



# Goldbrae Developments Ltd.

826455

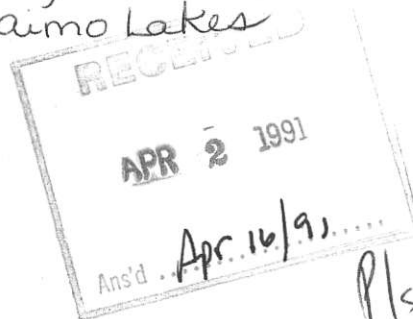
"GOD" on the V.S.E.

Property Submission -  
Nanaimo Lakes

92F/01

#202 15047 Marine Drive,  
White Rock, B.C.,  
V4B 1C5

Tel: (604) 531 4653  
Fax: (604) 535 7093



*Gail - Pls write  
we have no TKS  
This pro ready  
before*

27 March 1991

Mr. Alex Davidson,  
Minnova Inc.,  
300 311 Water Street,  
Vancouver, B. C.,  
V6B 1B8

Dear Alex:

Re: Nanaimo Lakes Property

Further to our conversation this morning, I enclose a copy of the report by Bob Gale on the referenced property.

We believe this property could be of interest to you and would be very pleased to make a deal.

Please give me your reaction as soon as you can.

Many thanks and best wishes.

Yours Sincerely,  
NEW GOLDBRAE DEVELOPMENTS LTD.,

Howard G. Andersen  
President

**GOLDBRAE DEVELOPMENTS LTD.**

**SUMMARY REPORT AND RECOMMENDATIONS ON THE  
JANE, TONI, KATHY AND LARRY CLAIMS  
NANAIMO LAKES PROPERTY**

NANAIMO MINING DIVISION, BRITISH COLUMBIA

LATITUDE: 49°05'N LONGITUDE: 124°28'W

NTS: 92F/1W

AUTHOR: R. E. GALE, Ph.D., P.Eng.

R. E. Gale and Associates Inc.

DATE OF REPORT: 25 FEBRUARY, 1988;=

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## 1. INTRODUCTION AND SUMMARY

The Nanaimo Lakes property of Goldbrae Developments Ltd. has a history of exploration stretching from 1964 to the present. It is a well located property easily accessible by roads in the Nanaimo Lakes area of Vancouver Island. The Goldbrae claims are situated in a very geologically favorable environment in Paleozoic Sicker Group rocks. The Sicker Group is known to host three important massive sulfide deposits on Vancouver Island, the Mt. Sicker, Lara and Westmin Mines deposits located 30 miles southeast and 70 miles northwest of the Nanaimo Lakes area.

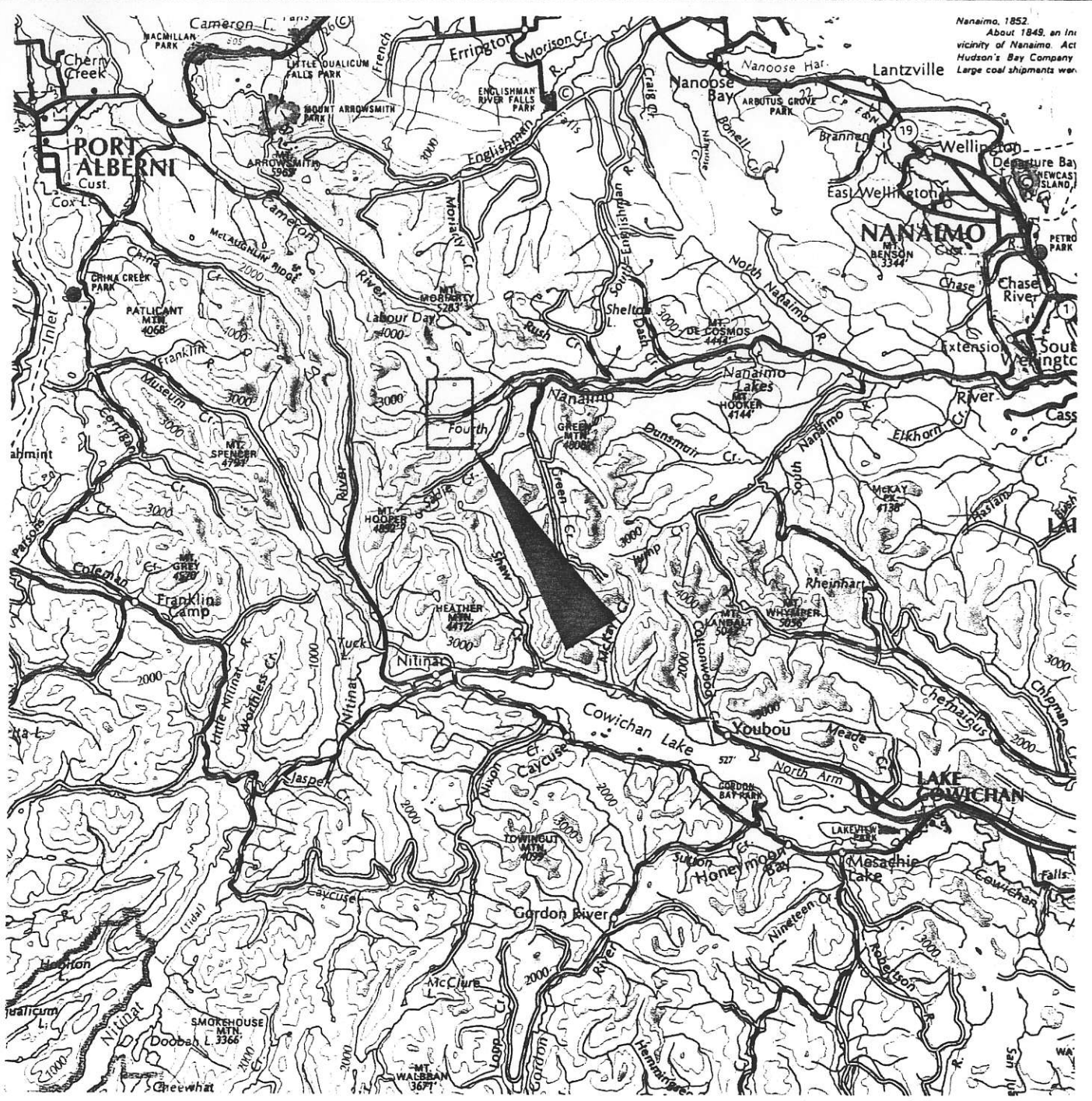
The most obvious occurrences of mineralization on the property are copper skarn deposits associated with a Granodiorite intrusion of Jurassic age, but the deeper rocks in the area include rhyolitic rocks and thin bedded cherts which have considerable potential for occurrence of massive sulfide deposits of the Westmin and Lara type. It is exploration for massive sulfide deposits of the Westmin type that is recommended for the Goldbrae property in this report.

Saturation geophysical and geochemical prospecting results along with drill results from work carried out in 1985-1986 have delineated several good targets for further drilling. A total of 25 targets, rated according to potential are proposed by my review of all past exploration results. Approximately 15,000 feet of drilling will be required to test these targets.

