

A Geological Report
on the
Reverted Crown Grants & Located Mineral Claims
of

WINDARRA MINERALS LTD

surrounding the
"Engineer" Gold Mine
situated

30 km west & 5 km south of Atlin, B.C.

in the

Atlin Mining Division

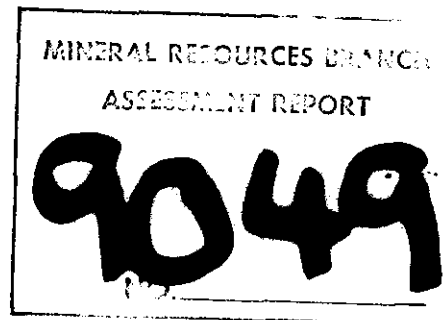
N.T.S. 104-M/8(E)

Lat: $59^{\circ}29'$ N Long: $134^{\circ}14'$ W

by

D.R. Morgan, P.Eng

Date of Report: 24 February 1981



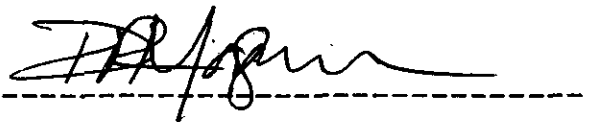
D.R. Morgan, P. Eng.,
3424 West 6th Avenue,
Vancouver, B.C. V6R 1T3
24 February 1981

Subject: A Geological Report on the Reverted Crown Grants & Located Mineral Claims of Windarra Minerals Ltd situated 30 km west & 5 km south of Atlin, B.C. by D.R. Morgan, P.Eng., dated: 24 February 1981.

Dear Sirs:

I hereby authorize the use of the above described report in a Statement of Material Facts or in a Prospectus.

Signed,

A handwritten signature in dark ink, appearing to read "D.R. Morgan", is written over a horizontal dashed line.

David R. Morgan, Geologist, P.Eng

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1 - 0 SUMMARY: (Fact)

1. A program of geological mapping, geochemical sampling and diamond drilling was carried out in 1980 on the Company's claims surrounding the old "Engineer" gold mine near Atlin, B.C.
2. Four vein systems and a major shear zone were mapped and sampled where accessible.
3. Geochemistry indicated extensions to known vein systems and also indicated additional zones for further investigation.
4. Three diamond drill holes totalling 1,004 feet were drilled on targets indicated by mapping and geochemistry. In D.D.H. 80-1 38.5 feet of vein quartz and argillite breccia gave results as follows:

	<u>From</u>	<u>To</u>	<u>Feet</u>	<u>Au</u> ozs/ton	<u>Ag</u> ozs/ton
	87	125.5	38.5	0.029	0.253
	120	125.5	5.5	0.060	1.30 (Best section)

2 - 0 CONCLUSIONS: (Opinion)

1. Initial exploration by Windarra Minerals Ltd on this well located gold prospect has been succesful in revealing several target areas for closer investigation.
2. A diamond drill hole (80-1) into the B-2 Vein Extension is sufficiently encouraging to warrant additional drilling.
3. Further drilling on the Old Gleaner vein systems should follow further detailed mapping in this area.
4. The southern extension of Shear Zone "A" on the Northern Partnership No.5 claim merits detailed exploration and drilling.
5. The possibility of Shear Zone "B" extending to the south far enough to meet Shear Zone "A" should be investigated. The exploration potential of any such intersection would be prime.
6. Geochemical anomalies should be investigated by mapping and trenching.
7. An exploration program costing \$120,000. is considered justified as detailed in the next section.

3 - 0 RECOMMENDATIONS:3 - 1 Program:

1. Geological Mapping: The geological mapping of the property should be continued, with particular attention being paid to rock types hosting veins. Detailed mapping should be carried out in the vicinity of all geochemical anomalies.
2. Air Photo Study: Air photo analysis should be used to reveal any extensions of shear zones "A" & "B" and their possible intersection. The possibility of using air photo enlargements as an aid to mapping should also be investigated.
3. Bulldozer Trenching: Geochemical anomalies should be trenched as indicated by detailed geological mapping.
4. Diamond Drilling: Diamond drilling should be carried out adjacent to D.D.H. 80-1, in Shear Zone "A" and also as indicated by the results of the foregoing work.

3 - 2 Cost Estimate:

(For program on the Windarra Minerals Ltd property adjacent to the former "Engineer" gold mine 30 km west & 5 km south of Atlin, B.C.)

