MAP NO.	**ASSESSMENT REPORT**	✓	**DOCUMENT NO.:** 092002
	PROSPECTUS		**MINING DISTRICT:** WHITEHORSE
105 K 2, 3	**CONFIDENTIAL**	✓	**TYPE OF WORK:** Geochemical, Geophysics
105 F 15	**OPEN FILE**		

REPORT FILED UNDER: Noranda Exploration Co. Ltd.

DATE PERFORMED: June - September 1987 **DATE FILED:** January 13, 1988

LOCATION: **LAT.:** 62°03'N **AREA:** Tintina Trench

LONG.: 132°50'W **VALUE $:** 60,800.00

CLAIM NAME & NO.: CANYON 37-96, 98, 100, 102, 104, 216, 218-222, 301-347
GRAND 1-136, 138-162

WORK DONE BY: Hugh Copland

WORK DONE FOR: Noranda Exploration Co. Ltd.

DATE TO GOOD STANDING		REMARKS: #88 GREW CREEK

GEOCHEMICAL & GEOPHYSICAL REPORT

on the

GREW CREEK PROJECT

CANYON 37 - 96, 98, 100, 102, 104

216, 218 - 222, 301 - 347

GRAND 1 - 136, 138 - 162

Whitehorse Mining District

NTS: 105 K/2,3, 105 F/15

Latitude: 62°03'N

Longitude: 132°50'W

RECEIVED
JAN 12 1988
WHITEHORSE

OFFICE OF THE REGIONAL MANAGER
MINERAL RIGHTS
JAN 13 1988
WHITEHORSE
YUKON TERRITORY

Owned & Operated by

Noranda Exploration Company Limited

Whitehorse, Yukon

Hugh Copland

January, 1988

092002

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 60 809.00 .

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.



SUMMARY

The Grew Creek Project consists of 332 contigous claims (Grand & Canyon) on the southern boundary of the Tintina Trench between Ross River and Faro, Y.T.. The claims were optioned in June 1987 by Noranda Exploration Company Limited from Alan Carlos of Whitehorse, after being dropped by Hudson Bay Exploration & Development. In 1987 a program of airborne geophysics and soil/humus sampling was conducted over a portion of the claim group. Soil sample interpretation is hampered by a thick blanket of glacial till, while geophysics was useful in delinating underlying structure and possible lithologies. Ground geophysics, further sampling and intensive prospecting/mapping is recommended over the claims.

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CHAPTER ONE: INTRODUCTION

1-1: INTRODUCTORY STATEMENT

The Grew Creek Project consists of 332 claims (Canyon & Grand Claims) located near Ross River, and Faro, Y.T.. The claims were originally staked in 1983 and numerous surveys have been subsequently carried out. In 1987 a program of soil sampling and an airborne geophysical study was carried out on the claims.

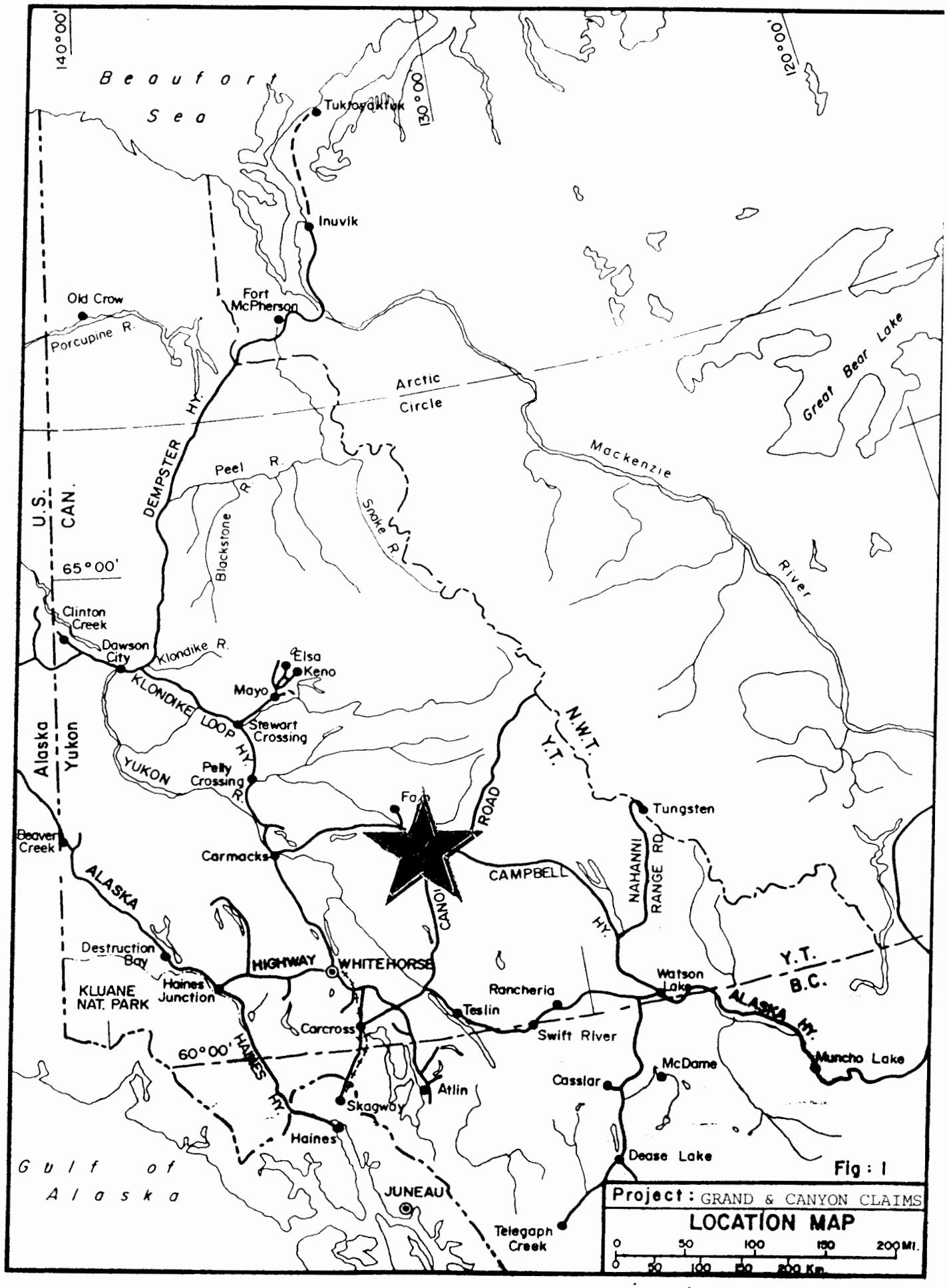
1-2: LOCATION & ACCESS

The property (NTS 105 K/2,3, 105 F/15, Lat: 62°03'N, 132°50'W) lies south of the Robert Campbell Highway between Ross River and Faro, Y.T.. (see Figs. 1&2) A number of 2WD and 4WD roads access portions of the property off the highway. A powerline connecting Ross River to the main grid from Whitehorse passes parallel to the highway through the claims.

1-3: TOPOGRAPHY & VEGETATION

The claims lie along the southwestern edge of the Tintina Trench in the Pelly Mountains. Within the Tintina Trench topography is characterized by low rolling glacial features (drumlins, moraines, etc.) of low relief. Elevation on the property varies between 700 & 975 metres. A fire during the late 1960's destroyed most of the first growth on the claims and the area has been revegetated with poplar, birch and pine. Some mature stands of spruce and pine do remain.

Numerous small pothole lakes cover the property. Drainage by several small creeks is generally to the north into the Pelly River. Major creeks through the claims include Buttle, Grew, Rat, Danger Creeks and the Lapie River.



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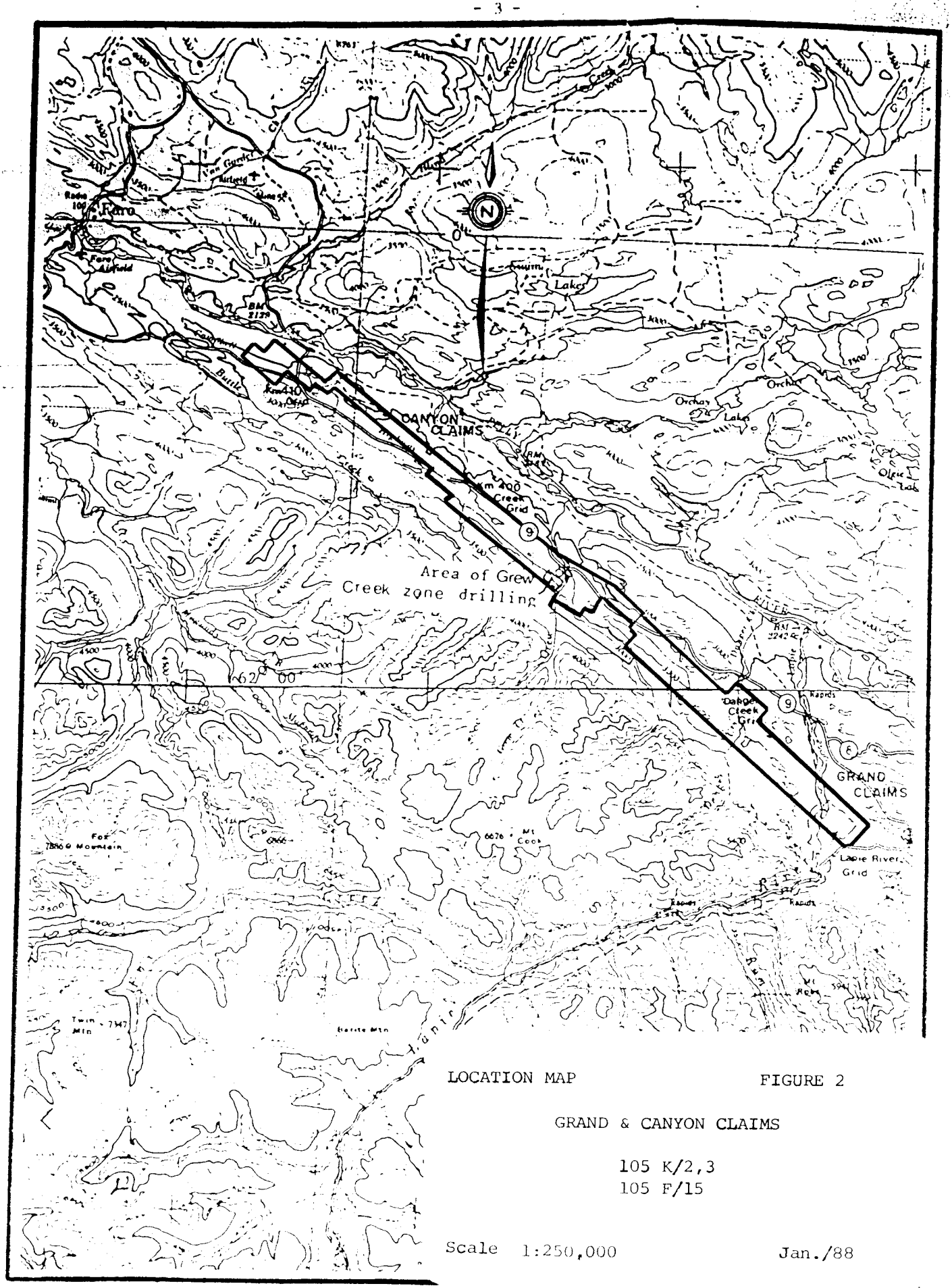


LOCATION MAP FIGURE 2

GRAND & CANYON CLAIMS

105 K/2,3
105 F/15

Scale 1:250,000 Jan./88

1-4: CLAIM DEFINITION

The Grew Creek property consists of 332 claims. This report covers only a portion of these claims:

Canyon	37 - 40	YA 75757 - 75760
	41 - 96	YA 81190 - 81215
	98	YA 81217
	100	YA 81219
	102	YA 81211
	104	YA 81223
	216	YA 81335
	218 - 222	YA 81337 - 81341
	301 - 320	YA 85406 - 85425
	321 - 347	YA 92106 - 92132
Grano	1 - 48	YA 81848 - 81895
	49 - 136	YA 85284 - 85371
	138 - 162	YA 85373 - 85397

The locations of claims is shown on Figs. 3 & 4.

1-5: HISTORY

Exploration in the area was first conducted in the late 1800's. Recorded instances of exploration in the area are not known until 1965 when the area east of Grew & Rat Creeks (Tarn Zone) was staked by General Enterprises. EM and IP surveys and three diamond drill holes were completed in that area in subsequent years. Small placer operations have been attempted on Grew Creek proper since the early 1980's. The first of what is now the Grew Creek

property was staked by Whitehorse prospector Al Carlos in June 1983 and optioned by Hudson Bay Exploration and Development later that year. They performed numerous geophysical, geochemical, and geological surveys and diamond drilling (13 holes, 1732 metres), trenching, and rotary holes (19 holes, 1660 metres) during the next 3 years. Drilling was concentrated on the Grew Creek Marn and Tarn zones, whereas other surveys covered the entire property. Hudson Bay dropped the option and it was picked up by Noranda Exploration Company Limited in June 1987.

1-6: 1987 WORK PROGRAM

An Aerodat airborne geophysical survey was flown over the area and was followed by ground based geophysics (magnetometer, IP), soil geochemistry and diamond drilling. This report covers only geochemistry and airborne geophysics which was done on the claims previously listed.

Personnel and contractors involved in the 1987 program include:

Aerodat Ltd.	Toronto Ontario	Airborne Survey
Gordon Clark & Assoc.	Whitehorse Y.T.	Linecutting
Jan Nelsen	Project Geologist	Vancouver, B.C.
Kent Pearson	Geologist	Edmonton, Albt.
Marvin Falk	Geologist	Edmonton, Albt.
Joey Mazumdar	Field Assistant	Edmonton, Albt.
Bill Kerby	Geophysicist Assistant	Vancouver, B.C.
Murrell Trudzik	Geologist	Edmonton, Albt.
Tim Daly	Field Assistant	Whitehorse, Y.T.
Ken Grant	Camp Manager	Whitehorse, Y.T.
Hugh Copland	Project Geologist	Whitehorse, Y.T.

All work was conducted between June and September 1987, inclusive.

