093736

GEOPHYSICAL REPORT ON THE VERNA & LUCILLE CLAIMS

Verna 1-20 (YB79263-82), Lucille 1-8 (YB79255-62)

Watson Lake Mining District
Watson Lake Area, Yukon

NTS 105A/1
Verna: 60°09'50" N latitude, 128°21'50" W longitude
Lucille: 60°00'45" N latitude, 128°04'30" W longitude

for KRL Resources Corp.

Work performed March, 1996

RECEIVED
SEP - 4 1997
MINING RECORDER
WATSON LAKE, Y.T.
I.N.A.C.

C.Q. Barrie, R. Chow
March 18, 1997

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 $ 11,800 .

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

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LIST OF ILLUSTRATIONS

INTRODUCTION

During March of 1996, a high sensitivity magnetic and VLF-EM airborne survey was conducted on the Verna and Lucille claims. The survey was carried out by Terraquest Ltd. on behalf of KRL Resources Corp. The purpose of this investigation was to evaluate the potential of these claims for lead-zinc-silver sedex type mineralization or porphyry related base and precious metal deposits.

Location and Access

The Verna claims are located about 19 km northeast of the town of Watson Lake, Yukon, between Jackfish Lake and the Hyland River, at 60°09'50" N. latitude, 128°21'50"W in southeastern Yukon. The Lucille claims are 34 km east-southeast of Watson Lake, on the east side of the Hyland River and 10 km southeast of Blind Lake, at 60°00'45" N. latitude, 128°04'30" W. longitude. Both sets of claims are on mapsheet 105A/1 in the Watson Lake Mining District.

There is no road access to the Verna claims and limited trail access is available through the Lucille claims. Helicopter access from Watson Lake is about a 10-15 minute trip.

Physiography / Climate

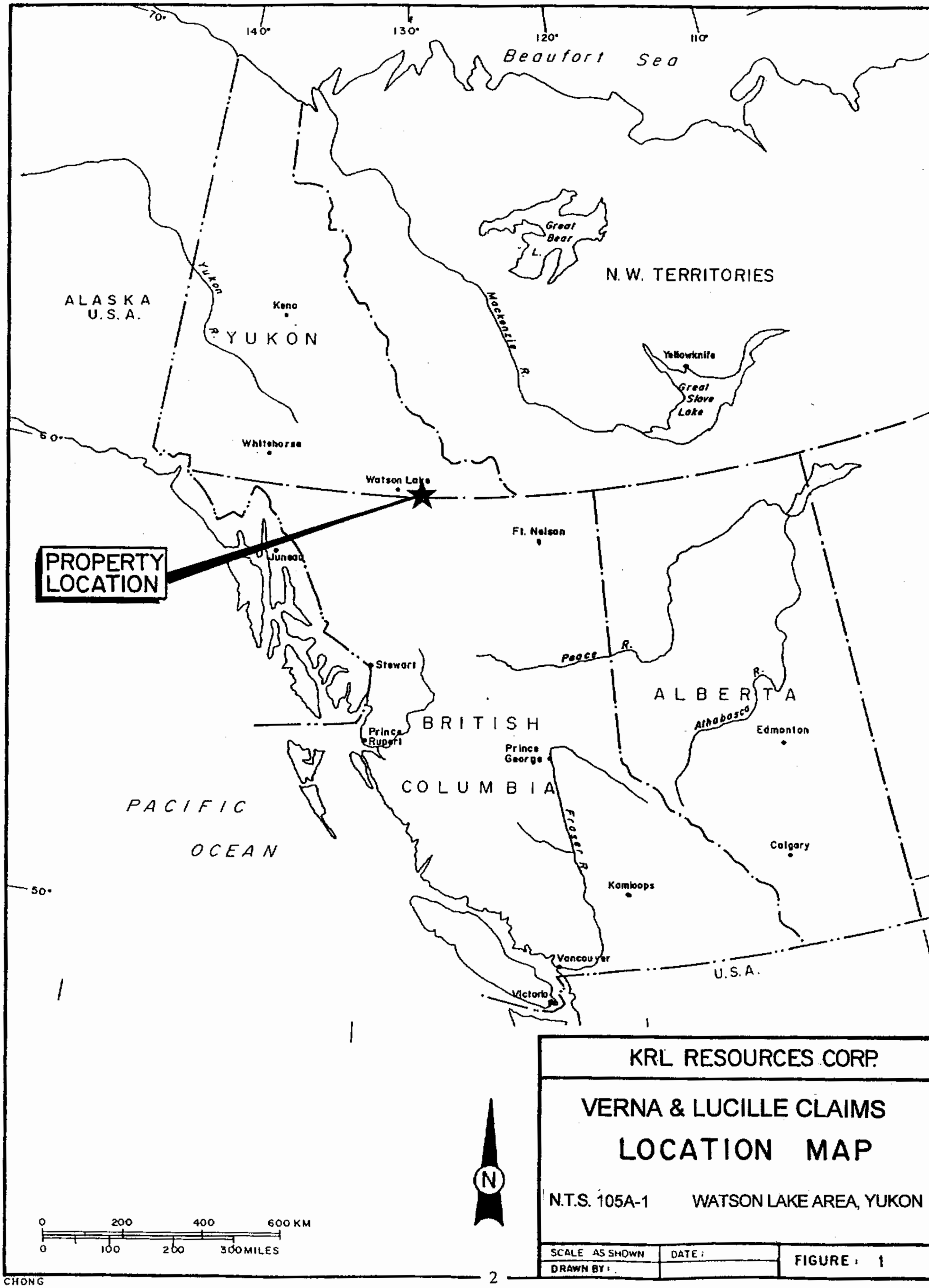
The claims lie within the Liard Lowlands physiographic division, an area characterized by low relief and extensive drift cover. Elevations on the Verna claims range from 2600 - 3100 feet, and from 2700 - 3000 feet above sea level on the Lucille.

Glacial movement in the claim areas was dominantly west to east. The Verna claim block is underlain by a blanket of till, 1-30 m thick which has been classified as lodgement and ablation till (Klassen & Morrison, 1979). The Lucille block is covered by a valley bottom complex of alluvial, colluvial and glacial deposits composed of gravel, sand, silt and till.

Climate records in Watson Lake indicate the average temperature ranges from about -25° in January to +15° in July. Total snowfall averages 219 cm. Exploration is ideally carried out from May to October.

Property Status

The Verna and Lucille claims, held by KRL Resources Corp. are listed below in Table 1 and illustrated in Figures 2 & 3. The Verna claim block consists of 22 units totaling about 1136 acres (460 hectares) and the Lucille block of claims cover 8 units over 413 acres (167 hectares).



KRL RESOURCES CORP.

VERNA & LUCILLE CLAIMS

LOCATION MAP

N.T.S. 105A-1 | WATSON LAKE AREA, YUKON

SCALE AS SHOWN	DATE :	FIGURE : 1
DRAWN BY :		

Table 1: **Verna & Lucille Claims**

Claim Name	Grant Number	Record Date	Expiry Date	Registered Owner
Verna 1	YB 79263	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 2	YB 79264	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 3	YB 79265	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 4	YB 79266	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 5	YB 79267	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 6	YB 79268	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 7	YB 79269	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 8	YB 79270	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 9	YB 79271	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 10	YB 79272	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 11	YB 79273	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 12	YB 79274	1996 Mar 08	**1997 Mar 08**	Tim Young
Verna 13	YB 79275	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 14	YB 79276	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 15	YB 79277	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 16	YB 79278	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 17	YB 79279	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 18	YB 79280	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 19	YB 79281	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 20	YB 79282	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 21	YB 79283	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Verna 22	YB 79284	1996 Mar 08	**1997 Mar 08**	Jim Donaldson
Lucille 1	YB 79255	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 2	YB 79256	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 3	YB 79257	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 4	YB 79258	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 5	YB 79259	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 6	YB 79260	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 7	YB 79261	1996 Mar 08	**1997 Mar 08**	Tim Young
Lucille 8	YB 79262	1996 Mar 08	**1997 Mar 08**	Tim Young

Property History

The Verna 1-20 claims were first staked by K. Atkin in October of 1994 (Yukon Minfile, 1995). A month later, Atkin staked the Lucille 1-8 claims 20 km to the southeast. There are no records of any work performed on these claims.

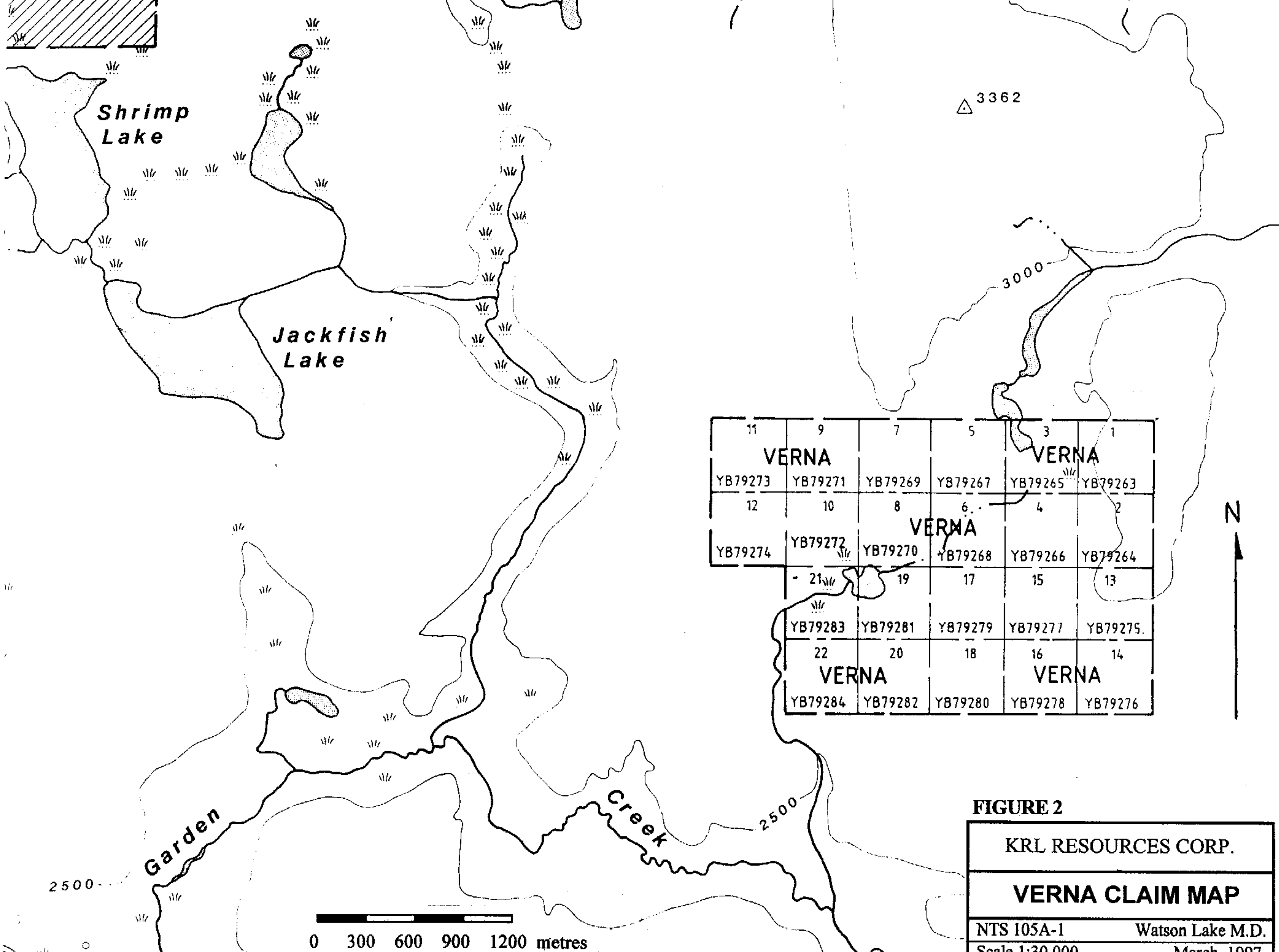


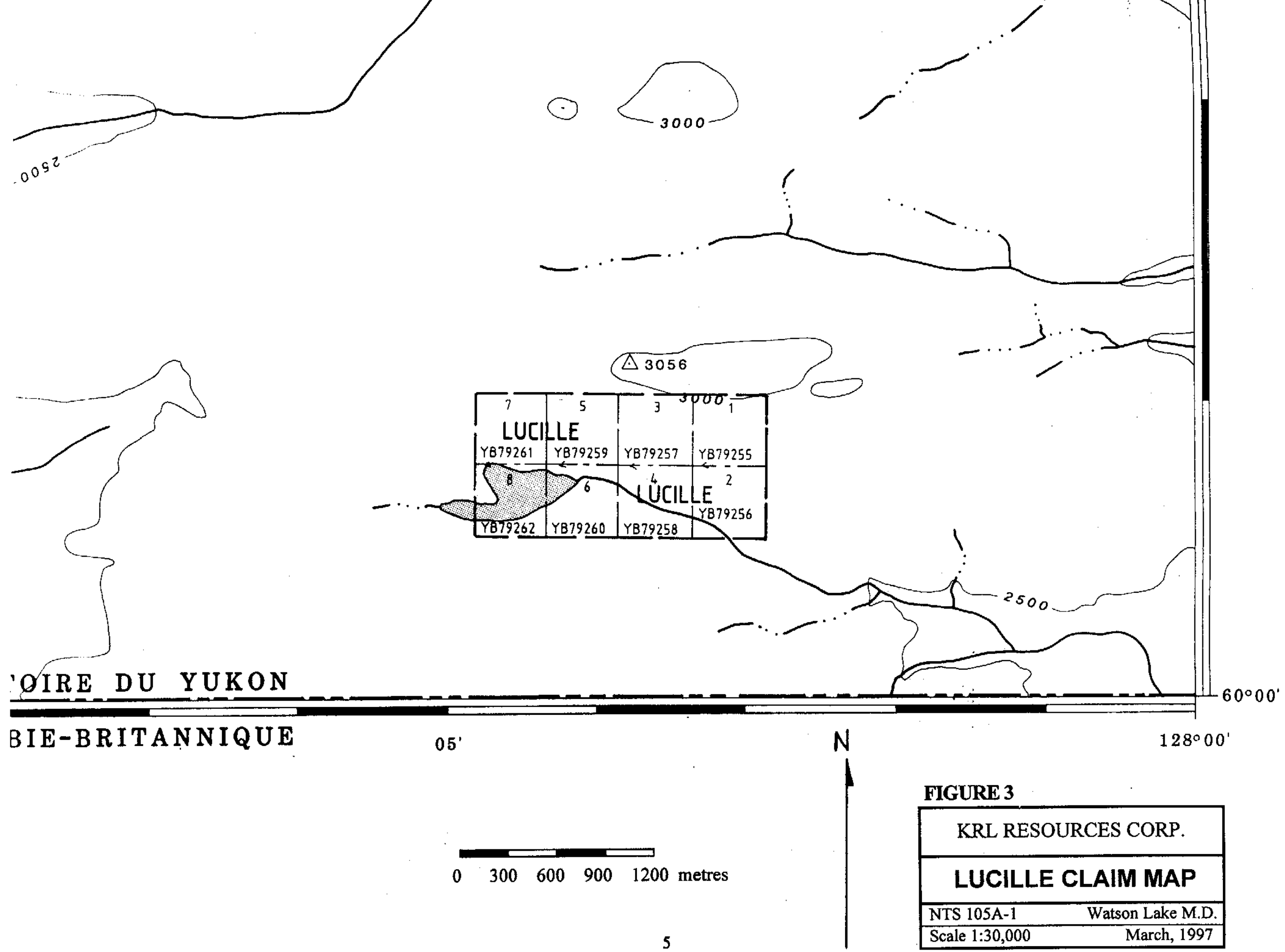
FIGURE 2

KRL RESOURCES CORP.

