

ASSESSMENT WORK REPORT

CLAIM L 4282146

Township of Lorrain

Larder Lake Mining Division

Claim Holder - Brian Anthony (Tony) Bishop client #108621

Report prepared and submitted by Tony Bishop

November 27, 2017

Table of Contents

• Assessment Report for Claims 4282146, Township of Lorrain, Larder Lake Mining Division	
○ Intro	Page 3
○ Purpose	Page 3
○ Access	Page 3
○ Previous Work	Page 3
○ Geology	Page 3
○ Fieldwork: Traverse 1, Fieldwork, Map, & Field Notes	Page 4
• Results & Microscope Photos of KIMs	Page 7
• Conclusions/Recommendations	Page 10
• Expenses	Page 11
• Appendices	
○ History of Development in the Cobalt Area, Appendix 1	Page 12
○ Map Overview, Appendix 2	Page 13
▪ Map 1, Claim Location	Page 14
▪ Map 2, Road Access	Page 15
▪ Map 3, Geological Compilation (portion of OGS P.3581)	Page 16
▪ Map 4, Mag Map (portion of OGS Map 82 067)	Page 17
▪ Map 5, Ice Flow Movement (from OGS OFR 6088)	Page 18
▪ Map 6, Local Glacial Flow Direction	Page 19
▪ Map 7, Lake Temiskaming Structural Zone (from OGS OFR 6088)	Page 20
▪ Map 8, Detailed Local Faults	Page 21
▪ Map 9, Down-ice glacial direction – tilted view (Google Earth)	Page 22
▪ Map 10, Straight-down view (Google Earth)	Page 22
○ Geoscience Labs – Invoice, Appendix 3	Page 23
○ Advances in Diamond Exploration in Canada: Understanding the Importance of Non-Magnetic Signatures and Geo-Chemical and Structural Geology, Appendix 4	Page 24
○ Methodologies for Field Work and Till Sample Processing, Appendix 5	Page 24
○ Sluice Efficiency Test Results, Appendix 6	Page 24
○ Flow Sheet for Concentrating and Retrieving KIMs from Till and Stream Samples, Appendix 7	Page 24
○ Equipment List, Appendix 8	Page 24
○ Equipment Photos, Appendix 9	Page 24
○ Reference Photos from Arctic Star, Appendix 10	Page 24
○ Geoscience Labs – Certificates, Appendix 11	Page 24
○ Geoscience Labs – Results, Appendix 12	Page 24
• Statement of Qualifications	Page 25
• References & Resources	Page 26
• Acknowledgements	Page 27

ASSESSMENT REPORT FOR CLAIM 4282146, Township of Lorrain, LARDER LAKE MINING DIVISION

Prepared by Brian A. (Tony) Bishop, submitted November 27, 2017

INTRO:

Hereby submitted by Brian Anthony (Tony) Bishop [Client No. 108621, 100% holder on record], on November 27, 2017, an assessment report for Claim no. L 4282146. This Claim is comprised of 2 units, situated in NE¼ of Lot 1 Con 6 and NW¼ of Lot 2 Con 6, of Lorrain Township, Larder Lake Mining Division [see Appendix 2: Map 1, page 14]. This report includes details of work done to date, including a reconnaissance survey and prospecting, with recommendations for further assessment.

PURPOSE:

The purpose of staking Claim L 4282146 and the goal of the assessment work done to date and included in this report is to look for evidence and test the hypothesis that the claim may contain the top of a kimberlite pipe manifested in the post-glacial topography as a circular lake. As Shigley et al (2016) state, in reference to the Diavik Mine, "Because kimberlites weather and decompose faster than much older surrounding rocks, pipes often occur in topographical depressions beneath lakes...most [pipes] are buried beneath bodies of water".

Work completed to date includes an on-foot observational examination and prospecting of the claim, a research component, carefully determined and mapped out soil sampling plans, screening, concentrating, sorting and examining potential kimberlite indicator minerals (KIMs) in collected soil samples, microphotography, and recording these and other findings. Lab analysis was also undertaken.

ACCESS:

Access to Claim no. 4282146 (Criostal Lake) can be made from the town of Cobalt.

Cobalt is reached from Highway 11 via Highway 11B. Claim no. 4282146 is situated approximately 8 km south-southeast of the town of Cobalt. From Cobalt, Coleman Road can be taken to the juncture of Silverfields Road (aka. Hound Chute Road) and Glenn Lake Road, situated between Cart Lake and Peterson Lake. Glenn Lake Road leads to Kerr Lake, where it becomes the Beaver Temisk Road (aka. the Cobalt-Brady Lake Road). This road passes Brady Lake and reaches the old Ophir Mine site, approximately 7 km south of Cobalt. The next kilometer of road access is on a very old, boulder strewn, and heavily overgrown road, suitable for an ATV or a carefully driven small 4-wheel drive truck. The road from the Ophir Mine site to Silver Lake is fairly open, but becomes more overgrown south of Silver Lake. Approximately 0.5km south of Silver Lake there is an intersection in the road; the west fork leads to Mary Ann Lake, the middle fork continues southward, while the eastern fork leads to the general area of claim no. 4282146. The eastern fork is not suitable for most motor vehicles. You will have to park the truck at this fork [UTM GPS: 0603127E, 5243081N] and continue on foot to claim no. 4282146.

PREVIOUS WORK and significance to Claim 4282146:

Except for possible early exploration during the great silver rush of the early 1900s, no direct work on this claim can be located from research at the Kirkland Lake Mines office.

GEOLOGY:

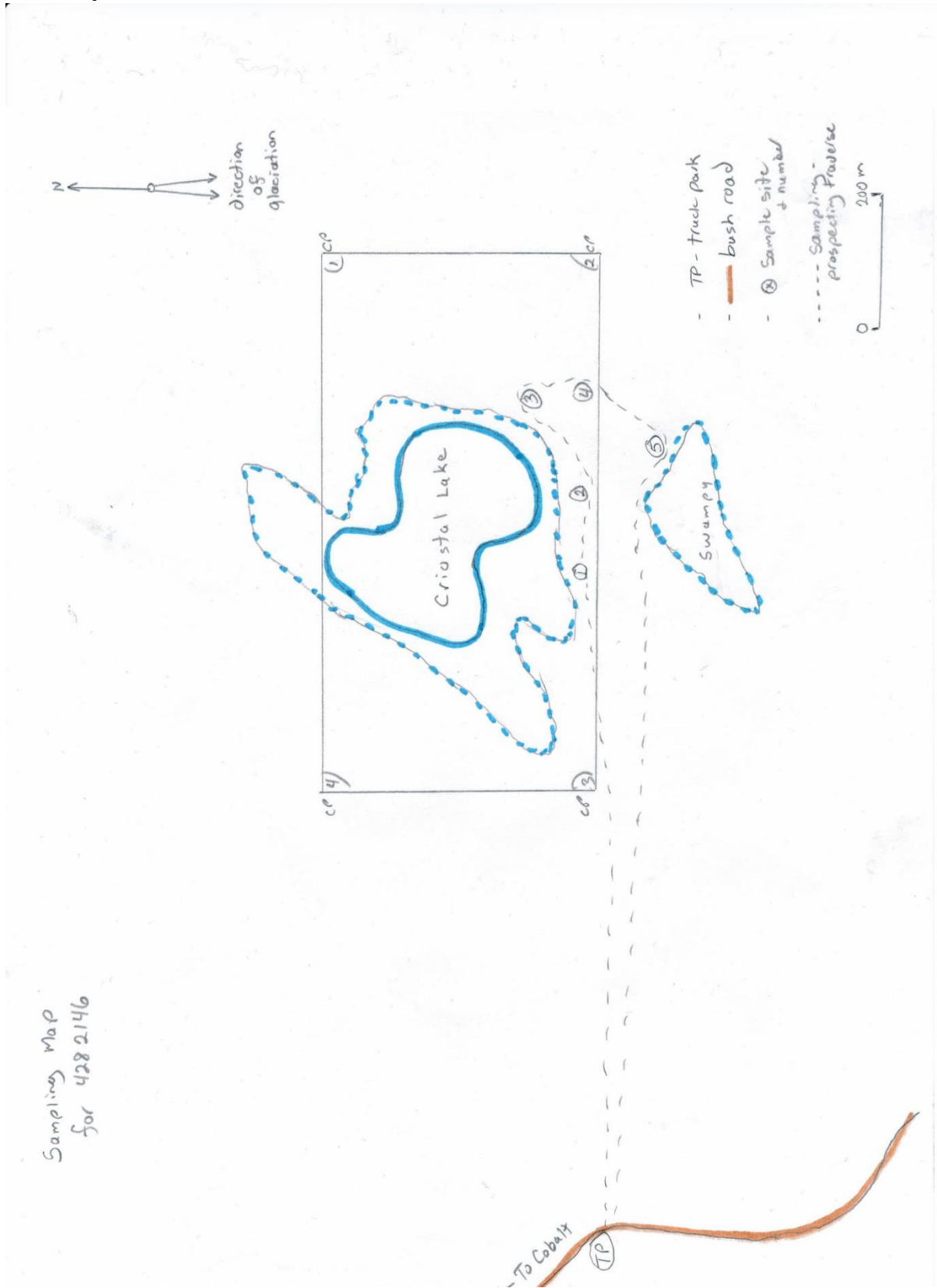
The east side of the claim, including $\frac{2}{3}$ of the lake, is underlain by Lorrain granite, which contacts diabase (bottom of sills) in the northwest $\frac{1}{4}$ of the claim with a small patch of Coleman Formation – arkose in the southwest. The Cross Lake Fault is ~400m from #1 post. There is a possibility that a cross fault that follows the Schumann Lake Diabase Arch goes through or very close to the claim.