CHAPTER TWO: GEOCHEMISTRY

2-1: PROCEDURE

Soil traverses were situated at right angles to the strike of geology in the area in a northeasterly direction. Traverse length averaged between 1.5 and 2.0 km. Regional traverses were located between 500 and 1000 metres apart depending on topographic conditions. Sample spacing averaged 50 metres but was tightened to 25 metres in some instances. At each location, where possible, both a humus and till sample were collected. Humus was collected with the use of a mattock. In some instances two humus layers seperated by a layer of White River Ash were observed. In these cases two humus samples were collected. Till samples were collected with the use of a spoon-type auger from as far down as possible. This depth varied between 0.5 and 1.0 metres. All till samples were collected below the ash layers. A total of 1031 till and 1347 humus samples were collected.

All samples were placed in Kraft sample bags and the location marked by flagging. Sample preparation and analysis was performed by Noranda's Vancouver Lab and various other commercial labs. Both sample types were prepared and analysed by similiar methods which are described on the geochemical reports. All samples were analyzed for Au, Ag, Hg, and As.

2-2: RESULTS

Complete results are plotted on figures 5 to 16. Each map shows one element with results for both humus and soil opposite their location. A statistical analysis of the 1347 humus and 1031 till samples was performed the results of which are summarized below:

	Au (ppb)	Ag (ppm)	Hg (ppb)	As (ppm)
HUMUS				
mean	1.2	0.16	85.5	2.86
max.	85	5.6	380	15
SOIL				
mean	1.3	0.16	29.2	6.84
max.	51	1.4	400	111

As most traverses cover areas hidden by a thick blanket of glacial till, up to 75 metres thick in places, the lack of any outstanding anomalies is not surprising. Test soil lines over the main Grew Creek zone where substantial gold and mercury anomalies occur in bedrock at the till/bedrock interface, show no response on surface till and humus sampling.

Gold and silver response of till and humus appear to be dientical although anomalous values do not necessarily correspond at the same sites. On Traverse 7 for instance, 85 ppb Au in humus has a corresponding value of 1 ppb in till, whereas a value of 28 ppb in soil has a corresponding value of 1 ppb in humus.

The lower mobility of arsenic is reflected in the higher mean values present in soil compared to humus. On the other hand mercury being more mobile tends to concentrate in the humus. On the whole anomalous mercury values compare well in both soil and humus. From an exploration standpoint best follow-up targets seem to be strings of anomalous values and/or coincident soil/humus anomalies. High isolated values of any of the elements probably do not reflect true targets.

CHAPTER THREE: GEOPHYSICS

3-1: PROCEDURE

An Aerodat airborne geophysical survey was flown over the property during the week July 9 to 14, 1987. A total of 600 line - km at a line spacing of 400 metres and orientation of 030° were completed. Equipment operated included a three frequency electromagnetic system a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Further details on equipment and data presentation are available in the appendix.

3-2: RESULTS

The interpretation of results is taken from Podolsky, 1987. Airborne maps in the pocket include:

17	Airborne EM Interpretation	West Half
18	Airbrone EM Interpretation	East Half
19	Magnetometer Survey	West Half
20	Magnetometer Survey	East Half
21	Apparent Resistivity	West Half
22	Apparent Resistivity	East Half
23	VLF-EM Contours	West Half
24	VLF-EM Contours	East Half

MAGNETICS

The Total Field Magnetic Contour map is characterized by several magnetic trends of low to moderate amplitude - maximum of about 1200 nT on Line 20760 but average magnetic relief is probably less than 120 nT - that nearly parallels the long axis of the survey. A weak trend of lows extends from about the centre of the north western boundary to the southern corner

of the area. Over the north western half of the survey, it is paralleled by a second trend of lows approximately two kilometres to the south west. Periodically, the low trends appear to cut across the magnetic stratigraphy (i.e. the magnetic highs), albeit at a fairly narrow angle. They probably represent fault zones or unconformities as a change in the magnetic character is reflected across these features.

A number of cross factures or faults have been marked on the Interpretation map. These were all taken from the magnetic data but most of them show up quite prominently, as sharp breaks or drainage courses, on the photomosaic. A series of weak highs, trending roughly north-south and extending from the west end of Line 20150, may represent a narrow, mafic intrusive (diabase dike?), although this does not appear to extend beyond the first inferred contact.

ELECTROMAGNETICS

The survey produced a large number of EM responses most of which fall into a range of low to moderate conductances (i.e. shears and weakly graphitic sediments) and most of which occur with broad, fairly well defined belts. Accordingly, these conductors have been grouped into four "Conductive Areas" within which are marked a few of the more exceptional conductive zones. A few of these such as IIIc, IVb and IVd show quite high conductance values together with strong amplitudes.

CONDUCTIVE AREA I falls to the north east of the long inferred contact although unlike the contact, it virtually fades out in the vicinity of Line 20680, continues to the south east as a much narrower belt (or belts) and "picks up" again to the south of Line 20830 where it has been designated as Area IV. Conductance levels are generally low to moderate.

CONDUCTIVE AREA II lies entirely between the two inferred contacts, bending more toward the westerly contact. It has the appearance of a wide conductive band that pinches and swells along its length. These changes in width may be correlated to the transverse faults. Conductance is moderate, at best.

CONDUCTIVE AREA III consists of a series of conductive trends to the south west of the western most contact. Responses tend to be lower than for the other areas except for Zone III on Line 20650. As this occurs at the south west end of the line, as the helicopter is climbing rapidly, positioning may have been a problem. Line 20630, also ascending, shows the beginnings of a strong response off its south western end.

CONDUCTIVE AREA IV, a probable continuation of I, shows the strongest responses and highest conductances of the entire survey. The apparent width is similar to Area I in the vicinity of Line 20540 but considerably wider than the rest of I, or Area II and III.

RESISTIVITY

The resistivity data provides a better means of mapping and delineating the flat lying conductive strata than do the profile or anomaly maps. This is particularly useful in mountainous terrain where the calculated apparent resistivity should be relatively independent of bird height. Areas of anomalous resistivity lows - that is, within the 200 ohm - metre contour - should be compiled on a suitable geologic base as a means of correlating the conductive lithologies with geologic data.

VLF - EM

The VLF data shows overall correlation with the Aoparent Resistivity data although the contrasts in the VLF trends are not as strong as on the resistivity map. A few exceptions exist such as the VLF high trend along a minor drainage course between Lines 20691 and 20750, toward the south western boundary of the survey. Topographic effects aopear to be greatest along the steep gradient of the south western edge of the surveyed area.

CHAPTER FOUR: CONCLUSIONS & RECOMMENDATIONS

Normal geochemical sampling as a means of discovering blind mineral deposits in this area is unreliable due to a large blanket of glacial till. A string of subtle anomalies may however be a significant target. Overburden drilling would be the best method of sampling through the till but would be much slower and expensive. Small soil grids are recommended over anomalies picked up in sampling thus far to confirm the anomaly.

Airborne geophysics is useful as a tool particularily in defining structure and distinguishing varying lithologies beneath the till blanket. Northwest trending structures defined by magnetics and VLF-EM especially where associated with crosscutting trends are prime zones for further exploration. Ground based magnetometer, and VLF should be conducted over these anomalies followed by soil sampling utilizing both humus and till sampling as previously attempted.

Intensive geological mapping and prospecting are recommended over the claims in an attempt to delinate some of the underlying bedrock.

Respectfully submitted by



Hugh Copland

Project Geologist

SELECTED REFERENCES

Garagan, T. & Allen, P.
1985: Canyon Project, 1984 & 1985 Exploration Activities; Hudson Bay Exploration & Development; internal report.

Helsen, J.
1987: Grew Creek Monthly Reports June, July, August 1987; Noranda Exploration Company Limited internal correspondence.

Podolsky, G.
1987: Report on Combined Helicopter Borne Magnetic, Electromagnetic & VLF Survey on the Grew Creek Property, Yukon; report for Noranda Exploration Company Limited.

Stroshein, R.
1986: Canyon Project, 1986 Exploration Activities; Hudson Bay Exploration & Development; internal report.

STATEMENT OF QUALIFICATIONS

I, Hugh Copland of the City of Whitehorse, Yukon, do hereby certify that:

1. I have been an employee of Noranda Exploration Company Limited (NPL) in Whitehorse since May, 1985.

2. I am a graduate of the University of British Columbia with a B.Sc. in Geology and of McMaster University, Hamilton, Ontario with a B.Eng..

3. I am a member of the Yukon Professional Geoscientist Society, and the Geological Association of Cananda.

4. I supervised work on the CANYON & GRAND Claims during the summer of 1987.

Hugh Copland
Geologist

STATEMENT OF COSTS

The following common costs were used in calculations of expenditures on the claim groupings:

GEOPHYSICS

Airborne Survey: Total 600 km of line at a cost of $53,000 = $88/km

GEOCHEMISTRY

1)	Soil/humus samples: preparation, analysis (Au,Ag,As,Hg), shipment =	$13.00/sample
2)	Labour Field & Supervision	6.50/sample
3)	Food & Accommodation	5.00/sample
4)	Vehicles & Camp Costs	3.50/sample
	TOTAL	$28.00/sample

Costs per sample are estimated on the observed average of 20 samples/man/day.

GROUPS

1) Canyon 301 -310, 317 - 320 (14 claims)

Airborne:	6.4 km X $88.	$ 560.00
Geochem:	56 samples X 28.	1570.00
		$2130.00

one year assessment.

2) Canyon 329 - 338 (10 claims)

Airborne:	4.5 km X $88.	$ 400.00
Geochem:	84 samples X $28.	2352.00
		$2752.00

two years assessment.

3) Canyon 339 - 347 (9 claims)

Airborne:	4.1 km X $88.	$ 360.00
Geochem:	21 samples X $28.	590.00
		$ 950.00

one year assessment.

4) Grand 5-8, 13-16, 41-48 (16 claims)

Airborne:	7.3 km X $88.	$ 640.00
Geochem:	134 samples X $28.	3750.00
		$4390.00

two years assessment.

5) Grand 1-4, 9-12, 17-20, 25-28 (16 claims)

Airborne:	7.3 km X $88.	$ 640.00
Geochem:	116 samples X $28.	3250.00
		$3890.00

two years assessment.

6) Grand 21-24, 29-40 (16 claims)

Airborne:	7.3 km X $88.	$ 640.00
Geochem:	72 samples X $28.	2020.00
		$2626.00

one years assessment.

7) Canyon 218-222, 311-316, 216 (12 claims)

Airborne:	5.5 km X $88.	$ 485.00
Geochem:	28 samples X $28.	785.00
		$1270.00

one years assessment.

8) Canyon 102, 104, 321-328 (10 claims)

Airborne:	4.5 km X $88.	$ 400.00
Geochem:	45 samples X $28.	1260.00
		$1660.00

one years assessment.

9) Canyon 66-72, 98, 100 (9 claims)

Airborne:	4.0 km X $88.	$ 350.00
Geochem:	117 samples X $28.	3275.00
		$3625.00

four years assessment.

10) Canyon 41-50, 73-78 (16 claims)

Airborne:	7.3 km X $88.	$ 640.00
Geochem:	108 samples X $28.	3020.00
		$3660.00

two years assessment.

11) Canyon 51-58, 79-86 (16 claims)

Airborne:	7.3 km X $88.	$ 640.00
Geochem:	92 samples X $28.	2580.00
		$3220.00

two years assessment.

12) Canyon 59-65 (7 claims)

Airborne:	3.2 km X $88.	$ 280.00
Geochem:	79 samples X $28.	2210.00
		$2490.00

three years assessment.

13) Canyon 87-96 (10 claims)

Airborne:	4.5 km X $88.	$ 400.00
Geochem:	79 samples X $28.	2210.00
		$2610.00

two years assessment.

14) Grand 88-98 (11 claims)

Airborne:	5.0 km X $88.	$ 440.00
Geochem:	32 samples X $28.	900.00
		$1340.00

one years assessment.

15) Grand 137, 139-148, 159-162 (15 claims)

Airborne:	6.8 km X $88.	$ 600.00
Geochem:	32 samples X $28.	900.00
		$1500.00

one years assessment.

16) Grand 83-87, 133-136, 138 (10 claims)

Airborne:	4.5 km X $88.	$ 400.00
Geochem:	68 samples X $28.	1900.00
		$2300.00

two years assessment.

17) Grand 49-52, 99-102 (8 claims)

Airborne:	4.0 km X $88.	$ 350.00
Geochem:	110 samples X $28.	3080.00
		$3430.00

four years assessment.

18) Grand 75-82, 125-132 (16 claims)

Airborne:	10.5 km X $88.	$ 925.00
Geochem:	197 samples X $28.	5510.00
		$6435.00

four years assessment.

19) Grand 67-70, 117-120, 151-154 (12 claims)

Airborne:	6.5 km X $88.	$ 572.00
Geochem:	155 samples X $28.	4340.00
		$4912.00

four years assessment.

20) Grand 71-74, 121-124, 149-150 (10 claims)

Airborne:	5.0 km X $88.	$ 440.00
Geochem:	130 samples X $28.	3640.00
		$4080.00

four years assessment.

21) Grand 61-66, 111-116, 155-158 (16 claims)

Airborne:	9.6 km X $88.	$ 845.00
Geochem:	210 samples X $28.	5630.00
		$6475.00

four years assessment.

22) Grand 53-60, 103-110 (16 claims)

Airborne:	10.5 km x $88.	$ 925.00
Geochem:	196 samples X $28.	5490.00
		$6415.00

four years assessment.

APPENDIX ONE

Geophysical Equipment Presentation

3 - 1

3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

An Aerospatiale A-Star 350D helicopter, (C-GNSM), owned and operated by Lakeland 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 System

The electromagnetic system was an Aerodat three frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4600 Hz and a horizontal coplanar coil pair at 4175 Hz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the three frequencies with a time constant of 0.1 seconds. The electromagnetic bird was towed 30 metres below the transmitter.

3.2.2 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures 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 transmitting stations monitored were NLK, Jim Creek, Washington for the "Line" station and NPM, Lualualei, Hawaii, for the "Ortho" station broadcasting at 24.8 and 23.4 kHz respectively. Station NAA, Cutler, Maine, at 24.0 kHz, was also used as the 'Ortho' station for the first four flights and NPM as the 'Line' station for the initial two flights over the Semenof property.