VERNA CLAIM MAP

NTS 105A-1 Watson Lake M.D.

Scale 1:30,000 March, 1997


3000
2500
3056
3000
LUCILLE
7
5
3
1
YB79261
YB79259
YB79257
YB79255
8
6
4
2
LUCILLE
YB79256
YB79262
YB79260
YB79258
2500
'OIRE DU YUKON
BIE-BRITANNIQUE
60°00'
05'
128°00'
N
0 300 600 900 1200 metres
FIGURE 3
KRL RESOURCES CORP.
LUCILLE CLAIM MAP
NTS 105A-1
Watson Lake M.D.
Scale 1:30,000
March, 1997

REGIONAL GEOLOGY & MINERALIZATION

Regional mapping by Gabrielse (1967) has identified dominantly Proterozoic to Mississippian sedimentary strata within the Watson Lake map area (105A). Rock types include phyllite, slate, argillite, limestone and dolomite with lesser siltstone, sandstone, and conglomerate. Intrusions include Cretaceous granitic and dioritic rocks. The region is mainly covered by Quaternary glacial, fluvioglacial and alluvial deposits including the areas within the Verna and Lucille claims. Outcrops along the nearby Hyland River are mapped as a Proterozoic (Hadrynian) unit containing black and dark green shale and slate, feldspar-quartz-pebble conglomerate, grit, and quartzite.

The area lies within the Omineca tectonic belt of the Canadian Cordillera, east of the Tintina-Northern Rocky Mountain Trench. The tectonic assemblage compilation map by Wheeler and McFeely (1991) classifies the area underlying the claims as Upper Proterozoic to Lower Cambrian Hyland Group, consisting of mainly clastic offshelf passive continental margin sediments which were deposited into the Selwyn Basin. The Hyland Group is comprised of an upper unit of blue-grey, apple-green and maroon slate with minor siltstone and sandstone; and a lower unit of interbedded sandstone, locally conglomeratic, and shale with limestone in the upper part.

Structural information in this region is sparse. In general, bedding appears to strike north-northwesterly to northerly. Proterozoic (?) rocks on Hyland River in the northeastern part of the mapsheet are strongly cleaved and tightly folded with axial planes dipping moderately east (Gabrielse, 1967).

There have been a few documented mineral occurrences in Hyland Group strata in the Yukon. Among these are the Wayne property, recently acquired by Eagle Plains Resources and Miner River Resources. This property hosts gold mineralization in calcareous horizons within Hyland Group metasediments. Drilling in 1983 returned values up to 1.41 g/T Au over 31.7 m and 0.72 g/T Au over 95.7 m. Another project is Kennecott Canada's Scheelite Dome property which has identified disseminated quartz-arsenopyrite mineralization replacing calcareous horizons in metasediments proximal to the Cretaceous Scheelite Dome intrusive. Initial exploration had been directed at intrusive-hosted gold in the Scheelite Dome, but is now focused on this replacement style of mineralization (Burke, 1997).

1996 GEOPHYSICAL SURVEY

An airborne high sensitivity magnetic and VLF-EM survey was conducted over the Verna and Lucille claim block by Terraquest Ltd. in March of 1996. A total of 266 line km were flown on the Verna claims and 197 line km on the Lucille. Refer to Appendix A under the Garden Creek Block (Verna claims) and the Blind Lake Block (Lucille claims) sections for the full report.

CONCLUSIONS / RECOMMENDATIONS

The airborne geophysics was not successful in delineating any anomalies of interest. The magnetic response over these claim groups shows small hummocky highs and lows. VLF shows no prominent responses over these areas. Any additional work should include reconnaissance scale prospecting and geological mapping to investigate the presence of any mineralization which may not be geophysically responsive.

REFERENCES

BURKE, M. (1997): Yukon Regional Profile; *in* Mining Review, Vol.17, No.2, pp. 86-96.

GABRIELSE, H. (1967): Watson Lake Geology, GSC Map 19-1966, scale 1:253,440

GABRIELSE, H. and YORATH, C.J. (1992): Geology of the Cordilleran Orogen in Canada; Geological Survey of Canada.

KLASSEN, R.W. and MORRISON, S.R. (1982): Watson Lake Surficial Geology, 1:250,000 scale; GSC Map 21-1981.

MACINTYRE, D.G. (1991): Sedex — Sedimentary-Exhalative Deposits; *in* Ore Deposits, Tectonics and Metallogeny in the Canadian Cordillera; BC MEMPR Paper 1991-4, pp.25-70.

WHEELER, J.O. and McFEELY, P. (1991): Tectonic assemblage map of the Canadian Cordillera and adjacent parts of the United States of America; Geological Survey of Canada, Map 1712A, scale 1:2,000,000.

YUKON MINFILE (1995): #105A 002 It, Verna, Lucille claims; Exploration and GeoServices Division, Dept. of Indian Affairs and Northern Development.

STATEMENT OF QUALIFICATIONS

I, Rita Chow of 5615 Dumfries Street, Vancouver, British Columbia, do hereby declare that:

1. I graduated from the University of British Columbia with a B.Sc. Degree (first class standing) in Geological Sciences in May, 1995.

2. I have been employed by KRL Resources Corp. since June of 1995.

3. Contributions to this report are based on references as listed.

Rita Chow

Rita Chow, B.Sc.
March 18, 1997

APPENDIX A

A-954

REPORT ON A

HIGH SENSITIVITY MAGNETIC AND VLF-EM AIRBORNE SURVEY

CASH CREEK, LIARD CANYON, GARDEN CREEK, BLIND LAKE, MCDAME CREEK, PROPERTIES

YUKON - BRITISH COLUMBIA

for

KRL RESOURCES CORP.

by

TERRAQUEST LTD.
Toronto, Canada

June 30, 1996

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1.0 INTRODUCTION

This report describes the specifications and results of an airborne geophysical survey carried out for KRL RESOURCES CORP. of 1022 - 470 Granville Street, Vancouver, BC, V6C 1V5. The survey was performed by TERRAQUEST LTD., 100-1373 Queen Victoria Avenue, Mississauga, ON, L5H 3H2, telephone (905)274-1795and fax (905)274-3936.

The purpose of a survey of this type is to prospect directly for anomalously magnetic and or conductive areas in the earth's crust which may be caused by, or at least related to, economic minerals. Secondly, the geophysical patterns may be used indirectly for exploration by mapping the geology in detail, including the faults, shear zones, folding, alteration zones and other structures. This technique outlines structures that may control mineralization and accounts or proposes a logical, stratigraphic source for the majority of the magnetic responses.

To achieve this purpose the survey area was systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines spaced at even intervals, 75 metres above the terrain surface, and aligned so as to intersect the regional geology and structure in a way to provide the optimum contour patterns of geophysical data.

2.0 SURVEY AREAS

2.1 Cash Creek (A-954A)

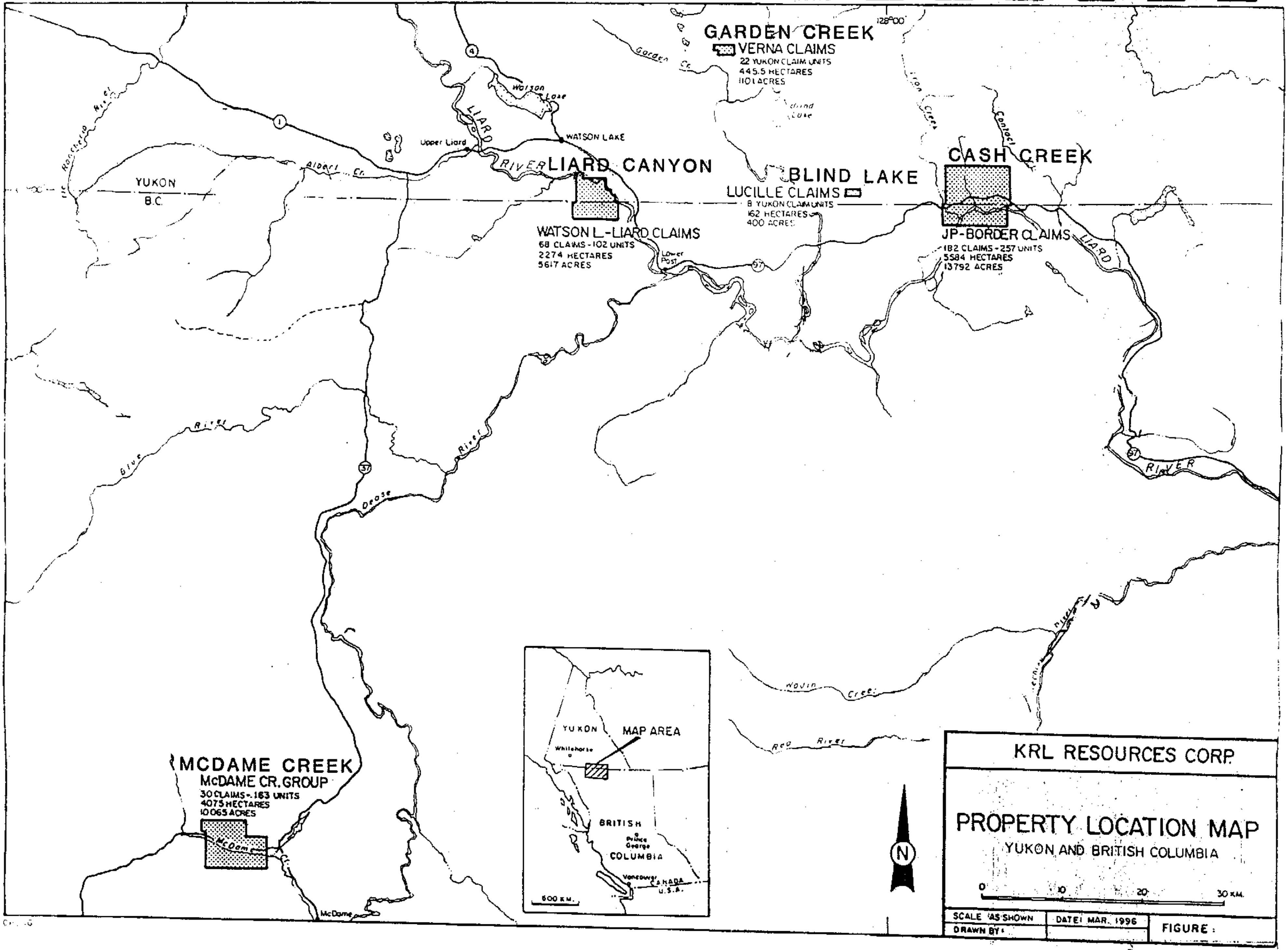
The Cash Creek block is located approximately 60 kilometres east of the town of Watson Lake, Yukon and straddles the British Columbia - Yukon border. Both the Alaska highway and the Liard River pass through the middle of the block.

The survey area is rectangular in shape and measures approximately 7 kilometres north-south and 8 kilometres east-west. The central latitude and longitude are 60 degrees north, and 127 degrees 46 minutes west. The N.T.S. references are 95D/4 and 94M/13.

2.2 Liard Canyon (A-954B)

The Liard Canyon block is located approximately 3 kilometres south of the town of Watson Lake, Yukon and straddles the Yukon - British Columbia border. The Alaska highway and the Liard River pass through the northeast quadrant of the block.

The survey area is square, with approximately 7 kilometre sides. The central latitude and longitude are 60 degrees north and 128 degrees 37 minutes west. The N.T.S. references are 105A/2 and 104P/15.



GARDEN CREEK
VERNA CLAIMS
22 YUKON CLAIM UNITS
445.5 HECTARES
1101 ACRES
LIARD CANYON
WATSON L.-LIARD CLAIMS
68 CLAIMS - 102 UNITS
2274 HECTARES
5617 ACRES
BLIND LAKE
LUCILLE CLAIMS
8 YUKON CLAIM UNITS
162 HECTARES
400 ACRES
CASH CREEK
JP-BORDER CLAIMS
182 CLAIMS - 257 UNITS
5584 HECTARES
13792 ACRES
MCDAME CREEK
McDAME CR. GROUP
30 CLAIMS - 183 UNITS
4075 HECTARES
10065 ACRES
WATSON LAKE
Upper Liard
Lower Post
McDame
YUKON
B.C.
LIARD RIVER
MAP AREA
YUKON
BRITISH COLUMBIA
Whitehorse
Prince George
Vancouver
CANADA
U.S.A.
500 KM.
KRL RESOURCES CORP.
PROPERTY LOCATION MAP
YUKON AND BRITISH COLUMBIA
0 10 20 30 KM.
SCALE AS SHOWN
DATE: MAR. 1996
DRAWN BY:
FIGURE:

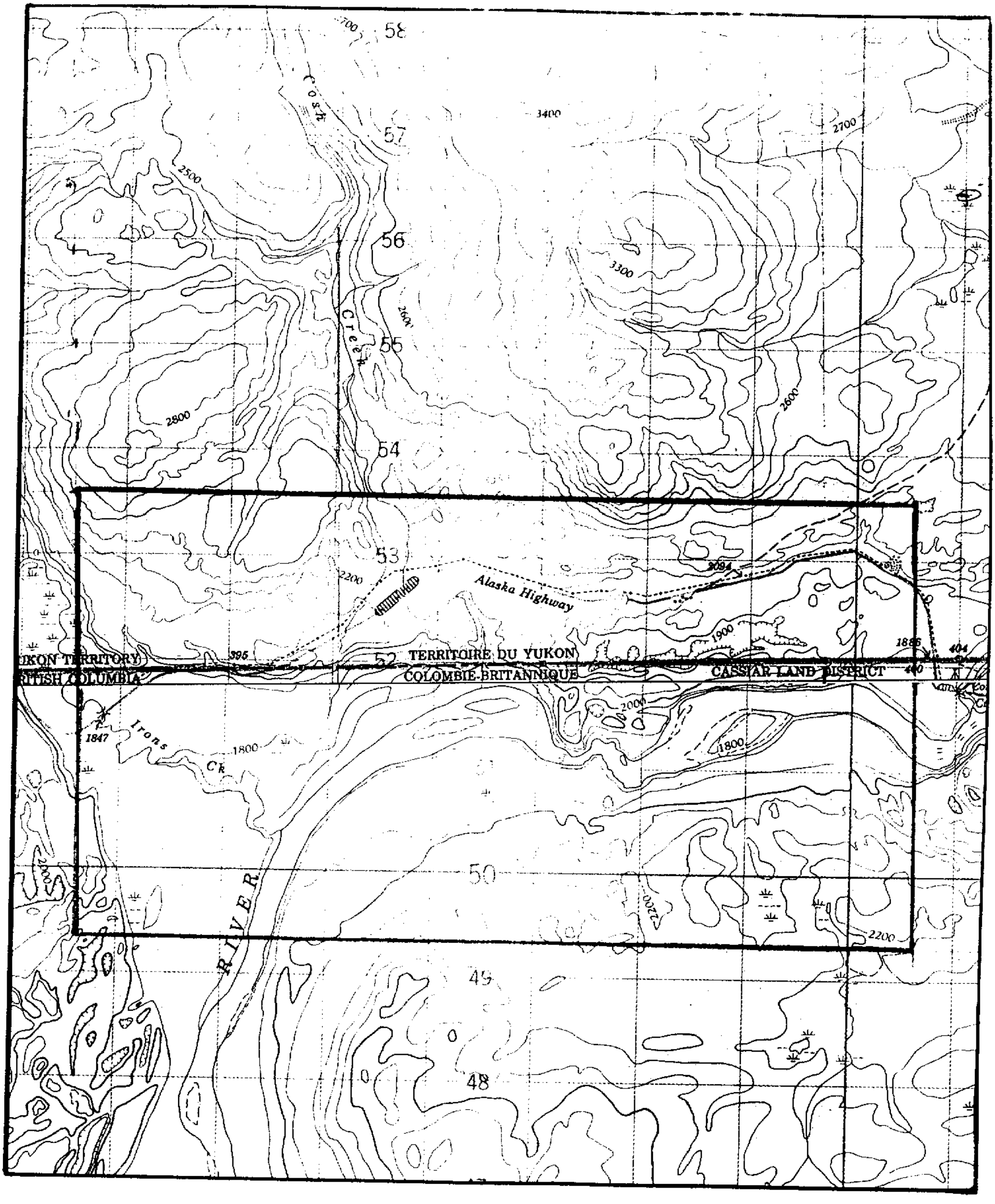


FIGURE 2a SURVEY AREA

CASH CREEK

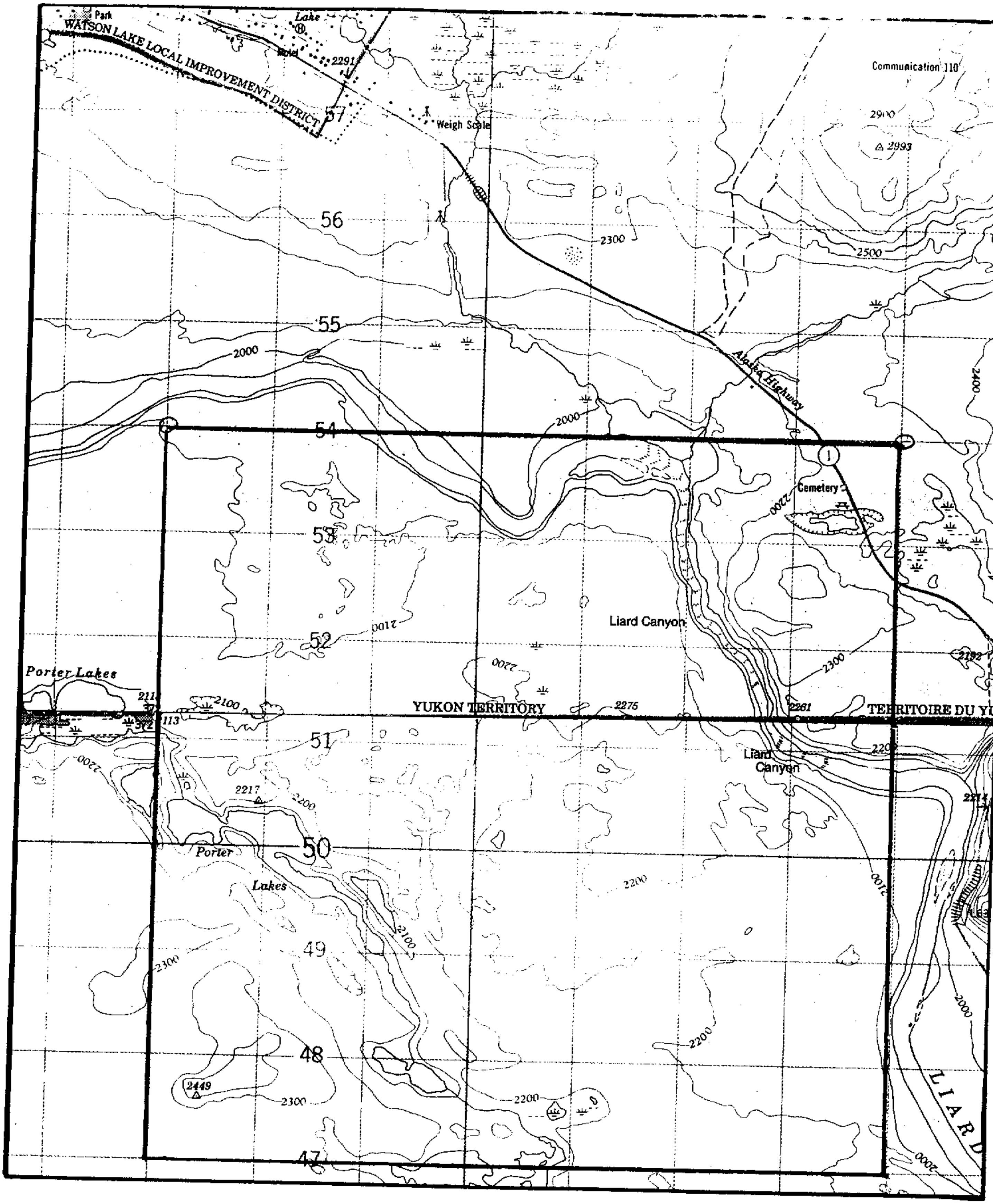


FIGURE 2b SURVEY AREA

LIARD CANYON

2.3 Garden Creek (A-954C)

The Garden Creek block is located approximately 19 kilometres northeast of the town of Watson Lake, Yukon. The Hyland River passes along the eastern edge of the block.

The survey area is rectangular measuring approximately 8 kilometres east west and 6 kilometres north south. The central latitude and longitude are 60 degrees 10 minutes north and 128 degrees 20 minutes west. The N.T.S. reference is 105A/1.

2.4 Blind Lake (A-954D)

The Blind Lake block is located approximately 34 kilometres east southeast of the town of Watson Lake, Yukon and 10 kilometres southeast of Blind Lake. The Hyland River passes along the western edge of the block and the British Columbia border along the south side.

The survey area is irregular in shape, measuring approximately 8 to 11 kilometres east west and 5.5 kilometres north south. The central latitude and longitude are 60 degrees 2 minutes north and 128 degrees 5 minutes west. The N.T.S. reference is 105A/1.

2.5 McDame Creek (A-954E)

The McDame Creek survey block is located approximately 20 kilometres east of the town of Cassiar, British Columbia. Both the McDame Creek and the Cassiar Road run east-west through the centre of the block. The abandoned town of Centreville lies in the middle of the area. The road to the town of McDame passes along the east edge of the area. The survey area is rectangular in shape measuring 5.5 km north-south and 10 km east-west. The general latitude longitude are 59 degrees 16 minutes north and 129 degrees 25 minutes west.

3.0 GEOLOGY

3.1 Cash Creek Block (A-954A)

References:
Geology and Rock & Silt Geochemistry, JP Claims, Watson Lake, Yukon. KRL Resources Corp., Aug 1995
Geology and Rock & Silt Geochemistry, Border Claims, Liard M.D., B.C. KRL Resources Corp., Aug 1995

The Cash Creek claim group is underlain by Hadrynian or Lower Cambrian sediments and include phyllites, slate, fine grained quartz, siltstone argillite, and their calcareous equivalents. Only a few outcrops are indicated on the geological map and no correlation between outcrops has been made. Strikes and joints vary from northwest to northeast. Mineralization occurs as massive sulphide float and iron oxide cemented rubble, both located in the western part of the claim group.

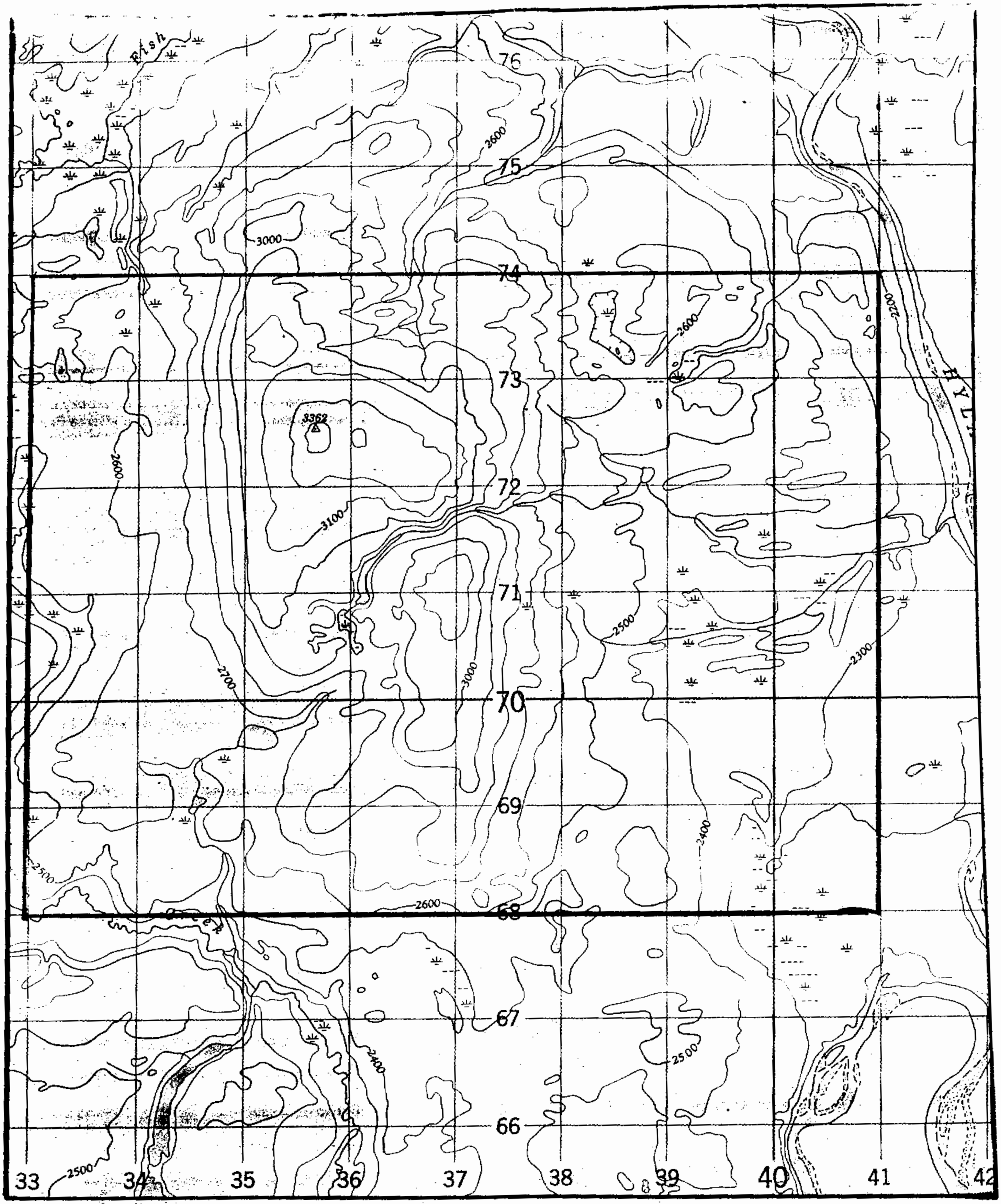


FIGURE 2c SURVEY AREA

GARDEN CREEK

FIGURE 2d SURVEY AREA

BLIND LAKE

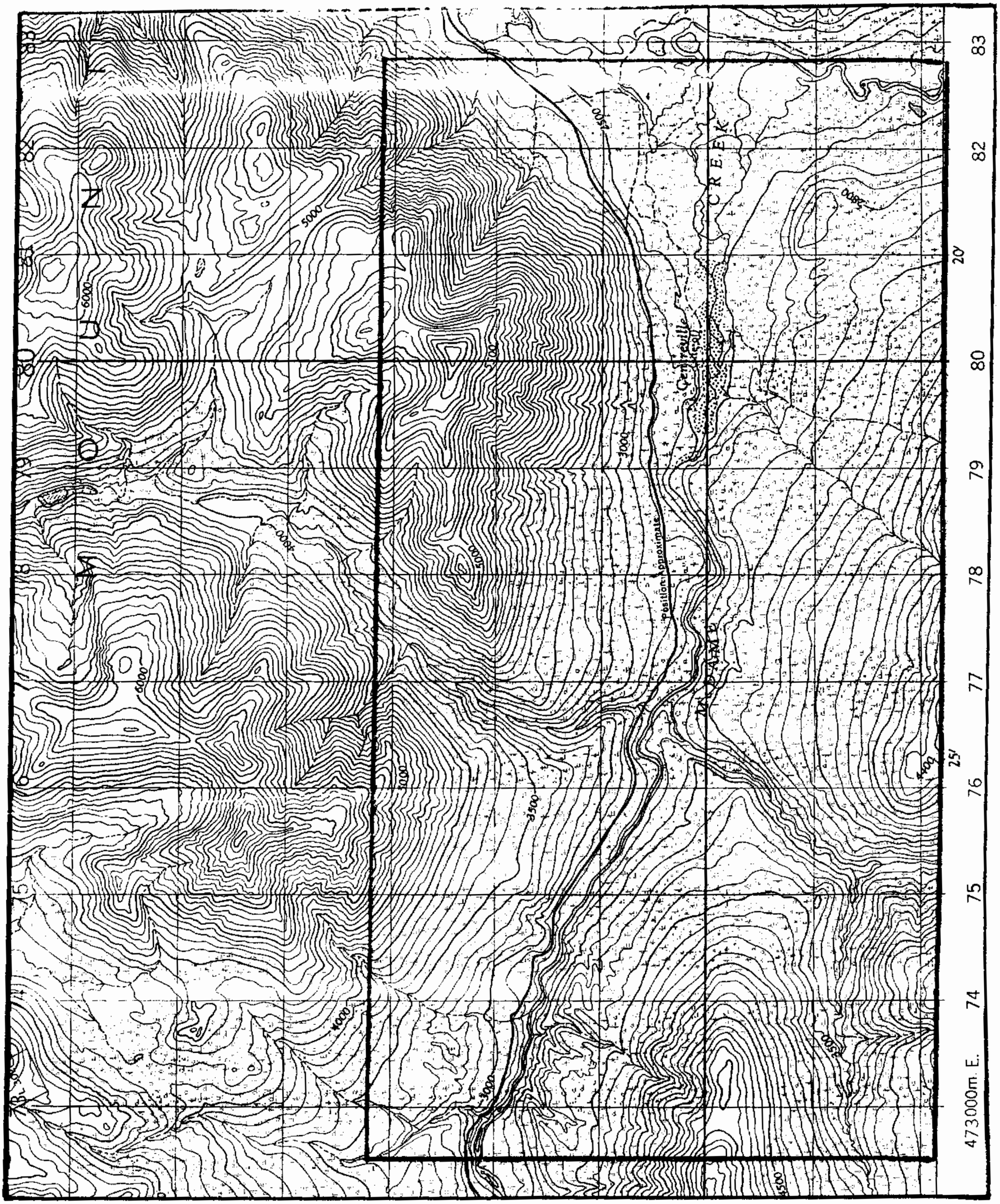


FIGURE 2e SURVEY AREA

MCDAME CREEK

3.2 Liard Canyon Block (A-954B)

References:
Geology Watson Lake, Yukon Territory, Preliminary Series, Map Sheet 105A. scale 1:253,440; Geological Survey of Canada; 1967

The Liard block is covered primarily by Quaternary overburden. A large exposure of Cambro-Ordovician rocks occurs along the Liard River in the northeast quadrant. This general rock unit contains argillite, slate, phyllite, phyllitic limestone and silty limestone. This rock unit hosts two occurrences of Pb-Zn-Ag mineralization further to the north. Beyond the survey area Mississippian clastics and limestones occupy the highlands whereas small exposures of Tertiary (?) vesicular basalt occupy the lowlands to the northwest.

