AIRBORNE GEOPHYSICAL REPORT

on the

RDN, GOZ, AND DPR MINERAL CLAIMS

N.T.S. 104 B/15E, 104 G/2E
LIARD MINING DIVISION

Situated at: 56° 58' N
130° 38' W

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

REPORT BY: MIKE SAVELL

APRIL 1991

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1.0 SUMMARY

This report describes an airborne combined geophysical survey undertaken by Noranda Exploration Company, Limited between August 15 and October 15, 1990 on the RDN, GOZ and DPR mineral claims in the Liard Mining Division. A total of 210 line kilometres of magnetic, electromagnetic, and VLF-EM surveys were flown.

The property is underlain by Triassic Stuhini Group volcanics and sediments and Jurassic Hazelton Group rocks which include Mt. Dilworth Formation felsic tuffs and Eskay Creek Facies black siltstones and argillites. These are juxtaposed against Permian metavolcanics and metasediments by the north trending Forrest Kerr Fault which transects the property.

The felsic rocks occur in a large fault bounded wedge at the centre of the claim which has been intruded by coeval, coarse feldspar porphyritic intrusives. Hydrothermal systems generated by these intrusives have produced a large alteration zone manifested by a prominent gossan. Widely scattered occurrences of quartz-sulphide veins with significant Au, Ag, Cu, Zn and Pb values (up to 12.2 gmt Au/2.1 m in outcrop, 102.2 gmt Au in float) are believed to be related to the hydrothermal system. Showings located to date are narrow and discontinuous but their grade and number indicate a significant mineralizing system capable of having produced an economic orebody.

The magnetic survey has successfully mapped several faults, the most prominent of which is the north-south trending Forrest Kerr Fault which parallels the west side of the property. The electromagnetic survey has detected at least 10 possible bedrock conductors and many weak conductors. Ground follow up of magnetic and EM anomalies should be prioritized on the basis of supportive geological and geochemical data.

2.0 INTRODUCTION

2.1 GENERAL REMARKS

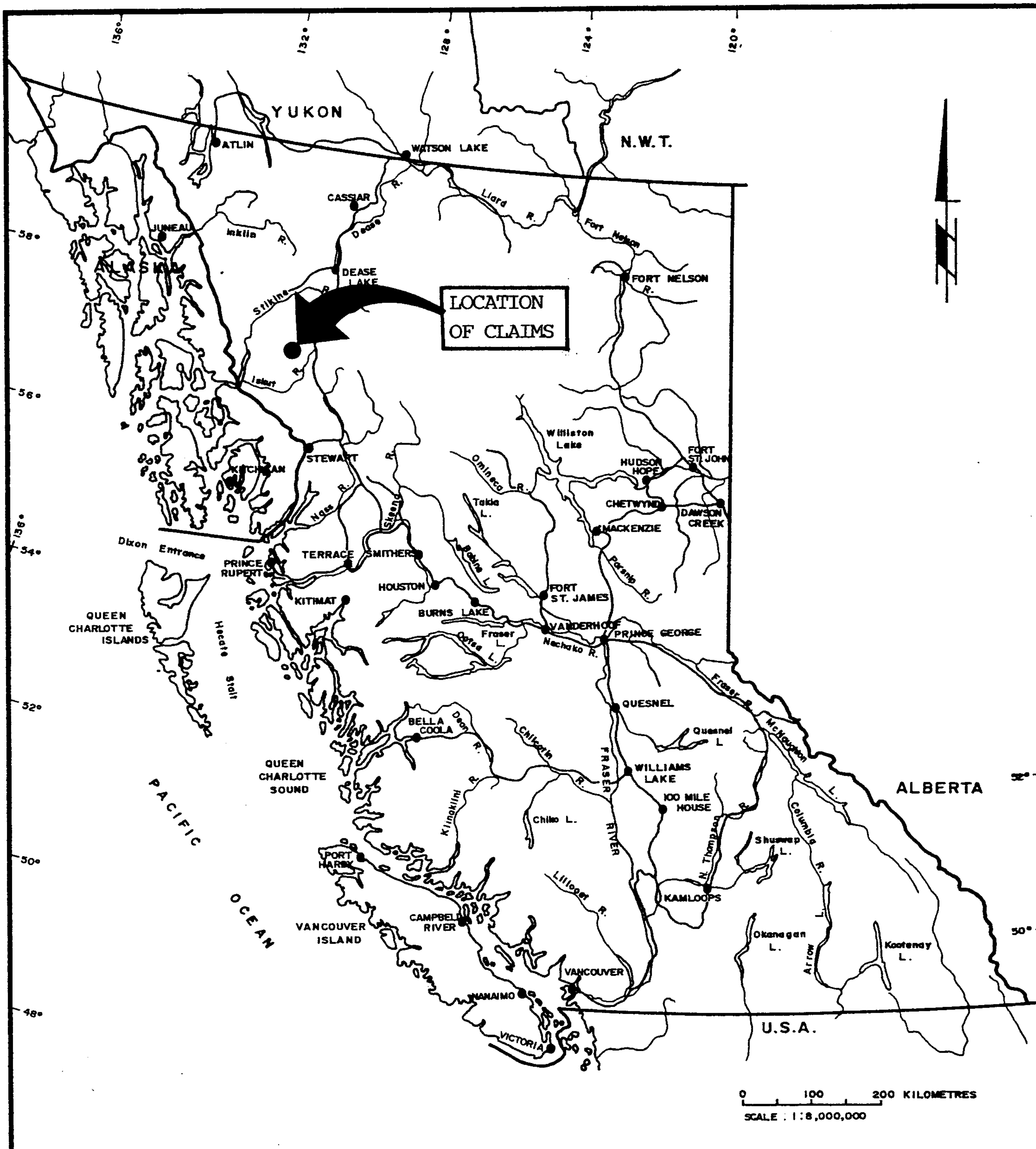
This report describes airborne geophysical surveys undertaken by Noranda Exploration Company, Limited between August 15 and October 15, 1990 on the RDN, GOZ and DPR mineral claims in the Liard Mining Division. The claims were staked to secure several large gossanous areas in the Iskut River area of Northwestern B.C. The RDN claims are currently under option to Noranda; the GOZ and DPR claims are 100% owned by Noranda. An agreement between Noranda and High Frontier Resources will allow High Frontier to attain a 50% interest in the claims by funding $1,000,000 in exploration expenditures. The 1990 program was totally funded by High Frontier.

A total of 210 line kilometres at a line spacing of 150 metres were flown. The survey was contracted to Aerodat Limited of 3883 Nashua Dr., Mississauga, Ontario.

For assessment purposes, the property has been divided into four groups of claims, the GOZ 4,6 and 7 group, GOZ 5 group, DPR north and the DPR south group. A statement of cost for each is provided in Appendix II. For sake of completeness the work has been compiled into a single report.

2.2 LOCATION AND ACCESS

The claims are located 115 kilometres north- northwest of Stewart, B.C. and 25 kilometres west of Bob Quinn Lake Highways Maintenance camp on the Stewart-Cassiar Highway (figure 1). A short gravel airstrip is located at the headwaters of Forrest Kerr Creek about 10 kilometres to the southwest. The proposed route of the Iskut River road comes within 15 kilometres of the claims.



REVISED	RDN AND GOZ PROPERTY
	PROPERTY LOCATION MAP
PROJ.No. 296	SURVEY BY: M.S. DATE: Nov. 1990
N.T.S. 104G2	DRAWN BY: S.K.B. SCALE: 1:8,000,000
DWG. No. FIG. 1	NORANDA EXPLORATION OFFICE: PRINCE GEORGE, B.C.

VANCAL 11927

2.3 PHYSIOGRAPHY

The property is within the Boundary Ranges of the rugged Coast Mountains. Paralleling steep sided U-shaped valleys trending north and northeast and fed by several ice filled steep walled cirques dominate the area. Elevations range from about 900 to 2000 metres. Approximately 80% of the area can be easily traversed whereas the remainder is covered with glaciers and cliffs.

There is very little timber above 950 metres due to the steep slopes and heavy snowfall. Between 950 and 1350 metres most slopes are covered with a dense covering of slide alders, devils club, willows, buck brush and tall grasses typical of a cool, wet coastal alpine environment.

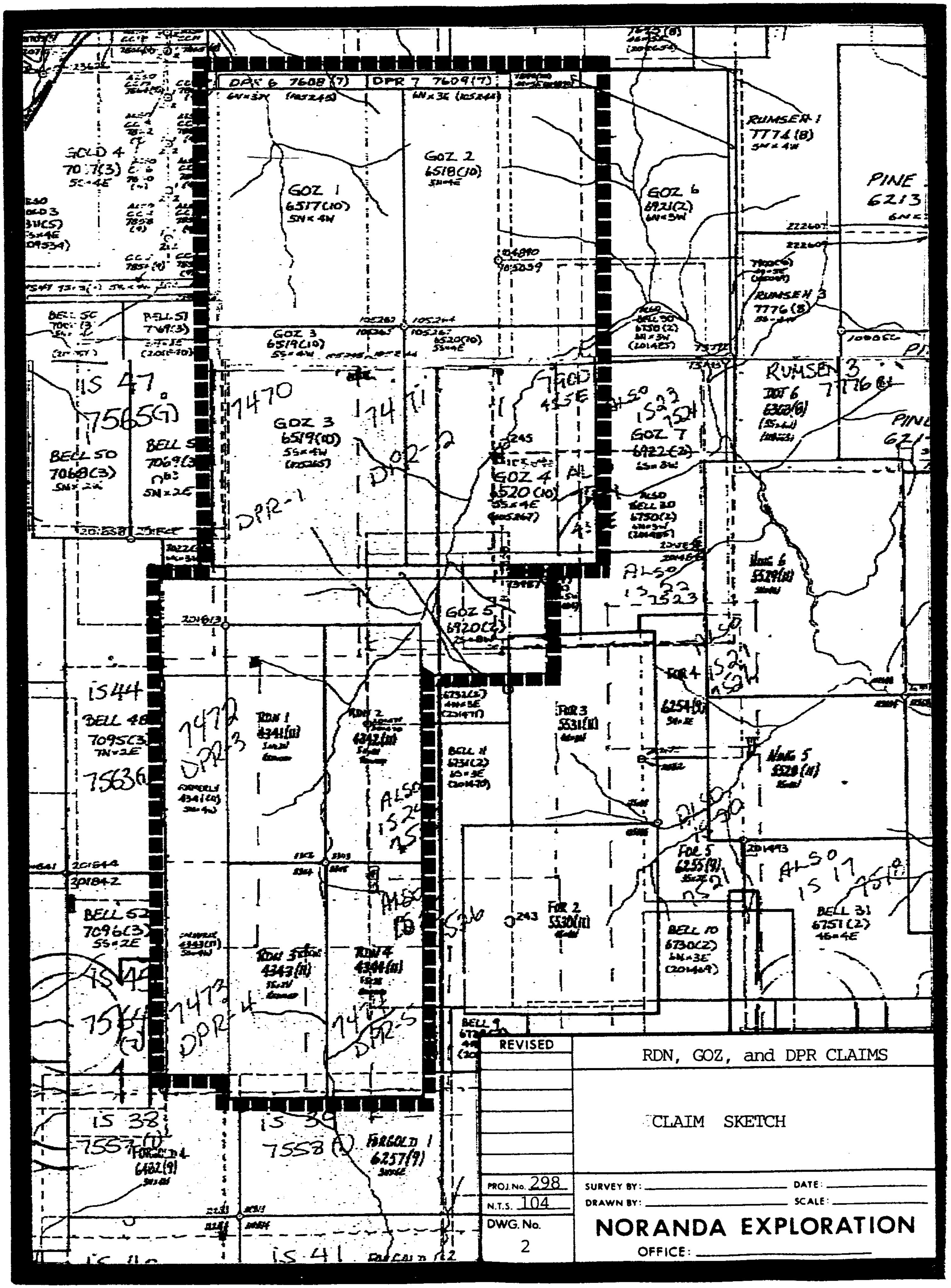
2.4 CLAIM DATA

The property comprise 17 contiguous modified grid claims as shown in figure 2 and listed below.

