

LOG NO: 0205

RD.

ACTION:

4/88

FILE NO:

CHARLEMAGNE RESOURCES LTD.

**DIAMOND DRILLING REPORT**

**PHILLIPS ARM PROPERTY**

FILMED

Vancouver Mining Division

NTS 92K 6, 11

50° 30' N, 125° 24' W

MINISTRY OF ENERGY, MINES  
AND PETROLEUM RESOURCES

Rec'd FEB 02 1988

SUBJECT \_\_\_\_\_

FILE \_\_\_\_\_

VANCOUVER, B.C.

by

Jenna Hardy, M.Sc., F.G.A.C.

**NIMBUS MANAGEMENT LTD.**

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

January 1988  
**17,067**  
CLAIMS WORKED

Name	Type	Record	Anniversary
Enid	Reverted Crown Grant	47(L280)	November

Owner: Charlemagne Resources Ltd.  
 Operator: Nimbus Management Ltd. on behalf of  
 Charlemagne Resources Ltd.

### 3.3 ALTERATION

The most intense alteration observed on the property is in sheared zones that host the auriferous quartz veins.

The zones are characterized by a strong silicification and bleaching and retain little of their original fabric. Sericitization is also common within sheared zones.

Weak potassic alteration is related to fracturing and carbonate fracture filling, but the relationship of this to the auriferous event is unknown.

#### 4. DIAMOND DRILLING

reverted

The Enid area is centred on crown grant 47(L280) on **Figure 86-1**. The work program was restricted to the immediate vicinity of the Enid and Kristina Adits. It involved mapping and sampling of the Enid Adit and 573.33 m of BQ-size diamond drilling in five holes from two drill sites.

This assessment report describes only drilling in Hole **CHG.86.4**. Geology and assay results are shown in **Figure E86.1**. All core is stored on site at the location shown on the accompanying drill log.

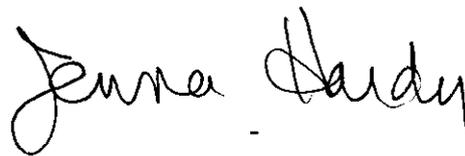
While lithologies as shown vary considerably, much of CHG.86.4 lies within the metavolcanics and metasediments of the roof pendant, though a small sequence of medium grained hornblende granodiorite occurs at the top of the hole. Anomalously thick sections of ash feldspar crystal tuff in the upper portions of the hole, pass downward to interlayered metavolcanics and metasediments. Both basalt and andesite dykes occur nearer the bottom of the hole both above and below the vein system (Map Unit 5). Narrow intervals of calc-silicate alteration are present in both metavolcanics and metasediments. The basalt dykes shown appear most often to trend subparallel to a major shear zone running through the area.

The hole was placed to test values up to 3.8 oz gold per ton and 15.4 oz silver per ton in caved material from the floor of the Kristina Adit, and penetrated about 14 m beneath the adit floor. It failed to intersect any mineralization that could be attributable to a mineralized feature extending from the area of the Kristina adit. The extension of the Enid structure is however geochemically and geologically recognizable in the hole by values up to 550 ppb Au. Three distinct anomalous zones are in fact present.

### 5. CONCLUSIONS

In the Enid area, diamond drilling in CHG.86.4 failed to intersect the downdip extension of high grade samples from caved material in the floor of Kristina Adit. While the Enid vein structure could be identified both geologically and geochemically, grades are disappointing.

Respectfully submitted,



Jenna Hardy, M.Sc., F.G.A.C.

M. Holtby is a graduate geologist, 1972 B.Sc.  
University of British Columbia

## 6. BIBLIOGRAPHY

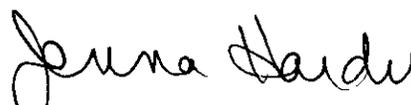
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## 7. STATEMENT OF QUALIFICATIONS

I, Jenna Hardy, of 535 East Tenth Street, North Vancouver, B.C. V7L 2E7, state that:

1. I am a geologist with address above, who graduated from the University of Toronto with a B.Sc. (Specialist in Geology) in 1974 and an M.Sc. in 1980.
2. I have practised my profession continuously since 1974 and have worked in the Cordillera since 1976.
3. I have been employed as a full-time project geologist by various companies in Vancouver since 1978.
4. I am a Fellow of the Geological Association of Canada, with membership number F2640.
5. I was the project geologist for Falconbridge Ltd. during and before the period of its option of the Phillips Arm property from Charlemagne Resources Ltd., and personally supervised all work described by Hicks (1986).
6. I was the project co-ordinator for the present program at Phillips Arm and supervised all work carried out to date.
7. I have no direct or indirect legal or financial interest in the Phillips Arm property of Charlemagne Resources Ltd. or any claims within a 10 km radius of the property.

Respectfully submitted,



Jenna Hardy, M.Sc., F.G.A.C.

January 20, 1988

**1. PHILLIPS ARM PROJECT COST STATEMENT**  
**(October 12, 1986 to March 6, 1987)**

**GENERAL**

<b>Food &amp; Accommodation:</b>			
	5 persons, 550 mandays @ \$29.63 (rounding)		\$ 16,296.75
<b>Supplies:</b>			20,541.70
<b>Transport:</b>			
	Barge	\$ 3,376.00	
	Fixed Wing - (various types/rates)	1,708.00	
	Helicopter - 108.86 hours @ \$400/hour	43,544.00	
	Truck - 4 months @ \$1048.58/month	4,194.32	
	Miscellaneous	<u>1,475.76</u>	54,298.08
<b>Communications:</b>			3,519.77
<b>Personnel:</b>			
	Project Co-ordinator - 65 days @ \$325	\$21,125.00	
	Project Geologist - 137 days @ \$230	31,510.00	
	Field Geologists - 90 days @ \$160	14,400.00	
	Field Assistants - 244 days @ \$110	<u>26,840.00</u>	93,875.00
<b>Equipment Rental:</b>			
	VLF-EM - 57 days @ \$21.88/day	\$ 1,247.26	
	Punjari - 1.5 months @ \$607.87/month	911.80	
	Chainsaws (2) - 3.5 months @ \$642/month	<u>2,247.00</u>	4,406.06
<b>Report Writing:</b>			1,703.78
<b>Management Fee: Nimbus Management Ltd.</b>			<u>41,005.36</u>
	Total		\$235,646.50 =====

### DIAMOND DRILLING

Total invoiced costs including:  
drill mobilization, drill supplies,  
footage, cooking charges for 1063.46 m

**\$126,817.61**  
=====

Of this total, 102.11m or 9.60% was drilled in hole CHG.86.4 on the Enid reverted crown grant. Both general and drilling costs are apportioned accordingly.