3.2.3 Magnetometer

The magnetometer employed 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

A Geometrics G803 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 - 3

3.2.5 Radar Altimeter

A King 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 Sony video tracking camera was used to record flight path on 8 mm video tape. The camera was operated in continuous mode. Fiducial numbers and time reference marks, for cross-reference to the analog and digital data, were encoded on the 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
ALT	Altimeter (150 m at top of chart)	10 ft/mm
CXI1	935 Hz Coaxial Inphase	2 ppm/mm
CXQ1	935 Hz Coaxial Quadrature	2 ppm/mm
CXI2	4600 Hz Coaxial Inphase	2 ppm/mm

3 - 4

CXQ2	4600 Hz Coaxial Quadrature	2 ppm/mm
CPI1	4175 Hz Coplanar Inphase	8 ppm/mm
CPQ1	4175 Hz Coplanar Quadrature	8 ppm/mm
VLT	VLF-EM Total Field, Line	2.5 %/mm
VLQ	VLF-EM Quadrature, Line	2.5 %/mm
VOT	VLF-EM Total Field, Ortho	2.5 %/mm
VOQ	VLF-EM Quadrature, Ortho	2.5 %/mm
MAGF	Magnetometer, fine	2.5 nT/mm
MAGC	Magnetometer, coarse	25 nT/mm
MAGN	Magnetometer noise	.025 nT/mm

3.2.8 Digital Recorder

A DGR33 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 - 1

4. DATA PRESENTATION

4.1 Base Map

A photomosaic base at a scale of 1:25,000 was prepared by enlargement of aerial photographs of the survey area.

4.2 Flight Path Map

The flight path was derived from the from an examination of the video tape from the flight path tracking camera system. Points along the flight path that could be identified on the video presentation, were marked on the photomosaic with reference to time. These points were then digitized to produce the 'picked' flight path. It is estimated that positioning is generally accurate to about 30 metres with respect to the topographic detail of the base map. The flight path is drawn with reference fiducials, time marks and navigator's manual fiducials for cross reference to both the analog and digital data and is presented on a Cronaflex copy of the photomosaic base map.

4.3 Airborne Electromagnetic Survey Interpretation Map

An interpretation map was prepared showing flight lines, fiducials, peak locations of anomalies and conductivity thickness range along with the Inphase amplitudes. These values were computed from the 4600 Hz coaxial response.

4 - 2

Individual conductors, conductive zones and conductive areas have been delineated and numbered on the Interpretation Map. The data are presented on a Cronaflex copy of the photomosaic base map.

4.4 Total Field Magnetic Contours

The aeromagnetic data were corrected for diurnal variations by adjustment with the digitally 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 a cubic spline technique. The grid provided the basis for threading the presented contours at a 2 nanoTesla interval.

The aeromagnetic data have been presented with flight path and electromagnetic anomaly information on a Cronaflex copy of the photomosaic base map.

4.5 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 coaxial frequency pair. The apparent resistivity profile data were interpolated onto a regular grid at a 50 metres true scale interval using a cubic spline technique.

The contoured apparent resistivity data were presented on a Cronaflex copy of the photomosaic base map with the flight path and electromagnetic anomaly information.

4.6 VLF-EM Total Field Contours

The VLF-EM signals from NLK, Jim Creek, Washington, broadcasting at 24.8 kHz, were compiled in contour map form and presented on a Cronaflex copy of the photomosaic base map.

APPENDIX 2

Analytical Procedures

ANALYTICAL PROCEDURES

Soil & Humus

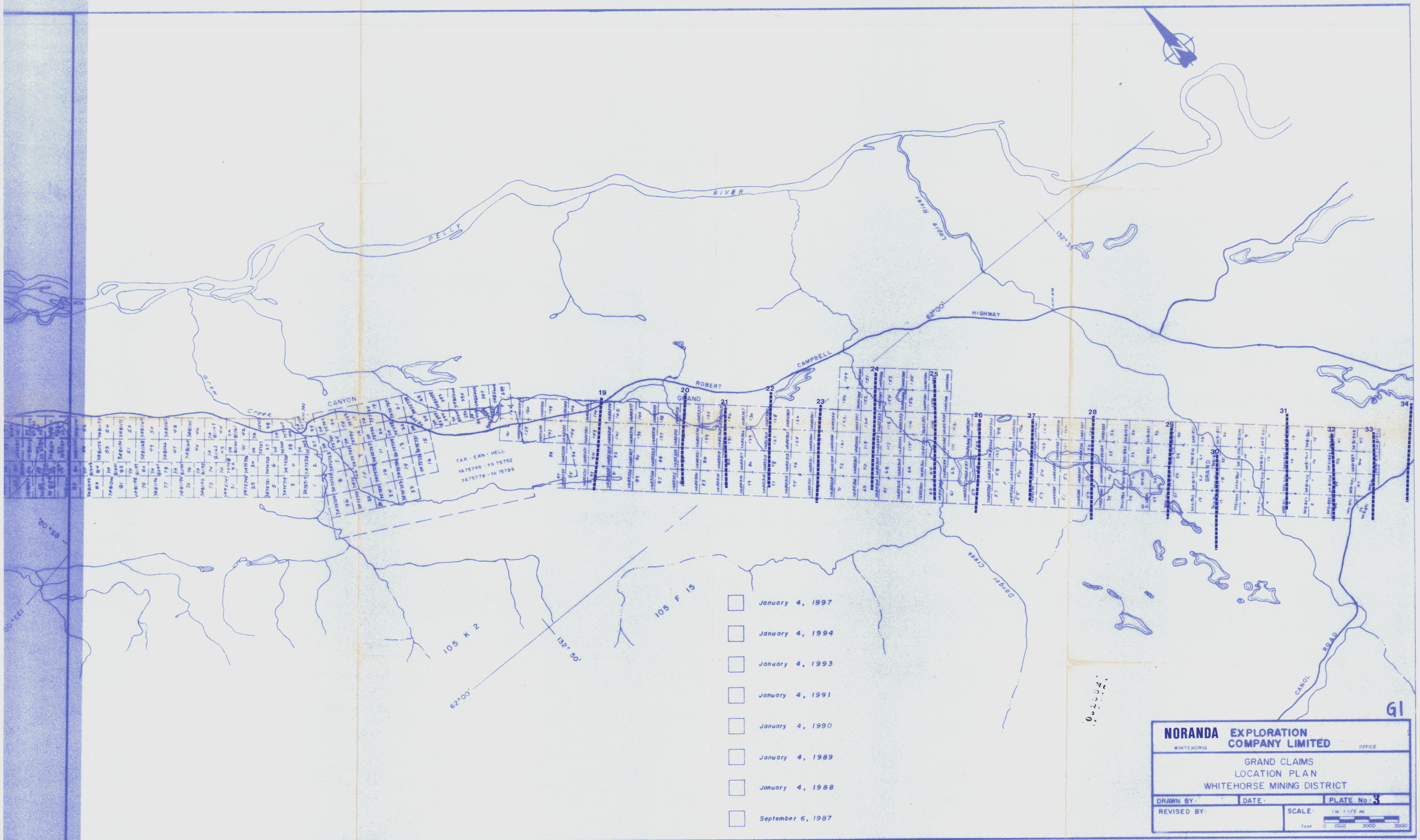
Samples are dried and sieved to -80 mesh (-10 for humus). A 0.500 gm sample is digested with 3 ml 3-1-2 HCL-HN03-H20 at 95 Deg. Celsius for 1 hr. and diluted with 10 ml of water. Silver and Arsenic are determined by ICP, gold and mercury by AA. Gold detection limit is 1 ppb.

An Addendum to the Geochemical & Geophysical Report on the Canyon 37 - 96, 98, 100, 102, 104, 216, 218 - 222, 301 - 347; Grand 1 - 136, 138 - 162 Claims.

GEOLOGY

The claims lie within the Tintina Trench a large regional fault system active during Cretaceous and Tertiary time. A series of parallel northwest trending faults with associated block faulting over an area approximately 2 - 4 km wide in the Grew Creek area comprise the trench underlying the claims. A southwest to northeast section through the trench at this point reveals Late Paleozoic sediments, Buttle Creek fault, Permian metasediments, Grew Creek fault, Tertiary rhyolitic volcanics and sediments, Danger Creek fault, Permian limestone and basalt, Lapie River fault, and finally Hadrynian schist near the Pelly River.

A thick blanket of glacial till covers most of the Tertiary rocks in the trench. The Permian sediments crop out in prominent ridges on either side of the younger rocks. Mineralization to date has been restricted to the Tertiary rhyolite volcanic rocks. These consist mainly of quartz-feldspar rhyolite flows and a rhyolitic crystal-lithic and lapilli tuff. An epithermal system consiting of a chalcedonic and quartz-carbonate stockwork is thought to be responsible for mineralization. This system has resulted in moderate to intense argillic and silicic alteration with the introduction of minor amounts of pyrite in the crystal-lithic tuff. The thick overburden hampers delineation of other targets within the claim group.



PELLY RIVER
Lapie River
132°35'
62°00'
HIGHWAY
CAMPBELL
ROBERT
GRAND
CANYON
Gren Creek
TAR - ERN - HELL
YA75749 - YA 75752
YA75778 - YA 75799
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
Danger Creek
105 K 2
105 F 15
132° 50'
62°00'
CANOL ROAD
January 4, 1997
January 4, 1994
January 4, 1993
January 4, 1991
January 4, 1990
January 4, 1989
January 4, 1988
September 6, 1987
G1
NORANDA EXPLORATION COMPANY LIMITED
WHITEHORSE
OFFICE
GRAND CLAIMS
LOCATION PLAN
WHITEHORSE MINING DISTRICT
DRAWN BY:
DATE:
PLATE No: 3
REVISED BY:
SCALE: 1 in = 1/2 mi
Feet 0 1000 3000 5000

1117

PELLY RIVER

Quarrying Leases
BUBCAT 1-4

Robert Campbell Highway

Creek

Buttle Creek

GRAND 1-162
YA 81848 - YA 81895
YA 85284 - YA 85397

TAR-ERN-HELL
YA 75749 - YA 75752
YA 75778 - YA 75799

105 K 3
62° 05'
133° 00'
105 K 2

105 K 2
132° 50'
62° 00'
105 F 15

KEY 1-16
YA 24412 - YA 24427

PUG 1-52
YA 8744 - YA 8767
YA 50971 - YA 50998

- [ ] January 4, 1997
- [ ] January 4, 1994
- [ ] January 4, 1993
- [ ] January 4, 1991
- [ ] January 4, 1989
- [ ] January 4, 1988
- [ ]
- [ ]

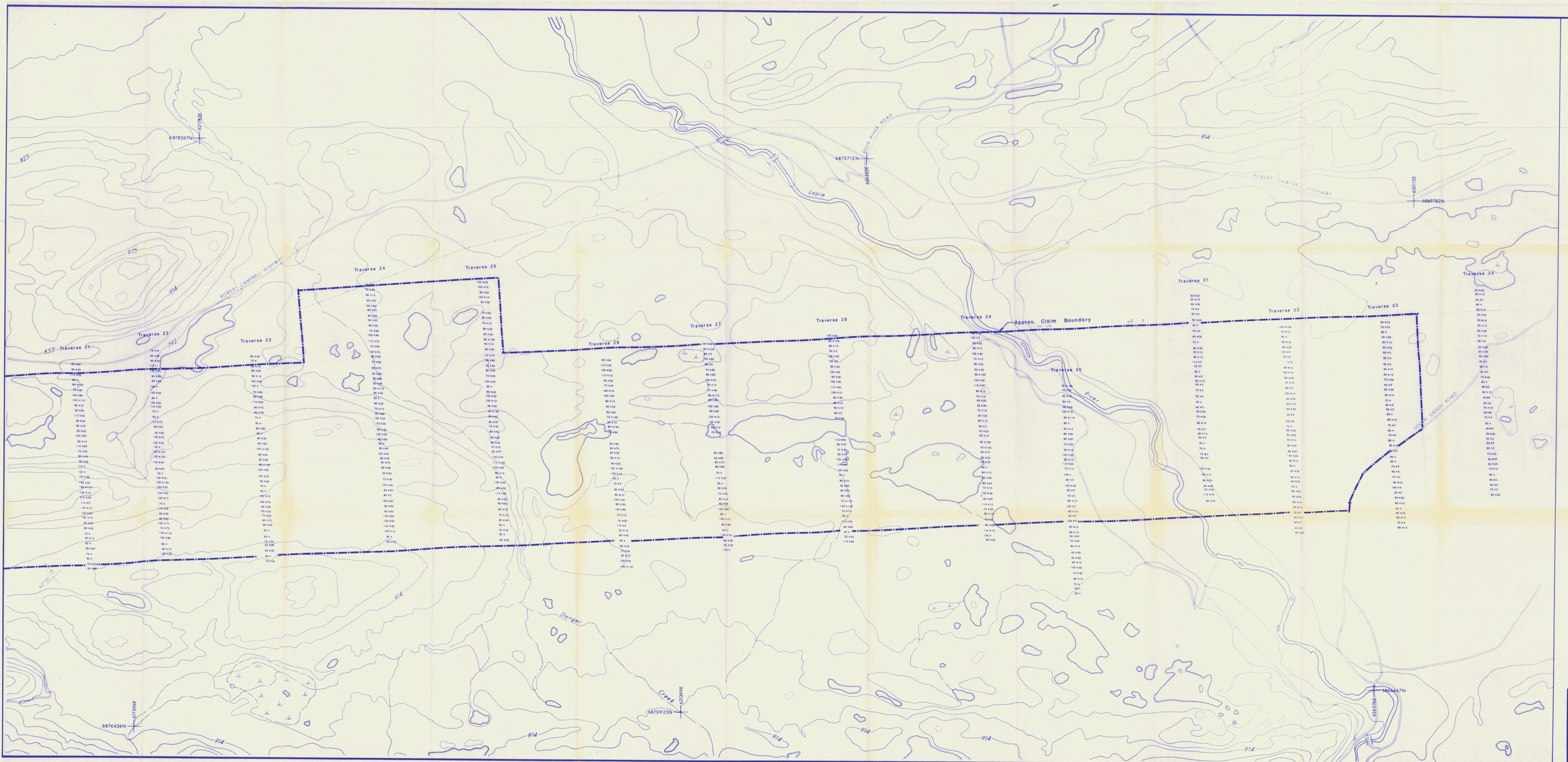
C1

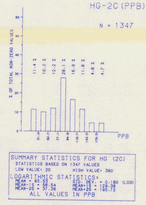
NORANDA EXPLORATION COMPANY LIMITED
WHITEHORSE OFFICE

CANYON CLAIMS
LOCATION PLAN
WHITEHORSE MINING DISTRICT

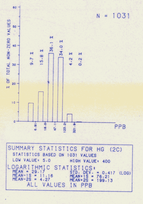
DRAWN BY:	DATE:	PLATE No 4
REVISED BY:	SCALE: 1 in = 1/2 mile; Feet 0 1000 3000 5000	