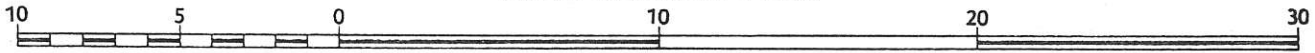
### 1.1 Location

The Goldbrae property is located 30 miles WSW of Nanaimo in N.T.S. 92F/1W on Vancouver Island and is readily accessible by good highway roads and logging roads M22 and M35 from Nanaimo. Figure 1 shows the location of the property.

Nanaimo, 1852.  
About 1849, an In-  
vicinity of Nanaimo, Act  
Hudson's Bay Company  
Large coal shipments were



Scale: 6 Miles to 1 Inch



### NANAIMO LAKES PROPERTY LOCATION MAP

## 1.2 Claims

The claims consist of 40 units in 4 blocks of claims recorded in the Nanaimo Mining Division as follows:

Claim Name	Units	Record Number	Expiry Date
Toni	12	340	2/26-1996
Jane	12	341	3/6 -1996
Kathy	8	342	3/6 -1996
Larry	8	343	3/6 -1996

The claims are owned by ~~Westmount Resources Ltd.~~ and are held ~~under option by Goldbrae Developments Ltd.~~ ~~in a partnership with Goldbrae Developments Ltd. in the proposed exploration area.~~ Goldbrae is the manager of work on the claims. Figure 2 shows the claims.

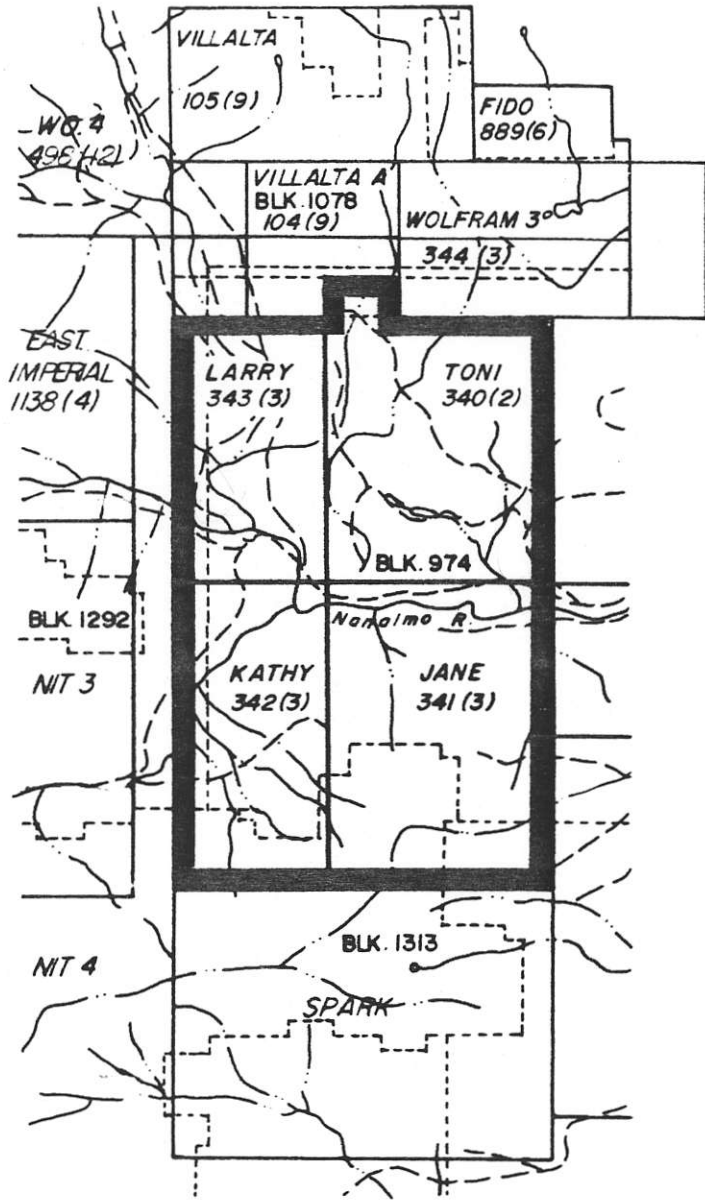
## 1.3 Previous Work

Gunnex Mines Ltd. discovered copper showings in the area in 1963 and did trenching, sampling and drilling of 6 holes in 1964 and 1965.

Westmount Resources Ltd. did soil sampling and geophysical work in 1978 and 1979 and drilled 8 diamond drill holes in 1980.

In 1985 - 1986 Goldbrae Developments Ltd. and Nexus Resource Corporation Ltd. carried out VLF-EM, pulse EM, magnetometer and I.P. surveys and drilled 16 diamond drill holes.

Some of the last drill holes, in 1986, were drilled for potential massive sulfide targets in the footwall rocks below the copper-skarn horizon and the present recommended program continues the work begun in 1986 to seek massive sulfide targets in the stratigraphically deeper sections of the Sicker Group rocks on the property.



NTS 92FIW



NANAIMO LAKES PROPERTY  
CLAIM MAP

#### 1.4 Regional Geology

The Sicker Group of Paleozoic age has been subdivided by Muller (1980) into 3 Formations from youngest to oldest:

- (1) Buttle Lake Formation - limestone and chert
- (2) Myra Formation - silicic tuff breccia, argillite
- (3) Nitnat Formation - basic breccia tuff, flows, greenschist.

Two main belts of Sicker Group rocks are mapped on Vancouver Island. The Cowichan Horne-Lake uplift is an 80 mile long belt at the southeast end of Vancouver Island. The Buttle Lake uplift is a 25 mile long belt near the centre of the Island. Figure 3 shows the location of the **Nanaimo Lakes property of Goldbrae** with respect to the belts of Sicker Group rocks and the Westmin, Lara and Mt. Sicker deposits.

The Sicker Group rocks are some of the oldest rocks on Vancouver Island. They are overlain by Triassic volcanic rocks of the Karmutsen Formation and early Jurassic rocks of the Bonanza Group. All of the Paleozoic and Mesozoic rocks are intruded by early middle Jurassic Island intrusions - Granodiorite and Quartz Diorite. Nanaimo Group sediments of Late Cretaceous age unconformably overly all of the older rocks. Early to middle Tertiary Intrusions are the latest intrusions in the area.














#### 1.5 Ore Deposits - Sicker Group

The Sicker Group rocks are host to important massive sulfide deposits which typically are associated with rhyolitic rocks in the Myra Formation. Multiple deposits occur in clusters or parallel layers in different layers of volcanic rocks, grouped around old volcanic vent areas.