3.3 Garden Creek Block (A-954C)

References:
Geology Watson Lake, Yukon Territory, Preliminary Series, Map Sheet 105A. scale 1:253,440; Geological Survey of Canada; 1967

The Garden Creek block is covered by Quaternary overburden with no mapped rock exposures. Small and remote exposures of Proterozoic sediments of Hadrynian age occur in all directions away from the block. This general rock unit contains shale, slate, feldspar-quartz pebble conglomerate, grit, quartzite, limestone, dolomite and phyllitic slate.

3.4 Blind Lake Block (A-954D)

References:
Geology Watson Lake, Yukon Territory, Preliminary Series, Map Sheet 105A. scale 1:253,440; Geological Survey of Canada; 1967

The Blind Lake Creek block is covered by Quaternary overburden with no mapped rock exposures. Small and remote exposures of Proterozoic sediments occur in all directions away from the block. This general rock unit contains shale, slate, feldspar-quartz pebble conglomerate, grit, quartzite, limestone, dolomite and phyllitic slate.

3.5 McDame Creek Block (A-954E)

References:
Regional Geology, Cassiar Map Sheet 104P

The McDame Creek survey area is mapped as having a series of clastic and calcareous sediments ranging in age from Proterozoic in the northeast quadrant through Cambrian, Ordovician, Silurian, Devonian to Lower Mississippian in the southwest corner, with a regional strike to the northwest. Regional structures trend to the northwest, north, northeast and east.

4.0 EQUIPMENT SPECIFICATIONS

4.1 AIRCRAFT

The survey was carried out using a Cessna 206 aircraft, registration C-GGLS, which carries three high sensitivity magnetometers and a VLF electromagnetic detector. It is equipped with long range tanks, outboard tanks (total 11 hours range without reserve), balloon tires, cargo door and full avionics.

The aircraft has been extensively modified to support a tail stinger, two wing tip extensions and a VLF-EM assembly. Considerable effort has been made to remove all ferruginous materials near the sensors and to ensure that the aircraft electrical system does not create any noise. With these modifications this aircraft is probably the quietest magnetic platform in the industry with a figure of merit of 9 nT uncompensated and less than 1.5 nT compensated using G.S.C. standards.

The aircraft is owned and operated by Terraquest Ltd. under full M.O.T approval and certification for specialty flying including airborne geophysical surveys. The aircraft is maintained at base of operations by a regulatory AMO facility, Leggat Aviation Inc. and in the field by a Terraquest Ltd. AME in association with an approved AMO.

4.2 AIRBORNE GEOPHYSICAL EQUIPMENT

The airborne geophysical system has three high sensitivity, cesium vapour magnetometers and a VLF-EM system. Ancillary support equipment include tri-axial fluxgate magnetometer, video camera, video recorder, radar altimeter, barometric altimeter, GPS receiver and a navigation system which includes a left/right indicator and a screen showing survey area with real time flight path. All data is collected and stored by the data acquisition system. The following provides the detailed equipment specifications.

Cesium Vapour Magnetometer (in wing tip extensions and tail stinger):

Model	CS-2
Manufacturer	Scintrex
Serial Numbers	921203, 921204, 94-03/003
Resolution	0.001 nT counting @ 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT

VLF-EM System (mounted in tube, projected forward of midsection of port wing):

Model	TOTEM 2A
Manufacturer	Herz Industries Ltd.
Serial Number	2805510
Primary Source	Magnetic field component radiated from two VLF radio transmitters
Parameters Measured	X, Y, Z components at two frequencies

Frequency Range	15.0 kHz to 24.3 kHz in 100 Hz steps
Sensitivity	130 uV to 100 uV at 20 kHz, 3dB down at 14 kHz and 24 kHz
Output Span	+/- 100% = +/- 1.0 V
Internal Noise	1.3 uV rms
Output	Total Field, Quadrature; each frequency

The VLF-EM uses three orthogonal detector coils to measure (a) the total field strength of the time-varying EM field and (b) the phase between the vertical coil and both the "along line" coil (LINE) and the "cross-line" coil (ORTHO). The LINE frequency is tuned to a transmitter station that is ideally positioned at right angles to the flight lines, while the ORTHO frequency transmitter should be in line with the flight lines.

Tri-Axial Magnetic Field Sensor (for compensation, mounted in the forepart of tail stinger):

Model	MAG-03MC
Manufacturer	Bartington Instruments Ltd.
Internal Noise	at 1 Hz - 1 kHz; 0.6 nT rms
Bandwidth	0 to 1 kHz maximally flat, -12 dB/octave roll off beyond 1 kHz
Frequency Response	1 Hz - 100 Hz: +/- 0.5%
	100 Hz - 500 Hz: +/- 1.5%
	500 Hz - 1 kHz: +/- 5.0%
Calibration Accuracy:	+/- 0.5%
Orthogonality	+/- 0.5% worst case
Package Alignment	+/- 0.5% over full temperature range
Scaling Error	absolute: +/- 0.5%
	between axes: +/- 0.5%

Video Camera (camera mounted in belly of aircraft):

Model	TC2055NC (colour)
Manufacturer	RCA
Serial Number	19492
Lens	4.87 mm, auto iris - white balance

Video Recorder (mounted in rack):

Model	AG 2400 (commercial grade)
Manufacturer	Panasonic
Serial Number	C8TA00281 (plus 2 backups)

Radar Altimeter:

Model	KA-131
Manufacturer	King
Serial Number	071-1114-00
Accuracy	5% up to 2,500 feet
Calibrate Accuracy	1%
Output	Analogue for pilot; Converted to digital for data acquisition

Barometric Altimeter:

Model	LX18001AN

Manufacturer	Sensym
Source	Coupled to aircraft barometric system

Differential GPS Receiver (antenna mounted on cabin roof):

Model	GPS Card 3951R
Manufacturer	Novatel
Antenna	Model 511
Polling	5 times per second
Accuracy	position (SA implemented) 100 metres position (no SA) 30 m velocity 0.1 knot time recovery 1pps, 100 nsec pulse width
Data Recording	all GPS raw and positional data logged by PDAS1000

Navigation Interface (mounted in rack with pilot and operator readouts):

Model	PNAV 2001
Manufacturer	Picodas Group Inc.
Data Input	Real time processing of GPS output data
Pilot Readout	Left/Right indicator
Operator Readout	Screen Modes: map, survey and line
Data Recording	All data recorded in real time by PDAS 1000 data acquisition system

Data Acquisition System (mounted in rack):

Model	PDAS 1000
Manufacturer	Picodas Group Inc.
Operating System	MS-DOS
Microprocessor	80486sx - 66 CPU
Coprocessor	Intel 80486sx
Memory	On board up to 8 MB, page interleaving, shadow RAM for BIOS, support EMS 4.0
Clock	real time, hardware implementation of MC14618in the integrated peripherals controller
I/O slots	5 AT and 3 PC compatible slots
Display	Electro-luminescent 640x400 pixels
Graphic Display	Scrolling analog chart simulation with up to 5 windows operator selectable; freeze display capability to hold image for inspection
Recording Media	Standard 540 Mbyte hard disk with extra shock mounts; Standard 1.44 Mbyte floppy disk; Standard tape backup
Sampling	Selectable for each input type; 1, 0.5, 0.25, 0.2 or 0.1 seconds
Inputs	12 differential analog input with 16 bit resolution
Serial Ports	2 RS-232C (expandable)
Parallel Ports	Ten definable 8 bit I/O; Two definable 8 bit outputs

The PDAS 1000 also contains the magnetometer processor boards, one for each cesium vapour magnetometer:

Model	PCB
Manufacturer	Picodas Group Inc.

Input Range	20,000 - 100,000 nT
Resolution	0.001 nT
Bandwidth	0.7, 1 or 2 Hz
Microprocessor	TMS 9995
Firmware	8 KBit EPROM board resident
Internal Crystal	18,432 KHz
Absolute Crystal Accuracy	<0.01%
Host Interfacing	8 KByte dual port memory
Address Selection	Within 20 bit addressing in 8 KByte software selectable steps
Input Signal	TTL, CMOS, Open collector compatible or sine wave with decoupler
Input Impedance	TTL>1KOhm

Magnetic compensation for aircraft and heading effects is done in real time. Raw magnetic values are also stored and thus if desired, compensation with different variables can be run at a later time.

Other Boards:

Analog Processor	PCB - provides separate A/D converter for each analog input with no multiplexing; each channel is sampled at a rate of 1,000 samples per second with digital processing applied

Power Supplies:

1) PC6B converter to convert the 13.75 volt aircraft power to 27.5 volts DC.
2) Power Distribution Unit manufactured by Picodas Group Inc. located in the instrument rack interfaces with the aircraft power and provides filtered and continuous power at 13.75 and 27.5 vDC to all rack components.
3) The PDAS-1000A contains a 32 volt DC cesium sensor switching power supply for the cesium vapour magnetometers in conjunction with real time magnetometer compensation; also enables interfacing the fluxgate magnetometer and the barometric altimeter; also provides clean power for radar altimeter and ancillary equipment (PC notebook, printer).

4.3 MAGNETIC BASE STATION

High sensitivity base station data is provided by an Overhauser magnetometer, data logging onto a PC 386sx notebook and time synchronization with ground GPS receiver.

Magnetic Sensor:

Model	GSM-11
Manufacturer	Gem Systems Inc.
Type	Overhauser proton precession
Sensitivity	0.01 nT at 10 readings per second
Accuracy	0.5 nT absolute

Magnetic Processor:

Model	MEP-810
Manufacturer	Urtec Inc.

Range (signal)	20,000 - 100,000 nT
Resolution (signal)	10 pT
Resolution (fdd)	1 pT
Clock Stability	2 ppm per year
Absolute accuracy correction	+/- 999x10e-6

Logging Software:

Logging software by Picodas Group Inc. version 5.02 to IBM compatible PC with RS-232 input; supports real time graphics, automatic startup, compressed data storage, selectable start/stop times, automatic disk swapping, plotting of data to screen or printer at user selected scales, and fourth digital difference and diurnal quality flags set by user.

A second, medium sense base station was available as backup with the following specifications:

Magnetometer

Model	GSM-9
Manufacturer	Gem Systems Inc.
Type	Overhauser proton precession
Range	20,000 - 100,000 nT in 23 overlapping steps
Resolution	1 nT
Accuracy	+/- 1 nT
Gradient Tolerance	up to 5,000 nT/metre
Operating Modes	manual pushbutton, cycling at 1.85 seconds, logging software controlled

Logging

Base station logging software version 5.02 by Picodas group Inc. onto NEC Multispeed laptop computer.

4.4 GPS BASE STATION

The ground GPS base station was logged onto a 486dx-66 notebook computer. Ground GPS data was collected to perform post flight differential correction to the flight path. The specifications are as follows:

Model	MX 4200D
Manufacturer	Magnavox
Serial Number	5057
Type	Continuous tracking, L1 frequency, C/A code (SPS), 6-channel (independent)
Receiver Sensitivity	-143 dBm Costas threshold
Position Update	once per second
Accuracy	position with SA implemented 100 metres, position with no SA 30 metres, velocity 0.1 knot time recovery 1 pps, 100 nsec pulse width