1118





HUMUS



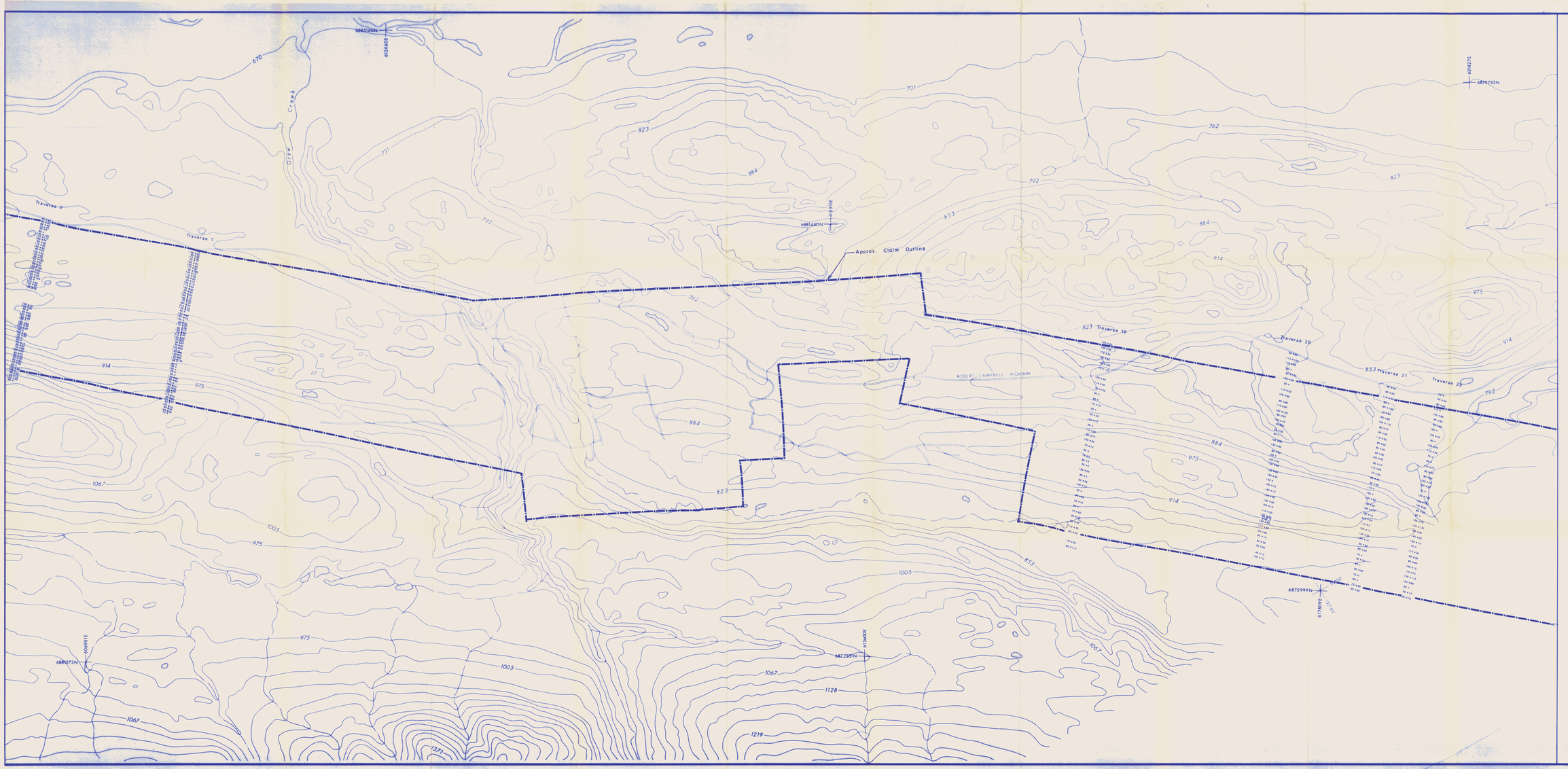
SOILS

092002

Reading Presentation : Humus X Soil

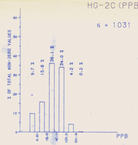
Metres 200 0 200 400 600 800 1000 Metres

REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE HG IN PPB (1119)
PROJ. No. 331	SURVEY BY J. HELSEN DATE June/87
N.T.S.	DRAWN BY P.J.A. & J.Serwin SCALE 1:10,000
DWG. No. 5	NORANDA EXPLORATION OFFICE Vancouver



HG-2C (PPB)

N = 1031

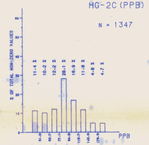


SUMMARY STATISTICS FOR HG (2C)
STATISTICS BASED ON 1031 VALUES
LOW VALUE= 5.0 HIGH VALUE= 400
QUARTIMPIC STATISTICS=
MEAN = 18.17 MEDIAN = 15.0
MEAN + 1 S.D. = 26.17 MEAN - 1 S.D. = 10.17
MEAN + 2 S.D. = 34.34 MEAN - 2 S.D. = 2.00
ALL VALUES IN PPB

SOIL

HG-2C (PPB)

N = 1347



SUMMARY STATISTICS FOR HG (2C)
STATISTICS BASED ON 1347 VALUES
LOW VALUE= 10.0 HIGH VALUE= 380
QUARTIMPIC STATISTICS=
MEAN = 30.56 MEDIAN = 28.0
MEAN + 1 S.D. = 38.56 MEAN - 1 S.D. = 22.56
MEAN + 2 S.D. = 46.56 MEAN - 2 S.D. = 14.56
ALL VALUES IN PPB

092002

HUMUS

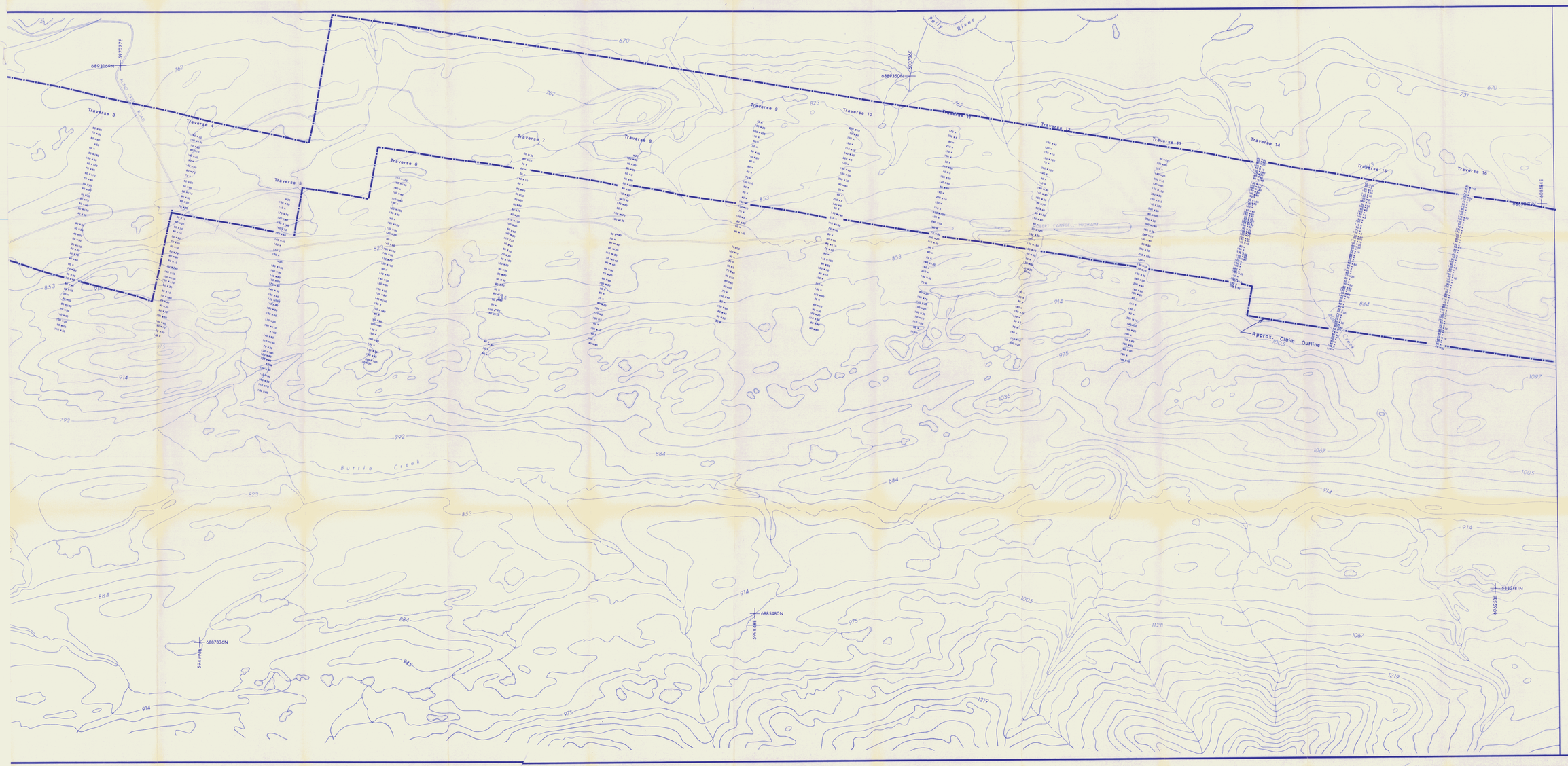
Reading Presentation : Humus X Soil

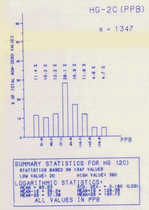
Metres 200 0 200 400 600 800 1000 Metres

REVISED	
PROJ. No. 331	SURVEY BY: J. Nelson DATE: June/87
N.T.S.	DRAWN BY: R.H.A. & J.Serwin SCALE: 1:10,000
DWG. No. 6	NORANDA EXPLORATION OFFICE Vancouver

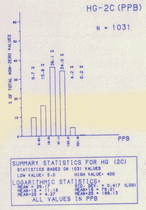
GREW CREEK PROJECT

REGIONAL TRAVERSE MERCURY IN PPB





HUMUS



SOILS

Reading Presentation : Humus X Soil

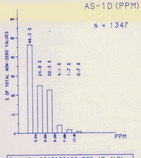
Metres 200 0 200 400 600 800 1000 Metres

REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE HG IN PPB (1121)
PROJ. No. 331	SURVEY BY: J. HELSEN DATE: June/87
N.T.S.	DRAWN BY: P.J.A. & J.Serwin SCALE: 1:10,000
DWG. No. 7	NORANDA EXPLORATION OFFICE Vancouver



AS-1D (PPM)

N = 1347

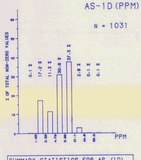


SUMMARY STATISTICS FOR AS (1D)
STATISTICS BASED ON 1347 VALUES
LOW VALUES: 2-0 HIGH VALUES: 15
LOGARITHMIC STATISTICS
ALL VALUES IN PPM

HUMUS

AS-1D (PPM)

N = 1031



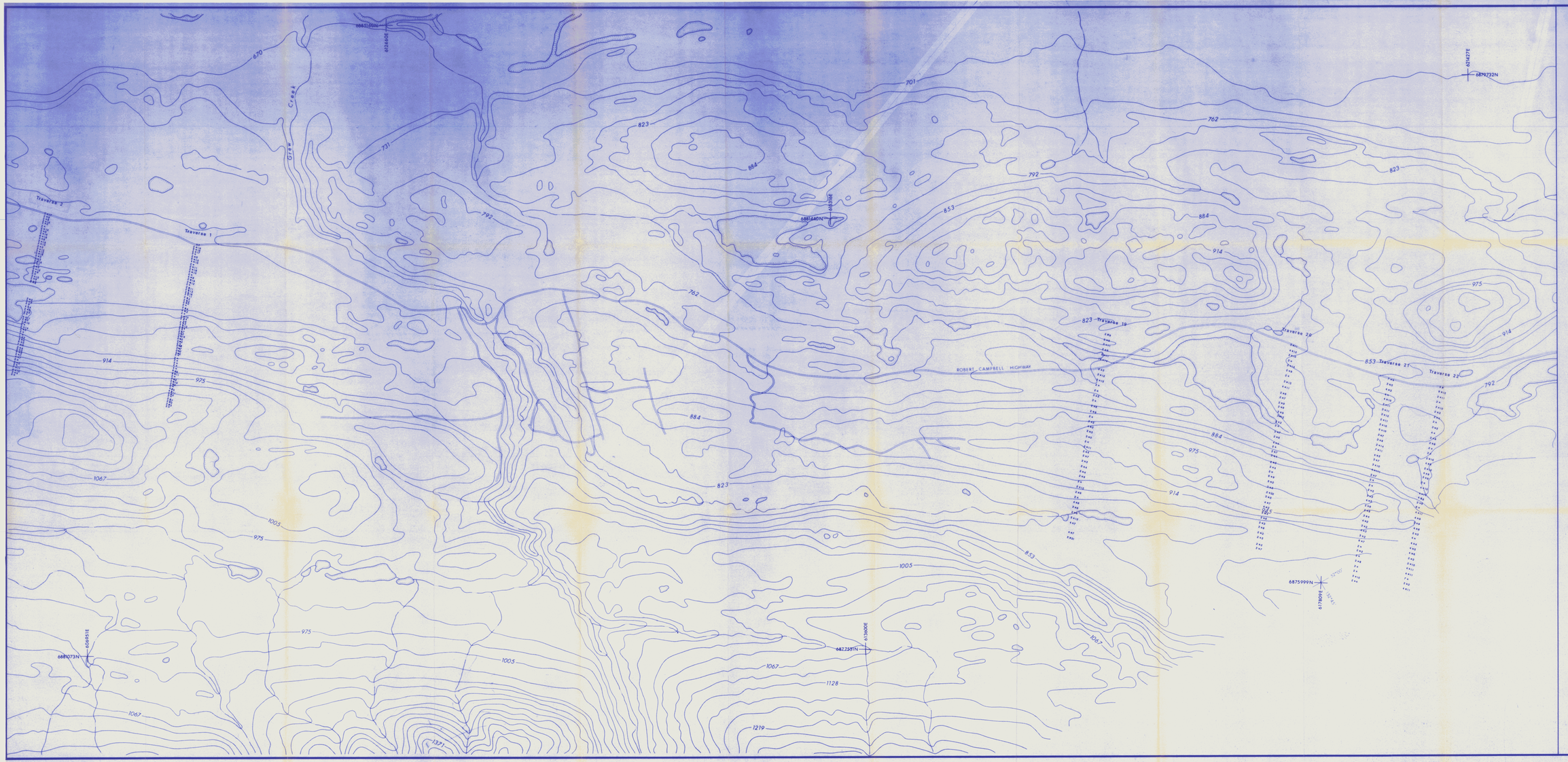
SUMMARY STATISTICS FOR AS (1D)
STATISTICS BASED ON 1031 VALUES
LOW VALUES: 1-0 HIGH VALUES: 111
LOGARITHMIC STATISTICS
ALL VALUES IN PPM