TABLE 1. Claim Data

Name	Units	Record #	Record Date	Expiry Date
RDN-1	10	4341	11/09/87	11/09/93
RDN-2	10	4342	11/09/87	11/09/93
RDN-3	10	4343	11/09/87	11/09/93
RDN-4	10	4344	11/09/87	11/09/93
GOZ-1	20	6517	10/05/90	10/05/93
GOZ-2	20	6518	10/05/90	10/05/93
GOZ-3	20	6519	10/05/90	10/05/93
GOZ-4	20	6520	10/05/90	10/05/93
GOZ-5	16	6920	22/02/90	22/02/93
GOZ-6	18	6921	22/02/90	22/02/93
GOZ-7	18	6922	22/02/90	22/02/93
DPR-3	12	7472	18/06/90	18/06/93
DPR-4	9	7473	18/06/90	18/06/93
DPR-5	9	7474	18/06/90	18/06/93
DPR-6	18	7608	14/07/90	14/07/92
DPR-7	18	7609	14/07/90	14/07/92
DPR-8	20	7899	06/10/90	06/10/92

The expiry dates as listed above will be in effect upon approval of this work.



RDN, GOZ, and DPR CLAIMS

CLAIM SKETCH

REVISED

PROJ. No. 298

N.T.S. 104

DWG. No. 2

SURVEY BY: DATE:

DRAWN BY: SCALE:

NORANDA EXPLORATION

OFFICE:

2.5 PREVIOUS WORK

Assessment reports previously filed on the claims include "Prospecting Report on the RDN 1-4 Mineral Claims" by Neil Debock in 1988, "Geochemical Report on the RDN 1-4 Mineral Claims" by M. Savell in 1989, and "Geological, Geochemical and Geophysical Report on the RDN and GOZ Mineral Claims" by M. Savell in 1990. Claims have been held on the same ground by other parties in the past but no evidence of significant exploration was observed. Active precious metal properties nearby include the Forrest Kerr property 10 kilometres to the south, the Foremore property 20 kilometres to the west-northwest, the McLymont Creek property 22 kilometres to the southwest, and the Eskay Creek property 35 kilometres to the south.

3.0 REGIONAL GEOLOGY

The area lies near the western edge of the Intermontane Belt of the Canadian Cordillera, where it parallels the Coast Plutonic Complex. Recent work by both the Geological Survey of Canada and the Geological Services Branch of British Columbia provides a framework of the complex geology of this rugged area. The area includes four, unconformity bounded, tectonostratigraphic assemblages: 1) Paleozoic Stikine Assemblage; 2) Triassic-Jurassic volcano-plutonic complexes of Stikinia; 3) Middle and Upper Jurassic Bowser overlap assemblage; and 4) Tertiary Coast Plutonic Complex.(Anderson, 1989) This section of the Intermontane Belt forms the west limb of the "Stikine Arch," a roughly horseshoe shaped area of Upper Triassic to Jurassic stratigraphy that hosts most of the significant mineral deposits in northwest B.C. and the Toodoggone gold camp.

The Paleozoic Stikine Assemblage is the oldest assemblage and contains three distinct, mainly volcanic-carbonate divisions: Early Devonian limestones and intermediate to felsic volcanics, Mississippian bioclastic limestones, and Permian fragmental volcanics and limestone. These rocks are generally metamorphosed and highly deformed.

The Triassic-Jurassic volcano-plutonic complexes (Stewart Complex) are comprised of both the Triassic Stuhini Group and the Jurassic Hazleton Group. The Stuhini consists of limestone and mafic volcanics deposited in an island arc environment. These rocks host the Snip and Johnny Mountain structural gold deposits. Hazleton Group rocks consist of andesitic breccias/lavas, felsic tuffs/ breccias, and maroon-green volcanic sediments (siltstone, greywacke, conglomerate, and black shale) also of island arc affinity. Black shales (Eskay Creek facies) overlying felsic volcanics (Mt. Dilworth Formation) host the Eskay Creek gold deposits.

Sub-volcanic intrusions accompany most of the volcanic centres of the Mesozoic island arc complexes and range from Alaskan type ultramafics to felsic dykes. Distinctive porphyritic dykes link Upper Triassic and Lower Jurassic volcanics with their plutonic equivalents. Many of the significant mineral deposits in the Stewart Complex are found to have a close association with volcanic centres.

The Middle and Upper Jurassic Bowser Overlap Assemblage are predominantly turbidite black clastics deposited in the Bowser

Basin, formed as a result of uplift to the west due to emplacement of the Coast Range Intrusives.

The Tertiary Coast Plutonic Complex consists of post-tectonic, felsic plutons. Eastward younging of strata and local zones of high strain attest to intrusion and uplift of the complex.

Tertiary to Recent subaerial volcanics cover local, low lying areas.

The prime target of current exploration on the property is a precious metal enriched polymetallic massive sulphide deposit similar to Eskay Creek. The Eskay Creek deposit is contained within black argillites and mudstones of the Eskay Creek Facies immediately hanging wall to felsic volcanics of the Mt. Dilworth Formation. The deposit consists mainly of pyrite, sphalerite, and galena with minor arsenic, antimony and mercury sulphides in both stratiform and crosscutting massive and stringer zones. Both exhalative and epithermal processes may have contributed to the formation of the deposit.

4.0 GEOPHYSICS

Almost the entire claim block was flown, as indicated on figure 3. A flight line azimuth of 90 degrees was chosen as it is roughly perpendicular to most of the stratigraphic, structural and mineralization trends on the property. A complete description of the aircraft and equipment, data presentation, and interpretation including a list of anomalies is provided in Appendix III in the report prepared by the contractor.

5.0 CONCLUSIONS

The magnetic survey has successfully mapped several faults, the most prominent of which is the north-south trending Forrest Kerr Fault which parallels the west side of the property. The electromagnetic survey has detected at least 10 possible bedrock conductors and many weak conductors. Ground follow up of magnetic and EM anomalies should be prioritized on the basis of supportive geological and geochemical data.

6.0 RECOMMENDATIONS

Additional target definition in prospective areas outlined by the 1990 program using geological, geochemical and geophysical surveys, combined with testing of existing targets with diamond drilling is recommended.

APPENDIX I

STATEMENT OF QUALIFICATIONS

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Michael J. Savell of the City of Prince George, Province of British Columbia, do certify that:

1. I am a geologist residing at 3507 Rosia Road, Prince George, British Columbia.
2. I am a graduate of Dalhousie University with a Bachelor of Science (Honors) in Geology.
3. I am a member in good standing of the Geological Association of Canada, Canadian Institute of Mining, Prospector's and Developer's Association and the B.C.-Yukon Chamber of Mines.
4. I presently hold the position of Project Geologist with Noranda Exploration Company, Limited and have been in their employ since 1980.

Michael J. Savell
Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

APPENDIX II

STATEMENT OF COSTS (1)

CLAIMS: GOZ-4, GOZ-6, GOZ-7
REPORT TYPE: GEOPHYSICAL
DATES: AUGUST 15 - OCTOBER 15, 1990

a) WAGES:
No. of Days - 1
Rate per day - $ 252.84
Dates from - 15/08/90 to 15/10/90
Total: $ 252.84

b) FOOD, ACCOMMODATION AND SUPPLIES:
No. of Days - 1
Rate per day - $ 88.58
Dates from - 15/08/90 to 15/10/90
Total: $ 88.58

c) AIRBORNE GEOPHYSICAL CONTRACTOR:
No. of kilometres - 43
Rate per kilometre (includes mob/demob, standby, report)
- $ 187.43
Dates from - 15/08/90 to 15/10/90
Total: $ 8,059.49

d) REPORT PREPARATION:
Author - $ 50.00
Drafting - $ 25.00
Typing - $ 25.00
Total: $ 100.00

TOTAL COST: $ 8,500.91

APPENDIX II

STATEMENT OF COSTS (2)

CLAIMS: GOZ-5
REPORT TYPE: GEOPHYSICAL
DATES: AUGUST 15 - OCTOBER 15, 1990

a) WAGES:
No. of Days - 0.3
Rate per day - $ 252.84
Dates from - 15/08/90 to 15/10/90
Total: $ 75.85

b) FOOD, ACCOMMODATION AND SUPPLIES:
No. of Days - 0.3
Rate per day - $ 88.58
Dates from - 15/08/90 to 15/10/90
Total: $ 26.57

c) AIRBORNE GEOPHYSICAL CONTRACTOR:
No. of kilometres - 13.2
Rate per kilometre (includes mob/demob, standby, report) - $ 187.43
Dates from - 15/08/90 to 15/10/90
Total: $ 2,474.08

d) REPORT PREPARATION:
Author - $ 50.00
Drafting - $ 25.00
Typing - $ 25.00
Total: $ 100.00

TOTAL COST: $ 2,676.49

APPENDIX II

STATEMENT OF COSTS (3)

CLAIMS: RDN-3, RDN-4, DPR-3, DPR-4, DPR-5 (DPR south group)
REPORT TYPE: GEOPHYSICAL
DATES: AUGUST 15 - OCTOBER 15, 1990

a) WAGES:
No. of Days - 1
Rate per day - $ 252.84
Dates from - 15/08/90 to 15/10/90
Total: $ 252.84

b) FOOD, ACCOMMODATION AND SUPPLIES:
No. of Days - 1
Rate per day - $ 88.58
Dates from - 15/08/90 to 15/10/90
Total: $ 88.58

c) AIRBORNE GEOPHYSICAL CONTRACTOR:
No. of kilometres - 43.6
Rate per kilometre (includes mob/demob, standby, report) - $ 187.43
Dates from - 15/08/90 to 15/10/90
Total: $ 8,171.95

d) REPORT PREPARATION:
Author - $ 50.00
Drafting - $ 25.00
Typing - $ 25.00
Total: $ 100.00

TOTAL COST: $ 8,613.37

APPENDIX II

STATEMENT OF COSTS (4)

CLAIMS: GOZ-1, DPR-6, DPR-7, DPR-8 (DPR north group)
REPORT TYPE: GEOPHYSICAL
DATES: AUGUST 15 - OCTOBER 15, 1990

a) WAGES:
No. of Days - 0.7
Rate per day - $ 252.84
Dates from - 15/08/90 to 15/10/90
Total: $ 176.98

b) FOOD, ACCOMMODATION AND SUPPLIES:
No. of Days - 0.7
Rate per day - $ 88.58
Dates from - 15/08/90 to 15/10/90
Total: $ 62.01

c) AIRBORNE GEOPHYSICAL CONTRACTOR:
No. of kilometres - 34.4
Rate per kilometre (includes mob/demob, standby, report) - $ 187.43
Dates from - 15/08/90 to 15/10/90
Total: $ 6,447.59

d) REPORT PREPARATION:
Author - $ 50.00
Drafting - $ 25.00
Typing - $ 25.00
Total: $ 100.00

TOTAL COST: **$ 6,786.58**

APPENDIX III

REPORT ON COMBINED HELICOPTER-BORNE MAGNETIC,ELECTROMAGNETIC, AND VLF-EM SURVEY OF THE RDN-GOZ AREA, CASSIAR LAND DISTRICT, BRITISH COLUMBIA

REPORT ON
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC AND VLF-EM
SURVEY OF THE BALL CK., RDN-GOZ, & GIG/GOLD LUCIFER/DEVIL AREAS
CASSIAR LAND DISTRICT, BRITISH COLUMBIA

FOR
NORANDA EXPLORATION COMPANY LIMITED
BY
AERODAT LIMITED
November 23, 1990

J9068

George Podolsky, P. Eng.
Consulting Geophysicist

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LIST OF MAPS

(Scale 1:20,000)

Maps:

1. **TOPOGRAPHIC BASE MAP;**
prepared from a Department of Energy, Mines and Resources, Surveys Mapping Branch topographic map (NTS Series #104 G/1, G/2, G/8, and 104 B/15 sheets, Edition 3; Scale 1:50,000), with registration marks referenced to the UTM grid.