### AREAS OF INTEREST

#### 1. FOG NORTH AND SOUTH

VLF Rental	- 25.27 x 12 days	\$ 303.24
Contract Soil Sampling	- 10,575 x 882/1592	5,858.76
Soil Analyses	- Au(faa), Cu, Ag @ \$10.25	9,040.50
Helicopter	- 10.47 hours @ \$400	4,188.00
Field Assistant	- 5 days @ \$110	550.00
	Total	<u>\$ 19,940.50</u> =====

## 2. COMMONWEALTH-CHAMPION AREA (COG CLAIM)

<b>General Costs:</b>		
46% of \$235,646.50		\$108,397.39
<b>Diamond Drilling:</b>		
Direct Costs - 46% of \$126,817.61		58,336.10
Analyses - 550 @ \$14.76 (faa Au, Ag, Cu)		8,118.00
<b>Geophysics:</b>		
VLF-EM Rental - \$25.27 x 60 days		1,516.20
Field Assistant - 25 x \$110.00		2,750.00
<b>Soil Sampling:</b>		
Contract Soil Sampling - 10,575 x 710/1592		4,716.24
Soil Analyses (faa Au, Ag, Cu) - 710 @ \$10.25		<u>7,277.50</u>
	Total	\$191,111.43
		=====

## 3. ENID AREA

<b>General Costs:</b>		
54% of \$235,646.50		\$127,249.11
<b>Diamond Drilling:</b>		
Direct Costs - 54% of \$126,817.61		68,481.51
Analyses - 203 @ \$14.76 (faa Au, Ag, Cu)		2,996.28
<b>Rock Chip Sampling:</b>		
Analyses (faa Au, Ag, Cu) - 78 @ \$14.76		1,151.28
Field Geologist - 6 days @ \$160		960.00
Field Assistant - 16 days @ \$110		<u>1,760.00</u>
	Total	\$202,598.18
		=====

## 3a. ENID AREA: DDH CHG.86.4

<b>General Costs</b>		
9.6% of \$235,646.50		\$ 22,622.06
<b>Diamond Drilling</b>		
9.6% of \$126,817.61		12,174.49
<b>Assays</b>		
94 (f.a.a. Au, Ag, Cu) @ \$14.76		<u>1,387.44</u>
	<b>Total</b>	<b>\$ 36,183.99</b>
		=====

## 4. TOTAL COSTS

Geological and Geochemical	\$286,832.50
Diamond Drilling	<u>126,817.61</u>
<b>Total</b>	<b>\$413,650.11</b>
	=====

**Appendix 1**

**DIAMOND DRILL HOLE LOGS AND RESULTS**



FROM	TO	DESCRIPTION	RECOVERY		SAMPLES			ASSAYS			
			RUN	%	NO.	FROM	TO	LENGTH	Au	Ag	Cu
		8.55 - 11.2 m - wisps of carbonate (5% average, and	23.47	100	177	8.55	9.20	.65	46	1.3	66
		up to 15%), distorted and disrupted	24.99	80	178	9.20	9.39	1.19	35	1.3	30
		fracture fillings	26.06	110	179	9.39	10.30	.91	7	1.0	47
		pyrite 0.2% disseminated	27.58	95	180	10.30	11.20	.90	8	.9	51
		11.2 - 11.7 m - brown tint	28.04	83	181	11.20	11.70	.50	6	1.2	69
		weathered, not as siliceous as grey areas	29.11	103	182	11.70	12.70	1.00	5	.7	78
		weak rusty stain on fractures	29.57	63	183	12.70	13.79	1.09	55	1.2	102
		11.7 m contact 50° to C.A.	31.09	93	184	13.79	14.33	.54	4	1.3	88
		11.7 - 13.79 m - medium grey, contorted banding, sericitic	32.61	107	183	14.33	15.85	1.32	2	1.0	61
		13.79 - 14.33 m - pyrite 0.1%	34.14	90	186	15.85	16.85	1.00	1	.9	69
		14.33 - 19.87 m - brownish grey	35.66	101	187	16.85	17.85	1.00	2	.8	58
		biotite - 10%-15%, very fine grained	37.19	93	188	17.85	18.85	1.00	1	1.1	72
		contorted banding	38.71	106	189	18.85	19.87	1.02	2	.9	73
		pyrite - trace disseminated	40.23	86							
		1% spotty, wispy carbonate fracture filling	41.15	90							
19.87	21.27	Altered Lapilli tuff	42.67	101	10190	19.87	20.27	.40	3	.8	90
		- medium grey	43.28	97	191	20.27	21.27	1.00	4	1.2	84
		fragments - average 5 to 6 mm and up to 2 cm,	43.59	119							
		- rounded and angular, largest are angular	44.96	109							
		- appear to be several rock types - all	46.33	74							
		strongly sericitized	47.85	93							
		biotite - 5% to 8% in matrix	48.92	61							
21.27	23.51	Ash tuff	50.44	98	10192	21.27	22.27	1.00	5	.7	65
		- medium grey with brownish areas	52.12	85	193	22.27	23.51	1.24	5	.8	53
		banding 55° to C.A.; biotite 5%	53.64	104							

FROM	TO	DESCRIPTION	RECOVERY		SAMPLES			ASSAYS			
			RUN	%	NO.	FROM	TO	LENGTH	Au	Ag	Cu
		pyrite - trace disseminated	55.17	99							
		1/2% disseminated feldspars up to 1 mm	56.69	96							
		Note: this section grades into next section,	59.74	95							
		it is all part of 1 large crystal-ash tuff	60.05	71							
		bed	60.81	61							
23.5	35.80	Feldspar Crystal - Ash Tuff	61.57	67	10194	23.51	24.99	1.48	6	.8	37
		medium grey, massive	62.33	62	195	28.04	29.11	1.07	2	1.0	49
		fine grained matrix with 2%-5% biotite in matrix	62.79	117							
		pyrite - trace disseminated	64.31	70							
		interval - begins with 1% feldspar phenocrysts	65.23	100							
		- at about 26 m - 2% feldspar phenocrysts	66.45	84							
		- at about 26.5 m - 20% feldspar phenocrysts	67.67	64							
		- at about 27.4 m - 35+% feldspar phenocrysts	69.19	95							
		Note: this unit, in areas with high feldspar	70.71	95							
		contents, was mapped as intrusive by	72.24	100							
		Falconbridge	73.46	81							
		28.74 - 28.94 m and 29.36 - 29.39 m - fine grained	74.07	74							
		bands, 20° to C.A.	75.59	84							
		34.76 m - 1.8 cm mafic dyke, 60° to C.A.,	77.27	76							
		dark green, fine grained, sharp contacts	77.72	104							
		and chilled margins	79.25	95							
		35.51 - 36.11 - contact runs along core, sharp	80.77	93							
		but irregular	82.30	74							
35.80	37.92	Ash tuff	83.83	88	10196	37.19	37.92	.73	3	.7	10
		medium grey, fine grained	85.65	93							



FROM	TO	DESCRIPTION	RECOVERY		SAMPLES				ASSAYS				
			RUN	%	NO.	FROM	TO	LENGTH	Au	Ag	Cu		
44.61	50.02	Ash tuff			10198	44.61	45.60	.99		10	1.3	86	
		- greyish brown; fine grained; banded 60° to C.A.			199	45.60	46.40	.80		10	1.0	97	
		- rare feldspar phenocrysts in narrow bands			200	46.40	47.25	.85		54	1.2	78	
		pyrite - trace fracture filling and disseminated			201	47.25	48.28	1.03		65	.9	180	
		after 46.4 m - spotty quartz-carbonate wispy fracture			202	48.28	48.92	.64		1	.6	16	
		fillings, esp. at 46.4-46.5 m and 48.92-49.6m			203	48.92	49.60	.68		30	1.4	28	
		47.25 - 48.92 m - brownish grey; more siliceous and			204	49.60	50.02	.42		15	1.3	64	
		less biotite; pyrite spotty 1/2% at											
		start of interval; light green tint											
		in bands; light rusty stain in spots											
		48.28 - 48.50 m - brown ash with 2% - 3% feldspars											
		48.92 - 49.60 m - brown with 5% - 8% wispy quartz-											
		carbonate fracture fillings; pyrite											
		0.3% - 0.4% disseminated (mainly towards											
		end of interval).											
		50.02 contact - reaction front rather than change											
		between two original lithologies											
50.02	59.35	Calc-silicate or altered ash tuff.			10205	50.02	51.10	1.08		7	.7	37	
		light green with grey and brown bands.			206	51.10	52.12	1.02		16	.6	45	
		green is due to weak epidote; brown has 10%			207	52.12	53.36	1.24		10	.6	33	
		biotite; and grey is siliceous.			208	53.36	53.95	.59		2	1.5	31	
		pyrite - trace disseminated; occasional disseminated			209	53.95	55.67	1.72		3	.8	22	
		pyrrhotite			210	55.67	55.98	.31		4	1.3	44	
		garnet bands at 50.13 - 50.21 m, 50.35 - 50.44 m 50° to C.A.			211	55.98	56.10	.12		5	.4	42	
		banding usually 40° - 45° to C.A.											