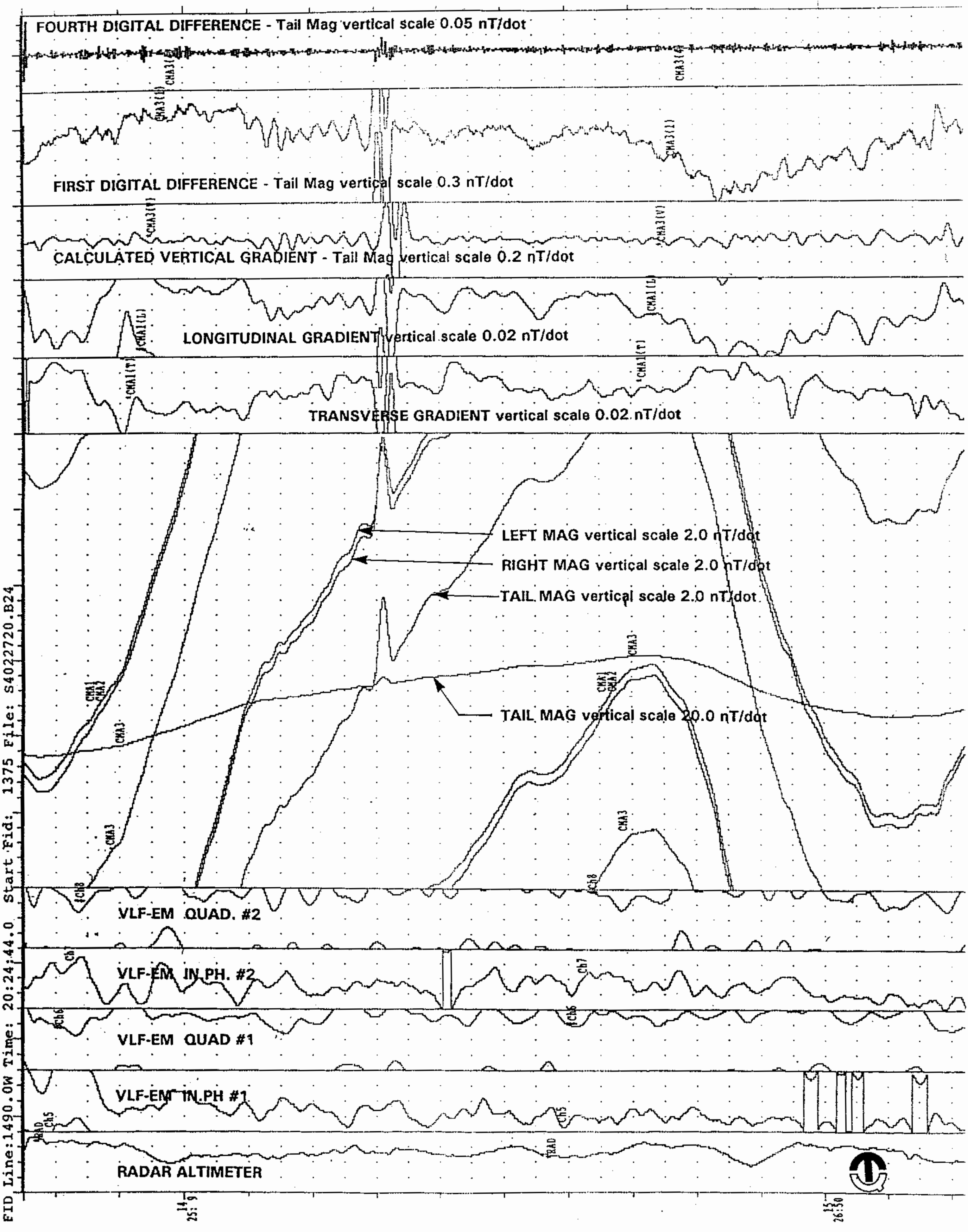


FIGURE 3. SAMPLE OF PROFILE DATA

4.5 IN-FIELD COMPUTING FACILITIES

The following equipment were supplied for infield preliminary processing including base station logging, GPS differential calculations and analogues of data on fanfold paper:

one Pentium 133-32MB PC with 2.2 GB HD, 800 MB tape drive, writable CD-ROM; one 486DX/66 and one 386SX/25 notebooks; two dot matrix printers

5.0 SURVEY SPECIFICATIONS

5.1 LINES AND DATA

Line direction	090/270 degrees azimuth
Line interval	200 metres
Terrain clearance	75 metres (except McDame Creek Block which was flown at constant barometric elevation due to rugged terrain)
Average ground speed	60 metres/second
Data point interval:	
Magnetic	6 metres
VLF-EM	6 metres
Channel 1 (LINE)	NAA Seattle, 24.8 kHz
Channel 2 (ORTHO)	NAA Cutler, 24.0 kHz
Line kilometres	
A) Cash Creek	340 km
B) Liard Canyon	273 km
C) Garden Creek	266 km
D) Blind Lake	197 km
E) McDame Creek	315 km
TOTAL	1,391 km

Extensive overflight beyond the contract boundaries are included in the processed data set but have not been charged.

5.2 TOLERANCES

Line spacing: Any gaps wider than 1.5 times the line spacing and longer than 5 times the line spacing were filled in by a new line or not charged.

Terrain clearance: Portions of line which were flown above 115 metres for more than one kilometre were reflown if safety considerations were acceptable. The McDame Creek block was flown at constant barometric elevation to clear the rugged terrain.

Diurnal magnetic variation: Less than ten nanoteslas deviation from a smooth background over a period of two minutes or less as seen on the base station analogue record.

Manoeuvre noise: nil

5.3 NAVIGATION AND RECOVERY

The satellite navigation system was used to ferry to the survey site and to survey along each line using UTM coordinates. The UTM coordinates of the survey outline for navigation purposes and flight path recovery were taken from 1:50,000 scale NTS topographic maps all of which have North American Datum 1927. The Clarke 1866 ellipsoid for Canada was used with x-y-z delta shifts of +10, -158 and -187 respectively.

The accuracy is variable depending on the number and condition of the satellites, however it is generally less than twenty five metres and typically in the ten to fifteen metre range. Post flight differential correction, which corrects for satellite range errors, improves the accuracy of the flight path recovery to approximately within two to three metres.

A video camera recorded the ground image along the flight path. A video screen in the cockpit enabled the operator to monitor the accuracy of the flight path during the survey. This system also provided a backup system and verification for flight path recovery.

5.4 OPERATIONAL LOGISTICS

The main base of operations with the base station magnetometer and GPS equipment was at Watson Lake. The exact coordinates of the GPS antenna were 48 degrees 20 minutes 1.60 seconds north and 89 degrees 19 minutes and 49.53 seconds west at an elevation of 185 metres above the geoid.

The crew mobilized to Watson Lake on March 7, 1996 and finished surveying on March 26, 1996. The flights numbers were G-650 to G-665, including compensation, calibration, survey and reflights.

6.0 DATA PROCESSING

In-field processing consisted of plotting chart profiles of all the survey equipment data. This included radar altimeter; two frequencies of VLF-EM total field strength and quadrature data; all three magnetometers at detailed scale; tail mag at coarse scale; measured transverse gradient; measured longitudinal gradient; and pseudo vertical derivative, first digital difference and fourth digital difference all of the tail mag. The magnetometers are numbered as follows: left is 1, right is 2 and tail is 3.

In the office the magnetic data from the tail stinger magnetometer only was line levelled in the standard manner by tying survey lines to the tie lines. The IGRF has not been removed. The total field was gridded and micro-levelled in the Fourier domain (generally less than 1 nT corrections) to reduce any linear noise along the flight path without degrading the geological signal. The final levelled data sets were gridded and contoured at 1 nanotesla levels.

The vertical magnetic gradient was computed from the gridded and contoured total field data using a method of transforming the data set into the frequency domain, applying a transfer function to calculate the gradient, and then transforming back into the spatial domain. The method is described by a number of authors including Grant and Fraser 1970, Grant, 1972 and Spector, 1968.

The horizontal gradient was achieved directly from the three magnetometers. The data from each sensor were levelled to each other by running a very large wavelength filter down each line and adjusting the wing tip data to the tail data. The horizontal gradient data have not been subjected to gridding and is presented on a point to point basis along each line, plotted as vectors where the magnitude is indicated by the length of the vector and the orientation of the field by the direction of the vector. The scale of the vectors is 0.05 nT/m/cm with a maximum vector length of 5 cm.

The mean and standard deviation of the VLF-EM total field and quadrature were calculated for each line. The standard deviation was used to level the total field strength to normalize for transmitter and local variability. The mean was used to level the in phase and quadrature data line to line. The data were converted from millivolts to percent and then gridded. Filtering was done along some of the lines. Final decorrugation or microleveling was done to remove any noise along the line.

All data processing, map contouring and plotting were carried out by Paterson Grant Watson of Toronto.

Grant, F. S. and Spector A., 1970: Statistical Models for Interpreting Aeromagnetic Data; Geophysics, Vol 35
Grant, F. S. 1972: Review of Data Processing and Interpretation Methods in Gravity and Magnetics; Geophy. 37-4
Spector, A., 1968: Spectral Analysis of Aeromagnetic maps; unpublished thesis; University of Toronto.

7.0 INTERPRETATION

7.1 GENERAL APPROACH

To satisfy the purpose of the survey as stated in the introduction, the following interpretation procedure was carried out on the magnetic data. On a local scale "geological" units were interpreted from the magnetic gradient contour patterns based on their characteristic patterns and intensities, or "signatures". The contacts are typically located along the steepest section of the gradient; therefore the vertical magnetic gradient format was used primarily to delineate stratigraphy. The total magnetic field format was used to determine the relative magnetic intensity of the interpreted unit.

The horizontal gradient vectors were used at two stages of the interpretation; first to improve the accuracy of the contact locations, and second, where possible to determine the axes of the interpreted magnetic units.

Generally, magnetic anomalies that are caused by iron deposits of ore quality are usually obvious owing to their high amplitude, often in tens of thousands of nanoteslas. Mafic to felsic metavolcanics are usually characterized by respectively strong to weak magnetic intensities. Clastic metasediments generally possess very low magnetic susceptibilities and therefore correlate with very low magnetic responses, and in some cases, the observed responses are overwhelmed by the magnetic field from the surrounding lithologies.

Alteration zones can show up as anomalously quiet areas, often adjacent to strong, circular anomalies that represent intrusives, or along an otherwise magnetically active horizon. In some cases contact metamorphic aureoles are characterized by magnetic anomalies.

Faults and shear zones were interpreted primarily from lateral displacements of otherwise linear magnetic anomalies but also from long narrow "lows". The direction of regional faulting and the topographic lineaments in the general area were taken into account when selecting the dominant fault orientations. Folding is usually seen as curved regional patterns.

The VLF-EM conductor axes have been identified and evaluated according to the Terraquest classification system (Figure 4). This system correlates the nature and orientation of the conductor axes with stratigraphic, structural and topographic features to obtain an association from which one or more possible origins may be selected. Alternate associations are indicated in parentheses.

The VLF-EM phase response has been categorized according to whether the slope/direction is normal (quadrature has negative slope at flight line), reverse (quadrature has a positive slope), or no definitive phase. The significance of the differing phase responses is not completely understood although in general reverse phase indicates either overburden as the source or a conductor with considerable depth extent, or both. Normal phase response is theoretically caused by surface conductors with limited depth extent. In some cases, a change in the orientation of the conductor appears to affect the sense of the phase response.

7.2 INTERPRETATION

The magnetic and VLF-EM data are shown in contoured format on maps located in the back pocket at a scale of 1:20,00. A qualitative interpretation map for each is also provided. The following notes are intended to supplement these maps.

CASH CREEK BLOCK (A-954A)

The total magnetic field over the Cash Creek Block has a maximum relief of only 80 nanoteslas ranging from 58,355 to 58,435 nanoteslas. The strongest widespread magnetic responses occur beyond the survey area to the west and are related to a strong regional, north-trending magnetic unit. The broad north-trending low in the total magnetic field along the western part of the claim group is probably an edge effect created by this magnetic trend.

The vertical gradient contours are capable "seeing through" the relatively uniform total field and outline numerous magnetic units across the survey area, even across the regional

FIGURE 4.

TERRAQUEST CLASSIFICATION OF VLF-EM CONDUCTOR AXES

SYMBOL	CORRELATION	ASSOCIATION: Possible Origins
A, a	Coincident with magnetic stratigraphy	Bedrock magnetic horizons: stratabound mineralogic origin or shear zone
B, b	Parallel to magnetic stratigraphy	Bedrock non-magnetic horizons: stratabound mineralogic origin or shear zone
C, c	No correlation with magnetic stratigraphy	Association not known: possible small scale stratabound mineralogic origin, fault or shear zone; overburden
D, d	Coincident with magnetic dyke	Dyke or possible fault along dyke: mineralogic or electrolytic
F, f	Crosscut magnetic units, or correlate with lineament	Fault or shear zone: mineralogic or electrolytic
OB, ob	Contours of total field conform to topographic depression	Conductive overburden, fault or shear zone: mineralogic or electrolytic
CUL, cul	Coincident with cultural sources	Electrical, telephone, pipe, fence or railway lines

NOTES:

1. Upper case symbols denote a relatively strong total field response
2. Underlined symbols denote a relatively strong quadrature response
3. Mineralogic origins include sulphides, graphite, and in fault zones, gouge
4. Electrolytic origins imply conductivity related to porosity or high moisture content
5. Symbols in parentheses represent alternative or secondary interpretation

magnetic low. It is not possible to correlate these units with the known geology since not enough geological information is available. This must be done by a prospecting or mapping program to attempt to identify these horizons; this data can be used as a guideline for fieldwork. For the purposes of this interpretation the magnetic horizons have been classified into relative units: strongly magnetic (unit 1), moderately magnetic (unit 2) and magnetic background (unit 3).

The strongest magnetic responses are most likely related to increased concentrations of iron bearing minerals such as iron sulphides. These are transitional with the moderately magnetic horizons. Note that the locally high responses at the east end of lines 250 and 260 display very large horizontal magnetic vectors, indicating that it is probably very near surface. The interpreted size and outline of this body is based on the vector data, not the contoured data.

The known mineralization occurs as massive sulphide float and iron oxide cemented rubble, neither of which can clearly be associated with a strongly magnetic horizon. However they are located along strike from the strongly magnetic horizons (unit 1) and it is suggested that these should be investigated in detail.

Two north trending dykes (unit 4) have been interpreted in the southern part of the survey.

Offsets in the magnetic horizons have been used to identify numerous structures that trend to the northeast and probably occur as two sets: 030 and 045 degrees. Many of these are coincident with topographic lineaments. A regional north-south structure probably occurs along the strong magnetic unit beyond the claim group to the west.

The VLF-EM survey has identified abundant conductor axes. Those conductor axes that are aligned with magnetically interpreted structures or that crosscut magnetic stratigraphy are interpreted to be related to faults or shear zones. This type of conductivity may be caused by minerals such as sulphides, graphite or gouge, or to an ionic effect created by water or porosity either within the structure or along the upper weathered and leached edge. Some of these may be good exploration targets and consequently those conductors that follow known mineralization trends should be investigated on the ground.

Two conductors coincide with the interpreted dykes. This conductivity may be related to structural type sources (as discussed above) or to mineralization along the dyke.

Most of the conductor axes coincide with or are parallel to magnetic stratigraphy and therefore possess increased potential for bedrock sources. These may include conductive minerals such as disseminated to massive sulphides, graphite, or conductive rock such as porous flow tops. Those that occur along the strongly magnetic horizons (unit 1) bear the greatest potential massive sulphide origins.

LIARD CANYON (A-954B)

The total magnetic field over the Liard Canyon block has a relief of 190 nT ranging from 58,145 nT to 58,335 nT, and shows a semi-regional gradient which increases relatively uniformly from the northeast corner to the southwest corner.

The calculated vertical gradient outlines numerous narrow horizons that trend to the north northwest. The only outcrop in the survey area coincides with magnetic background and therefore is not particularly useful in identifying the nature of the magnetic horizons. It is presumed that similar sedimentary rocks underlie most of the survey area and that the magnetic horizons are related to increased concentrations of iron bearing minerals or possibly even volcanic lithologies at depth. Some horizons are distinctly more magnetic and are labelled as Unit 1 on the interpretation map, and the weakly magnetic horizons as Unit 2. This helps to delineate the detailed magneto-stratigraphy of the area. The Unit 2 horizons may often be down faulted Unit 1, or Unit 1 with lower concentrations of iron bearing minerals. The decrease in total magnetic field away from the southwest corner suggests that these magnetic horizons may be at greater depth across the survey area.

The measured horizontal gradient has identified an uncommon feature located just to the west of the centre of the block. It is identified by the letter "M" on the interpretation map. It is characterized by strong attraction on the vector plots over three flight lines but does not appear to possess significant responses on the gridded and contoured total field or calculated vertical gradient. This feature must be a relatively strong, pinpoint source most likely restricted to the very near surface, possibly a cultural or boulder (?) artefact.