2. **FLIGHT LINE MAP;**
showing all flight lines, fiducials and EM anomalies with the base map.

3. **AIRBORNE ELECTROMAGNETIC SURVEY INTERPRETATION MAP;**
showing flight lines, fiducials, conductor axes and anomaly peaks along with inphase and quadrature amplitudes with conductivity thickness ranges and estimated depth for the 4600 Hz coaxial coil system with the base map.

4. **TOTAL FIELD MAGNETIC CONTOURS;**
showing magnetic values contoured at 2 nanoTesla intervals, flight lines and fiducials with the base map.

5. **VERTICAL MAGNETIC GRADIENT CONTOURS;**
showing magnetic gradient values contoured at 0.2 nanoTeslas per meter intervals, flight lines and fiducials with the base map.

6. **APPARENT RESISTIVITY CONTOURS;**
showing Apparent Resistivity values, calculated for the 4,600 Hz and 33 kHz data, contoured at 0.1 log(ohm-m) intervals, flight lines and fiducials with the base map.

7. **VLF-EM TOTAL FIELD CONTOURS;**
showing contoured Total Field VLF values contoured at 1% intervals, flight lines and fiducials with the base map.

The purpose of the survey was to record electromagnetic, magnetic and VLF-EM data over a block of claims and/or exploration permits held by Noranda that cover an area of interbedded metasediments and metavolcanics. A total of approximately 810 line kilometres, excluding tie lines, of the recorded data were compiled in map form and are presented as part of this report, according to specifications outlined by Noranda.

3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

An Aerospatiale Lama 315-B helicopter, (CG-XYM), owned and operated by Ranger Helicopters Limited, was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

3.2 Equipment

3.2.1 Electromagnetic

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 4,175 Hz and 32 Khz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 frequencies with a time constant of 0.1 seconds. The electromagnetic bird was towed 30 metres below the helicopter.

3.2.2 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measured the total field and quadrature components of two selected transmitters, preferably oriented at right angles to one another. The sensor was towed in a bird 12 metres below the helicopter. The transmitters monitored were NAA Cutler Maine at 24.0 kHz, NLK, Jim Creek, Washington, broadcasting at 24.8 Khz and NSS, Annapolis, Maryland, at 21.4 Khz for the "Line" stations. For the "Ortho" stations, NAA, Cutler, Maine, at 24.0 kHz, NDT, Yosami, Japan, at 17.4 kHz and NLK, Jim Creek, Washington were used depending on availability and suitability of transmission.

3.2.3 Magnetometer

The magnetometer employed was a Scintrex Model VIW-2321 H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument was 0.1 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 12 metres below the helicopter.

3.2.4 Magnetic Base Station

An IFG-2 proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A King Air KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.6 Tracking Camera

A Panasonic video camera was used to record flight path on VHS video tape. The camera was operated in continuous mode and the fiducial numbers and time marks for cross reference to the analog and digital data were encoded on the video tape.

3.2.7 Analog Recorder

An RMS dot-matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data were recorded:

Channel	Input	Scale
CXI1	935 Hz Coaxial Inphase	2.5 ppm/mm
CXQ1	935 Hz Coaxial Quadrature	2.5 ppm/mm
CXI2	4600 Hz Coaxial Inphase	2.5 ppm/mm
CXQ2	4600 Hz Coaxial Quadrature	2.5 ppm/mm
CPI1	4175 Hz Coplanar Inphase	10 ppm/mm
CPQ1	4175 Hz Coplanar Quadrature	10 ppm/mm
CPI2	32 kHz Coplanar Inphase	20 ppm/mm
CPQ2	32 kHz Coplanar Quadrature	20 ppm/mm
PWRL	Power Line	60 Hz
VLT	VLF-EM Total Field, Line	2.5% ppm/mm
VLQ	VLF-EM Quadrature, Line	2.5% ppm/mm
VOT	VLF-EM Total Field, Ortho	2.5% ppm/mm
VOQ	VLF-EM Quadrature, Ortho	2.5% ppm/mm

RALT	Radar Altimeter	10 ft./mm
MAGF	Magnetometer, fine	2.5 nT/mm
MAGC	Magnetometer, coarse	25 nT/mm

3.2.8 Digital Recorder

A DGR-33 data system recorded the survey on magnetic tape. Information recorded was as follows:

Equipment	Recording Interval
EM System	0.1 seconds
VLF-EM	0.2 seconds
Magnetometer	0.2 seconds
Altimeter	0.2 seconds

4. DATA PRESENTATION

4.1 Base Map

Topographic base maps at a scale of 1:20,000 were prepared from the appropriate 1:50,000 NTS map as a screened mylar base.

4.2 Flight Path Map

The flight path map was derived from VHS videos of the flight path. It is estimated that the flight path is generally accurate to about 20 metres with respect to the topographic detail of the base map.

The flight path map showing all flight lines, is presented on a Cronaflex copy of the topographic base map, with time and navigator's manual fiducials for cross reference to both the analog and digital data.

4.3 Airborne Electromagnetic Survey Interpretation Map

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and the reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena.

To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. It has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering process, a base level correction was made. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were used in the interpretation of the electromagnetics. An interpretation map was prepared showing flight lines, fiducials, peak locations of anomalies and conductor axes. The data have been presented on a Cronaflex copy of the topographic base map.

4.4 Total Field Magnetic Contours

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. No correction for regional variation was applied. The corrected profile data were interpolated onto a regular grid at a 50 metre true scale interval using an Akima spline technique. The grid provided the basis for threading the presented contours at a 2 nanoTesla interval.

The contoured aeromagnetic data have been presented on Cronaflex copies of the topographic base maps.

4.5 Vertical Magnetic Gradient Contours

The vertical magnetic gradient was calculated from the gridded total field magnetic data. Contoured at a 0.2 nT/m interval, the gradient data were presented on Cronaflex copies of the base maps.

4.6 Apparent Resistivity Contours

The electromagnetic information was processed to yield a map of the apparent resistivity of the ground.

The approach taken in computing apparent resistivity was to assume a model of a 200 metre thick conductive layer (i.e., effectively a half space) over a resistive bedrock. The computer then generated, from nomograms for this model, the resistivity that would be consistent with the bird elevation and recorded amplitude for the 4600 Hz coaxial and 33 kHz coplainar frequency pairs used. The apparent resistivity profile data were interpolated onto a regular grid at a 50 metres true scale interval using an Akima spline technique. The contoured apparent resistivity data were presented on a Cronaflex copy of the base map with the flight path.

4.7 VLF-EM Total Field

The VLF-EM signals for flights 1 through part of 12 and flight 25 through 27 used NSS (Annapolis, Maryland) broadcasting at 21.4 kHz. For the rest of flight 12, and up to flight 18, NLK (Jim Creek, Washington) broadcasting at 24.8 kHz was used. For flight 19 to 24, NAA (Cutler, Maine) broadcasting at 24.0 kHz was used. The Data was compiled as contours in map form and presented on a Cronaflex overlay of the base map along with flight lines. The orthogonal VLF data (from NDT, Yosami, Japan, NAA, Cutler, Maine and NLK, Jim Creek Washington) was not utilized in the compilation as the line direction data set was complete. The orthogonal data, although it does not appear to be complete, remains valid, and may be processed at a later date. The data was recorded on the analog records and on digital tape.

5. INTERPRETATION

5.1 Summary

This interpretation deals with the geophysical parameters recorded by this airborne survey, that is, the magnetic, electromagnetic, and VLF responses of the underlying surface and bedrock, and the products calculated from these responses such as the Vertical Magnetic Gradient and the Apparent Resistivity. At the writer's request, a geological summary of each of the three survey blocks was supplied to the writer by Noranda. These summaries have not reproduced here for purposes of brevity but they outlined geologic environments similar to those of gold deposits within Lower Jurassic sediments and volcanics that have been located in the region. A geologic sketch map was not provided nor was one requested.

No known base metal or gold deposits are located within the survey area, at least to the writer's knowledge, but the primary targets of the exploration program by Noranda in this region are " .. precious metal enriched polymetallic massive sulphide deposits similar to ... the Eskay Creek deposit" discovered recently. This deposit is contained within " .. black argillites and mudstones of the Eskay Creek Facies immediately hanging wall to felsic volcanics of the Mt. Dilworth Formation. The deposit consists mainly of pyrite, sphalerite, and galena ... in both stratiform and crosscutting massive and stringer zones. ... Another attractive target (within the Gig/Gold, Lucifer/Devil group) is a structurally controlled precious metal rich sulphide vein associated with Lower Jurassic hydrothermal systems similar to the Snip deposit." No direct discussions have been held with representatives of Noranda as to the specific details of the geology. The report makes no attempt to speculate on the manner in which the data might bear on the economic aspects of the area flown.

A number of bedrock EM conductors of moderate (to high?) conductance were detected that could satisfy the criteria of massive sulphide conductors but many other zones of low conductance were also recorded. Most of the bedrock conductors can be correlated with magnetic trends of some form and in some cases, to structure. Although there is considerable magnetic activity, magnetic relief is relatively low and there appears to be little likelihood of the presence of strong iron formation or ultrabasic rocks.

5.2 Magnetics

The magnetic data from the high sensitivity cesium magnetometer provide virtually a continuous magnetic reading when recording at two-tenth second intervals. The system is also noise free for all practical purposes.

The sensitivity of 0.1 nanoTeslas (Nt) allows for the mapping of very small inflections in the magnetic field, resulting in a contour map that is equal to or exceeds ground data in quality and accuracy. Both the fine and coarse magnetic traces were recorded on the analog charts.

RDN-GOZ, GIG/GOLD, LUCIFER/DEVIL BLOCKS

The Total Field magnetic map shows areas of fairly strong magnetic highs over the west-central part of the Gig/Gold and most of the eastern half of the Lucifer/Devil claim blocks. Magnetic highs of similar magnitude occur over the northern part of the common boundary between these two blocks. A prominent narrow, north-south trending low extends from the south end of the RDN-GOZ area up through to the northwest corner of the Gig/Gold claims. An area of magnetic lows, below the regional values, occurs within the southern half of the RDN-GOZ area and to the east of the north-south low trend that marks the inferred fault. Northeasterly to north-northeasterly trending lows also occur in the southwestern corner of the Gig/Gold area. The magnetic high trends are somewhat segmented but tend to be oriented north-south.