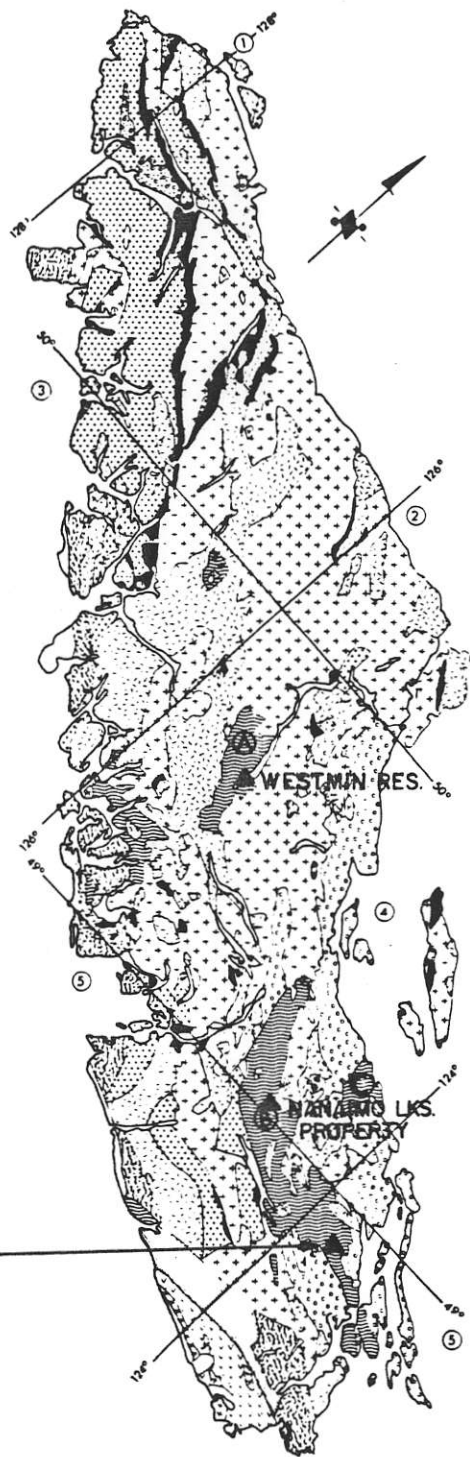
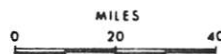
Geological sketch map of Vancouver Island.

LEGEND

	CARMANAH GROUP	MIDDLE TERTIARY
	CATFACE INTRUSIONS	EARLY TO MIDDLE TERTIARY
	METCHOSIN VOLCANICS	EARLY TERTIARY
	NANAIMO GROUP	LATE CRETACEOUS
	QUEEN CHARLOTTE GROUP KYUQUOT GROUP	LATE JURASSIC TO EARLY CRETACEOUS
	LEECH RIVER FORMATION PACIFIC RIM COMPLEX	
	ISLAND INTRUSIONS	EARLY AND (?) MIDDLE JURASSIC
	BONANZA GROUP	EARLY JURASSIC
	VANCOUVER GROUP	LATE AND (?) MIDDLE TRIASSIC
	PARSON BAY FORMATION QUATSINO FORMATION	
	KARMUTSEN FORMATION	
	SICKER GROUP	PALEOZOIC
	METAMORPHIC COMPLEXES	JURASSIC AND OLDER

- ① ALERT BAY—CAPE SCOTT. 92 L—102 I (G.S.C. PAPER 74-8)
- ② BUTE INLET. 92 K (IN PREPARATION). O.P. MAP 345
- ③ NOOTKA SOUND. 92 E (IN PREPARATION)
- ④ ALBERNI 92 F (G.S.C. PAPER 68-50)
- ⑤ VICTORIA. 92 B, C (FIELD WORK IN PROGRESS SEE G.S.C. PAPERS 75-1A, p. 21-26; 76-1A, p. 107-111; 77-1A, p. 287-294.)

- A — BUTTE LAKE UPLIFT
- B — COWICHAN—HORNE LAKE UPLIFT
- C — NANOOSE UPLIFT



LARA and  
MT. SICKER  
PROPERTIES

NANAIMO LAKES PROPERTY  
REGIONAL GEOLOGY.

MULLER (1981)

LEGEND

CENOZOIC	QUATERNARY PLEISTOCENE AND RECENT	
	23 Glacial and alluvial deposits	
	TERTIARY	
	22 Rhyolite, to dacitic tuff, breccia, ignimbrite	
	21 Hornblende quartz diorite, leucoquartz monzonite, porphyritic dacite, breccia	
	CRETACEOUS OR TERTIARY	
	20 Sandstone, conglomerate	
	CRETACEOUS AND (?) TERTIARY UPPER CRETACEOUS AND (?) TERTIARY NANAIMO GROUP (11-19)	
	19 GABRIOLA FORMATION: sandstone, conglomerate, shale	
	UPPER CRETACEOUS	
	18 SPRAY FORMATION: siltstone, shale, fine sandstone	
	17 GEOFFREY FORMATION: conglomerate, sandstone	
	16 NORTHUMBERLAND FORMATION: siltstone, shale, fine sandstone	
	15 DE COURCY FORMATION: conglomerate, sandstone	
	14 CEDAR DISTRICT FORMATION: shale, siltstone, fine sandstone	
	13 EXTENSION-PROTECTION FORMATION: sandstone, conglomerate, shale, coal	
	12 HASLAM FORMATION: shale, siltstone, fine sandstone	
	11 COMOX FORMATION: sandstone, conglomerate, shale, coal: 11a is BENSON MEMBER: mainly coarse conglomerate	
	MESOZOIC	UPPER JURASSIC AND/OR LOWER CRETACEOUS 'Tofino Area Greywacke Unit' Greywacke, argillite, conglomerate
JURASSIC MIDDLE TO UPPER JURASSIC		
9 ISLAND INTRUSIONS: biotite-hornblende granodiorite, quartz diorite		
TRIASSIC AND JURASSIC LOWER JURASSIC(?) VANCOUVER GROUP (5-8) BONANZA SUBGROUP (7, 8) VOLCANIC DIVISION: andesitic to latitic breccia, tuff and lava; minor greywacke, argillite and siltstone		
8		
UPPER TRIASSIC AND LOWER JURASSIC SEDIMENTARY DIVISION: limestone and argillite, thin bedded, silty carbonaceous		
7		
UPPER TRIASSIC QUATSINO FORMATION: limestone, mainly massive to thick bedded, minor thin bedded limestone		
6		
UPPER TRIASSIC AND OLDER KARMUTSEN FORMATION: pillow-basalt and pillow-breccia, massive basalt flows; minor tuff volcanic breccia, Jasperoid tuff, breccia and conglomerate at base		
5		
TRIASSIC OR PERMIAN 4 Gabbro, peridotite, diabase		
3		
PALEOZOIC		PENNSYLVANIAN, PERMIAN AND OLDER LOWER PERMIAN SICKER GROUP (1-3)
		BUTLE LAKE FORMATION: limestone, chert
	MIDDLE PENNSYLVANIAN 2 Argillite, greywacke, conglomerate; minor limestone, tuff	
	PENNSYLVANIAN AND OLDER 1 Volcanic breccia, tuff, argillite, greenstone, greenschist, dykes and sills of andesite-porphyry	
	'WESTCOAST CRYSTALLINE COMPLEX' (A-D) 'BASIC ROCKS'	
	D Gabbro, peridotite	
	'TOFINO INLET PLUTON'	
	C Hornblende-biotite quartz diorite, granodiorite	
	'WESTCOAST DIORITES'	
	B Hybrid hornblende diorite, quartz diorite, agmatite; includes masses of hornfelsic volcanic rocks	
'WESTCOAST GNEISS COMPLEX'		
A Hornblende-plagioclase gneiss, amphibolite, hornfels		

Individual deposits are up to several million tons in size and have grades running 0.5 to 2% Cu, 0.3 to 2.5% Pb, 2 - 10% Zn, 0.04 to 0.2 oz/ton Au and 0.5 to 5 oz/ton Ag along with variable amounts of Ba.

#### 1.5.1 Westmin Mines

The most important and best known deposits are those of Westmin Mines at Buttle Lake.