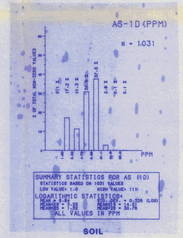
SOILS

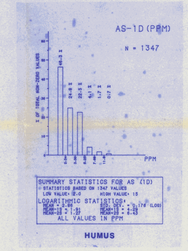
Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000Metres

REVISED	**GREW CREEK PROJECT**
	REGIONAL TRAVERSE AS IN PPM (102)
PROJ. No. 331	SURVEY BY J. WELSER DATE June/87
N.T.S.	DRAWN BY P.J.A. & J.Serwin SCALE 1:10,000
DWG. No. 8	**NORANDA EXPLORATION**
	OFFICE Vancouver





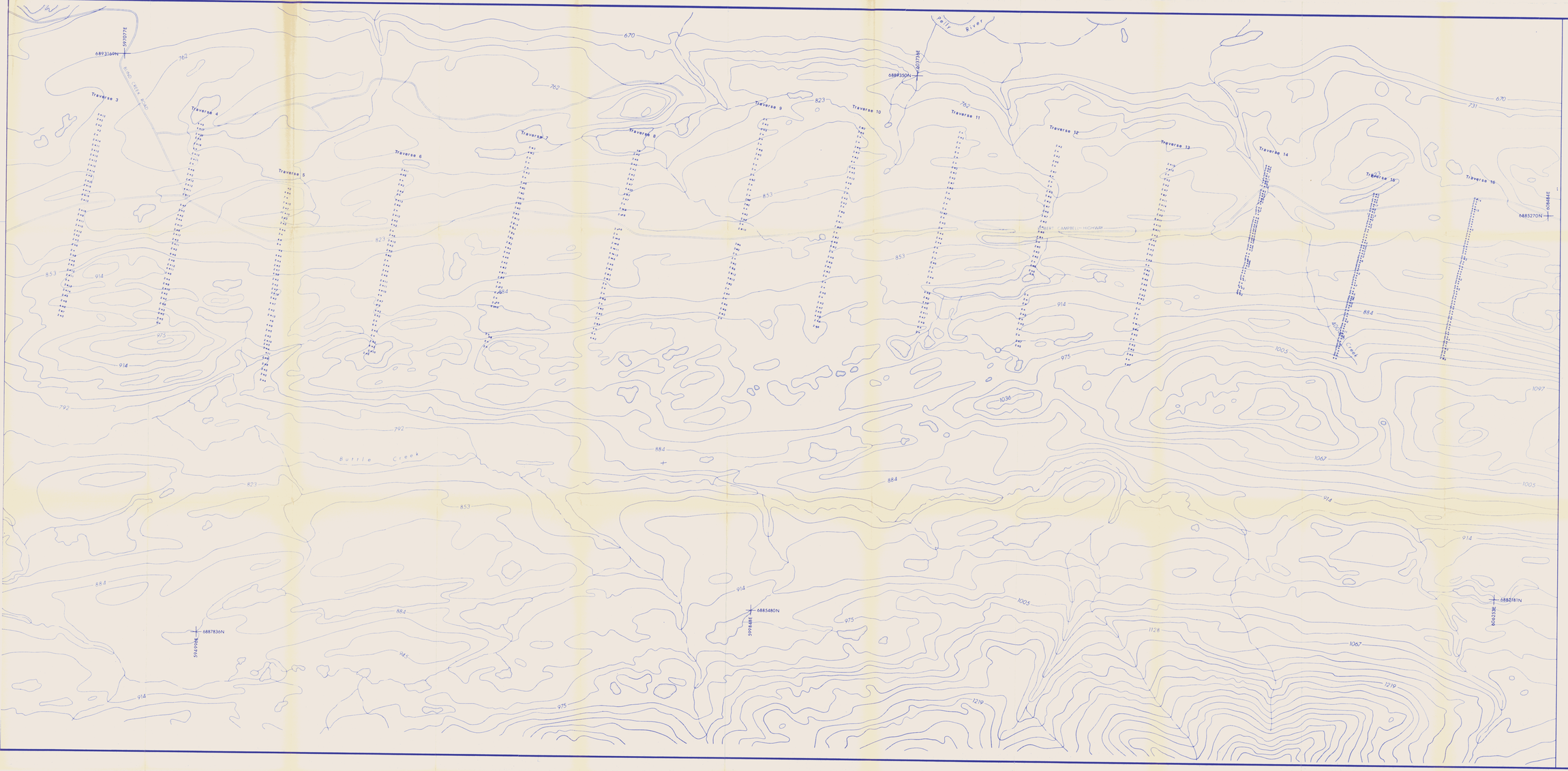


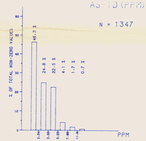
092002

Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

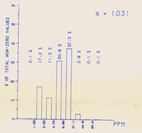
REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AS IN PPM (152)
PROJ. No. 331	SURVEY BY: J Nelson DATE: June/87
N.T.S.	DRAWN BY: P.H. & J Serwin SCALE: 1:10,000
DWG. No. 9	NORANDA EXPLORATION
	OFFICE: Vancouver





SUMMARY STATISTICS FOR AS (1D)
STATISTICS BASED ON 1347 VALUES
LOW VALUE: 2.0 HIGH VALUE: 15
LOGARITHMIC STATISTICS:
MEAN = 3.96 MEAN+1 = 5.176 (LOG)
MEAN-1 = 1.95 MEAN+2 = 6.75
MEAN-2 = 1.25 MEAN+3 = 8.13
ALL VALUES IN PPM

HUMUS



SUMMARY STATISTICS FOR AS (1D)
STATISTICS BASED ON 1031 VALUES
LOW VALUE: 1.0 HIGH VALUE: 111
LOGARITHMIC STATISTICS:
MEAN = 6.98 MEAN+1 = 6.308 (LOG)
MEAN-1 = 1.02 MEAN+2 = 9.76
MEAN-2 = 1.02 MEAN+3 = 30.76
ALL VALUES IN PPM

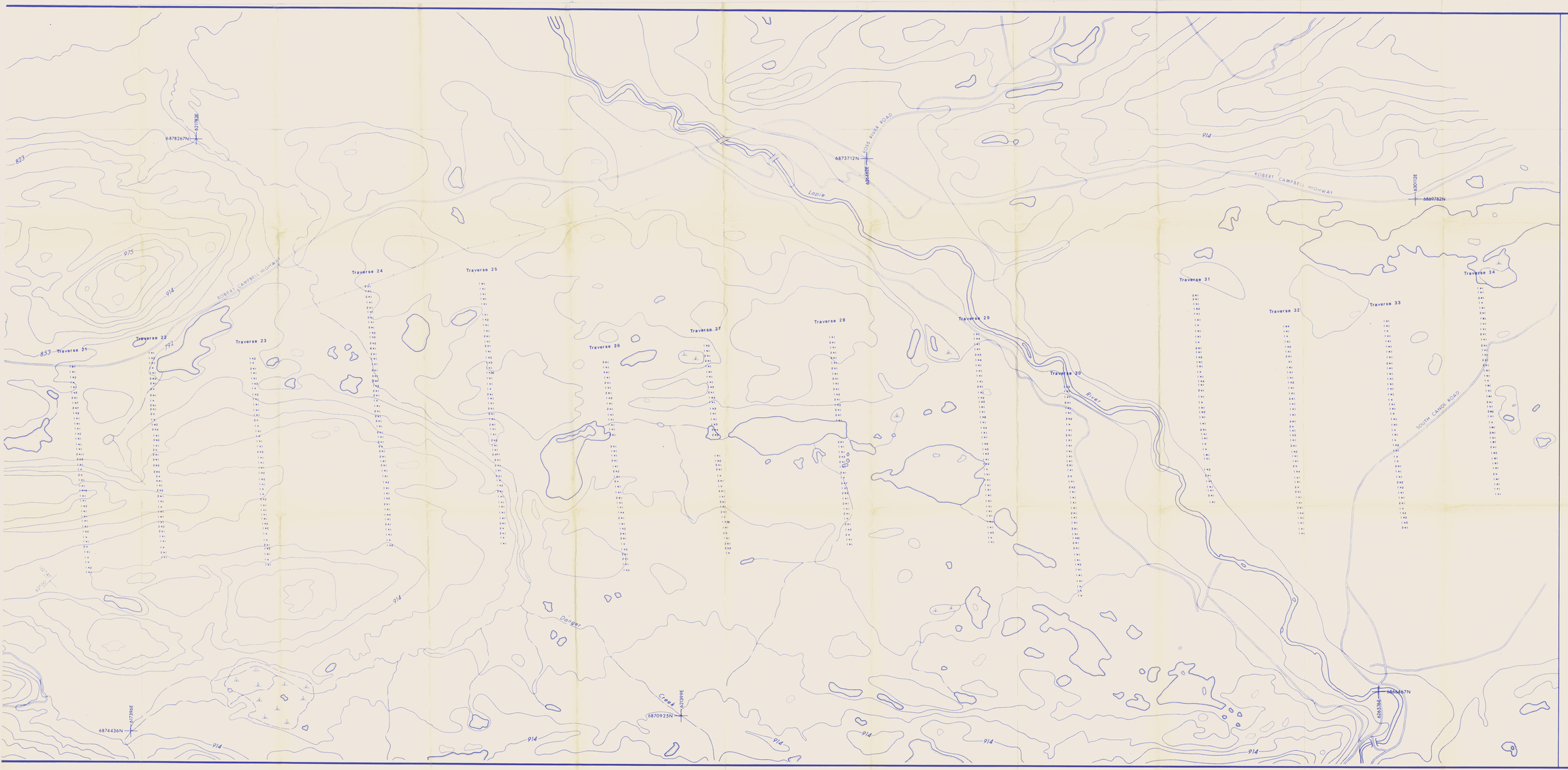
092002

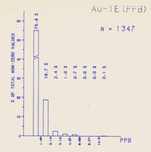
SOILS

Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

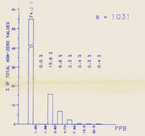
REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AS IN PPM
PROJ. No. 3.31	SURVEY BY J. JELSEN DATE June/87
N.T.S.	DRAWN BY P.J.A. & J.Serwin SCALE 1:10,000
DWG. No. 10	NORANDA EXPLORATION OFFICE Vancouver





SUMMARY STATISTICS FOR AU (1E)
STATISTICS BASED ON 1347 VALUES
LOW VALUE: 1-0 HIGH VALUE: 85
LOGARITHMIC STATISTICS:
MEAN=1.1 - 0.1 MEAN=10 - 0.165 (LOG)
MEAN=10 - 0.02 MEAN=10 - 0.59
MEAN=10 - 0.02 MEAN=10 - 0.59
ALL VALUES IN PPB

HUMUS



SUMMARY STATISTICS FOR AU (1E)
STATISTICS BASED ON 1031 VALUES
LOW VALUE: 1-0 HIGH VALUE: 81
LOGARITHMIC STATISTICS:
MEAN=1.1 - 0.1 MEAN=10 - 0.225 (LOG)
MEAN=10 - 0.77 MEAN=10 - 0.81
MEAN=10 - 0.46 MEAN=10 - 0.65
ALL VALUES IN PPB

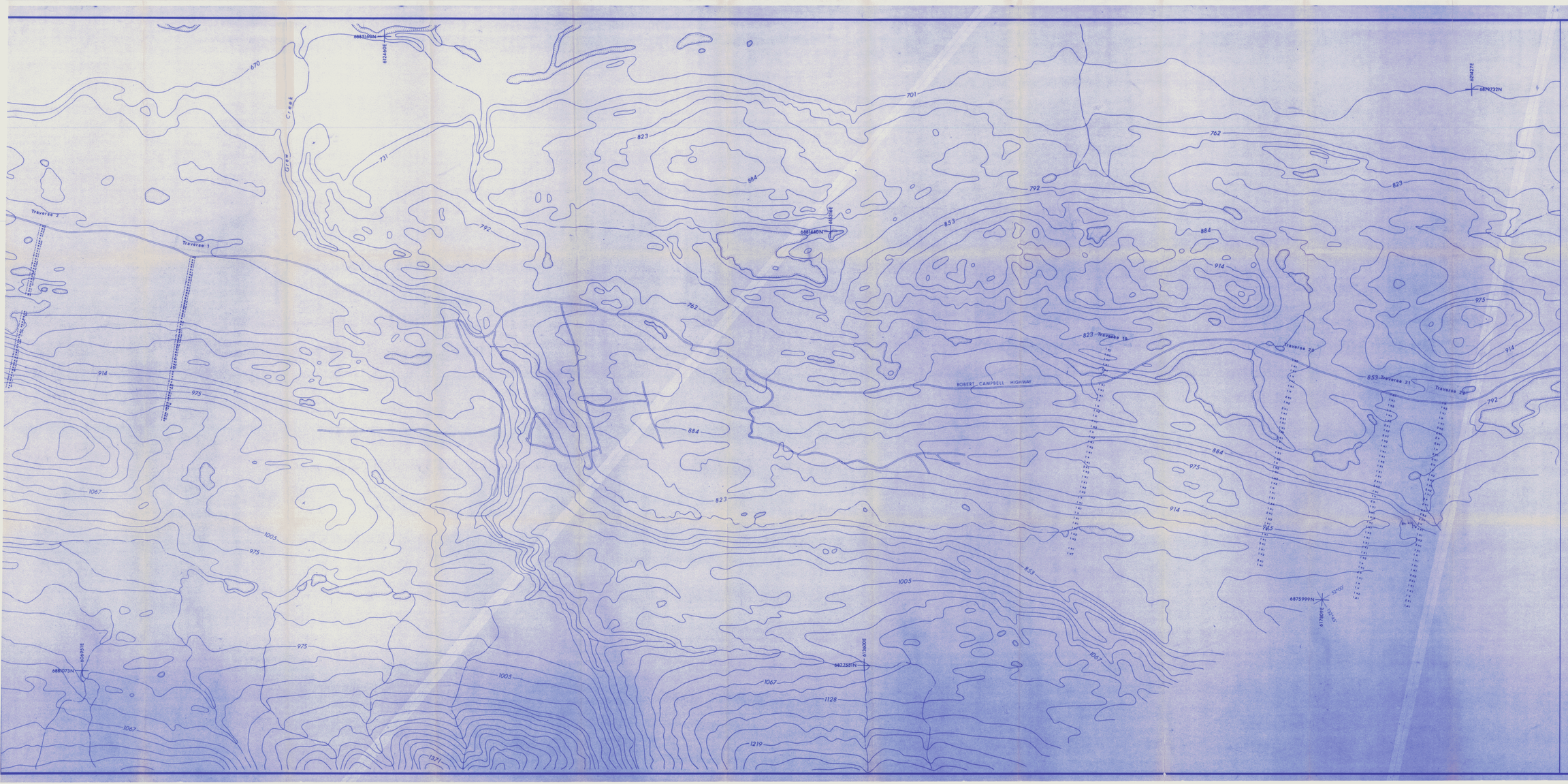
SOILS

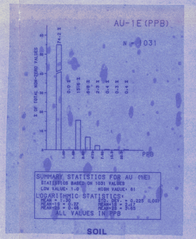
092-02

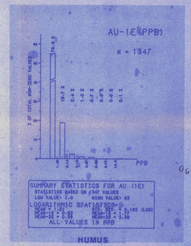
Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AU IN PPB (1606)
PROJ. No. 331	SURVEY BY: J. HELDER DATE: June/87
N.T.S.	DRAWN BY: P.J.A. & J. Serwin SCALE: 1:10,000
DWG. No. 11	NORANDA EXPLORATION OFFICE: Vancouver