The measured horizontal magnetic gradient identifies axes within some of the strongly magnetic units; in some cases these may represent the near surface edge of the magnetic unit whereas the contoured vertical gradient may reflect a wider representation of the same unit at increasing depth.

Numerous structures have been interpreted and may represent variably either faults, shear zones or even tight fold axes. Most of these strike at about 60 degrees and a few at 20 degrees. The latter appear to be more continuous and hence younger.

The VLF-EM data have identified numerous conductive zones. The conductor axes have been interpreted and classified according to their magnetic, structural and topographic relationships. Of particular economic interest are those conductors that coincide with the magnetic horizons; these may originate from higher concentrations of sulphides and therefore represent good ground targets. Note that the overall VLF-EM responses in the central part of the survey area are subdued; this is interpreted to be masking by overburden and not necessarily decreased conductivity. The strong magnetic response next to Unit M has better conductivity away from the centre of the strongest magnetism. This may represent either increased overburden or possibly facies changes along the magnetic horizon, possibly representing changes in the portions of sulphide and iron bearing minerals.

Variations in the total magnetic field suggest that the magnetic horizon near Unit M may be similar if not related to the strongly magnetic horizons to the southwest. If the subdued VLF-

EM responses do represent increased overburden, then it might be easier to identify the source of the magnetism and conductivity along the horizons to the southwest.

GARDEN CREEK (A-954C)

The total magnetic field has a very low relief of approximately 35 nT ranging from 58,265 nT to 58,300nT with the strongest responses located along the eastern boundary. Both the total field and the vertical magnetic gradient show north trending stratigraphy.

The magnetic components of the interpreted units are assumed to be caused by higher concentrations of magnetic minerals within the sediments such as finely disseminated iron particles. For purposes of this interpretation, these units have been identified as Unit 1 magnetic, Unit 2 weakly magnetic, and Unit 3 background. Based on the nature of the gradients, the strongest responses to the east may possibly be related to a metamorphic effect or upthrust block faulting, although it is difficult to identify such regional features at this scale.

Numerous weak to relatively strong VLF-EM conductor axes trend to the north-northwest. The strongest lie in the centre of the survey area across the higher ground and correlate with the weakly magnetic stratigraphic units. These possess the greatest potential for sulphide type mineralization.

Numerous structures have been interpreted most of which trend to the northeast and a few, presumably younger, to the north-northeast. North trending structures would be difficult to resolve since they would be parallel to the magnetic fabric.

BLIND LAKE (A-954D)

The total magnetic field has a relief of 190 nT ranging from 58,215 nT to 58,405 nT and forms an overall north trending fabric. The detail provided by the vertical magnetic gradient shows an overal northwest fabric.

Because there are no outcrops with which to correlate the magnetic responses, the magnetic stratigraphy has been subdivided into magnetic (Unit 1), weakly magnetic (Unit 2) and magnetic background (Unit 3) horizons. Unit 1 most likely represents sediments with higher concentrations of magnetic minerals, or possibly even volcanics or dykes if they exist the area. Unit 3 represents sediments with the lowest concentration magnetic minerals. To some degree changes in magnetic amplitude along strike may be related to block faulting. Some of the magnetic horizons have magnetic axes that are defined by the measured, horizontal gradient. The horizontal gradients have also been used to improve the resolution of the contacts and structures.

The large low-magnetic zone in the north centre of the survey block appears to truncate many of the magnetic horizons. Very little detail was able to be interpreted from the vertical gradient in this area. It is suggested that this may be related to alteration or leaching that has altered or removed the magnetic minerals.

Numerous northeast trending structures have been interpreted from offsets in the magnetic horizons. These features may be faults, shear zones or even tight folds. Any north to northwest trending structures would be difficult to identify as they would be parallel to the magnetic fabric.

The VLF-EM data show many conductive zones most of which correlate with or are parallel to the magnetic fabric. These represent the best targets for sulphide mineralization, particularly if they also correlate with magnetic axes as defined by the horizontal gradient. Those conductors that trend to the north and northeast are interpreted to have structural sources.

MCDAME CREEK BLOCK (A954E)

The McDame Creek survey has the largest range in total magnetic field values, 155 nT from 58,070 nT to 58,225 nT, despite the fact that it was flown with a much higher mean terrain clearance. The strongest responses lie in the northwest quadrant with an overall northwest strike and the lowest responses lie along the eastern edge.

The magnetic patterns have been correlated with the regional geology as much as possible. Most of the units possess similar magnetic signatures and thus they are shown together on the interpretation map. Unit 4 correlates with strong magnetic values in the northwest corner; this has been the basis for interpolating this unit across the survey area to the east side where it appears to correlate with unit 4 just beyond the survey area. Where it is overlain by other rocks, the magnetic pattern of this unit would be characterized by slightly weaker values and less distinct contacts as shown on the vertical magnetic gradient.

It is suspected that parts of unit 3 may possess slightly elevated magnetic signatures; this is shown on the east side of the survey area.

Unit 8 in the southwest quadrant correlates with weak total field values and weak and moderate responses on the vertical gradient. The latter has been identified as unit 8m, a magnetic unit within unit 8 which is probably related to narrow horizons of metamorphosed volcanic rocks.

The strong responses, both total field and vertical gradient, immediately west of the survey area correlate well with unit 9, serpentinite.

Most of the magnetically interpreted structures trend to the northeast; two trend to the north and one trends to the northwest. There is a bias against the identification of structures that are parallel to the dominant magnetic trend.

Structures identified from the VLF-EM data strike to the northwest, north, northeast and east.

The VLF-EM survey has identified several strong conductors in the northern central part of the survey block. All of these either coincide with magnetic units or are at least parallel to the dominant magnetic fabric, and therefore possess potential for bedrock, stratiform origins. Of the two strong conductors in the southwest quadrant, one coincides with the serpentinite and the other is parallel to an 8m unit horizon.

8.0 SUMMARY

An airborne high sensitivity magnetic and VLF-EM survey has been carried out at 75 metre mean terrain clearance (except for McDame Block), and 200 metre line intervals and with data sample stations at 6 metres along the lines. Ties lines were spaced at 3 kilometres or less. A base magnetic station recorded the diurnal activity throughout the survey and a base GPS station was used to correct range errors in the GPS flight path recovery. Recorded data included three magnetometers configured in the horizontal plane and VLF-EM. The data have been processed, gridded and plotted as contours of total magnetic field, vectors of measured horizontal gradient, contours of calculated vertical magnetic gradient and contours VLF-EM total field strength with profiles of the quadrature plotted along the flight lines. All maps are at a scale of 1:20,000.

The magnetic patterns show a very low magnetic relief over all areas. The vertical and horizontal gradient data are able to provide sufficient detail to interpret magneto-stratigraphic units that where available have been correlated with known geology. Where no correlation was possible the magneto-stratigraphy has been interpreted into units of relative magnetic intensities.

Numerous structures have been interpreted from both magnetic and VLF-EM data; in order of abundance these are north-east with a few to the northwest, north and east. The degree to which these structures are observed depends primarily upon the orientation of the magnetic unit; the higher the angle of intersection the more likely it is to be observed.

The VLF-EM data shows numerous conductive trends. The conductors have been classified according to their overall nature, strength, orientation and their topographic, structural and lithological associations in order to determine their potential origin. The origins have been interpreted as structural and stratigraphic, either coincident with or parallel to magneto-stratigrapihc units. Those that correlate with known mineralization or magneto-stratigraphic units should be investigated on the ground using IP or EM methods.

TERRAQUEST LTD.

Charles Q. Barrie, M.Sc.

GEOLOGICAL ASSOCIATION OF CANADA
CHARLES Q. BARRIE
FELLOW

APPENDIX I

PERSONNEL

Field:	Operator	Sean Luck
	Pilot/AME	Neville Ribeiro
Office:	Manager/Interpretation	Charles Q. Barrie
	Processing	Paterson Grant Watson

APPENDIX II

CERTIFICATE OF QUALIFICATION

I, Charles Q. Barrie, certify that I:

1. am registered as a Fellow with the Geological Association of Canada and work as a Professional Geologist,

2. hold an honours B.Sc. degree in Geology from McMaster University, obtained in 1977,

3. hold an M.Sc. degree in Geology from Dalhousie University, obtained in 1980,

4. am a member of the Prospectors and Developers Association of Canada,

5. am a member of the Canadian Institute of Mining, Metallurgy and Petroleum,

6. have worked seasonally as a geological student in the mining industry for five years, and continuously as a geologist for sixteen years,

7. am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys.

8. have prepared this report and interpretation from airborne data collected by Terraquest Ltd. exclusively for KRL RESOURCES CORP. Reference material included geological maps provided by the client. I do not have any interest in the property nor have I visited the property.

Mississauga, Ontario
June 30, 1996

Signed,

Charles Q. Barrie, M.Sc.
Vice President, TERRAQUEST LTD.

APPENDIX B

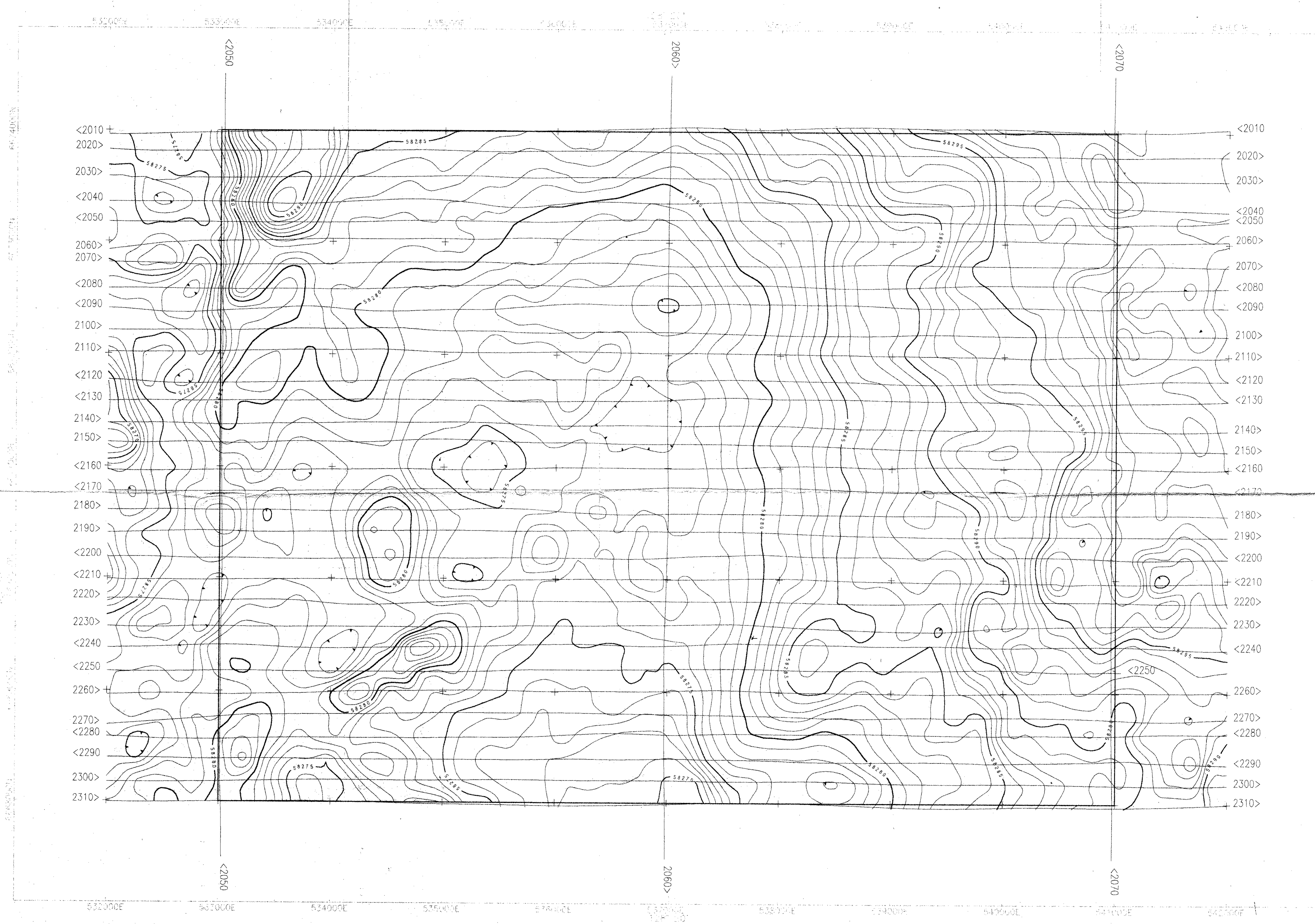
STATEMENT OF COSTS

Verna 1-22 Claims

Airborne Geophysics	
266 line km @ $29.50/km	7,847

Lucille 1-8 Claims

Airborne Geophysics	
197 line km @ $29.50/km	5,812
Total:	$ 13,659



093736
DWG(1)

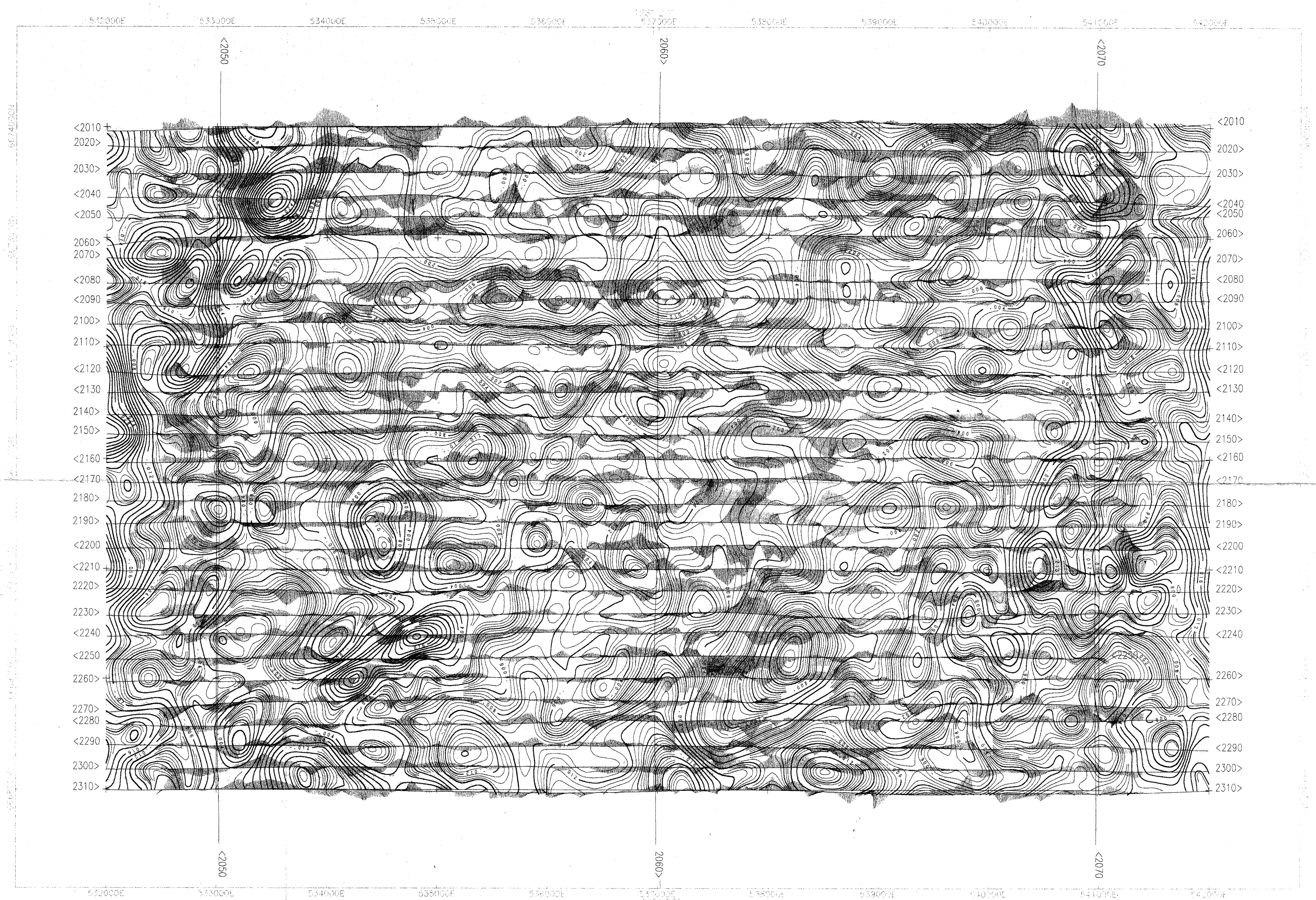
K R L RESOURCES CORP.