At Buttle Lake a thick sequence of rhyolite, dacite and andesite of the Sicker Group accompanied by several massive sulfide deposits is deposited from a number of vents within a northwest-trending 15,000 foot-long zone. Four main separate zones are mined in the Lynx, Myra, H-W and Price mines, and orebodies vary in size from 1000' to 4000' long and 100' to 1500' wide.

The deposits tend to be stratabound or form layers within the sheared, altered, rhyolite and dip from flat to vertical, depending on the layering in the rhyolite sequence. At least 2 different horizons in the rhyolite are mineralized. Northerly to northeasterly trending post mineral faults offset the mineralized horizons.

Near vent centres the youngest Sicker Group rocks are laminated fine tuffs containing hematite and jasper. Deeper in the sequence and nearer the source vents, the banded tuffs show thin layers of interbanded pyrite. Nearest to the vents and deepest in the sequence are multilithic breccias and rhyolite or dacite breccias which are closely associated with the sulfide deposits.

Silicified, sericitized and chloritized rocks are widespread in and adjacent to the mineralized zones. The composition and type of ore varies from banded pyrite, chalcopyrite and sphalerite

with minor galena to massive galena and barite ores.

### 1.5.2 Lara Deposit

At the Lara property near Duncan, 30 miles southeast of the Goldbrae property. The Coronation deposit, a WNW-trending 12 foot thick zone of massive sulfide occurs in a one mile long band of pyrite-rich rhyolite of the Sicker Group.

A second parallel zone, the North Discovery zone, lies several thousand feet north of the Coronation zone.

The mineralized horizon occurs in a footwall rhyolite sequence dipping northeast beneath a green volcanoclastic sequence. A large reserve is presently being drilled out.

### 1.5.3 Mt. Sicker Deposit

This is an old deposit mined in the early 1900's which is largely worked out. It is located about 5 miles ESE. of the Lara deposit and is roughly on strike with it.

At Mt. Sicker, the host rock to the mineralization is a 100 - 150 foot wide, 2100 foot long band of cherty tuff and graphitic chert which strikes  $N70^{\circ}W$  and dips  $50^{\circ}SW$ .

Rhyolite porphyry sills occur in the sediments north and south of the orebodies as do numerous bodies of diorite.

Andesite porphyry flows and/or intrusive rocks occur in extensive areas south of the mineralized zone.

Massive sulfide ore occurs within cherty tuffs and graphite schist in 2 separate parallel easterly trending bodies about 150 feet apart. The orebodies lie along drag folds in the sedimentary band.

The North orebody measures about 1700' in length , 120' deep and one to 10 feet thick, occurring as a horizontal lense along a drag fold in southward-dipping sediments.

The South orebody occurs 150' higher in elevation than the north orebody and 150' to the south of it. It has a length of 2100 feet, a vertical extent of 150 feet and a thickness of about 20 feet.

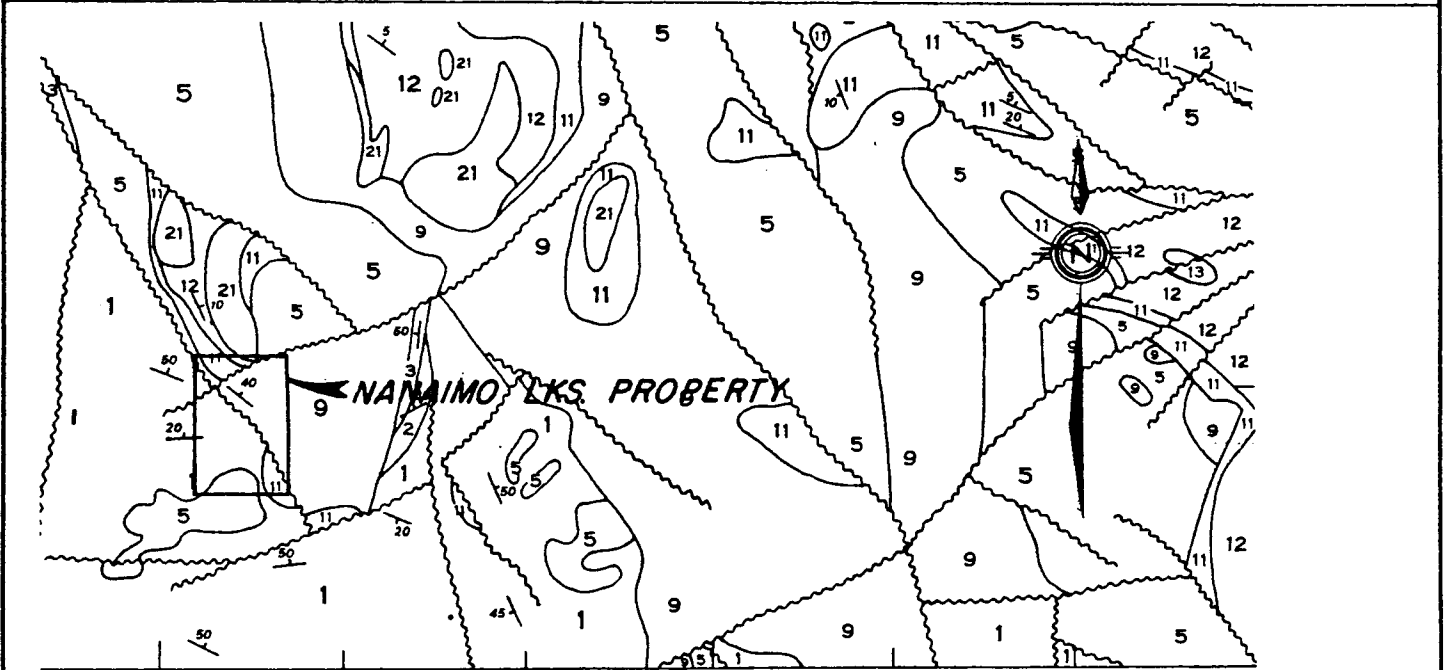
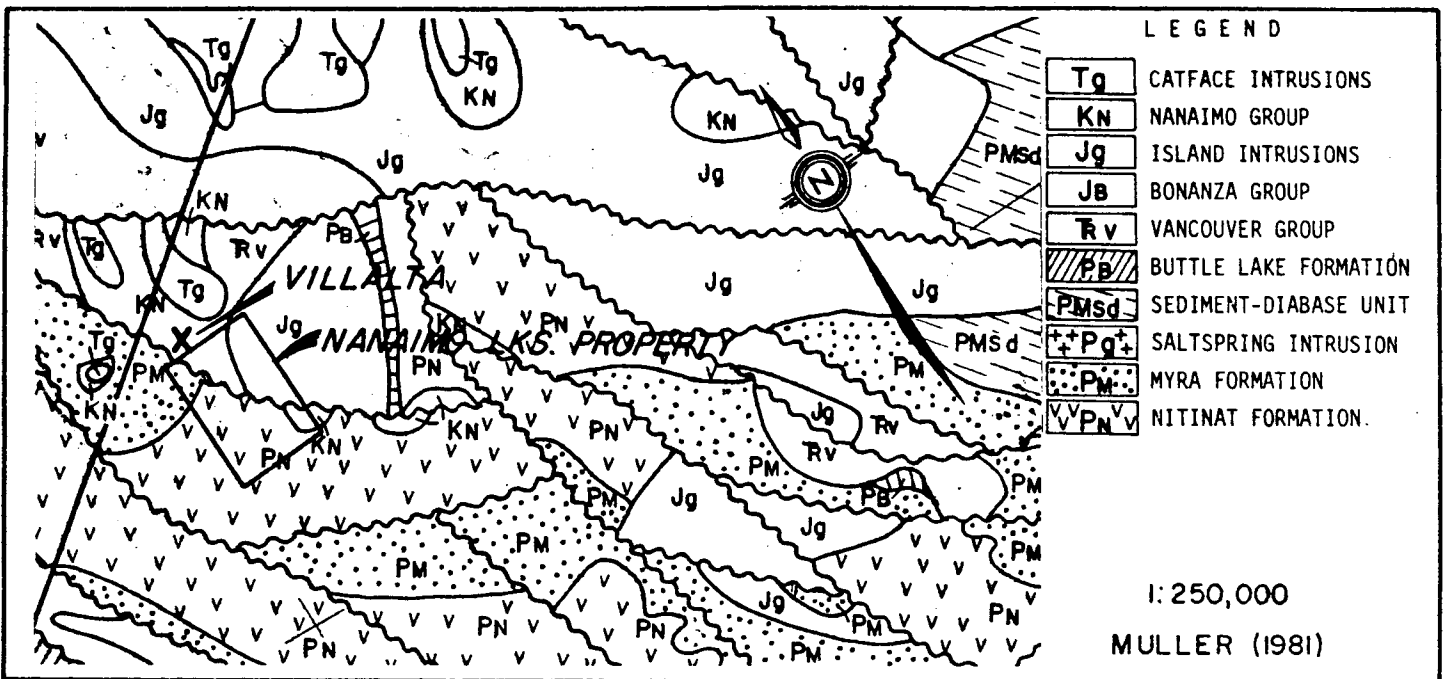
The 2 orebodies are displaced both vertically and horizontally by east-west vertical faults which parallel the sulfide masses.