FIELDWORK:**Traverse 1: fieldwork** August 16, 2016

Brian A. (Tony) Bishop, Patrick Harrington

Patrick Harrington and I drove to Cobalt to sample and prospect Claim 4282146 (Criostal Lake). There was just the typical bush of the area, but the area below the lake is rather swampy and difficult to sample. I had prepared a preliminary sampling map based on various paper maps, Google Earth, and the Ministry of Natural Resources and Forestry.

With his experience, Patrick, of course, took advantage of overturned tree roots, etc. when sampling. I spent my time investigating rocks, boulders, etc. for kimberlite (and other mineralised rocks/outcrops). At a predetermined time ($\pm \frac{1}{2}$ hour), we met at the #3 post and returned to the truck where the samples were carefully labelled and bagged.



Traverse 1: Map

L 4282146 – Criostal Lake

Traverse 1: field notes August 16, 2016

Brian A. (Tony) Bishop, Patrick Harrington

Sample #	Coordinates 17T UTM
S1	0604107_E 5243327_N
S2	0604235_E 5243325_N
S3	0604370_E 5243413_N
S4	0604381_E 5243331_N
S5	0604289_E 5243221_N

Location #	Coordinates 17T UTM
Truck Park (TP)	0603130_E / 5243263_N
Corner post #1	0604580_E / 5243727_N
Corner post #2	0604586_E / 5243315_N
Corner post #3	0603778_E / 5243304_N
Corner post #4	0603765_E / 5243711_N

RESULTS:**Geoscience Lab Results from Sudbury:**

Of the eight grains from this claim that were analysed at Geoscience Lab in Sudbury, four were G9s. Staurolite and Feldspar were also identified.

Lab Findings – CRT-17-0279-01 & CRT-17-0107-04	Sample Label	Features	Dimensions	Target # / Claim #
G9	SG-75	Purple	0.25 x 0.5mm	T-10 4282146
G9	SG-77	Purple	0.7 x 1.0mm	T-10 4282146
G9	SG-80	Purple	0.3 x 0.5mm	T-10 4282146
G9	SG-81	Purple	0.25 x 0.4mm	T-10 4282146
Staurolite	SG-78	Purple	0.3 x 0.6mm	T-10 4282146
Staurolite	SG-79	Orange sculpted	0.7 x 1.5mm	T-10 4282146
Staurolite	SG-82	Black/Purple/Orange?	0.8 x 1.0mm	T-10 4282146
Feldspar	SG-76	Red/Orange? Heavily coated	1.0 x 2.0mm	T-10 4282146

MICROSCOPE PHOTOS OF KIMs:



1. Purple garnet in cons



2. Purple garnet (G9)



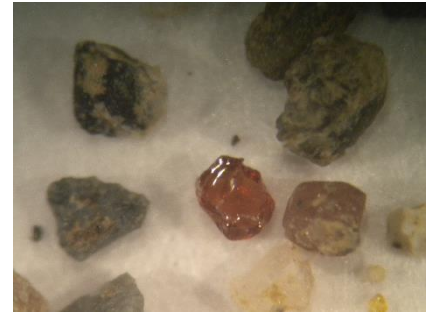
3. 0.8mm – Grain, ½ wine red, ½ green



4. 1.2mm – Orange garnet, sculpted



5. 0.6mm – Red garnet, heavy coating



6. 0.9mm – Red/orange garnet



7. 1.0mm – Wine coloured garnet



8. 0.9mm – Orange garnet



9. 0.5mm – Orange garnet



10. 2.0mm – Orange garnet (coated)



11. ~1.0mm – Cons – Cr diopside, black-red garnet, ilmenite (?), all with coating



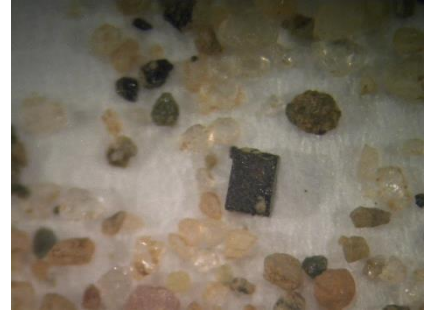
12. 0.6mm – Chromite, resorbed & elongated



13. 0.5mm – Black cube, non-magnetic, possible titanite



14. 0.4mm – Black cube, non-magnetic



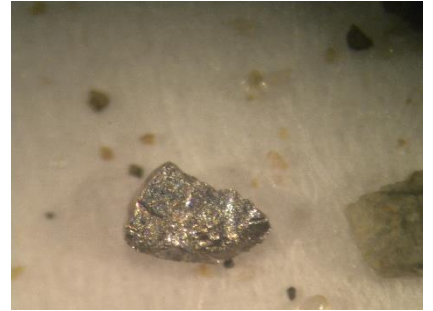
15. 0.5mm – Black cube – non-magnetic (titanite?)



16. 0.5mm – Black sulphide



17. 0.8mm – Sulphite grain



18. 1.0mm – Sulphide (bornite?)



19. 0.7mm – Orange grain



20. 0.6mm – Iridescent grain in cons



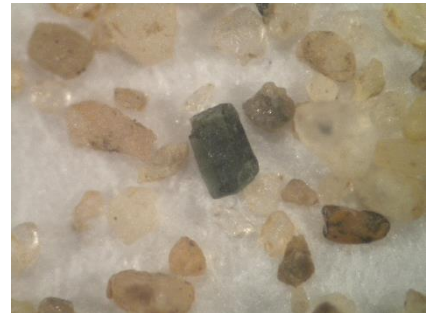
21. 1.2mm – Fractured with mica inclusions



22. 0.9mm – Transparent with green inclusion



23. Green crystal (kyanite?) in cons



24. 0.5mm – Green crystal (kyanite/tourmaline?)

