42A01SE0052 OP91-063 OTTO

REPORT ON THE OTTO TOWNSHIP PROPERTY
LARDER LAKE MINING DIVISION
FOR
FERNAND RIVARD

S.J. Carmichael Consultants
Kirkland Lake, Ontario

January 20, 1992
NTS 42/SE
OPAP # OP91-063

42A01SE0052 OP91-063 OTTO

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SUMMARY

This report on the Otto Township property has been prepared by S.J. Carmichael, B.Sc., FGAC at the request of Fernand Rivard, P.O. Box 1091, Kirkland Lake, Ontario. This report is intended to complete the OPAP reporting obligations, of which Mr. Rivard has applied for, and been accepted for a total sum of $10,000.00 (ten thousand dollars). Mr. Rivard's OPAP grant number is OP91-063. The grant was approved on June 29, 1991.

This report will also be submitted to the Ministry of Northern Development and Mines for assessment credits.

The property comprises ten contiguous staked claims with a total area of 400 acres. The claims are located in the north-central portion of Otto Township, District of Timiskaming, Larder Lake Mining Division, approximately six kilometres west of Kirkland Lake and two kilometres south of the town of Swastika.

Previous work on the claims includes that by Chavigny Gold Mines Limited (1948) who completed 3 diamond drill holes. Since then, the claims have been worked by Mr. Rivard who has completed two diamond drill holes and power stripping in 1989-1990.

This years program, covered in this report, included line cutting, geological mapping, magnetometer and VLF-EM surveys aimed at pin-pointing a series of airborne INPUT anomalies. A number of interesting VLF anomalies corresponding to the airborne survey were located, one of which is along strike of a 0.107 oz/ton Au/13.0' intersection in Rivard drill hole OT-89-1. Most of the other anomalies are real and probably represent mineralized shear zones, worthy of diamond drilling or stripping. Geological mapping indicates that two distinct chemical rock suites exist on the property, those belonging to ultramafic basaltic komatiites, and those belonging to tholeiitic to calk-alkaline basalts. These units have been both cross and strike faulted, some of which may be mineralized resulting in the VLF anomalies. It is highly recommended that these structures be tested by a combination of diamond drilling and stripping.

Total expenditures this year were $10,078.48 with a proposed budget of $14,500.00 for next years program.

Report on the Otto Township Property
Larder Lake Mining Division
for
Fernand Rivard

INTRODUCTION

This report on Fernand Rivard's Otto Township mining exploration property has been prepared by S.J. Carmichael at the request of Mr. Rivard. It is a geological assessment of the property intended to fulfil both OPAP and assessment requirements. An appropriate exploration program and budget has been included for additional OPAP funding.

Information on the property is derived from the records of the Ministry of Northern Development and Mines and publications by the Ontario Geological Survey. The author of this report completed both the geological mapping and VLF-EM surveys and supervised the magnetometer survey. All work on the claims was performed between July 23 and November 11, 1991.

PROPERTY LOCATION ACCESS AND FACILITIES

The Rivard claim group is located in the north central portion of Otto Township (NTS 41A/SE), District of Timiskaming and within the Larder Lake Mining Division, approximately six kilometres west of Kirkland Lake. Access to the property is through Culver Park, located immediately west of the town of Swastika. A narrow trail, reconditioned by Mr. Rivard leads southeast a distance of two kilometres to the claims. The Blanche River flows through the south portion of the group and a beaver pond located in the middle of the property provides an ample water supply for diamond drilling.