## 2. GEOLOGY - NANAIMO LAKES PROPERTY

### 2.1 General

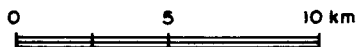
Figure 4 shows the general geology of the Nanaimo lakes area and location of **Goldbrae** claims as well as the location of the Villalta showing, which adjoins the **Goldbrae** property on the northwest.

On the **Goldbrae** claims, the Sicker Group rocks on the west side of the property are in shown in fault contact with middle to upper Jurassic-Island intrusive granodiorite to the east of the fault. The strong NW-trending fault forming the contact is at least 12 miles long. Near the centre of the **Goldbrae** claims, this fault is intersected by an ENE fault which is one of a series of faults trending in the Northeasterly direction.



G.S.C. MAP 17-1968, MULLER (1963-1967) For legend see opposite page.

**NANAIMO LAKES PROPERTY  
REGIONAL GEOLOGY**



The majority of work on the **Goldbrae** property is concentrated on the northeast corner of the claim block on the Toni claim on a zone of copper-bearing garnetized limestone bordering the southwest side of the tongue of Jurassic granodiorite intrusive.

Approximately 1500-2000' northwest of the Toni copper showings, an adjoining group of claims, the Villalta claims, show a different type of deposit in limestone which is believed to be hot-spring-related in origin.

At Villalta a small basin of Buttle Lake limestone is underlain by cherty sediments cut by a north-south trending pyritic gold-bearing vein feeder zone. Iron rich solutions have come up through the chert along the feeder system carrying gold and other metals which have been deposited as bands of hematite carrying gold values in the overlying limestone basin. The north-south trending feeder zone may continue to the south through a sequence of basaltic volcanics at the north edge of the **Goldbrae** property and project into the Goldbrae-Larry claim, some distance to the west of the Toni copper showing.

The significance of the Villalta showing to the **Goldbrae** property will require further prospecting and geological mapping to assess, but the Villalta deposit may represent a stratigraphically higher deposit in limestone host rocks above a Westmin-type deposit in underlying rhyolite. The southward projection of the vent zone onto the **Goldbrae** property where it may intersect

favorable rhyolite horizons is of principal interest in this regard.

South and east from the Toni copper-skarn zone on Goldbrae's ground the predominant rocks are rhyolitic and andesitic tuffs and breccias, all believed to be part of the Myra formation. Some rocks mapped as gabbro may be flow rocks within the Sicker Group or may be younger intrusive rocks. Much of the area appears to be covered with overburden but there are potentially favorable rocks outcropping and intersected in drilling which could host Westmin-type deposits.

## 2.2 Structural Geology

The predominant structure in the area explored to date is a WNW trending zone of steep-dipping faults in a 300 foot wide zone bordering the southwest side of the Granodiorite intrusion in the Toni copper zone. Along the "Main" fault zone the northeast-dipping limestone of the Buttle Lake Formation near the intrusion is altered to skarn and several steep-dipping masses of sulfides with magnetite are deposited along faults.

The northwest trending faults and their accompanying mineralization in the Toni copper zone are offset by a series of northeast-trending faults which are partly known from mapping and partly by inference from the geophysical work. Some of the



northeast faults may also localize mineralization, especially at junctions with northwest faults.

About 600 feet southwest of the Main fault zone is another fault, the "South" fault which is inferred from geophysical data.

The "North" fault, partly forming the intrusive-limestone contact along the northern side of the Toni copper zone, is an east-west fault believed to extend several hundred feet east from the Toni showings.