212 56.10 07.25 1.10  
 211 49.79 79











**Appendix 2**

**ANALYTICAL RESULTS AND PROCEDURES**

## *MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

### GOLD GEOCHEMICAL ANALYSIS BY MIN-EN LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pretreated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Acqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.005 ppm (5ppb).

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15th STREET  
NORTH VANCOUVER, B.C.  
CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURES FOR Mo, Cu, Cd, Pb, Mn, Ni, Ag, Zn, As, F

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the  $\text{CH}_2\text{H}_2$ -Air flame combination but the Molybdenum determination is carried out by  $\text{C}_2\text{H}_2$ - $\text{N}_2\text{O}$  gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For Arsenic analysis a suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzeit method using  $\text{Ag CS}_2\text{N} (\text{C}_2\text{H}_5)_2$  as a reagent. The detection limit obtained is 1. ppm.

Fluorine analysis is carried out on a 200 milligram sample. After fusion and suitable dilutions the fluoride ion concentration in rocks or soil samples are measured quantitatively by using fluorine specific ion electrode. Detection limit of this test is 10 ppm F.

# MIN-EN LABORATORIES LTD.

Specialists in Mineral Environments

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

TELE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: NIMBUS MANAGEMENT LTD.  
Project: CHG PHILLIPS ARM  
Attention: J. HARDY

File: 6-1298/P1  
Date: DEC 19/86  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	CU PPM	AG PPM	AU-FIRE PPB
10169	45	0.9	10
10170	108	0.7	5
10171	53	0.7	3
10172	55	0.9	8
10173	31	1.4	4
10174	118	1.2	4
10175	145	2.1	20
10176	117	1.0	60
10177	66	1.3	46
10178	30	1.3	35
10179	47	1.0	7
10180	51	0.9	8
10181	69	1.2	6
10182	78	0.7	5
10183	102	1.2	55
10184	88	1.3	4
10185	61	1.0	2
10186	69	0.9	1
10187	58	0.8	2
10188	72	1.1	1
10189	73	0.9	2
10190	90	0.8	3
10191	84	1.2	4
10192	65	0.7	5
10193	53	0.8	5
10194	37	0.8	6
10195	49	1.0	2
10196	10	0.7	3
10197	44	0.8	1
10198	86	1.3	10

Certified by



MIN-EN LABORATORIES LTD.

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## Certificate of GEOCHEM

Company: NIMBUS MANAGEMENT  
Project: CHG PHILLIPS ARM  
Attention: J. HARDY

File: 6-1298/P2  
Date: DEC 19/86  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	CU PPM	AG PPM	AU-FIRE PPB
10199	97	1.0	10
10200	78	1.2	54
10201	180	0.9	65
10202	16	0.6	1
10203	28	1.4	30
10204	64	1.3	15
10205	37	0.7	7
10206	45	0.6	16
10207	33	0.6	10
10208	31	1.5	2
10209	22	0.8	3
10210	44	1.3	4
10211	42	0.4	5
10212	79	0.9	1
10213	33	0.7	1
10214	47	0.8	10
10215	36	0.3	5
10216	10	0.3	6
10217	11	0.2	2
10218	76	1.2	5
10219	8	0.2	1
10220	61	1.0	2
10221	90	1.2	3
10222	57	1.4	1
10223	40	1.1	2
10224	46	1.3	10
10225	58	1.2	2
10226	59	1.4	3
10227	37	0.9	18
10228	23	0.6	2

Certified by



MIN-EN LABORATORIES LTD.

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705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

TELEPHONE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: NIMBUS MANAGEMENT  
Project: CHG PHILLIPS ARM  
Attention: J. HARDY

File: 6-1298/P3  
Date: DEC 19/86  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	CU PPM	AG PPM	AU-FIRE PPB
10229	13	0.7	6
10230	18	0.8	7
10231	35	0.9	15
10232	36	1.1	10
10233	54	0.9	20
10234	8	0.7	8
10235	55	1.2	22
10236	7	0.6	3
10237	52	0.8	20
10238	54	0.9	10
10239	185	2.0	550
10240	43	0.6	270
10241	36	1.0	85
10242	32	0.9	60
10243	37	0.9	80
10244	23	0.4	126
10245	50	1.0	55
10246	24	0.8	65
10247	35	0.9	80
10248	53	0.7	143
10249	33	0.9	125
10250	9	0.7	23
10251	42	0.8	40
10252	37	0.8	75
10253	15	0.3	45
10254	45	1.0	150
10255	20	0.3	32
10256	26	0.4	50
10257	38	0.9	90
10258	72	1.2	95

Certified by



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Project: CHG PHILLIPS ARM  
Attention: J. HARDY

File: 1298/P4  
Date: DEC 19/86  
Type: ROLF GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	CU PPM	AG PPM	AU-FIRE PPG
10259	27	0.6	1
10260	32	1.0	14
10261	45	0.9	15
10262	49	1.8	225
10263	120	1.5	10
10264	102	1.4	100
10265	23	2.8	370

Certified by



MIN-EN LABORATORIES LTD.

(i)

## DISCUSSION AND SUMMARY

The Phillips Arm property is part of a series of gold occurrences and deposits that form a 7 km northwest-trending belt, termed the Phillips Arm Gold Belt. Originally this belt consisted of properties between Phillips Arm and Loughborough Inlet but actually extends southeastward to Sonora and Channel Islands for a total length of some 1.5 km. The most important properties in this belt are the two previous producers: the **Doratha Morton Mine** and the **Alexandria Mine**. The Doratha Morton is currently held by **New Signet Resources Ltd.** and lies northwest of the area of drilling known as the **Enid-Kristina**. Past production for the Doratha Morton Mine was 10,385 tons grading 0.46 oz. Au/ton and 1.4 oz. Ag/ton with current reserves reportedly 10,000 tons grading 0.42 oz. Au/ton.

Underground sampling and mapping combined with 573 m of diamond drilling tested the immediate vicinity of the **Enid** and nearby **Kristina** adits. The auriferous quartz vein system exposed in the Enid adit was found on strike to the west and downdip. In addition, three further zones were intersected in drilling.

The present report describes drilling in one hole in the area on the Enid reverted crown grant 47(L280). Hole **CHG.36.4** (102.11 m,  $20^{\circ}/-45^{\circ}$ ) penetrated 14 m beneath the Kristina Adit where values up to 3.8 oz/ton gold and 15.4 oz/ton silver had been found in caved material on the floor. Four additional diamond drill holes were completed to test the area, but these are not described in the present report.