Overall magnetic relief is approximately 850 nT against an average background level of about 57,550 nT. The peak anomalous value of about 600 nT was attained in the eastern half of the Lucifer/Devil claims (Line 20310 at 12:41:30) where the anomaly distribution and amplitudes are characteristic of mafic rocks (basaltic to andesitic flows of the Triassic Stuhini Group?). This also applies to the magnetic anomalies centred on Line 20310 at about 12:46:13. The magnetic highs in the west-central part of the Gig/Gold block may be an expression of the Permian volcanics mentioned in the geological summary, with the lows outlining the granodiorite intrusives.

A few faults have been inferred from the magnetics, the principal being the previously mentioned north-south to north-northwesterly fault along or near the west boundary of the RDN-GOZ block. Although its locale does not conform to the description given in the geological summary for the Forest Kerr Fault ("*one kilometre west of the west claim boundary*"), it is readily the most prominent structural feature within the survey areas. Parallel secondary faults probably occur just to the east of this structure and appear to be repeated at intervals across the Gig/Gold and Lucifer/Devil claims, but have not been marked on the Interpretation map. However, one east-northeasterly (southwest of the Gig/Gold block) and several minor north-northwesterly and northeasterly faults have been indicated. Note that the 160 degree strike is not confirmed by either the Total Field or Vertical Gradient data.

mafic rocks (e.g., andesites and basalts), decidedly more mafic than the suite described in the geologic summary, unless the hornblende diorites tend toward more gabbroic rocks. Lean iron formation cannot be discounted in view of some of the rather unusual EM responses.

A series of north-northeasterly faults have been inferred - largely from the gradient data - and shown on the Interpretation map. At least one minor northwesterly fault has been shown and although others may be inferred, the north-northwesterly trending stratigraphy appears to be quite persistent and not subject to considerable cross-faulting.

5.3 Vertical Gradient Magnetics

The Vertical Gradient Magnetic map may be regarded as a pseudolithologic map and is believed to provide an excellent rendition of the outline of the underlying magnetic bodies. It also is the writer's preferred data set for correlation of magnetic and EM trends. A compilation of the magnetic trends from the gradient map onto a geologic map at a suitable scale should prove helpful. In this survey, a better resolution of the interbedded volcanic/sediment stratigraphy should be possible from the gradient data. Note however that there is a tendency for gradient trends to be emphasized along directions orthogonal to the flight lines and this should be borne in mind in analyzing and compiling the gradient data.

Magnetic trends have not been shown on the Interpretation map as these can be taken directly from either the Vertical Gradient or the Total Field data, in conjunction with the compilation with available geology. Faulting was generally inferred from the Vertical Gradient map but some faults were developed from the Total Field data. If faulting is important in the assessment of the mineral potential of this area, a somewhat more detailed analysis of the Gradient data, beyond the scope of this report, should be considered. This may take the form of a study of shadow maps generated from either the Total Field or Vertical Gradient maps but the practicality of this approach may be hampered by the relative size (i.e., narrowness) of portions of the survey blocks.

5.4 Electromagnetics

The electromagnetic data were first checked by a line-to-line examination of the analog profiles. Record quality was generally very good with only occasional system noise present on the 4,600 Hz coaxial trace. Most of this was removed from the plotted traces by an appropriate smoothing filter. Geologic noise, in the form of surficial conductors, is present on the high frequency response, and to a minor extent, on the low frequency quadrature response. Anomalies were picked off both the analog records and the plotted profile traces of the multi-frequency responses, using the vertical sheet conductor model as a guide. This helped in weeding out any responses due to noise. These selections were then digitized and plotted on the anomaly map. Surficial responses or those responses from obvious surficial sources, such as lakes or swamps, were not selected.

Each conductor or group of conductors was evaluated on the bases of magnetic (and lithologic, where applicable) correlations apparent on the analog and profile data and from the topographic map, man made or surficial features not obvious on the analog charts.

The survey detected approximately twenty-two probable and possible bedrock conductors or conductive zones. A few were moderate amplitude zones consisting of two (or more) bands of moderate conductance along or coincident with magnetic bands with responses commensurate with those from lenses of sulphide/graphite mineralization. Several low to moderate conductance anomalies were also recorded that have been classed as probable bedrock conductors; the remaining conductors were in the possible bedrock/probable surficial conductor category.

Many strong negative inphase anomalies were recorded throughout the survey. These negatives are due to induced magnetization effects that result in an inversion of the inphase response only, and are as much a measure of bedrock properties as are the conductance effects. They are frequency dependent and in the presence of conductors within the magnetic strata, tend to be strongest on the lower frequency (935 Hz) channel. Quadrature response is not affected by magnetization, so that quadrature response is a better measure of conductance in magnetic strata for the lower conductance values. At higher conductances and/or frequencies, inphase response becomes positive.

RDN-GOZ BLOCK

Of the ten conductive zones marked on the Interpretation map, **R-1** and **R-2** can be classed as bedrock conductors, whereas the remaining zones fall into a category of probable to possible conductors. Other weak - mostly quadrature - responses occur throughout this survey block with many positive quadrature responses associated with negative inphase responses.

R-1, R-2, R-6: Conductors **R-1**, **R-2**, and **R-6** occur along the east flank of a ridge and are close to or along the inferred north-south fault that continues on through the Gig/Gold area. Zone **R-6** appears to be the weakest of the three zones, zone **R-2** shows a slightly stronger response and higher conductance (low to moderate) with best response recorded on Line 20350. Conductance for **R-1** is classed as moderate to high, particularly over the interval of Lines 20220 to 20240. Note that all three zones show dual banding (at least) and are associated with fairly strong negative inphase anomalies to the west of the conductors although on the Vertical Magnetic Gradient map they fall within magnetic lows. They are regarded as bedrock conductors and represent priority exploration targets.

<u>R-3, R-4, R-4a, R-7, R-7a</u>: Zones **R-4** and **R-4a** occur along a creek bed and are likely to be from conductive surficial deposits along the creek valley. The same conditions apply to zones **R-7**, **R-7a**, and **R-3** and possibly the short northwesterly trends that form part of conductive zone **R-8**. They all show weak to moderate quadrature response and relatively weak inphase response on the higher frequency channels.

<u>R-5</u>: Zone **R-5** represents a low conductance north-south trend that cuts through a saddle between two mountain peaks. It may be due to surficial deposits that frequently accumulate in such saddles; conversely it may be along a minor structural trend that has caused the saddle. It is therefore classed as only a possible bedrock conductor. Although the conductor is largely confined to a magnetic low, it does parallel magnetic stratigraphy and an inferred fault about one kilometre to the east. It also occurs in the vicinity of an inferred east-northeasterly (crosscutting?) fault.

<u>R-8, R-9</u>: Conductive zones **R-8** and **R-9** occur further down the flanks of the ridge from **R-2** and **R-6** but are to the east of the inferred northerly fault and appear to be directly

correlatable with magnetic highs (see vertical gradient map). These two zones represent probable to possible bedrock conductors and may be regarded as second priority exploration targets depending on their geologic setting.

R-10: Anomaly **R-10** occurs down the flank of a mountain peak near the top of a cirque-like structure. It is of low conductance, characteristic of a surficial body, but it does occur off the south end of a magnetic high. Both conductors **R-5** and **R-10** may be classed as secondary exploration targets, depending on their geologic setting.

5.5 Apparent Resistivity

The Apparent Resistivity map shows a good correlation of resistivity lows and surficial conductors, the latter generally along steeply incised creek valleys. The exceptions are the bedrock conductive zones discussed above and, in the case of the 33 kHz data over the Ball Creek block, an area centred on Line 10420, along the western boundary of the block. Elsewhere, correlation of resistivity lows between the two data sets (i.e., 4,600 and 33,000 Hz Apparent Resistivity) is very high. There does not appear to be any correlation between the resistivity data and inferred structure other than in the manner that structure has a direct influence on the bedrock topography.

5.6 VLF-EM Total Field

The VLF trends mapped in this survey are predominantly along a north-south to north-northwesterly direction. The primary factors influencing the VLF response appear to be the topography, the orientation to the VLF transmitter, and, to a lesser degree, the distribution of surficial conductors. Although these VLF trends parallel at least one of the inferred structures (the Forrest Kerr Fault), there is little correlation with the northeasterly or northwesterly structures. There also does not appear to be any clear or consistent correlation with any of the possible or probable bedrock conductors shown on the Interpretation map nor with the principal magnetic trends. Because of the difficulties in interpreting airborne VLF data in mountainous terrain, the writer has not considered the VLF information in the interpretation of this airborne data.

5.7 Discussion & Recommendations

Although the writer has worked in the Iskut/Inel area a number of years ago, he is not familiar with the specific geophysical signatures - from airborne or ground coverage - over the Eskay Creek deposit. It is nevertheless understood that the EM response over the deposit is moderate (relatively) to weak. Magnetic response can be expected from pyrrhotite associated with the mineralization. With this in mind and assuming that the geologic conditions are favourable, zones **B-1** to **B-5** and **R-1**, **R-2**, and **R-6** can be regarded as priority exploration targets, and **R-8** and **R-9** as secondary targets with **R-10** assigned an even lower priority. Many other low conductance responses exist within the areas surveyed but these would have to be carefully compiled with detailed geology in order to achieve a proper assessment of the possible bedrock conductors.

The magnetic maps tend to indicate slightly more mafic rocks than has bee suggested from the geologic summaries provided and/or with possible iron formation associated with the interbedded volcanic/sediment sequence. The presence of magnetite placers is a possibility along sections of More Creek (Gig/Gold Block) and although one might imply gold mineralization associated with heavy mineral placers, the writer would not wish to draw any inference as to their economic potential.

Follow-up of the EM conductors could be accomplished with limited grids of resistivity or IP profiles. Ground magnetic coverage is not considered to be necessary as the airborne data is of sufficient quality and accuracy, although detailed ground profiles (i.e., 10 metre stations) would help in clearing up the relationship between magnetic and EM response and their respective sources in the bedrock.