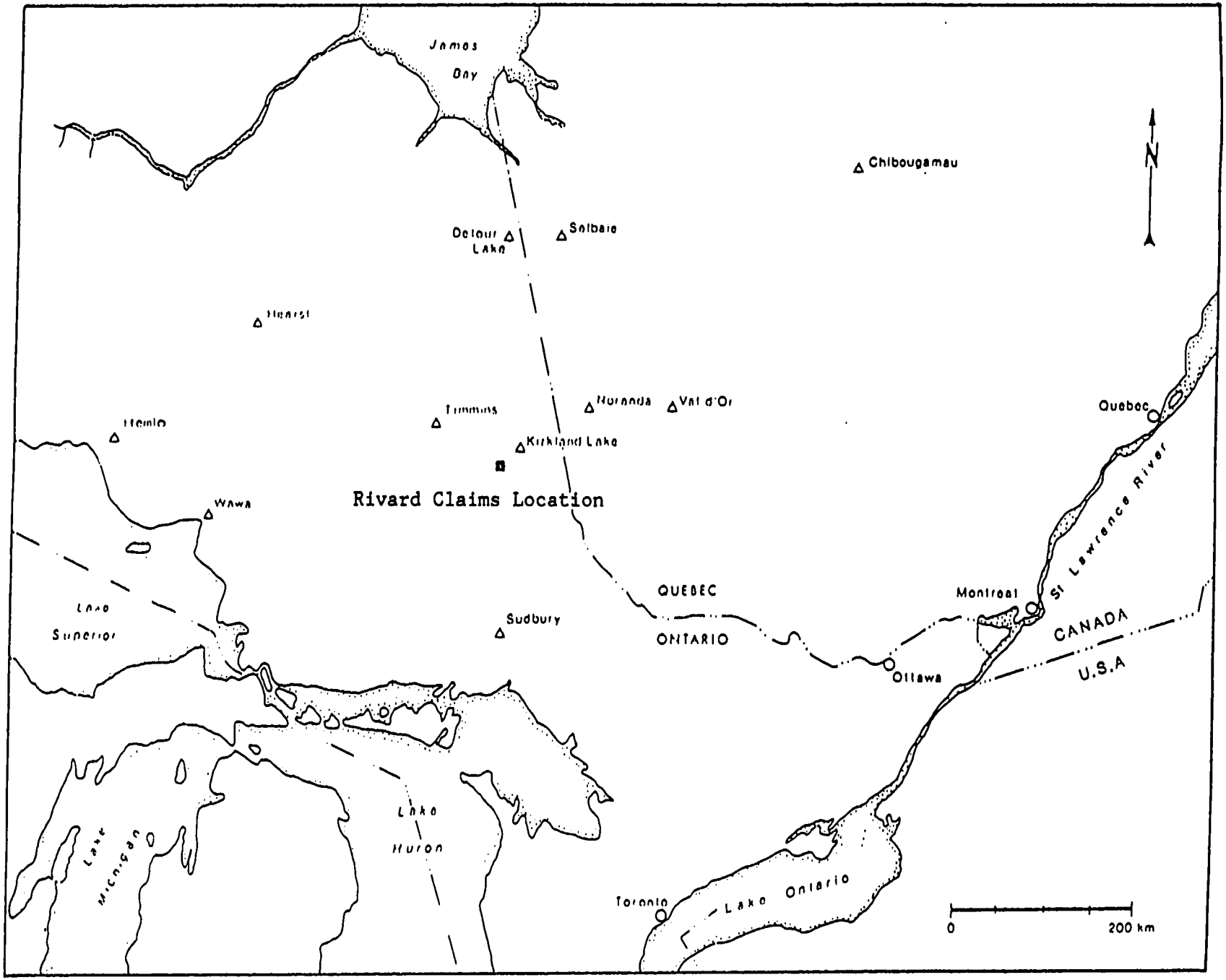


Figure 1 General Location Plan

TOPOGRAPHY

The north section of the group is covered by rocky bedrock exposures with a 200' south-facing cliff located just north of the baseline. The central portion is covered by lacustrine clay deposits cut by several deep ravines. These ravines were dry in the fall but may be active with running creeks during spring runoff. Bedrock exposure occurs over the south portion towards the Blanche River. Murdock Creek empties into the Blanche River at the east boundary of the claims.

LAND TENURE AND OWNERSHIP

The Otto Township property comprises 10 staked contiguous unsurveyed mining claims with a total area of approximately 400 acres. The claim numbers, recorded dates and applied assessment credits are listed in the following table:

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS	COMMENTS
L-982689	July 12, 1987	$3080.00	Requires $400.00 by July 12, 1995
L-982690	July 21, 1987	$2200.00	Requires $400.00 by July 21, 1993
L-982691	July 21, 1987	$3080.00	Requires $400.00 by July 21, 1995
L-982692	July 21, 1987	$2200.00	Requires $400.00 by July 21, 1993
L-982693	July 28, 1987	$2200.00	Requires $400.00 by July 28, 1993
L-982694	July 22, 1987	$2772.00	Requires $400.00 by July 22, 1994
L-982695	July 25, 1987	$2200.00	Requires $400.00 by July 25, 1993
L-982696	July 25, 1987	$2200.00	Requires $400.00 by July 25, 1993
L-982697	August 10, 1987	$2200.00	Requires $400.00 by Aug. 10, 1993
L-982698	August 10, 1987	$2200.00	Requires $400.00 by Aug. 10, 1993

All claims will be in good standing upon the application of the 1991 work program.

PROPERTY HISTORY

The first government map published covering the present Rivard group was by J. Thomson, 1948 titled Geology of Teck Township and the Kenogami Lake Area, map No. 1946-1. The area was mapped again in 1967-68 by H. Lovell (Map No. 2239 - Eby-Otto Area). Lovell reported the outcrops to be basalt to andesite in composition with

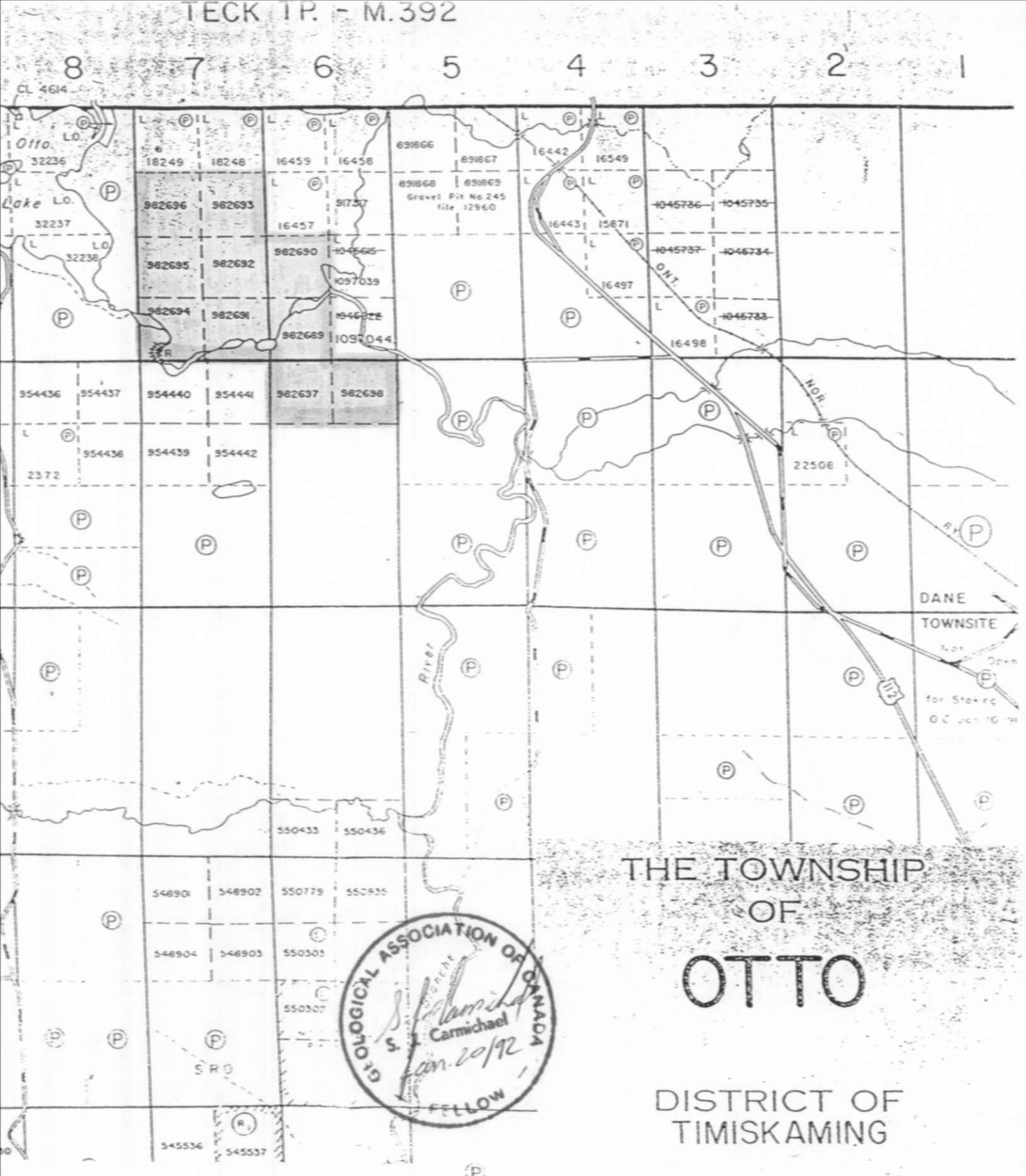


Figure 2

Claim Location Plan 1"=1/2 Mile

two northeast tending faults passing through the present claims. Further mapping by L.S. Jenson was completed in the late 1980's but never published.