## TABLE OF CONTENTS

	<b>Page</b>
DISCUSSION AND SUMMARY	(i)
1. INTRODUCTION	1
1.1 Location, Access, Physiography and Climate	1
1.2 Claims Ownership and Status	3
1.3 History of the Property	6
1.4 1986 Work Programme	7
2. REGIONAL GEOLOGY	8
3. PROPERTY GEOLOGY	11
3.1 Lithologies	11
3.2 Structure	12
3.3 Alteration	13
4. DIAMOND DRILLING	14
5. CONCLUSIONS	15
6. BIBLIOGRAPHY	16
7. STATEMENT OF QUALIFICATIONS	17
8. COST STATEMENT	18

Appendix 1 - Diamond Drill Hole Logs and Results  
Appendix 2 - Analytical Results

Page

**List of Tables**

<b>Description</b>		
Table 1	Reverted Crown Grants	4
Table 2	Modified Grid Claims	4
Table 3	Crown Grants	4

**List of Figures**

<b>Description/Scale</b>		
1.	Location Map 1:750,000	2
2.	Claims Location Map 1:50,000	5
3.	Regional Geology 1:250,000	9
86.1	Claim Map and Program Areas (1:10,000)	In Pocket
E86.1	Enid Area: DDH 86.4 Cross-section, Geology (1:500) and Assay Results	In Pocket

## 1. INTRODUCTION

This report describes a 1-hole drilling program part of an exploration program carried out from October 12, 1986 to February 13, 1987 by Nimbus Management Ltd. on behalf of Charlemagne Resources Ltd., 615 - 800 West Pender Street, Vancouver, B.C., V6C 2V6, on the Phillips Arm property. Hole **CHG.86.4** was completed from December 12 to December 14, 1986.

### 1.1 LOCATION, ACCESS, PHYSIOGRAPHY AND CLIMATE

The Phillips Arm property is located 55 kilometres north of Campbell River in the Pembroke range of the Coast Mountains, southwestern British Columbia, as shown in **Figure 1**. The claims lie within NTS 92 K6 and K11 (see **Figure 2**) and are centred at latitude-longitude  $50^{\circ}30'N - 125^{\circ}24'W$ .

The property can be reached from Campbell River by way of boat, float plane or helicopter service. Landing craft style barges and tugs operate between Campbell River and nearby logging camps on regular scheduled or chartered basis. The nearest settlements are Shoal Bay, 5 km to the southeast on East Thurlow Island, and Fanny Bay, approximately 5 km to the northwest. Blind Channel, located 12 km southwest, is the nearest post office.

The northern portion of the property can be reached from the G.W. Cox and Sons logging camp in Fanny Bay. A well maintained logging road provides good access to the northwest end of the property.

The southern access route extends from Picton Point at the mouth of Phillips Arm to as far north as the Doratha-Morton with various subsidiary roads. While road conditions are generally poor, they are accessible with 4-wheel drive vehicles or motorcycles. This road does not connect with the northern access route.

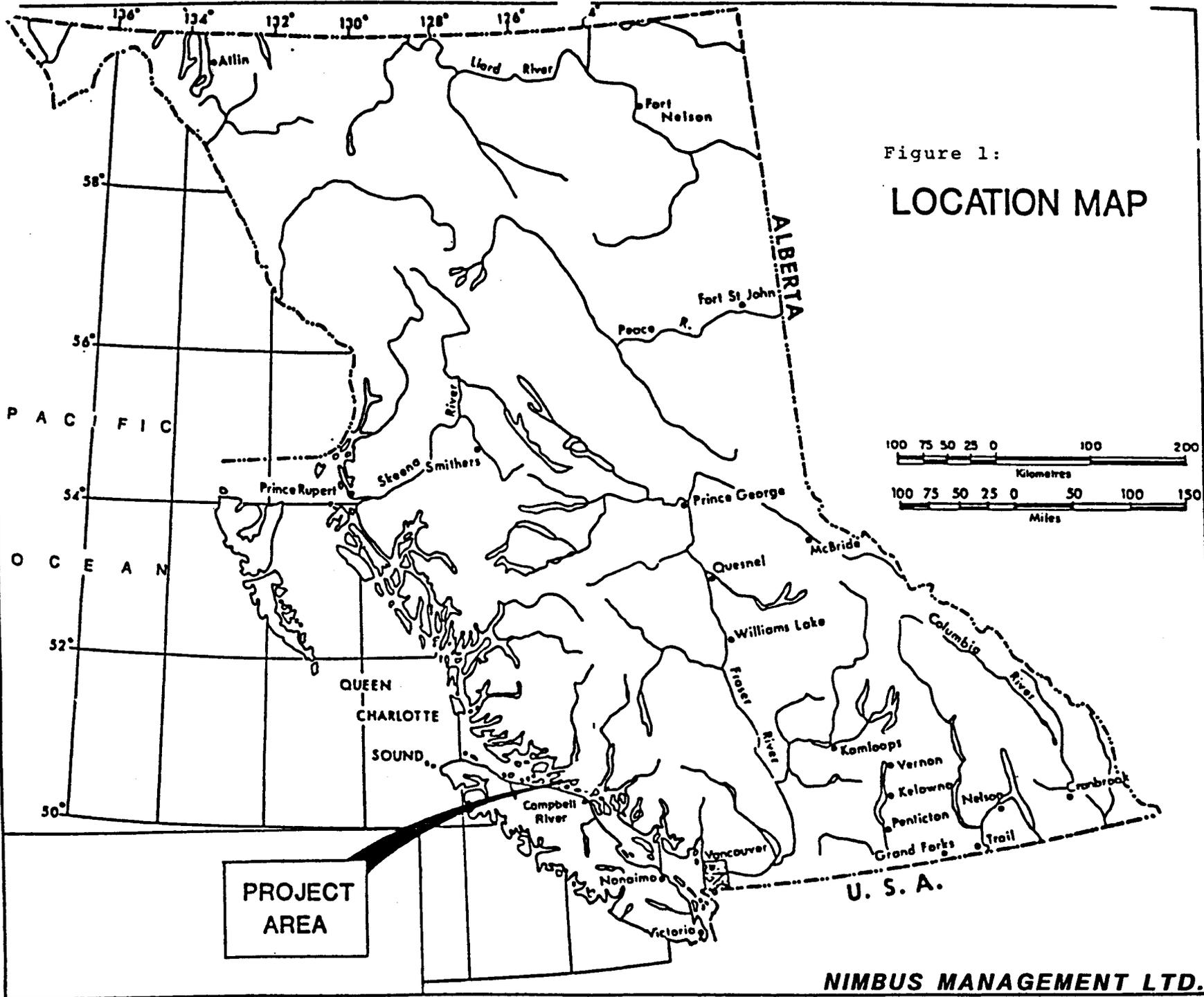


Figure 1:  
**LOCATION MAP**

**PROJECT  
 AREA**

For the present program, equipment was barged from Campbell River to Fanny Bay and then via logging roads or by helicopter to the campsite on the Cog claim in the Champion-Commonwealth area of interest. A helicopter was used for all moves of the diamond drill equipment.

The property covers approximately 4750 Ha of rugged terrain rising precipitously from sea level to 1125 m. Away from the shoreline slopes are less demanding but they are thickly overgrown with immature second growth. Slide alder and devil's club infest most creek channels. Outcrops are abundant within the steeper stream cuts but gradually lessen with a decreased gradient.

A variably thick layer of glacial till covers some portions of the property and, being an effective barrier to movement of groundwater between bedrock and upper soil horizons, causes variable geochemical responses in soils.