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Respectfully submitted,

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Consulting Geophysicist
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AERODAT LIMITED
November 23, 1990

J9068

APPENDIX II

ANOMALY LIST

J9068 RND-GOZ AREA

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	20010	A	0	5.8	25.0	0.1	0	53
1	20010	B	0	5.9	18.2	0.1	0	52
1	20020	A	0	7.9	13.3	0.4	0	53
1	20020	B	0	9.3	19.1	0.3	0	53
3	20040	B	0	-0.9	18.4	0.0	0	68
3	20060	A	0	1.2	8.8	0.0	0	63
3	20060	D	0	8.4	49.4	0.0	0	39
3	20070	A	0	10.4	53.0	0.1	0	53
3	20070	B	0	18.1	80.2	0.1	0	31
3	20070	C	0	18.0	115.2	0.1	0	28
3	20070	D	0	6.9	25.1	0.1	0	78
3	20070	E	0	9.4	23.6	0.2	0	43
3	20080	A	0	10.4	54.7	0.1	0	38
3	20080	B	0	11.4	100.3	0.0	0	41
3	20090	A	0	13.1	59.9	0.1	0	41
3	20090	B	0	10.5	52.1	0.1	0	49
3	20100	A	0	10.0	30.0	0.2	0	59
3	20110	B	0	10.5	37.4	0.1	0	47
3	20110	C	0	9.0	27.7	0.2	0	70
3	20110	D	0	2.1	11.7	0.0	0	44
3	20110	E	0	14.1	50.6	0.2	0	55
3	20120	B	0	16.0	82.5	0.1	0	36
3	20120	C	0	20.7	72.3	0.2	0	42
3	20120	D	0	23.0	103.6	0.1	0	35
3	20120	E	0	7.2	29.2	0.1	0	52
3	20120	F	0	6.7	21.2	0.1	0	64
3	20120	G	0	10.2	33.9	0.2	0	53
3	20120	H	0	6.2	50.6	0.0	0	36
3	20130	A	0	10.5	27.4	0.2	0	59
3	20130	B	0	5.6	12.6	0.2	0	66
3	20130	C	0	6.8	21.4	0.1	0	57
3	20130	D	0	16.1	47.7	0.2	0	38
3	20130	E	0	10.8	24.9	0.3	0	76
3	20130	F	0	20.8	41.1	0.5	0	47

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9068 RND-GOZ AREA

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
3	20130	G	0	-0.4	26.9	0.0	0	28
3	20140	A	0	11.6	29.4	0.3	0	55
3	20140	B	0	15.3	59.6	0.1	0	47
3	20140	C	0	13.5	53.1	0.1	0	50
3	20140	D	0	10.7	109.4	0.0	0	25
3	20140	G	0	8.1	51.2	0.0	0	45
4	20150	A	0	7.2	15.6	0.3	0	50
4	20150	B	0	2.6	12.9	0.0	0	63
4	20150	C	0	14.0	60.5	0.1	0	41
4	20150	D	0	16.6	54.4	0.2	0	37
4	20150	E	0	21.3	54.3	0.4	0	39
4	20160	D	0	11.3	51.7	0.1	0	44
4	20160	E	0	13.0	46.6	0.2	0	62
4	20160	J	0	10.0	26.3	0.2	0	56
4	20170	A	0	5.0	25.5	0.0	0	41
4	20170	B	0	3.9	19.1	0.0	0	45
4	20170	D	0	10.0	63.5	0.0	0	36
4	20170	E	0	11.2	23.9	0.3	0	62
4	20180	C	0	1.0	12.6	0.0	0	73
4	20180	E	0	9.2	84.6	0.0	0	30
4	20190	A	0	5.6	35.2	0.0	0	47
4	20190	B	0	9.7	24.5	0.2	0	42
4	20190	C	0	9.7	22.8	0.3	0	46
4	20200	C	0	3.9	26.2	0.0	0	42
4	20200	E	0	-12.9	27.6	0.0	0	40
4	20200	F	0	3.3	38.1	0.0	0	32
4	20210	B	0	14.1	23.1	0.6	0	66
4	20210	C	0	16.8	33.6	0.4	0	42
4	20220	C	0	38.6	76.7	0.7	0	40
4	20220	D	0	21.2	68.1	0.2	0	46
4	20220	E	0	16.3	58.1	0.2	0	47
4	20230	A	0	7.5	30.1	0.1	0	37
4	20230	B	0	1.4	30.2	0.0	0	41
4	20230	C	0	14.0	28.0	0.4	0	70
4	20230	D	1	76.1	99.5	1.5	0	50

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9068 RND-GOZ AREA

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	20230	E	0	7.4	20.1	0.2	0	55
4	20240	B	0	1.5	14.5	0.0	0	51
4	20240	C	0	34.4	79.7	0.5	0	42
4	20240	D	0	2.2	46.5	0.0	0	27
5	20250	A	0	7.6	30.7	0.1	0	43
5	20250	B	0	7.5	28.1	0.1	0	42
5	20250	C	0	7.6	19.3	0.2	0	50
5	20250	D	0	5.5	22.8	0.1	0	46
5	20250	E	0	41.2	125.9	0.4	0	30
5	20250	F	0	34.7	62.5	0.7	0	41
5	20260	A	0	3.3	33.8	0.0	0	48
5	20260	B	0	12.3	71.0	0.1	0	34
5	20260	C	0	19.4	73.4	0.2	0	57
5	20270	A	0	3.5	27.4	0.0	0	63
5	20270	B	0	16.9	43.2	0.3	0	43
5	20270	C	0	20.3	74.3	0.2	0	41
5	20270	D	0	9.8	36.5	0.1	0	56
6	20280	C	0	15.3	55.2	0.2	0	47
6	20280	D	0	12.2	22.3	0.4	0	61
6	20280	E	0	15.4	53.6	0.2	0	41
7	20292	B	0	21.0	76.8	0.2	0	38
7	20292	C	0	13.4	31.0	0.3	0	58
8	20301	A	0	14.4	56.8	0.1	0	32
77	20320	B	0	-0.7	38.0	0.0	0	30
77	20320	C	0	-0.9	29.2	0.0	0	26
77	20330	F	0	21.4	118.0	0.1	0	37
77	20330	G	0	17.4	80.8	0.1	0	40
77	20330	H	0	4.9	17.7	0.1	0	44
77	20340	A	0	3.5	8.2	0.1	0	91
77	20340	B	0	2.3	13.6	0.0	0	55
77	20340	C	0	7.7	25.6	0.1	0	43
77	20340	D	0	14.8	88.7	0.1	0	37
77	20340	E	0	28.6	86.4	0.3	0	54
77	20350	B	0	18.3	59.3	0.2	0	55

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9068 RND-GOZ AREA

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
77	20350	C	0	20.0	76.1	0.2	0	47
77	20350	D	0	12.8	41.9	0.2	0	42
77	20350	E	0	14.1	41.9	0.2	0	45
77	20350	F	0	18.4	62.0	0.2	0	36
77	20350	G	0	13.9	32.3	0.3	0	53
77	20350	H	0	17.9	32.8	0.5	0	49
77	20360	A	0	11.1	16.3	0.6	0	59
77	20360	B	0	9.9	38.5	0.1	0	45
77	20360	D	0	10.6	43.6	0.1	0	54
77	20360	E	0	14.5	70.4	0.1	0	50
77	20360	F	0	28.4	113.7	0.2	0	41
77	20360	G	0	41.9	179.3	0.2	0	39
77	20370	C	0	26.1	113.0	0.2	0	38
77	20370	D	0	15.5	56.2	0.2	0	43
77	20370	E	0	11.8	56.7	0.1	0	41
77	20370	F	0	8.7	46.5	0.0	0	40
77	20370	G	0	2.2	23.1	0.0	0	51
77	20370	H	0	3.8	11.6	0.1	0	45
77	20380	B	0	7.5	48.1	0.0	0	42
77	20380	D	0	10.4	56.0	0.1	0	41
77	20380	E	0	16.2	103.7	0.1	0	34
77	20380	F	0	15.2	99.8	0.0	0	39
77	20390	A	0	10.8	43.0	0.1	0	43
77	20390	D	0	13.2	42.2	0.2	0	59
77	20390	E	0	14.0	47.2	0.2	0	36
77	20390	F	0	20.4	46.3	0.4	0	57
77	20400	A	0	6.4	19.3	0.1	0	70
77	20400	B	0	13.8	35.8	0.3	0	52
77	20410	D	0	17.2	32.1	0.5	0	59
77	20410	E	0	10.4	36.5	0.1	0	34
77	20420	A	0	16.7	54.0	0.2	0	41
77	20420	B	0	13.7	63.2	0.1	0	39
77	20420	C	0	3.9	12.9	0.1	0	62
77	20420	D	0	18.1	45.4	0.3	0	50
77	20420	E	0	8.2	44.7	0.0	0	44
77	20430	D	0	4.0	17.9	0.0	0	42
77	20430	E	0	12.8	23.1	0.5	0	54

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
77	20430	F	0	7.9	23.0	0.2	0	53
77	20430	G	0	9.0	29.0	0.1	0	35
77	20440	C	0	3.0	12.9	0.0	0	45
77	20440	D	0	7.9	18.1	0.2	0	55
77	20450	A	0	14.9	30.1	0.4	0	57
77	20450	C	0	0.8	20.7	0.0	0	36
77	20460	B	0	3.4	22.1	0.0	0	42
77	20460	C	0	8.3	30.4	0.1	0	46
8	20470	A	0	12.2	50.0	0.1	0	43
8	20480	A	0	6.2	8.4	0.5	0	67
8	20480	B	0	8.6	27.7	0.1	0	57
8	20490	A	0	11.2	51.0	0.1	0	40
8	20490	B	0	6.4	51.8	0.0	0	37
8	20490	C	0	7.3	32.1	0.1	0	36
8	20500	A	0	11.7	33.0	0.2	0	52
8	20500	B	0	8.4	25.5	0.2	0	56
8	20500	C	0	11.1	49.5	0.1	0	42
8	20500	D	0	9.1	37.6	0.1	0	39
8	20510	A	0	8.8	24.5	0.2	0	52
8	20530	A	0	3.0	15.4	0.0	0	69
8	20530	B	0	6.2	22.3	0.1	0	47
8	20540	B	0	6.2	22.5	0.1	0	57
8	20550	B	0	-1.1	22.1	0.0	0	31
8	20560	B	0	-4.8	19.0	0.0	0	29
8	20560	D	0	-4.3	42.4	0.0	0	30
8	20570	B	0	10.3	27.5	0.2	0	47
8	20580	A	0	8.6	26.9	0.2	0	45
8	20580	B	0	9.2	36.2	0.1	0	45
8	20590	D	0	4.7	25.9	0.0	0	50
8	20590	E	0	10.0	29.1	0.2	0	52

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9068 RND-GOZ AREA

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
5	20610	B	0	8.3	22.7	0.2	0	51
5	20660	B	0	0.3	15.0	0.0	0	28
5	20670	C	0	-6.4	29.7	0.0	0	29
5	20680	A	0	1.2	25.4	0.0	0	25
5	20680	C	0	2.7	24.3	0.0	0	45
5	20690	B	0	8.5	27.4	0.1	0	48
5	20690	C	0	-2.1	13.4	0.0	0	34

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, GEORGE PODOLSKY, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario and work as a Professional Geophysicist.

2. I reside at 172 Dunwoody Drive in the town of Oakville, Halton County, Ontario.

3. I hold a B. Sc. in Engineering Physics from Queen's University, having graduated in 1954.

4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past thirty-four years.

5. I have been an active member of the Society of Exploration Geophysicists since 1960 and hold memberships on other professional societies involved in the minerals extraction and exploration industry.

6. The accompanying report was prepared from published or publicly available information and material supplied by Noranda Exploration Company Limited and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.

7. I have no interest, direct or indirect, in the property described nor in Noranda or its subsidiary companies.

8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the British Columbia Securities Commission and/or other regulatory authorities.

Signed,

George Podolsky, P. Eng.
GEOPOD Associates Inc.