GARDEN CREEK, YUKON TERRITORY

Total Magnetic Field Contours

Surveyed By
TERRAQUEST LTD.

Data Compiled and Plotted By
PATERSON, GRANT & WATSON LTD.
April, 1996



Scale 1:20000

(feet)

093736

DWG②

K R L RESOURCES CORP.

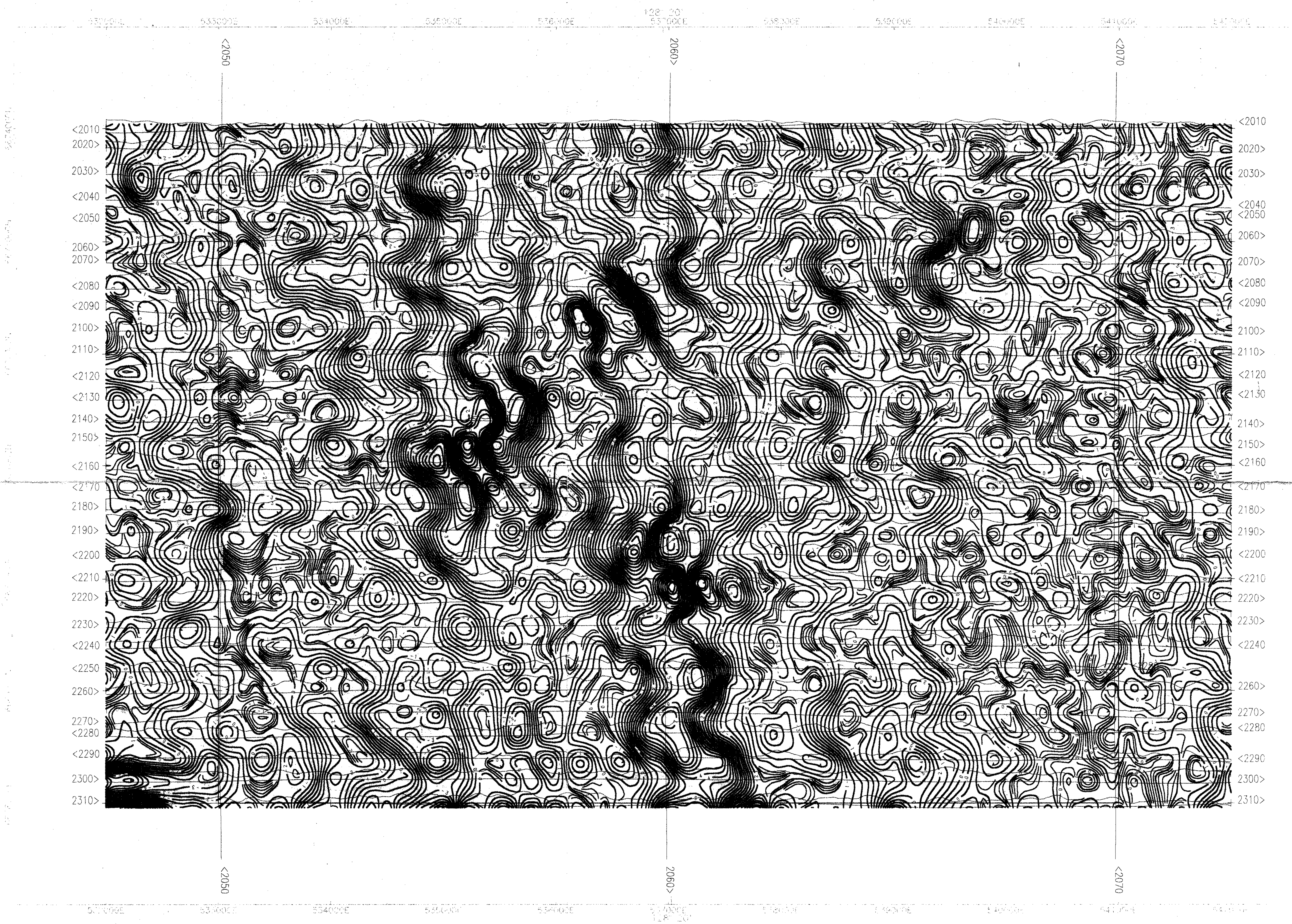
GARDEN CREEK, YUKON TERRITORY

Vertical Gradient and
Horizontal Gradient Vectors

Surveyed By
TERRAQUEST LTD.

Data Compiled and Plotted By
PATERSON, GRANT & WATSON LTD.

April, 1996



Scale 1:20000

1000 0 1000 2000 3000 4000 5000

(feet)

093736

DWG (3)

K R L RESOURCES CORP.

GARDEN CREEK, YUKON TERRITORY

VLF EM Total Field
Contours & Quadrature Profiles

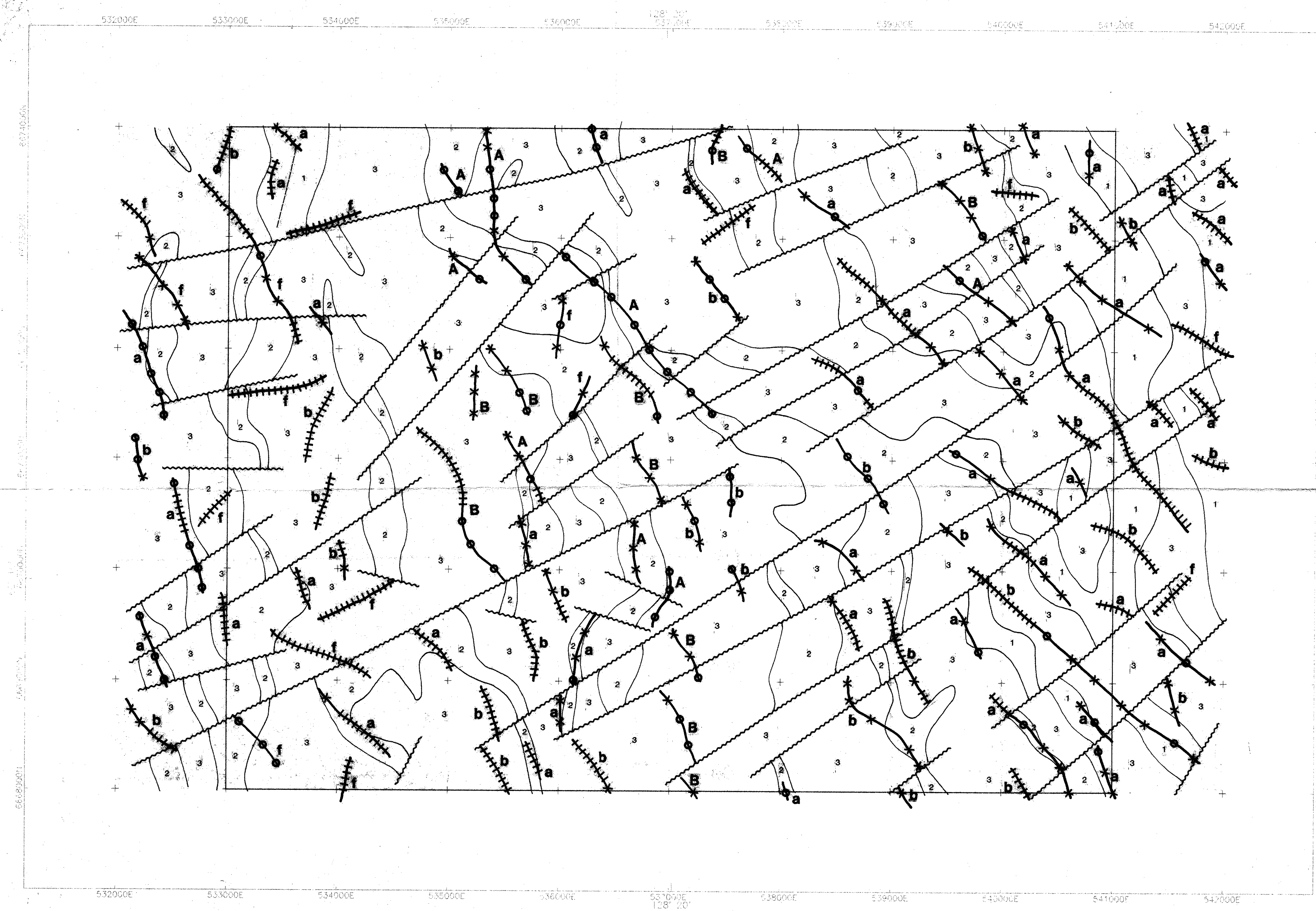
Surveyed By

TERRAQUEST LTD.

Data Compiled and Plotted By

PATERSON, GRANT & WATSON LTD.

April, 1996



Scale 1:20000

(metres)

Scale 1:20000

1000 0 1000 2000 3000 4000 5000

(feet)

OPERATIONAL INFORMATION

AIRCRAFT: CESSNA U206

CONFIGURATION: TAIL, LEFT AND RIGHT MAG SENSORS

SENSOR: CESIUM VAPOUR MAG

FLIGHT PLAN: 100 METRE LINE SPACING, E-W LINE DIRECTION

NOMINAL TERRAIN CLEARANCE: 75 METRES

FLOWN: SPRING, 1996

GPS NAVIGATION: POST FLIGHT DIFFERENTIAL FLIGHT PATH RECOVERY

CLARKE 1866 SPHEROID/NAD 1927

GEOLOGICAL LEGEND	
3	Magnetic background
2	Weakly magnetic unit
1	Magnetic unit

SYMBOLS

- Contact of Magnetic Unit
- Horizontal Gradient Axis
- Fault, Shear Zone, Tight Fold Axis

VLF-EM CONDUCTOR AXES

- Normal Quadrature
- Reverse Quadrature
- Total Field Only

VLF TRANSMITTER:
NLK Seattle 24.8 kHz, Azimuth 159°

See text for classification of VLF-EM conductors

093736.

DWG (4)

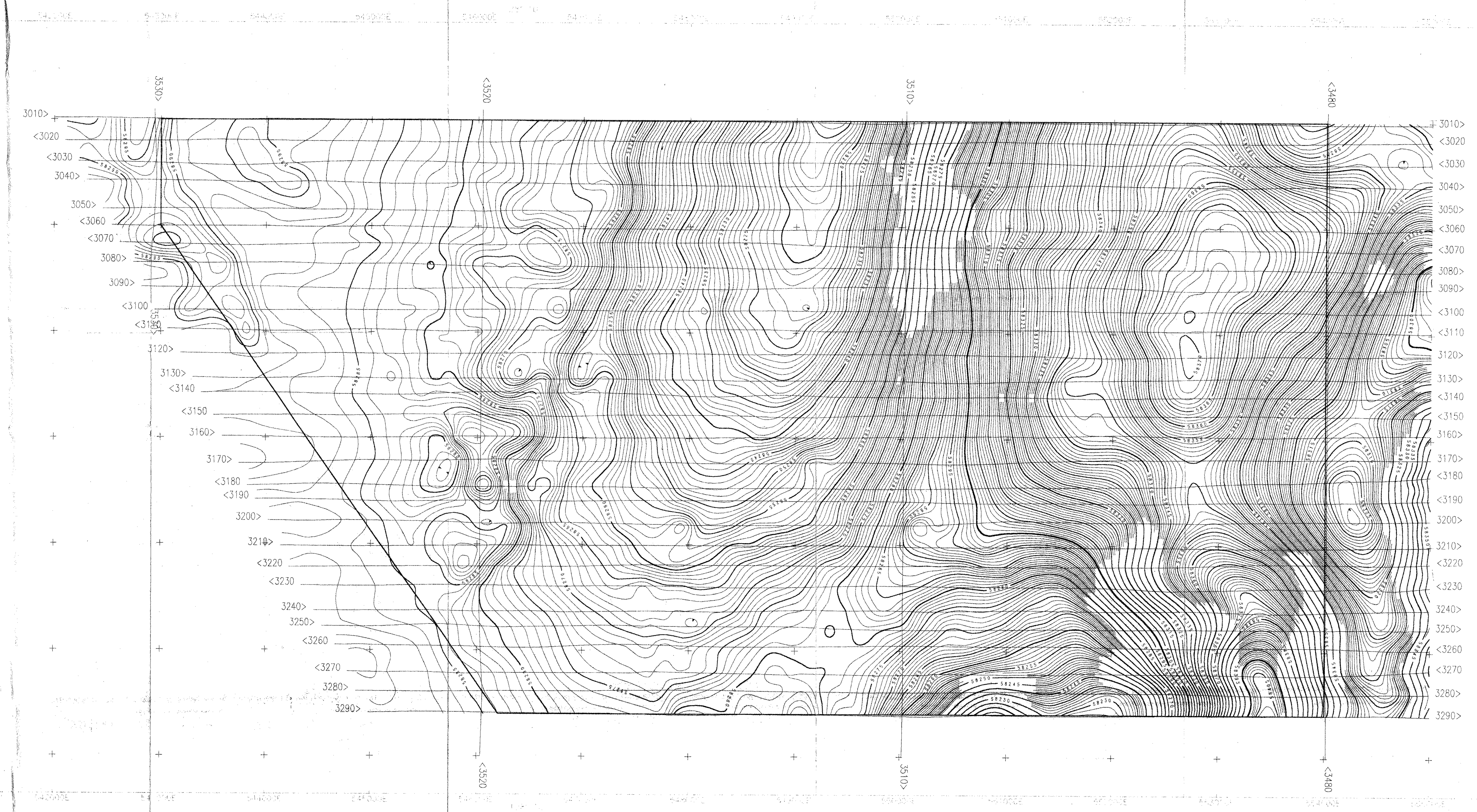
K R L RESOURCES CORP.