Exploration on the claims has been limited in the past. The only recorded work was by Chavigny Gold Mines Limited which completed three diamond drill holes. The first two were completed on present claim 982690 in July of 1948. The first hole was drilled at a dip of -80 deg. and a southwest azimuth. Altered greenstone was intersected throughout with alteration and shearing intersected from 403.8 to 407.0'. A fault was also intersected at 638.0' and widespread narrow carbonate stringers were intersected to the end of the hole which was drilled to a depth of 1043 feet. An assay of 0.04 oz/ton Au was reported from this hole in rusty altered greenstone from 202.0 to 202.5'. The second hole, drilled at a -70 deg. dip and an azimuth of 250 deg. reached a depth of 945' with negligible results. A third hole was drilled on present claim 982694 intersected a major fault with a sludge assay of 0.02 oz/ton Au from 230.0 to 237.5'. Details from this hole are lacking. All collars from the Chavigny drilling were located during the 1991 geological mapping program. The property remained dormant until being staked by Rivard in 1987. Rivard completed one drill hole (EX) in 1989 (OT-89-1) at 0+75E, 0+50S, close to the first two Chavigny holes. The Rivard hole intersected mixed komatiitic to tholeiitic flows and returned an assay on 0.107 oz/ton Au over 13.0'. Core recovery from this section was poor and the sample was from a composite chip sample. This assay could not be

reproduced from the remaining core leading to some question to its validity. Rivard also completed some stripping and washing in the area of 0+00, 4+00S which uncovered a series of faults, shears and interflow graphitic/carbonaceous sediments. No significant gold assays were found. In 1990, Rivard completed an additional drill hole located at 7+50W, 3+75S. No significant gold assays were reported from this hole.

Other projects active in the immediate area include those by Golden Crescent Resources, HSK Minerals, Jomi Minerals and Battle Mountain Gold. Previous producers in the area include the Golden Gate and Swastika Mines.

REGIONAL GEOLOGY

The Rivard claims are underlain by Archean meta-volcanics and sediments of the Larder Lake Group and close to, and perhaps part of the Skead Group. The prominent cliffs and ridges over the north half of the property are comprised of basaltic komatiite flows of the Larder Lake Group. To the south the volcanic chemistry changes to a tholeiitic to calk-alkalic, or a transitional change from the Larder Lake to Skead Group.

The Larder Lake Fault zone passes within 2 kilometres north of the Rivard claims.

PROPERTY GEOLOGY

Geological mapping of the Rivard claims was completed at a scale of 1:2500 Metric on grid lines cut at 100 m centres. The grid was cut on claims north of the Blanche River as the airborne INPUT survey indicated anomalies in this area.

Three distinct lithologies were mapped during the program. This include a massive to spinifex textured basaltic komatiite flows of the Larder Lake Group, transitional tholeiitic to calc-alkaline basalt, possibly part of the Skead Group and an intermediate diorite intrusive plug. Late diabase dikes cut all of the above lithologies. Stratigraphic indicators such as pillow tops and sedimentary bedding were poorly developed or absent from the property, however the volcanic stratigraphy appears to strike 100-120 deg. with a steep north dip.

A total of six samples were taken for whole rock analysis at Barringer Labs. in Toronto. Three of these were from the north half of the claims and three from the central and south portions. The results were then plotted on both Jenson Cation Plot and a Tholeiitic vs. Calc-Alkaline Ternary diagram. The results show that the north half of the property is underlain by basaltic komatiites, spinifex textured close to the cliff face parallel to the base line. As one moves north, the chemistry changes to a more tholeiitic basalt composition. The dark color of the basalt would indicate they are more Fe than Mg in composition.

The central and south portions of the property are characterised by basaltic flows lying within the Fe tholeiite field or within the calk-alkalic field but close the tholeiitic field. This would indicate the volcanics may be transitional from the calk-alkalic Skead Group and the more basic Larder Lake Group. These have been plotted as low Fe tholeiites due to their dark color and local erratic magnetism. The flows are generally massive, fine to medium