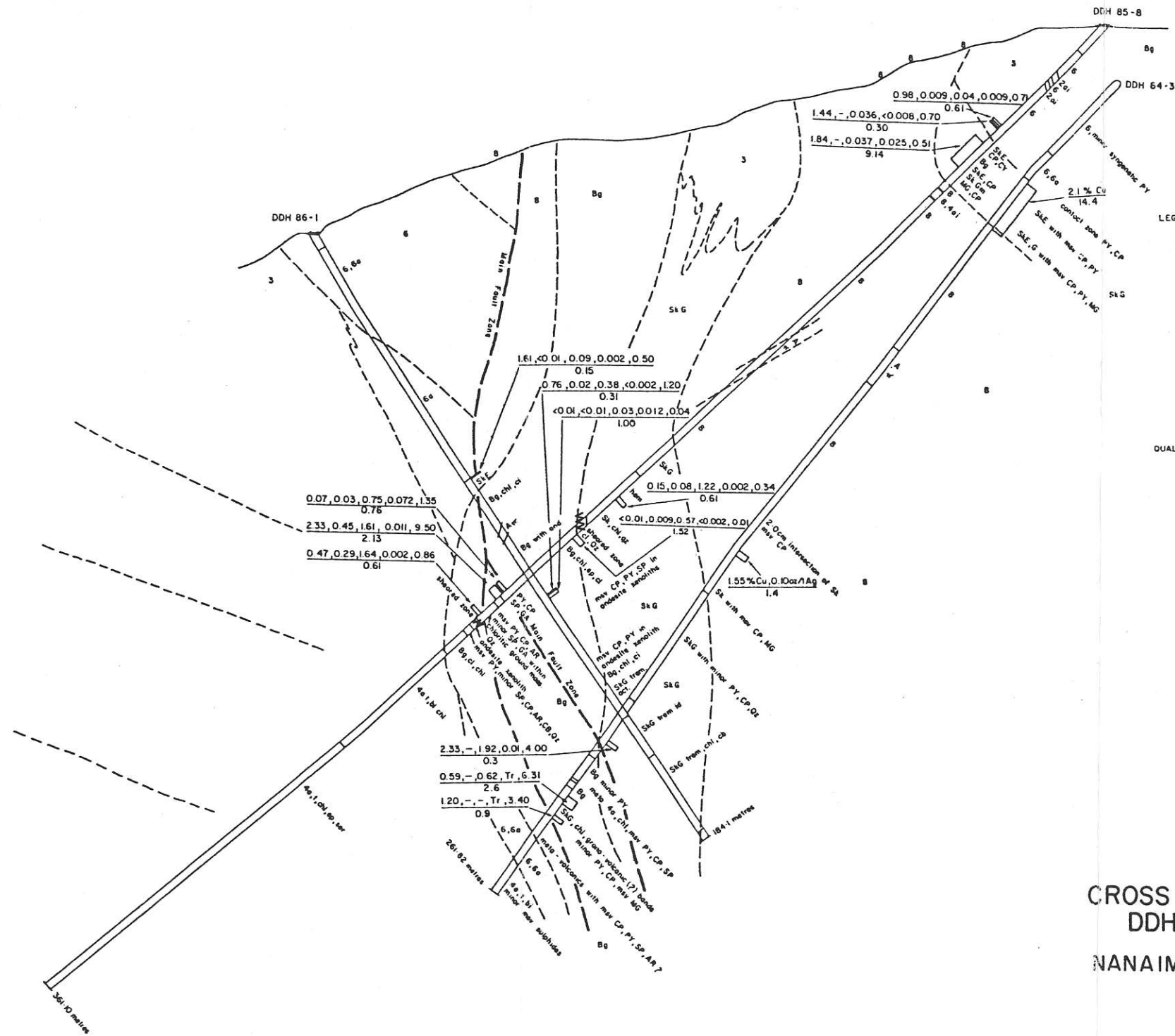
General geology, location of all old drillholes and proposed drillholes are shown in Figure 5.

### 2.3 Mineralization

The accompanying table lists drillhole results for all holes drilled to date.

The Main fault zone shows at least 2 WNW trending zones of mineralization. Along a northern fault zone is a northerly dipping lenticular zone of skarn up to 50' thick which carries up to 2% copper and at its western end may bend to the north following the intrusive contact.

A southern strand in the Main fault zone may extend with offsets from hole 80-6 at the southeast end of the fault zone about 900



**LEGEND**

A	Feldspar porphyry dacite dykes and sills
B	White cream feldspar crystals to 4mm Max. 30% in gray green matrix
Bi	Quartz diorite to granodiorite - medium grained, Equigranular, minor aplite
Bi	Intrusive contact zone, amphibolite
S1, S2, S3, S4, S5, S6, S7, S8, S9, S10	Epidote, garnet, magnetite
6	Limestone, marbleized - white to gray, medium to coarse Crystalline calcite - tremolite massive
6	Chert, cherty tufts - thin bedded white, light to medium gray Green and pinkish gray aphanitic to fine grained cherty rocks some interbedded gabbro, diabase, some massive gray chert
6a	Argillite and siltstone
3b, a	Basalt - andesite - fine grained medium to dark gray - green Basic flows, tufts or breccia
2	Basalt - diabase - gabbro - fine to coarse grained, medium gray Green to greenish black flows or intrusives

QUALIFIER	1 - Tuff	ALTERATION	chi - Chlorite	ep - Epidote
	f - Flow		ser - Sericite	trem - Tremolite
	i - Intrusive		ci - Argillite/kaol	act - Actinolite
	π - Porphyritic		bi - Biotite	
AR	Argenite	SYMBOLS	---	Geologic contact
CP	Chalcoppyrite		---	Defined, inferred
GA	Galena		WW	Fault, sheared zone
MG	Magnetite			
PY	Pyrite			
SP	Sphalerite			
OZ	Quartz veins B veinlets			

5.75, 1.45, 1.92, 0.010, 37.60  
0.54  
%Cu, %Pb, %Zn, oz/t Au, oz/t Ag  
metres

CROSS - SECTION THROUGH  
DDH 64-3, 81-6, 85-8  
NANAIMO LAKES PROPERTY  
N.T.S. 92F/IW



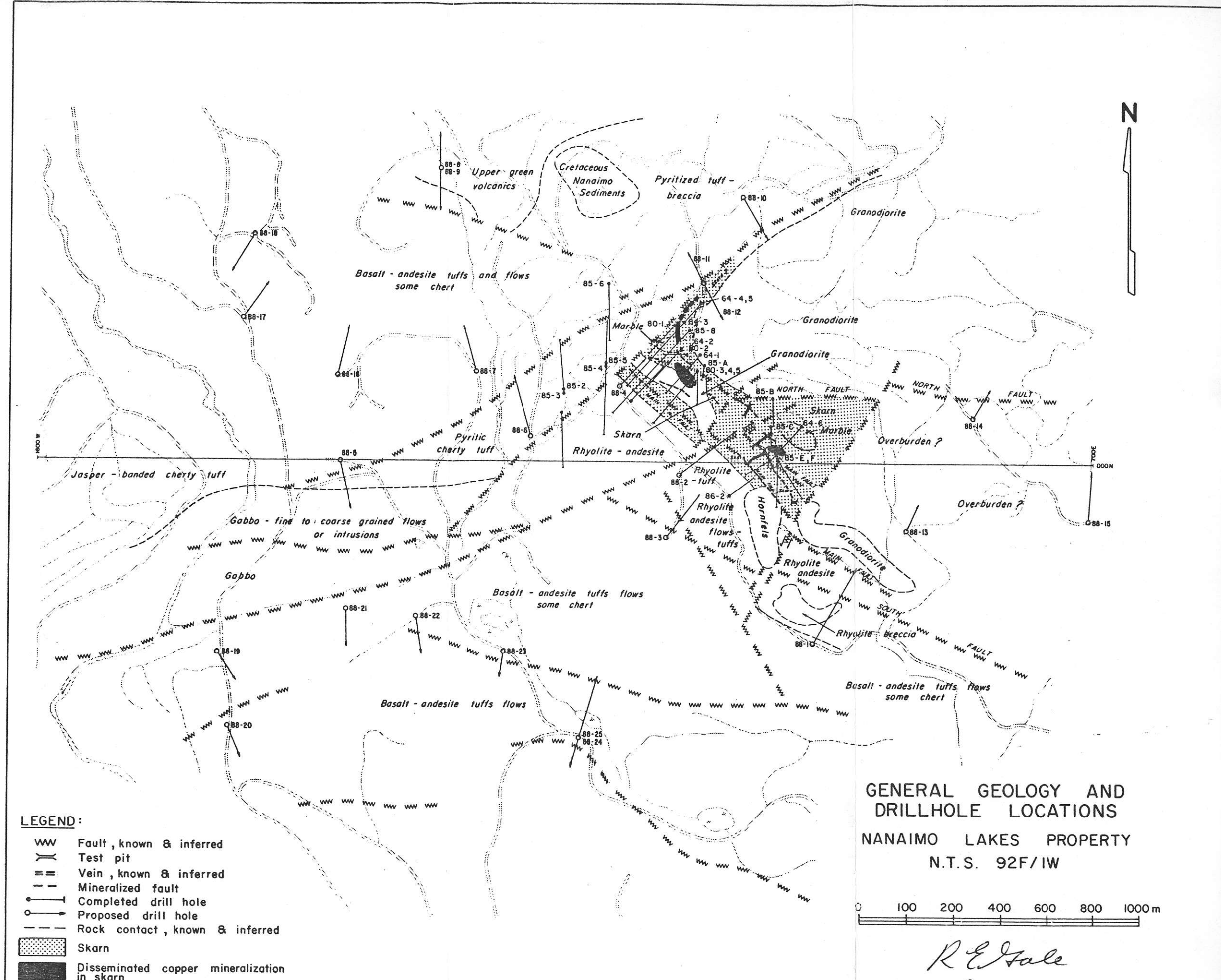
R.E. Gale  
P. Eng.