CONCLUSIONS & RECOMMENDATIONS FOR FUTURE WORK:

Claim 4282146 was difficult to sample, much of the ground near to the south of the claim is wet/swampy. Patrick managed to get some decent samples which produced four G9s. Three staurolites were also found which, as referenced in Bishop (2017c), was identified as an inclusion in a diamond. Other interesting stones were not tested, but as finances allow, it would be worth doing in the future. An especially interesting grain [Results: Photo 12, page 8] is a partially resorbed, elongated chromite which is classically kimberlite. Other grains, such as Photo 7 [see Results, Photo 7, page 8], an orange (oxidised) grain I've also found in a number of samples from other targets. Five samples were taken but one is off-claim on unstaked Crown land, so cannot be applied for assessment credits, but is still valid for KIM sampling results for this lake.

This claim target is one of 18 in the Bishop Claims in a very favourable area for kimberlite/diamonds. The Cross Lake Fault is very close and numerous cross-faults are in the area.

Further research and sampling will be performed in the future, as well as a Goldspear and BFO detector surveys.

[See References & Resources, page 26, for more detailed information]

EXPENSES of Assessment Work Claim L 4282146 (Aug 16, 2016 to Nov 27, 2017)

Work Type	Units of work	Cost per unit of work	Total Cost
Prospecting/sampling/field supervision – 1 traverse	Tony Bishop: 1 day	\$500 per day	\$ 500
Field assistant traverse Aug 16, 2016	Patrick Harrington 1 day	\$285 per day	\$ 285
Till sample processing, HMC, separating into 6 mesh fractions, sorting, microscope picking and interpretation of KIMs and logging results, microphotography of select grains & KIMs picked, computer storage of microphotos, storage of picked grains & concentrates picked	Tony Bishop: 4 samples	\$500 per sample	\$2,000
Sampling plan, report preparation, map compilations, interpretations, selection & mounting of grains for EMP, consultations	Tony Bishop: 1½ days	\$500 per day	\$ 750
GeoLab EMP invoice 12021117006	EMP 8 grains	\$16.27 per grain (inc HST)	\$ 131
Clerical support for reports & technical computer support	Chloë Bishop	\$200	\$ 200
Transportation based on OPA OEC rate	1 return trip to claim 192 km	\$0.50 per km x 192 km= \$96	\$ 96
Food re 1 traverse	2 people x 1 day	\$35/day	\$ 70
TOTAL VALUE OF ASSESSMENT WORK			\$4,032

History of Development in the Cobalt Area

Before 1900, when the surveyors for the right-of-way of the Temiskaming and North Ontario (T.&N.O.) Railway worked north from North Bay past Long Lake Station [Cobalt, ON] up to Cochrane, there was limited activity in what is now Lorrain Township. Logging expeditions entered Lake Temiskaming after coming up the Ottawa River from Montreal as early as the late 1700s and some mid-to-late 1800s colonization of Lake Temiskaming on the Quebec shore. A farming community was settled in the 1880s on a bay a bit south and east of the Bishop claims in Lorrain Township, in addition to a mission of oblate Fathers, and the posts of the Northwest Company and Hudson Bay Trading Companies not far away on Lake Temiskaming. Charles Farr founded Haileybury in the late 1880s and petitioned the government for railway access to facilitate colonization of the area. A colonization road did exist which reached the southernmost part of Lake Temiskaming on the Ontario side, but was never widely used.

The first government infrastructure nearest the claim was the building of the T. & N.O. railway which passed to the west, reaching Cobalt, Ontario in 1903-1904, where a silver and cobalt-nickel arsenide deposit was discovered. The mining boom which followed the discovery of silver at Cobalt often dominated the geological interest in the area for many decades, and although prospectors and geologists closely explored the terrain all around Cobalt (leading to the settling of Silver Centre south of these claims in 1907-08), most of the exploration was guided by the search for more silver and cobalt-nickel arsenide deposits.

In the 1980s, there was renewed interest in the geology of the area, this time in search of diamond-bearing kimberlite pipes, stimulated in part by the discovery of an 800-carat yellow diamond by a settler “somewhere in the Cobalt area” in 1904 (which was sent out and cut into a number of stones by Tiffany’s of New York, and some are still to this day retained and treasured by great-granddaughters), but became overshadowed by the vastly rich silver discoveries of the day. Soil sampling and geophysics by companies like Cabo, Tres-Or Resources Ltd., and others in addition to exploration by the Ontario Geological Survey, uncovered many kimberlite pipes/dykes, some diamondiferous, which helped to outline the existence of a Lake Temiskaming Kimberlite Field on the Lake Temiskaming structural zone, which appears to have intruded the Canadian Shield in this region approximately 148 million years before present. Deep sonar has also revealed circular features beneath the water of Lake Temiskaming itself which are inferred to be kimberlite pipes.

As well, a number of diamondiferous lamprophyres have been discovered near Cobalt, including one just NW of Latour Lake in the south part of Lorrain Twp, and another on the “Nip” Hill in Cobalt, as well as others.

Map Appendix Overview

MAP 1: Claim Location

MAP 2: Road Access

MAP 3: Geological Compilation (portion of OGS P.3581)

MAP 4: Mag Map (portion of OGS Map 82 067)

MAP 5: Ice Flow Movement (from OGS OFR 6088)