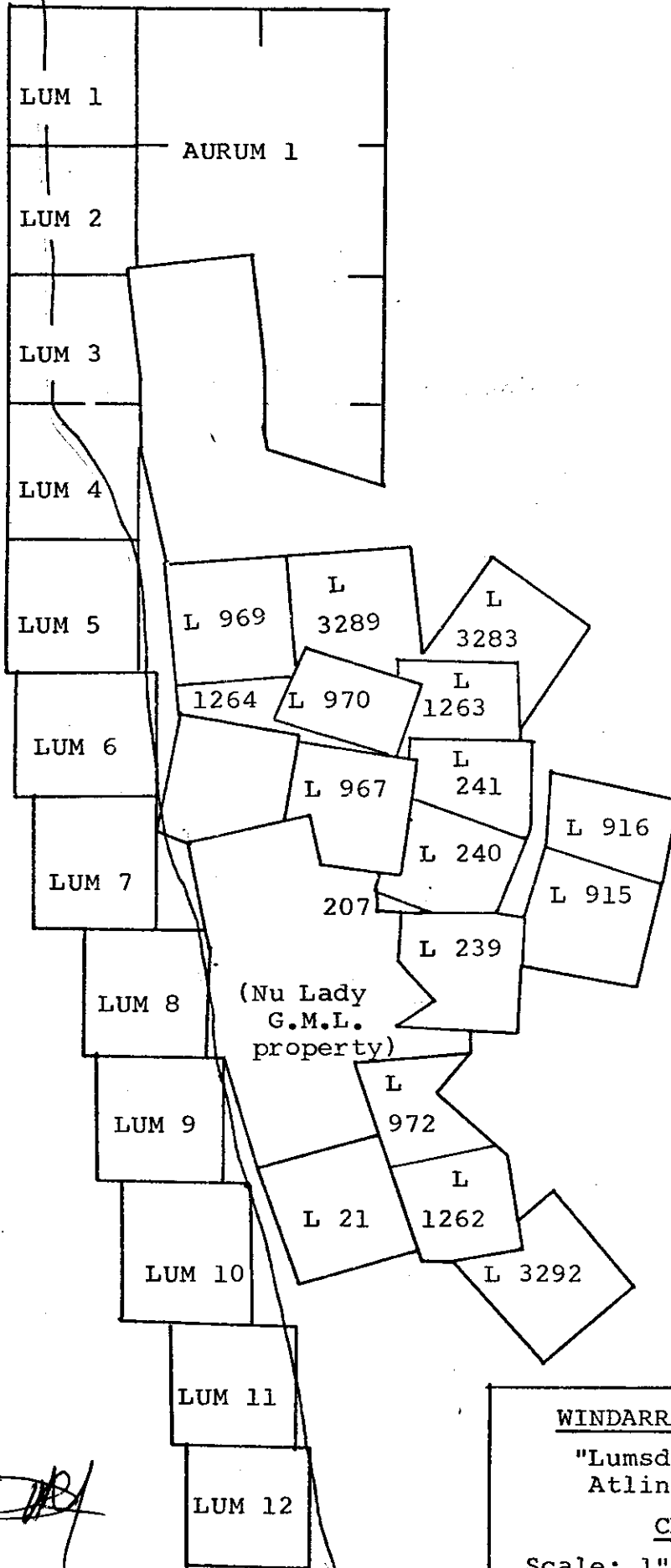
1. Geological mapping & air photo studies:	8,000.
2. Bulldozer trenching & road building:	8,000.
3. Assays:	6,000.
4. Mobilization & Demobilization:	8,000.
5. Diamond Drilling: (2,000 feet B.Q. @ \$35/foot)	<u>70,000.</u>
Sub total:	100,000.
6. Contingency, 20%:	<u>20,000.</u>
Total:	<u>120,000.</u>

Signed,



David R. Morgan, Geologist, P.Eng.
24 February 1981 Vancouver, B.C.

TAGISH
LAKE
(Taku Arm)



[Handwritten signature]

WINDARRA MINERALS LTD
 "Lumsden" Property
 Atlin M.D., B.C.
CLAIM MAP
 Scale: 1"-2000'
 Date: 24 February 1981
 By: D.R. Morgan, P. Eng

4 - 0 INTRODUCTION:

4 - 1 Scope & Dates of Report: On Tuesday 6 January 1981 the writer was asked by Mr. Ron Philp, President of Windarra Minerals Ltd., 1458 - 409 Granville Street, Vancouver, B.C., V6C 1T9 to write a report on the Company's property surrounding the old "Engineer" Mine near Atlin, B.C.

The purposes of this report were:

1. To review all of the available data on the area in which the property lies.
2. To make recommendations for the further exploration of the property.

The writer logged the core from diamond drilling on the property in 1980 and was in the Atlin area between the 21st and 31st of January 1981, but has not visited the property.