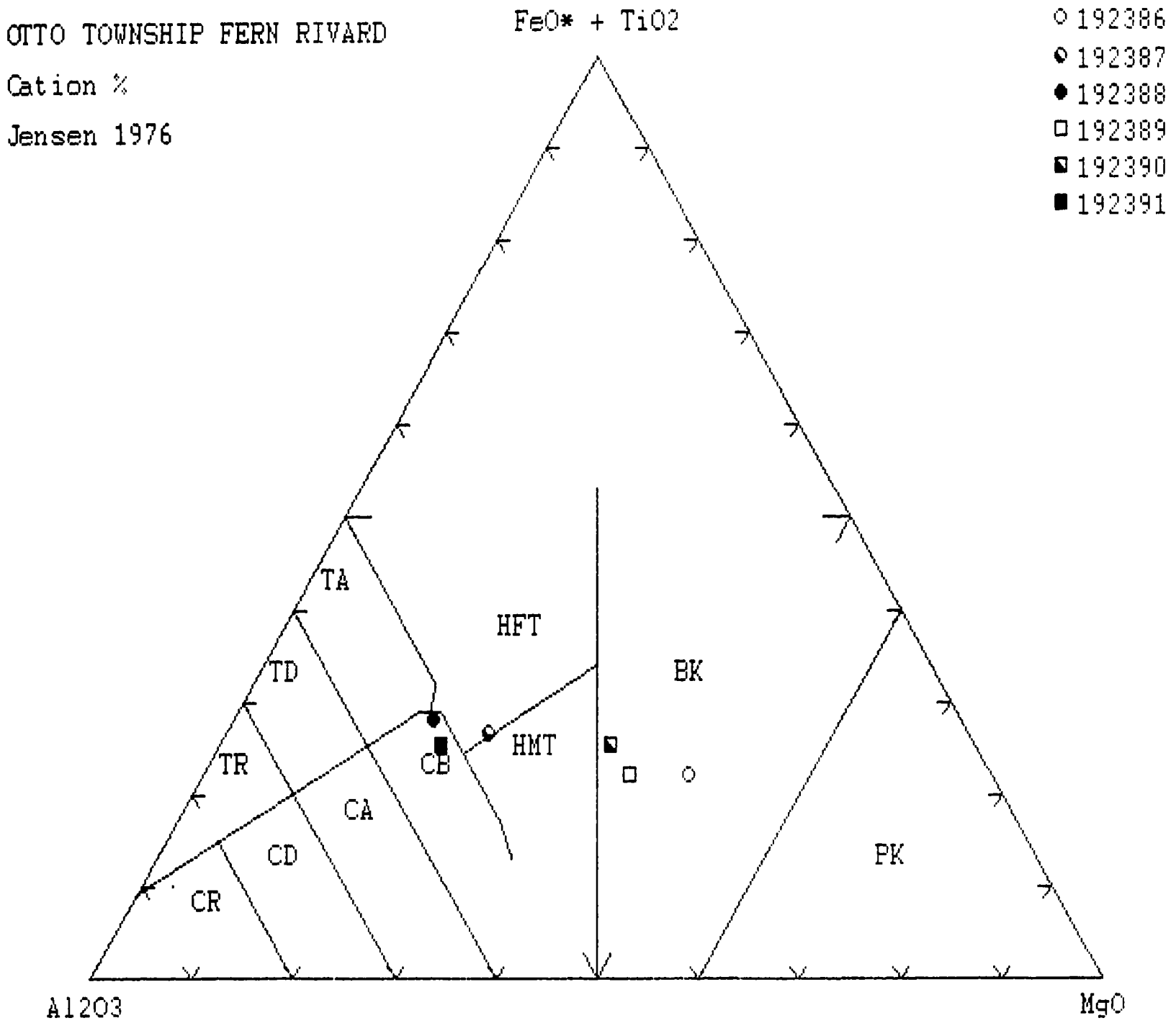

OTTO TOWNSHIP FERN RIVARD
Cation %
Jensen 1976
FeO* + TiO2
192386
192387
192388
192389
192390
192391
TA
HFT
TD
BK
HMT
TR
CB
CA
CD
CR
PK
Al2O3
MgO

FIGURE 3

grained, weakly to moderately fractured with quartz +- calcite stringers with local weak carbonatization close to shears and faults. One sequence of pillowed basalt was located on line 7+00W, 3+25S, however the pillows were poorly preserved and no reliable tops determination could be made.

A roughly oval to lensoidal diorite plug was located over the south central portion of the claims. This a medium to coarse grained unit with a similar color to the volcanics. The volcanic-intrusive contact is exposed a several locations, including the stripped area at 0+25W, 4+25S and line 0+00, 5+50S.

The first location has been cut by two major faults and shears which has disrupted the contact. The second location is within a highly sheared volcanic with almost talcose alteration. The intrusive, located within a few feet of the shear is pristine, medium grained with little alteration or fracturing. There is no magnetic signature to the intrusive, indicating that it may be even more intermediate in composition than a diorite.

Exposed faulting and shearing on the property is more of the cross-fault type rather than strike faulting. Two such faults were located during the mapping, both trending roughly north-south. The first, located on line 4+00W, 4+75S is up to 30′ in width (as exposed) with sparry calcite alteration. No sulfide mineralization was observed. The second cross fault is located at 1+00W, 6+00S. This fault may be extended into the stripped area at 0+00, 0+25W. Similar faulting has been interpreted to occur over the west section of the property as indicated by the geophysical surveys.