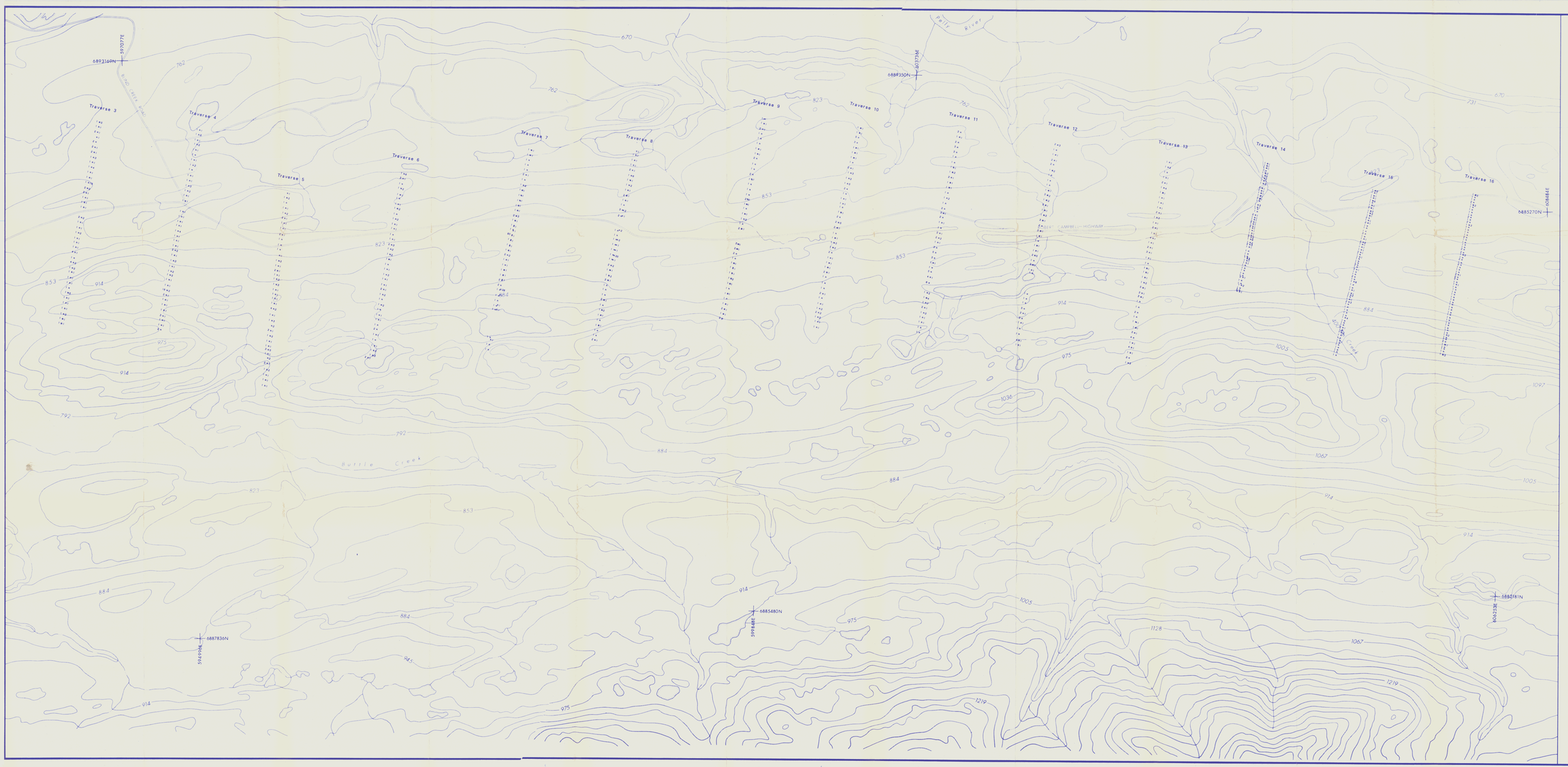


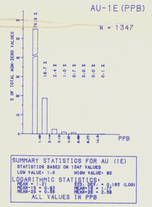


Reading Presentation : Humus X Soil

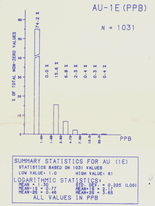
Metres 200 0 200 400 600 800 1000 Metres

REVISED	GREW CREEK PROJECT	
	REGIONAL TRAVERSE AU IN PPB	
PROJ No. 3-31	SURVEY BY: J. Hallam	DATE: June/87
N.T.S.	DRAWN BY: P.I.A. & I.Servon	SCALE: 1:10,000
DWG. No. 12	NORANDA EXPLORATION	
	OFFICE: Vancouver	





HUMUS



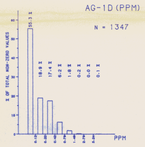
SOILS

Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

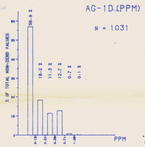
REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AU IN PPB
PROJ. No. 3.31	SURVEY BY J. HELSEN DATE June/87
N.T.S.	DRAWN BY P.J.A. & J.Serwin SCALE 1:10,000
DWG. No. 13	NORANDA EXPLORATION OFFICE Vancouver





SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1347 VALUES
LOW VALUE= 0.10 HIGH VALUE= 3.4
LOGARITHMIC STATISTICS:
MEAN= 0.11 SEC= 0.07 (LOG)
MEAN= 0.08 SEC= 0.07 (LOG)
MEAN= 0.08 SEC= 0.08 (LOG)
MEAN= 0.08 SEC= 0.08 (LOG)
ALL VALUES IN PPM

HUMUS



SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1031 VALUES
LOW VALUE= 0.10 HIGH VALUE= 1.4
LOGARITHMIC STATISTICS:
MEAN= 0.11 SEC= 0.07 (LOG)
MEAN= 0.08 SEC= 0.07 (LOG)
MEAN= 0.08 SEC= 0.08 (LOG)
MEAN= 0.08 SEC= 0.08 (LOG)
ALL VALUES IN PPM

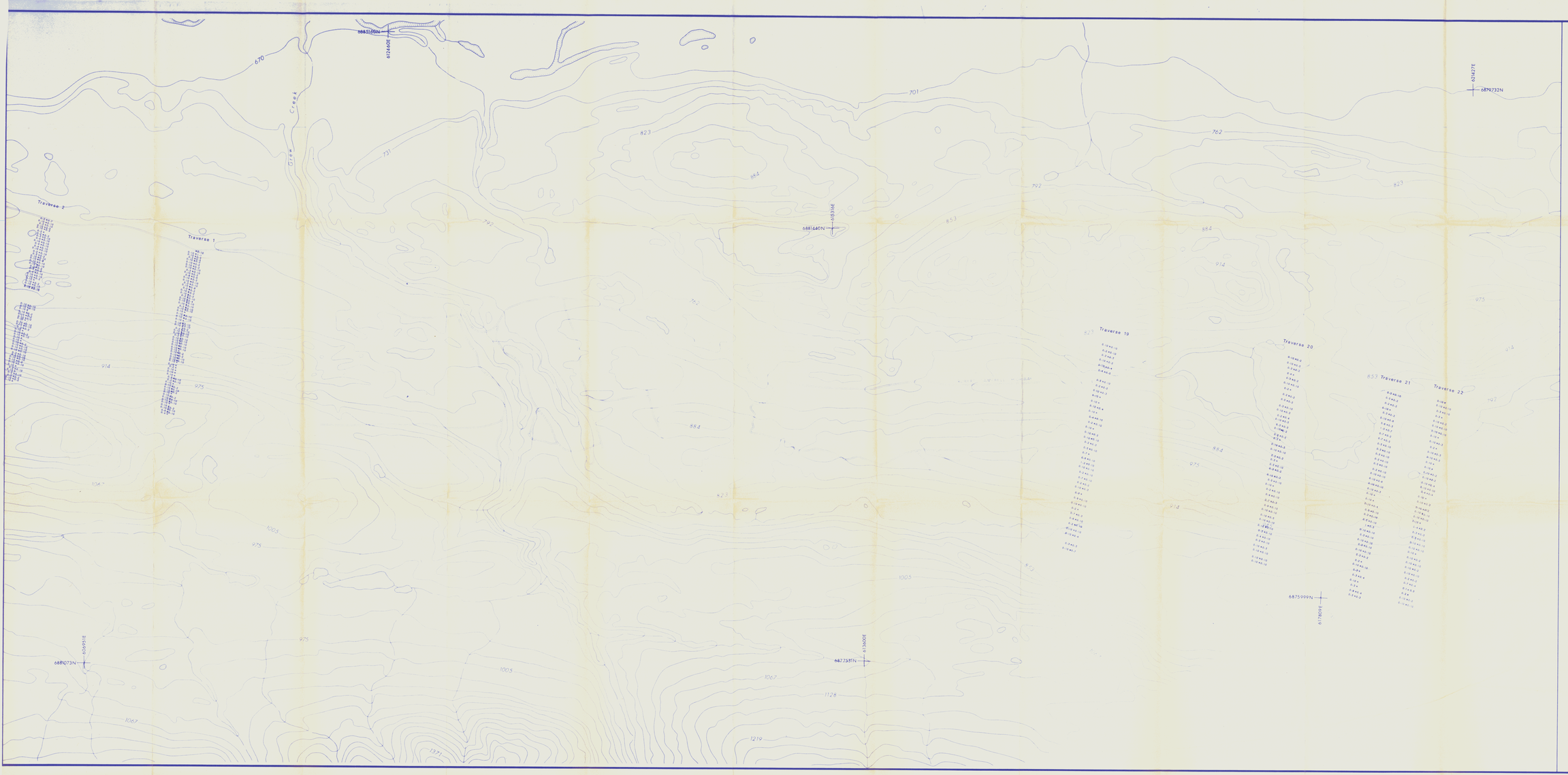
SOILS

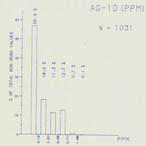
Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

REVISED	**GREW CREEK PROJECT**
	REGIONAL TRAVERSE AG IN PPM (1409)
PROJ. No. 331	SURVEY BY: J. HELDER DATE: June/87
N.T.S.	DRAWN BY: P.J.A. & J. Serwin SCALE: 1:10,000
DWG. No. 14	**NORANDA EXPLORATION** OFFICE: Vancouver

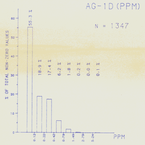
002002





SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1031 VALUES
LOW VALUE= 0.10 HIGH VALUE= 1.4
LOGARITHMIC STATISTICS:
MEAN = 0.14 MEAN+1 = 0.259 (LOG)
MEAN+2 = 0.22 MEAN+3 = 0.33
MEAN+4 = 0.52 MEAN+5 = 0.82
ALL VALUES IN PPM

SOIL



092002

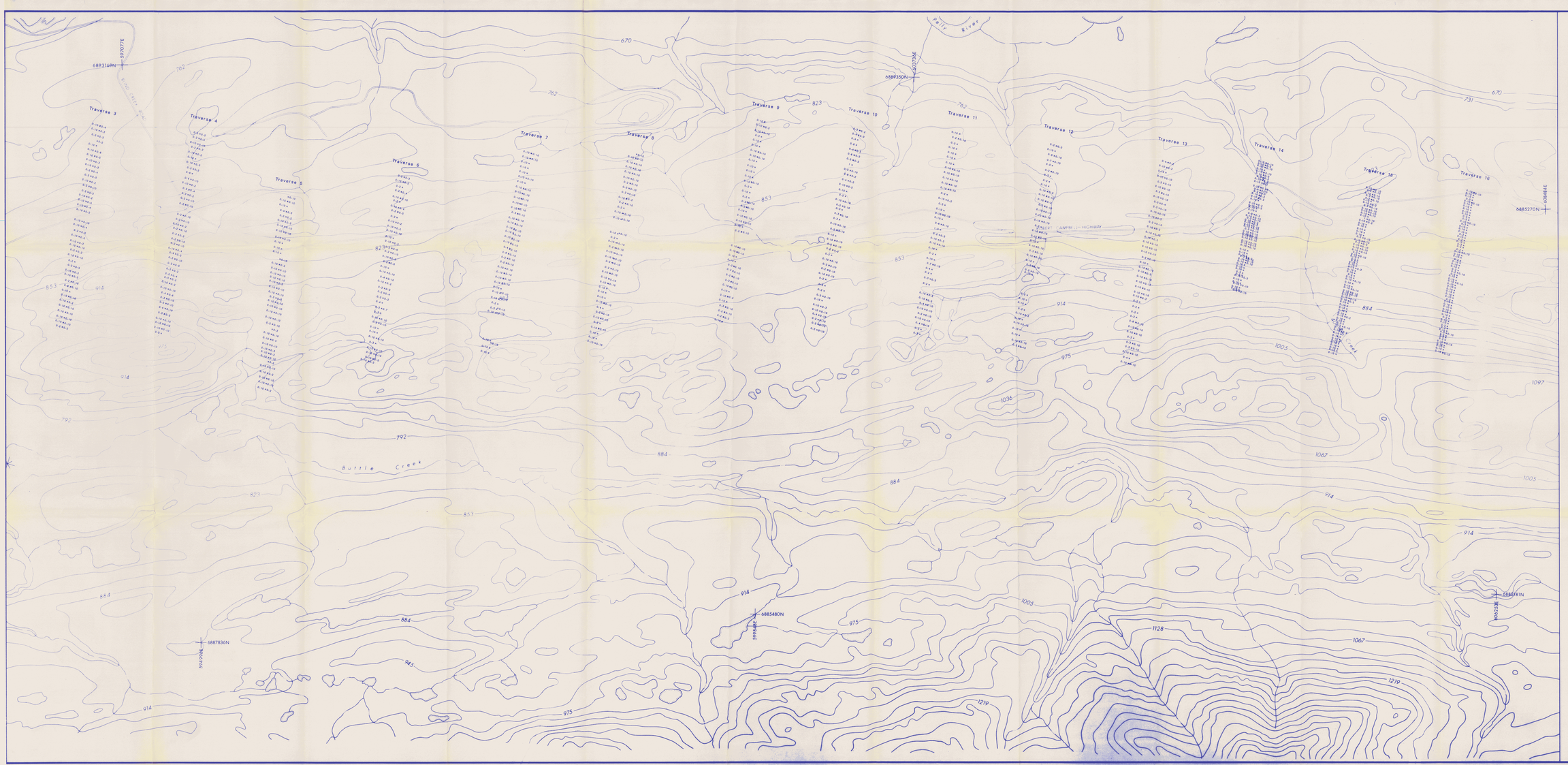
SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1347 VALUES
LOW VALUE= 0.10 HIGH VALUE= 5.6
LOGARITHMIC STATISTICS:
MEAN = 0.16 MEAN+1 = 0.374 (LOG)
MEAN+2 = 0.22 MEAN+3 = 0.31
MEAN+4 = 0.52 MEAN+5 = 0.88
ALL VALUES IN PPM

