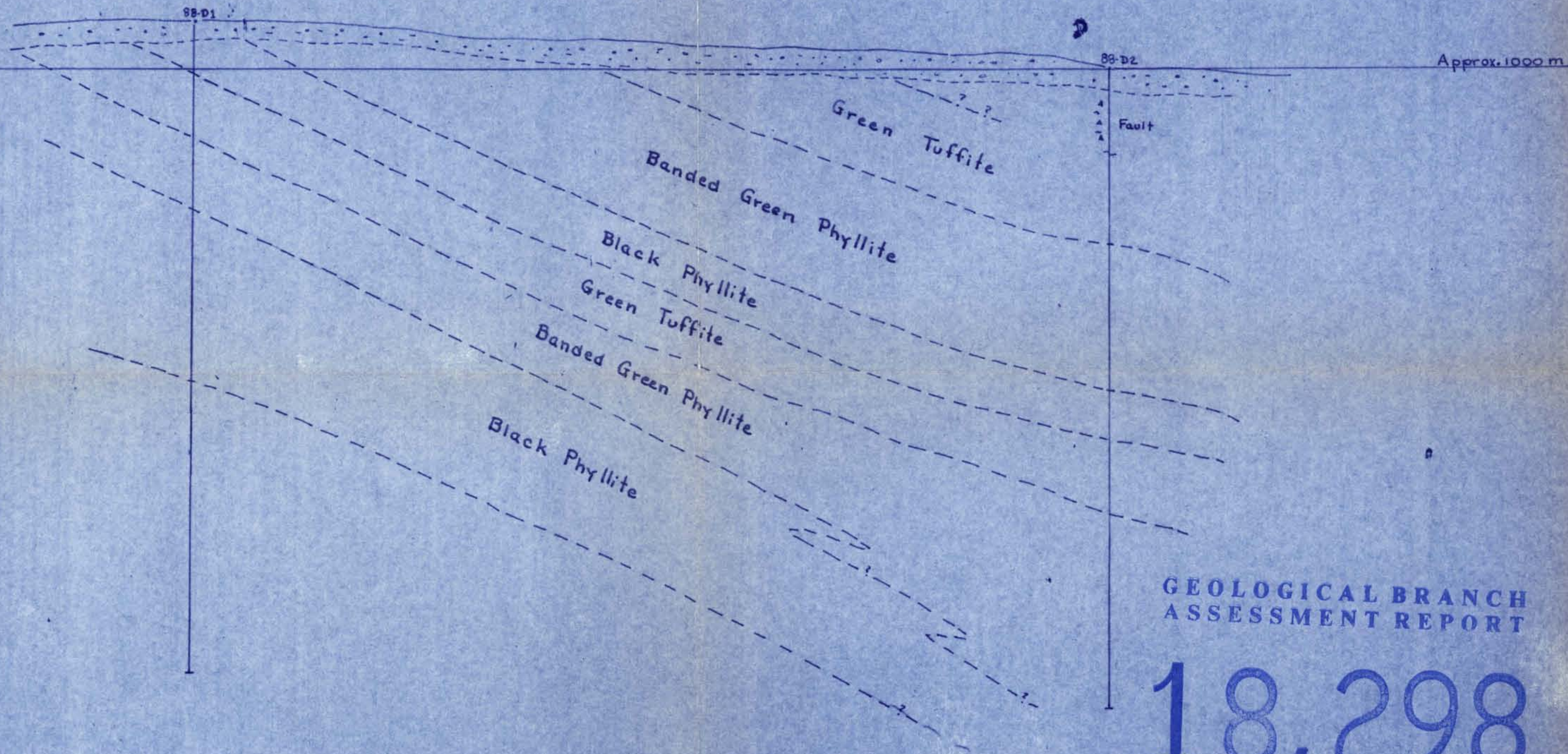
a grey fine grn rx occurs at the base of the fault from 65.5 to E.0H - this rx consists of sericite, ank., carb. qtz E.O.H 66.8 and mar. paste

LOB.