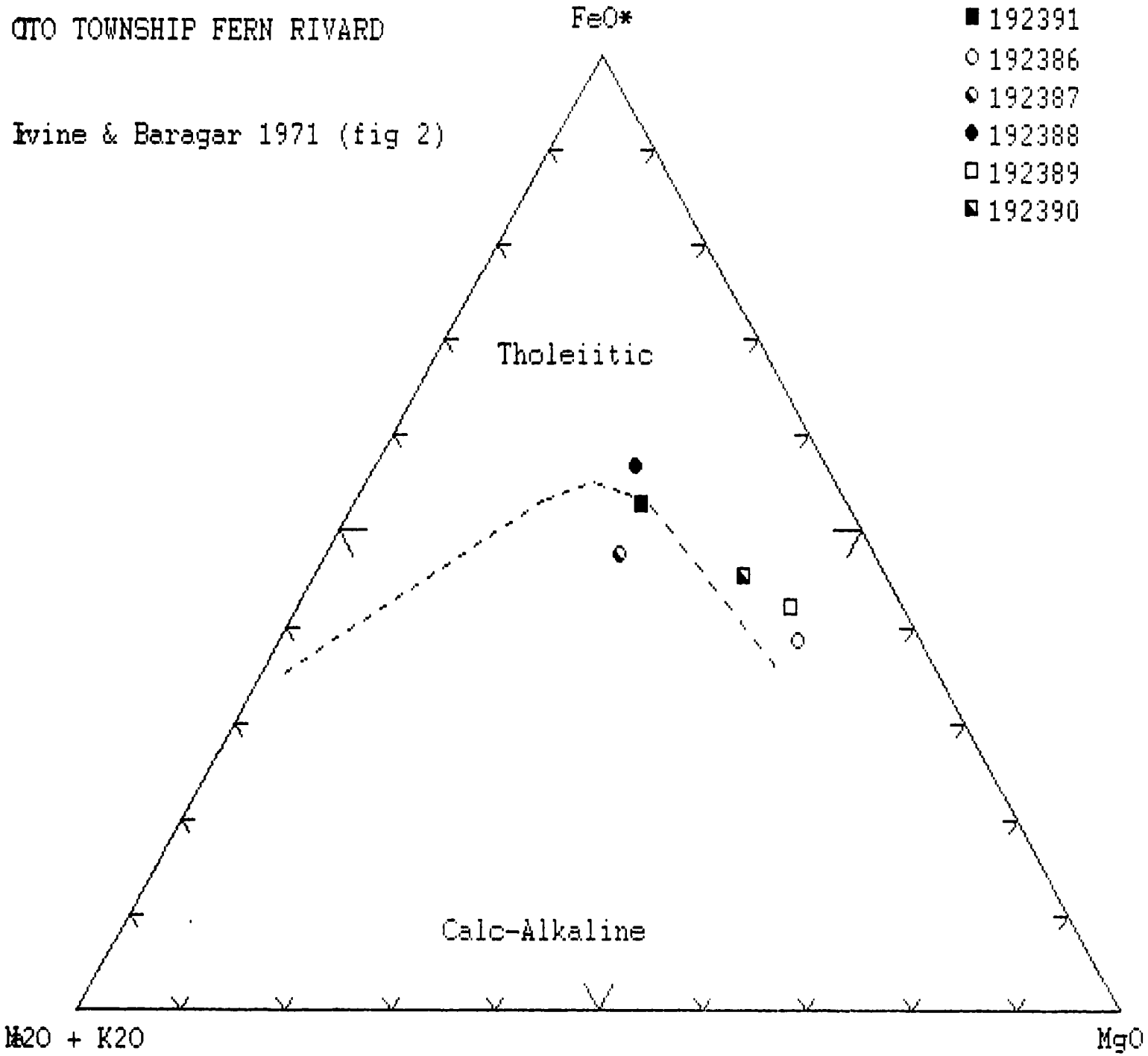

GTO TOWNSHIP FERN RIVARD
Irvine & Baragar 1971 (fig 2)
FeO*
192391
192386
192387
192388
192389
192390
Tholeiitic
Calc-Alkaline
Na2O + K2O
MgO

FIGURE 4

Strike faulting was observed in the above stripped area with associated sparry calcite mineralization with up to 1% pyrite. Previous sampling by Rivard of this fault returned low gold assays. Other strike faulting may have resulted in some of the VLF-EM anomalies. One particular interesting anomaly, 'B' is probably associated with a structure which is on strike of the Rivard drill hole OT-89-1 which intersected the "questionable" 0.107 oz/ton over 13' assay.

Two new mineralized "showings" were located during the mapping. The first is a narrow 5 inch quartz vein mineralized with 1-2% malachite and trace chalcopyrite located at 6+75W, 1+25N. Two grab samples from the vein returned assays of 560 and 330 ppm Cu with trace gold. A second vein was located at 0+60E, 4+50S and is up to 12 inches in width. The contact wall with the volcanic is mineralized with up to 50% pyrite with the vein itself mineralized with trace to 1% malachite. A grab sample of the vein material assayed 69 ppm Cu and nil Au and a grab sample of the sulfide material assayed 330 ppm Cu and nil Au. Neither of these showings are significant. Pyrite mineralization associated with narrow shears and jointing are not uncommon, particularly within the basaltic komatiites, but are not significant.

1991 EXPLORATION PROGRAM

SUMMARY

The 1991 exploration program on the Rivard claims included 12.1 km of line cutting followed by geological mapping and 7.7 km of

magnetometer and 2 channels of VLF-EM surveying. Only the area north of the Blanche River was covered by line cutting as the purpose of the program was to locate on surface the source of the airborne INPUT anomalies, all of which are located north of the Blanche River. Because bedrock exposure over the north half of the property is better than 70-80% consisting of basaltic komatiite, this area was not covered by the magnetometer and VLF surveys.

A) Magnetometer Survey

A Geometrics proton precision magnetometer was used with readings taken every 25 meters. L0+00, 0+00 was used as a base station and set to 58,420 Gammas. The base station was read every two hours to allow corrections for diurnal fluctuations which never exceeded 100 gammas during any given day.

The results were then plotted in Autocad at a scale of 1:2500 metric at a contour interval of 200 gammas.

Magnetic relief on the property is low with a maximum reading of 3,500 gammas above background. One circular magnetic high occurs on line 4+00W, 6+25S which may be related to an intrusive. A weak magnetic high trending east southeast trough the middle of the claims may be a stratigraphic feature, perhaps associated with a slightly magnetic phase of a tholeiitic basalt. A relative magnetic low flanks the south border of the weak high and appears to be associated with pillowed calc-alkaline to tholeiitic basalt. Neither the diorite intrusive or the carbonaceous/graphitic sediments exhibit a magnetic signature. One other relative magnetic high over the extreme northeast 1/4 of the property is worth noting

as it seems to be associated with EM anomaly B which is on strike with the gold intersection in Rivard drill hole OT-89-1.

B) VLF-EM Survey

The VLF-EM survey was completed over the central and south portion of the grid with readings taken every 25 meters. A Phoenix VLF-II instrument was used with two frequencies recorded including the Seattle Washington station for east-west conductors and the Annapolis Maryland station for north-south trending conductors. The grid is not oriented ideally for the Annapolis station and thus just the raw data is presented in this report, however, this station did aid in identifying some north-northeast and northwest trending anomalies and helped in interpretation of the Seattle results.

The Seattle readings were Fraser Filtered and plotted in Autocad at a scale of 1:2500 metric. These were then contoured at intervals of 10, 20, and 40 units. The dip profiles are also plotted at a scale of 1cm = 12.5%.

A total of nine anomalies were located and are described below:

Anomaly A - Weak strength associated with a slight magnetic high. It may be continuous with anomaly B or the faulted extension of B. If so, this is a target for drilling as it is coincidental with the gold assay intersected in Rivard hole OT-89-1.

Anomaly B - Moderate strength near the Rivard drill hole, strongest on line 3+00E, 0+70S where it is coincidental with a magnetic high. A priority target for either drilling or stripping but does not appear to correlate with the airborne survey.

Anomaly C, C' - Weak strength and follows a creek bed in clay overburden. Probably an overburden response.

Anomaly D - Weak to moderate strength, strongest on line 2+00W, 3+50S. No real magnetic correlation but may be related to 3 channel INPUT anomaly. May be either a mineralized shear zone or a narrow graphitic/carbonaceous sedimentary horizon.

Anomaly E - Moderate to strong conductor cutting across stratigraphy. Supported by results on Annapolis station. May be caused by a mineralized cross structure.