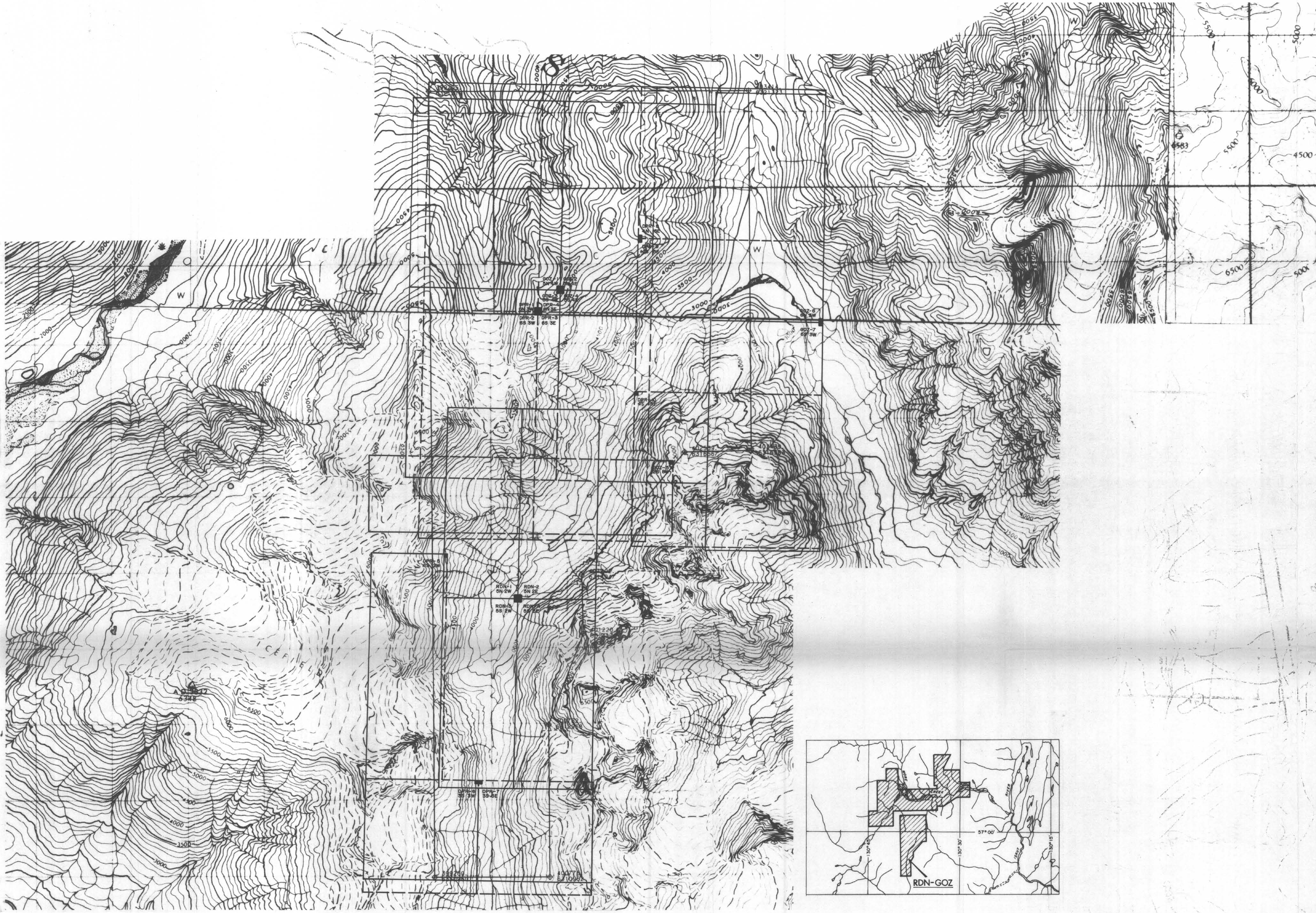
J9068
Oakville, Ontario
November 23, 1990

APPENDIX IV

PERSONNEL

FIELD

Flown	September 5 to October 5, 1990
Pilot	Del Rokosh Ron Mitchinson
Operator	Mark Barry Steve Arstad Peter Moore
Processing	D. Oneschuk
Report	G. Podolsky



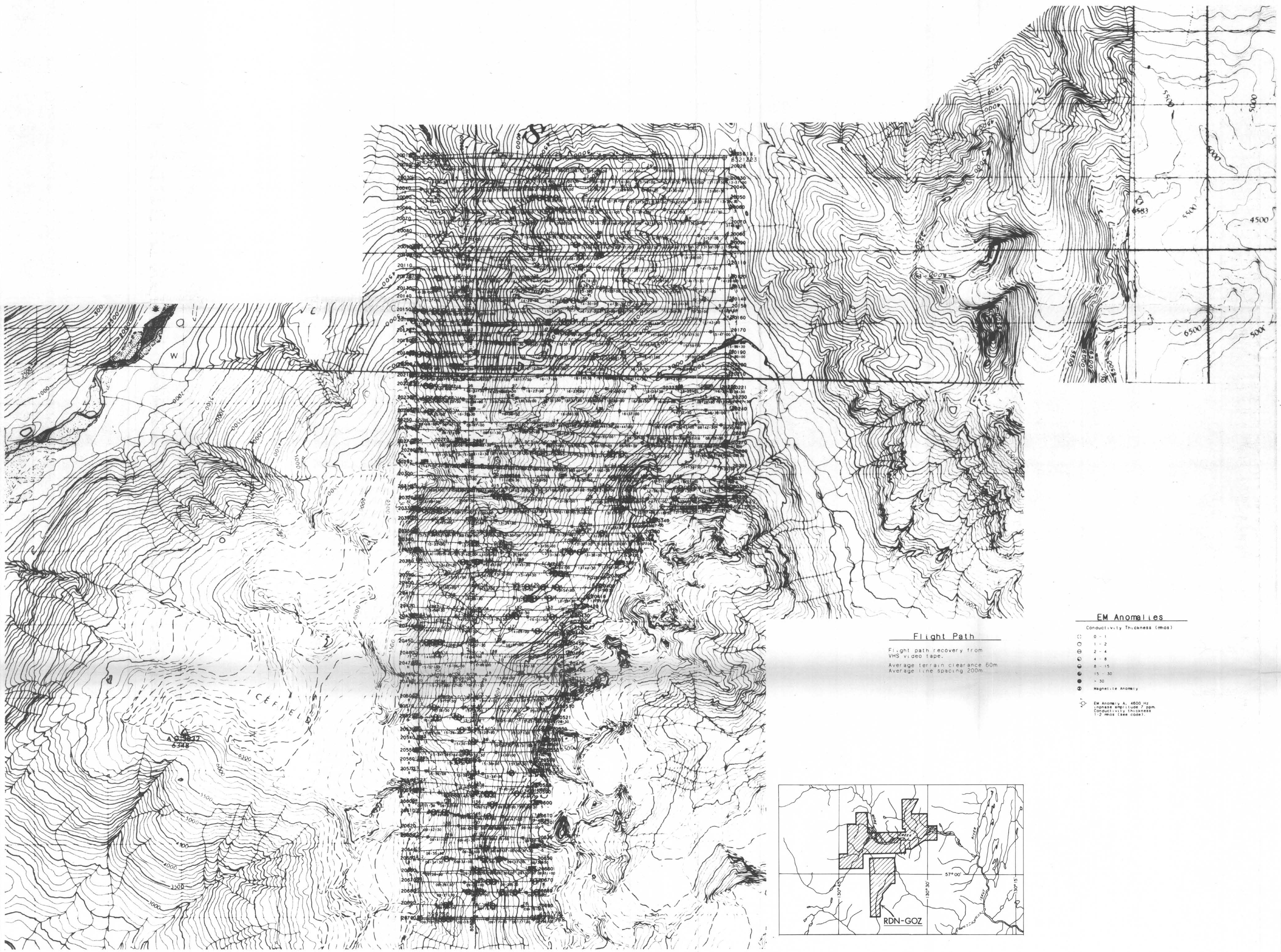
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1400 Metres

REVISED	RDN - GOZ
	BASE MAP
PROJ. No.	SURVEY BY: DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S., SCALE: 1:20,000
DWG. No. 3	NORANDA EXPLORATION OFFICE: VANCOUVER



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30
- Magnetite Anomaly

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm. Conductivity thickness 1-2 mhos (see code).

GEOLOGICAL BRANCH
ASSESSMENT REPORT

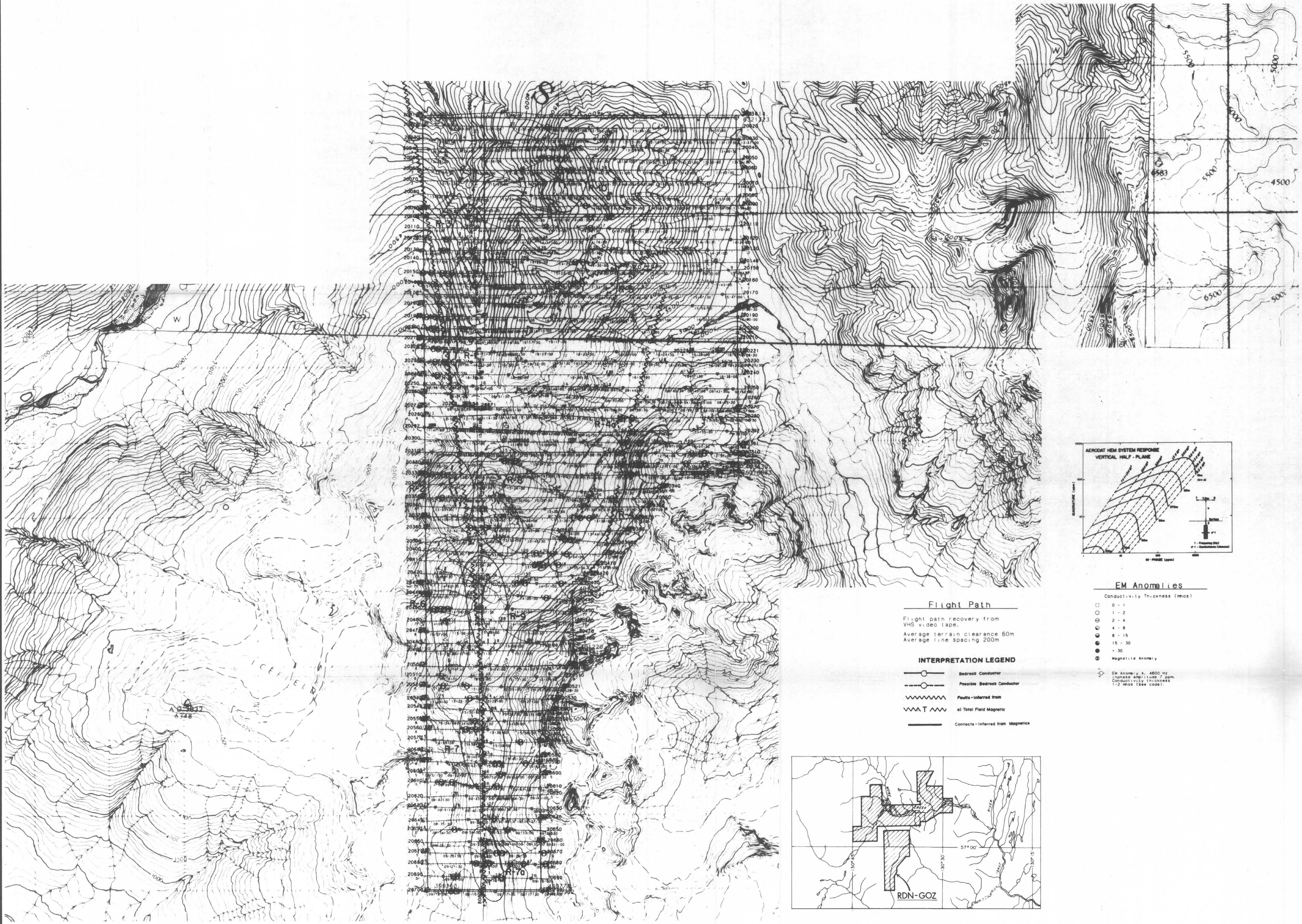
21,366

SCALE
1 : 20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ
	FLIGHT PATH
PROJ. No. 298	SURVEY BY: DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S., SCALE: 1:20,000
DWG. No. 4	NORANDA EXPLORATION OFFICE: VANCOUVER

3



EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30
- Magnetite Anomaly

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm. Conductivity thickness 1-2 mhos (see code).

Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

INTERPRETATION LEGEND

- Bedrock Conductor
- Possible Bedrock Conductor
- Faults - Inferred from
- a) Total Field Magnetic
- Contacts - Inferred from Magnetics

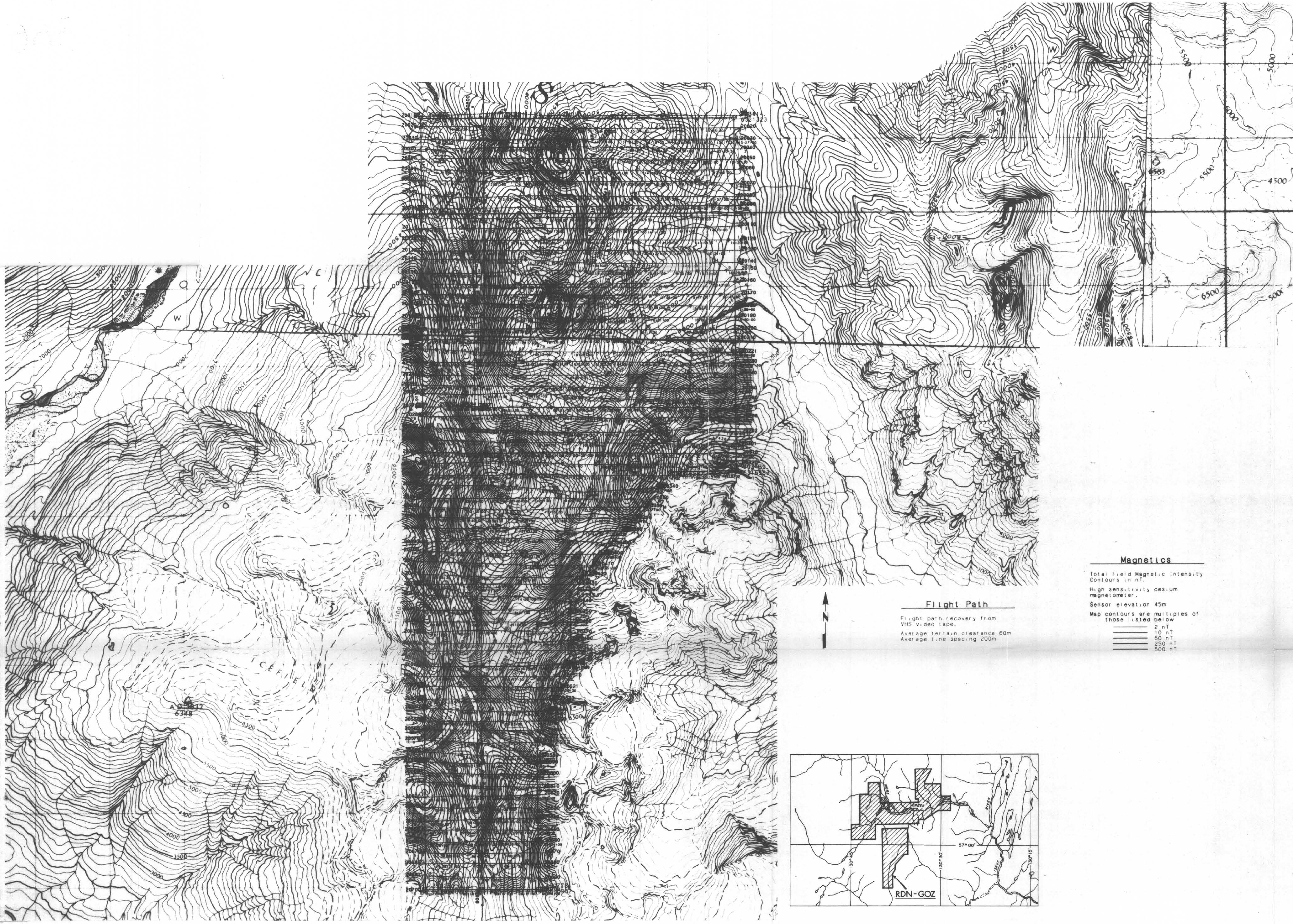
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ
	INTERPRETATION
PROJ. No.	SURVEY BY: DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S., SCALE: 1:20,000
DWG No 5	NORANDA EXPLORATION OFFICE: VANCOUVER



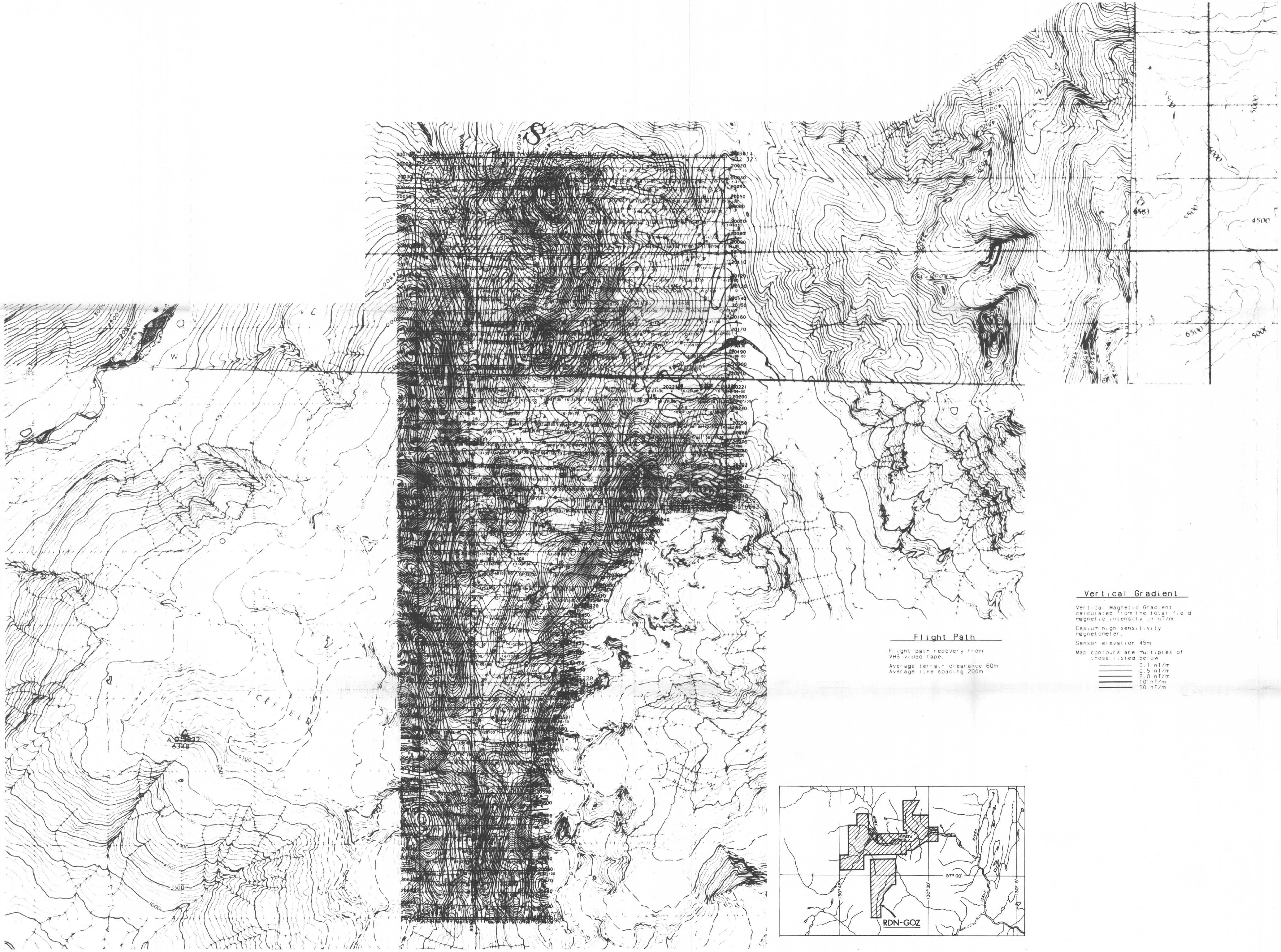
GEOLOGICAL BRANCH ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ	
	TOTAL FIELD MAGNETIC CONTOURS	
PROJ. No.	SURVEY BY:	DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S.	SCALE: 1:20,000
DWG. No. 6	NORANDA EXPLORATION OFFICE: VANCOUVER	



Flight Path

Flight path recovery from
VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

Vertical Gradient

Vertical Magnetic Gradient
calculated from the total field
magnetic intensity in nT/m.

Cesium high sensitivity
magnetometer.

Sensor elevation 45m

Map contours are multiples of
those listed below

0.1 nT/m
0.5 nT/m
2.0 nT/m
10 nT/m
50 nT/m

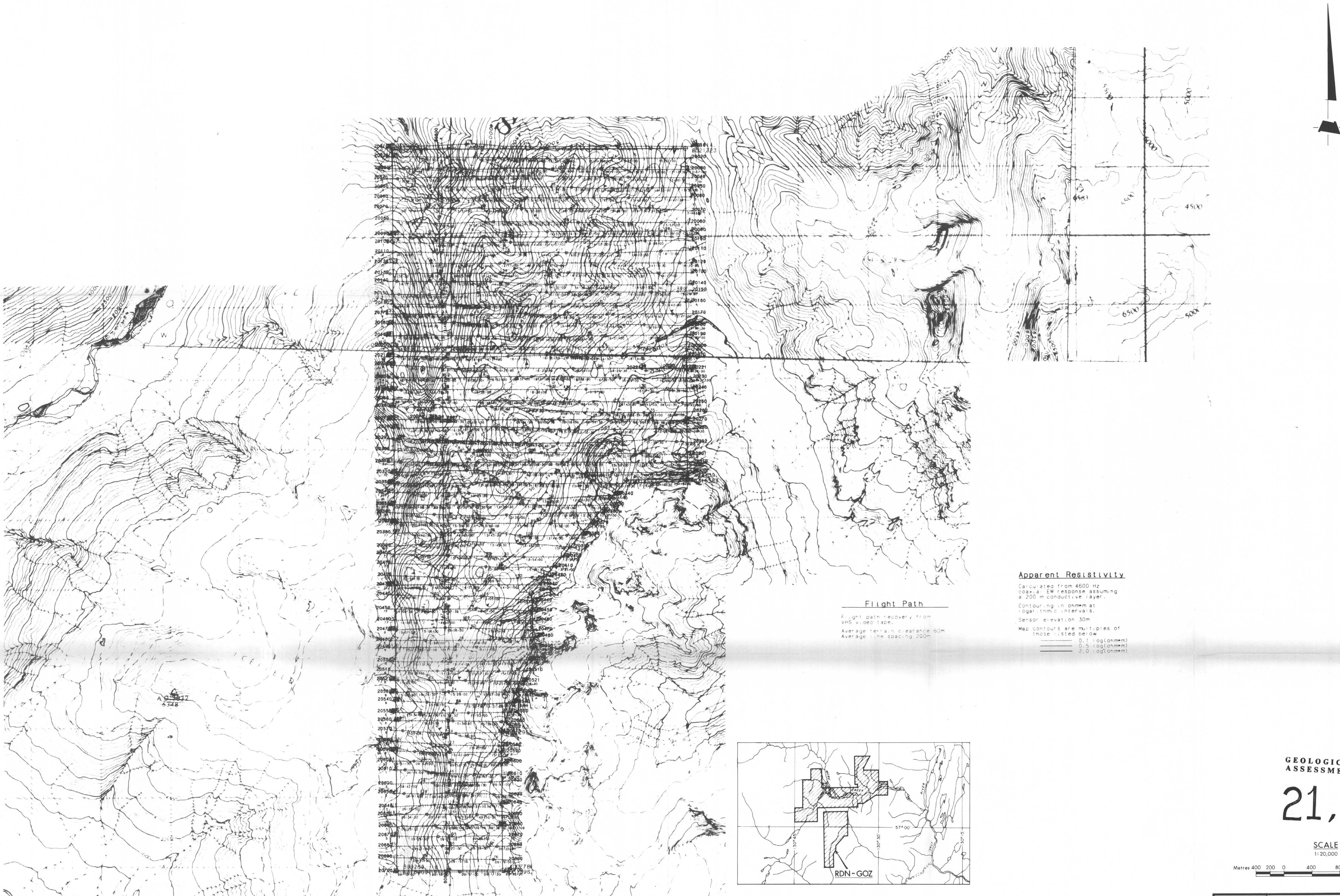
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ	
	CALCULATED VERTICAL MAGNETIC GRADIENT	
PROJ. No.	SURVEY BY:	DATE: September 1991
N.T.S. 104G/2,-B/15	DRAWN BY: J.S.,	SCALE: 1:20,000
DWG. No. 7	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