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Hole No. 80-D5
Page No. 2 of 5

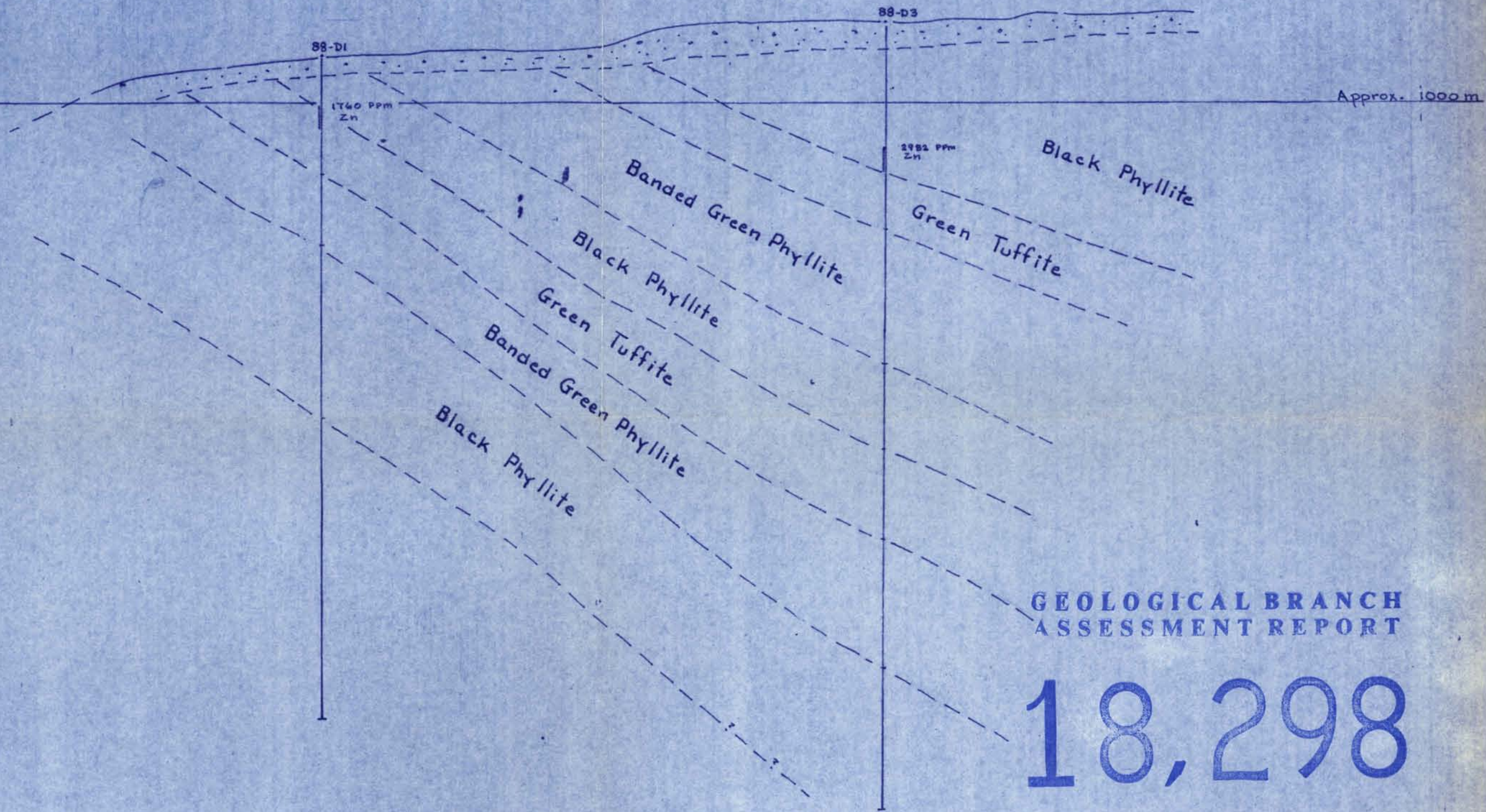
Geology	Foln.	Depth	Str.	Mineralization	Blocks	% Rec.	% Py./Pyrr	Sample No.	Cu	Mo	Pb	Zn	Ag	Au
Broken core and inner fault gauge 33.0m to 44.5m	80	33.0	X	qtz-carb (non-zn)	30.5 31.4	85								
		36.0	X	Brown calcation biotic (py) gouge	33.2 35.7	90	0.1/0							
		39.0	X	gouge	37.5 38.7	75								
		42.0	X	microgouge	40.5	65								
		45.0	X	(biotite?)	43.0 44.5	90								
		48.0	X	(py) (pyrr)	47.5	97	0.1/0.1							
	Broken core and inner fault gauge 50.6 to 54.5m		51.0	X	(carb)	50.6	90							
70		54.0	X	(carb)	53.3	70								
70-80		57.0	X	(py) (Zns) gouge	56.4 57.6	55	0.1/0							
Rx light green color - frequent with some carb-qtz? 57m to 71.3m	70	60.0	X	Zns (py)(cpy) ((Zns)) (py)	57.6	96	0.05/0							
	75	63.0	X	(py)(pyrr)	60.7 62.2	96	0.1/0.1							



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

18,298
Section Looks N.W.