Anomaly F - May be the faulted extension of anomaly E. Weak strength, strongest on line 3+00W, 4+60S. May be caused by a mineralized shear zone.

Anomaly G - Weak strength, appears to be possibly related to the graphitic horizon.

Anomaly H - One line anomaly with no magnetic correlation.

Anomaly I - Weak strength, correlated with the magnetic high on line 4+00W, 6+50S, however there is no magnetic correlation to the east. The anomaly lies on a down slope towards the Blanche River and may be an overburden response.

Targets for diamond drilling or stripping in order of priority are:

1) Anomaly B (3+00E, 0+60S)

2) Anomaly E (7+00W, 4+40S)

3) Anomaly F (3+00W, 4+60S)

4) Anomaly D (2+00W, 3+20S)

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

Geological mapping and geophysical surveys over the Rivard Otto Township property has resulted in locating interesting targets worthy of a follow up exploration program. Additional work directed towards diamond drilling, and if possible, power stripping of four VLF-EM anomalies is highly recommended.

The priority target in this next phase should be drill testing of anomaly B which is along strike and correlated with the gold

intersection in Rivard drill hole OT-89-1. A second priority is anomaly E (the strongest) and anomalies D and F. Overburden over D and F does not appear to be deep and may be stripped for sampling. If the overburden is too deep, a series of short 200' drill holes could effectively test the targets. A total proposed budget for such a program is estimated at $14,500 dollars including $1,000 of power stripping and 900' of diamond drilling at $15.00/ft all in.

Respectfully Submitted

S.J. Carmichael, B.Sc., FGAC

GEOLOGICAL ASSOCIATION OF CANADA
FELLOW

Appendix A

CERTIFICATE OF QUALIFICATIONS

I, Stewart J. Carmichael, of the Town of Kirkland Lake, in the District of Timiskaming, in the Province of Ontario, Canada, do hereby certify that:

1) *I am a consulting geologist with address 42 Rand Avenue East Kirkland Lake, Ontario, P2N 1X1.*

2) *I am a graduate of McMaster University, Hamilton, Ontario, having received the degree of Bachelor of Science, Geology from the Faculty of Science in 1982. I have since practised in the field of mineral exploration continuously since graduation.*

3) *I am a Fellow of the Geological Association of Canada.*

4) *I have no direct interest, nor do I expect to receive any interest in the Rivard claims.*

5) *In addition to my personal knowledge of the area, I have made use of the records of the Ministry of Natural Resources of Ontario, and of Mr. Rivard's records in the preparation of this report.*

Dated this 20 day of January, 1992

Stewart J. Carmichael

Stewart J. Carmichael, B.Sc., FGAC

Appendix B

LIST OF EXPENDITURES

A) DIRECT COSTS

1) Labour, 17 days at $100.00/day	*$1,700.00*
2) Report Preparation, 2 days	*200.00*
3) Line Cutting	*3,000.00*
4) Geological Mapping (consultant)	*1,605.00*
5) VLF-EM Survey (consultant)	*1,050.00*
6) Magnetometer Survey (equipment rental)	*160.50*
7) Assays	*259.48*
8) Fraser Filtering of VLF Data (consultant)	*214.00*
9) Autocad Work (consultant)	*856.00*
10) Whole Rock Analysis (consultant)	*107.00*
11) Final Report	*802.50*
Total	*$9,954.48*

B) INDIRECT COSTS

1) Meals	*85.00*
2) Travel (ATV and Truck)	*39.00*
Total	*124.00*

TOTAL DIRECT AND INDIRECT COSTS	*$10,078.48*

Appendix C

WHOLE ROCK AND ASSAY CERTIFICATES

e Name E:\GEOCHEM\OTTG.ROC

e 1992 09:49:06	192391	192386	192387	192388	192389	192390
thing	4+00N	2+25S	1+00S	3+00S	0+25N	3+00N
ting	0+10E	3+00E	1+00W	8+00W	6+00W	6+90W
bol	6	1	2	3	4	5
Colour	6	1	2	3	4	5
k Type	BASALT	BAS. KOMAT	BASALT	BASALT	BAS.KOMATI	BASALT
O_2	53.20	51.70	51.50	52.50	49.60	52.10
O_2	0.79	0.59	0.89	1.43	0.71	0.72
$_2O_3$	15.10	10.10	15.00	15.80	13.20	12.00
$_2O_3$t	10.60	11.10	12.30	12.00	12.20	12.50
O	4.94	12.80	6.52	4.71	12.30	10.20
O	9.54	7.71	3.54	7.82	7.29	8.59
$_2O$	2.94	2.99	5.62	3.05	2.37	2.93
O	0.61	0.03	0.03	0.40	0.44	0.45
O_5	0.12	0.11	0.11	0.15	0.10	0.10
tal	97.84	97.13	95.51	97.86	98.21	99.59
I	1.75	1.85	4.00	1.10	2.45	1.15
#	48.00	69.55	51.21	43.74	66.63	61.77
	435	1040	2350	718	499	1040
	101	233	338	105	241	123
	17	25	32	7	29	23
	220	195	245	330	225	229
	92	58	94	60	112	69
	19	21	11	20	15	14
	120	117	123	123	102	115
	5064	249	249	3321	3653	3736
	86	48	10	180	64	121
	227	54	43	144	97	144
	53	57	42	74	52	44
	4730	3549	5330	8591	4232	4340
	0.90	0.90	1.00	1.40	0.90	0.90
nsity	2.53	2.58	2.50	2.53	2.59	2.57

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44428

Certificate of Analysis

November 15 1991

Mr. Fern Rivard
Box 1091
Kirkland Lake, Ontario
P2N 2C9

Work Order # 911328
Project:

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO — CHARTERED — Dr. G. Duncan — CHEMIST

SAMPLE NUMBER Accurassay	Customer	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %
252087	192386	10.1	11.1	12.8	7.71	2.99
252088	192387	15.0	12.3	6.52	3.54	5.62
252089	192388	15.6	12.0	4.71	7.82	3.05
252090	192389	13.2	12.2	12.3	7.29	2.37
252091	192390	12.0	12.5	10.2	8.59	2.93
252092	192391	15.1	10.6	4.94	9.54	2.94