feet northwest to hole 85-8 at the northwest end of the zone. In hole 85-8 at a depth of 639 feet (213 metres) the mineralized zone is over 6 feet wide carrying 2.33% Cu, 0.45% Pb, 1.61% Zn, <0.01 oz Au, 9.5 oz Ag. In hole 1980-6, a 15 foot intersection assays 3.72% Cu, <0.01% Pb, 0.12% Zn, 0.002 oz Au, 1.56 oz Ag.

The same deep zone intersected in hole 85-8 is believed to have been cut in holes 64-3 and 81-6, although in the latter hole the zone is very thin where intersected at a depth of about 330 feet (110 metres). All of these mineralized intercepts occur where the Main fault cuts limestone, and because the most favorable rocks for massive sulfide mineralization are the banded cherts and rhyolites underlying the limestone, this fault zone should be tested at much greater depth. Below the intersection in hole 85-8, massive sulfides of the Westmin type should be sought where the fault cuts the underlying rhyolite.

Figure 6 is a cross section through drillholes 85-8, 81-6 and 64-3 showing the mineralized intercepts in these holes.

At Westmin, thin-banded cherts showing bands of jasper occur stratigraphically above the mineralized horizons towards the fringes of the ore deposits. On Goldbrae's claims, similar jasper-bearing beds occur at the western edge of the Toni claim and also at depth in drillholes 80-6 and 80-7. Similar jasper-bearing volcanic rocks also occur near the Villalta deposit. The occurrence of these jasper-bearing beds on the Toni claim also

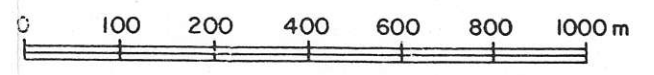


**LEGEND:**

- ww Fault, known & inferred
- ⊃ Test pit
- == Vein, known & inferred
- - - Mineralized fault
- Completed drill hole
- Proposed drill hole
- - - Rock contact, known & inferred
- ▨ Skarn
- Disseminated copper mineralization in skarn

R. E. GALE AND ASSOCIATES INC.

GENERAL GEOLOGY AND  
 DRILLHOLE LOCATIONS  
 NANAIMO LAKES PROPERTY  
 N.T.S. 92F/IW



*R. E. Gale*  
*P. Eng.*

FIG. 5

supports the conclusion that deeper drilling is warranted to test such areas for sulfide-bearing rhyolite horizons at depth.

### 3. CONCLUSIONS AND RECOMMENDATIONS

The Nanaimo Lakes property of Goldbrae covers favorable host rocks for Westmin-type deposits. The area lies on a zone of west-northwest trending steep faults which have provided channelways for copper-gold-silver bearing solutions depositing significant mineralization. Copper deposits have been formed in limestones of the upper part of the Sicker Group rocks along the Main fault zone. This fault, and other parallel faults which are inferred from geophysical work, should be drilled where they appear to cut potentially favorable rhyolitic host rocks at greater depth in the Main fault zone and on parallel fault structures to the south of the Main fault zone.

Other criteria, besides the presence of favorable host rocks and strong fault structures, which are important in selecting drill targets are soil geochemical anomalies, VLF-EM anomalies, and I.P. anomalies, especially where all of these features are coincident. Using these criteria, I have selected 25 drill targets which are listed below in order of importance and with a discussion of the criteria used in their selection.

### 3.1 Recommended Drillholes

88-1

Area of rhyolite breccia with associated weak anomolous copper and possible extension of the Main fault cutting rhyolite.

88-2

Deep test of Main fault in volcanic rocks northwest of hole 80-6.

88-3

Test of South fault in rhyolitic rocks.

88-4

Deep test of Main fault in volcanic rocks beneath mineralized intercept in hole 85-8.

88-5

Test of VLF-EM anomaly on assumed fault cutting banded cherts with jasper bands.

88-6

Test of I.P. anomaly in area of anomalous zinc and copper geochem in soils.

88-7

Test of combined VLF-EM, I.P. and zinc geochem anomaly.

88-8-9

Test of zinc-copper soil geochem anomaly at basalt-tuff contact.

88-10

Test of I.P., copper and silver geochem anomaly along N.E. fault zone near Granodiorite contact.

88-11-12

Test of similar zone as 88-10, southwest of 88-10.

88-13

Test of long narrow zinc geochem anomaly along possible WNW fault extending southeast from Main fault zone.

**88-14**

Test of long narrow copper geochem anomaly along possible east-west fault zone extending east from North fault.

**88-15**

Test of copper geochem anomaly.

**88-16**

Test of long narrow WNW trending copper geochem anomaly.

**88-17**

Test of western end of same copper geochem anomaly tested by 88-16.

**88-18**

Test of VLF-EM anomaly upslope from long narrow copper geochem anomaly tested by 88-16 and 88-17.

**88-19**

Test of zinc-copper geochem anomaly near inferred ENE trending fault in volcanic rocks.



**88-20**

Test of VLF-VM anomaly combined with zinc and silver geochem anomaly.

**88-21**

Test of zinc-copper geochem anomaly.

**88-22**

Test of combined VLF-EM and I.P. anomaly.

**88-23**

Test of eastern end of zone of combined VLF-EM and I.P. anomalies tested in 88-22.

**88-24-25**

Tests of WNW trending VLF-EM conductors, believed to reflect faults cutting basalt-andesite tuffs and flow rocks.

**3.2 Estimated Cost**

Assuming most holes would be drilled at 45°- 60° to depths of 500 feet - 600 feet, the total drilling involved to test all of the targets would be approximately 15,000 feet. At least 2 deep

holes in the main fault zone should be tested with down-hole EM probes. The estimated field costs of doing this work are as follows:

Drilling	=	\$450,000.
Down-hole EM probes	=	40,000.
Cat rental - 2 months	=	30,000.
2 Man geology crew - 2 months	=	15,000.
Crew expense	=	6,000.
Vehicle	=	4,000.
Assays	=	10,000.
Consulting Fees	=	15,000.
Supplies	=	5,000.
Contingency	=	<u>25,000.</u>
Total		<u>\$600,000.</u>

R.E. GALE, PhD, P. Eng.