							GIBRALTAR MINES LIMITED	
							DUCK 1 GROUP	
							DRILL SECTION A	
							REFERENCE	No.
							SCALE 1:1000	Jan. '89
							DWG. No.	G.D.B.
DWN.	CHECK	APPR.	ISSUED FOR	DATE	REV.	DESCRIPTION	FILE No.	FIGURE 4



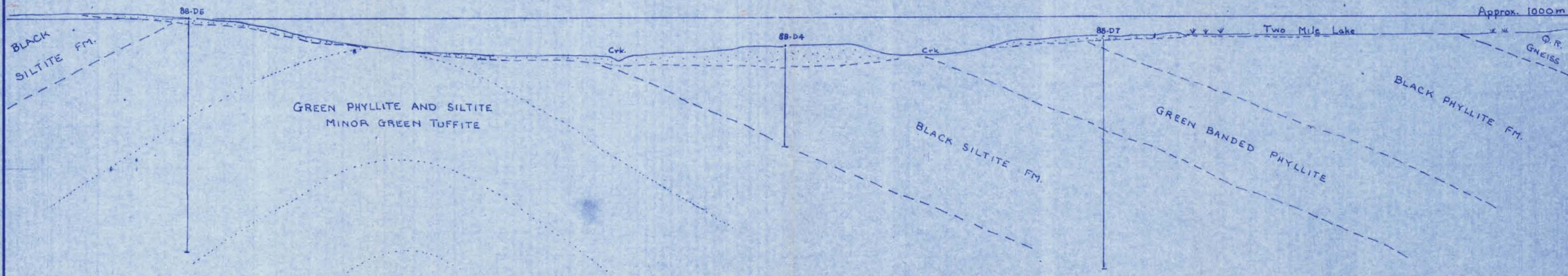
GIBRALTAR MINES LIMITED

DUCK 1 GROUP
DRILL SECTION B

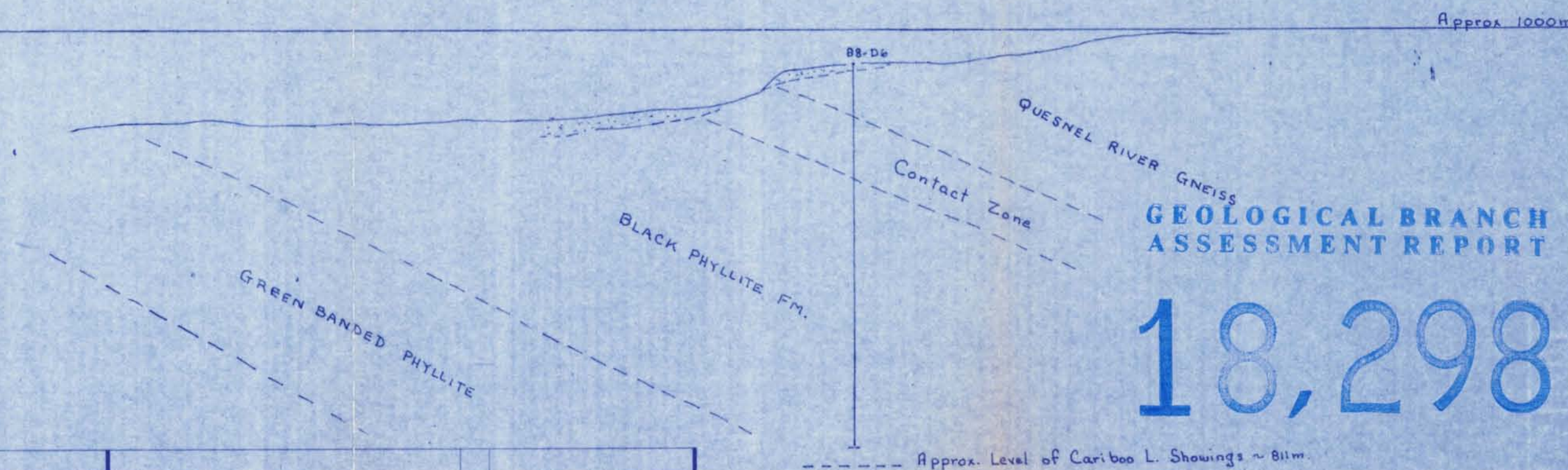
FILE No. **FIGURE 5**

DWN.	CHECK	APPR.	ISSUED FOR	DATE	REV.	DESCRIPTION	SCALE	REFERENCE	No.	DWG. No.
							1:1000	Jan '89		G.D.B.