SAMPLE NUMBER Accurassay	Customer	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	SiO2 ICAP %	LOI FURN %
252087	192386	0.03	0.592	0.11	51.7	1.85
252088	192387	0.03	0.889	0.11	51.5	4.00
252089	192388	0.40	1.433	0.15	52.8	1.10
252090	192389	0.44	0.706	0.10	49.6	2.45
252091	192390	0.45	0.724	0.10	52.1	1.15
252092	192391	0.61	0.789	0.12	53.2	1.75

SAMPLE NUMBER Accurassay	Customer	Ag ICAP ppm	Ba ICAP ppm	Be ICAP ppm	Cd ICAP ppm	Co ICAP ppm
252087	192386	<1	48	0.9	<1	25
252088	192387	<1	10	1.0	<1	32
252089	192388	<1	180	1.4	<1	7
252090	192389	<1	64	0.9	<1	29
252091	192390	<1	121	0.9	<1	23
252092	192391	<1	86	0.9	<1	17

LF-30

Per: G. Duncan

CUSTOMER COPY

ACCURASSAY LABORATORIES
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44429

Certificate of Analysis

November 15 1991

Mr. Fern Rivard
Box 1091
Kirkland Lake, Ontario
P2N 2C9

Work Order # 911328
Project:

SAMPLE NUMBER Accurassay	Customer	Cr ICAP ppm	Cu ICAP ppm	Mo ICAP ppm	Mn ICAP ppm	Ni ICAP ppm
252087	192386	1040	58	<20	1420	233
252088	192387	2350	94	<20	1860	338
252089	192388	718	60	<20	1820	105
252090	192389	499	112	<20	1240	241
252091	192390	1040	69	<20	1420	123
252092	192391	435	92	<20	1670	101

SAMPLE NUMBER Accurassay	Customer	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
252087	192386	21	54	195	117	57
252088	192387	11	43	245	123	42
252089	192388	20	144	330	123	74
252090	192389	15	97	225	102	52
252091	192390	14	144	229	115	44
252092	192391	19	227	220	120	53

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

Per: G. Duncan

LF-30

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ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

44345

Certificate of Analysis

Rivard, Mr. Fernand
Box 1091
Kirkland Lake, Ontario
P2N 2C9

November 8 91

Work Order # : 911327
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	
252082	192381	<5	
252083	192382	<5	
252084	192383	<5	
252085	192384	23	
252086	192385	7	
252086	192385	<5	Check

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44346

Certificate of Analysis

Rivard, Mr. Fernand
Box 1091
Kirkland Lake, Ontario
P2N 2C9

November 8 91

Work Order # : 911327
Project :

SAMPLE NUMBERS Accurassay	Customer	Copper ppm
252082	192381	330
252083	192382	69
252084	192383	98
252085	192384	560
252086	192385	330

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LEGEND

FELSIC TO INTERMEDIATE INTRUSIVE ROCKS

7 — 7 Undivided; 7a Granite; 7b Syenite; 7c Feldspar Porphyry; 7d Granodiorite; 7e Diorite; 7f Monzonite

MAFIC TO ULTRAMAFIC INTRUSIVE ROCKS

6 — 6 Undivided; 6a Gabbro; 6b Gabbro Anorthosite; 6c Anorthosite; 6d Pyroxenite; 6e Peridotite; 6f Diabase; 6g Lamprophyre

SEDIMENTS

5 — 5 Undivided; 5a Greywacke; 5b Chert; 5c Graphitic shale; 5d Conglomerate; 5e Sandstone; 5f Shale

FELSIC METAVOLCANICS

4 — 4 Undivided; 4a Rhyolite; 4b Rhyolite breccia; 4c Dacite; 4d Dacite breccia

INTERMEDIATED METAVOLCANICS

3 — 3 Undivided; 3a Massive andesitic flows; 3b Pillowed andesitic flows; 3c Andesitic tuff and lapilli tuff; 3d Andesitic breccia

MAFIC METAVOLCANICS

2 | 2' (Fe | Mg) — 2 Undivided; 2a Massive flows; 2b Pillowed flows; 2c Massive to well foliated coarse-grained flows; 2d Porphyritic flows; 2e Tuff and lapilli tuff; 2f Flow-top breccia

ULTRAMAFIC METAVOLCANICS

1 — 1 Undivided; 1a Massive, polyaphyric serpentinized flows; 1b Spinifex textured flows; 1c Ultramafic pyroclastics; 1d Talc-carbonate alteration

SYMBOLS

- Claim Post
- Claim Line
- Trail
- Creek
- Outcrop Boundary
- Small Outcrop or Station
- WR 192388 — Whole Rock or Assay Sample Location
- Strike and Dip of Foliation
- Strike and Dip of Bedding
- Geological Contact
- Fault
- q.s. — Quartz Stringers
- q.v. — Quartz Vein With Width and Dip
- cal. — Calcite Stringers
- mag. — Magnetic Attraction
- py. — Pyrite
- cpy. — Chalcopyrite
- mal. — Malachite
- carb. — Carbonate Alteration
- spar. — Sparry Calcite
- Drill Hole
- Pit or Trench
- VLF-EM Anomaly

SCALE 1:2500

50 0 50 100 150 200

METRES

OTTO TWP. PROPERTY

SURFACE GEOLOGY PLAN

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 1

GEOLOGICAL ASSOCIATION OF CANADA — S. J. Carmichael — Jan. 29/92 — FELLOW

42A01SE0062 OP91-063 OTTO

8+00W 7+00W 6+00W 5+00W 4+00W 3+00W 2+00W 1+00W Baseline 1+00E 2+00E 3+00E 4+00E

5+00N 4+00N 3+00N 2+00N 1+00N Baseline 1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S