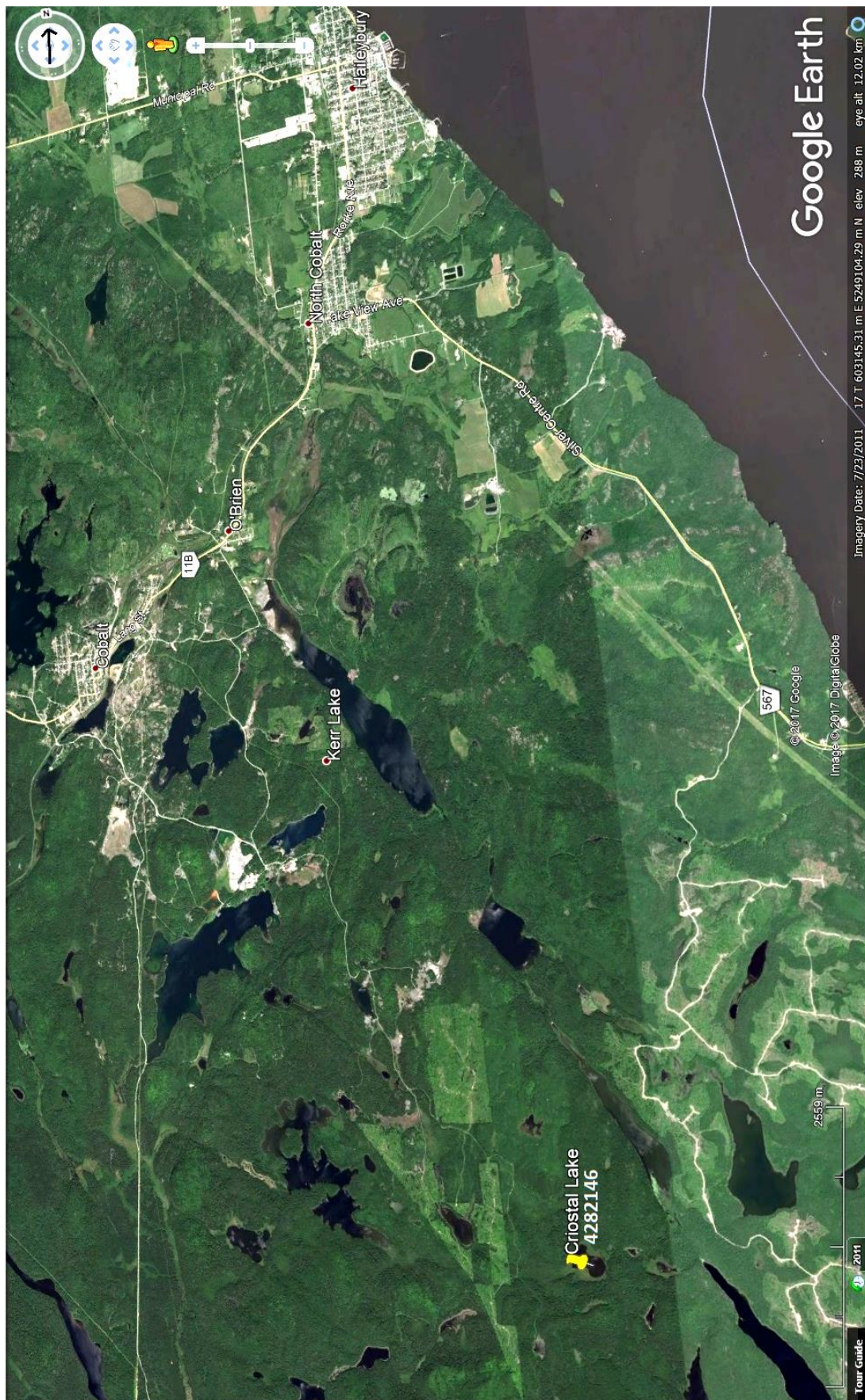
MAP 6: Local Glacial Flow Direction

MAP 7: Lake Temiskaming Structural Zone (from OGS OFR 6088)

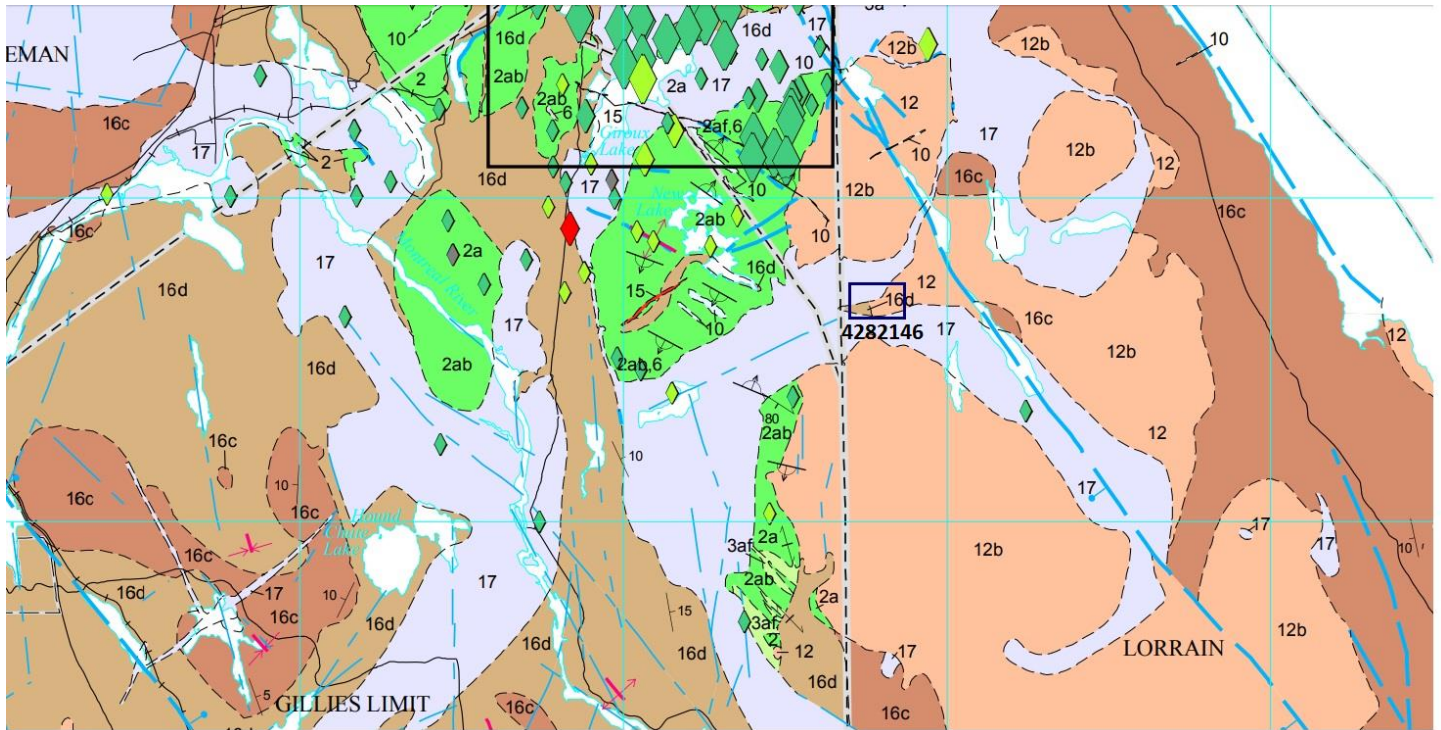
Map 8: Detailed Local Faults

Map 9: Down-ice glacial direction – tilted view (Google Earth)

Map 10: Straight-down view of Criostal Lake (Google Earth)



Map 2



Claim #428 2146

Scale 1:100 000



LEGEND^{abcd}

PRECAMBRIAN

PROTEROZOIC

NIPISSING

17 Mafic Intrusive Rocks: diabase, granophyre

HURONIAN SUPERGROUP

- 16 Sedimentary Rocks
 - 16a Bar River Formation^o
 - 16b Gordon Lake Formation^o
 - 16c Lorrain Formation
 - 16d Gowanda Formation
 - 16f Mississagi Formation

ARCHEAN

NEOARCHEAN

12 Felsic to Intermediate Intrusive Suite
 12a Tonalite, granodiorite, trondhjemite
 12b Granite, quartz monzodiorite, quartz diorite
 12c Schistose textured

INTRUSIVE CONTACT

8 Timiskaming-Type Clastic Metasedimentary Rocks
 8a Arenite
 8b Wacke
 8c Conglomerate
 8d Mudstone, siltstone
 8e Schistose textured