The climate is generally wet B.C. coastal, with snow persisting at upper levels until mid-June and beginning as early as late October.

## 1.2 CLAIM OWNERSHIP AND STATUS

The property comprises 16 reverted crown grants, 1 crown grant and 180 units in 15 mineral claims.

Claim locations are shown in **Figures 2 and 86.1**, with ownership and expiry shown in **Tables 1, 2, and 3**. Expiry dates do not include assessment credits resulting from this program.

Table 1 - REVERTED CROWN GRANTS

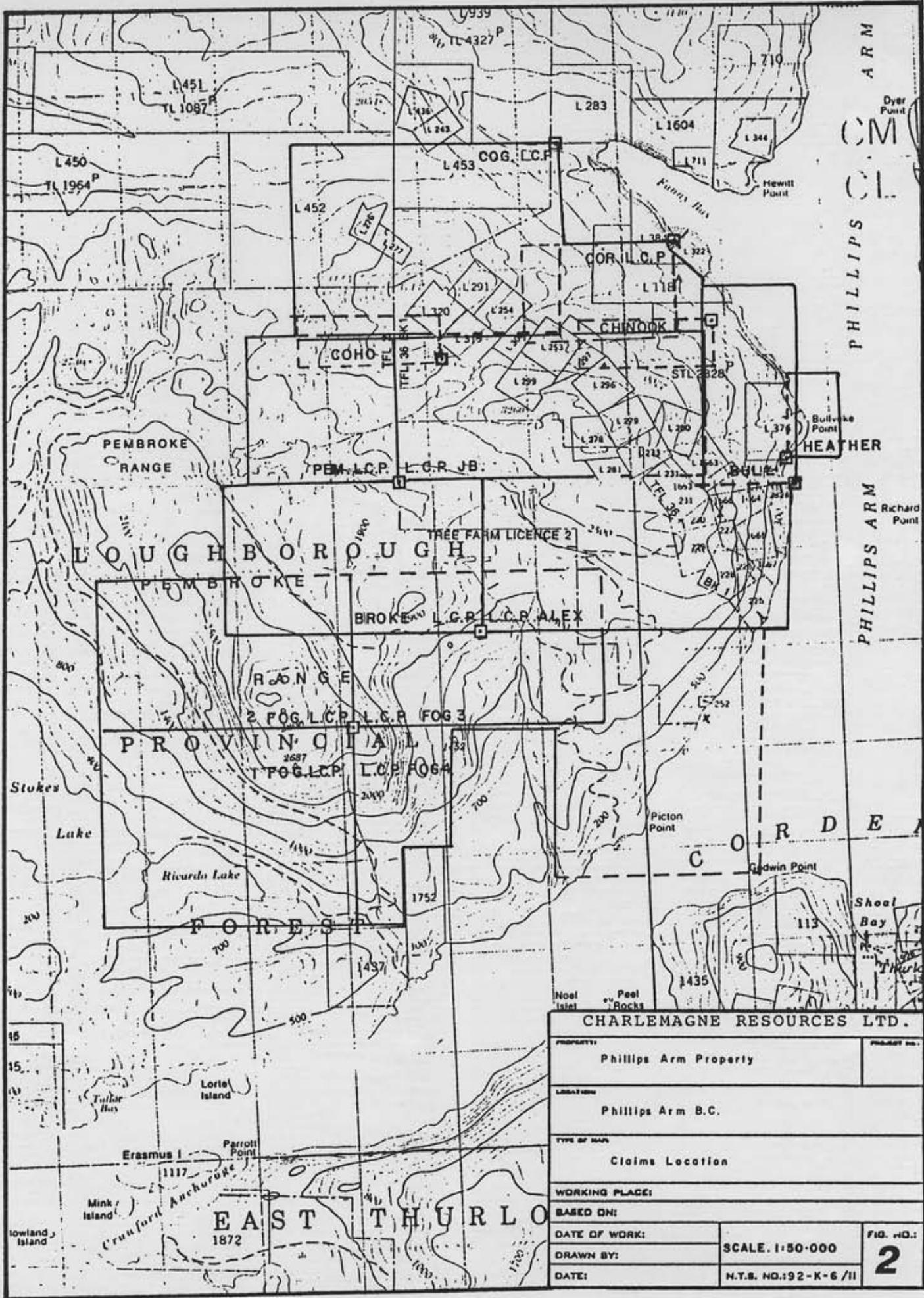
Claim	Lot No.	Record No.	Area (Ha)	Date of Record/Expiry	Ownership by Charlemagne
Alexandria	225	40	17.9	Nov. 6/87	100%
Enid	280	47	18.7	"	"
Comox	296	49	20.7	"	"
Empress	279	50	18.2	"	"
Julie	233	51	15.7	"	"
Duchess	231	52	20.9	"	"
Jubilee Fr.	230	53	6.6	"	"
Duke	229	54	18.4	"	"
Highland Laddie	228	55	18.6	"	"
Emperor	227	335	18.7	Nov. 7/87	"
Stella	281	336	10.4	"	"
Jennie B.	278	337	17.2	"	"
Mary Rose	1667	338	20.6	"	"
Gold Dust Fr	1663	339	17.3	"	"
Premier Fr.	1667	340	4.6	"	"
Waterloo Fr.	226		2.3	"	"
Premier	1665	341	16.1	"	"

Table 2 - MODIFIED GRID CLAIMS

Claim	Record No.	Units	Date of Record/Expiry	Ownership by Charlemagne
Pict	1492	20	June 15/90	100%
Pem	1495	9	"	"
Bull	1496	8	"	"
Broke	1497	15	"	"
Cor	1505	6	June 24/90	"
JB	1507	18	"	"
Alex	1508	18	"	"
Cog	1546	20	Aug. 31/90	"
Fog 1	1771	20	Mar. 8/90	"
Fog 2	1772	15	"	"
Fog 3	1773	15	"	"
Fog 4	1774	8	"	"
Chinook	1826	3	July 17/90	"
Coho	1827	3	"	"
Heather	1828	2	"	"

Table 3 - CROWN GRANTS

Claim	Record No.	Ownership by Charlemagne
Champion	L276	100%



<b>CHARLEMAGNE RESOURCES LTD.</b>	
PROPERTY:	Phillips Arm Property
LOCATION:	Phillips Arm B.C.
TYPE OF MAP:	Claims Location
WORKING PLACE:	
BASED ON:	
DATE OF WORK:	
DRAWN BY:	
DATE:	
SCALE: 1:50,000	
N.T.S. NO: 192-K-6/11	
FIG. NO.: <b>2</b>	

### 1.3 HISTORY OF THE PROPERTY

Gold mineralization was first discovered on the property in 1893 with intermittent exploration since that time. The main workings on the claim block are on the Alexandria claim. Between 1896 and 1910 five adits were driven on the gold-bearing veins exposed on the shoreline of Phillips Arm. In 1932, Premier Gold Mining Co. optioned the Alexandria and extended the workings, driving the 100 and 200 levels beneath the No. 1 adit. Alex Mining optioned the property in 1939 and shipped 1867 tons grading 0.383 oz. Au/ton and 0.701 oz. Ag/ton.

In the mid-1920's, the adit on the Enid claim and the shaft on the Julie claim were driven. No production is recorded.

The two adits on the Champion-Commonwealth claims were driven in 1899 with no recorded production.