4 - 2 Title: The property consists of 18 reverted Crown Granted Mineral claims and 13 located mineral claims as follows:

<u>Name of Reverted Crown Grant</u>	<u>Lot No</u>	<u>Name of Reverted Crown Grant</u>	<u>Lot No</u>
Speculation	L 969	Rubberneck	L 916
Chackawana	L 3289	Bonanza	L 915
Hill Fraction	L 1264	Myosotis	L 239
Daisy	L 970	Philadelphia Fraction	L 207
Smith Fraction	L 4658	Mickey	L 967
Sweepstake # 1	L 3283	Nest Egg	L 3292
Golden Hope	L 1263	Betsay	L 1262
Lakeview	L 241	Northern Partnership # 5	L 972
Taku Chief	L 240	Jersey Lily	L 21

<u>Name of Claim</u>	<u>Units</u>	<u>Record Numbers</u>	<u>Date Recorded</u>
"LUM" 1 - 12	12	618 - 629	April
"AURUM" 1	8	630	April

More than sufficient work was done on the property during 1980 to keep these claims in good standing for the coming year.

5 - 0 HISTORY OF THE PROPERTY:

Gold mineralization was first found on what later became the Engineer Gold Mine at the time of the Klondike gold rush at the start of the century.

Between 1913 and 1952 production from the property was as follows:

<u>Years</u>	<u>Tons</u>	<u>Au (ozs)</u>	<u>Ag (ozs)</u>	<u>Au (ozs/ton)</u>	<u>Ag (ozs/ton)</u>
1913-52	17,157	18,058	8,950	1.05	0.52

Most of this production took place 1913-1918 and 1925-1927.

In 1975 Nu-Energy Development Corporation acquired the property and began to re-habilitate the underground workings.

In 1979, control of the five contiguous crown granted claims (as shown on the accompanying claim map) passed to Nu-Lady Gold Mines Ltd.

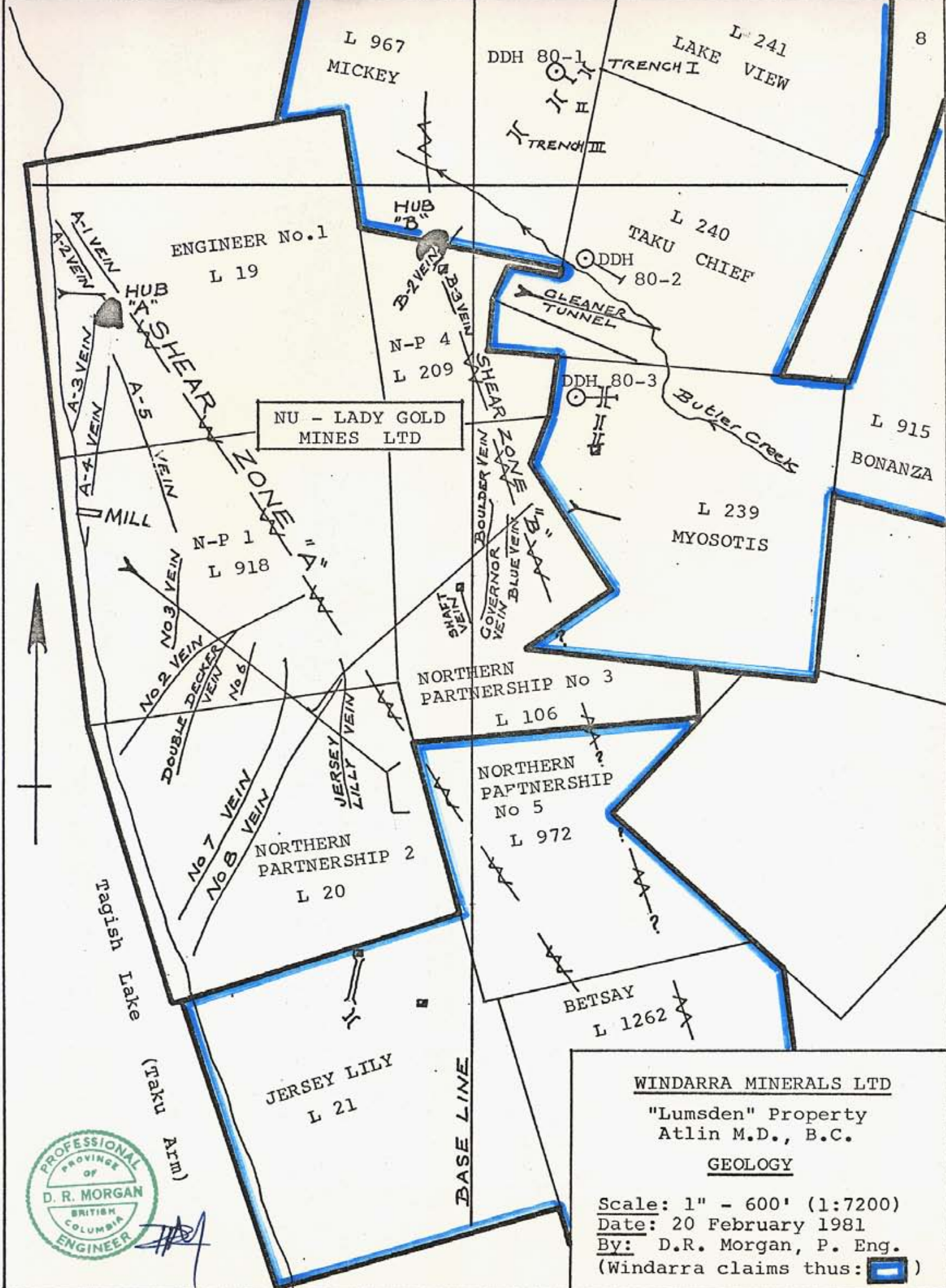
In 1980 Windarra Minerals Ltd., obtained an option on the claims surrounding the former Engineer Gold mine from a Mr. Keith Lumsden of Carcross.