UNCONFORMITY

6 Clastic Metasedimentary Rocks
 6a Arenite
 6b Wacke
 6c Conglomerate
 6d Mudstone, siltstone
 6f Schistose textured

2 Mafic (to Intermediate) Metavolcanic Rocks/Intrusions
 2a Massive flows
 2b Pillowed flows

Map Portion courtesy of



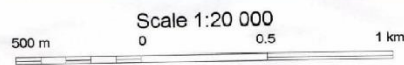
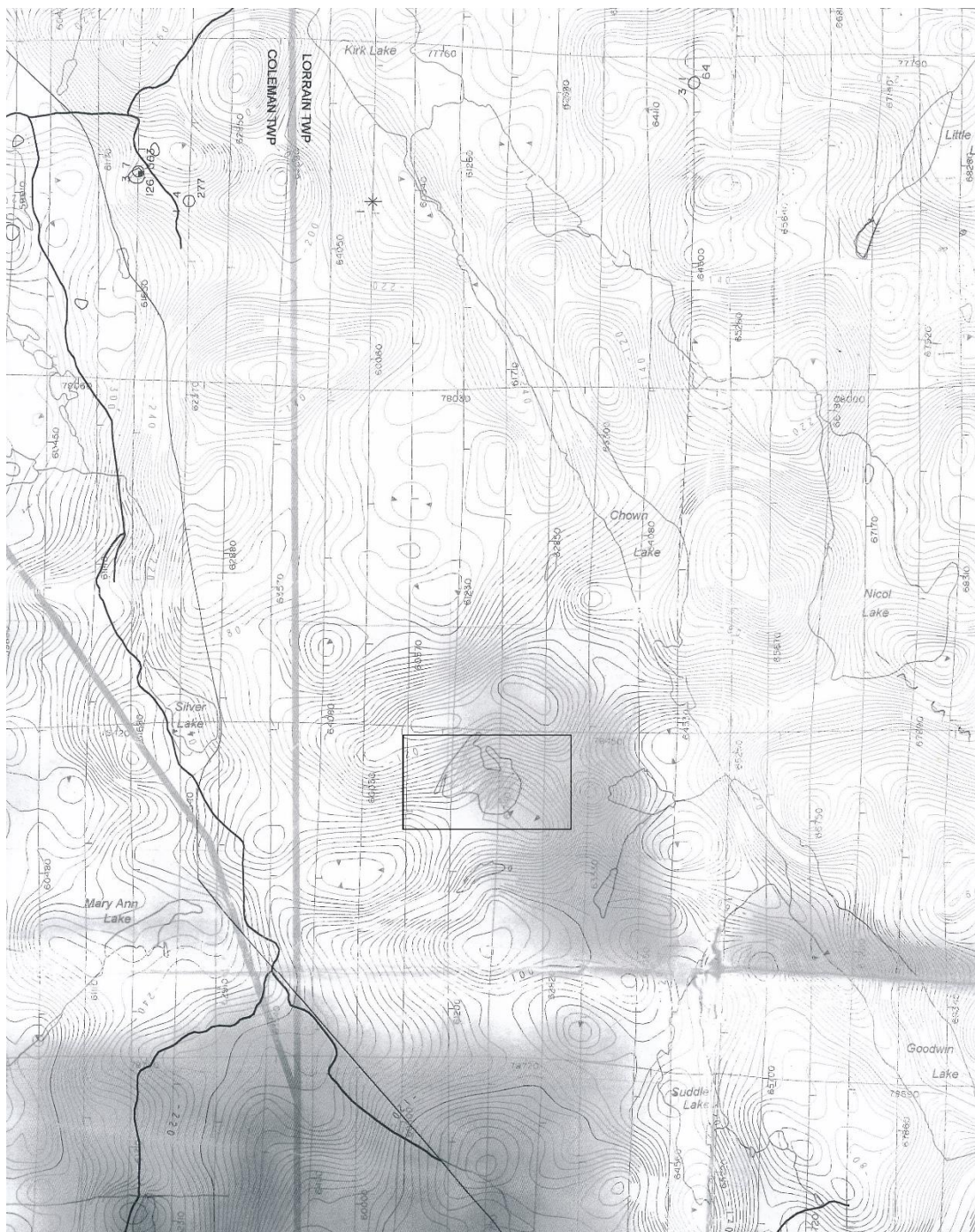
Ontario Geological Survey