February 25, 1988

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**CERTIFICATE**

I, Robert E. Gale, do hereby certify that:

1. I am a geological consultant with R.E. Gale and Associates Inc. with my office at 4338 Ruth Crescent, North Vancouver, British Columbia.
2. I graduated from Stanford University with a Ph.D. in geology in 1965.
3. I have been practicing my profession as a geologist for thirty-two years.
4. I have been a member in good standing with the Association of Professional Engineers of British Columbia since 1966.
5. This report is based on my examination of the **Nanaimo Lakes property of Goldbrae Developments Ltd.** during June, 1982 and the study of the available data on the area.
6. I have no interest in the property directly or indirectly or in **Goldbrae Developments Ltd.**, nor do I expect to receive any such interest.
7. This report may be used in a Prospectus or Statement of Material Facts.

Robert E. Gale, Ph.D., P.Eng.  
February 25, 1988

## APPENDIX

NANAIMO LAKES PROPERTY  
DRILLHOLE RESULTS - 1964-1986

Hole No.	Interval	Feet	%Cu.	%Pb.	%Zn.	Oz. Au.	Oz. Ag.
1964-1	128.3-133.3	5.0	0.88	N.A.	N.A.	N.A.	0.10
	398.5-413.1	14.7	0.57	"	"	"	0.10
1964-2	62.0-71.3	9.3	0.22	"	"	0.01	Tr.
	75.3-80.1	4.8	1.10	"	"	0.01	Tr.
	422.0-424.0	2.0	0.44	"	"	0.01	0.20
1964-3	109.5-157.0	47.5	2.10	"	"	N.A.	N.A.
	504.2-509.0	4.8	1.55	"	"	Tr.	0.10
	700.5-703.2	2.7	2.33	"	1.92	0.01	4.00
	758.0-766.5	8.5	0.59	"	0.62	Tr.	6.31
	778.0-781.0	3.0	1.20	"	N.A.	Tr.	3.40
1964-4	249.0-257.5	8.5	0.79	"	N.A.	N.A.	N.A.
	273.0-278.0	5.0	0.44	"	"	"	"
1964-5		No	Significant	Sulfides			
1964-6		"	"	"			
1980-1		"	"	"			
1980-2		"	"	"			
1980-3	49.0-78.0	29.0	0.58	0.01	0.02	0.004	0.30
	81.5-90.0	8.5	1.37	0.01	0.03	0.004	0.25
	92.0-97.0	5.0	3.89	0.01	0.09	0.012	1.42
	97.0-128.0	31.0	0.46	0.01	0.02	0.005	0.43
	128.0-131.5	3.5	1.74	0.01	0.05	0.005	0.08
	158.0-160.0	2.0	1.12	0.01	0.03	0.005	0.20
	172.0-173.0	1.0	8.60	0.01	0.08	0.108	1.30

Hole No.	Interval	Feet	%Cu.	%Pb.	%Zn.	Oz. Au.	Oz. Ag.
1980-4	60.0-82.0	22.0	0.17	<0.01	0.01	<0.003	0.01
	132.5-135.0	2.5	1.64	<0.01	0.06	0.014	1.36
	140.0-145.0	5.0	0.99	<0.01	0.06	0.005	0.57
	150.0-155.0	5.0	2.40	<0.001	0.03	0.010	0.68
1980-5	Hole lost						
1980-6	21.0-28.0	7.0	2.01	<0.01	0.09	0.007	1.15
	39.0-41.0	2.0	2.24	<0.01	0.10	0.005	1.24
	137.0-152.0	15.0	3.72	<0.01	0.12	0.002	1.56
1980-7	8.0-21.0	13.0	1.11	<0.01	0.04	0.004	0.55
1980-8	9.0-20.0	11.0	0.9	<0.01	0.05	<0.003	0.60
	163.0-164.5	1.51	1.08	0.01	0.01	<0.003	0.12
1985-1	17.07-18.29	1.22	0.08	0.07	0.11	<0.002	0.20
	56.39-57.91	1.52	0.06	nil	<0.01	0.012	0.03
1985-2	12.19-20.12	7.93	0.02	nil	<0.01	0.017	0.03
	22.86-24.38	1.52	0.01	nil	<0.01	0.024	0.01
	32.00-32.92	0.92	<0.01	nil	<0.01	0.024	0.01
	35.97-38.71	2.74	0.01	<0.01	<0.01	0.010	0.01
1985-3	59.71-59.89	0.18	0.095	nil	<0.01	0.002	0.03
1985-4	57.61-58.22	0.61	0.12	nil	<0.01	0.002	0.05
	59.44-60.96	1.52	0.01	0.002	0.007	0.011	0.07
1985-5	41.14-42.67	1.53	0.088	nil	<0.01	<0.002	0.05
	87.48-88.40	0.92	0.016	nil	<0.01	0.018	0.38
1985-6	92.95-94.48	1.53	<0.01	nil	<0.01	0.012	0.02
	144.78-146.30	1.52	0.103	nil	<0.01	<0.002	0.07
1985-7	No Anomalous Values						

Hole	Interval	Metres	%Cu.	%Pb.	%Zn.	Oz. Au.	Oz. Ag.
1985-8	36.27-36.88	0.61	0.98	0.009	0.04	0.004	0.71
	37.18-37.49	0.30	1.44	nil	0.036	<0.008	0.70
	42.67-51.81	9.14	1.84	nil	0.037	0.025	0.51
	174.34-175.26	0.61	0.15	0.08	1.22	0.002	0.34
	188.98-190.05	1.52	<0.01	0.009	0.57	<0.002	<0.01
	211.84-212.60	0.76	0.07	0.03	0.75	0.072	1.35
	213.36-215.49	2.13	2.33	0.45	1.61	<0.011	9.5
	220.98-221.59	0.61	0.47	0.29	1.64	0.002	0.86
1985-A	14.93-15.24	0.30	0.13	nil	0.04	<0.002	0.05
1985-B	No Significant Values						
1985-C	11.88.-12.19	0.30	0.43	nil	<0.01	<0.002	0.29
	37.64-38.10	0.45	2.15	0.02	0.07	0.044	1.65
1985-D	3.04-3.35	0.30	0.94	nil	0.03	0.30	0.60
	3.67-4.87	1.21	1.48	nil	0.05	<0.002	1.76
	9.44-9.75	0.30	0.80	nil	0.04	0.006	0.52
	10.97-12.03	1.06	1.12	nil	0.07	0.002	0.75
	12.03-12.34	0.30	5.59	nil	0.21	0.042	3.24
	15.54-15.84	0.30	1.04	nil	0.02	0.006	0.71
	17.06-17.37	0.30	2.52	0.003	0.16	0.008	1.48
	17.37-17.83	0.45	1.86	nil	0.12	0.004	1.02
	19.65-21.64	1.99	1.17	nil	0.03	0.08	0.78
	24.68-25.29	0.61	0.75	nil	nil	0.002	0.44
37.33-37.49	0.15	3.33	nil	0.09	0.04	1.98	
1985-E	31.70-39.93	8.23	1.75	0.001	0.10	0.019	1.22
1985-F	No Significant Intersections						
1986-1	74.51-74.66	0.15	1.61	<0.01	0.09	0.002	0.50
	110.65-110.96	0.31	0.76	0.02	0.38	<0.002	1.20
	110.96-111.96	1.00	<0.01	<0.01	0.03	0.012	0.04
1986-2	No Significant Intersections						