6 - 0 GEOGRAPHY:

6 - 1 Location: The property lies 30 km west and 5 km south of Atlin, B.C. on the eastern side of Taku Arm of Tagish Lake. It has a latitude of 59°29' north, a longitude of 134°14' west, straddles National Topographic System areas 104-M/8(E) and 104-M/9(E) and is in the Atlin Mining Division.

6 - 2 Access: The property is accessible by boat or barge from Carcross (66 miles/106 km) and by float plane from Whitehorse (85 miles/137 km)

6 - 3 Topography: The topography varies from nearly level to steep west-facing slopes above the lake.



NU - LADY GOLD
MINES LTD

NORTHERN
PARTNERSHIP No 3
L 106

NORTHERN
PARTNERSHIP
No 5
L 972

NORTHERN
PARTNERSHIP 2
L 20

JERSEY LILY
L 21

BETSAY
L 1262

ENGINEER No. 1
L 19

L 967
MICKEY

L 241
LAKE VIEW

TRENCH I

DDH 80-1

L 240
TAKU CHIEF

DDH 80-2

GLANER
TUNNEL

DDH 80-3

Butler Creek

L 915
BONANZA

L 239
MYOSOTIS



WINDARRA MINERALS LTD

"Lumsden" Property
Atlin M.D., B.C.

GEOLOGY

Scale: 1" - 600' (1:7200)

Date: 20 February 1981

By: D.R. Morgan, P. Eng.

(Windarra claims thus:)

7 - 0 REGIONAL GEOLOGY:

The Windarra Lumsden Option and surrounding areas are underlain by northeast dipping ($300^{\circ}/30^{\circ}$ - 40° N.E.) greywackes, shales, slates, argillites and tuffs of the Jurassic age Labarge Group. These sediments have been intruded by dykes of andesite, granite and granite porphyry. A granitic stock intrudes these sediments near the southeast corner of the property.

Mineralization in the Engineer Camp appears to be related to two major shear zones (shear zones "A" & "B" on the Geology map, page 8). Most of the gold-bearing veins are adjacent to or originate near these shear zones. Veins are typically of the quartz fissure type ranging up to 30 feet wide, but averaging approximately 2 feet wide in productive sections. Mineralization of economic importance may consist of gold, tellurides, calaverite and allemonite. The gold occurs as fine disseminations in quartz, or in thin leaves or foil coating vugs. Gold also occurs in argillite breccia with gold-bearing quartz matrix, or less commonly in calcite-mariposite veins. The most productive veins have been the Engineer (No.8) and the Double Decker.

Shear Zone "A" with a length of 4,000 feet contains quartz, much pyrite and a little gold, though exact figures on widths and values are not available. Obviously the tonnage potential of this major structure makes it a prime target for exploration.

At the northern ends of both shear zones "A" and "B" are large (200-250 ft diameter), roughly circular masses of quartz and quartz plus wall rock which have come to be known locally as "hubs." These hubs seem to have developed at points where many veins intersect. Mineralization found in them to date has been scanty or absent.

The influence of wall rock on vein structure and mineralization in this camp does not appear to have received much attention. Some rock types such as brittle argillites, for instance, may be superior hosts to shales or slates.

8 - 0 GEOLOGY OF THE PROPERTY:

8 - 1 Vein Systems: (The writer has depended heavily in this section on C.L. McAtee's report, ref.5) The main objective of geological mapping on the property in 1980 was to locate, survey and sample the numerous trenches and the two adits driven during the intensive prospecting in the past.