MAP P.3581

PRECAMBRIAN GEOLOGY

GEOLOGICAL COMPILATION
 OF THE COBALT-
 TEMAGAMI AREA,
 ABITIBI GREENSTONE BELT

Map 3



Scale 1:20 000

Map Portion courtesy of



Ontario Geological Survey

MAP 82 067

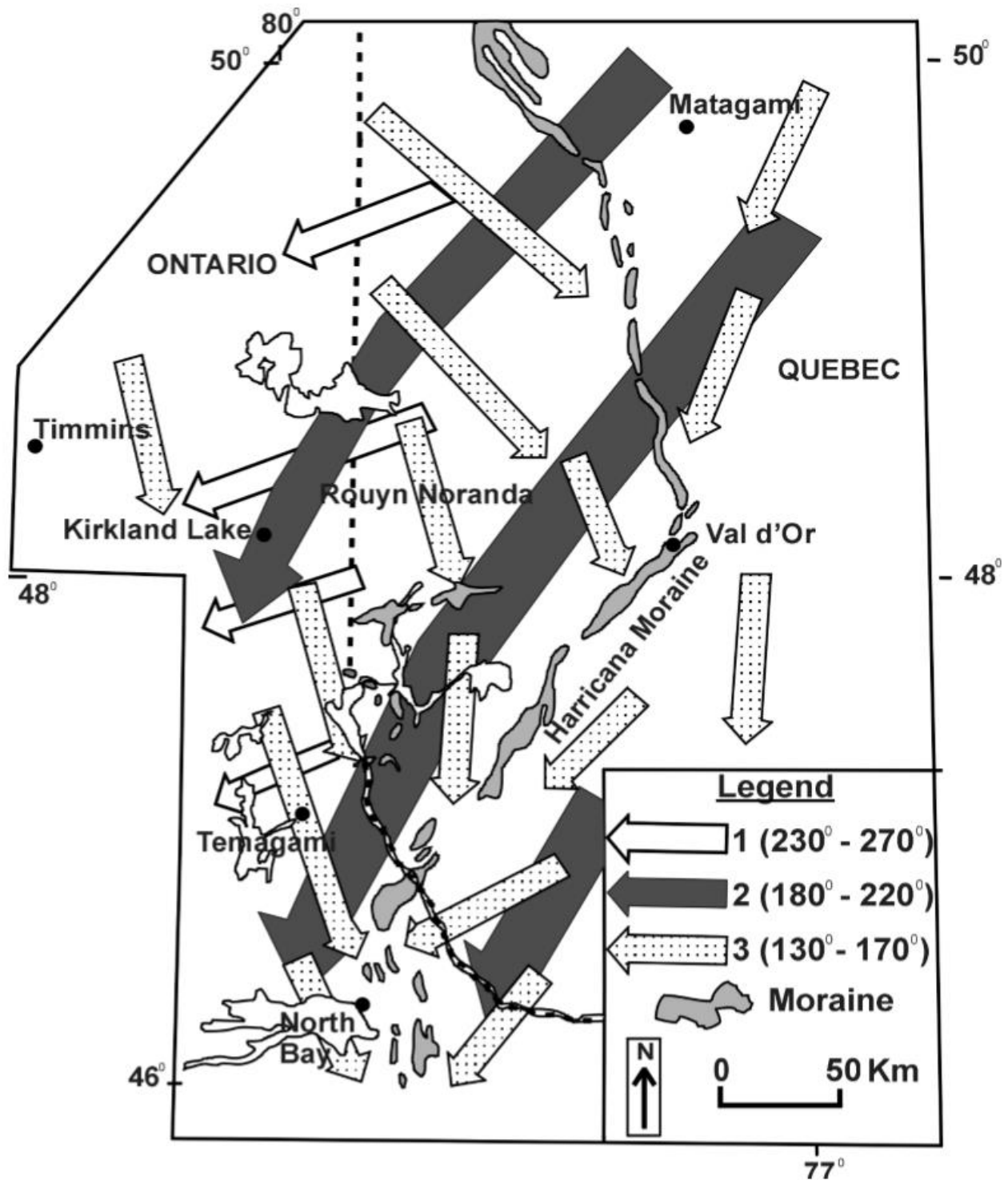
AIRBORNE MAGNETIC AND
ELECTROMAGNETIC SURVEYS

TEMAGAMI AREA

Claim #428 2146

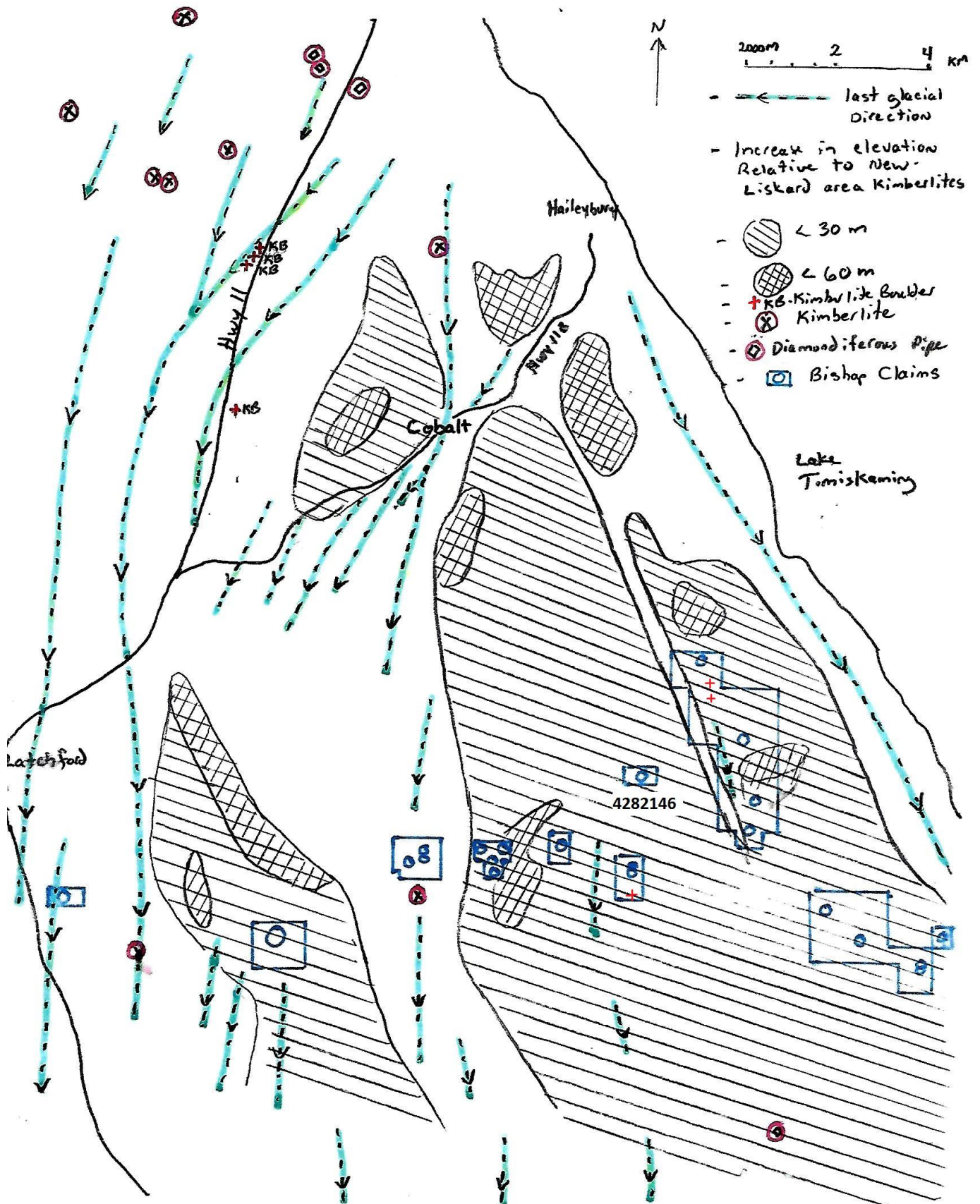


Map 4

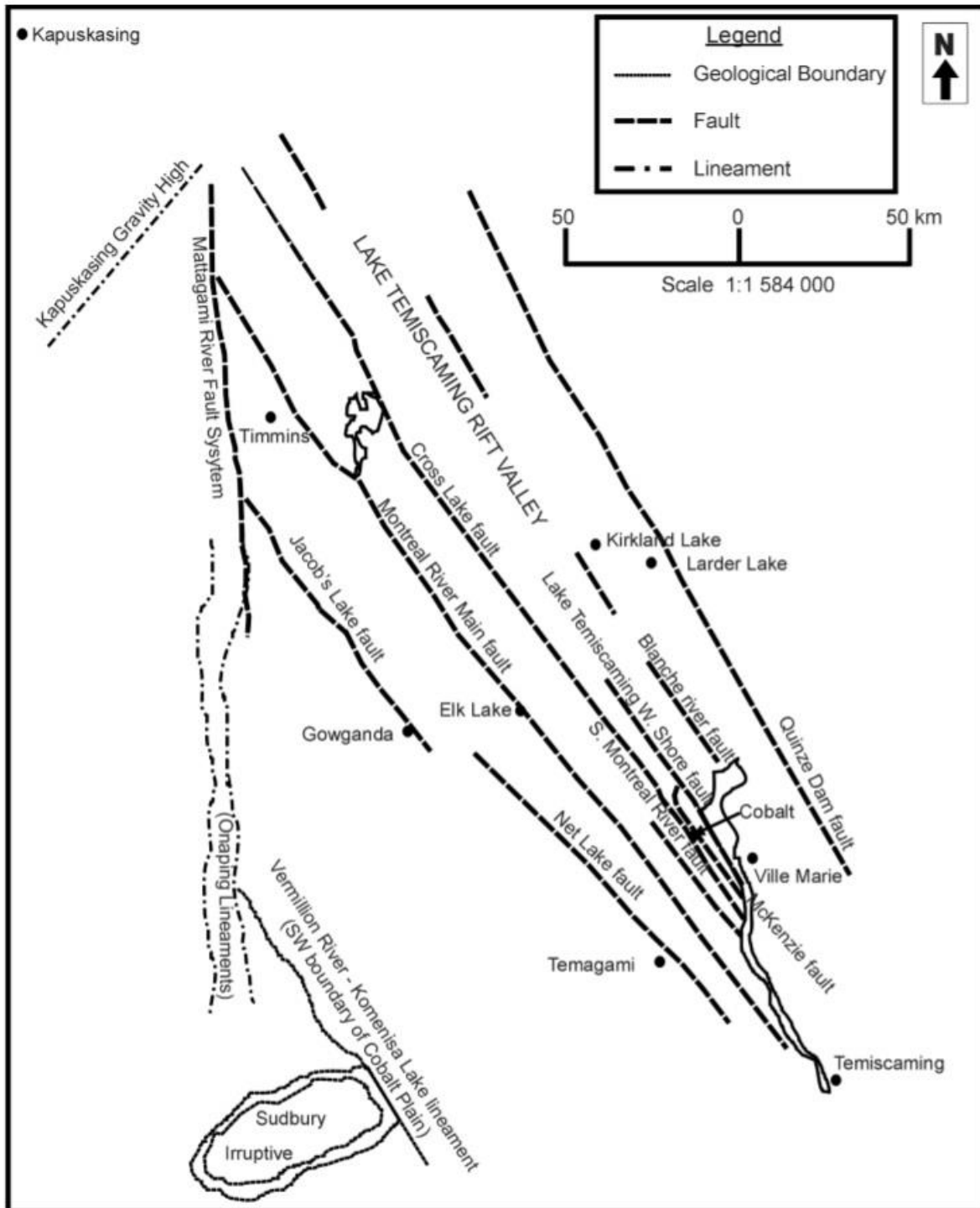


Ice flow movement in the Abitibi-Temiskaming area. The oldest ice flow event is the number 1 movement, the youngest the number 3 movement (after Veillette 1986).