GARDEN CREEK, YUKON TERRITORY

Interpretation

Surveyed By
TERRAQUEST LTD.

Data Compiled and Plotted By
PATERSON, GRANT & WATSON LTD.
April, 1996
Figure A-954C-4



Scale 1:20000

1000 0 1000 2000 3000 4000 5000

(feet)

093736

DWG (5)

K R L RESOURCES CORP.

BLIND LAKE, YUKON TERRITORY

Total Magnetic Field Contours

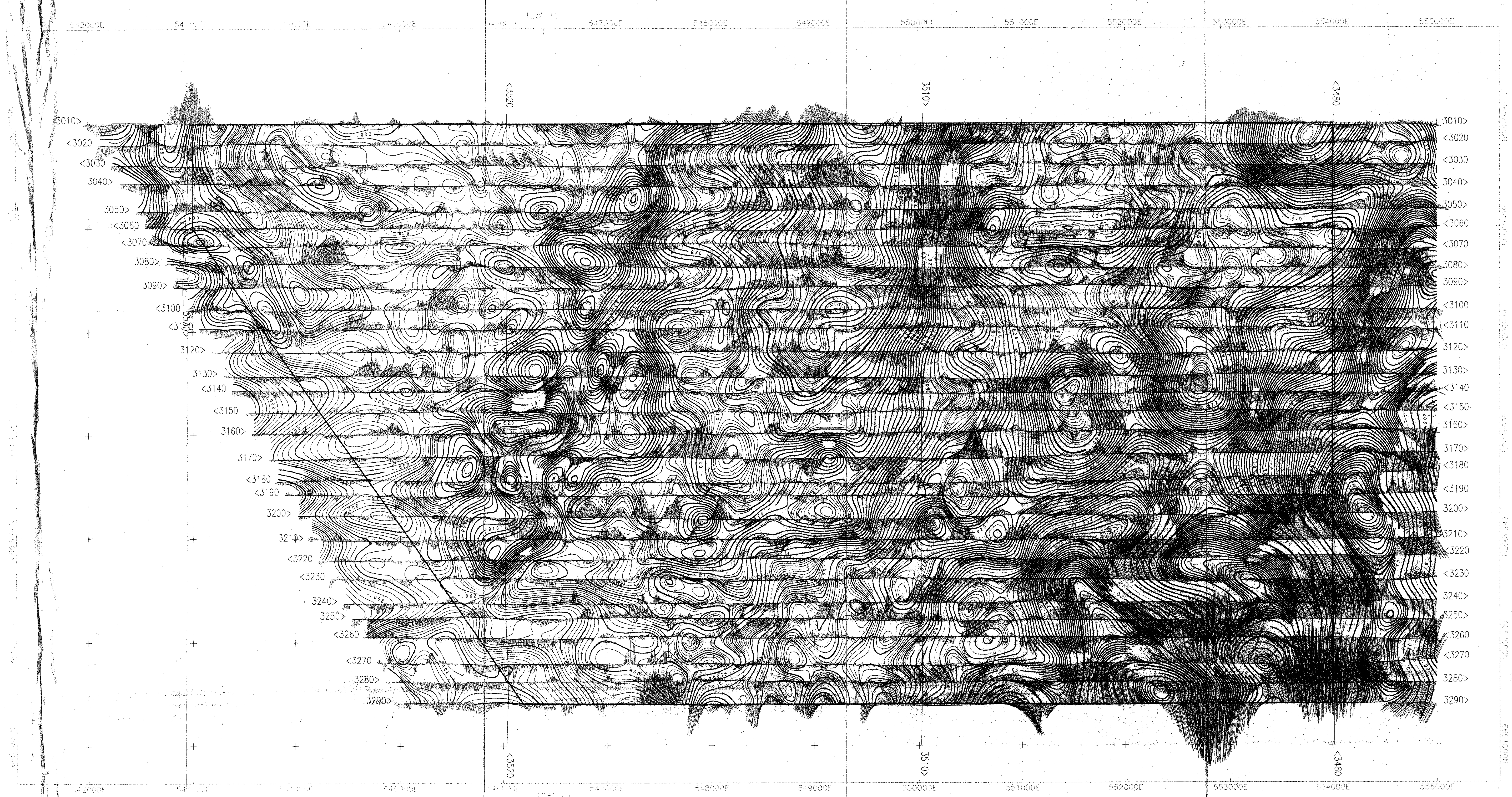
Surveyed By

TERRAQUEST LTD.

Data Compiled and Plotted By

PATERSON, GRANT & WATSON LTD.

April, 1996



Scale 1:20000

(metres)

Scale 1:20000

1000 0 1000 2000 3000 4000 5000

(feet)

OPERATIONAL INFORMATION

AIRCRAFT: CESSNA

CONFIGURATION: TAIL, LEFT AND RIGHT MAG SENSORS

SENSOR: CESIUM VAPOUR MAG

NOMINAL TERRAIN CLEARANCE: 75 METRES

FLOWN: SPRING, 1996

CLARKE 1866 SPHEROID, NAD 1927

093736

Vector Scale: 0.05 nT/m per cm
Maximum Vector Length: 5cm

DWG 6

K R L RESOURCES CORP.

BLIND LAKE, YUKON TERRITORY

Vertical Gradient and Horizontal Gradient Vectors

Surveyed By

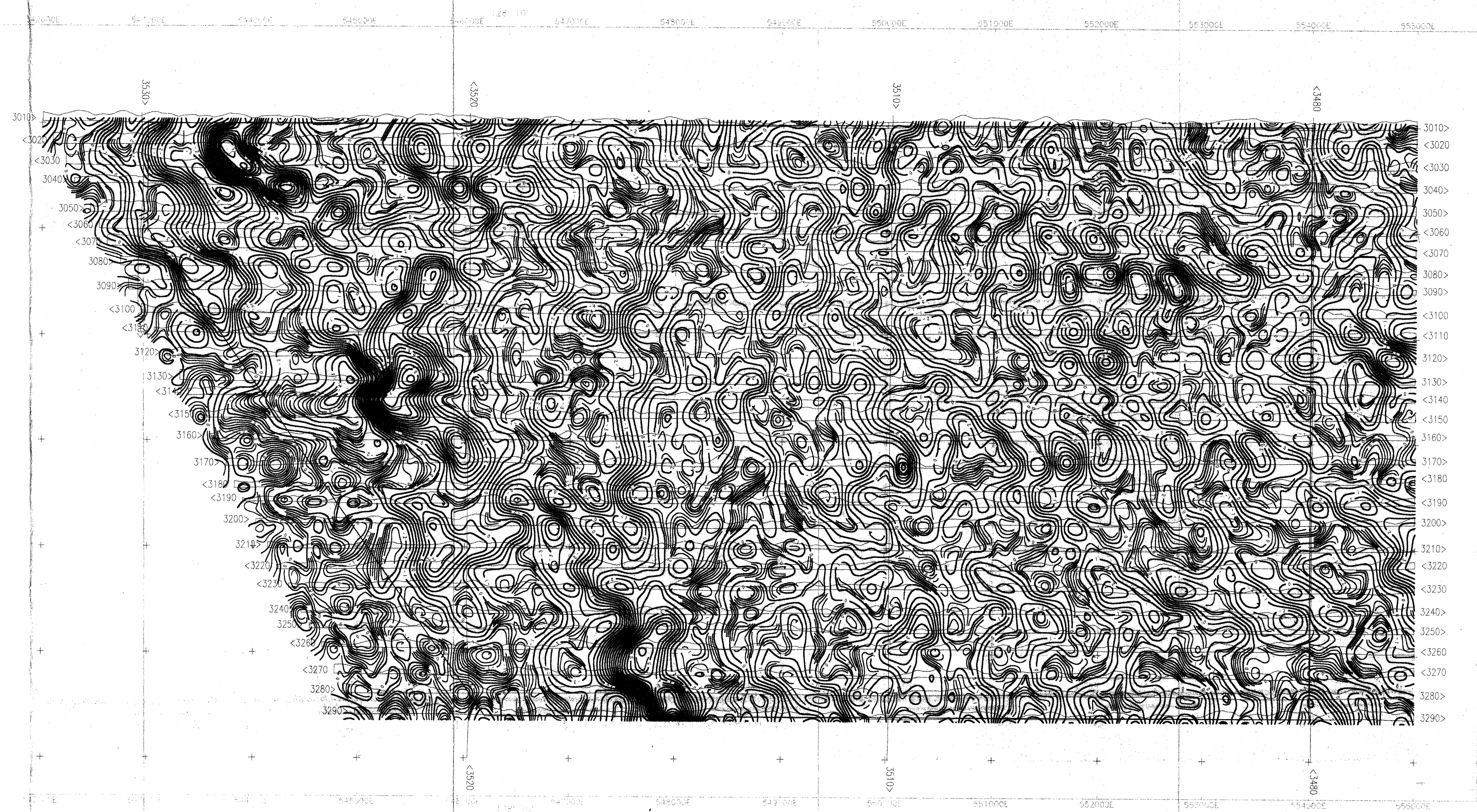
TERRAQUEST LTD.

Data Compiled and Plotted By

PATERSON, GRANT & WATSON LTD.

April, 1996

Figure A-9540-2



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DWG 7

K R L RESOURCES CORP.

BLIND LAKE, YUKON TERRITORY

VLF EM Total Field Contours & Quadrature Profiles

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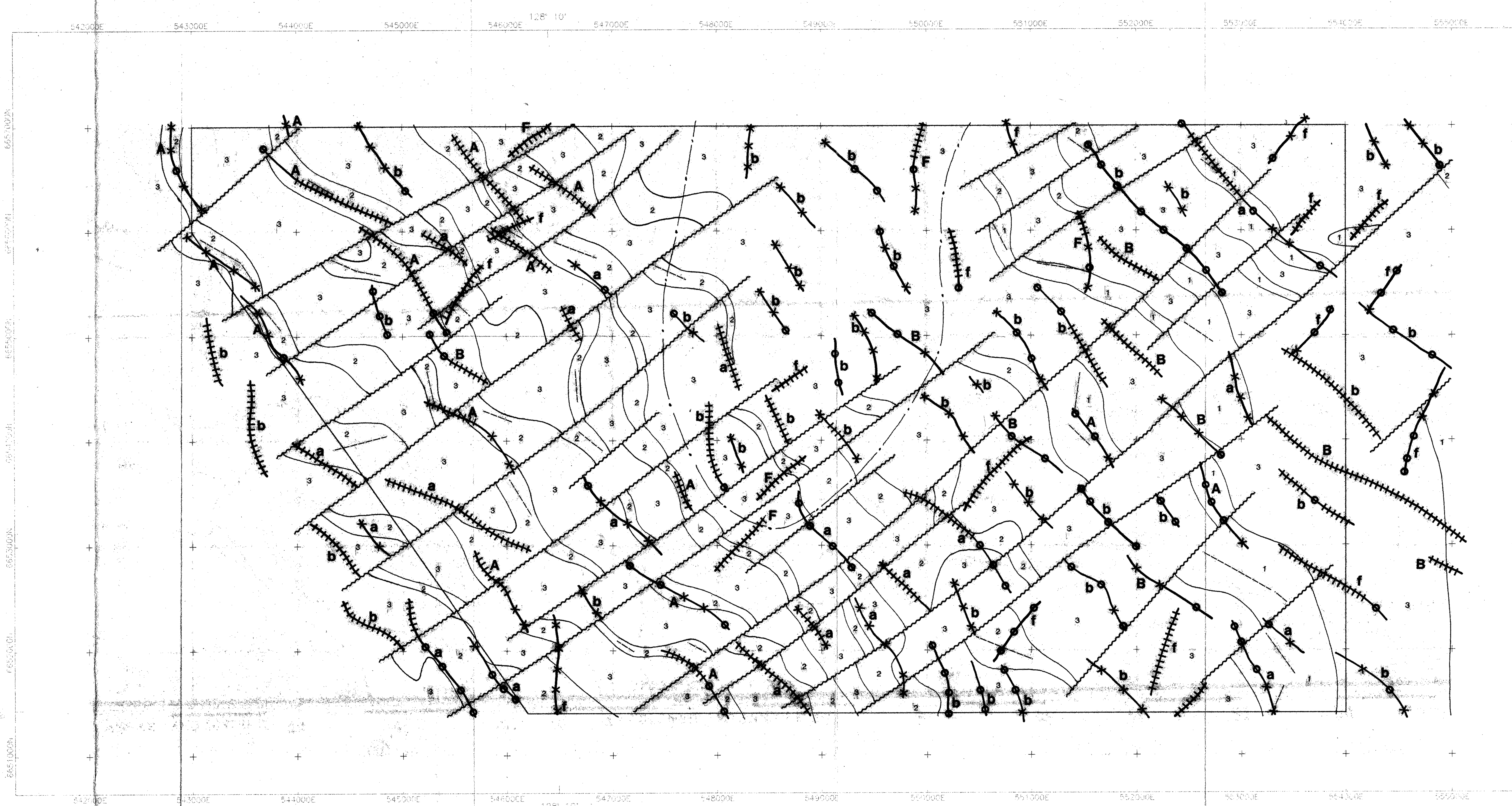
April, 1996

Figure A-954D-3



Scale 1:20000

250 0 250 500 750 1000 1250 1500 (metres)

Scale 1:20000

1000 0 1000 2000 3000 4000 5000 (feet)

OPERATIONAL INFORMATION

AIRCRAFT: CESSNA U206
CONFIGURATION: TAIL, LEFT AND RIGHT MAG SENSORS
SENSOR: CESIUM VAPOUR MAG
FLIGHT PLAN: 200 METRE LINE SPACING, E-W LINE DIRECTION
NOMINAL TERRAIN CLEARANCE: 75 METRES
FLOWN: SPRING, 1996
NAVIGATION: POST FLIGHT DIFFERENTIAL FLIGHT PATH RECOVERY
CLARKE 1866 SPHEROID/NAD 1927

GEOLOGICAL LEGEND	
3	Magnetic background
2	Weakly magnetic unit
1	Magnetic unit

SYMBOLS

Contact of Magnetic Unit
Horizontal Gradient Axis
Fault, Shear Zone, Tight Fold Axis
Potential alteration zone

VLF-EM CONDUCTOR AXES

Normal Quadrature
Reverse Quadrature
Total Field Only

VLF TRANSMITTER:
NLK Seattle 24.8 kHz, Azimuth 159°

See text for classification of VLF-EM conductors

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DWG 8

K R L RESOURCES CORP.

BLIND LAKE, YUKON TERRITORY

Interpretation

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Figure A-954D-4