In the late 1970's and early 1980's, Corpac Minerals conducted geochemical sampling programs on the present claim blocks. Other companies were active in the area in the late 1970's and early 1980's, but carried out only limited work on the property.

In 1983, Charlemagne Resources Ltd. optioned the 16 reverted crown grants from M.P. Warshowski and J.W. McLeod. Five additional claims were staked that year to increase the property to 114 units. Charlemagne's 1983 program of underground mapping, sampling and diamond drilling sought extensions to the known mineralization in the Alexandria workings. Northward extensions were considered limited but, most significantly, extensions were found between the No. 1 and 100 level. Reserves on the Alexandria are estimated at 27,300 tons grading 0.291 oz. Au/ton.

In 1985, Falconbridge Ltd. optioned the claims from Charlemagne Resources. Additional claims were staked to bring the property to its present size. Falconbridge personnel mapped the property at a scale of 1:10,000 with sections at 1:2500, carried out rock sampling, soil sampling and ground VLF-EM over selected areas, diamond drilled in the Alexandria workings and completed an airborne VLF-EM survey over the whole claim block. Despite encouraging results, the property reverted to Charlemagne Resources Ltd. in 1986.

#### **1.4 1986 WORK PROGRAMME**

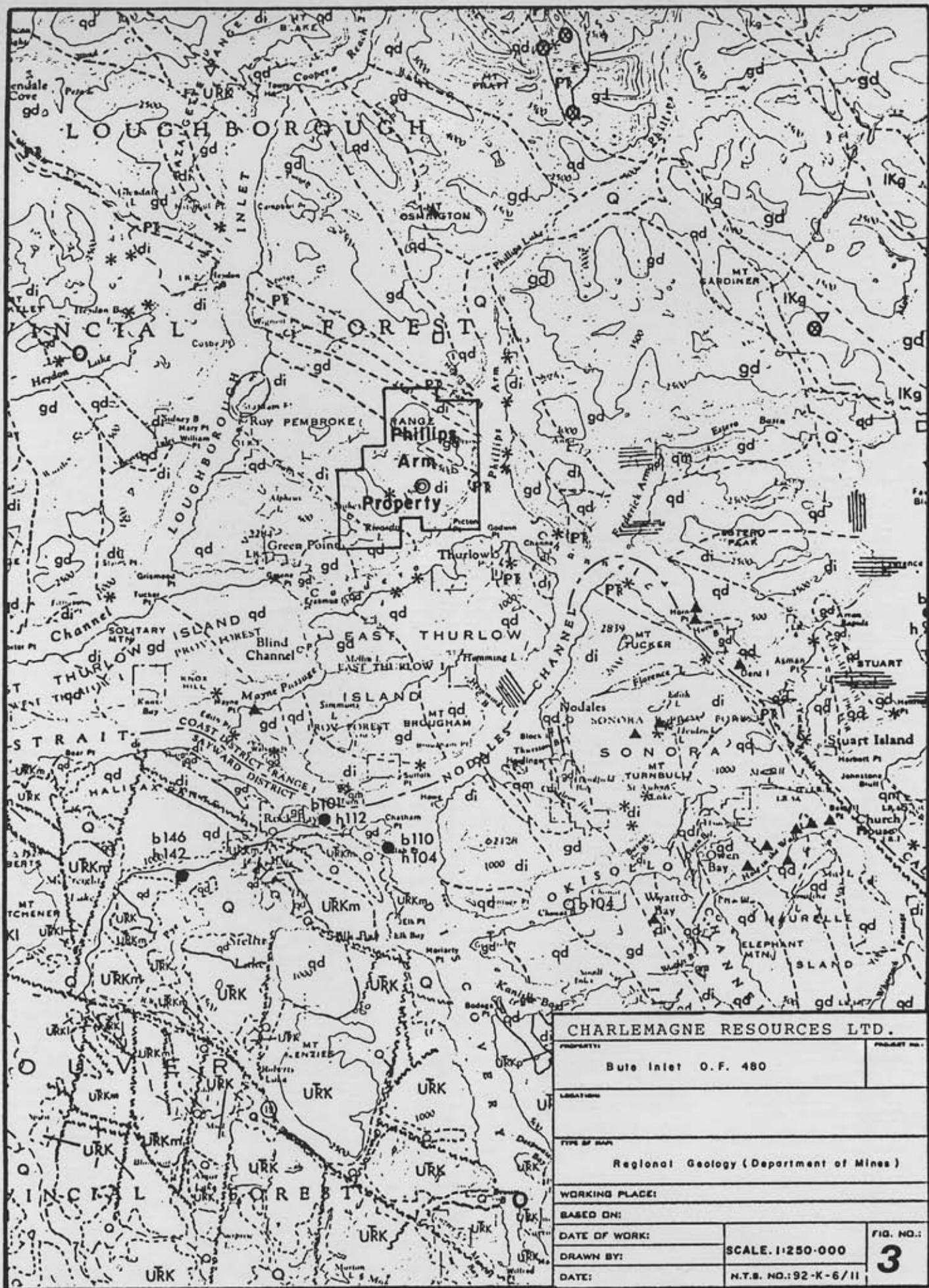
Work in 1986/1987 concentrated in three main areas: The **Fog North and South**, the **Commonwealth-Champion** and the **Enid** area as shown in **Figure 86.1**. A total of 1063.46 m was completed in 13 holes over the interval November 26, 1986 to February 5, 1987. However, this assessment report is limited to hole CHG.86.4 completed between December 12 to December 14, 1986 for a total footage of 102.11 m of BQ core. Drilling was carried out by Jemland Construction Ltd. of Prince George. A JKS 300 was operated by three persons on a one long shift-per-day basis. Drill moves were completed using a 206B helicopter based in Campbell River. All core is stored on site at locations shown on the individual drill logs.

## 2. REGIONAL GEOLOGY

The regional geology of the property, as described in Geological Survey of Canada OF 480 (Roddick, 1977), is shown in **Figure 3**. Most of the area is underlain by plutonic rocks, ranging from gabbro to quartz monzonite. Regionally, the area is dominated by granodiorite in a broad northwesterly elongate belt of 50 km width, flanked by belts of mainly quartz diorite with lesser granodiorite and diorite. The Phillips Arm property lies in such a flanking belt on the south side of the central granodiorite belt.

Steeply dipping metasedimentary and metavolcanic rocks of Paleozoic and/or Triassic age or Lower Cretaceous age form long narrow belts or pendants that accentuate this northwesterly striking pattern. Bounding shear zones are visible in some areas, but synplutonic recrystallization has commonly reduced them to foliations or obliterated them entirely. In other areas, pendant boundaries are gradational over 1 km to 2 km.

The pendant shown extending northward from Fanny Bay (on the north side of the claim block) consists chiefly of Paleozoic and/or Triassic quartz-biotite schist with some marble and skarn. Quartzite, chlorite and biotite schists with interbedded massive greenstones are locally abundant. Similar rocks are found on the property south of Fanny Bay.