Used courtesy of
Ontario Geological Survey
Open File Report 6088

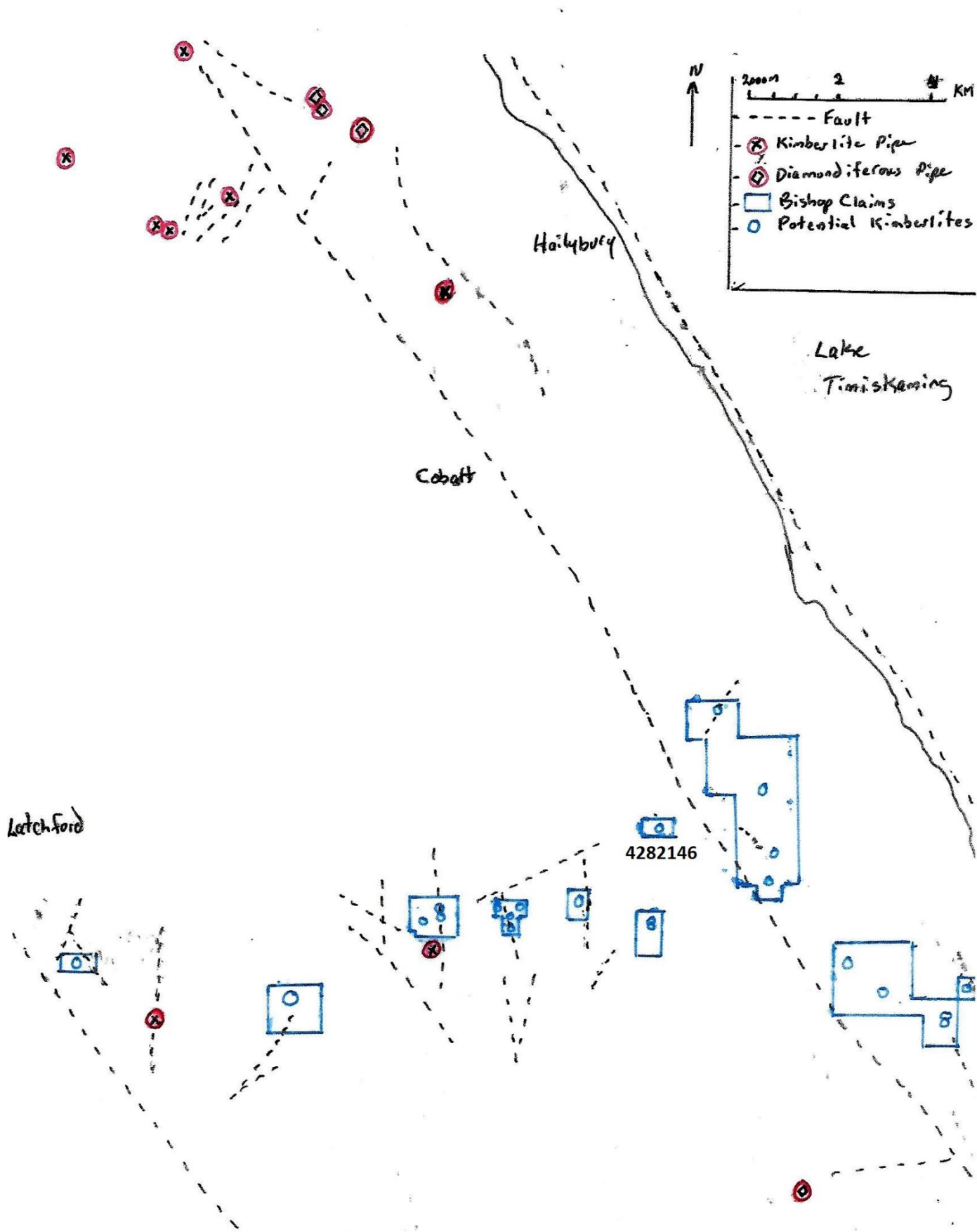


Map 6

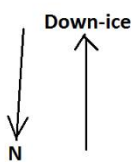
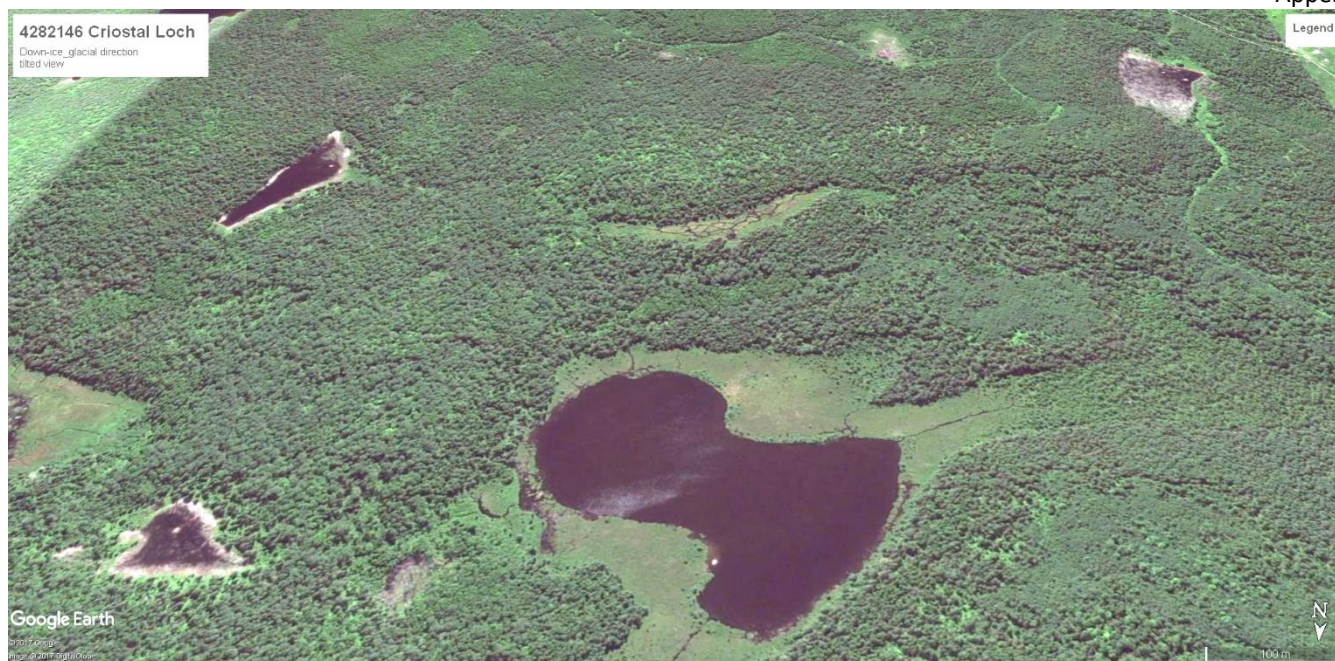


The Lake Temiskaming Rift Valley (also known as the Lake Temiskaming Structural Zone) (after Lovell and Caine 1970).