The veins and vein systems exposed by this work were as follows:

B - 2 Vein Extension: This vein trending 040° from Hub "B" is exposed in a series of trenches and was drilled at the end of the season. (D.H.H. 80-1)

Trench I exposed a vein of vuggy, hematite stained comb quartz at $025^{\circ}/71^{\circ}\text{E}$ containing angular argillite fragments. Surface sampling returned low values (0.002 Au ozs/ton)

Trench II exposed a vein of massive quartz and quartz argillite breccia. A sample of this material assayed 0.166 Au ozs/ton.

Trench III (A group of trenches) expose argillite-quartz breccia, apparently in two veins at $019^{\circ}/86^{\circ}\text{W}$ and $027^{\circ}/59^{\circ}\text{E}$.

"Old Gleaner" Vein Systems: A total of 14 veins have been reported in this system covered by the Myosotis and Taku Chief claims. At least five main vein systems occur striking north, 010° - 015° and dipping vertically or 45° - 75°E .

A north-south set of trenches exposes a 61 cm wide vein of massive quartz, quartz stringers, veinlets and breccia for 110 metres.

This vein was drilled by D.D.H. 80-3.

A 70-100 cm wide massive, brecciated quartz vein on the south side of Butler creek (85 S, 245 E) is in contact with andesitic rocks.

On the north side of this creek at 45 S, 205 E an adit has been driven 18 metres on a 15 cm wide zone of quartz stringers and veinlets.

Jersey Lily Vein Extension: Two trenches on the Jersey Lily Claim expose a 61 cm wide vein ($012^{\circ}/67^{\circ}$ - 86°W) for 75 metres. It consists of "vuggy comb quartz-argillite solution breccia with quartz stringers and veinlets.

8 - 2 Geochemical Survey: Soil samples were taken at 30 metre intervals along east-west lines spaced 100 metres apart. A total of 801 soil samples were taken along 2.6 km of grid lines and were analysed for silver, lead and zinc. The values obtained were plotted and contoured. The results were as follows:

1. All known vein systems, with the exception of the Jersey Lily, show anomalous trends with the B - 2 Vein Extension showing a trend to the northeast of Trench I and the "Old Gleaner" systems showing a trend to the south of the trenching.
2. An anomalous trend lies downhill and to the west of the Jersey Lily vein Extension. This anomaly is possibly transported, but it does indicate that this vein may be expected to continue some 500 metres south.
3. A northwesterly trending anomalous area extends through the Mickey claim, possibly indicating the extension of Shear Zone "B".
4. Silver and lead values are far higher in the northern part of the area surveyed. This is consistent with a zonal arrangement of lower temperature type mineralization at a greater distance from the intrusive to the southeast of the property.

8 - 3 Diamond Drilling: Three diamond drill holes were drilled as follows: D.D.H. 80-2: core stored on property B.Q
12925-54A AVE Surrey

Hole #	Bearing	Dip	Length	Claim	Grid Location
80-1	120°	-60°	218 ft	Mickey	275 N, 120 E
80-2	120°	-50°	283 ft	Taku Chief	10 S, 165 E
80-3	090°	-60°	503 ft	Myosotis	195 S, 135 E

The locations of these holes appear on the 'Geology' map on page 8.

All of the core from D.D.H. 80-1 and the core from 315-406 feet from D.D.H. 80-3 was shipped to Vancouver where it was logged by the writer. Hole D.D.H. 80-2 had to be abandoned before it reached its target depth so the core was not shipped.

Detailed logs of D.D.H. 80-1 and part of 80-3 appear separately. Summaries of these logs appear below.

Summary Log for D.D.H. 80-1:

<u>From</u>	<u>To</u>	<u>Feet</u>	<u>Description</u>	<u>Au</u> ozs/ton	<u>Ag</u> ozs/ton
0	- 15	15	Casing		
15	- 72	57	Massive argillite, less than 1% quartz	.001	.01
72	- 87	15	Argillite breccia, 12% quartz	.004	.03
87	- 125	38	Quartz and argillite breccia, over 50% quartz	.029	.253
125	- 129	4	Andesite dyke		
129	- 171	42	Massive argillite, 1 - 3% quartz	.001	.02
171	- 218	47	Crumpled graphitic argillite or slate. 20% quartz in the form of ribbons, eyes and wisps.	.001	.02
218			End of hole		

Summary Log for D.D.H. 80-3:

<u>From</u>	<u>To</u>	<u>Feet</u>	<u>Description</u>	<u>Au</u> ozs/ton	<u>Ag</u> ozs/ton
0	- 314	314	Not shipped		
314	- 340	16	Crumpled graphitic argillite or slate, minor massive argillite 1 - 5% quartz		
340	- 377	37	Massive argillite, minor crum- pled graphitic argillite or slate. 1 - 3% quartz		
377	- 378	1	Argillite breccia and quartz veinlet	.001	.01
378	- 381	3	Massive argillite		
381	- 382	1	3 cm quartz veinlet in massive argillite	.001	.01
382	- 389	7	Massive argillite		
389	- 390	1	3 cm quartz veinlet in massive argillite	.001	.01
390	- 395	5	Massive argillite		
395	- 400	5	Argillite breccia, 25% quartz	.001	.03
400	- 406	6	Massive argillite		
406	- 503	97	Not shipped		

The best section from D.D.H. 80-1 was from 87 - 125 feet. Within this section were higher grade sections as follows:

<u>From</u>	<u>To</u>	<u>Feet</u>	<u>Au</u> ozs/ton	<u>Ag</u> ozs/ton
109.5 -	114	4.5	.040	.21
114 -	116.5	2.5	.056	.08
120 -	122	2.0	.050	3.18
122 -	125.5	3.5	.065	.13

The limited information from logging this core indicates that the massive argillite is a superior host rock to the crumpled graphitic argillite or slate. The detailed mapping of potentially favourable host rocks should form part of further exploration on this property.

10 - 0 CERTIFICATE:

I, David R. Morgan of 3424 West 6th Avenue, Vancouver, B.C., V6R 1T3, do hereby certify that:

1. I am a 1954 graduate of McGill University, Montreal, Quebec, with a Bachelor of Science Degree in Honours Geology.
2. Since graduating I have engaged in mining exploration in British Columbia, Ontario, Quebec, Ungava, Baffin Island, Northwest Territories, the Yukon, Alaska, Washington, Montana, Idaho, Nevada, Arizona, Mexico and Haiti.
3. I am a registered member, in good standing, of the Association of Professional Engineers of the Province of British Columbia.
4. I am a Consulting Geologist.
5. I have examined all of the available data on area covered by the reverted crown grants and located mineral claims of Windarra Minerals Ltd which surround the "Engineer" gold mine and adjacent areas.
6. I logged the core from diamond drilling on the property in 1980 and was in the Atlin area from 21 to 31 January 1981, but I have not visited the property.
7. I have not received, nor do I expect to receive, any interest directly or indirectly in the properties or securities of WINDARRA MINERALS LTD or in those of any associated companies.

Signed,



David R. Morgan, Geologist, P. Eng.

24 February 1981 Vancouver, B.C.

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
To Wit:

In the Matter of

I, Ronald Philp

of 1458 - 409 Granville Street, Vancouver, B.C.

in the Province of British Columbia, do solemnly declare that the following people were employed and costs incurred in conducting the geological and geochemical surveys on the Windarra Group of Claims between July 15 and October 22, 1980.

PERSONNEL:

C. McAtee - geologist - 24 days @ \$170.46 =	\$ 4,091.04
K. Lumsden - party chief - 68 days @ \$112.50=	7,650.00
D. Manzer - gridding, etc - 46 days @ \$90.00=	4,140.00
R. Philp - geologist - supervisor 3½ days @ \$200.00 =	700.00
J. Gillanders - helper - 28 days @ \$81.81 =	2,290.68
T. Anthoney - helper - 8 days @ \$112.50 =	900.00
L. Lumsden - cook 16 days @ \$112.50 =	1,800.00
M. McKay - cook, helper - 27 days @ \$90.00 =	2,430.00
	<u>\$24,001.72</u>

DISBURSEMENTS:

Airfares - helicopter, fixed wing	\$ 1,371.82
Groceries, supplies	2,758.91
Meals and accomodation	331.95
Assays	3,383.90
	<u>\$ 7,846.58</u>

Plus 15% service charge on disbursements	<u>1,176.99</u>
TOTAL	<u>\$33,025.29</u>