<b>CHARLEMAGNE RESOURCES LTD.</b>		
PROPERTY:		PROJECT NO.:
Bute Inlet O.F. 480		
LOCATION:		
TYPE OF MAP:		
Regional Geology (Department of Mines)		
WORKING PLACE:		
BASED ON:		
DATE OF WORK:	SCALE: 1:250 000	FIG. NO.:
DRAWN BY:		
DATE:	N.T.S. NO.: 92-K-6/11	

L E G E N D FOR FIG. NO.: 3

STRATIFIED ROCKS

PLUTONIC ROCKS

QUATERNARY

**Q**

Alluvial and glacial deposits

CRETACEOUS

LOWER CRETACEOUS

**IKg**

GARDNER GROUP  
Greenstone, volcanic breccia, argillite,  
minor conglomerate, limestone, and schist

JURASSIC

LOWER

**IJb**

JURASSIC  
BOHARIA GROUP  
Andesitic flows and pyroclastics

**IJh**

HARBLEDOWN FORMATION  
Feldspathic tuffe, siliceous argillite,  
phyllite, quartzite and minor limestone

TRIASSIC

UPPER

**IKp**

TRIASSIC  
PARSON BAY FORMATION  
Dark clay shale, calcarenite, tuffe

**IKq**

QUATSINO LIMESTONE  
Mainly thick-bedded, light grey  
bioclastic limestone

**UKKp**

KAPRUTSEN FORMATION  
Pillow lava within Quatsino Limestone

**UKK**

UPPER KAPRUTSEN  
Basalt flows; minor limestone, shale,  
pillow lava, and pillow breccia

**UKKm**

MIDDLE KAPRUTSEN  
Pillow breccia and aqueous tuff

**UKKI**

LOWER KAPRUTSEN  
Closely packed pillow lava

PALEOZOIC AND/OR TRIASSIC

**PK**

Amphibolite, schist, quartzite; minor  
crystalline limestone, greenstone

PALEOZOIC OR OLDER

**gn**

Granitoid gneiss, amphibolite, and schist

HYDROTHERMAL ROCKS

**f**

Felsite

Geological boundary (defined, approximate or assumed)

Attitude of bedding or flows (inclined, vertical)

Attitude of foliation, gneissosity (inclined, vertical)

Axis of multiple minor folds (showing plunge direction) / axial plane  
vertical)

Fault (defined, approximate, assumed)

Anticline (axial trace defined, approximate)

Syncline (axial trace defined, approximate)

Dike swarm (lines parallel trend)

Potassium-argon age determinations: single  $\circ$ ; multiple  $\bullet$ ;

biotite = b; hornblende = h; UDC determination =  $\blacksquare$

Observed minerals: chalcocopyrite =  $\square$ ; garnet =  $\otimes$ ; magnetite =  $\oplus$ ;

malachite =  $\odot$ ; sylvanite =  $\ominus$ ; pyrite =  $*$ ;

pyrrhotite =  $\nabla$ ; sillimanite =  $\odot$ ; sphene =  $\blacktriangle$ .

Fossil locality  $\textcircled{1}$



Geology by J. L. Soddick, W. W. Hutchison and G. J. Woodsworth, 1970-76.  
Vancouver Island and part of Quadra Island by D. Carlisle, 1960-71.  
St. Raleigh area by G. J. Woodsworth, 1971-73.

### 3. PROPERTY GEOLOGY

The property geology is described in Hicks (1986). During 1985, much of the property was mapped at 1:10,000 scale with the Champion-Commonwealth area being mapped at 1:2500 scale and the Alexandria adit at 1:250 scale. Heavy snowfall during the 1986 program limited surface work; descriptions in the property geology section are **therefore** taken from Hicks (1986).

#### 3.1 LITHOLOGIES

The property geology is dominated by a variety of granite to granodiorite intrusives of Late Jurassic to Cretaceous age. Medium-grained biotite hornblende granodiorite makes up about 70% of the exposures. Gradational contacts are common between different intrusive units. In areas of strong and extreme shearing original compositions are difficult to determine.

Medium to dark green fine-grained andesite-dacite tuffs and possible flows approximate 20% of mapped lithologies. Exposures of this unit are found most abundantly near to, and northwest of the Alexandria workings. Narrow ribbons or slivers of andesite-dacite parallel the regional northwest trend.

Dark to grey to black biotite-hornblende schist/gneiss and amphibolite generally occur close to intrusive-volcanic contacts. This proximity suggests that these units could be contact metamorphic equivalents of the andesite-dacite volcanics. Foliation within the schist parallels the general northwest trend of the intrusive contact as well as the foliation within the intrusive.

Argillaceous sediments are found in a narrow band extending northwest from Bullveke Creek to the Doratha-Morton workings.

Disseminated pyrite up to 2% gives a rusty weathered appearance. Minor bull quartz veins (less than 5 cm) are possibly quartz segregations.

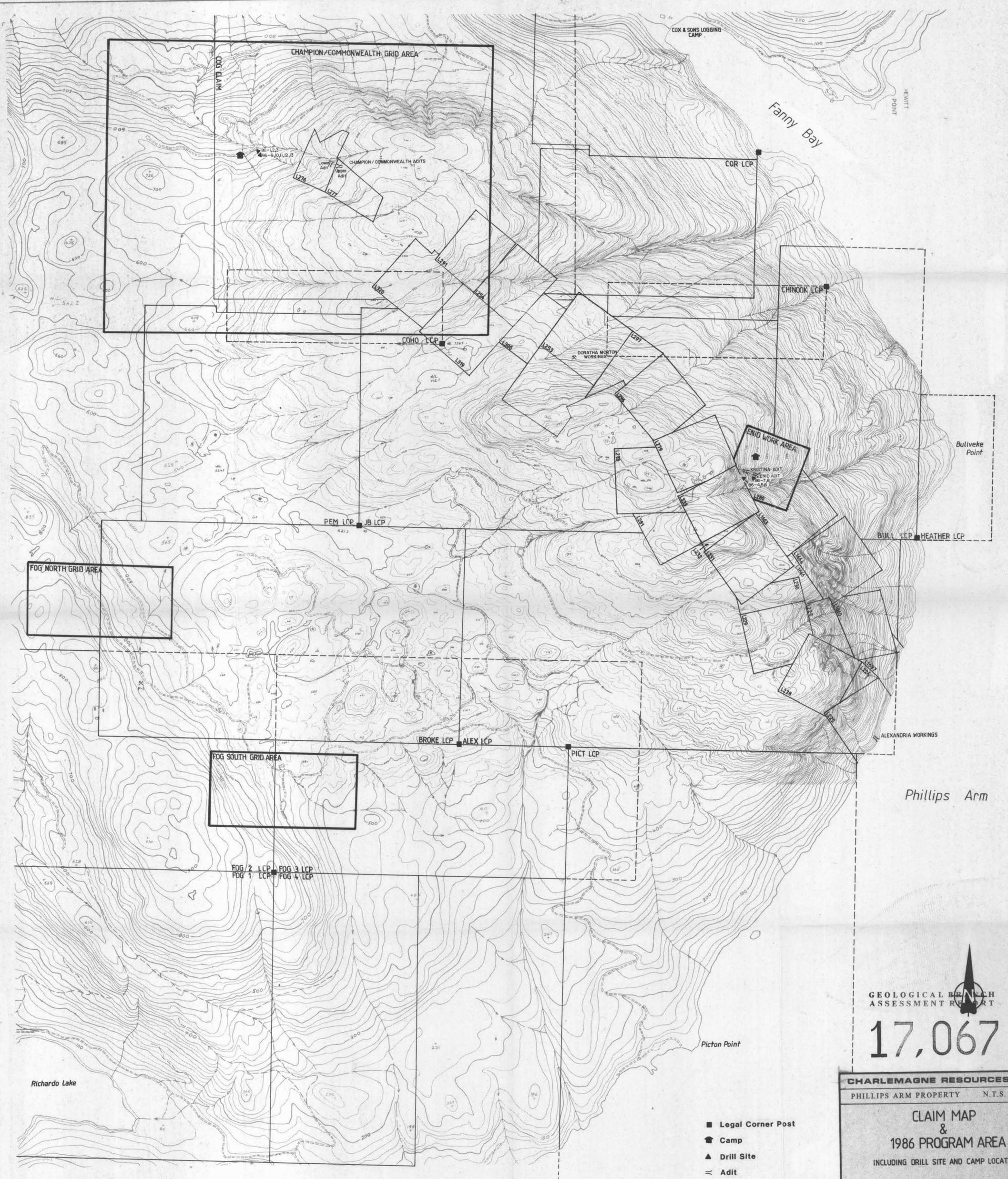
Three types of dykes are known on the property. Two different compositions of intermediate dykes are cut by later mafic dykes. Intermediate composition dykes tend to generally parallel larger quartz veins while mafic dykes crosscut them at an oblique angle. Mafic dykes have not undergone shearing and silicification as have other dykes indicating that they are of a later age.