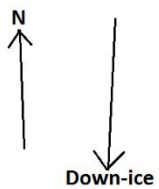
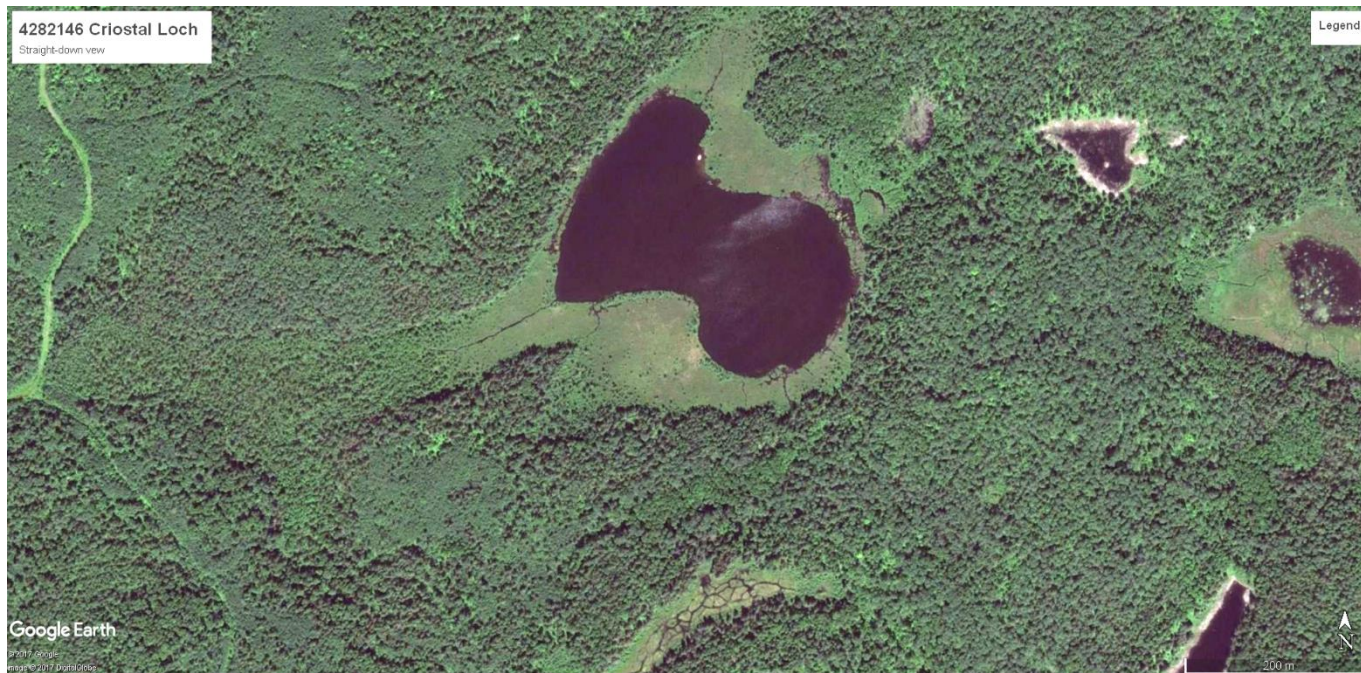
Used courtesy of
Ontario Geological Survey
Open File Report 6088



Map 8



Map 9



Map 10

Geoscience Labs – Invoice



GEO LABS
GEOSCIENCE LABORATORIES

Invoice Summary

Geo Labs Job #: 17-0107 / 17-0279
 Sample Submission Date: 06/06/2017 / 14/09/2017
 PO/Work Order #:
 Quote #:
 IFIS Client #:

Invoice To:
 David Crouch

Data Report To:
 Tony Bishop

Quantity	Method Code	Description	Unit Price	Total
52	EMP-100	Microprobe Analysis / Grain <i>Job #17-0107</i>	\$14.40	\$748.80
2	SEM-101	SEM: Rental With Operator <i>Job #17-0107</i>	\$148.75	\$297.50
43	EMP-100	Microprobe Analysis / Grain <i>Job #17-0279</i>	\$14.40	\$619.20
			Subtotal	\$1,665.50
			HST	\$216.52
			Balance Due	\$1,882.02

For payment inquiries please contact the Financial Processing Operations Branch (FPOB) of Ontario Shared Services (OSS) accounts receivable customer service support centre at **(877) 535-0554**.

For billing inquiries please contact the Geoscience Laboratories at **(705) 670-5637** or geoscience.labs.ndm@ontario.ca.

In the interest of brevity, this report does not include the following. Please refer to Bishop, B.A. (2016), Bishop B.A. (2017a), Bishop B.A. (2017b), and Bishop, B.A. (2017c) for more detailed information pertaining to these appendices.

- **Appendix 4, Advances in Diamond Exploration in Canada: Understanding the Importance of Non-Magnetic Signatures and Geo-Chemical and Structural Geology**
- **Appendix 5, Methodologies for Field Work and Till Sample Processing**
- **Appendix 6, Sluice Efficiency Test Results**
- **Appendix 7, Flow Sheet for Concentrating and Retrieving KIMs from Till & Stream Samples**
- **Appendix 8, Equipment List**
- **Appendix 9, Equipment Photos**
- **Appendix 10, Reference Photos to Arctic Star and North Arrow Announce Drilling at Redemption Diamond Project**
- **Appendix 11, Geoscience Labs – Certificates**
- **Appendix 12, Geoscience Labs – Results**

Statement of Qualifications:

I, Brian Anthony (Tony) Bishop p/l #A44063 of Kenogami (RR#2 Swastika, ON), hereby certify as follows concerning my report on Claim L 4282146 in the Township of Lorrain, Larder Lake Mining Division:

I have been prospecting and placer mining part-time for 43+ years in Ontario, British Columbia, and Nova Scotia (which led to writing a book *The Gold Hunter's Guide to Nova Scotia* (Nimbus Publishing, 1988, ISBN 0-920852-93-9) which was used in prospecting courses in Nova Scotia). I have held an Ontario Prospector's License for 36 years, and was issued a Permanent Prospector's License in 2005. I have completed a number of prospecting courses given by the Ministry, and have my Prospector's Blasting Permit. I was one of the directors on the Northern Prospectors Association (NPA) in the early years when Mike Leahy revitalized/resurrected the NPA in Kirkland Lake, and with Mike, initiated the annual gold panning event as part of Kirkland Lake Gold Days.

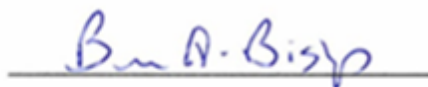
As well, I sold and used small scale mining and concentrating/processing equipment for over 20 years. This included instructing others in their use.

On short term contracts I have performed specialized work for Cobatec, Macassa, Castle Silver Mines Inc., Gold Bullion Development Corp, as well as short stints in Ecuador and Montana.

The last three years I have devoted to full-time diamond exploration. This has included 1,000+ hours of research from many diverse sources on exploration and processing techniques.

Drawing on this research and my many years of practical experience I have assembled a complete till processing lab I feel rivals many commercial ones. Importantly, I sometimes exceed their results by testing a wider range of samples' fraction sizes and as a result have found a number of kimberlite indicator minerals, notably a number of indicators in the 2.0 – 3.0 mm size that are larger than the usual upper cut-off for commercial labs' mesh sizes. Additionally, I pick far more potential KIMs than any lab can reasonably do, given time/cost constraints. Redundancy tests are routinely performed to monitor potential losses of the KIMs and I feel my equipment and techniques closely match that of the industry.

Signed:

A handwritten signature in blue ink that reads "Brian A. Bishop". The signature is written in a cursive style and is positioned above a horizontal line.

Brian Anthony (Tony) Bishop

November 27, 2017

References & Resources:

Please refer to the following reports by Brian Anthony Bishop for full reference & resource list:

Bishop, B.A. (2016) Work Assessment Report, Claim L4273040, Lorrain Township, Larder Lake Mining Division, MNDM, Oct 3, 2016

Bishop, B.A. (2017a) Work Assessment Report, Claim L4284088, Gillies Limit, Larder Lake Mining Division, MNDM, Jan 26, 2017

Bishop, B.A. (2017b) Work Assessment Report, Claims L4282189 and L4282187, Lorrain Township, Larder Lake Mining Division, MNDM, Nov 2, 2017

Bishop, B.A. (2017c) Work Assessment Report, Claim L4282172, Gillies Limit, Larder Lake Mining Division, MNDM, Nov 27, 2017

Acknowledgements

To the following individuals (alphabetically listed) who provided geological, technical, historical, and other important help relating to Claim L 4282146: Chloë Bishop, Graeme Bishop, Jesse Bishop, Shelley Bishop, Dave Crabtree, David Crouch, Geoscience Labs (Sudbury), Mike Leahy, Doug Robinson, and the staff of the K.L. MNDM.

Appreciation is expressed also to staff at MNDM Sudbury for their assistance with completing MNDM forms and procedures.

Thank you.