L-982696

L-982693

L-982695

L-982692

L-982690

L-982694

L-1982691

L-982689

ASTRONOMIC NORTH

POPLAR

creek

Beaver Pond

Dam

MURDOCK CREEK

BLANCHE RIVER

RAPIDS

SRUB SPRUCE

GEOLOGICAL ASSOCIATION OF CANADA
Carmichael
FELLOW

LEGEND

VLF-EM SURVEY

RAW DATA PRESENTATION

INSTRUMENT: PHOENIX VLF-2
TRANSMITTER: ANNAPOLIS, MARYLAND 21.4 KHz.
OPERATOR FACING NORTH
INTERPRETED ANOMALY AXIS

FIELD STRENGTH — DIP

SCALE 1:2500

50 0 50 100 150 200

METRES

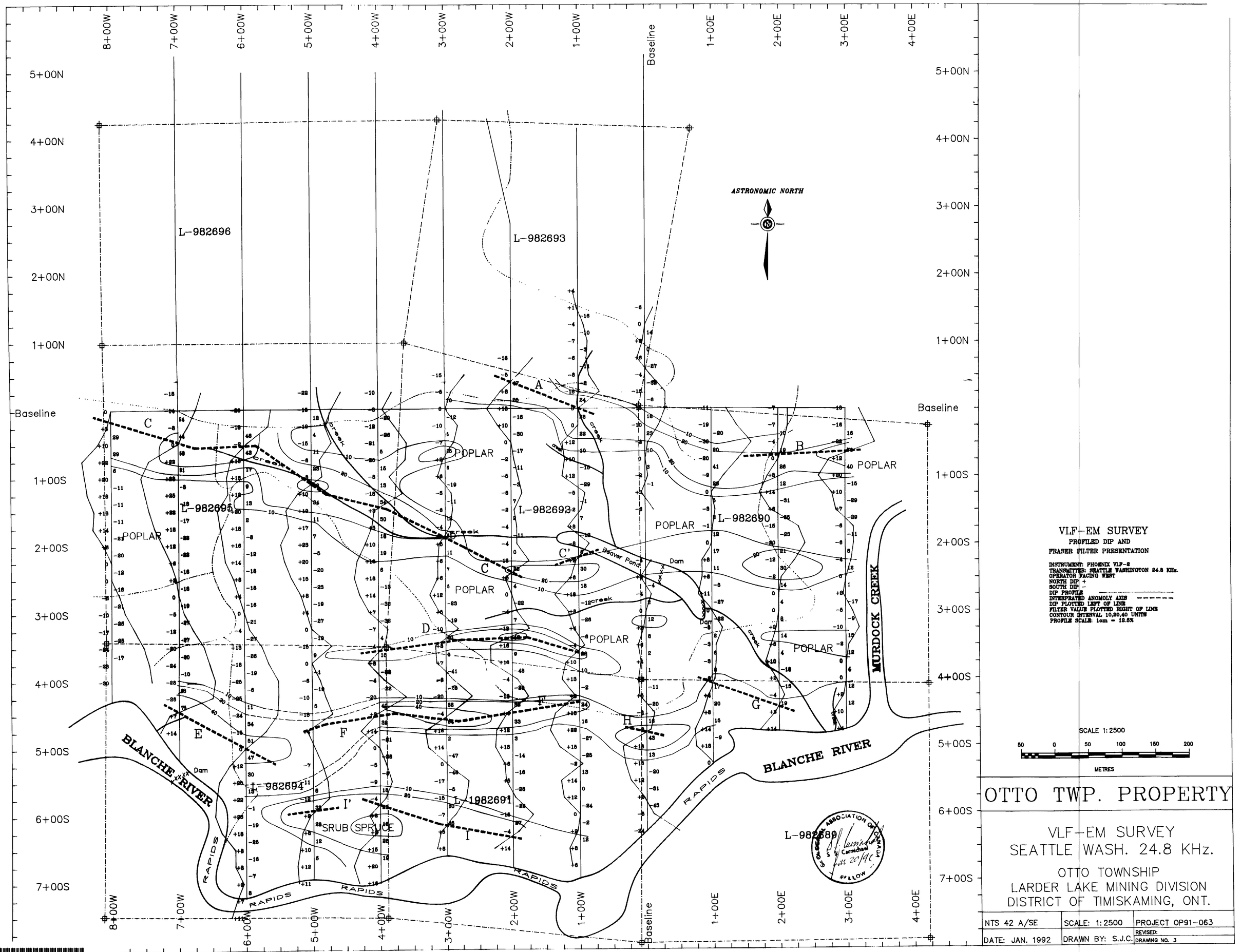
OTTO TWP. PROPERTY

VLF-EM SURVEY
ANNAPOLIS, MARYLAND
21.4 KHz.

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 4

42A015E0052 OP91-063 OTTO



VLF-EM SURVEY
PROFILED DIP AND
FRASER FILTER PRESENTATION

INSTRUMENT: PHOENIX VLF-2
TRANSMITTER: SEATTLE WASHINGTON 24.8 KHz.
OPERATOR FACING WEST
NORTH DIP +
SOUTH DIP -
DIP PROFILE
INTERPRETED ANOMOLY AXIS
DIP PLOTTED LEFT OF LINE
FILTER VALUE PLOTTED RIGHT OF LINE
CONTOUR INTERVAL 10,20,40 UNITS
PROFILE SCALE: 1cm = 12.5%

SCALE 1:2500

50 0 50 100 150 200

METRES

OTTO TWP. PROPERTY

VLF-EM SURVEY
SEATTLE WASH. 24.8 KHz.

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING No. 3

42A01SE0052 OP91-063 OTTO

8+00W 7+00W 6+00W 5+00W 4+00W 3+00W 2+00W 1+00W Baseline 1+00E 2+00E 3+00E 4+00E

5+00N 4+00N 3+00N 2+00N 1+00N Baseline 1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S

L-982696

L-982693

L-982695

L-982692

L-982690

L-982694

L-1982691

L-982689

ASTRONOMIC NORTH

POPLAR

creek

Beaver Pond

Dam

MURDOCK CREEK

BLANCHE RIVER

RAPIDS

SRUB SPRUCE

GEOLOGICAL ASSOCIATION OF CANADA
S. J. Carmichael
FELLOW

LEGEND

2,000+ Gamma Contour Interval

1,800 Gamma Contour Interval

1,600 Gamma Contour Interval

1,400 Gamma Contour Interval

Magnetic Low

Contour Interval = 200 Gammas

Base Station – Line 0+00, 0+00
Set to 58,420 Gammas

57,000 Gammas Removed From All Stations

SCALE 1:2500

50 0 50 100 150 200

METRES

OTTO TWP. PROPERTY

MAGNETOMETER SURVEY

OTTO TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONT.

NTS 42 A/SE	SCALE: 1:2500	PROJECT OP91-063
DATE: JAN. 1992	DRAWN BY: S.J.C.	REVISED: DRAWING NO. 2

42A01SE0052 OP91-063 OTTO