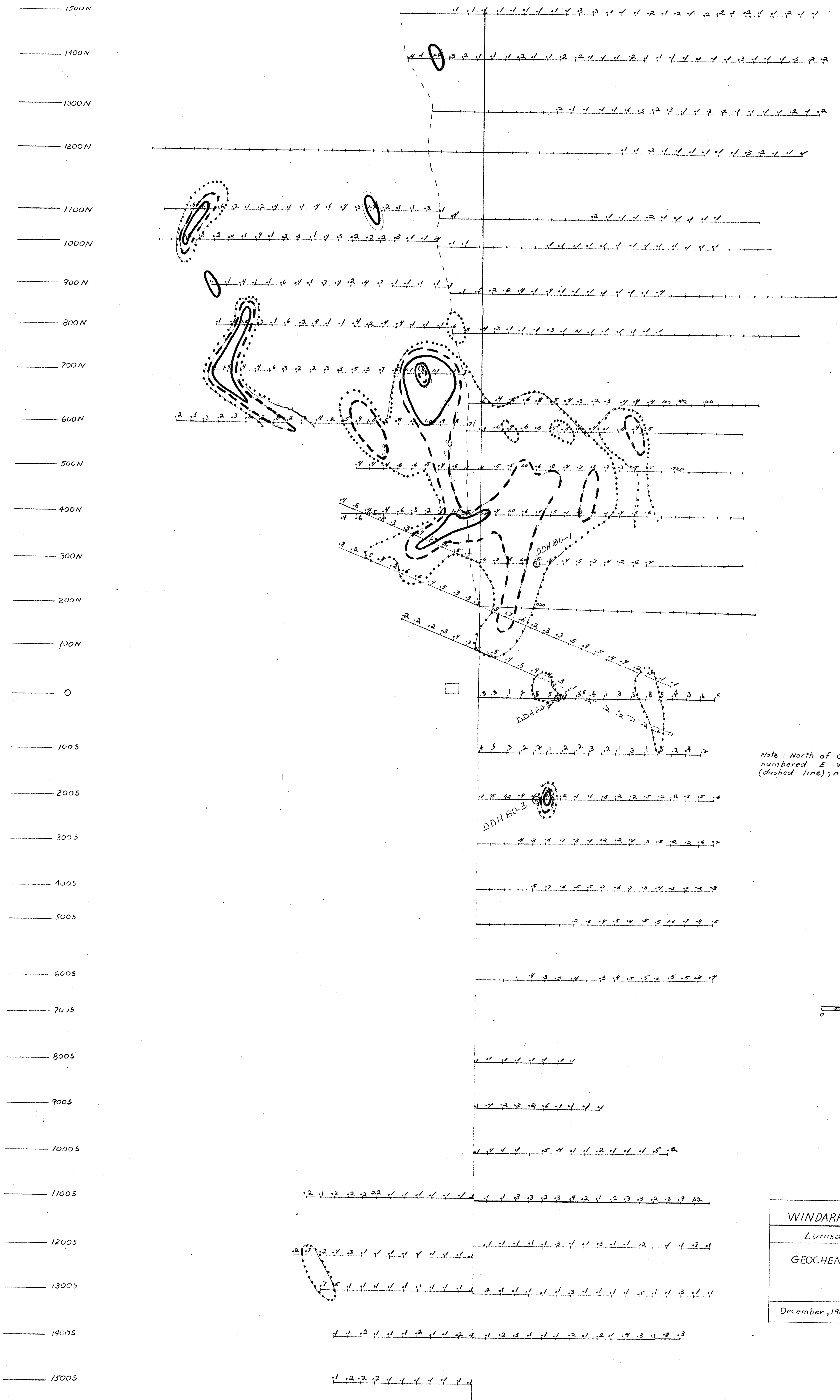
Drilling contract by Globe Drilling Ltd.
707 - 453 Granville Street Vancouver, B.C.
\$34/FT (111.4/m) + support costs
240.97 m in 3 holes 35 000.00

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

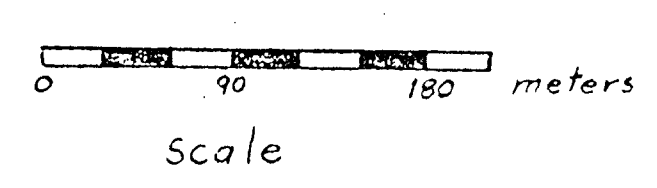
Declared before me at the
of _____, in the
Province of British Columbia, this
day of _____, A.D. }

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.

750W 760W 770W 780W 790W 800W 810W 820W 830W 840W 850W 860W 870W 880W 890W 900W 910W 920W 930W 940W 950W 960W 970W 980W 990W 0 30E 60E 90E 120E 150E 180E 210E 240E 270E 300E 330E 360E 390E 420E 450E 480E 510E 540E 570E 600E 630E 660E 690E 720E 750E 780E 810E 840E 870E 900E



Note: North of 0/0 line stations are numbered E-W from foot path (dashed line); not from base-line.