DRILL SECTION C



DRILL SECTION D



GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,298

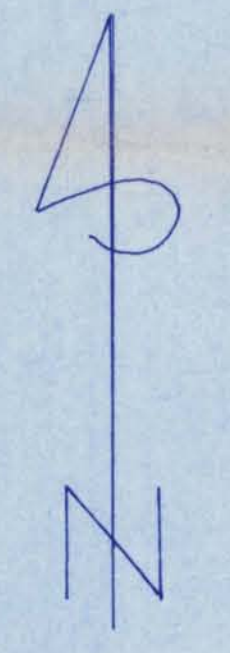
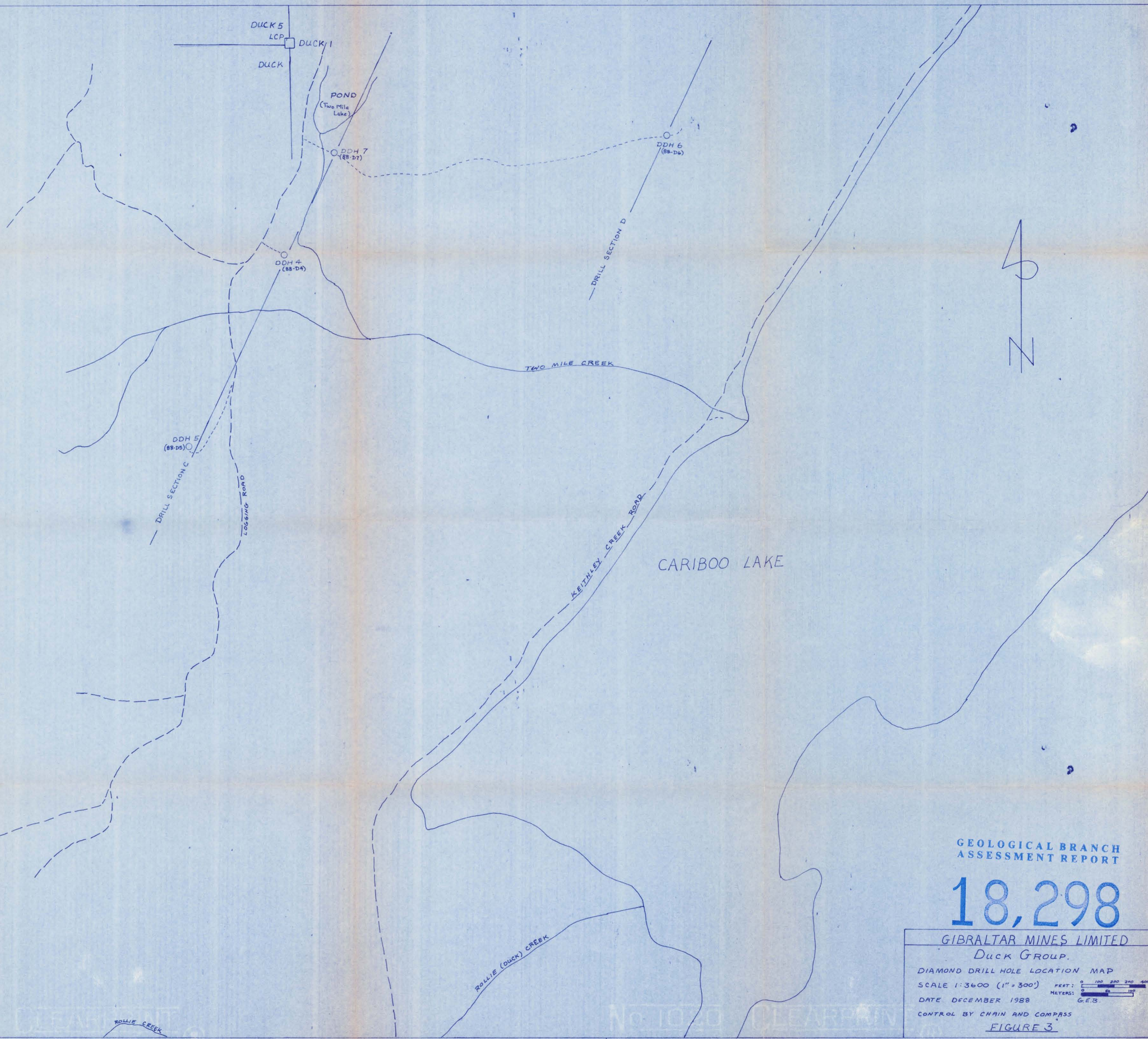
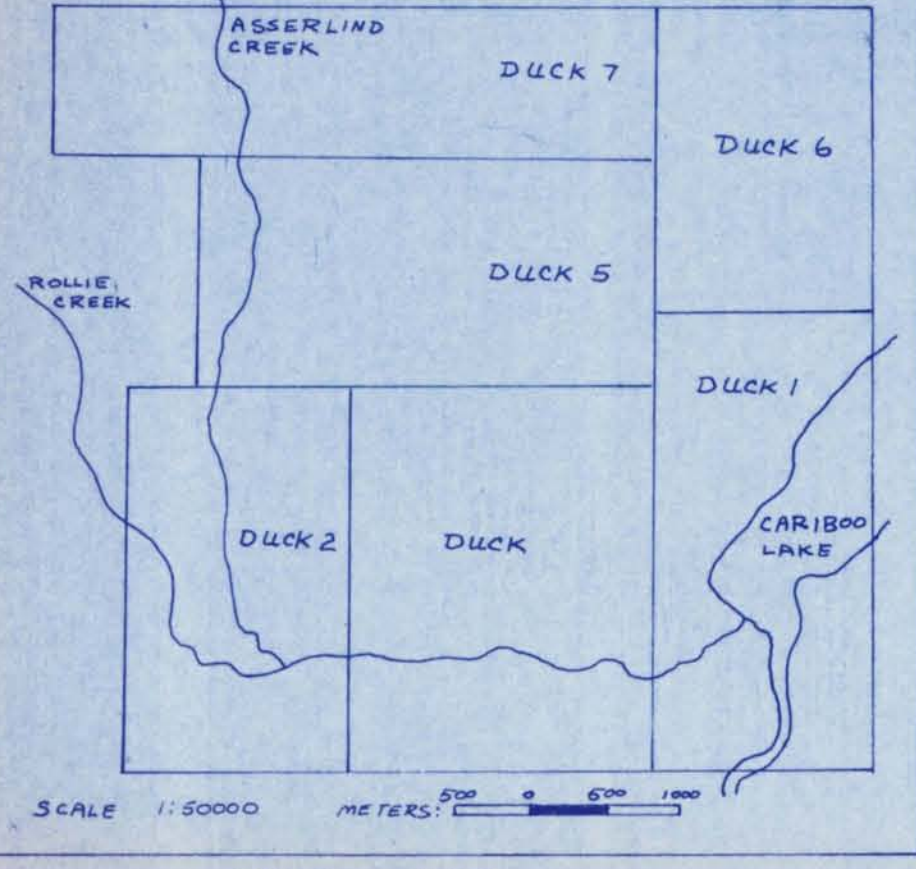
Section Looks Westerly

DWN.	CHECK	APPR.	ISSUED FOR	DATE	REV.	DESCRIPTION	SCALE	REFERENCE	No.	DWG. No.
							1:2000	Jan 1989		G.D.B.

GIBRALTAR MINES LIMITED
DUCK 1 GROUP

DIAMOND DRILL SECTIONS
FILE No. FIGURE 6

NGI-210-G.M.L.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,298

GIBRALTAR MINES LIMITED

Duck Group.

DIAMOND DRILL HOLE LOCATION MAP

SCALE 1:3600 (1" = 300')

DATE DECEMBER 1988

CONTROL BY CHAIN AND COMPASS

FIGURE 3