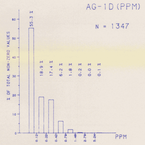
HUMUS

Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

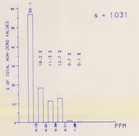
REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AG IN PPM
PROJ. No. 331	SURVEY BY J. Helsen DATE June/87
N.T.S.	DRAWN BY P.J.A. & J.Serwin SCALE 1:10,000
DWG. No. 15	NORANDA EXPLORATION OFFICE Vancouver





SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1347 VALUES
LOW VALUE: 0.10 HIGH VALUE: 5.6
LOGARITHMIC STATISTICS:
MEAN = 0.1 MEAN = 0.274 (LOG)
MEAN = 0.08 MEAN = 0.10
MEAN = 0.05 MEAN = 0.08
ALL VALUES IN PPM

HUMUS



SUMMARY STATISTICS FOR AG (1D)
STATISTICS BASED ON 1031 VALUES
LOW VALUE: 0.10 HIGH VALUE: 1.4
LOGARITHMIC STATISTICS:
MEAN = 0.1 MEAN = 0.259 (LOG)
MEAN = 0.08 MEAN = 0.10
MEAN = 0.05 MEAN = 0.08
ALL VALUES IN PPM

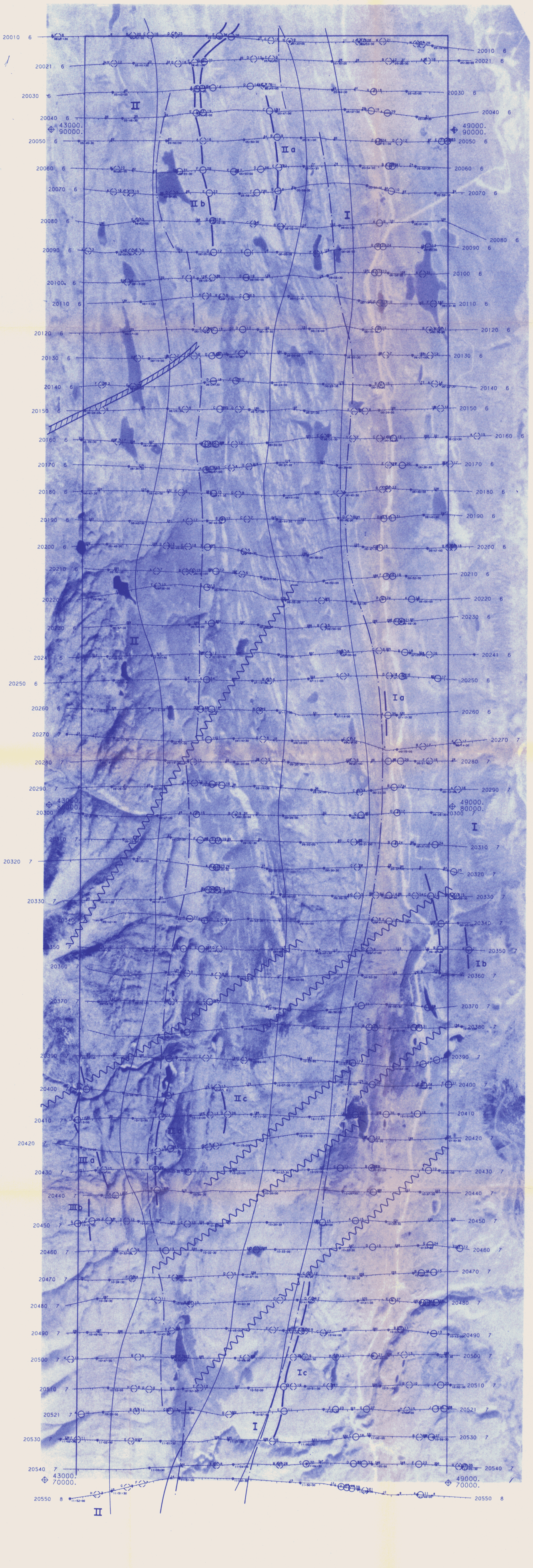
092002

SOILS

Reading Presentation : Humus X Soil

Metres 200 0 200 400 600 800 1000 Metres

REVISED	GREW CREEK PROJECT
	REGIONAL TRAVERSE AG IN PPM
PROJ. No. 3-31	SURVEY BY: J. HELSEN DATE: June/87
N.T.S.	DRAWN BY: P.J.A. & J.Serwin SCALE: 1:10,000
DWG. No. 16	NORANDA EXPLORATION OFFICE: Vancouver



Flight Path

Flight path derived from VHS video tape.

Average terrain clearance 60m
Line spacing = 400m

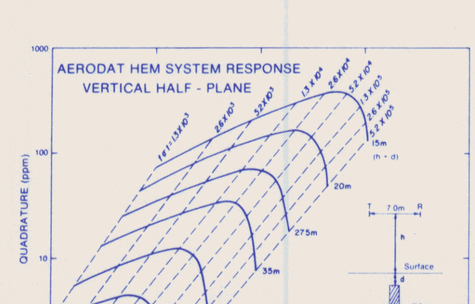
EM Anomalies

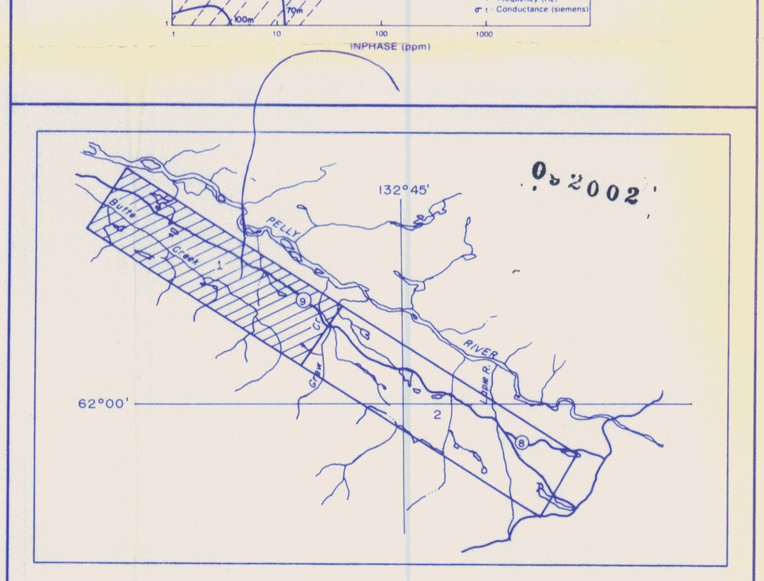
Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- × 30

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

- Interpreted bedrock conductor axis
- Conductive Zone
- Inferred contact
- Inferred fault
- Intrusive dike ?





0 2002

NORANDA EXPLORATION CO. LTD.

INTERPRETATION

GREW CREEK

YUKON

(1612

SCALE 1:25,000

0 825 1650 3300 6600 feet

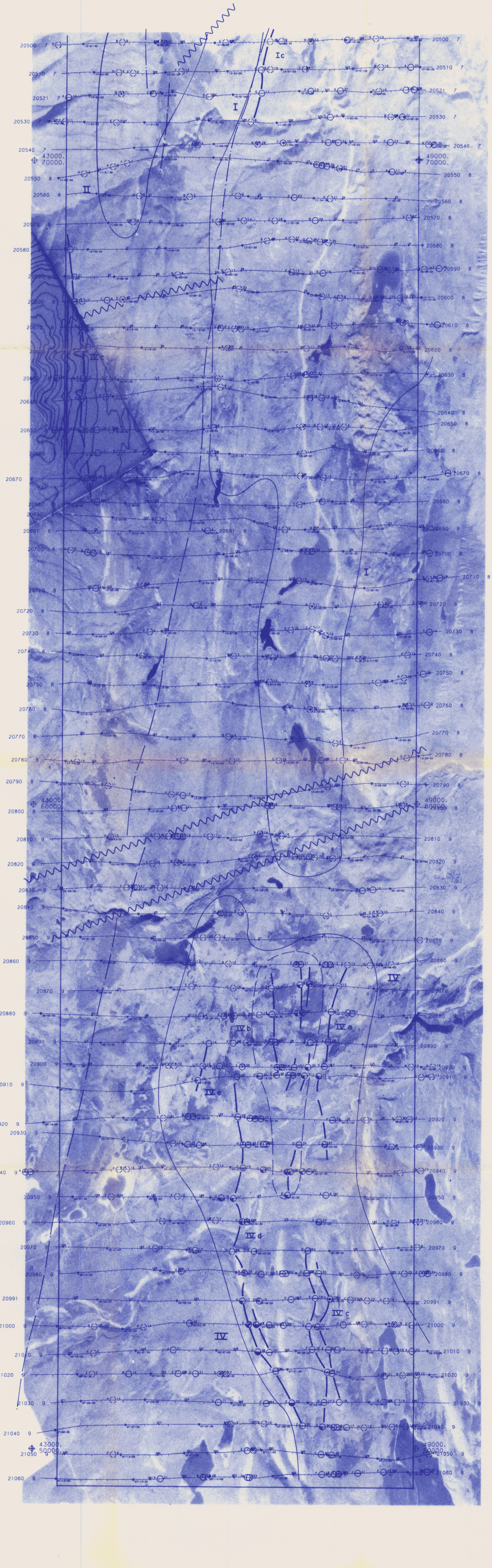
0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987

NTS No: 105 K/02, 03

MAP No: 17 J8739B-1



Flight Path

Flight path derived from VHS video tape.

Average terrain clearance 60m
Line spacing = 400m

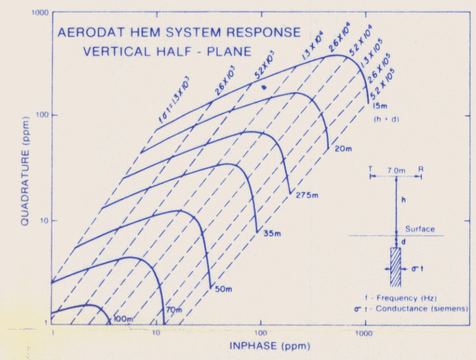
EM Anomalies

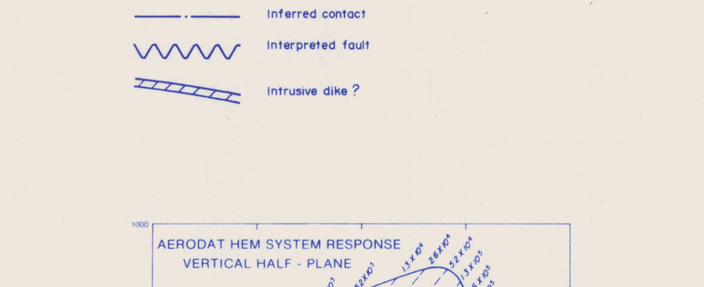
Conductivity Thickness (mhos)

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

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

- Interpreted bedrock conductor axis
- Conductive Zone
- Inferred contact
- Interpreted fault
- Intrusive dike ?





NORANDA EXPLORATION CO. LTD.

INTERPRETATION

GREW CREEK

YUKON

(1613)

SCALE 1:25,000

0 825 1650 3300 6600 feet

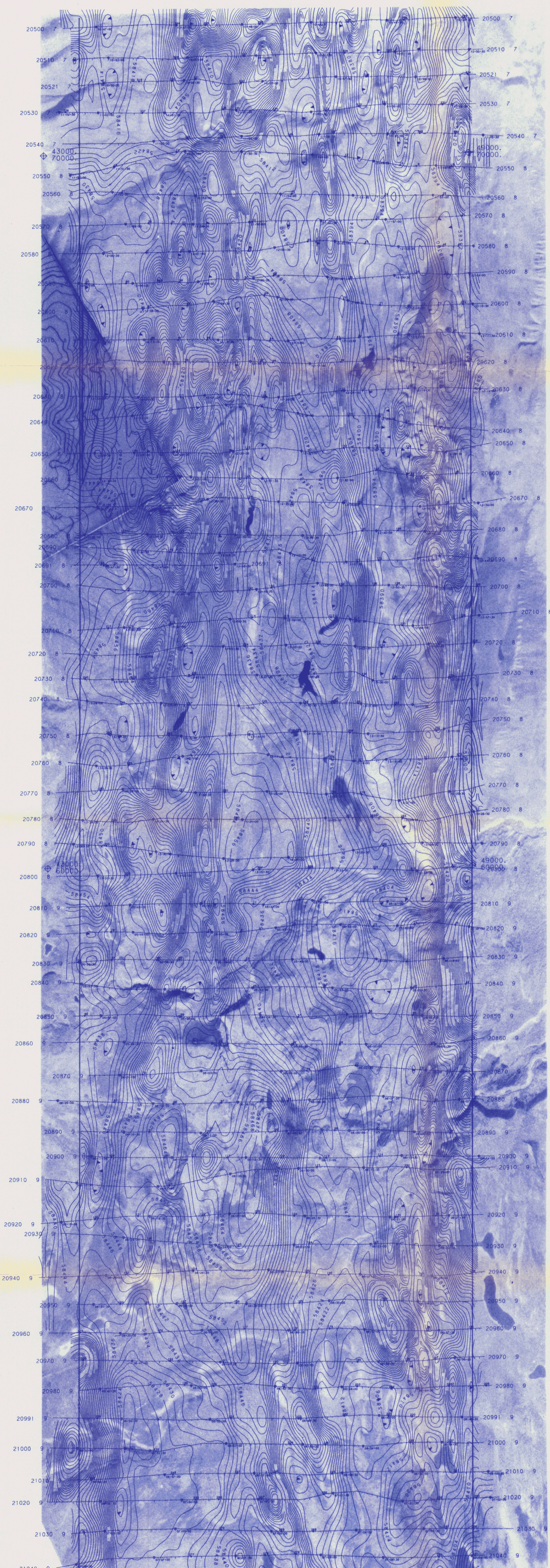
0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987

NTS No: 105 K/02, 03

MAP No: 18 J8739B-2



Flight Path

Flight path derived from VHS video tape.