### 3.2 STRUCTURE

The property can be divided into two obvious zones of differing structural "grain". North of Bullveke Creek a strong northeast-southwest trend is evident in topographic lineaments, while south of Bullveke Creek the structural trends are subtle and not as easy to classify.

In the **Champion-Commonwealth** area, a zone with a strong degree of shearing is evident in rocks approximately 75 m either side of the main creek drainage. Quartz veins run parallel to foliation in this zone.

The **Alexandria Mine** is characterized by a northwest trending sheared zone at least 30 m wide with narrow discrete zones of silicification and quartz veins within the boundaries. The heavily silicified wall rocks of the No. 1 adit are characterized by a strong platy fabric in the quartz which resembles fabrics observed in the Commonwealth-Champion grid area and is thought to be related to shearing.



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**17,067**

**CHARLEMAGNE RESOURCES LTD.**  
PHILLIPS ARM PROPERTY N.T.S. 92K/11

**CLAIM MAP  
&  
1986 PROGRAM AREA**

INCLUDING DRILL SITE AND CAMP LOCATIONS

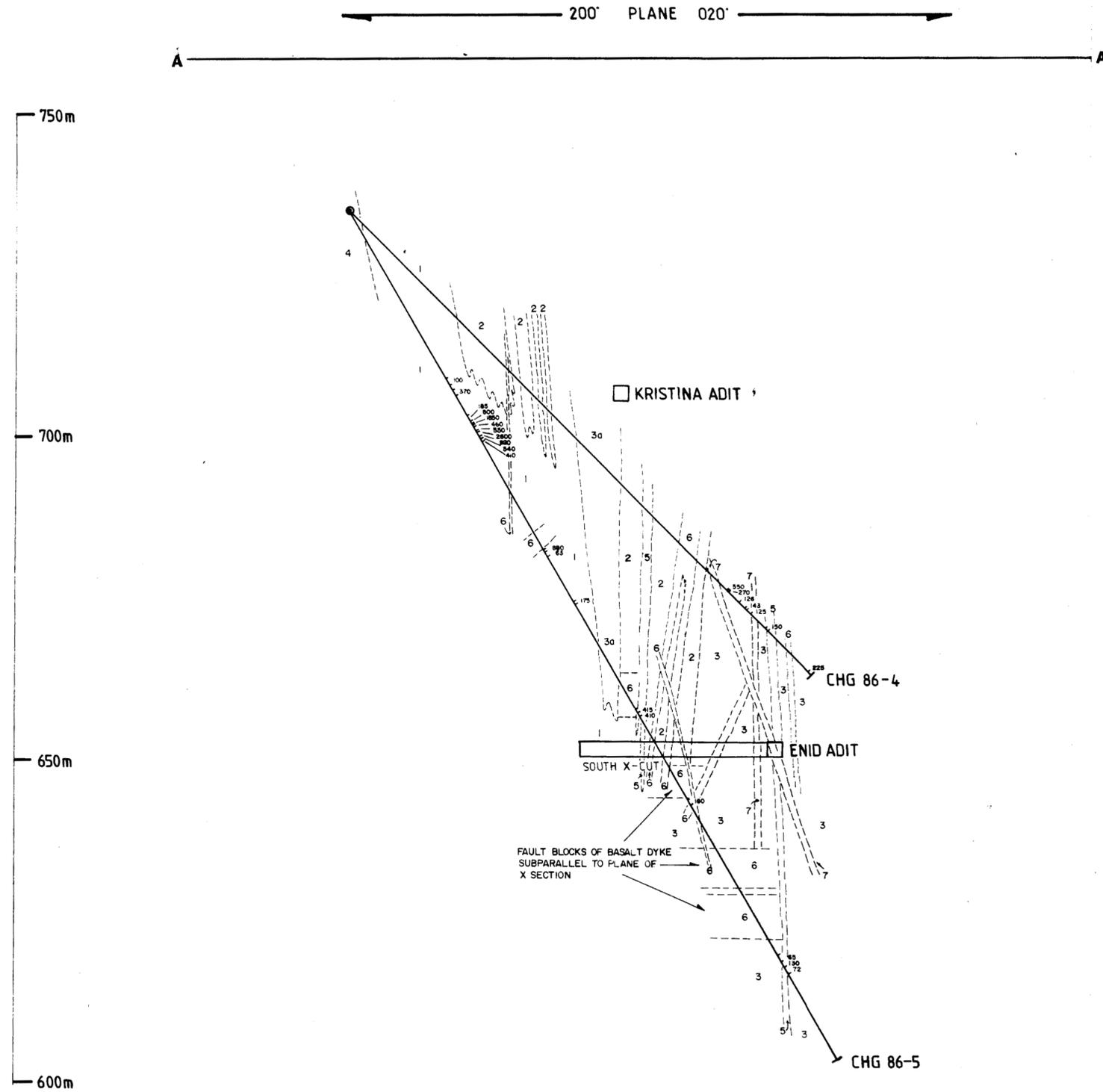
- Legal Corner Post
- ⛑ Camp
- ▲ Drill Site
- ⌋ Adit

SCALE: 1:10,000 0 100 200 400 600 800 1000

DRAWN BY: M.H./v.s.k. DATE: FEB. 1987 FIGURE: 86-1

NIMBUS MANAGEMENT LTD.

X-Section D.D.H. 86-4,5 1:500 scale



LEGEND

- 7 medium green andesite dyke, feldspar porphyritic locally
- 6 dark green basalt dyke, dark grey andesite dyke
- 5 quartz vein (composition greater than 50% vein quartz)
- 4 medium grained hornblende granodiorite
- 3/3a dark grey/brown metasediments, 3a calc-silicate
- 2 ash-feldspar crystal tuff
- 1 dark/medium green metavolcanics and/or metasediments
- axis of gold mineralized zones
- sample location and width
- diamond drill hole with sample width and assay result Au ppb
- - - lithologic contact
- - joint/fracture
- - dyke
- - vein
- - foliation/banding
- ~ fault

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

17,067

<b>CHARLEMAGNE RESOURCES LTD.</b>		
PHILLIPS ARM PROPERTY	N.T.S. 92K/11	
ENID AND KRISTINA ADITS		
<b>DDH 86.4, 5 CROSS SECTION GEOLOGY AND ASSAY RESULTS</b>		
SCALE: 1:500	0 10 20 30 40	
DRAWN BY: MMH/rmk	DATE: FEB. 1987	FIGURE: E06-1
<b>NIMBUS MANAGEMENT LTD.</b>		