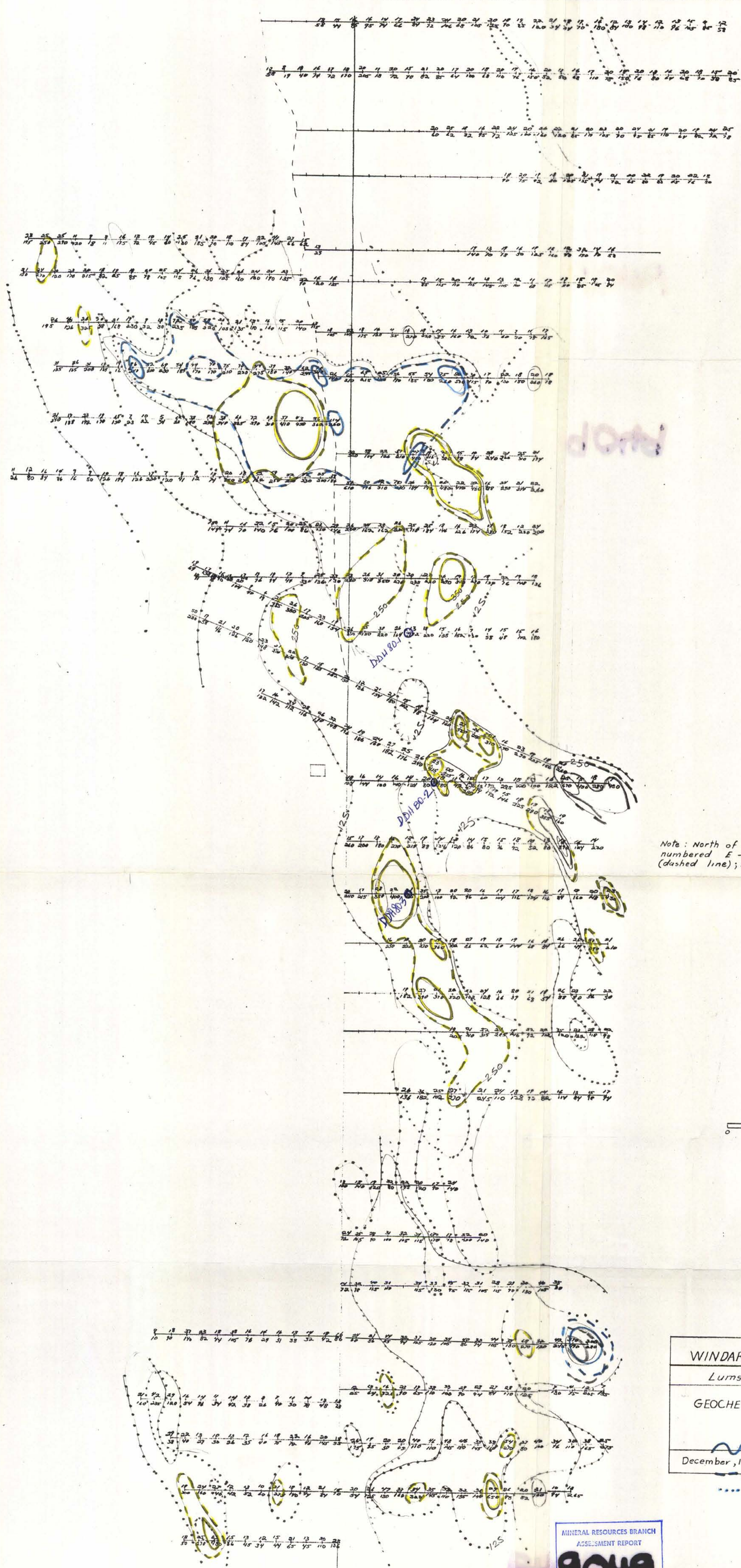
WINDARRA MINERALS LTD
Lumsden Property
GEOCHEMICAL SURVEY
December, 1980

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
9049
No.

AG 210
510

750W 720W 690W 660W 630W 600W 570W 540W 510W 480W 450W 420W 390W 360W 330W 300W 270W 240W 210W 180W 150W 120W 90W 60W 30W 0 30E 60E 90E 120E 150E 180E 210E 240E 270E 300E 330E 360E 390E 420E 450E 480E 510E 540E 570E 600E 630E 660E 690E 720E 750E 780E 810E 840E 870E 900E

1500N
1400N
1300N
1200N
1100N
1000N
900N
800N
700N
600N
500N
400N
300N
200N
100N
0
100S
200S
300S
400S
500S
600S
700S
800S
900S
1000S
1100S
1200S
1300S
1400S
1500S



Note: North of 0/0 line stations are numbered E-W from foot path (dashed line); not from base-line.

0 90 180 meters
Scale

WINDARRA MINERALS LTD
Lumsden Property
GEOCHEMICAL SURVEY
December, 1980
~75
---50
...25
~350
---250
...125

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
9049
NO.