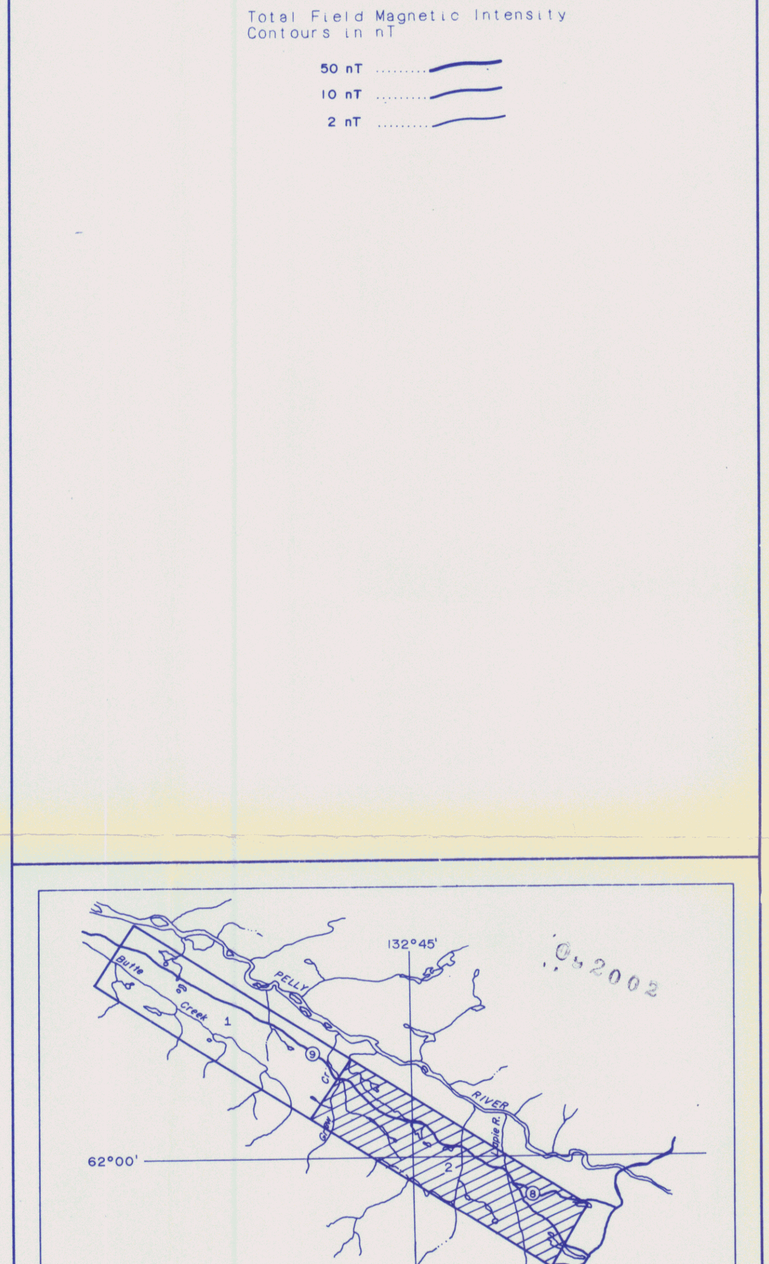
Average terrain clearance 60m
Line spacing = 400m

Magnetics

Cesium high sensitivity magnetometer
Sensor elevation 45m

Total Field Magnetic Intensity
Contours in nT

50 nT .....
10 nT .....
2 nT .....



NORANDA EXPLORATION CO. LTD.

TOTAL FIELD MAGNETIC CONTOURS

GREW CREEK

YUKON

(1615)

SCALE 1:25,000

0 825 1650 3300 6600 feet

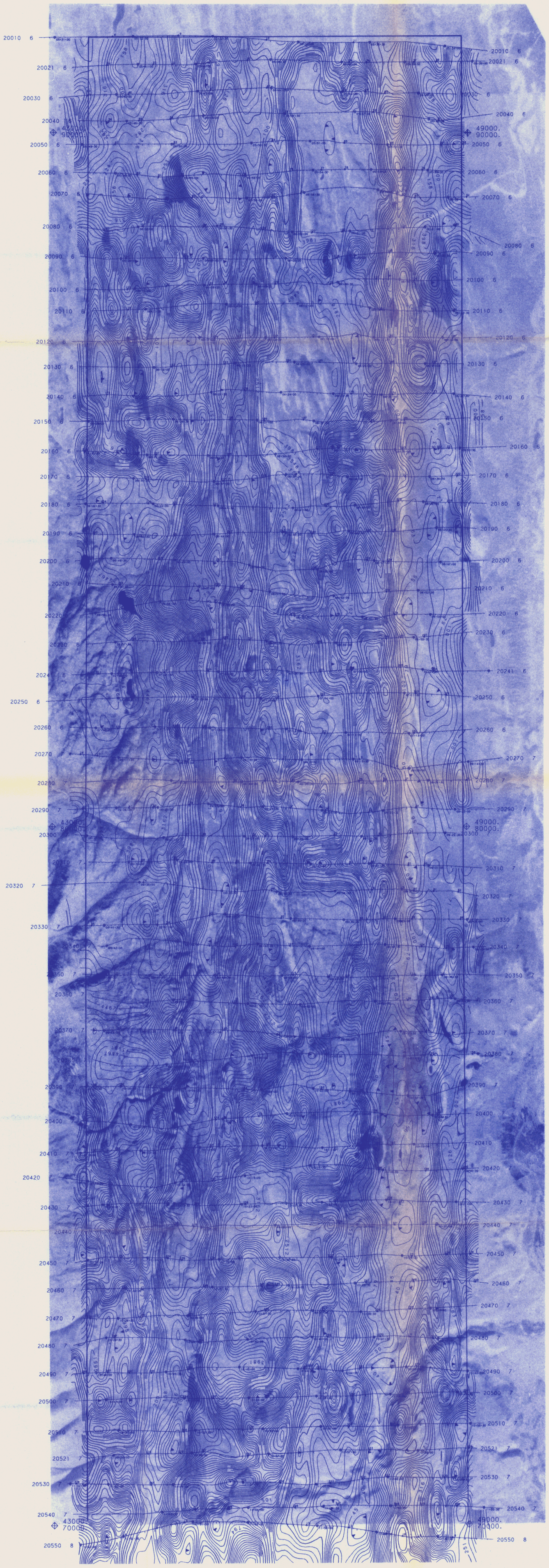
0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987

NTS No: 105 K/02,03

MAP No: 20 J8739B-2



Flight Path

Flight path derived from VHS video tape.

Average terrain clearance 60m
Line spacing = 400m

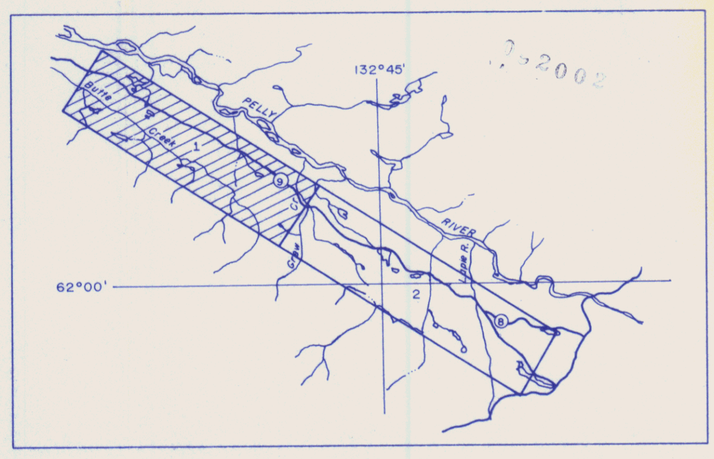
Apparent Resistivity

Contouring in ohm-m at logarithmic intervals.

Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.
Sensor elevation 30m

$10^{N.0}$ OHM-M N = 1,2,3, ...9

$10^{N.M}$ OHM-M M = 1,2,3, ...9



NORANDA EXPLORATION CO. LTD.

APPARENT RESISTIVITY CONTOURS

GREW CREEK

YUKON

(1616)

SCALE 1:25,000

0 825 1650 3300 6600 feet

0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987

NTS No: 105 K/02,03

MAP No: 21 J8739B-1



Flight Path

Flight path derived from VHS video tape.

Average terrain clearance 60m
Line spacing = 400m

VLF-EM

VLF-EM Total Field Intensity in percent

Station: NLK (Jim Creek, Wash.)
24.8 kHz

Sensor elevation 45m

50 % .....
10 % .....
2 % .....

NORANDA EXPLORATION CO. LTD.

VLF-EM TOTAL FIELD CONTOURS

GREW CREEK

YUKON

(1605)

SCALE 1:25,000

0 825 1650 3300 6600 feet

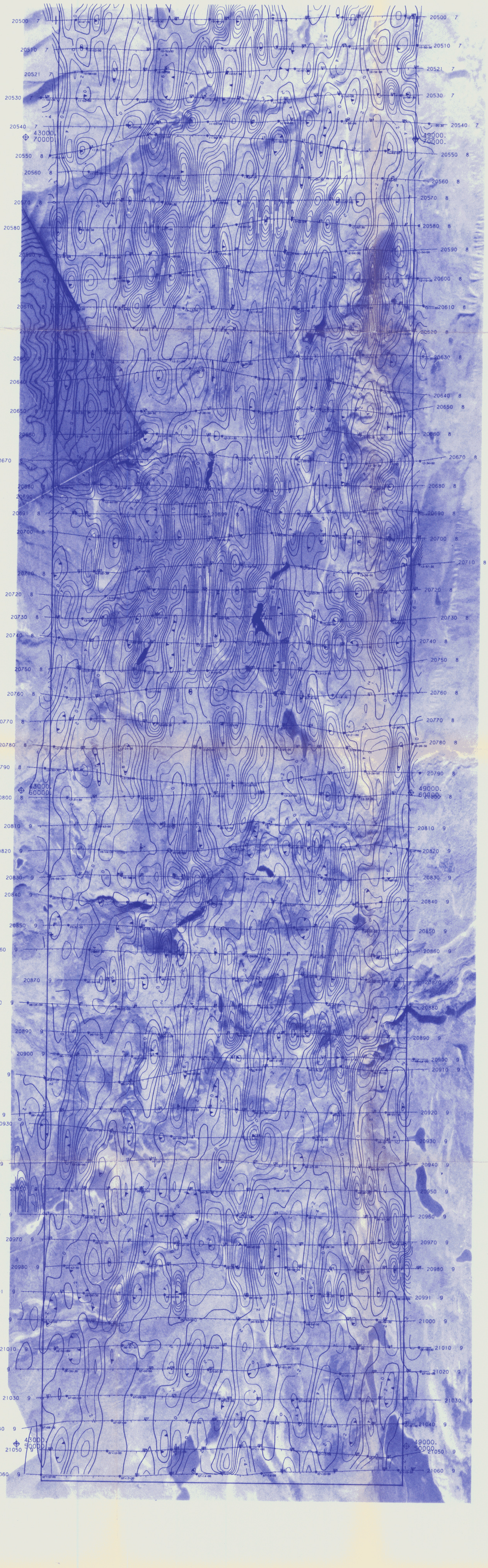
0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987

NTS No: 105 K/02,03

MAP No: 23 J8739B-1



Flight Path

Flight path derived from VHS video tape.

Average terrain clearance 60m
Line spacing = 400m

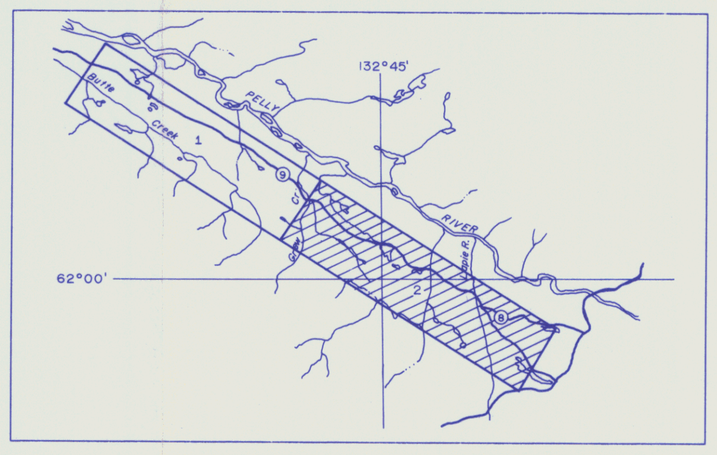
VLF-EM

VLF-EM Total Field Intensity in percent

Station: NLK (Jim Creek, Wash.)
24.8 kHz

Sensor elevation 45m

50 % .....
10 % .....
2 % .....



NORANDA EXPLORATION CO. LTD.

VLF-EM TOTAL FIELD CONTOURS

GREW CREEK

YUKON

(1605)

SCALE 1:25,000

0 825 1650 3300 6600 feet
0 250 500 1250 2500 metres

AERODAT LIMITED

DATE: JULY, 1987
NTS No: 105 K/02, 03
MAP No: 24 J8739B-2