Apparent Resistivity

Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.

Contouring in ohm•m at logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of those listed below

- 0.1 log(ohm•m)
- 0.5 log(ohm•m)
- 2.0 log(ohm•m)

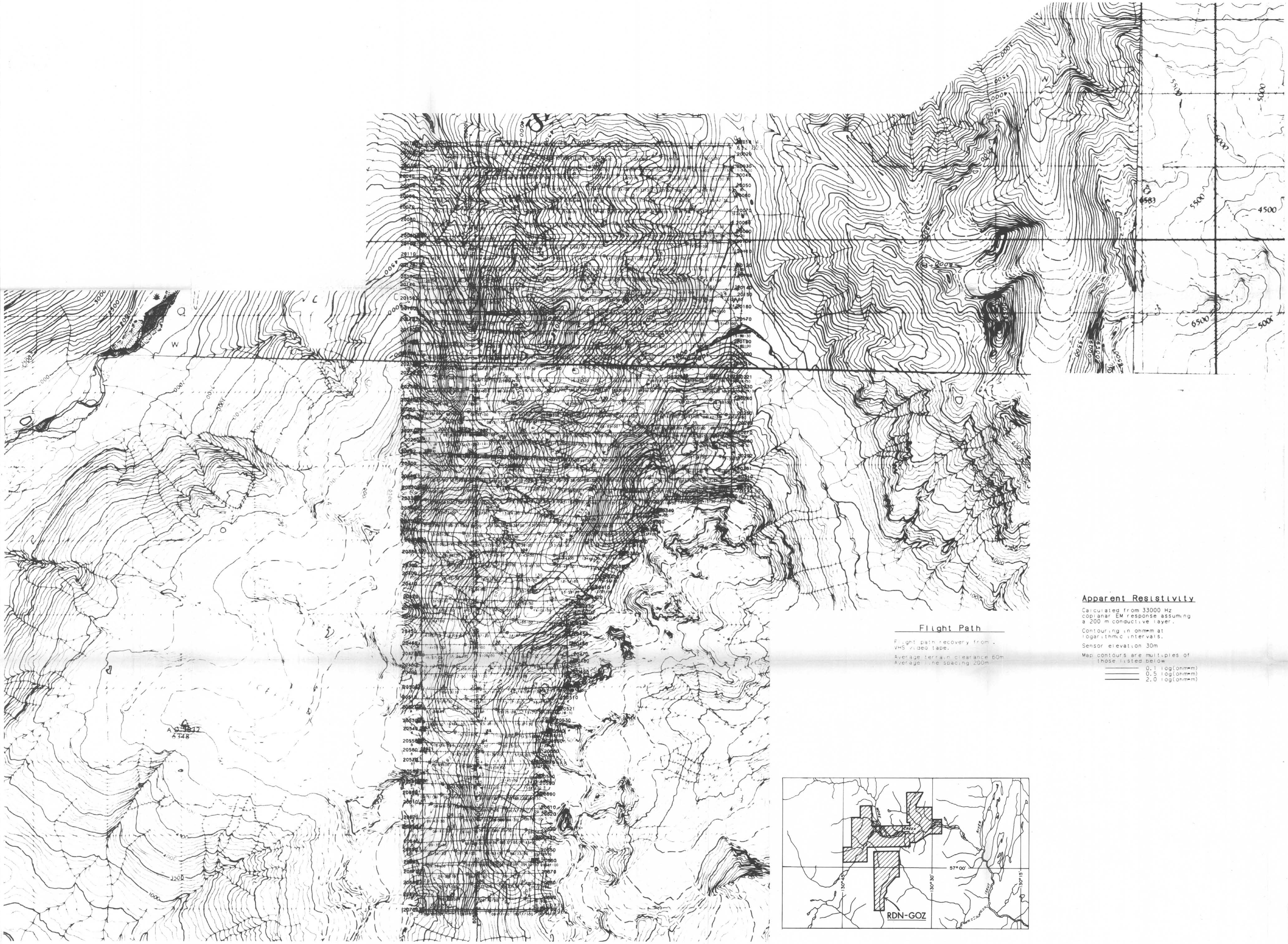
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ
	APPARENT RESISTIVITY CONTOURS
PROJ. No.	SURVEY BY: DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S., SCALE: 1:20,000
DWG. No. 8	NORANDA EXPLORATION OFFICE: VANCOUVER



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

Apparent Resistivity

Calculated from 33000 Hz coplanar EM response assuming a 200 m conductive layer.

Contouring in ohm•m at logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of those listed below

- 0.1 log(ohm•m)
- 0.5 log(ohm•m)
- 2.0 log(ohm•m)

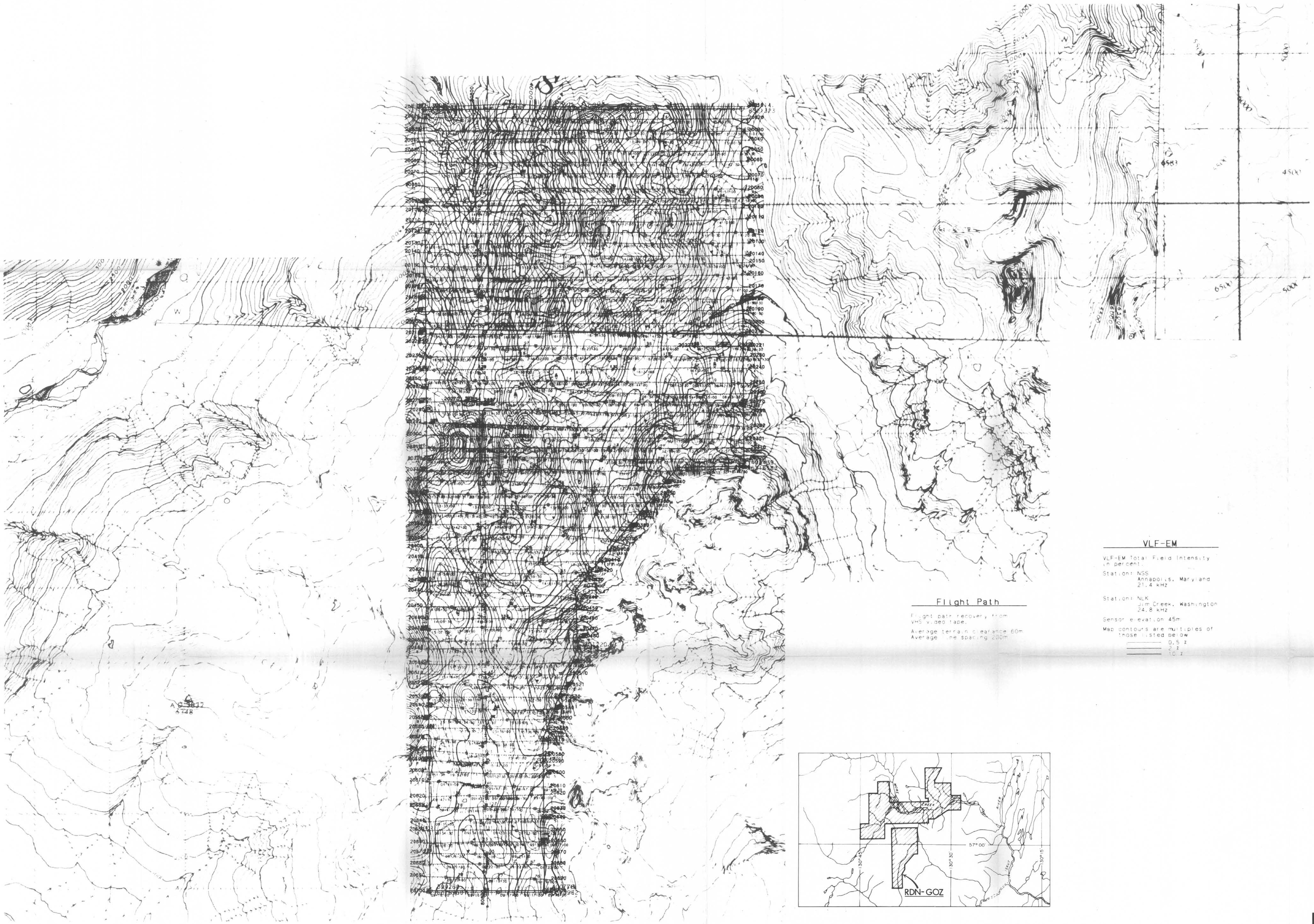
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,366

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ
	APPARENT RESISTIVITY CONTOURS
PROJ. No.	SURVEY BY: … DATE: September 1990
N.T.S. 104G/2,-B/15	DRAWN BY: J.S., SCALE: 1:20,000
DWG. No. 9	NORANDA EXPLORATION OFFICE: VANCOUVER



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 200m

VLF-EM

VLF-EM Total Field Intensity in percent.

Station: NSS
Annapolis, Maryland
21.4 kHz

Station: NLK
Jim Creek, Washington
24.8 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

- 0.5 %
- 2 %
- 10 %

SCALE
1:20,000

Metres 400 200 0 400 800 1200 1600 Metres

REVISED	RDN - GOZ
	VLF - EM TOTAL FIELD CONTOURS
PROJ. No.	SURVEY BY:
N.T.S. 104G/2,-B/15	DRAWN BY: J.S.,
DWG. No. 10	DATE: September 1990
	SCALE: 1:20,000
	NORANDA EXPLORATION
	OFFICE: VANCOUVER